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Medicare, Medicaid and the health status of individuals in Washington State, USA

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MEDICARE, MEDICAID AND THE HEALTH STATUS OF INDIVIDUALS IN
WASHINGTON STATE, USA

A Thesis

Presented To

Eastern Washington University

Cheney, Washington

In Partial Fulfillment of the Requirements

for the Degree

Master of Business Administration

By

Ngoc (Lisa) K. Nguyen

Spring 2013

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MASTER'S THESIS

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ABSTRACT

This paper investigated the effect of having Medicare and Medicaid coverage upon the health status of individuals in Washington, United States. A representative data set of more than 3,000 individuals from the state of Washington was utilized to address this relationship. The findings showed that the type of insurance coverage plays an important role in explaining the health status of individuals in the Washington. The results suggested that having Medicare and Medicaid coverage are positively associated with higher health status for individuals in Washington. Those individuals with Medicare and Medicaid coverage tend to be having better health status than those uninsured individuals and those with private or public insurance coverage.

Keywords

Health status, Medicaid, Medicare, poverty, public insurance, private insurance, uninsured, welfare.

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The research has been conducted for review by the members of the Masters of Business Administration Committee in compliance with Eastern Washington University's Masters of Business Administration requirements.

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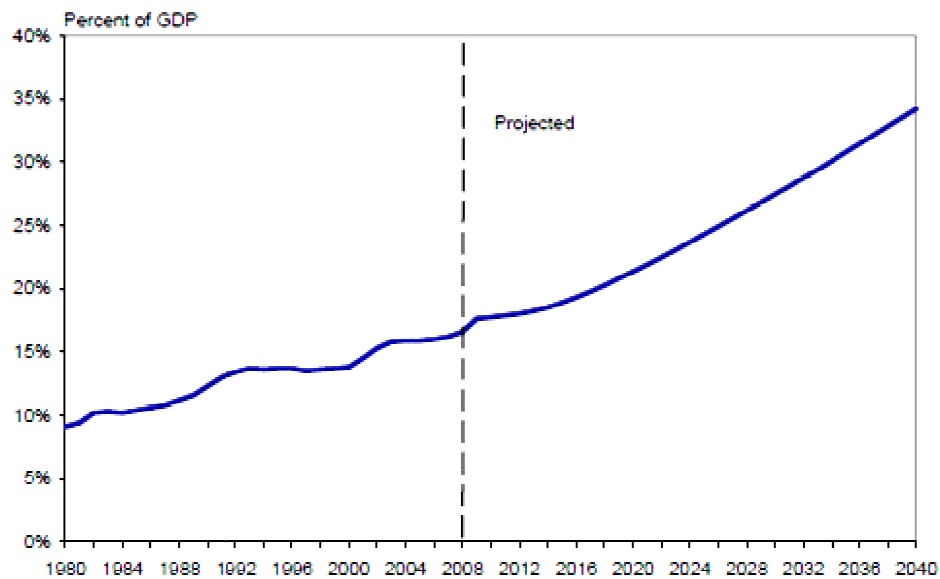
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I. INTRODUCTION

The current economic downturn, followed by rapidly increasing unemployment rates nationwide during the past few years, have resulted in unprecedented amounts of government spending on federal programs aimed at helping low-income and needy populations in the United States. There has been a significant increase in the number of United States population utilizing Food Stamps or TANF, Medicare, and Medicaid programs (Pikauskas, 2012).

The amount of healthcare spending in the United States has been increasing at a rapid rate since the economic recession (Pikauska, 2012). Figure 1 below illustrated the growth rate of healthcare expenditures as a percentage of Gross Domestic Product (GDP) level (CMS, 2012).

Figure 1: National Health Expenditures as a Share of GDP, 1980 - 2040

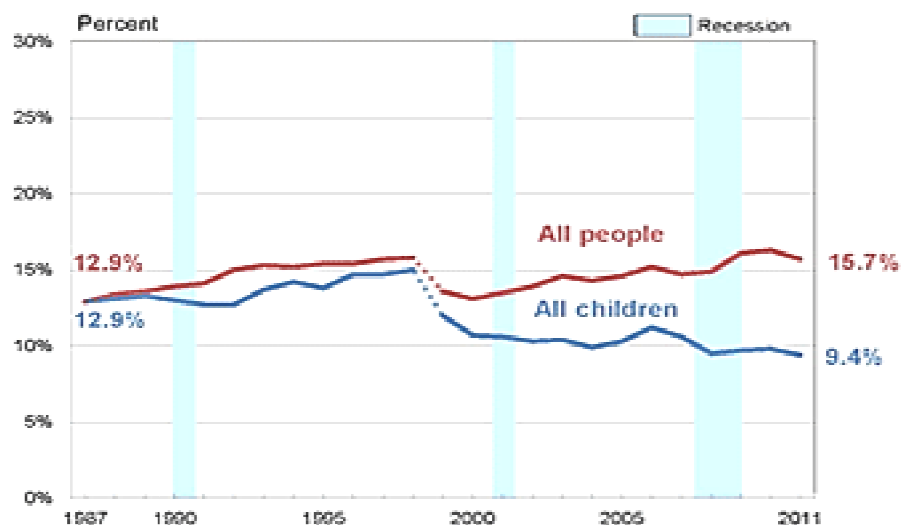


Source: CMS, 2012

The Medicare and Medicaid programs are two federal programs that have been providing medical and health-related services to low-income and underserved populations in the United States. Both programs currently serve more than 80 million people in the United States. In 2010, the Medicaid program provided support for approximately 52 million people; this was about one-sixth of the population in the United States. Medicare and Medicaid are one of the major health care expenditures in the United States federal government with approximately \$389 billion for Medicaid and \$500 million for Medicare spending, accounting for more than 21 percent of the national health care spending, on a yearly average (Kaiser Family Foundation, 2010).

Since the recession, many people in the United States have lost jobs, different sources of income, as well as medical insurance coverage (Pikauska, 2012). An illustration regarding the changes in the number of uninsured individuals in the United States is illustrated in Figure 2 below.

Figure 2: People without Health Insurance Coverage: 1987 to 2011



Source: U.S. Census Bureau, 2012

On the other hand, the rate of Medicaid dropout cases has increased throughout the last few years, leading to lower health outcomes among these individuals. Many uninsured adults received less access to health care and ultimately experienced worse health outcomes (Long et al, 2005; Hadley, 2002; Sommers, 2008; Weissman et al, 1991). Several research studies also found that those with Medicare, Medicaid or private health insurance were associated with better health outcomes than those uninsured individuals (Long et al, 2005; Sommers, 2008; Weissman et al, 1991). Hence, understanding how the types of coverage affect health outcomes has interesting implications for policymakers. For example, with new health care legislation, such as the Affordable Care Act, it is worth asking whether there are significant differences between public and private health insurance plans in terms of health outcomes.

There have been a limited number of research studies focused on the relationship between health outcomes and the types of insurance coverage obtained by individuals, especially those who have Medicare and Medicaid, for the state of Washington. Many research studies, such as Long et al (2005) and Sommers (2008), focused on comparing the health outcomes of the insured and uninsured based on nationwide population statistics, but not specifically on individual states. This research study aimed to fill this gap. The purpose of this study is to evaluate the effect of having Medicare and Medicaid coverage upon the health status of individuals in the state of Washington, United States.

This study first focused on exploring existing literature to gain insights and detailed information about health insurance programs, Medicare and Medicaid, and other related literature regarding health care coverage and the health status of individuals. The second section presented the methodology of how this study was carried out in order to

fulfill the research objectives. This study had three objectives. The first objective was To determine whether the type of health insurance coverage (or lack thereof) is associated with the health status of individuals when controlling for other factors affecting health status. The second objective was to determine the association between having Medicare versus Medicaid on the health status of the individuals in Washington, especially for the subgroups of (1) younger than 65 and (2) over 65 years of age. The third objective was to compare the differences between these associations of Medicare and Medicaid, versus private insurance upon the health status of individuals in Washington. In subsequent sections, the results and conclusion were presented.

II. LITERATURE REVIEW

A careful review of the literature was conducted to further understand the characteristics and relationships between Medicare, Medicaid, other health insurance coverage, and the health status of the population.

Introduction to Medicare

Medicare is a federal program that has been providing health insurance coverage for nearly all Americans age 65 and over. Approximately 99 percent of people age 65 or above qualify for Medicare. The health insurance program also covers those who are under age of 65 with certain disabilities and people of all ages with End-Stage Renal Diseases. To be eligible for Medicare at age 65, one must have been a legal resident for at least five years, and have paid or had a spouse who has paid Medicare taxes for at least ten years (CMS, 2012).

There are four types of Medicare coverage: part A, part B, part C and part D Medicare coverage. Part A provides hospital insurance coverage; there is no monthly

premium for people who have paid Medicare taxes for ten years. Part B provides outpatient coverage; beneficiaries must pay a monthly premium and reach a deductible amount before Part B benefits start. The deductible amount in the year of 2012 was \$140 before the beneficiary can receive coverage benefits. Part C Medicare coverage is offered by a private company that signed a contract with Medicare to provide part A and B benefits. Part D Medicare coverage, introduced in 2006, provides prescription drug coverage for people eligible for Part A or Part B, or both (CMS, 2012).

Many Americans lack health coverage prior to reaching Medicare eligibility, or have coverage which requires them to pay larger out-of-pocket shares for some services compared to those insured individuals. Previous research suggests that the resulting difference in out-of-pocket costs for people just before or after reaching the age of 65 results in different utilization patterns. Out-of-pocket costs may affect the decision of patients to not seek health care, particularly routine checkups and preventive procedures like colonoscopies and mammograms. Due to the lack of services and health care utilization rates, the self-reported health status of individuals also differs (Sommers, 2008).

Beck (2012) examined the effects of Medicare eligibility on several measures of utilization and self-reported health. The data from the Behavioral Risk Factor Surveillance System over the period of 1991 to 2010 were utilized in the study. Beck (2012) stated that estimating the effects of Medicare coverage on health outcomes is hard because seniors are different from the rest of the population among health dimensions. Also, seniors with health coverage other than standard Medicare may be dissimilar to the general senior population. The study showed that having Medicare coverage can lead to

better access and utilization of care, and also improve self-reported health status, especially for when individuals reached the age of 65.

Another study by Boyle (2008) also shows that higher spending on health care programs, such as Medicare and Medicaid, does not have a direct association with improvement in health outcomes of individuals overall. However, increased spending on Medicare and Medicaid seems to have a significant influence and improved health status for only those individuals who are 65 or older.

Introduction to Medicaid

Medicaid is another federal health insurance program that provides coverage for more than 60 million people, including parents, seniors, some children, pregnant women and those individuals with disabilities in the United States. The Affordable Care Act of 2010, which was signed on March 23, 2010, expanded health care coverage for nearly all Americans under age of 35 based on the federal poverty level (CMS, 2012). In order to be eligible for Medicaid coverage, the individual also must meet all the federal and state requirements, such as immigration status, residency status and citizenship status (CMS, 2012). Medicaid is also the only public insurance option for older immigrant adults to obtain since a large proportion of them do not have Medicare coverage. Older immigrants are one of the major beneficiary groups of Medicaid due to the criteria of receiving Medicare as an individual reached the age of 65 is to be a United States citizen (Ku, 2009a; Nam, 2008; Nam, 2011a).

Nam (2012) studied the effects of the restrictions of Medicaid eligibility upon Medicaid and health insurance coverage among the older adults, both citizens and noncitizens. Nam (2002) utilized the dataset from the Current Population Survey (CPS).

The older adult sample, age 65 and over, were analyzed by using the triple difference-in-difference approach. Nam (2012) concluded that the eligibility criteria influence the older immigrant adults' ability to obtain Medicaid and health insurance coverage. Lack of health insurance coverage limits access to preventive care and other needed medical care; restrictive Medicaid eligibility and limited access to care could negatively influence the health status of many uninsured individuals in the United States (Ayanian et al, 2000; DuBard & Massing, 2007; Nam, 2011a).

Sommers (2008) studied the loss of health insurance among Medicaid eligibility adults and identified the risk factors and consequences of being dropped from the Medicaid program. More than two million adults in the United States lose Medicaid eligibility annually (Long, 2005; Sommers, 2008). A large sample from the Medical Expenditure Panel Survey (MEPS) was analyzed over a two year cycle. The sample consisted of all individuals between the age of 18 and 63 who were enrolled in Medicaid. The study showed that Medicaid dropouts play a significant role in the increased number of uninsured adults in the United States. Sommers (2008) also found that uninsured individuals are associated with many risk factors. Those risk factors included the ability to become insured again, gain access to better medical care and low self-reported health status.

Other Related Literature

There are several research studies that showed different barriers and problems regarding access to Medicare and Medicaid. The research study conducted by Ponce (2006) showed that the language barrier is an important factor in health care access for Medicare beneficiaries in the state of California. The study conducted also showed that

there are many barriers of access to care for Medicare for the underserved population. In order to improve access to Medicare and Medicaid for the underserved population, the government may need to implement necessary changes in order to reduce the language barrier, which has a great influence on the access and utilization of Medicare and Medicaid programs.

A study by Pikauskas (2012) evaluated the relationship between the economic downturns, unemployment rates, and the increased hardship of families in the United States. Pikauskas (2012) found that there is a positive correlation between the unemployment rates and the amount of material hardships endured by families in the United States. This also led to the increased utilization of government programs, such as Food Stamps, Medicaid, Temporary Assistance for Needy Families (TANF), and others.

In addition, Nicholas & Lauren (2011) examined the relationship between diabetes, Food Stamps and Medicare spending in the United States. The study was conducted by interviewing 30,887 older Americans listed in the Health and Retirement Study survey from 1995 to 2006; then the results were analyzed using regression analysis. The study showed that about one third of the population who relied on Food Stamps have been diagnosed with diabetes. However, there are no significant improvements in health outcomes of Medicare diabetic beneficiaries who are currently under Food Stamps program compared to non-Medicare beneficiaries. Therefore, the researcher concluded that in order to improve the health outcomes of diabetes patients, there should be better coordination among the three federal programs in order to improve the overall health status of the patients.

The next section discussed the methodology of this study, the process of data collection and how this study was carried out to answer the research questions.

III. METHODOLOGY

Data and Sample

This study was carried out by using the individual-level data from the Annual Social and Economic Supplement (ASEC Supplement) of the Current Population Survey (CPS). The Current Population Survey is the largest and most recognized survey series in the United States. CPS is recognized as a comprehensive statistical survey series conducted jointly by the United States Census Bureau and the United States Bureau of Labor Statistics (BLS). Current Population Survey has been the major source for providing demographic and labor force statistics for the overall population in the United States. The survey has provided the entire national information about economic and social well-being of the people (U.S. Census Bureau, 2006).

