The Effects of Unemployment on the Utilization of the Medical Industry

Department of Economics The University of Akron Fall 2009

Jessica Collins (jec64), David Maple (dsm22), Aaron Dodds (asd22), Justin Powell (jsp15)

20 November 2009

As the economy declines, unemployment naturally rises. When unemployment increases and the income of those affected decreases, individuals turn to medical care, as they are more in need of such attention. Job loss is a contributing factor to decreased health of an individual, intensifying the movement to medical care.
Introduction-

When the fear of losing a job becomes a reality, it takes a toll on the financial situation of that worker and other aspects of that individual's life. Through the loss of health insurance and income, workers become unable to take advantage of regular physician visits and clinical treatment, turning instead to other means of medical care. When income is low, consumers are subject to seeking medical attention than if they were not facing lower income and purchasing power. Through the use of data and analysis, the Emergency Room, physician visits and need for mental health attention will be shown to be goods in high demand when incomes decrease, making them necessary, but inferior goods. This is shown through their numerical increase in relation to the unemployment rate increase and the physician medical expenditures increase for a given state. For the purpose of this project, it is assumed that state legislation regarding health care and insurance coverage and the populations of the states are held in ceteris paribus.

Because physician visits and periodical clinical visitations are seen to increase in relation to unemployment, it is shown that the need for medical attention is still needed during times of unemployment. Therefore, there is the continued need for medical care, but the increased need for care, in part, is a side-effect of unemployment. The population as a whole, when other stress factors differing from unemployment are held at a constant, will be shown to have a decline in overall health when unemployment increases in that state. Mental health of individuals will be

---

1 Inferior Good - a good which increases in demand when income is at a lower point than normal.
2 Study performed by Economics students at the University of Akron for the Computer Skills for Economic Analysis Course.
3 Ceteris Paribus - "all other things equal". These factors are kept at a constant for the purpose of examining a varying factor.
represented by the mental health expenditures, while physical health decline will be shown through the increase in Emergency Room visits.

**Theoretical Overview**

In an economy suffering from high levels of unemployment, one must examine the types of unemployment that individuals in an economy are suffering from. The three types known in most economic theory are referred to as cyclical unemployment, frictional unemployment and structural unemployment. During an economic downturn, like that of the economy in 2001 (shown in the graph below), all three types of unemployment exist. Using a year in which the economy was in a recession, the business cycle helps us see an intensified case of the correlation between health care and unemployment.

When examining goods that hold different levels of consumption when they are correlated with income levels, one such "good" that fits into multiple categories is the different forms of medical care. Therefore, the economic theory of inferior goods and necessary goods is a perfect model to examine emergency room visits and medical care expenditures through when
posed with the correlation of these variables with unemployment. As income of individuals decreases, a side effect of unemployment, the demand for emergency room attention, physician visits and mental health care increase.

**Literary Overview**

Ill-mental health can lead to physical disrepair. Through deductive studies, the physical health decline related to unemployment is supported. Unemployment is a large source of stress and therefore can be a key factor in damaging an individual's physical health. Beland discusses how the affects of community or socio-economic variables can impact a person’s health. He sets up an experiment where he will examine individuals at two different time periods to determine the variables that can impact a person’s health. Statements from this paper contribute to our hypothesis that unemployment significantly affects an individual’s mental health. Beland maintains that "three dimensions of the stress and social support model, stress, sources of stress and psychosocial characteristics" play a large role in a person's health (Beland).

Loss of employment also has an effect on the number of people who have health insurance. This statistic also lends insight as to what type of medical care people are taking advantage of. Berki interviews 1,332 unemployed individuals in the Detroit area and finds that 51% do not have health insurance. Of those unemployed three months or less, 31% did not have health insurance as compared to 56% when considering those who have been unemployed for more than three years. This information relates to our paper in that it shows that unemployment and lack of health insurance can be correlated. If an individual does not have health insurance they may be less inclined to pay for regular checkups and their health could deteriorate more rapidly.
The setback of losing insurance, when compounded with the other mental damages an individual undergoes as a result of job-loss stress, creates a dangerous mental health environment. Salm states that "Unemployment is a major cause of economic insecurity for working-age Americans. Loss of employment is often linked with a loss of income and employer-provided health insurance, as well as the loss of valued relationships, status, and identity" (Salm p.1075). These are mental and emotional damages incurred as a result of unemployment. While the worker may have had stress related issues prior to losing his/her job (held in ceteris paribus for this study), there is a negative relationship between employment and health issues. As more of the population suffers unemployment, health related issues (here mental and emotional) are more prevalent showing the need for medical attention.

