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Measuring Health Outcomes of Uncovered Employment: A Study of Income, Social Mobility, Equality, and Health Indicators in an Under-looked Segment of the Labor Force

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Abstract

Economists have strongly supported the idea that unemployment causes many undesirable health outcomes. However, how does belonging to a different sector of employment tied closely to changes in minimum wage and inflation relate to overall health? To properly understand the numerical significance of health disparities in the uncovered sector of employment, this research is targeted at quantifying the relationship between the insured and non-insured within the uncovered sector. By substantiating the existence of severe health disparities as a function of the labor force dynamic, this research subsequently estimates the amount of inefficiency and negative health outcomes in the US economy and populace that can be attributed to minimum wage hikes, the single cause for uncovered employment. Several single regressions are conducted to understand the statistical significance of both health spending and life expectancy, and youth unemployment and overall unemployment. Youth unemployment is a function of employment, which is seen as a significant indicator of social mobility and policy demand for rises in the minimum wage. The data in this research comes mostly from the World Bank, Organization for Economic Cooperation and Development, and individual US state censuses.

Keywords

Unemployment, Employment, Labor Force, Minimum Wage, Uncovered employment, Health outcomes, Inequality, Inequities, Income, Social determinants of health

MEASURING HEALTH OUTCOMES OF UNCOVERED EMPLOYMENT: A STUDY OF INCOME, SOCIAL MOBILITY, EQUALITY, AND HEALTH INDICATORS IN AN UNDERLOOKED SEGMENT OF THE LABOUR FORCE

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Overview & Demystification

Understanding economics improves lives. The science of economics is sometimes entrenched with mathematic models, complex functions, and foreign concepts trying to bring abstract ideas into grasp. However amidst all the commotion an important point is that economics is the study of choices, and how to make the best choices. The goal of economic research is to make as many people as possible reach the maximum level of happiness.

By looking at one of the various topics which economists study, health, it is clear that proposed solutions only bring light to more problems. It is evident that in the young and ever-globalizing world, the solutions to new problems need to be addressed through the perspectives of new research analytics. Primarily, research has to become more definite in its goals and has to incorporate an interdisciplinary viewpoint and macroscale outlook. Furthermore, economists must begin to look at unorthodox comparisons of variables to understand the growing inconsistencies in the world. As for how the research is done, some of the greatest economists are scholars who incorporate elements of history, statistics, law, and human nature.

This paper was motivated by a strong passion in economics and its applications in solving the problems of health and longevity. We will discuss a multitude of topics and give a comprehensive outlook on the effects of unemployment on overall health, as described by various scholars. Of the topics that will be highlighted is the relationship between health

consequences for those on employer-provided insurance across various educational, income, and mobility levels. This paper will also briefly touch upon the impact of labor politics and other factors that promote inequality in the understanding of health outcomes across sectors of employment. The question will then be posed after the Introduction. The Theory of unemployment will be broken down and several methods relating to the various sectors of employment will be further described in Empirical Methods. In the Data and Analysis section original graphs, charts, regressions, and Lorenz curves will be compared with other scholars' data and contributions to the field to bring forth a strong Analysis and Conclusion.

Abstract

Economists have strongly supported the idea that unemployment causes many undesirable health outcomes. However, how does belonging to a different sector of employment tied closely to changes in minimum wage and inflation relate to overall health? To properly understand the numerical significance of health disparities in the uncovered sector of employment, this research is targeted at quantifying the relationship between the insured and non-insured within the uncovered sector. By substantiating the existence of severe health disparities as a function of the labor force dynamic, this research subsequently estimates the amount of inefficiency and negative health outcomes in the US economy and populace that can be attributed to minimum wage hikes, the single cause for uncovered employment. Several single regressions are conducted to understand the statistical significance of both health spending and life expectancy, and youth unemployment and overall unemployment. Youth unemployment is a function of employment, which is seen as a significant indicator of social mobility and policy demand for rises in the minimum wage. The data in this research comes mostly from the World Bank, Organization for Economic Cooperation and Development, and individual US state censuses.

Theory

Unemployment

The unemployment rate is currently defined as the percentage of the labor force that is actively looking for a job, but does not have one. Unemployment has not always been defined in this manner. The limits to studying unemployment and its impact are not deficiencies in statistical knowledge, but the incessant clashes between economic and social philosophies. Different schools of thought divide the meaning of unemployment into various sectors, inhibiting a uniform definition from being agreed upon. Each sector, or division, holds a specific economic significance making it a more specialized and appropriate variable in economics research and studies. Early economists placed a lot of pressure on statisticians to study unemployment and its effects. Between 1920 and 1949 the Journal of the American Statistical Association published 40 articles with the key words "unemployed," "unemployment," and "labor force" appearing in the title, compared to 16 in the American Economic Review and 14 in the Journal of Political Economy (Card, 2011). The failure to recognize that there is more than one definition and estimate of unemployment hurt the study of economics, and did not allow for it to progress until after the Great Depression.

Long suggests that "the practical variability in measures of unemployment due to the concept used is large and unstable, and that single-definition estimates of unemployment, even when made to care of statistical methods are apt to be unsafe for many uses," (Long, 6). Therefore commencing with describing the division of unemployment in this research will be most appropriate.