The Current Population Survey collected information on demographic, economic and social characteristics from an unbiased, nationally representative sample of the United States population on a monthly basis (U.S. Census Bureau, 2006). The survey has been conducted based on a rotating panel design: individuals in households are surveyed eight times; surveyed for the first four consecutive months, followed by eight months off, and then being survey for a final four months (Schmidley & Robinson, 2003; U.S. Census Bureau, 2006). According to Nelson & Mills (2001), the CPS also has been collecting reliable and accurate data on immigrant population and the native-born population over the past years. Having accurate data on the immigrant population and the native-born population is an important aspect for choosing the dataset since citizenship

status has been an eligibility criterion for obtaining Medicare and Medicaid coverage (Sommers, 2008).

In addition, the United States Census has been conducting additional CPS Supplemental surveys that focus on providing more detailed information regarding housing, health, food security, educational attainment, and other important topics (U.S. Census Bureau, 2006). This study utilized the March 2012 dataset from the CPS Annual Social and Economic Supplement, focusing only on the state of Washington dataset. The Annual Social and Economic Supplement provided a more comprehensive and detailed information regarding public assistance programs and health insurance participation for the nation (U.S. Census Bureau, 2008). This supplemental survey has been conducted annually since 1947. Respondents were originally surveyed in April, and the timeframe was changed to March since 1956. The reason for conducting the ASEC Supplement in March was to obtain a more accurate income data before the annual federal income tax returns deadline (U.S. Census Bureau, 2006).

The ASEC Supplement relied on several beneficial features of the CPS: large sample size, experienced field staff, a general survey design and generalized survey processing systems. In addition, the survey also relied on a high response rate among other governmental household surveys, ranging from 91 to 93 percent (U.S. Census, 2006). Having these beneficial features, the ASEC Supplement survey represented a well-suited dataset to utilize for this research study. However, the ASEC Supplement dataset has some limitations. A limitation of using this March dataset was that the additional cases of the Hispanic sample who were interviewed in other months of the year, including April, August, September, October and November were not included

(U.S. Census Bureau, 2006; Schmidley & Robinson, 2003). This limitation regarding the dataset was considered in the analysis. An assumption was made in order to carry out this study; the March 2012 ASEC Supplement data was assumed to provide a comprehensive and sufficient dataset to lead to a meaningful analysis. The additional cases of the Hispanic sample could provide a more representative sample size overall, but not a significant aspect in this study.

The U.S. Census Bureau developed the population estimates for the household surveys. The state sample was chosen specifically tailored to the demographic and labor market conditions. Sample size was determined by reliability requirements that are expressed in terms of variation coefficients. The purpose of this study was to focus on evaluating the health status of individuals in Washington; hence, the state sample from Washington was utilized for the purpose of data analysis. The overall sample of this study consisted of 3,229 individuals in Washington who responded to the ASEC Supplement survey. The individuals were interviewed by field representatives via computer-assisted telephone design. The sample consisted of all children and adults from the household surveyed, including all eligible residents with children 18 years or younger in the state of Washington. Eligible residents were defined by the U.S. Census Bureau.

Two subsets of this sample were further selected to compare between the effects of Medicare and Medicaid upon the health status of the population in the state of Washington. The first subsample consisted of all respondents who were of age 65 or above in the state of Washington. The second subsample consisted of all respondents who were under age 65 in the state of Washington. The subsamples selection was assumed to

provide a more detailed and accurate analysis. The purposes of selecting the subsamples are discussed in-depth in the analyses approach section.

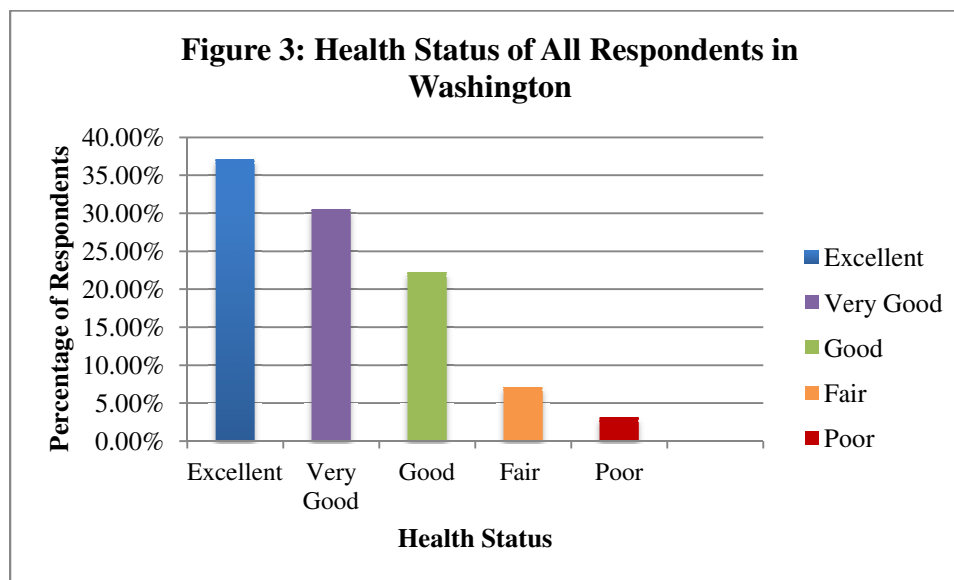
Variables

This study included one dependent variable and 17 independent variables. The dependent variable for this study was the health status of the individual in the state of Washington. The independent variables included: age, sex, race, marital status, citizenship status, education, employment, total personal income, wage and salary income, welfare income, retirement income, poverty status, and five health insurance coverage variables: any insurance coverage, private insurance coverage, public insurance coverage, Medicare coverage, and Medicaid coverage. More detailed information regarding the variables is illustrated in Appendix I.

Dependent Variable

The dependent qualitative variable for this study was health status, presented in Appendix I. The definition for health status and measurements were based on how CPS classified the variable. Health status is classified as an indication of the self-reported current health condition of the individual responded. The responses were based on a five-point scale, with “1” for individuals having excellent health condition, “2” having very good health condition, “3” having good health condition, “4” having fair health condition, and “5” having poor health condition. Based on the summary statistics in Appendix II, 37.10 percent of respondents or 1,198 respondents reported excellent health status, 30.50 percent or 985 respondents reported very good health status, 22.17 percent or 716 respondents reported good health status, 7.15 percent or 231 respondents reported having fair health status, and only 3.07 percent or 99 respondents were having poor self-

reported health status. Hence, there were approximately 89.77 percent of all respondents in Washington believed that they had good, very good or excellent health status in general. The self-reported health status of all respondents in the state of Washington is illustrated in Figure 3 below.



Independent Variables

The measurements and classifications of five independent quantitative variables: age, total personal income, wage and salary income, welfare income, and retirement income, were based on the CPS standard, illustrated in Appendix I. Age was defined as the respondent's age at his or her last birthday, in numeric format. The mean age for this sample was 34.909 year-old (Appendix II).

Total personal income, wage and salary income, welfare income, and retirement income, were based on a numeric format. Income values were adjusted for inflation based on the Consumer Price Index. Total personal income was defined as the total amount of pre-tax personal income from all sources for the last calendar year. The data used was collected in March 2012; the previous calendar year mentioned here was 2011. Based on

Appendix II, the mean total personal income level was \$37,047. Wage and salary income was also defined as the amount of money the respondent received from working as an employee for the previous calendar year. Based on Appendix II, the mean wage and salary income level was \$28,625. The retirement income variable was defined as the amount of pre-tax income, if any, the respondent received from retirement from a previous employer, pensions, annuities, or any other sources, such as IRA or military retirement payments, from previous calendar year. Based on Appendix II, the mean welfare income level was \$1,378. In addition, welfare income or public assistance income was classified as any amount of pre-tax income that the surveyed individual earned from any public assistance programs during the last calendar year. Based on Appendix II, the mean welfare income level was \$32.26, which was considered as a low amount compared to the total income, wage & salary income, and retirement income.

In addition, the qualitative independent variables, sex, and health insurance status, including public, private, Medicare and Medicaid, were also defined based on the original CPS classification. This variable defined the respondent's sex, "0" was assigned to female respondents and "1" was assigned to male respondents. According to the information presented in Appendix II, the sample of respondents was very well balanced in terms of their sex categories, with 49.89 percent or 1,618 individuals being female and 50.11 percent of respondents or 1,611 individuals being male.

Any insurance coverage qualitative variable defined whether or not the respondent had any type of insurance coverage, including private, public, Medicare or Medicaid. The value "0" was assigned to those respondents who had insurance coverage, and the value "1" was assigned to those respondents who were uninsured, had no

insurance coverage. In the overall sample for Washington, approximately 85.51 percent or 2,761 respondents were covered by some type of insurance; while only 14.49 percent or 468 respondents were uninsured, had no insurance coverage (Appendix II).

Private insurance coverage variable defined whether or not the respondent had insurance coverage from any private insurance. The value “0” was assigned to those respondents who had private insurance coverage at the time of the study and the value “1” was assigned to those respondents who were uninsured or had other types of insurance coverage, but not private. According to the summary statistics in Appendix II, approximately 64.60 percent or 2,086 respondents were covered by some type of private insurance, and 35.40 percent or 1,143 respondents were covered by other types of insurance coverage or were uninsured.

Public insurance coverage variable defined whether or not the respondent had insurance coverage from any public insurance, which usually included Medicare and Medicaid. The value “0” was assigned to those respondents who had public insurance coverage at the time of the study and the value “1” was assigned to those respondents who were uninsured or had private insurance coverage, but not public. According to the summary statistics in Appendix II, only 32.86 percent or 1,061 respondents were covered by some type of public insurance, and 67.14 percent or 2,168 respondents were covered by other types of private insurance coverage or were uninsured.

Medicare coverage variable defined whether or not the respondent had Medicare health insurance coverage. The value “0” was assigned to those respondents who were covered under Medicare and the value “1” was assigned to those respondents who were uninsured or had other types of insurance coverage, either private or public, but not

Medicare. According to the summary statistics in Appendix II, only 10.96 percent or 354 respondents were covered by Medicare, and 89.04 percent or 2,875 respondents were covered by other types of insurance coverage or were uninsured.

Medicaid coverage variable defined whether or not the respondent had Medicaid health insurance coverage. The value “0” was assigned to those respondents who were covered under Medicaid and the value “1” was assigned to those respondents who were uninsured or had other types of insurance coverage, either private or public, but not Medicaid. According to the summary statistics in Appendix II, only 17.06 percent or 551 respondents were covered by Medicaid, and 82.94 percent or 2,875 respondents were covered by other types of insurance coverage or were uninsured.

On the other hand, six other qualitative independent variables were recoded for the purpose of data analysis. This recoding scheme was also recognized as a limitation for this study. The independent variables, which had more than three categories defined by the CPS, were recoded into only three categories for the purpose of further statistical analysis for this research. Some of these variables were recoded due to having sufficiently small number of responses for the defined categories or just for the purpose of further regression analysis by recoding into two binary dummy or indicator variables. A dummy variable was defined as a numerical variable used in regression analysis to represent subgroups of the sample, by taking on the values of 0 and 1 (Doane & Seward, 2011). The purpose of making these independent variables indicators were to indicate the presence of some categorical effect that would have shifted the statistical outcome and also a requirement for logistic regression (Doane & Seward, 2011). More detailed explanation for this recoding scheme is provided in subsequent sections. The recoded

independent variables included: citizenship status, education attainment level, employment status, current marital status, official poverty status, and racial background.

The citizenship status variable was classified into three groups: native born citizens, naturalized citizens and not a citizen. Native born citizens are considered as those who were born in the United States, Puerto Rico, or the outlying areas of the United States. Naturalized citizens are those foreign-born individuals who have become citizens of the United States after fulfilling all the requirements for naturalization. Not a citizen category includes those respondents who are not native born or naturalized citizens. The coding values for citizenship status variable were: “0” for being a native born citizen, “1” for naturalized citizen, and “2” for not being a citizen. In order to further analyze the data by using regression, this variable was recoded into two dummy variables. The first dummy variable was coded “1” for being a native born citizen, and “0” otherwise. The second dummy variable was coded “1” for being a naturalized citizen and “0” otherwise. By recoding into binary dummy variables, the qualitative citizenship status variable can be statistically treated like a continuous-level variable to be used for regression analysis. According to Appendix II, 84.30 percent or 2,722 respondents were native born citizens, only 6.44 percent or 208 respondents were naturalized citizen and 9.26 percent or 299 respondents were not a citizen.

The qualitative variable, education attainment level, was reclassified into three categories: less than high school, high school diploma or some college, and bachelor degree or above. Based on the CPS definition, this variable was categorized into 28 different categories, with each category represent each grade level, such as grade 1, grade 2, grade 3, and up to having a doctorate degree. Due to having multiple categories and

some of the categories consisted of a very small number of respondents, the variable was recoded into three categories. The number of responses associated with those who only completed grade 1, grade 2, grade 3, grade 4, grade 5, grade 6, grade 7, grade 8, grade 9, grade 10, or grade 11 were combined and recoded into the category “less than high school.” The value “0” was assigned to those individuals who did not complete high school. The number of responses associated with those who completed grade 12 and have a high school diploma, attended 1st year, 2nd year, 3rd year or 4th year of college or university but did not completed the college degree or received an associate degree were combined and recoded into the category “High school diploma or some college.” The value “1” was assigned to the respondent who obtained high school diploma or attended college or university but was not able to complete the degree. And lastly, those responses associated with those individuals who received a bachelor degree, master degree, or a doctorate degree were combined and recoded into the category “Bachelor degree or above.” The value “2” was assigned to those who completed a bachelor degree, master degree, or doctorate degree. In addition, to carry out regression analysis for this study, this variable was also recoded into two binary dummy variables. The first dummy variable was coded with “1” for did not completed high school and “0” otherwise. The second dummy variable was coded with “1” for having a high school diploma or some college, and “0” otherwise. Based on Appendix II, 1,180 respondents or 36.54 percent of the total sample did not complete high school, 41.22 percent or 1,331 respondents had a high school diploma or attended some college, and only 22.24 percent or 718 respondents hold a bachelor’s degree or higher.

The variable, employment status, was also reclassified into two categories: employed and unemployed. Employment status was defined by the CPS as the variable for identifying whether the respondent was participated in the labor force. The variable was classified into 10 categories. Some of the categories had only a few numbers of respondents; hence, the variable was recoded. The number of responses associated with those who are at work; has jobs, but not at work last week; in armed forces were recoded into the employed category. The value “0” was assigned for the individuals who were employed, either full-time, part-time, temporary, per-diem, or doing any work at all for pay or for profit. The number of responses associated with those who were unemployed, not in labor force, doing housework, unable to work, or still in school, were recoded into the unemployed category. The value “1” was assigned to those individuals who did not have a job, seeking for work, or did not work for pay or profit. About 68.94 percent or 2,226 respondents were employed, and only 31.06 percent or 1,003 respondents were not employed or were not making any income (Appendix II).

