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*An Empirical Approach behind the Effects of the Individual  
Mandate in the United States Labor Force*

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## Introduction

Under the Obama Administration, Congress had passed The Patient Protection and Affordable Care Act, also known as Obamacare that was signed into law by President Obama on March 23, 2010. The federal statute implicates a robust expansion of healthcare coverage in which the major provisions of the law came into effect in 2014. The ACA does not have a bipartisan backing, that is why it has been a major topic in the past two Presidential elections in 2012 as well as in 2016. The ACA has also undergone a constitutional crisis which has led up all the way to the Supreme Court. The ACA imposed a health insurance mandate in which most taxpayers in the U.S must hold a health insurance plan or otherwise face a tax penalty that could cost up to \$650 per adult and \$347 per child. After much debate, the Supreme Court has ruled the individual mandate provision as constitutional with the reason that the Constitution gives the ability for Congress to exercise to regulate commerce.

Since the implementation of the ACA, there have been numerous studies that pertain to how the plan affected health insurance nationally in terms of premiums, coverage and subsidies. With President Obama finishing up his last term, the 2016 Presidential election revolved around the issue of healthcare. Then candidate Donald Trump, was a loud supporter of repealing and replacing the ACA. Once Trump became President, the fight over repealing and replacing the law came with great difficulty. Ultimately, Congress had enough votes to repeal a portion of the ACA; the individual mandate as part of the tax reform legislation passed in December of 2017. The tax penalty for those that do not have health insurance coverage is now gone and the topic of debate is not whether it was constitutional or political, but how it affected the healthcare market

of individuals. Did the mandate positively affect a sector of the healthcare market that had the ability before to choose whether to have insurance or not?

### **Methodology and Research Question**

This paper dives into the effect of the withdrawal of the individual mandate that was set in law in 2011 then repealed at the end of 2017 on individuals who are self-employed. Did the individual mandate incentivise self-employers to buy insurance? This paper will not cover the employer mandate which is having all employers offer health insurance that is affordable to at least 95% of their employees. Having the treatment group be the self-employed was derived for a couple reasons. The first being that the individual mandate does not affect individuals who are already on Medicare, those who have obtained insurance through their employer, and individuals that bought private insurance. The second reason is that this pool of Americans had the choice of opting into a health insurance program once the mandate was implemented and also had a choice to opt out once it was repealed. The group that was controlled in this analysis was those who already have insurance. According to the Bureau of Labor Statistics, the reported count of the number of self-employed individuals in the US is 15 million in 2016. This paper extracted 2,406,723 self-employed individuals which is a decent percentage to represent the relative overall population of the folk in the US.

The primary data for this policy evaluation comes from the Current Population Survey (CPS), conducted annually by the Bureau of the Census. The variables that have been extracted pertain to the number of individuals who are self-employed, those who are on medicare and get their insurance privately and/or through their employer. The main policy evaluation methodology will be utilizing Difference -In- Differences estimation strategy in Stata that exploits how the

treated groups (self-employed) activity of purchasing and/or removing of health insurance was implicated by the removal of the mandate at the end of 2017. The results of the policy measurement indicated a 7% increase in insurance coverage after the removal of the mandate. This is counterintuitive to the notion that a mandate would increase insurance coverage generally but it actually increased coverage in the self-employed group when it was removed. Other results drawn from the measurement indicated that every single self-employed individual in the dataset had either a highschool diploma or higher educational attainment.

### **Literature Review**

This paper focuses on just one aspect of the ACA which is the individual mandate. Previous research on the effects of the mandate revolve around the notion of how it affects premiums on the exchanges, and the labor market with regards to employment. In this section I review papers that are closely related to these notions and how it could shine a light into the conclusions that I make from the empirical model that is revealed in this paper.

A published paper from the National Bureau of Economic Research, revolves around one specific policy implication in the ACA which is the individual mandate. This section reviews the literature on the effects of the individual mandate with regards to taxpayers and the risk of unemployment with certain demographics.