The concept of unemployment can be divided into several components, including the willingness to work, employability, and the phenomenon of 'suppressed employment.' The willingness to work affects both gross and net unemployment, in that it affects the size of the labor force and the amount of people in a given nation who participate and qualify to be part of the labor force. Employability discusses the different elements that either make an individual valuable or ineligible to work at a firm. *Marginal employables* vary with economic and social conditions, whereas *cumulative unemployment* are unemployables from within similar economic and social causes. *Institutional unemployables* include strikers and people who have either decided to be on leave, have been laid off, or are imprisoned. Interference in the labor market by either firms or government attributes to institutional unemployment. *Frictional unemployment* emphasizes on taking time to look for a job, and *structural unemployment* is the persistent mismatch between labor supply and demand. *Cyclical unemployment* appears during recessions of economic cycles, and *voluntary employment* is basic employment through the viewpoint of economists, as economists believe that people tend to work, and that unemployment is involuntary.

Other factors of unemployment are cultural and sometimes very personal. Supplementary wage seekers such as women during the Great Depression, when they weren't already employed, radically changed the dynamic of employment. This rapid change in demographics of the workforce brought back economists into the study of unemployment and lessened the responsibility of this study on statisticians. Even today, estimates show that wives with their own employer health insurance accept a wage about 20 percent lower than what they would have received working a job without benefits, (Olson, 2002). This could be for various reasons, but through conventional wisdom we see that health is an important factor in the development of a family. People may also withdraw from the workforce because of a hopeless struggle to find a

job. This unfortunately leads to negative health outcomes and disparities, such as minimal insurance access or awareness, lack of health education, food, shelter, and mental stability. These factors can be caused by *discouraged work.* Discouraged workers also demonstrate a cyclical pattern similar to that of the unemployed, however their impact on the overall 'morale'(referred to when discussing the overspecialization of the workforce) is much more severe as discouraged workers briefly fall into the lesser-known category of voluntary unemployment (Kodrzycki, 2000). Voluntary unemployment occurs when workers choose not to work, primarily because of a discouraged sentiment rooted in a greater labor supply than demand.

Real wage rates doubtlessly do influence the willingness or ability to produce or cooperate in producing a large number of high quality products. The effect of real wage rates on employability thus becomes rather complex. Employability under pure competition can be seen with:

$$P\left(\frac{\partial x}{\partial L}\right) = P_L$$

The above model is that for employability under pure competition, as adapted from Long, (Long, 15). It states that marginal revenue by marginal product of worker is greater than or equal to wage. Also, according to this model the production function is linear and homogenous, and n is the price-elasticity of demand for the final product.

As for the below Long model the employer's demand is less than individually elastic. Elasticity of demand for the product of an individual business is infinite and a worker is employable if his net marginal product sells for the money wages he demands. If an employer's demand is less than individually elastic the following function is used:

$$P[1-\frac{1}{n}]\frac{\partial x}{\partial L} \geq P_L$$

Certain concepts which are important to understand even though they are not the main topics of this paper are overspecialization and the undesirability of high employment. These concepts are especially important as they expand the researcher and reader's understanding of unemployment. Overspecialization is the mechanism by which economic systems are maximized. The productivity of an economy is significantly increased when households supply specialized work. However to also look at health outcomes, it has been proved that as the labor force becomes overspecialized their collective morale increases (Long, 1942). How can high employment also be undesirable? When employment is pushed above a sustainable level, wages will eventually rise as people realize jobs are abundant and thus they have bargaining power. As wages rise, production costs increase, which could then be passed along to consumers, hence the rate of price inflation rises (Long, 1942).

Insurance & Health

Employer-provided health insurance is the most common form of health insurance in the United States, with around 2 out of every 3 Americans depending on their employer for health insurance (Appropriation Committee Hearing). The employee depends on the employer to provide health insurance alongside other benefits as a part of the labor compensation package. Standard compensating wage theory suggests workers have different demands and preferences, therefore they make their employment decisions based on a preferable mix of wages and fringe benefits (Katherine & Amitabh, 2006).

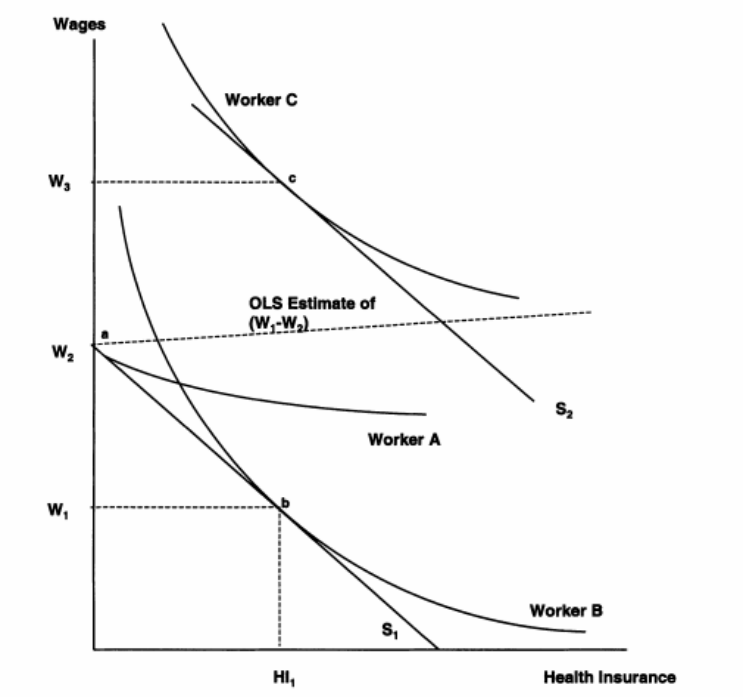

Figure 1: The wage-health insurance trade-off, adapted from Olson et al. (2002)