The variable, current marital status, was reclassified into two categories: married and not married. According to CPS definition, marital status was classified into 6 categories: married with spouse present or absent, separated, divorced, widowed, and never married or single. Due to having a small number of respondents in some categories listed, the variable was recoded into two categories. The value “0” was assigned to those individuals who were married, either with spouse present in the current household or absent from, and the value “1” was assigned to those individuals who were separated, divorced, widowed, never married or in a relationship and single. According to Appendix

II, 40.85 percent or 1,319 respondents were married, and 59.15 percent or 1,910 respondents were not married in the overall sample of this study.

In addition, the official poverty status variable was classified into three categories: below poverty, between 100 to 150 percent of the low-income level, and above 150 percent of the low-income level. The federal poverty level (FPL) is defined by the Department of Health and Human Services. The poverty or low-income level for Washington state is at approximately \$11,170 per person in the family or household (U.S. Department of Health & Human Services, 2012). Those who were below the poverty level earned less than \$11,170 per individual annually. One hundred percent of the low-income level is at \$11,170 and 150 percent of the low-income level is \$22,980 (U.S. Department of Health & Human Services, 2012). The value “0” was assigned to those individuals who earned below the \$11,170 low-income level within the previous calendar year. The value “1” was assigned to those individuals who were within 100 to 150 percent of the low-income level, which were classified as between \$11,170 and \$22,980. The last value “2” was assigned to those individuals who were above 150 percent of the low-income level. This variable was also recoded into two binary dummy variables for further regression analysis. The first dummy variable was coded with “1” for those individuals who earned below poverty and “0” otherwise. The second dummy variable was coded with “1” for those individuals who earned within 100 to 150 percent of the low-income level, and “0” otherwise. According to the summary statistics in Appendix II, approximately 12.60 percent of 407 individuals were below the poverty level, 357 individuals or 11.06 percent of respondents fall within the 100 to 150 percent of low-

income level, and the 76.34 percent or 2,465 respondents were categorized as above 150 percent of low-income level.

The last independent, nominal variable, race, was reclassified into three categories: White, Asian or Pacific Islander, and Other. This variable classified the racial status of the individual being surveyed. The variable was reclassified due to having some categories had no respondents or a low number of respondents. The value “0” was assigned to those individual who were of White descent. The value “1” was assigned to those individuals who were Asian, Pacific Islander, or both. The value “2” was assigned to other racial status, including Black, Native American, and two or more races, either specified or unspecified. This classification of racial status was considered as one of the limitation in this study. The assumption here was that the classifications of race based on these categories were comprehensive in order to provide significant and meaningful results to this study. The three combined categories represented all races of the respondents who were in this study, according to CPS definition. The race variable was also recoded into two binary dummy variables. The first dummy variable was coded with “1” for being of White race and “0” otherwise. The second dummy variable was coded with “1” for being Asian or Pacific Islander and “0” otherwise. Based on the summary statistics in Appendix II, the sample consisted of 79.59 percent of respondents of White descendent, 10.68 percent or 345 respondents were of Asian or Pacific Islander descendent, and only 9.72 percent of 314 individuals were of other race.

Analysis Approach

This study was separated into three sections for the purpose of presenting accurate and meaningful analyses. Whether having Medicare or Medicaid would have different

influences on the overall health status of people in Washington was an important focus of this study. The first section presented analysis for all respondents in the state of Washington. The purpose of the first analysis was to determine the differences in the self-reported health status of all respondents with no insurance coverage, private insurance, public insurance, Medicare and Medicaid. The objective was to determine whether or not having Medicare and Medicaid would have any influence on the health status of all individuals in Washington.

The second section presented analyses for all respondents who were of age 65 and over in the state of Washington. Many individuals who are covered under Medicare are of age 65 and over, with some exceptions (CMS, 2012). Hence, this analysis was assumed to provide a more accurate and reliable results regarding whether or not having Medicare would influence the overall health status of individuals who are of age 65 and over in Washington. The main purpose of the second analysis was to compare the difference in the self-reported health status of those respondents with Medicare coverage to having other types of coverage or have no insurance at all.

The last section presented analysis for all respondents who were under age 65 in the state of Washington. Many individuals who are covered under Medicaid are under age 65, with some exceptions (CMS, 2012). Hence, this analysis was assumed to provide a more accurate and reliable results regarding whether or not having Medicaid would influence the overall health status of individuals who are under age 65 in Washington. The main purpose of this analysis was to compare the difference in the self-reported health status of those respondents with Medicaid coverage to having other types of insurance coverage or having no insurance at all.

For each section, descriptive statistics and logistic regression analyses were utilized in order to analyze the data. The purpose of presenting descriptive statistics for each separate section was to summarize and describe the associated data in a meaningful way. Logistics regressions were utilized in order to measure the relationship and association between different types of insurance coverage (no coverage, public, private, Medicare, and Medicaid) and the health status of the individuals in Washington, while controlling for the other variables, including age, sex, education, citizenship status, employment status, different types of income, racial background, marital status and official poverty status.

Ordinal logistics regression was chosen as the statistical modeling method for this study. Ordinal logistics regression is also known as proportional odds model (Doane & Seward, 2011). There were two reasons for chosen this regression model. First, the dependent variable, health status, was classified based on an ordered five-point scale. The ordinal logistics regression takes in account the ordering of the categories. A multi-nominal logistic model could be used but the model would ignore the ordering aspect of the variable. The ordinal logistic model considers a set of dichotomies, one for each possible cut-off of the response categories into two sets, high and low responses (Doane & Seward, 2011). The model allowed for more than two response categories. The ordinal logistic model equation is illustrated below.

$$\log \left(\frac{\gamma_i^{(j)}}{1 - \gamma_i^{(j)}} \right) = \log \left(\frac{P(Y_i \leq j)}{P(Y_i > j)} \right) = \alpha^{(j)} - (\beta_1 X_{1i} + \dots + \beta_k X_{ki})$$

Based on the ordinal logistic model equation, Y is a dependent response variable with C ordered categories $j = 1, 2, \dots, C$, and probabilities $\pi^{(j)} = P(Y = j)$; and $X_1, X_2, X_3, \dots, X_k$

are k explanatory variables. Observations Y_i are statistically independent of each other (Doane & Seward, 2011). The analyses were also performed using the alpha (α) level of 0.05. Alpha level is the probability of having Type I error, which is the probability of having to reject the null hypothesis claim when it is true. With using the alpha level of 0.05, meaning that there is a five percent probability of making type I error (Doane & Seward, 2011). However, this alpha level is assumed to be sufficient and stringent enough to minimize the probability of rejecting a correct null hypothesis. Statistical analyses were performed using the statistical software Minitab 16 for Windows.

IV. DESCRIPTIVE STATISTICS

Descriptive statistics results were presented in seven sections: no insurance coverage, private insurance coverage, public insurance coverage, Medicare, Medicaid, Medicare for respondents who were age 65 or above, and Medicaid for respondents who were under age 65. These descriptive statistics helped to examine the differences between the demographic characteristics and the health status of respondents who had different types of insurance coverage in the state of Washington. These results gave an overview of the differences, and further justifications regarding the relationships were provided in the subsequent logistic regression analysis results.

No Insurance Coverage

Appendix III presented descriptive statistics for the first analysis of the effects of having no insurance coverage upon the health status of individuals in Washington. Appendix III covered the sample of 468 individuals in the state of Washington who had no insurance coverage. This descriptive statistics provided information regarding the

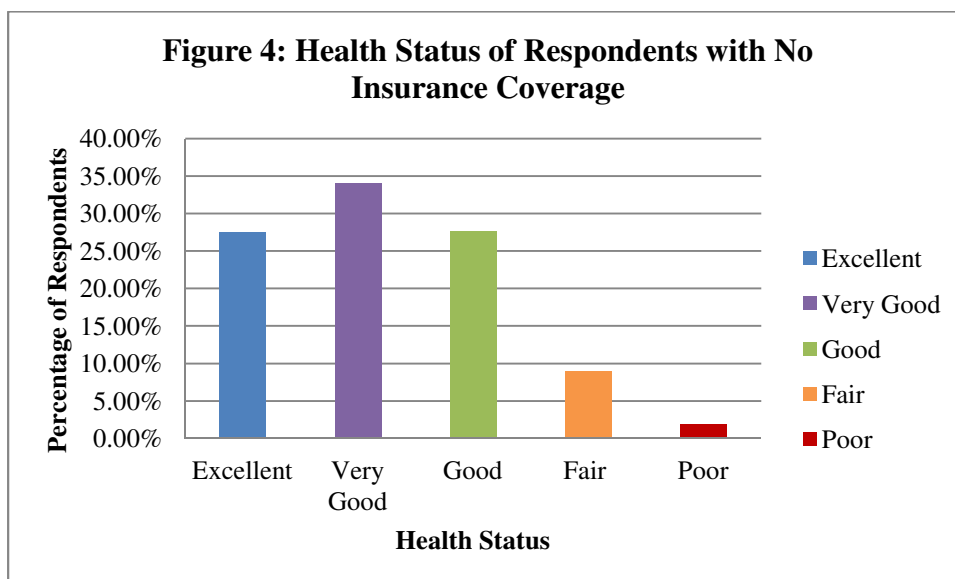
demographic characteristics as well as the health status of the individuals who were uninsured.

The sample of respondents was very well balanced in terms of sex categories, with 227 respondents or 48.50 percent of total respondents being male and 241 respondents or 51.50 percent of total respondents being female. Out of the total number of these respondents, 70.94 percent or 332 respondents were native born citizens, only 5.98 percent or 28 respondents were naturalized citizen and 23.08 percent of those respondents or 108 respondents were not a citizen. About 76.50 percent of respondents or 358 individuals were White, only 43 individuals or 9.19 percent were Asian or Pacific Islander, and 67 individuals or 14.32 percent were other races combined (Appendix III).

For uninsured individuals, 35.90 percent or 168 of those did not complete high school, 51.28 percent or 240 of those had a high school diploma or attended some college but did not obtain any degree, and only 12.82 percent or 90 individuals had a bachelor's degree or above. In addition, 63.46 percent or 297 respondents were employed, and 36.54 percent or 171 respondents were not employed. Out of those respondents, only 163 respondents or 34.83 percent were married, while 65.17 percent or 305 respondents were not married. About 54.70 percent or 256 of these respondents were classified as above 150 percent of low-income level, only 22.86 percent or 107 respondents were between 100 to 150 percent of low-income level, and 22.44 percent or 105 individuals were classified as below poverty level or below the 100 percent of low-income level (Appendix III).

For those respondents who had no insurance coverage, only 1.92 percent or 9 respondents had poor health status, 42 respondents or 8.97 percent had fair health status,

129 respondents or 27.56 percent had good health status, 159 respondents or 33.97 percent had very good health status, and 27.56 percent or 129 individuals had excellent health status (Appendix III). Hence, the descriptive statistics of those who had no insurance coverage showed that more than three-third or 89.09 percent of the respondents either had good, very good, or excellent health status. The self-reported health status of all respondents who had no insurance coverage also presented in Figure 4 below.



In comparison, there were approximately 89.77 percent of all respondents in Washington believed that they had good, very good or excellent health status in general (Appendix II). This led to the assumption that the general population appeared to have slightly better health status, about .68 percent, than those who had no insurance coverage in Washington. This relationship was further justified by using logistic regression in the subsequent statistical results section.\

Private Insurance Coverage

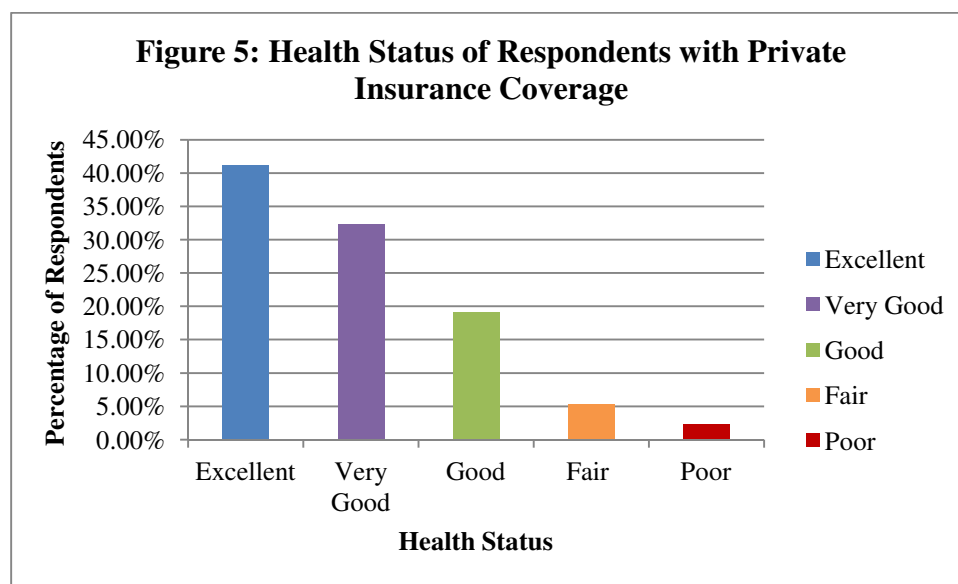
Appendix IV presented descriptive statistics for the first analysis of the effects of having private insurance coverage upon the health status of individuals in Washington.

Appendix IV covered the sample of 2,086 individuals in the state of Washington who had private insurance coverage. This descriptive statistics provided information regarding the demographic characteristics as well as the health status of the individuals who only had private insurance coverage.

The sample of respondents was very well balanced in terms of sex categories, with 1,046 respondents or 50.14 percent of total respondents being male and 1,040 respondents or 49.86 percent of total respondents being female. Out of the total number of these respondents, 86.67 percent or 1,808 respondents were native born citizens, only 6.86 percent or 143 respondents were naturalized citizen and 6.47 percent of those respondents or 135 respondents were not a citizen. About 80.44 percent of respondents or 1,678 individuals were White, 236 individuals or 11.31 percent were Asian or Pacific Islander, and 172 individuals or 8.25 percent were other races combined (Appendix IV).