Architects of the Affordable Care Act have written numerous scholarly papers on the matter that provide a detailed analysis of all parts of the law. Under the NBER, Molly Fren, Jonathan Gruber and Benjamin D. Sommers wrote a paper called *Premium Subsidies, The Mandate, and Medicaid Expansion: Coverage Effects of the Affordable Care Act*. The authors take a step into looking at how the individual mandate affected coverage rates. The conclusion

the authors have made in the abstract states that, “ The individual mandate’s exemptions and penalties had little impact on coverage rates”(Gruber 1). The authors provide a more in depth explanation of this by stating, “The mandate does not impact those who are exempted based on their income, and due to other non-linearities in the mandate penalty amount, families may be exposed to different potential levels of tax penalties in the event that they do not obtain health insurance” (Gruber 17).

Gruber and his colleagues measured the conclusion by constructing an algorithm that represents each family’s tax penalty in dollars due to the mandate utilizing the 2014 tax-filing thresholds. The authors then placed families in specific mandate penalty exemption brackets based on their income and saw that no one below 138% of FPL (Federal Poverty Level) in non-expansion states is subject to the mandate, while in expansion states, the mandate takes effect at the tax-filing threshold. With families that are in the highest income range, more than 90% of them are subject to the mandate with the average penalty adding up to \$1000 per family. It is worth mentioning that the authors provided a fact that in Massachusetts, there has been research that showed that there has been an increase in Medicaid participation after the mandate was implemented. This tale leads to the question of the paper as to those who are self-employed and are relatively well off because they own a business of sorts, choose to buy insurance or rather just pay the penalty.

Katherine Baicker and Helen Levy wrote a paper called *Employer Health Insurance Mandates and the Risk of Unemployment* that looks into the employer health insurance mandates from the form of healthcare proposals like the ACA. Their study contributes to answering one major question in their analysis which is, how much of an impact would a mandata implicate the

risk of unemployment? Supporters of the mandate make the case that the mandates would increase insurance, while opponents are more concerned with the fact that it offsets low wage earners, thus experiencing unemployment with the presence of already low minimum wages. Utilizing data from the Consumer Population Survey of gathering individuals data of wages, health insurance and demographics; 33 percent of uninsured workers earn within \$3 of the minimum wage, putting them at risk of unemployment if their employers were required to offer insurance.

The authors also go under an assumption that the elasticity of employment with respect to minimum wage, 0.2 percent of full-time workers and 1.4 percent of uninsured full-time workers would lose their jobs because of the mandate. The authors categorize the demographic of the workers that would lose their jobs are disproportionately likely to be high school dropouts, minority, and female. The figure below is a table created by the authors that <sup>1</sup> illustrate the numbers associated with the group of individuals that are at risk of unemployment with respect to the implementation of an insurance mandate.

**Table 6: Number of Workers at Risk of Losing Employment**

Total private sector workers (2006; from BLS)	114 million
Fraction of those workers who work full-time (more than 20 hours per week) (author calculations)	91.4%
Total full-time private sector workers	104.2 million
Fraction of those who are uninsured	15.2%
Fraction "at risk" (uninsured and earning wages less than the minimum wage plus the cost of health insurance)	5.3%
Workers at risk of losing employment	5.5 million
Average increase in compensation for uninsured "at risk" workers	40.6%
Workers likely to become unemployed assuming elasticity = -0.1	224,284
Racial and ethnic minorities	136,342
Workers with less education than high school degree	87,403

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<sup>1</sup> Figure from *Employer Health Insurance Mandates and the Risk of Unemployment* by Katherine Baicker and Helen Levy

No research to this date to my knowledge, has studied the effect on the implementation of the mandate with respect to self-employed workers as well as the overall significance it has after the mandate was repealed.