Compensating wage theory predicts that workers receiving more generous fringe benefits are paid a lower wage than comparable workers who prefer fewer fringe benefits (Olson, 2002). Therefore, comparing the fraction that is potentially eligible for benefits with the fraction that receives them is a tricky science. This question of the desired makeup of a compensation package consists of individual studies of utility as well as the options which firms and governments are willing to provide. The decline in insured unemployment is almost entirely due to a decline in the early 1980s in the take up rate for benefits. At least half the decline is due to an increasing share of unemployment in states with lower take up rates (Blank & Card, 1991). Higher unemployment insurance benefits tend to increase unemployment because they reduce the opportunity cost of job search and, hence, increase the search time. The legal side of this matter is evident in a 1991 study, where although over 90 percent of employed workers held jobs

that were covered by the unemployment insurance system, only less than 30 percent of unemployed workers received unemployment insurance (UI) benefits (Black & Card, 1991).

The question which results after such a discussion is how appealing are health benefits? Do benefits appeal to workers enough that they will accept lower wages for health benefits? Are workers willing to forgo covered employment status to remain employed, even though they will not receive any more health benefits? A study looked at the effects of a 10 percent increase in health insurance premiums on employment and wages (Baicker & Chandra, 2006). The results were a reduction in the aggregate probability of being employed by 1.2 percentage points, a reduction in the hours worked by 2.4 percent, an increase in the likelihood that a worker is employed only part-time by 1.9 percentage points, and for workers covered by employer-provided health insurance, this increase in premiums results in an offsetting decrease in wages of 2.3 percent (Baicker & Chandra, 2006). So known results state that under certain circumstances employees will sacrifice part of their wage for guaranteed health benefits, especially if the employees are in the position that if they leave their employer-provided health insurance they will procure higher private insurance costs.

Introduction

Health outcomes in the United States and around the world are impacted by the absence or presence of unemployment insurance. However, the definition of unemployment has long been debated, and to this day employment is quite difficult to completely cover as several countries lack sufficient poverty data. This brings forth the issue of who qualifies for unemployment benefits, which are not fully taken advantage of across various areas in the United States (Olson, 2002). Also, due to insufficient breakdowns of the various employment sectors we can conclude that employment benefits are distributed unequally. In addition, unemployment periods vary

based on social stature, education, and labor experience, meaning the decision to acquire health insurance also depends on the different projected time frames for unemployment. According to Olson's 2002 study, which states that if there is a quicker rate of return to work for recently unemployed individuals, then there is a lower chance for an increase in purchase of private insurance, it can then be concluded that health insurance benefits are forgone in the short term. With respect to the various industries in the market and the various firms, the value of employer-provided health insurance depends on the length of time the unemployed continue their search for new jobs and how their specific circumstances allow them to prioritize precautionary health coverage.

As mentioned earlier, various descriptions of unemployment exist. In this research we resort to a separate classification of employment known as 'suppressed unemployment.' *Suppressed unemployment* is a culmination of part-time unemployment of wage workers, part-time unemployment of non-wage workers, and unproductive employment (Card, 2011). It can be assumed suppressed unemployment and minimum wage lead to uncovered work.

Uncovered employment is any employment under the minimum wage at a firm that legally hires workers to work at the legally-mandated rate. The assumptions are that the employees were initially hired to work at the minimum wage rate but had to suffer a loss in status when the minimum wage was raised. This results in certain employees becoming structurally unemployed, and a few others, who according to a few theories in behavioral economics, acted irrationally and bargained for a lower than minimum wage rate to stay employed. Another assumption is that a firm's insufficient ability to pay and give benefits is what leads to the need to lay off workers, not a lower labor demand. Uncovered employment can arise from a desire for stability of location, family, etc. which is definitely not irrational. It may also develop from the high

valuation by the individual of the benefits associated with that work. This research begs the question: do uncovered employees perceive that by remaining at their jobs they still have positive health benefits, and what kind of health outcomes do these perceived benefits lead to?

Empirical Methods

The question this research wishes to address deals with the behavioral perception of laborers and the quantification of health outcomes for a sector of employment. This research also inevitably measures a specific form of inequality. The very idea of how after the rise of the legal minimum wage there becomes a covered sector and a terminally temporary uncovered sector of employment poses a serious concern over how certain employees are given higher preference over others in the choice of who gets laid off during a time of a firm's inability to meet the promise of pay and benefits for each of its employees. The rise of the minimum wage primarily distorts with the stability of workers, which in turn translates into the lack of any succession of health care for a fired employee: one of the most troubling occurrences during unemployment.

Gini index & Lorenz curve

The Gini index according to the World Bank is a measure of distribution of income (or consumption expenditure) among individuals within an economy that deviates from a perfectly equal distribution. A Lorenz curve plots the cumulative percentages of total income received against the cumulative number of recipients, starting with the poorest individual or household. The Gini index measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line. Thus a Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality (World Bank, 2014).