For those individuals who had private insurance coverage, 29.34 percent or 612 of those did not complete high school, 41.66 percent or 869 of those had a high school diploma or attended some college but did not obtain any degree, and 29 percent or 605 of those individuals had a bachelor's degree or above. In addition, 74.35 percent or 1,551 respondents were employed, and 25.65 percent or 535 respondents were not employed. Out of those respondents, only 973 respondents or 46.64 percent were married, while 53.36 percent or 1,113 respondents were not married. More than three-third of respondents, 80.65 percent or 1,870 respondents were classified as above 150 percent of low-income level, only 4.99 percent or 104 respondents were between 100 to 150 percent of low-income level, and 5.37 percent or 112 individuals were classified as below poverty level or below the 100 percent of low-income level (Appendix IV).

For those individuals who had private insurance coverage, only 2.21 percent or 46 respondents had poor health status, 110 respondents or 5.27 percent had fair health status, 399 respondents or 19.13 percent had good health status, 672 respondents or 32.21 percent had very good health status, and 41.18 percent or 859 individuals had excellent health status (Appendix IV). Hence, the descriptive statistics for those respondents who had private insurance coverage showed that 92.52 percent of the respondents either had good, very good, or excellent health status. The self-reported health status of all respondents who had private insurance coverage also presented in Figure 5 below.



In comparison, there were approximately 89.77 percent of all respondents in Washington believed that they had good, very good or excellent health status in general (Appendix II). Also, 89.09 percent of those who had no insurance coverage either had good, very good, or excellent health status (Appendix III). This led to the assumption that those individuals who had private health insurance coverage had better health status compared to the general respondents in Washington as well as those uninsured

individuals. This relationship was further justified by using logistic regression in the subsequent statistical results section.

Public Insurance Coverage

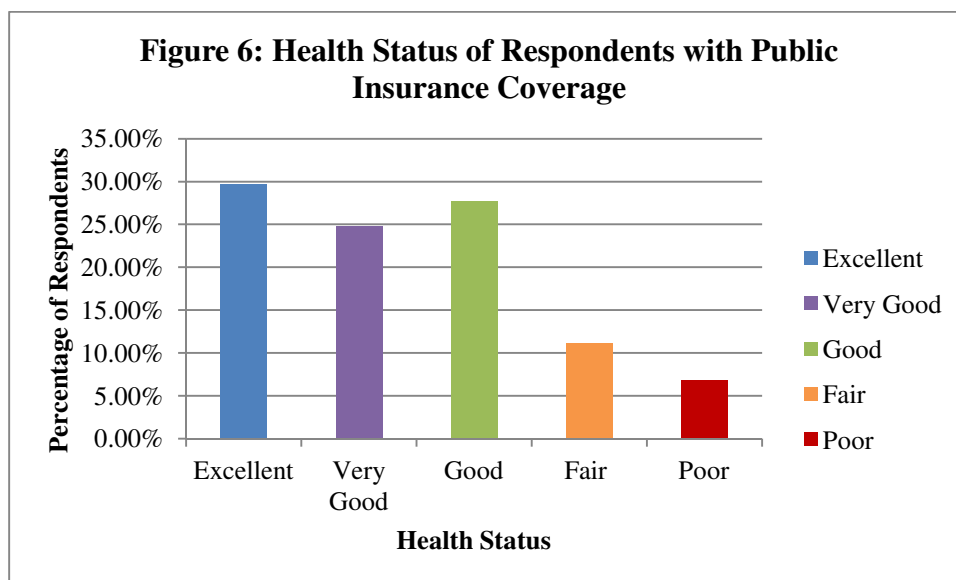
The results in Appendix V presented descriptive statistics for the analysis of the effects of having public insurance coverage upon the health status of individuals in Washington. Appendix V covered the sample of 1,061 individuals in the state of Washington who had public insurance coverage. These descriptive statistics provided information regarding the demographic characteristics as well as the health status of the individuals who only had public insurance coverage.

The sample of respondents was very well balanced in terms of sex categories, with 545 respondents or 51.37 percent of total respondents being male and 516 respondents or 48.63 percent of total respondents being female. Out of the total number of these respondents, 87.94 percent or 933 respondents were native born citizens; only 6.03 percent or 64 respondents were naturalized citizen or were not a citizen. About 82.28 percent of respondents or 873 individuals were White, 87 individuals or 8.20 percent were Asian or Pacific Islander, and 101 individuals or 9.52 percent were other races combined (Appendix V).

For those individuals who had public insurance coverage, 47.79 percent or 507 of those did not complete high school, 39.11 percent or 415 of those had a high school diploma or attended some college but did not obtain any degree, and only 13.10 percent or 139 of those individuals had a bachelor's degree or above. In addition, 51.56 percent or 547 respondents were employed, and 48.44 percent or 514 respondents were not employed. Out of those respondents, only 387 respondents or 36.48 percent were

married, while 63.52 percent or 674 respondents were not married. About 62.49 percent or 663 of these respondents were classified as above 150 percent of low-income level, only 16.68 percent or 177 respondents were between 100 to 150 percent of low-income level, and 20.83 percent or 221 individuals were classified as below poverty level or below the 100 percent of low-income level (Appendix V).

For those individuals who had public insurance coverage, only 6.79 percent or 72 respondents had poor health status, 11.12 percent had fair health status, 29.3 respondents or 27.62 percent had good health status, 26.3 respondents or 24.79 percent had very good health status, and 29.69 percent or 315 individuals had excellent health status (Appendix V). Hence, the descriptive statistics for those respondents who had only private insurance coverage showed that 82.10 percent of the respondents either had good, very good, or excellent health status. The self-reported health status of all respondents who had public insurance coverage also presented in Figure 6 below.



In comparison, there were approximately 89.77 percent of all respondents in Washington believed that they had good, very good or excellent health status in general

(Appendix II). Also, 89.09 percent of those who had no insurance coverage either had good, very good, or excellent health status (Appendix III). On the other hand, 92.52 percent of the respondents who had private insurance either had good, very good, or excellent health status (Appendix IV). This led to the assumption that the respondents who had public insurance coverage had lower health status than the general population, the uninsured individuals, and those who had private insurance coverage. This relationship was further justified by using logistic regression in the subsequent statistical results section.

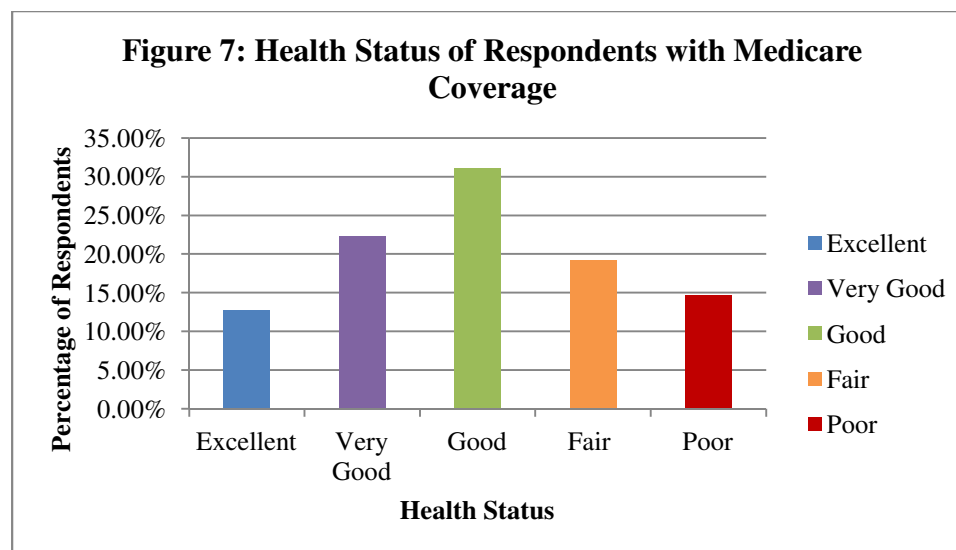
Medicare Coverage

The results in Appendix VI presented descriptive statistics for the analysis of the effects of having Medicare coverage upon the health status of individuals in Washington. Appendix VI covered the sample of 354 individuals in the state of Washington who had Medicare coverage. The descriptive statistics provided information regarding the demographic characteristics as well as the health status of the individuals who had Medicare coverage.

The sample of respondents was very well balanced in terms of sex categories, with 185 respondents or 52.26 percent of total respondents being male and 169 respondents or 47.74 percent of total respondents being female. Out of the total number of these respondents, 86.72 percent or 307 respondents were native born citizens, only 9.04 percent or 32 respondents were naturalized citizen and 4.24 percent of those respondents or 15 respondents were not a citizen. About 87.85 percent of respondents or 311 individuals were White, 31 individuals or 8.76 percent were Asian or Pacific Islander, and 12 individuals or 3.39 percent were other races combined (Appendix VI).

For those individuals who had Medicare coverage, only 13.28 percent or 47 of those did not complete high school, 60.45 percent or 214 of those had a high school diploma or attended some college but did not obtain any degree, and 26.27 percent or 93 of those individuals had a bachelor's degree or above. In addition, only 14.41 percent or 51 respondents were employed, and 85.59 percent or 303 respondents were not employed. Out of those respondents, 204 respondents or 57.63 percent were married, while 42.37 percent or 150 respondents were not married. About 81.36 percent or 288 of these respondents were classified as above 150 percent of low-income level, only 10.17 percent or 36 respondents were between 100 to 150 percent of low-income level, and 8.47 percent or 30 individuals were classified as below poverty level or below the 100 percent of low-income level (Appendix VI).

For those individuals who had Medicare coverage, 14.69 percent or 52 respondents had poor health status, 68 respondents or 19.21 percent had fair health status, 110 respondents or 31.07 percent had good health status, 79 respondents or 22.32 percent had very good health status, and only 12.71 percent or 45 individuals had excellent health status (Appendix VI). The result showed that the proportion of those with Medicare coverage believed that they had poor health status as compared to the overall sample in Washington, those who had no insurance, private, or public insurance. Only 66.10 percent of those respondents with Medicare coverage either had good, very good, or excellent health status. The self-reported health status of all respondents who had Medicare coverage also presented in Figure 7 below.



In comparison, there were approximately 89.77 percent of all respondents in Washington believed that they had good, very good or excellent health status in general (Appendix II). Also, 89.09 percent of those who had no insurance coverage either had good, very good, or excellent health status (Appendix III). On the other hand, 92.52 percent of the respondents who had private insurance either had good, very good, or excellent health status (Appendix IV). Also, 82.10 percent of the respondents who had public insurance either had good, very good, or excellent health status (Appendix V). This led to the assumption that the respondents who had Medicare coverage had much lower health status than the general population, the uninsured individuals, and those who had private or public insurance coverage overall. This relationship was further justified by using logistic regression in the subsequent statistical results section.

Medicaid Coverage

The results in Appendix VII presented descriptive statistics for the analysis of the effects of having Medicaid coverage upon the health status of individuals in Washington. Appendix VII covered the sample of 551 individuals in the state of Washington who had Medicaid coverage. This descriptive statistics provided information regarding the

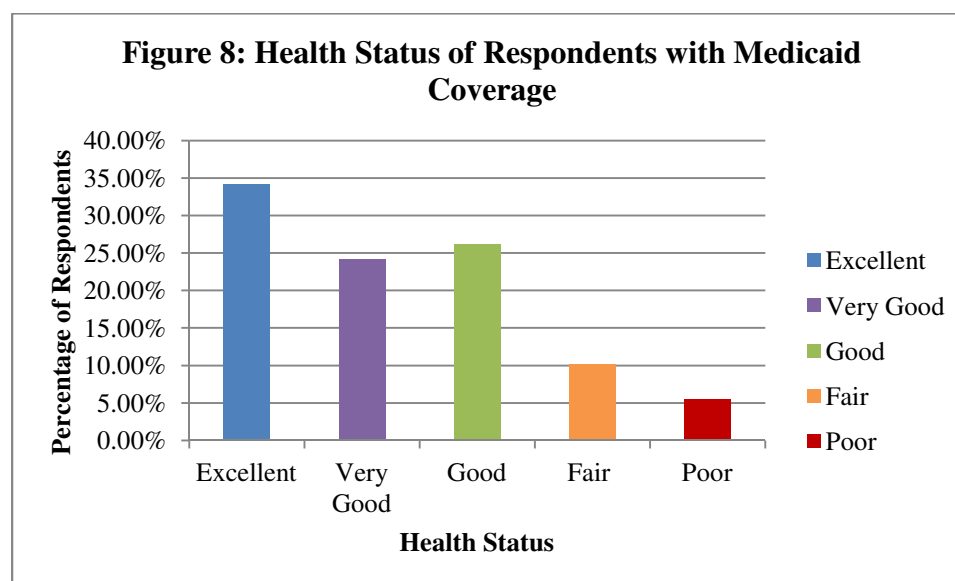
demographic characteristics as well as the health status of the individuals who had Medicaid coverage.

The sample of respondents was very well balanced in terms of sex categories, with 283 respondents or 51.36 percent of total respondents being male and 268 respondents or 48.64 percent of total respondents being female. Out of the total number of these respondents, 86.03 percent or 474 respondents were native born citizens, only 5.08 percent or 28 respondents were naturalized citizen and 8.89 percent of those respondents or 49 respondents were not a citizen. About 77.86 percent of respondents or 429 individuals were White, only 53 individuals or 9.62 percent were Asian or Pacific Islander, and 69 individuals or 12.52 percent were other races combined (Appendix VII).

For those individuals who had Medicaid coverage, 73.87 percent or 407 of those did not complete high school, 23.05 percent or 127 of those had a high school diploma or attended some college but did not obtain any degree, and only 3.09 percent or 17 of those individuals had a bachelor's degree or above. In addition, 64.61 percent or 356 respondents were employed, and only 35.39 percent or 195 respondents were not employed. Out of those respondents, only 94 respondents or 17.06 percent were married, while 82.94 percent or 457 respondents were not married. About 42.29 percent or 233 of these respondents were classified as above 150 percent of low-income level, 23.96 percent or 132 respondents were between 100 to 150 percent of low-income level, and 33.76 percent or 186 individuals were classified as below poverty level or below the 100 percent of low-income level (Appendix VII).

For those individuals who had Medicaid coverage, only 5.44 percent or 30 respondents had poor health status, 56 respondents or 10.13 percent had fair health status,

144 respondents or 26.13 percent had good health status, 133 respondents or 24.14 percent had very good health status, and 34.12 percent or 188 individuals had excellent health status (Appendix VII). Hence, the descriptive statistics for those respondents who had Medicaid coverage showed that approximately 84.39 percent of the respondents either had good, very good, or excellent health status. The self-reported health status of all respondents who had public insurance coverage also presented in Figure 8.