The loss of one's job in addition to stress is many times paired with a loss of benefits such as health care. Williams states that the consequences of job-loss and medical insurance loss, has a large effect on the population. He also continues to show a strong correlation between lower levels of health and the increased difficulty to provide everyday medical attention (Williams p.848). Because people are losing their jobs, they are also losing their insurance, making it more costly to attend regular doctor visits. For the purpose of this study, we have chosen to use emergency room visits to measure health because of the large number of unemployed workers who are without medical insurance therefore leaving them largely with only this option. The use of medical insurance expenditures in the category of physician and clinical visits will also show the increase of need for medical attention.

Mental health of individuals has been found to deteriorate with increased unemployment. It has been found that the suicide rate for white males was increased by a larger unemployment rate. Also, the divorce rate significantly increased for all groups (male, female, white, black).
These two factors, suicide being highlighted as a consequence of mental disrepair, are compared to the unemployment rate to come to the conclusion that there are mental health related problems that stem from unemployment. Bijou argues that there are several factors that must be studied to determine the relationships between economic situations and suicide rates. His results conclude five basic results, suicide rates did not increase during economic booms and busts, the unemployment rate did have a positive correlation with suicide rates in the white male category, the female labor force participation rate had a beneficial impact on the suicide rate and the divorce rate was consistently linked with suicide rates (Bijou).

Areas suffering from a high unemployment rate or low income experience higher admittances to the emergency room, showing it to be an inferior good. Torrens states that the lower income area which was highly susceptible to unemployed persons had the highest admittance to the emergency room. He also examined the medical insurance of those living in the area. Finding that a very small portion of the population for that particular area had health insurance, the unemployment rate was then compared to the number of people with and without insurance (Torrens 64-67). Through emergency room visits, and the unemployment of the population around that particular hospital, one can see a correlation between the two statistics.

There is significant evidence to support the causation of ill-health from job-loss, although it has been speculated that those in ill-health are more likely to lose their jobs. Strully, in her study, finds that job loss does in fact negatively impact a person’s health, and, even after being reemployed, a person is still at a higher risk for new health problems.

"[a previous study] remained controversial, raising questions about whether [the data] reflect the health consequences of socioeconomic shocks, or the fact that sicker people are more likely to suffer a shock. [...] Increases in U.S. income
inequality have been well documented, and there is evidence that health disparities have increased in accordance with this" (Strully 221).

Strully states that the percentage of those out of work because of a disability or illness is steadfast when examined over time, not creating either a drastic increase or decrease in unemployment. While it is important to comment upon and examine factual evidence with regards to the health situation of unemployed individuals, for the purpose of this study and in agreement with Strully's study, we will hold the amount of people suffering unemployment because of an illness or disability constant.

**Methodology**

State data was researched and recorded into excel spreadsheets to be analyzed in SAS. Using our chosen variables (unemployment, mental health expenditures, emergency room visits and expenditures on physician and other professional services) we gathered data from 2001, which was sorted by state. Data by state for 2001 allows for analysis of the variables in correlation with one another over a broad range of data4. Our data came in downloadable excel spreadsheets, which had to be manipulated on a separate sheet in order for them to be compatible with SAS. We then used the program wizard to import our data into SAS. Once our data was imported and merged we used a series of correlation procedures including a regression analysis to compare our variables and reveal how the unemployment rate is related to various aspects of an individual’s heath.

**Data**

4 The study year 2001 was chosen because of the point the economy was at in the business cycle at the time. Because the study examines unemployment, it was fitting to choose a year in which unemployment was higher and the economy was at a low point in the business cycle, in this case, in a minor recession.
After running data merges, sorts, correlations and regressions, SAS output was tabulated into excel scatter-plot correlation graphs to show a positive or negative relationship between variables. When Emergency Room visits were compared with the unemployment rate a positive correlation was found. Likewise, when unemployment was compared to Mental Health Expenditures and Physician Expenditures respectively, the two variables in each case were positively correlated. Graph 1 shows the correlation between unemployment and Emergency Room Visits, Graph 2 shows unemployment and Mental Health Expenditures and Graph 3, unemployment and Physician Expenditures.

We decided to look at the correlations between Unemployment as a constant and Emergency Room visits, Mental Health Expenditures and Physician Expenditures as independent variables being compared to Unemployment. The time frame we used was from January of 2001 through December of 2001. We compared each individual state of the United States including Washington D.C. as variables. The goal was to set out and collect data to prove or disprove the idea of there being a positive correlation between Unemployment and the other variables.