Health inequities are commonly measured and thought of with the use of Gini indices and Lorenz curves. There are many famous studies that demonstrate the relationships between health care spending and life expectancy at age 65, amount of doctors and availability of pharmaceuticals, distribution of health institutions and amount of people with respect to region that die of trauma-related incidents, etc. These measurements are deeply important for policy formulation, resource reallocation, and the continued push by policymakers, activists, and economists to tackle the issues of catastrophic inequality.

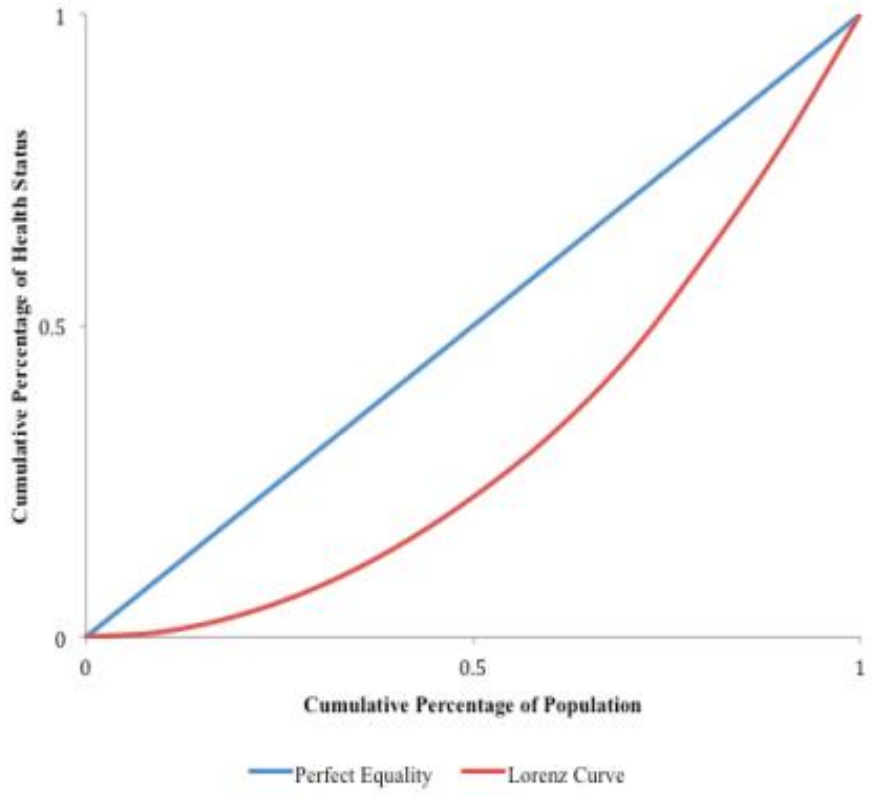

Figure 2: Lorenz Curve of Health, adapted from Reidpath et al. (2007)

Summing up inequality we can think that, “the influential are those who get the most of what there is to get. Available values may be classified as deterrence, income, safety. Those who get the most are elite; the rest are mass (Kasswell, 1958).”

Data

2016	Canada	France	Germany	Italy	Japan	United Kingdom	United States
Pop. (mil.)	36.29	66.9	82.67	60.6	127	65.64	323.1
GDP per capita ($)	42,158	36,855	41,936	30,527	38,894	39,899	57,467
Health spend. (% of GDP)	10.3	11.0	11.3	8.9	10.9	9.7	17.2
Num. of physicians (per 1000)	2.48	3.23	4.13	3.95	2.30	2.81	2.55

Figure 3: Chart using traditional metrics for healthcare analysis of nations with regards to human and economic development indices