In comparison, there were approximately 89.77 percent of all respondents in Washington believed that they had good, very good or excellent health status in general (Appendix II). Also, 89.09 percent of those who had no insurance coverage either had good, very good, or excellent health status (Appendix III). On the other hand, 92.52 percent of the respondents who had private insurance either had good, very good, or excellent health status (Appendix IV). Also, 82.10 percent of the respondents who had public insurance either had good, very good, or excellent health status (Appendix V). Only 66.10 percent of those respondents with Medicare coverage either had good, very good, or excellent health status (Appendix VI). This led to the assumption that the

respondents who had Medicaid coverage had lower health status than the general population, the uninsured individuals, and those who had private insurance coverage; but they had higher health status than those who were covered under public insurance or Medicare coverage. This relationship was further justified by using logistic regression in the subsequent statistical results section.

All Respondents Age 65 or Above

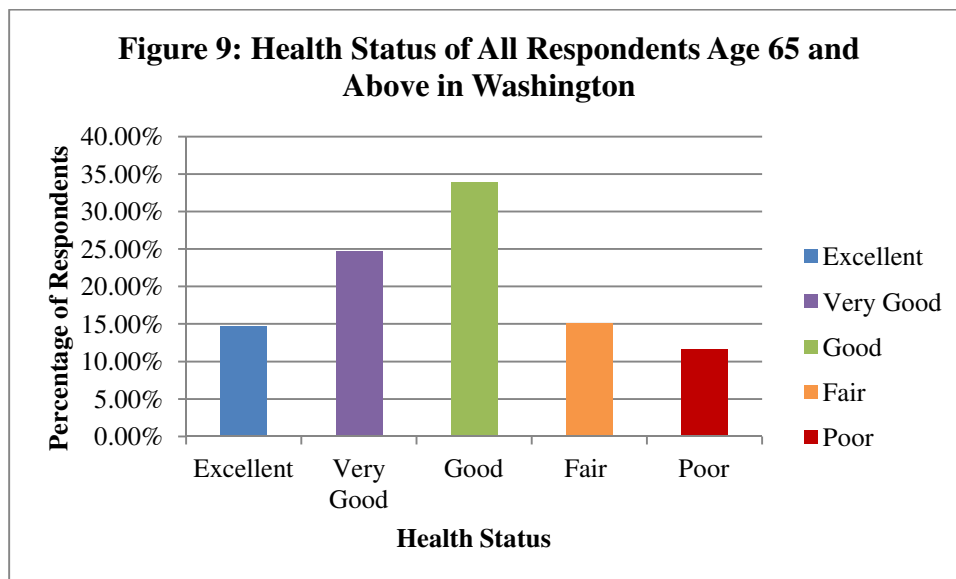
The results in Appendix VIII presented descriptive statistics for the health status for only those individuals who are age 65 or above in Washington. Appendix VIII covered the sample of 319 individuals who are age 65 or above in the state of Washington.

In terms of sex categories, there were 168 respondents or 52.66 percent of total respondents being male and 151 respondents or 47.34 percent of total respondents being female. Out of the total number of these respondents, 85.27 percent or 272 respondents were native born citizens, only 9.40 percent or 30 respondents were naturalized citizen and 5.33 percent or 17 of those respondents were not a citizen. About 88.09 percent of respondents or 281 individuals were White, 30 individuals or 9.40 percent were Asian or Pacific Islander, and only 8 individuals or 2.51 percent were other races combined (Appendix VIII).

About 87.46 percent or 279 of these respondents were classified as above 150 percent of low-income level, only 5.96 percent or 19 individuals were classified as below poverty level or below the 100 percent of low-income level, and 6.58 percent or 21 respondents were between 100 to 150 percent of low-income level (Appendix VIII).

More detailed descriptive statistics regarding those respondents who were age 65 or above are illustrated in Appendix VIII.

For those respondents who were age 65 or above, 11.60 percent or 37 respondents had poor health status, 48 respondents or 15.05 percent had fair health status, 108 respondents or 33.86 percent had good health status, 79 respondents or 24.76 percent had very good health status, and 14.73 percent or 47 individuals had excellent health status (Appendix VIII). The result showed that the proportion of those of age 65 or above believed that they had poor health status was higher compared to the normal population in Washington, those who had no insurance, private, or public insurance, but less than those individuals who had Medicare coverage. The self-reported health status of these respondents is presented in Figure 9 below.



Overall, only 73.35 percent of those who were age 65 or above in Washington either had good, very good, or excellent health status. In comparison, the respondents who are age 65 or above had lower health status than the general population, the uninsured individuals, and those who had private insurance coverage, public insurance

coverage or Medicaid; but they had higher health status than those who were covered under Medicare in general. This relationship was further justified by using logistic regression in the subsequent statistical results section.

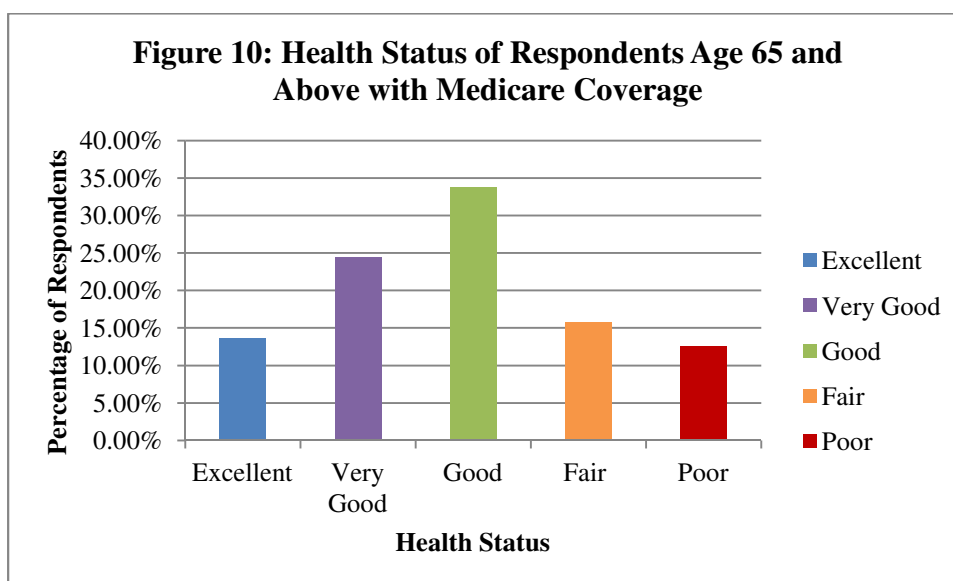
Medicare for Respondents Age 65 or Above

Appendix IX presented descriptive statistics for the analysis of the effects of having Medicare coverage upon the health status for only those individuals who are age 65 or above in Washington. Appendix IX covered the sample of 287 individuals who are age 65 or above in the state of Washington and had Medicare coverage.

In terms of sex categories, there were 150 respondents or 52.26 percent of total respondents being male and 137 respondents or 47.74 percent of total respondents being female. Out of the total number of these respondents, 86.41 percent or 248 respondents were native born citizens, only 10.45 percent or 30 respondents were naturalized citizen and 3.14 percent or 9 respondents were not a citizen. About 89.55 percent of respondents or 257 individuals were White, 24 individuals or 8.36 percent were Asian or Pacific Islander, and only 6 individuals or 2.09 percent were other races combined (Appendix IX). About 87.46 percent or 251 of these respondents were classified as above 150 percent of low-income level, only 6.62 percent or 19 individuals were classified as below poverty level or below the 100 percent of low-income level, and 5.92 percent or 17 respondents were between 100 to 150 percent of low-income level (Appendix VI).

For those individuals who had Medicare coverage, 12.54 percent or 36 respondents had poor health status, 15.68 respondents or 45 percent had fair health status, 97 respondents or 33.80 percent had good health status, 70 respondents or 24.39 percent had very good health status, and only 13.59 percent or 39 individuals had excellent health

status (Appendix IX). The results showed that the proportion of those of age 65 or above believed that they had poor health status was higher compared to the overall sample in Washington, those who had no insurance, private, public insurance, or the overall sample of those who were of age 65 or above; but less than those individuals who had Medicare coverage. The self-reported health status of these respondents is presented in Figure 10 below.



Overall, the descriptive statistics for respondents age 65 and above, and only had Medicare coverage showed that only 71.78 percent of the respondents either had good, very good, or excellent health status. In comparison, the respondents who are age 65 or above with Medicare coverage had lower health status than the general population, the uninsured individuals, those who had private insurance coverage, public insurance coverage or Medicaid, and the total respondents who were of age 65 or above; but they had higher health status than those who were covered under Medicare in general. This relationship was further justified by using logistic regression in the subsequent statistical results section.

All Respondents under Age 65

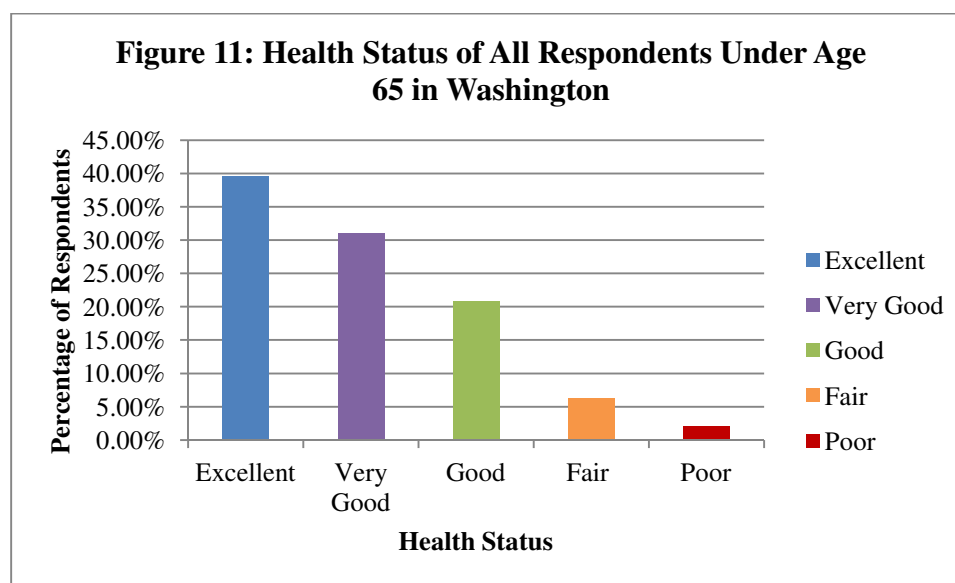
The results in Appendix X presented descriptive statistics for the health status for only those individuals who are under age 65 in Washington. Appendix X covered the sample of 2,910 individuals in Washington.

In terms of sex categories, there were 1,450 respondents or 49.83 percent of total respondents being male and 1,460 respondents or 50.17 percent of total respondents being female. Out of the total number of these respondents, 84.19 percent or 2,450 respondents were native born citizens, only 6.12 percent or 178 respondents were naturalized citizen and 9.69 percent or 282 of those respondents were not a citizen. About 78.66 percent or 2,289 individuals were White, 315 individuals or 10.852 percent were Asian or Pacific Islander, and 10.52 individuals or 306 percent were other races combined (Appendix X).

About 75.12 percent or 2,186 of these respondents were classified as above 150 percent of low-income level, 11.62 percent or 338 individuals were classified as below poverty level or below the 100 percent of low-income level, and 13.26 percent or 386 respondents were between 100 to 150 percent of low-income level (Appendix X). More detailed descriptive statistics regarding those respondents who were under age 65 are presented in Appendix X.

For those respondents who were under age 65, only 2.13 percent or 62 respondents had poor health status, 183 respondents or 6.29 percent had fair health status, 608 respondents or 20.89 percent had good health status, 906 respondents or 31.13 percent had very good health status, and 39.55 percent or 1,151 individuals had excellent

health status (Appendix X). The self-reported health status of these respondents is presented in Figure 11.



Overall, the descriptive statistics for all respondents under age 65 showed that 91.57 percent of the respondents either had good, very good, or excellent health status. In comparison, all respondents who were under age 65 had higher health status than the general population, the uninsured individuals, those who had public insurance, Medicare or Medicaid coverage, and all respondents who were of age 65 or above, as well as those who only had Medicare; but they had lower health status than those who were covered under private insurance. This relationship was further justified by using logistic regression in the subsequent statistical results section.

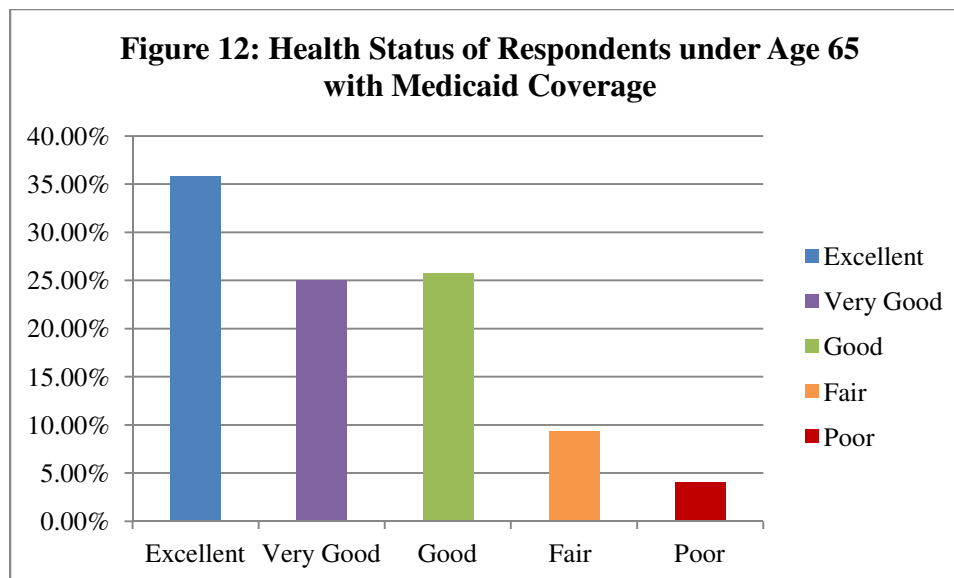
Medicaid for Respondents under Age 65

The results in Appendix XI presented descriptive statistics for the analysis of the effects of having Medicaid coverage upon the health status of individuals who are under age 65 in Washington. Appendix XI covered the sample of 524 individuals, under age 65, in the state of Washington who had Medicaid coverage.

The sample of respondents was very well balanced in terms of sex categories, with 269 respondents or 51.34 percent of total respondents being male and 255 respondents or 48.66 percent of total respondents being female. Out of the total number of these respondents, 86.83 percent or 455 respondents were native born citizens, only 4.58 percent or 24 respondents were naturalized citizen and 8.59 percent of those respondents or 45 respondents were not a citizen. About 77.86 percent of respondents or 408 individuals were White, 48 individuals or 9.16 percent were Asian or Pacific Islander, and 68 individuals or 12.98 percent were other races combined (Appendix XI).