The Kaiser Family Foundation published a paper written by Rabah Kamal, Cynthia Cox, Rachel Fehr, Marco Ramirez, Katherine Horstman, and Larry Levitt explaining that the ACA included a variety of “sticks” such as the individual mandate penalty and limited enrollment opportunities. The paper reveals that “2019 premiums will be an average of 6% higher, as a direct result of individual mandate repeal and expansion of more loosely regulated plans” (Kamal 1). The data shown below is the data that the authors provided that illustrates the range of the impacts on the premium distribution with regard to the removal of the mandate. This data reveals that the percentages increase as the percentile goes up which implicates that those who are in the 75th percentile see a major increase in their premiums. The authors noted that with the combination of the individual mandate penalty repeal and cost-sharing subsidy, the on-exchange silver premiums rose up 16% in 2019. Silver premiums are part of the Silver Health Plan under the ACA, which is the middle ground of all the marketplace plans which constitutes to individuals and families whose incomes are up to 250% of the poverty line.

The data gathered from KFF could potentially give reason as to individuals who are self-employed and who are presumed to have higher income than that of 250% of the poverty line, which could suggest that these individuals rather pay a tax penalty than a rising insurance premium.

Year of Filings	Min	25 <sup>th</sup> Percentile	Average	75 <sup>th</sup> Percentile	Max
2019	0%	4%	6%	8%	16%
2018	0%	2%	5%	6%	25%

### Data and Policy Measurement

The variables that have been extracted from IPUMS CPS Survey were typical demographic information such as gender, race, education level and marital status. The variables that were most helpful in conducting this policy measure is the class of the worker denoted in the dataset as “classwkr” and individuals that have health insurance over the period from 2011-2018. The variables that denote who has health insurance, come from multiple variables because many individuals acquire insurance from either medicare, employer provided, private insurance and/or <sup>2</sup>group health insurance.

The raw data set with all variables implemented had a total in the amount of observations at 3,771,897 individuals. To simplify the data in order to accurately reflect the impact of the mandate, the ages below 16 and above 65 were removed from the set because anyone below 16 aren't in the labor force and those above 65 are mostly out of the labor force with very few exemptions which was still not considered in the policy measure. The average age after the constraint was 40 years old. The educational attainment level was constrained to those that have received a high school diploma or higher because through intuition, it is assumed that the target

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<sup>2</sup> Data from KFF “How Repeal of the Individual Mandate and Expansion of Loosely Regulated Plans are Affecting 2019 Premiums”

treatment group which is the self-employed have diploma or higher. This leads to the next point in which when condensing the sample to self-employed individuals, all of them have received at least a high school diploma or a higher degree which came out to be 2,406,723 individuals.

The control group of the policy measure was those that have health insurance which was compiled from multiple variables in the dataset. The multiple variables were then merged together into a new variable which is called “ins” and I made this the dependent variable for the model. The self-employed folk was extracted from the class of worker variable and a new variable was created called “selfemploy”. To construct the mandate measure, the diff-in-diff estimations was created by creating a treat (self employ) and post variable (year after 2018) and taking the product of the two and regressing it. The reason for utilizing a diff-in-diff for this policy evaluation is the fact that it measures the variations overtime (time-series) and over individuals (cross-sectional data).

### **Assumptions and Constraints**

The underlying assumptions and constraints for this analysis are all based on what the IPUMS CPS data on individuals provide. The model was constrained to only just a little over 3 million observations provided by the data set but was then simplified down to 164,766 observations for those that are self-employed. Individuals that are regarded as having health insurance came out to be a bit over 2 million. The reason for this was the assumption that individuals who are self-employed would be affected by the mandate as well avoid spurious results. The data that was extracted from after 2017 (2018-2019) is relatively new data and there is not much data compared to how much there was in previous years. This constraint would

cause the results to be not as precise as it could be, if for example this model was created 2 years from now when there's more data about insurance coverage in 2018 and 2019.

## Results

The table below is the regression analysis along with the diff-in-diff component that reflects the effect of the individual mandate withdrawal amongst individuals that are self-employed. The diff-in-diff coefficient is at a 0.069 percentage point which can be rounded to 0.7 or 7%. This means that there is a 7 percentage point increase in insurance after the mandate was removed. This is a thought-provoking result because it shines a light as to how the sample group of the self-employed, around 7% of them, probably paid the penalty, excluding the other factors that could have been involved. The variables treat (self-employ) and post (after 2018) compare the changes in the outcome of the number of insured between the population of the treat that is not in the “ins” variable and the population that is, (ins) the control group. The t-statistic for “did” equals 35.74, and is statistically significant, meaning that the regression coefficient for “did” is significantly different from zero.