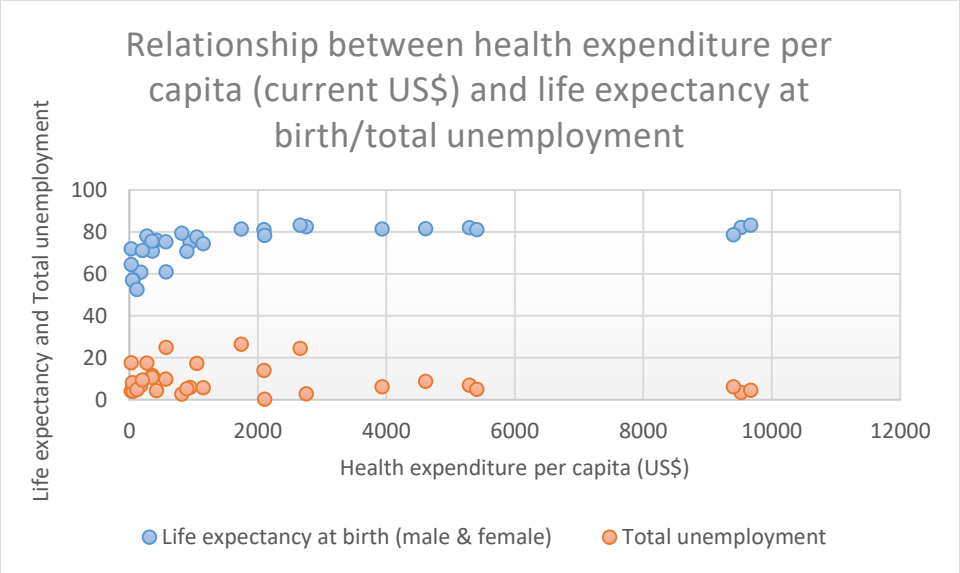

Figure 4

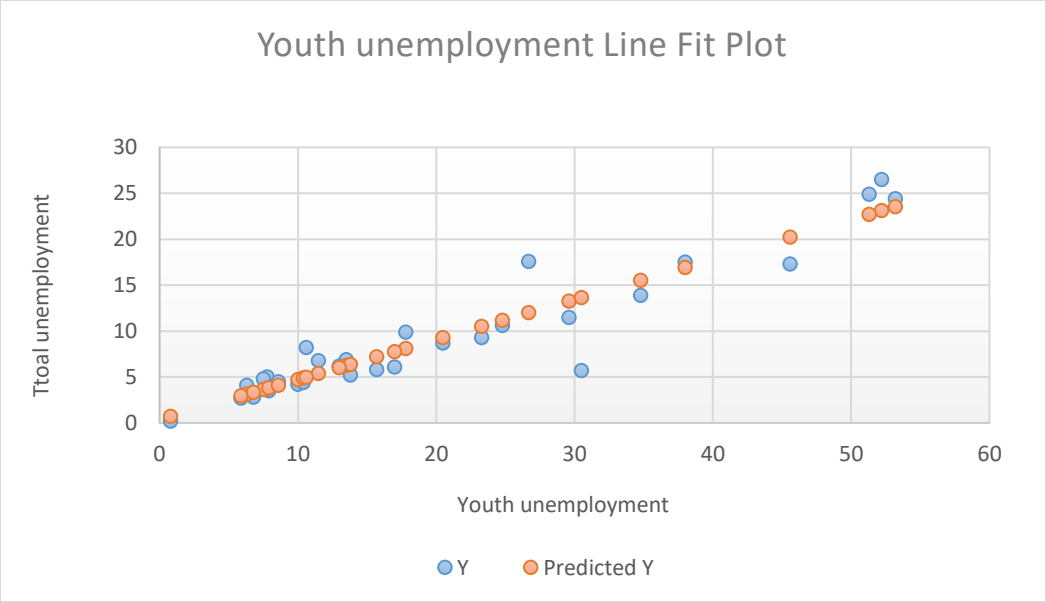

Figure 5

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.943183
R Square	0.889595
Adjusted R Square	0.885652
Standard Error	2.359519
Observations	30

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	1256.053	1256.053	225.6116	6.30891E-15
Residual	28	155.8852	5.567328		
Total	29	1411.939			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.368874354	0.734612681	0.502134	0.619499	-1.135911509	1.87366022	-1.13591151	1.873660217
X Variable 1	0.435706483	0.029007704	15.02037	6.31E-15	0.376286895	0.49512607	0.376286895	0.495126071

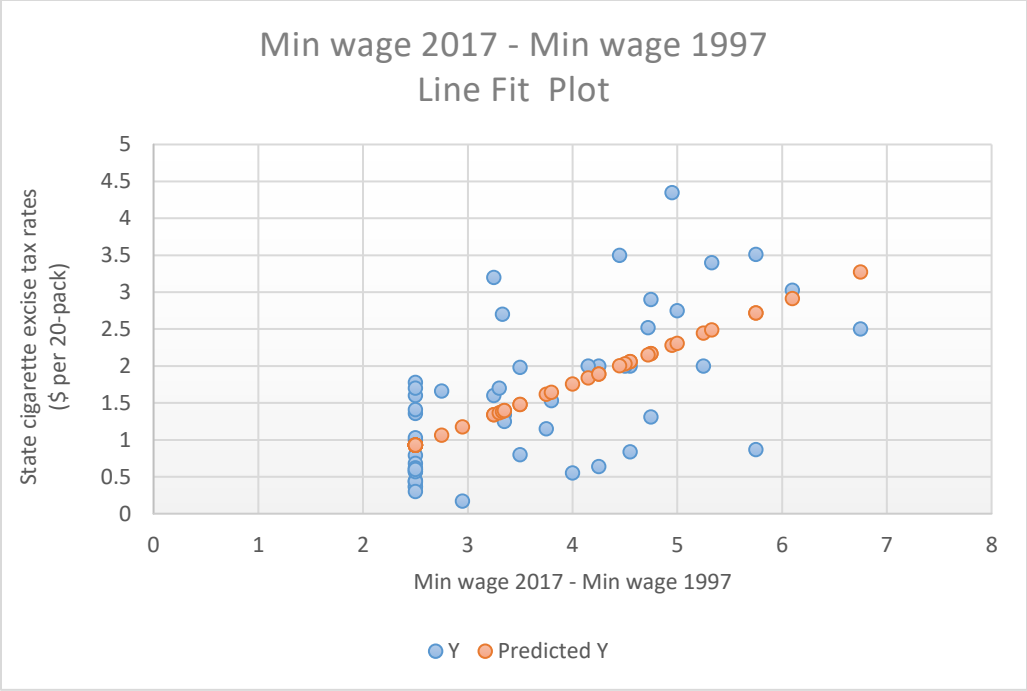

Figure 6

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.638752687
R Square	0.408004996
Adjusted R Square	0.395923465
Standard Error	0.791007145
Observations	51