About 41.03 percent or 215 of these respondents were classified as above 150 percent of low-income level, 24.62 percent or 129 respondents were between 100 to 150 percent of low-income level, and 34.35 percent or 180 individuals were classified as below poverty level or below the 100 percent of low-income level (Appendix XI). More detailed descriptive statistics regarding those respondents who were under age 65 and had Medicaid coverage are presented in Appendix XI.

For those individuals who had Medicaid coverage, only 4.01 percent or 21 respondents had poor health status, 49 respondents or 9.35 percent had fair health status, 135 respondents or 25.76 percent had good health status, 131 respondents or 25 percent had very good health status, and 35.88 percent or 188 individuals had excellent health status (Appendix XI). The self-reported health status of these respondents is presented in Figure 12.



Overall, the descriptive statistics for all respondents under age 65 showed that 86.64 percent of the respondents either had good, very good, or excellent health status. In comparison, those respondents who were under age 65 and had Medicaid coverage had higher health status than those who had public insurance, Medicare or Medicaid coverage, all respondents who were of age 65 or above, as well as those who only had Medicare; but these respondents had lower health status than the overall general population in Washington, those who had no insurance coverage or were covered under private insurance, as well as all respondents who were under age 65. This relationship was further justified by using logistic regression in the subsequent statistical results section.

V. STATISTICAL RESULTS

The ordinal logistic regression results are presented in three sections. The results were first presented for the overall sample of all respondents in Washington with 3,229 individuals in Model 1 (Appendix XII). The second regression result is presented for the subsample of respondents who were age 65 or above in Model 2 (Appendix XIII). The

third regression result is presented for another subsample of respondents who were under age 65 in Model 3 (Appendix XIV). More detailed discussions regarding the results of these three analyses are presented in the subsequent sections.

Results for All Respondents in Washington (N = 3,229)

In order to determine the relationship of whether or not having insurance coverage, including private, public, Medicare, and Medicaid, is associated with better health status for the overall sample of respondents in Washington, ordinal logistic regression were performed, the results are presented in Appendix XII. This first logistic regression was performed for the total general sample of 3,229 respondents in Washington at an alpha-level of .05. The logistic regression is represented by Model 1 in Appendix XII, and also presented below.

Model 1

$$\text{Health Status} = \beta_0 + \beta_1 \text{ Age} + \beta_2 \text{ Native Born} + \beta_3 \text{ Naturalized Citizens} + \beta_4 \text{ Less Than High School} + \beta_5 \text{ HS Diploma or Some College} + \beta_6 \text{ Employment Status} + \beta_7 \text{ Marital Status} + \beta_8 \text{ Sex} + \beta_9 \text{ White} + \beta_{10} \text{ Asian or Pacific Islander} + \beta_{11} \text{ Below Poverty} + \beta_{12} \text{ 100 to 150 Percent of Low-Income Level} + \beta_{13} \text{ Total Income} + \beta_{14} \text{ Wage and Salary Income} + \beta_{15} \text{ Welfare Income} + \beta_{16} \text{ Retirement Income} + \beta_{17} \text{ Any Insurance Coverage} + \beta_{18} \text{ Private Insurance Coverage} + \beta_{19} \text{ Public Insurance Coverage} + \beta_{20} \text{ Medicare Coverage} + \beta_{21} \text{ Medicaid Coverage} + e$$

$$\left\{ \begin{array}{l} \text{where } \beta_j \text{ represented the coefficient of the } j^{\text{th}} \text{ independent variable} \\ e \text{ represented the error in predicting the health status} \end{array} \right.$$

The regression results of Model 1 suggested that age, education, poverty status, total income, wage and salary income, private insurance coverage, Medicare coverage, and Medicaid coverage were significant factors associated with the health status of respondents in Washington State (Appendix XII). Age, education, poverty status, wage

and salary income, and private insurance coverage were negatively associated with the health status of all individuals in Washington. On the other hand, total income, Medicare and Medicaid coverage were positively associated with the health status of individuals in the state of Washington (Appendix XII).

According to the results in Appendix XII, the age variable was a very significant factor associated with the health status of respondents in Washington. The results of the age variable also showed that as the individual became older, the odds of having higher health status were less likely compared to the general population in Washington ($p < .000$, $\beta_1 = -.037$, odds ratio = .96).

Education was another demographic factor that was significantly associated with the health status of respondents in Washington; both dummy education variables were significantly associated with the health status of respondents in Washington. The odds of having higher health status were less likely, only 75 percent, for those individuals who did not completed high school compared to those who had a bachelor degree or above ($p=.03$, $\beta_4 = -.289$, odds ratio = .75). In addition, the odds of having higher health status were less likely, only 63 percent, for those individuals who had a high school diploma or some college coursework to those who had a bachelor degree or above ($p=.000$, $\beta_5 = -.465$, odds ratio = .63). The overall findings for age variable showed that individuals, who had a bachelor degree or above, tend to have higher health status compared to those who did not (Appendix XII).

Poverty status was also another significant factor associated with the health status of individuals in Washington. Both poverty dummy variables were significantly associated with the self-reported health status of individuals in Washington. The odds of

having higher health status were less likely, only 68 percent, for those individuals who were below the poverty level compared to those who were above 150 percent of low-income level ($p=.004$, $\beta_{11} = -.38$, odds ratio = .68). In addition, the odds of having higher health status were less likely, only 74 percent, for those individuals who had were 100 to 149 percent of low-income level compared to those who were above 150 percent of low-income level ($p=.023$, $\beta_{12} = -.30$, odds ratio = .74). The overall findings for poverty status variables showed that individuals, who were above 150 percent of the low-income level, tend to have higher health status compared to those who were below 150 percent of low-income level (Appendix XII).

Total income and wage and salary income were two other significant factors associated with the health status of individuals in Washington, with p-value of .004 and .023, respectively. However, the results showed that the odds of having higher or lower total income or wage and salary income do not influence the probability of having higher self-reported health status. The odds ratios for these two variables were equal to one according to Appendix XII. In addition, the odds of having higher health status for those who had private insurance coverage were less likely, only 69 percent, compared to the individuals who had other type of insurance coverage or no insurance coverage.

On the other hand, Medicare coverage and Medicaid coverage were significantly associated with the health status of individuals in Washington ($p=.002$, $p<.001$). The odds ratios of having higher health status for those who had Medicare coverage were 1.79 times higher than those who had other type of insurance coverage or no insurance coverage. In addition, the odds of having higher health status for those who had Medicaid coverage were 2.38 times higher than those who had other types of insurance

coverage or no insurance coverage. The overall findings showed that individuals, who had either Medicare or Medicaid coverage, tend to have higher health status compared to those who had other types of insurance coverage or did not have any insurance coverage (Appendix XII).

Results for Respondents of Age 65 or Above (N = 319)

In order to further justify the relationship of whether or not having Medicare is associated with better health status, ordinal logistic regression were performed on the subsample of those who were age 65 or above. The results are presented in Appendix XIII. This second logistic regression was performed for the subsample of 319 individuals in Washington, at an alpha-level of .05. For this regression analysis, income welfare was taken out due to collinearity, which is defined as the linear relationship between two explanatory variables. The logistic regression is represented by Model 2 in Appendix XIII, and also illustrated below.

Model 2

$$\text{Health Status} = \beta_0 + \beta_1 \text{ Age} + \beta_2 \text{ Native Born} + \beta_3 \text{ Naturalized Citizens} + \beta_4 \text{ Less Than High School} + \beta_5 \text{ HS Diploma or Some College} + \beta_6 \text{ Employment Status} + \beta_7 \text{ Marital Status} + \beta_8 \text{ Sex} + \beta_9 \text{ White} + \beta_{10} \text{ Asian or Pacific Islander} + \beta_{11} \text{ Below Poverty} + \beta_{12} \text{ 100 to 150 Percent of Low-Income Level} + \beta_{13} \text{ Total Income} + \beta_{14} \text{ Wage and Salary Income} + \beta_{15} \text{ Retirement Income} + \beta_{16} \text{ Any Insurance Coverage} + \beta_{17} \text{ Private Insurance Coverage} + \beta_{18} \text{ Public Insurance Coverage} + \beta_{19} \text{ Medicare Coverage} + \beta_{20} \text{ Medicaid Coverage} + e$$

$$\left\{ \begin{array}{l} \text{where } \beta_j \text{ represented the coefficient of the } j^{\text{th}} \text{ independent variable} \\ e \text{ represented the error in predicting the health status} \end{array} \right.$$

The regression results of Model 2 suggested that age, Medicare coverage, and Medicaid coverage were significant factors associated with the health status of

respondents who were age 65 or older in Washington (Appendix XIII). The age variable was marginally significant factor associated with the health status of respondents who were age 65 or above in Washington. The results of the age variable also showed that as the individual became older, the odds of having higher health status were less likely compared to the general population of age 65 or older ($p < .056$, $\beta_1 = -.033$, odds ratio = .97).

Medicare coverage and Medicaid coverage were two other variables that were positively associated with the health status of individuals of age 65 or above in Washington ($\beta_{19} = 2.89$, $\beta_{20} = 1.59$). The odds ratios of having higher health status for those who had Medicare coverage were 17.99 times higher than those of age 65 or above and had other type of insurance coverage or no insurance coverage. This result illustrated a significant finding and association between having Medicare coverage and higher self-reported health status for those individuals age 65 or above in Washington. In addition, the odds of having higher health status for those who had Medicaid coverage were 4.90 times higher than those who had other types of insurance coverage or no insurance coverage. This was also an interesting finding because even for the population of age 65 or above, there was still a significant relationship between having Medicaid coverage and higher self-reported health status. The overall findings showed that individuals, who had either Medicare or Medicaid coverage, tend to have much higher health status compared to those who had other types of insurance coverage or did not have any insurance coverage (Appendix XIII). These results further justified the relationship between having Medicare or Medicaid coverage and having higher health status of individuals in Washington.

Results for Respondents under Age 65 (N = 2,910)

In order to further justify the relationship of whether or not having Medicaid is associated with better health status, ordinal logistic regression were performed on the subsample of those who were under age 65. The results are presented in Appendix XIV. This last logistic regression was performed for the subsample of 2,910 individuals in Washington, at an alpha-level of .05. The logistic regression is represented by Model 3 in Appendix XIV, and also illustrated below.

Model 3

Health Status = $\beta_0 + \beta_1$ Age + β_2 Native Born + β_3 Naturalized Citizens + β_4 Less Than High School + β_5 HS Diploma or Some College + β_6 Employment Status + β_7 Marital Status + β_8 Sex + β_9 White + β_{10} Asian or Pacific Islander + β_{11} Below Poverty + β_{12} 100 to 150 Percent of Low-Income Level + β_{13} Total Income + β_{14} Wage and Salary Income + β_{15} Welfare Income + β_{16} Retirement Income + β_{17} Any Insurance Coverage + β_{18} Private Insurance Coverage + β_{19} Public Insurance Coverage + β_{20} Medicare Coverage + β_{21} Medicaid Coverage + e

{ where β_j represented the coefficient of the j^{th} independent variable
e represented the error in predicting the health status

The regression results of Model 3 suggested that age, education, marital status, poverty status, total income, wage and salary income, private insurance coverage, Medicare coverage, and Medicaid coverage were significant factors associated with the health status of respondents in Washington State (Appendix XIV). Age, education, poverty status, wage and salary income, and private insurance coverage were negatively associated with the health status of all individuals in Washington. On the other hand, total income, Medicare and Medicaid coverage were positively associated with the health status of all individuals in the state of Washington (Appendix XIV). These findings were

very similar to the findings for the overall sample in Model 1 discussed in the earlier section.

According to the results in Appendix XIV, age variable was a very significant factor associated with the health status of respondents who were under age 65 in Washington. The results of the age variable also showed that as the individual became older, the odds of having higher health status were less likely compared to the general population in Washington ($p < .000$, $\beta_1 = -.045$, odds ratio = .96). The odds ratio results for age variable are similar to the findings in Model 1.

Education was another demographic factor that was significantly associated with the health status of individuals under age 65 in Washington; both dummy education variables were significantly associated with the health status of respondents in Washington. The odds of having higher health status were less likely, only 74 percent, for those individuals who did not completed high school compared to those who had a bachelor degree or above ($p = .035$, $\beta_4 = -.306$, odds ratio = .74). In addition, the odds of having higher health status were less likely, only 60 percent, for those individuals who had a high school diploma or some college coursework to those who had a bachelor degree or above ($p < .001$, $\beta_5 = -.505$, odds ratio = .60). The overall findings for age variable showed that individuals, who had a bachelor degree or above, tend to have higher health status compared to those who did not (Appendix XIV). These results are similar to the findings in Model 1, but different than in Model 2 because education was not a significant factor in predicting the health status of individuals who were age 65 or above in Washington.

Marital status was also a demographic factor that was marginally significant in predicting the health status of individuals under age 65. The results of the marital status variable showed that the odds of having higher health status for married individuals who were under age 65 were less likely compared to the those who were not married ($p=.071$, $\beta_7 = -.163$, odds ratio = .85). The odds ratio results for marital status variable are different to the findings in Model 1 and Model 2. In the first two models, marital status was not a significant factor in predicting the self-reported health status.

Poverty status was also another significant factor associated with the health status of individuals in Washington. Both poverty dummy variables were significantly associated with the self-reported health status of individuals in Washington. The odds of having higher health status were less likely, only 71 percent, for those individuals who were below the poverty level compared to those who were above 150 percent of low-income level ($p=.014$, $\beta_{11} = -.341$, odds ratio = .71). In addition, the odds of having higher health status were less likely, only 77 percent, for those individuals who had were 100 to 149 percent of low-income level compared to those who were above 150 percent of low-income level ($p=.060$, $\beta_{12} = -.264$, odds ratio = .77). The overall findings for poverty status variables showed that individuals, who were above 150 percent of the low-income level, tend to have higher health status compared to those who were below 150 percent of low-income level (Appendix XIV). These results are similar to the findings in Model 1, but different than in Model 2 because poverty was not a significant factor in predicting the health status of individuals who were age 65 or above in Washington.

Total income and wage and salary income were two other marginally significant factors associated with the health status of individuals in Washington, with p-value of

.049 and .078, respectively. However, the results showed that the odds of having higher or lower total income or wage and salary income do not influence the probability of having higher self-reported health status. The odds ratios for these two variables were equal to one according to Appendix XIV. In addition, the odds of having higher health status for those who had private insurance coverage were less likely, only 68 percent, compared to the individuals who had other type of insurance coverage or no insurance coverage. These results are similar to the findings in Model 1, but different than in Model 2 because total income, wage and salary income, and private insurance coverage were not significant factors in predicting the health status of individuals who were age 65 or above in Washington.