The r-squared shows a 21.42% variation in the model which explains the proportion of variance in the dependent variable (ins) that is explained by the independent variable which is “did”. The adjusted r-squared value indicates that “treat”, “post” and “did” predict 21.42% of the variation in values of “ins”. It is important to note that the r-squared and adjusted r-squared values are the same which suggests that with the addition of more variables in the model, the model itself is not becoming more explanatory. This model however provides an implication that the policy of withdrawing the individual mandate did not fully enforce all individuals in the U.S

labor whether self-employed or hired, to buy health insurance. It suggests that people were still willing to pay the tax penalty in addition to the other taxes they would need to pay.

Source	SS	df	MS	Number of obs= 2,406,723
				F(3, 2406719) > 99999.00
Model	88578.8237	3	29559.6079	Prob > F = 0.0000
Residual	325348.829	2,406,719	0.135183555	R-Squared = 0.2142
				Adj R-squared = 0.2142
Total	414027.653	2,406,722	0.172029695	Root MSE = .36767

ins	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
treat	-.0860718	.001553	-55.42	0.000	-.0891157	-.083028
post	-.4014851	.0005088	-789.13	0.000	-.4024823	-.4004879
did	.069663	.0019492	35.74	0.000	.0658427	.0734833
_cons	1.47693	.000404	3655.65	0.000	1.476138	1.477722

**Areas of Further Study**

The study of the healthcare system is a complex manner in which there are many different mechanics that would tailor to each and every single American. The Affordable Care Act’s fate of whether it would still be a law in the future would be determined by future Presidents as well as their vision of a robust healthcare system. Many progressive ideas such as Medicare for all have been rigorously studied but would the same effects from this paper contribute to a Medicare for all? One area of study could be looking at if an individual mandate affected individuals who worked part-time but make an income close to the threshold that the

mandate would be in effect. By looking at this, there could possibly be a group of individuals in the labor force that are worse off from the mandate than before.

## **Conclusion**

Based on the results of the regression analysis and the diff-in-diff, the withdrawal of the individual mandate created a counter-intuitive result where insurance for those that are self-employed actually increased after 2018. The whole basis of the individual mandate was to incentivise individuals into opting into a health insurance program, especially for those that do not receive insurance from their providers like the self-employed. Adverse selection into the healthcare exchanges can somewhat mitigate the overall demand for insurance since the implementation of the mandate because of the subsidies in the exchanges and the open enrollment period. This caveat shows that the model this paper has presented can also have other factors that would lead to an increase in insurance from self-employers after the mandate was repealed, not just the mandate itself. In part, this may indicate that the policy implicated a minimal impact onto the self-employed. The Affordable Care Act provided a mechanism in which taxpayers in the US must obtain insurance and are only incentivised to do so because of the tax penalty they could face. Self-employers in the U.S also have the option of providing employer based insurance to its employees which comes at a cost to not only the business but also the employer themselves.

Since the data was constrained to self-employed individuals that have at least a highschool diploma or higher degree, this would suggest that these individuals hold businesses in sectors that would pay them more (i.e law firms, chiropractors, finance, doctors). The Bureau of Labor Statistics calculated that the median income for self-employers in occupations that require

at least a highschool diploma was greater than \$60,000. This suggests that self-employers rather pay out of pocket for insurance and submit themselves to the penalty, or these workers are healthy overall. This paper reflects how the individual mandate can still create motivations for self-employers to not buy health insurance but do so after the repeal at the end of 2017.

With the results of the empirical model in terms of self-employers being affected by the withdrawal of the mandate, there are some policy measures that are worth considering. The first consideration would be to systematically incentivise everyone in the U.S to obtain health insurance regardless through private or government, through the means of allowing workers to receive a tax exemption in a certain tax code. Rather than instigating a tax penalty, I believe a positive mechanism of rewarding tax payers would lead more people to buy into either Medicare, Medicaid or other health insurance programs. This would be costly however, but more people would enroll in government funded health insurance and Congress could then worry about appropriations in order to sustain this policy.

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