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	21.13023519	21.13024	33.77097	4.56538E-07
Residual	49	30.65892284	0.625692		
Total	50	51.78915804			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-0.452062343	0.359774384	-1.25652	0.214886	-1.175056035	0.27093135	-1.17505604	0.270931349
X Variable 1	0.55171405	0.094938482	5.811279	4.57E-07	0.360928027	0.74250007	0.360928027	0.742500073

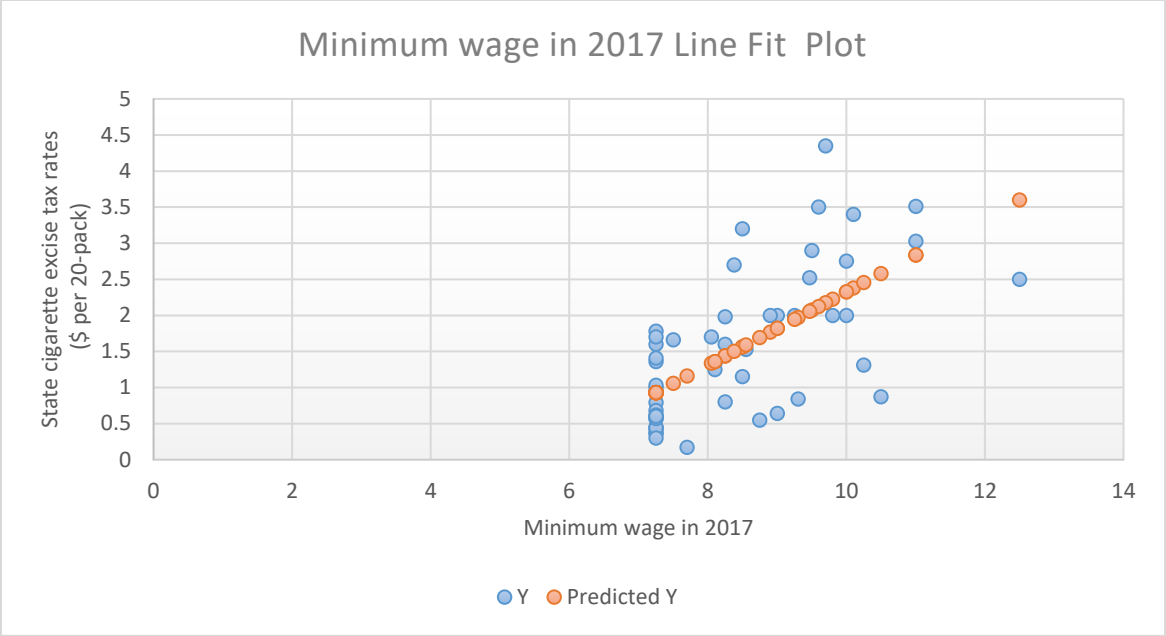

Figure 7

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.64859
R Square	0.420669
Adjusted R Square	0.408846
Standard Error	0.782501
Observations	51

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	21.78609	21.78609	35.58029	2.65042E-07
Residual	49	30.00307	0.612308		
Total	50	51.78916			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-2.7566311	0.72812812	-3.78591	0.000418	-4.219859304	-1.2934028	-4.219859304	-1.293402825
X Variable 1	0.50837419	0.0852273	5.964922	2.65E-07	0.337103523	0.67964487	0.337103523	0.679644866

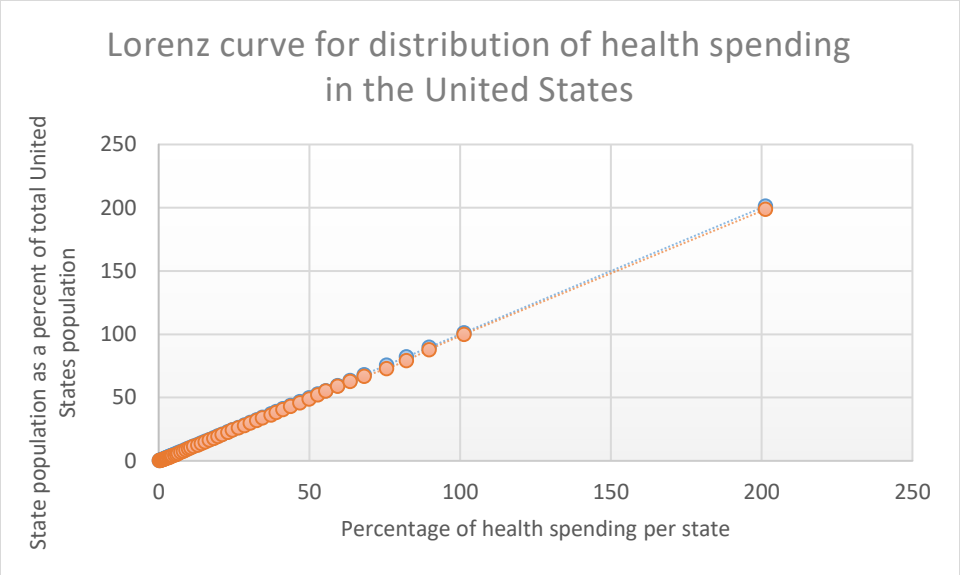

Figure 8

Discussion of Data

In the chart labelled as Figure 3, traditional metrics for healthcare analysis of countries around the world are compared with human and economic development indices. No chart can currently be made like this to compare the rise of minimum wage's effect of the creation of the uncovered sector on top health indicators.