On the other hand, Medicare coverage and Medicaid coverage were significantly associated with the health status of individuals under age 65 ($p < .000$, $p = .003$). The odds ratios of having higher health status for those who had Medicare coverage were 5.63 times higher than those who had other type of insurance coverage or no insurance coverage. In addition, the odds of having higher health status for those who had Medicaid coverage were 1.84 times higher than those who had other types of insurance coverage or no insurance coverage (Appendix XIV). The overall findings showed that individuals, who had either Medicare or Medicaid coverage, tend to have higher health status compared to those who had other types of insurance coverage or did not have any insurance coverage. These findings were interesting because even for the subsample of those under age 65, there was still a significant relationship between having Medicare coverage and higher self-reported health status. The overall findings showed that individuals under age 65, who had either Medicare or Medicaid coverage, tend to have

much higher health status compared to those who had other types of insurance coverage or did not have any insurance coverage. These results further justified the relationship between having Medicare or Medicaid coverage and having higher health status of individuals in Washington.

VI. CONCLUSION

The analyses in this study had several limitations. First, the study was carried out under the assumption that having different types of insurance coverage was the only factor that influenced the self-reported health status of individuals in Washington, United States. However, there were many other factors could influence the overall health status of an individual (Long et al, 2005; Sommers, 2008). Second, the March dataset excluded additional cases of the Hispanic sample who were interviewed in other months of the year, including April, August, September, October and November. Third, the independent variables, which had more than three categories defined by the CPS, were recoded into only three categories in order to carry out logistic regression analyses. Hence, the outcome might be different than if the original categories defined by the CPS were utilized in the analyses. And lastly, this study did not fully considered comparing the health status of those individuals who were dual-eligible for both Medicare and Medicaid separately. This was not performed due to the complexity of the dataset and these data were not explicitly available from the CPS.

Despite these limitations, the analyses highlighted several tentative implications for having Medicare and Medicaid coverage for individuals in the state of Washington. The descriptive statistics analyses allowed to explore the differences across the self-reported health status of individuals in the state of Washington based on different types of

insurance coverage. The findings showed that the respondents who had Medicare coverage had much lower health status than the general population, the uninsured individuals, and those who had private insurance, public insurance, or Medicaid coverage in the overall sample as well as for only those under age 65. However, those who had Medicaid coverage had better health status compared to those who had public insurance, Medicare coverage for the whole population as well as for only those age 65 or above. On the other hand, these individuals with Medicaid coverage had lower self-reported health status than the overall general population, uninsured individuals, and those who had private insurance coverage. These descriptive statistics findings were different than the findings based on ordinal logistic regression analyses.

This study also demonstrated the statistical effects of having Medicare and Medicaid coverage on the overall health status of individuals in Washington. The overall findings showed that Medicare and Medicaid coverage were positively associated with the health status of individuals in Washington. Those individuals, who had either Medicare or Medicaid coverage, tend to have much higher health status compared to those who had other types of insurance coverage or did not have any insurance coverage. In addition, the probability of having higher health status for those individuals who had Medicare coverage were much higher than those who had Medicaid coverage for the general population, those who were of age 65 or above, as well as those who were under age 65 in Washington, United States.

Overall, this study was conducted to provide insights into the relationship between having Medicare, Medicaid, and the overall self-reported health status of individuals in Washington, United States. However, whether having Medicare and

Medicaid coverage influences the health status of individuals presents complexities to policymakers and practitioners alike (Long et al, 2005; Sommers, 2008). Policymakers and practitioners need to understand other issues and problems affecting the overall health status of individuals in Washington. Therefore, further research should focus on other issues and problems affecting the overall health status of individuals in Washington, in addition to having different types of insurance coverage.

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VIII. APPENDICES

Appendix I. Summary of All Variables			
<i>Dependent Variable</i>			
<i>Variable</i>	<i>Measure</i>	<i>Description</i>	<i>Codes</i>
Health	Qualitative	Health status	1-Excellent, 2-Very good, 3-Good, 4-Fair, 5-Poor
<i>Independent Variable</i>			
<i>Variable</i>	<i>Measure</i>	<i>Description</i>	<i>Codes</i>
Age	Quantitative	Age at last birthday	Numeric from 00 to 99
CITIZEN	Qualitative	Citizenship status	0-Native born, 1-Naturalized citizens, 2-Not a citizen
EDUC	Qualitative	Educational attainment	0-Less than high school 1-HS diploma or some college 2-Bachelor's degree or above
EMPSTAT	Qualitative	Employment status	0-Employed, 1-Unemployed
HCOVANY	Qualitative	Any insurance coverage	0-Yes, 1-No
HCOVPRIV	Qualitative	Any private insurance	0-Covered, 1-Not covered
HCOVPUB	Qualitative	Any public insurance	0-Covered, 1-Not covered
HINSCAID	Qualitative	Any Medicaid coverage	0-Covered, 1-Not covered
HINSCARE	Qualitative	Any Medicare coverage	0-Covered, 1-Not covered
INCTOT	Quantitative	Total personal income	Numeric from 0 to 99999999
INCWAGE	Quantitative	Wage and salary income	Numeric from 0 to 99999999
INCWELFR	Quantitative	Welfare income	Numeric from 0 to 99999999
INCRETIR	Quantitative	Retirement income	Numeric from 0 to 99999999
MARST	Qualitative	Current marital status	0-Married, 1-Not married
POVERTY	Qualitative	Official poverty status	0-Below poverty, 1-100 to 149 percent of low-income level, 2-above 150 percent of low-income level
RACE	Qualitative	Racial background	0-White, 1-Asian/Pacific Islander, 2-Other
SEX	Qualitative	Sex	0 – Male, 1 – Female

Appendix II. Descriptive Statistics for All Variables (N = 3,229)			
<i>Qualitative Variable</i>			
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>	
<i>Citizen</i>			
Native born	2722	84.30	
Naturalized citizens	208	6.44	
Not a citizen	299	9.26	
<i>Education Attainment</i>			
Less than high school	1180	36.54	
High school diploma or some college	1331	41.22	
Bachelor's degree or above	718	22.24	
<i>Employment Status</i>			
Employed	2226	68.94	
Unemployed	1003	31.06	
<i>Marital Status</i>			
Married	1319	40.85	
Not married	1910	59.15	
<i>Poverty Status</i>			
Below poverty	407	12.60	
100 to 150 percent of low-income level	357	11.06	
Above 150 percent of low-income level	2465	76.34	
<i>Sex</i>			
Male	1618	50.11	
Female	1611	49.89	
<i>Race</i>			
White	2570	79.59	
Asian/Pacific Islander	345	10.68	
Other	314	9.72	
<i>Any Insurance Coverage</i>			
Yes	2761	85.51	
No	468	14.49	
<i>Private Insurance Coverage</i>			
Covered	2086	64.60	
Other coverage	1143	35.40	
<i>Public Insurance Coverage</i>			
Covered	1061	32.86	
Other coverage	2168	67.14	
<i>Medicare Coverage</i>			
Covered	354	10.96	
Other coverage	2875	89.04	
<i>Medicaid Coverage</i>			
Covered	551	17.06	
Other coverage	2678	82.94	

<i>Health Status</i>					
Excellent		1198		37.10	
Very good		985		30.50	
Good		716		22.17	
Fair		231		7.15	
Poor		99		3.07	
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	34.909	21.903	0	34	85
Total income	37047	59894	-219	23200	1129684
Wage & salary income	28625	56906	0	12199	1099999
Welfare income	32.26	375.97	0	0	7704
Retirement income	1378	7421	0	0	114454

Appendix III. Descriptive Statistics for No Insurance Coverage (n = 468)		
<i>Qualitative Variable</i>		
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>
<i>Citizen</i>		
Native born	332	70.94
Naturalized citizens	28	5.98
Not a citizen	108	23.08
<i>Education Attainment</i>		
Less than high school	168	35.90
High school diploma or some college	240	51.28
Bachelor's degree or above	60	12.82
<i>Employment Status</i>		
Employed	297	63.46
Unemployed	171	36.54
<i>Marital Status</i>		
Married	163	34.83
Not married	305	65.17
<i>Poverty Status</i>		
Below poverty	105	22.44
100 to 150 percent of low-income level	107	22.86
Above 150 percent of low-income level	256	54.70
<i>Sex</i>		
Male	227	48.50
Female	241	51.50
<i>Race</i>		
White	358	76.50
Asian/Pacific Islander	43	9.19
Other	67	14.32

<i>Health Status</i>					
Excellent		129		27.56	
Very good		159		33.97	
Good		129		27.56	
Fair		42		8.97	
Poor		9		1.92	
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	34.179	16.980	0	35	77
Total income	21281	62412	0	14000	1129684
Wage income	17422	60502	0	7000	1099999
Welfare income	11.6	231	0	0	4620
Retirement income	129.3	1678.6	0	0	31476

Appendix IV. Descriptive Statistics for Private Insurance Coverage (n = 2,086)		
<i>Qualitative Variable</i>		
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>
<i>Citizen</i>		
Native born	1808	86.67
Naturalized citizens	143	6.86
Not a citizen	135	6.47
<i>Education Attainment</i>		
Less than high school	612	29.34
High school diploma or some college	869	41.66
Bachelor's degree or above	605	29.00
<i>Employment Status</i>		
Employed	1551	74.35
Unemployed	535	25.65
<i>Marital Status</i>		
Married	973	46.64
Not married	1113	53.36
<i>Poverty Status</i>		
Below poverty	112	5.37
100 to 150 percent of low-income level	104	4.99
Above 150 percent of low-income level	1870	80.65
<i>Sex</i>		
Male	1046	50.14
Female	1040	49.86
<i>Race</i>		
White	1678	80.44
Asian/Pacific Islander	236	11.31
Other	172	8.25

<i>Health Status</i>					
Excellent	859			41.18	
Very good	672			32.21	
Good	399			19.13	
Fair	110			5.27	
Poor	46			2.21	
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	36.735	21.412	0	37	85
Total income	45515	63297	-219	32050	1115499
Wage income	36896	60414	0	24500	1099999
Welfare income	.980	40.15	0	0	1644
Retirement income	1514	8102	0	0	114454

Appendix V. Descriptive Statistics for Public Insurance Coverage (n = 1,061)		
<i>Qualitative Variable</i>		
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>
<i>Citizen</i>		
Native born	933	87.94
Naturalized citizens	64	6.03
Not a citizen	64	6.03
<i>Education Attainment</i>		
Less than high school	507	47.79
High school diploma or some college	415	39.11
Bachelor's degree or above	139	13.10
<i>Employment Status</i>		
Employed	547	51.56
Unemployed	514	48.44
<i>Marital Status</i>		
Married	387	36.48
Not married	674	63.52
<i>Poverty Status</i>		
Below poverty	221	20.83
100 to 150 percent of low-income level	177	16.68
Above 150 percent of low-income level	663	62.49
<i>Sex</i>		
Male	545	51.37
Female	516	48.63
<i>Race</i>		
White	873	82.28
Asian/Pacific Islander	87	8.20
Other	101	9.52

<i>Health Status</i>					
Excellent		315		29.69	
Very good		263		24.79	
Good		293		27.62	
Fair		118		11.12	
Poor		72		6.79	
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	37.379	27.881	0	30	85
Total income	26304	43574	0	15587	808333
Wage income	9721	34837	0	0	800000
Welfare income	102.8	665.1	0	0	7704
Retirement income	3831	12306	0	0	114454

Appendix VI. Descriptive Statistics for Medicare Coverage (n = 354)		
<i>Qualitative Variable</i>		
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>
<i>Citizen</i>		
Native born	307	86.72
Naturalized citizens	32	9.04
Not a citizen	15	4.24
<i>Education Attainment</i>		
Less than high school	47	13.28
High school diploma or some college	214	60.45
Bachelor's degree or above	93	26.27
<i>Employment Status</i>		
Employed	51	14.41
Unemployed	303	85.59
<i>Marital Status</i>		
Married	204	57.63
Not married	150	42.37
<i>Poverty Status</i>		
Below poverty	30	8.47
100 to 150 percent of low-income level	36	10.17
Above 150 percent of low-income level	288	81.36
<i>Sex</i>		
Male	185	52.26
Female	169	47.74
<i>Race</i>		
White	311	87.85
Asian/Pacific Islander	31	8.76
Other	12	3.39

<i>Health Status</i>					
Excellent		45		12.71	
Very good		79		22.32	
Good		110		31.07	
Fair		68		19.21	
Poor		52		14.69	
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	69.316	13.425	1	70	85
Total income	34417	55272	0	21875	808333
Wage & salary income	6365	44954	0	0	800000
Welfare income	25.7	325.4	0	0	4620
Retirement income	7233	16457	0	0	114454

Appendix VII. Descriptive Statistics for Medicaid Coverage (n = 551)		
<i>Qualitative Variable</i>		
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>
<i>Citizen</i>		
Native born	474	86.03
Naturalized citizens	28	5.08
Not a citizen	49	8.89
<i>Education Attainment</i>		
Less than high school	407	73.87
High school diploma or some college	127	23.05
Bachelor's degree or above	17	3.09
<i>Employment Status</i>		
Employed	356	64.61
Unemployed	195	35.39
<i>Marital Status</i>		
Married	94	17.06
Not married	457	82.94
<i>Poverty Status</i>		
Below poverty	186	33.76
100 to 150 percent of low-income level	132	23.96
Above 150 percent of low-income level	233	42.29
<i>Sex</i>		
Male	283	51.36
Female	268	48.64
<i>Race</i>		
White	429	77.86
Asian/Pacific Islander	53	9.62
Other	69	12.52

<i>Health Status</i>					
Excellent	188			34.12	
Very good	133			24.14	
Good	144			26.13	
Fair	56			10.13	
Poor	30			5.44	
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	21.283	19.762	0	15	85
Total income	10408	17967	0	5120	200000
Wage & salary income	4238	10232	0	0	78000
Welfare income	273.9	1064.8	0	0	7704
Retirement income	278	2146	0	0	20556

Appendix VIII. Descriptive Statistics for Respondents Age 65 or Above (n=319)			
<i>Qualitative Variable</i>			
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>	
<i>Citizen</i>			
Native born	272	85.27	
Naturalized citizens	30	9.40	
Not a citizen	17	5.33	
<i>Education Attainment</i>			
Less than high school	40	12.54	
High school diploma or some college	185	57.99	
Bachelor's degree or above	94	29.47	
<i>Employment Status</i>			
Employed	61	19.12	
Unemployed	258	80.88	
<i>Marital Status</i>			
Married	198	62.07	
Not married	121	37.93	
<i>Poverty Status</i>			
Below poverty	21	6.58	
100 to 150 percent of low-income level	19	5.96	
Above 150 percent of low-income level	279	87.46	
<i>Sex</i>			
Male	168	52.66	
Female	151	47.34	
<i>Race</i>			
White	281	88.09	
Asian/Pacific Islander	30	9.40	
Other	8	2.51	