Graph 1

**Unemployment Rate v Emergency Room Visits (by state)**

![Graph 1](image_url)
Overall, there was a positive correlation between all three variables. The first one was the Unemployment rate by state compared to emergency room visits by state. The range was between 230,000-600,000 people for emergency room visits and between 2-7% for the respective states unemployment rate. The scatter plot graph shows a main bunch of points but as unemployment rate rises, the amount of people for emergency room visits slowly increases as well.

Next was the comparison between Unemployment rate and mental health expenditures. Again unemployment rate ranged between 2-7% and Mental health expenditures ranged from 0$-$400. The main bunch of points on the scatter plot graph lie between 0$-$200 with a point at $389 being an extreme outlier that helped bring the correlation positive. Overall there was a positive correlation between the two which was nearly the same as Unemployment rate vs. Emergency room visits.
Lastly we compared Unemployment rate with Professional physician expenditures. Again unemployment ranged from 2-7% and physician expenditures ranged from $0-$45,000. The main group of plots on the scatter plot graph lie between 0$-$20,000. There were a few outliers that were around the $25,000 mark and again near $44,000. As with the other comparisons there was also a positive correlation between the two. The outliers in this comparison helped bring it to a positive correlation.

The r-squared values for the three correlations were 0.0246, 0.0266, and 0.057 respectively.

**Results**

Through the use of correlations, the Emergency Room, physician visits and need for mental health attention were not significantly shown to be goods in high demand when unemployment increases. In the three graphs above, all of the variables, when compared with unemployment, had a positive correlation, yet a very small and weak correlation. This shows when unemployment increases, there is an insignificant r-squared value to show the number of
Emergency Room visits per state, mental health expenditures per state and physician expenditures (per state) increase.

The increase of Emergency Room visits in agreement with the increase in unemployment for states in 2001, does not show the increased need for both medical care and that it is an inferior good. As was found in Torrens' study, the Emergency Room visits increase as income decreases. With the job losses, individuals are also losing health insurance, leading them to utilize the Emergency Room as unemployment increases. Emergency Room visits are therefore an inferior good in the medical industry experiencing an increase when income decreases. This correlation was unable to be shown through our studies and in Graph 1.

The increase in both physician visit expenditures and mental health expenditures in comparison with unemployment rising is unable to show the overall decrease in health of the population when job loss increases. Physician visit expenditures were used to show the physical health of individuals. Shown in Graph 3, physician expenditures had a positive but weak correlation with unemployment. Mental Health Expenditures were used to represent the mental health of the population. In Graph 2, a positive but again weak correlation is also shown between unemployment rate and Mental Health Expenditures. These variables together, when the assumptions are that other factors that affect health are held constant, show that when unemployment increases, the need for utilization of medical help is inconclusive.

As unemployment rises per state, the mental health expenditures and physician expenditures and emergency room visits are weakly correlated making the variables unable to prove that emergency room visits are inferior goods in the medical industry and that there is a decline in the overall health of the population.
Summary-

Through observing the correlations between unemployment in a state and the other variables, respectively, for the calendar year of 2001, unemployment was not shown to have a strong positive relationship with physician and clinical medical insurance expenditures and emergency room visits per state. With correlation statistics and the use of regression analysis, this relationship, and the positive relationship unemployment has with emergency room visits, did not show emergency room visits to be a more demanded good during a lower income period. As unemployment increases, mental and physical health will also decrease in quality, driving the need for continued and increased medical attention. This however, was not found through the statistics tested. With the support of economic studies and data found through State Health Care Facts and The Bureau for Labor Statistics, it was unable to be shown that there is a direct correlation between unemployment and the utilization of the medical industry. As individuals lose their jobs and insurance and suffer an increased stress level and lack of care, their health may inevitably decline increasing the demand for emergency room visits, however, the tests preformed for this study were unable to prove this point.

Bibliography


Berki, S. E., Leon Wyszewianski, Richard Lichtenstein, Phyllis A. Gimotty, Joyce E. Bowlyow, M. Elise Papke, Tina B. Smith, Stephen C. Crane, Judith Bromberg, "Health Insurance
Accessed 28 October 2009.


<http://www.statehealthfacts.org/comparemaptable.jsp?yr=11&typ=4&ind=593&cat=5&sub=1 43>


<http://www.statehealthfacts.org/comparetable.jsp?ind=400&cat=8&sub=95&yr=105&typ=1&r gnhl=1>