Proceeding the discussions leads to the graphical analysis demonstrated in Figure 4. The relationship between health expenditure per capita (current US$) and life expectancy at birth to total unemployment are demonstrated in Figure 4. There are slight correlations between the rise of health expenditure per capita and both the increase of life expectancy and the decrease of total unemployment. No strong statement on causation can be made as a multitude of factors impact fluctuating life expectancy and total unemployment; however, health expenditure acts as a good primer for this discussion. Economists ask the question of what else can cause and be used to better predict these essential measurements of an economy, such as unemployment. Many of the

factors which lead to unemployment have not been described to their full, one such factor is minimum wage which causes the rise of uncovered employment.

Before discussing uncovered employment, three regressions are included in the data section: Figures 5, 6, and 7. The first of which describes total unemployment as a function of youth unemployment. The variable, youth unemployment, does not hold a perfect predictive ability for total unemployment, but has an R-squared value of 0.889. The second regression involves the relationship between the difference between the minimum wage in 2017 and the minimum wage in 1997 and state cigarette excise tax rates (US$ per 20-pack). As the increase in minimum wage in this decade increases the state cigarette excise tax rates occasionally increases, as the R-squared value is 0.408. An interesting observation is that more states in 1997 had the federal minimum wage than today. Also worth noting is that at the minimum difference (federal minimum wage increase) the greatest disparity of values occurs. The reason why minimum wage increases are compared to taxes is to better understand the question: do minimum wage changes indicate health outcomes, and if so can it be connected back to uncovered employment? Top health indicators being: access to health services, clinical preventative services, environmental quality, injury and violence, maternal and infant/child health, mental health, nutrition and obesity, oral health, reproductive health, social determinants, substance abuse, and tobacco.

Also described and included is the minimum wage in 2017 line fit plot. Once again the analysis allows only for a partial recognition that states with higher minimum wage have higher excise tax and lower consumption of tobacco. Examples of such inconsistencies are rarely found, as is the case in Washington State which has an $11 minimum wage and currently has a cigarette tax of $3.025, only 2 pennies above its expected value. In the case of the highest minimum wage in the United States, $12.50, found in the District of Columbia, the predicted cigarette excise tax is

$3.60, much higher than the actual value of $2.50. The disparity of values of the cigarette tax at the minimum wage value in 2017, $7.25, is also true.

The Lorenz curve in Figure 8 describes the distribution of health spending in the United States. A basically equal distribution of health resources is seen across the United States with very similar proportional budgets for health in each state. The Gini coefficient is a remarkable 0.06, or 6 percent. Sometimes the answer is not what is found amongst the data, but what details are left out. Even though an equal distribution is seen across the states, meaning each state values its own health equally, clear mishaps in the healthcare system can be demonstrated by inefficiencies in the system, inequalities across regions represented by race and wealth differences, accessibility, and misinformation or lack of proper health education.

Analysis

Minimum Wage & Covered Labor Demand

Job losses attributed to minimum wage should include displaced covered workers taking jobs in the uncovered sector for less. Knowing that uncovered employees' wages are lower by matter of definition, a model can strive to make a predictive statement on how likely employees are to be pushed into the uncovered sector. Wessel's focus in his 2004 study on the overall effect of minimum wage on employment loses sight on the grave loss of jobs, which can be attributed to the uncovered sector. These studies act as understatements because the many workers whose wage was pushed up by the minimum wage lost their covered jobs and entered the uncovered sector. For example, 100 jobs are cut off the payroll, however 30 employees make a deal with the employer to remain employed, but to stay off the records. This results in 70 people structurally unemployed and 30 additional employees in the uncovered employment sector. According to

Wessel's study the unemployment rate in this situation would be 70 people, however in reality 100 jobs were lost due to the minimum wage hike because none of the former employees are receiving a paycheck above the real minimum wage. Situations like this are instigators for societal economic inequality. Uncovered workers could be designated as *anomalous workers*, (low-pay employees in high-pay firms) whom have been proven to have high levels of dissatisfaction with their lives, high levels of stress, and resulting negative health outcomes.

Neumark and Waher (2002) found that for every 10 percent increase on minimum wage, overall employment decreased by 0-2 percent and decrease in covered employment ranged from 4-5 percent. The uncovered spillover sector proposed is a two sector model – (a) displaced covered sector workers find jobs in the uncovered sector and (b) displaced covered sector workers remain structurally unemployed. To reiterate, *uncovered employment* according to this research's model means any employment under the minimum wage at a firm that usually hires workers legally, but had to suffer from a loss of employees due to insufficient ability to pay and give benefits (assumption that the insufficient ability is not due to lower labor demand).