<i>Any Insurance Coverage</i>					
Yes	311	97.49			
No	8	2.51			
<i>Private Insurance Coverage</i>					
Covered	211	66.14			
Other coverage	108	33.86			
<i>Public Insurance Coverage</i>					
Covered	289	90.60			
Other coverage	30	9.40			
<i>Medicare Coverage</i>					
Covered	287	89.97			
Other coverage	32	10.03			
<i>Medicaid Coverage</i>					
Covered	292	91.54			
Other coverage	27	8.46			
<i>Health Status</i>					
Excellent	47	14.73			
Very good	79	24.76			
Good	108	33.86			
Fair	48	15.05			
Poor	37	11.60			
Quantitative Variables					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	73.655	6.580	65	72	85
Total income	37845	58557	0	23914	808333
Wage & salary income	9889	48524	0	0	8000000
Welfare income	0	0	0	0	0
Retirement income	7221	16858	0	0	114454

Appendix IX. Descriptive Statistics for Medicare Coverage Age 65 or Above (n =287)		
Qualitative Variable		
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>
<i>Citizen</i>		
Native born	248	86.41
Naturalized citizens	30	10.45
Not a citizen	9	3.14
<i>Education Attainment</i>		
Less than high school	34	11.85
High school diploma or some college	172	59.93
Bachelor's degree or above	81	28.22
<i>Employment Status</i>		
Employed	42	14.63
Unemployed	245	85.37

<i>Marital Status</i>					
Married	179	62.37			
Not married	108	37.63			
<i>Poverty Status</i>					
Below poverty	17	5.92			
100 to 150 percent of low-income level	19	6.62			
Above 150 percent of low-income level	251	87.46			
<i>Sex</i>					
Male	150	52.26			
Female	137	47.74			
<i>Race</i>					
White	257	89.55			
Asian/Pacific Islander	24	8.36			
Other	6	2.09			
<i>Health Status</i>					
Excellent	39	13.59			
Very good	70	24.39			
Good	97	33.80			
Fair	45	15.68			
Poor	36	12.54			
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	74.129	6.530	65	73	85
Total income	37521	60149	0	23302	808333
Wage & salary income	7652	49542	0	0	800000
Welfare income	0	0	0	0	0
Retirement income	7732	17260	0	0	114454

Appendix X. Descriptive Statistics for All Coverage Age < 65 (n = 2,910)		
<i>Qualitative Variable</i>		
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>
<i>Citizen</i>		
Native born	2450	84.19
Naturalized citizens	178	6.12
Not a citizen	282	9.69
<i>Education Attainment</i>		
Less than high school	1140	39.18
High school diploma or some college	1146	39.38
Bachelor's degree or above	624	21.44
<i>Employment Status</i>		
Employed	2165	74.40
Unemployed	745	25.60

<i>Marital Status</i>					
Married		1121		38.52	
Not married		1789		61.48	
<i>Poverty Status</i>					
Below poverty		386		13.26	
100 to 150 percent of low-income level		338		11.62	
Above 150 percent of low-income level		2186		75.12	
<i>Sex</i>					
Male		1450		49.83	
Female		1460		50.17	
<i>Race</i>					
White		2289		78.66	
Asian/Pacific Islander		315		10.82	
Other		306		10.52	
<i>Any Insurance Coverage</i>					
Yes		2450		84.19	
No		460		15.81	
<i>Private Insurance Coverage</i>					
Covered		1875		64.43	
Other coverage		1035		35.57	
<i>Public Insurance Coverage</i>					
Covered		772		26.53	
Other coverage		2138		73.47	
<i>Medicare Coverage</i>					
Covered		67		2.30	
Other coverage		2843		97.70	
<i>Medicaid Coverage</i>					
Covered		524		18.01	
Other coverage		2386		81.99	
<i>Health Status</i>					
Excellent		1151		39.55	
Very good		906		31.13	
Good		608		20.89	
Fair		183		6.29	
Poor		62		2.13	
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	30.661	18.573	0	31	64
Total income	36929	60101	-219	23000	1129684
Wage & salary income	31383	57534	0	17884	1099999
Welfare income	37.07	402.49	0	0	7704
Retirement income	518.2	3961.4	0	0	60000

Appendix XI. Descriptive Statistics for Medicaid Coverage Age < 65 (n = 524)					
<i>Qualitative Variable</i>					
<i>Variable</i>	<i>Count</i>	<i>Percentage (%)</i>			
<i>Citizen</i>					
Native born	455	86.83			
Naturalized citizens	24	4.58			
Not a citizen	45	8.59			
<i>Education Attainment</i>					
Less than high school	401	76.53			
High school diploma or some college	108	20.61			
Bachelor's degree or above	15	2.86			
<i>Employment Status</i>					
Employed	355	67.75			
Unemployed	169	32.25			
<i>Marital Status</i>					
Married	78	14.89			
Not married	446	85.11			
<i>Poverty Status</i>					
Below poverty	180	34.35			
100 to 150 percent of low-income level	129	24.62			
Above 150 percent of low-income level	215	41.03			
<i>Sex</i>					
Male	269	51.34			
Female	255	48.66			
<i>Race</i>					
White	408	77.86			
Asian/Pacific Islander	48	9.16			
Other	68	12.98			
<i>Health Status</i>					
Excellent	188	35.88			
Very good	131	25.00			
Good	135	25.76			
Fair	49	9.35			
Poor	21	4.01			
<i>Quantitative Variables</i>					
<i>Variable</i>	<i>Mean</i>	<i>StDev</i>	<i>Min</i>	<i>Median</i>	<i>Max</i>
Age	18.588	16.147	0	14	64
Total income	9778	18257	0	4000	200000
Wage & salary income	4538	10555	0	0	78000
Welfare income	303.6	1117.2	0	0	7704
Retirement income	72.5	1140.7	0	0	18000

Appendix XII. Ordinal Logistics Regression for All Respondents (N = 3,229)

Model 1 ($\alpha = .05$)

$$\text{Health Status} = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Native Born} + \beta_3 \text{Naturalized Citizens} + \beta_4 \text{Less Than High School} + \beta_5 \text{HS Diploma or Some College} + \beta_6 \text{Employment Status} + \beta_7 \text{Marital Status} + \beta_8 \text{Sex} + \beta_9 \text{White} + \beta_{10} \text{Asian or Pacific Islander} + \beta_{11} \text{Below Poverty} + \beta_{12} \text{100 to 150 Percent of Low-Income Level} + \beta_{13} \text{Total Income} + \beta_{14} \text{Wage and Salary Income} + \beta_{15} \text{Welfare Income} + \beta_{16} \text{Retirement Income} + \beta_{17} \text{Any Insurance Coverage} + \beta_{18} \text{Private Insurance Coverage} + \beta_{19} \text{Public Insurance Coverage} + \beta_{20} \text{Medicare Coverage} + \beta_{21} \text{Medicaid Coverage} + e$$

<i>Variable</i>	<i>Coef</i>	<i>p-value</i>	<i>Odds ratio</i>	<i>95% CI</i>
Age	-.037	.000***	.96	(.96, .97)
Citizenship status				
Native born	.014	.914	1.01	(.78, 1.32)
Naturalized citizens	-.237	.178	.79	(.56, 1.11)
Education				
<High school	-.289	.030**	.75	(.58, .97)
HS diploma or some College	-.465	.000***	.63	(.53, .75)
Employment status	-.077	.406	.93	(.77, 1.11)
Marital status	-.047	.569	.95	(.81, 1.12)
Sex	-.035	.646	.97	(.83, 1.12)
Race				
White	.064	.625	1.07	(.82, 1.38)
Asian/Pacific Islander	.305	.095*	1.36	(.95, 1.94)
Poverty status				
Below poverty	-.38	.004***	.68	(.53, .88)
100 to 149 percent of low-income level	-.30	.023**	.74	(.57, .96)
Total income	.000006	.007***	1	(1.00, 1.00)
Wage and salary income	-.0000054	.019**	1	(1.00, 1.00)
Welfare income	-.0001526	.126	1	(1.00, 1.00)
Retirement income	.0000002	.978	1	(1.00, 1.00)
Any insurance coverage	-.097	.595	.91	(.63, 1.30)
Private Insurance Coverage	-.374	.012**	.69	(.51, .92)
Public Insurance Coverage	-.106	.518	.90	(.65, 1.24)
Medicare Coverage	.583	.002***	1.79	(1.23, 2.61)
Medicaid Coverage	.868	.000***	2.38	(1.68, 3.38)
<i>Overall p-value</i>		0.000 ***		
***very significant ($p < 0.01$); ** significant ($.01 < p \leq .05$); * marginally significant ($.05 < p < .1$)				

Appendix XIII. Ordinal Logistics Regression for Respondents Age 65+ (n=319)

Model 2 ($\alpha = .05$)

$$\text{Health Status} = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Native Born} + \beta_3 \text{Naturalized Citizens} + \beta_4 \text{Less Than High School} + \beta_5 \text{HS Diploma or Some College} + \beta_6 \text{Employment Status} + \beta_7 \text{Marital Status} + \beta_8 \text{Sex} + \beta_9 \text{White} + \beta_{10} \text{Asian or Pacific Islander} + \beta_{11} \text{Below Poverty} + \beta_{12} \text{100 to 150 Percent of Low-Income Level} + \beta_{13} \text{Total Income} + \beta_{14} \text{Wage and Salary Income} + \beta_{15} \text{Retirement Income} + \beta_{16} \text{Any Insurance Coverage} + \beta_{17} \text{Private Insurance Coverage} + \beta_{18} \text{Public Insurance Coverage} + \beta_{19} \text{Medicare Coverage} + \beta_{20} \text{Medicaid Coverage} + e$$

<i>Variable</i>	<i>Coef</i>	<i>p-value</i>	<i>Odds ratio</i>	<i>95% CI</i>
Age	-.033	.056*	.97	(.94, 1.00)
Citizenship status				
Native born	.311	.588	1.36	(.44, 4.19)
Naturalized citizens	-.181	.781	.83	(.23, 3.00)
Education				
<High school	-.760	.054*	.47	(.22, 1.01)
HS diploma or some College	-.238	.333	.79	(.49, 1.28)
Employment status	.046	.889	1.05	(.55, 2.01)
Marital status	.363	.129	1.44	(.90, 2.30)
Sex	-.133	.553	.88	(.57, 1.36)
Race				
White	1.19	.080*	3.31	(.87, 12.65)
Asian/Pacific Islander	.657	.404	1.93	(.41, 9.04)
Poverty status				
Below poverty	-.227	.567	.77	(.31, 1.91)
100 to 149 percent of low-income level	-.507	.271	.60	(.24, 1.48)
Total income	.0000057	.148	1	(1.00, 1.00)
Wage and salary income	-.0000015	.765	1	(1.00, 1.00)
Retirement income	-.0000056	.457	1	(1.00, 1.00)
Any insurance coverage	-.572	.508	.56	(.10, 3.08)
Private Insurance Coverage	.119	.615	1.13	(.71, 1.80)
Public Insurance Coverage	-2.15	.168	.12	(.01, 2.47)
Medicare Coverage	2.89	.053**	17.99	(.96, 335.70)
Medicaid Coverage	1.59	.000***	4.90	(2.17, 11.04)
<i>Overall p-value 0.000 ***</i>				
<i>Income welfare was taken out due to collinearity</i>				
***very significant ($p < 0.01$); ** significant ($.01 < p \leq .05$); * marginally significant ($.05 < p < .1$)				

Appendix XIV. Ordinal Logistics Regression for Respondents Age < 65 (n=2,910)

Model 3($\alpha = .05$)

$$\text{Health Status} = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Native Born} + \beta_3 \text{Naturalized Citizens} + \beta_4 \text{Less Than High School} + \beta_5 \text{HS Diploma or Some College} + \beta_6 \text{Employment Status} + \beta_7 \text{Marital Status} + \beta_8 \text{Sex} + \beta_9 \text{White} + \beta_{10} \text{Asian or Pacific Islander} + \beta_{11} \text{Below Poverty} + \beta_{12} \text{100 to 140 Percent of Low-Income Level} + \beta_{13} \text{Total Income} + \beta_{14} \text{Wage and Salary Income} + \beta_{15} \text{Welfare Income} + \beta_{16} \text{Retirement Income} + \beta_{17} \text{Any Insurance Coverage} + \beta_{18} \text{Private Insurance Coverage} + \beta_{19} \text{Public Insurance Coverage} + \beta_{20} \text{Medicare Coverage} + \beta_{21} \text{Medicaid Coverage} + e$$

Variable	Coef	p-value	Odds ratio	95% CI
Age	-.045	.000***	.96	(.95, .96)
Citizenship status				
Native born	.009	.950	1.01	(.77, 1.32)
Naturalized citizens	-.184	.329	.83	(.57, 1.20)
Education				
<High school	-.306	.035**	.74	(.55, .98)
HS diploma or some college	-.505	.000***	.60	(.50, .73)
Employment status	-.128	.190	.88	(.73, 1.07)
Marital status	-.163	.071*	.85	(.71, 1.01)
Sex	-.015	.850	.98	(.84, 1.15)
Race				
White	-.021	.877	.98	(.75, 1.27)
Asian/Pacific Islander	.311	.105	1.36	(.94, 1.99)
Poverty status				
Below poverty	-.341	.014**	.71	(.54, .93)
100 to 149 percent of low-income level	-.264	.060*	.77	(.58, 1.01)
Total income	.0000055	.049**	1	(1.00, 1.00)
Wage and salary income	-.000005	.078*	1	(1.00, 1.00)
Welfare income	-.000137	.173	1	(1.00, 1.00)
Retirement income	.0000169	.122	1	(1.00, 1.00)
Any insurance coverage	-.092	.686	.91	(.58, 1.43)
Private Insurance Coverage	-.388	.055*	.68	(.46, 1.01)
Public Insurance Coverage	.114	.541	1.12	(.78, 1.61)
Medicare Coverage	1.73	.000***	5.63	(3.26, 9.71)
Medicaid Coverage	.608	.003***	1.84	(1.24, 2.73)
Overall p-value		.000 ***		
***very significant ($p < 0.01$); ** significant ($.01 < p \leq .05$); * marginally significant ($.05 < p < .1$)				

VITA

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