Understanding the proposed definition of uncovered labor is essential as the discourse in journals continues to be plagued by construed meanings of unemployment. An example of the various misclassification errors and their effects is, *errors due to lags in adjusting wages* incorrectly classified as being displaced from their covered jobs. An example being someone who loses their covered job, but stays in the uncovered sector of employment for only 9 months; meaning the employee's labor transition is not put into consideration in the data. *Error due to left-behind uncovered workers*, such an error arises when a legally uncovered worker was employed and paid more than the minimum wage before a hike, but was subsequently paid less than the new minimum wage after the hike. This laborer will be counted as covered before, but uncovered

after incorrectly because the person remain employed. Errors due to lags in adjusting wages or due to rounding down reported wage are fixed using the rebound in covered employment after a hike to offset the initial decrease in covered employment to correct for the possible lag in adjusting wage error. Furthermore, in level regressions the lag in adjustment is corrected by entering a dummy variable for four quarters, the quarter of the hike and three quarters following it. This allows for time adjustment. "Sufficient number of lags for the minimum wage variable to capture the 'rebound employment' effect as wages become correctly reported." (Wessels, 2004) We treat the minimum wage hike as a dummy variable. This allows us to see the minimum wage variable as equal to percent change, thus concluding that the sum of the coefficients of minimum wage will be the "true" elasticity. The effect of the minimum wage on total and covered employment leads to estimating the impact of minimum wages on covered employment.

Uncovered Employment, Minimum Wage, & Health Outcomes

Measuring overall quality of life in a society is consistently associated with the measurement of health standards in a community and practices of residents. A common health indicator discussed by economists are the social determinants of health. Quite interestingly, only 23 percent of an individual's health is determined by social circumstances (CDC). The majority of determinants of health are results of individual behavior and decisions, whereas the second highest determinant of health are genetics. So within the realm of an individual's health that is directly affected by society, how much can be attributed to labor? An irreconcilable perspective between policymakers worldwide (and also the economists who work to support the viewpoints of the lawmen-woman on both aisles) is how much of a society's perspective on itself and its government is affected by stress, depression, chronic and infectious diseases, and in turn how to make them perceive more positive health outcomes due to their respective policies. Based on

those viewpoints they will then assess issues of unemployment and minimum wage. Not the poorest nations, but the nations with the highest levels of income inequality continue to display the lowest levels of unhappiness, and the reverse is also true. For this reason using a Lorenz curve to better comprehend health outcomes seems to be of increasing importance as inequality continues to increase across fields and at superior rates.

The number one factor which continues to improve health conditions worldwide are improved public policies which reduce child poverty and improve labor conditions. Economic inequalities in developed nations, in order of highest Gini coefficient, are income distribution, education, unemployment and job security, and working conditions. Also with the emerging study of the uncovered employment sector it can be stated that in reality other societies besides one like the United States, with a set of allotted state jurisdiction including minimum wage designation, have multiple minimum wages. Every single society with uncovered labor demonstrates the trait of numerous minimum wages throughout the labor market. Indicating that since a majority of inequality discussion revolves around the issues of labor, a majority of the issues of health inequality can be traced back to issues of employment.

Aspirations for the continuation of this research

With the purpose of this research being to initiate the conversation on uncovered employment, several aspects of this research are not complete and need to be continued by several economists specializing in labor economics and macroeconomic policies. To improve the complex relationship between minimum wage and unemployment, especially with regards to increases in minimum wage and the uncovered employment sector, I have several suggestions. In this research I focused on the use of regressions; however, other statistical and mathematical techniques may be used to more closely measure uncovered demand based on my definition as

no substantial data exists for this sector of unemployment. This research looks at the respective change in minimum wage from 1997 to 2017 in each state and then compares it with the cigarette excise tax rate in each of the 50 states. Subsequent research should compare the changes in minimum wage with the other previously listed health indicators. Chief among these suggestions, however, would be to compare the health indicators and firm investment in employer-provided health insurance, as percentage of total benefits, by country or state per capita with the use of a Lorenz curve. Also, to do the same comparison of health indicators as a result of the percentage of economy promoted by uncovered workers, if such data can be accumulated. An important addition to the statistical methods and proper assumption for a model should involve a more efficient way to calculate how many uncovered employees retain and return to covered work in 9 months or less and are not included in unemployment research.

Conclusion

Based on the research completed in this paper, a conclusive statement can be made that minimum wage changes indicate health outcomes. Using predictive models, this paper connects uncovered employment to social outcomes of health, other health indicators, and negative health outcomes. The necessary theory surrounding what is uncovered employment is thoroughly structured for continuations of this research to better understand the dynamic of this employment sector and health outcomes. Grand among the concerns is to underline spikes in the minimum wage and how frequently and to what level of accuracy they make uncovered workers less healthy and effective in the economy.

In David Card's *Origins of the unemployment rate: The lasting legacy of measurement without theory* the origin of studies regarding issues in unemployment are discussed (Card, 2011). The deeper meaning of uncovered employment, and the resulting outlook on legal, corporate, and

health issues that it sheds a light are revolved on one key element of Card's writing: the statistical versus economic meaning of the labor force. Labor force – defined to include everyone who works, as well as those who were able to work and are actively searching. However, "seeking work" as a modern concept of unemployed emerged so late, actually it appeared at the end of the Great Depression (Webb, 1939). It is quite convenient to say that the questions of economics, psychology, philosophy, neuroscience, and many more of the most acclaimed social sciences are being answered by mathematicians. However, much is lost if the theory is not strong enough to hold on its own and ends up being disproven either by more advanced thinkers or by mathematical evidence. Measurement ahead of theory has, and unfortunately, continues to be a major reason for the improper coordination towards much of macroeconomic policy today.

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