The Effect of Minimum Wage and Unemployment across Varying Economic Climates

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Abstract

This paper aims to model and quantify the relationship between minimum wage and unemployment rate. Both microeconomic and macroeconomic theory dictate that unemployment rate will increase with an increase in the minimum wage. This economic relationship is tested on a state-by-state basis in the United States from 2002 to 2012 based on data obtained from the bureau of labor statistics. This time period is broken up into three models: pre-recession, recession, and post-recession. The simple regression models made the conclusions that minimum wage has an effect on unemployment. For the multiple regression models, it was concluded that minimum wage had a significant effect on unemployment when the economy was unstable, during the recession and post-recession.

1. Introduction

Currently, Congress is deliberating on whether to pass a bill that will increase the minimum wage in the United States. This change will ultimately have both positive and negative effects on different aspects of the economy such as unemployment levels. For this paper, we have chose to examine the relationship between minimum wage and increased unemployment levels.

In microeconomic theory, the minimum wage is seen as a price floor above the equilibrium price set by the supply and demand curve. With an increase in minimum wage, the quantity of supplied workers in the economy will also increase due to an initial surge of interest to join the workforce. Likewise, the quantity of labor demanded will decrease since the marginal cost of labor will directly increase with minimum wage. Consequently, the increase in quantity supplied and decrease in quantity demanded creates a surplus of labor in the workforce, resulting in increased unemployment from points A to C in Figure 1. As the minimum wage increases above the natural equilibrium in the labor market, the level of unemployment will also increase.

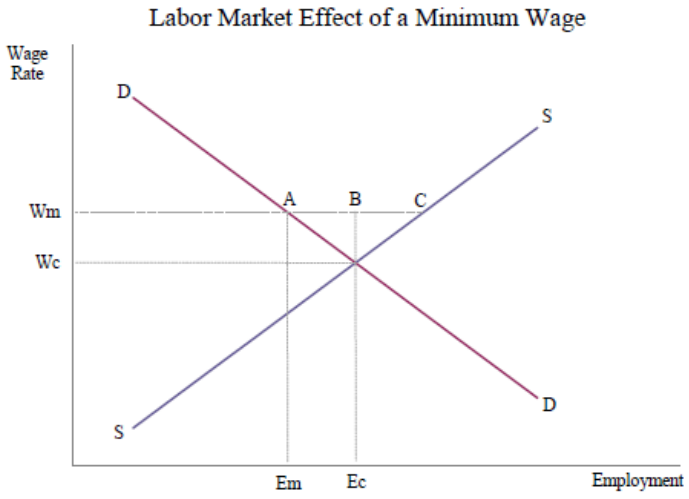

Figure 1: The Supply and Demand Curve of the Labor Market

From a macroeconomic point of view, an increase in the minimum wage will increase the overall real wage of the economy. In the graph showing the relationship between the real wage and the unemployment rate, the wage setting relation shifts to the right with the increase. This causes the point at which the wage-setting relation meets the price-setting relation shifts to right. The intersection between the two relations represents the natural rate of unemployment, meaning

a shift to the right of the wage-setting relation increases unemployment. In the medium run, expectations for prices change until the price-setting relation increases until the natural unemployment equilibrium point returns to its original value. Consequently, the expectations for the data should be initially an increase in the unemployment level with a return to the same rate of unemployment after several years but a normalization of the real wage due to increase in prices.

2. Literature Review

The relationship between minimum wage and unemployment has been extensively researched and there is a large amount of literature on the topic. The change in employment and unemployment as a result of a change in the minimum wage is typically analyzed for a specific demographic population. Some studies even analyzed the duration of unemployment for different demographics during a change in the minimum wage. Overall, there was not very much comparison between unemployment levels between states with different minimum wages.

Kohen, Gilroy, and Brown (1982) look at what changes business make as a result of an increase in the minimum wage in addition to the effect the increase in the minimum wage has on levels of employment in different segments of the economy. *The Effect of the Minimum Wage on Employment and Unemployment* describes the resulting changes businesses make to cope with a minimum wage increase as "Shock" effects. First of all, some businesses, which were originally inefficient, drastically increased the productivity of their operation in order to offset the minimum wage. Secondly, firms that rely too heavily on labor will be forced to fire workers to better minimize costs. Thirdly, required level of effort might be raised for the workers to essentially earn the minimum wage increase. Last of all, some firms will resist hiring workers to replace workers who leave the company or retire; ultimately, this reduces the possible growth of future employment rather than increasing current unemployment. A couple highlights of demographics covered by the article were the effect on adult unemployment and low wage manufacturing by minimum wage requirements. In regards to adult unemployment, the article looked at various studies but couldn't find an overall consensus. One study found a small increase in adult employment due to wage raises for competing teens, although there results were not statistically significant. Another study determined the drop in potential employment after an increase in the minimum wage was significant, based on time series data before and after the 1974 minimum wage increase. For low wage manufacturing, the paper analyzed a study

completed over twelve low wage industries that analyzed the before and after affects of an increase in the minimum wage. There were two conclusions. First, the more reliant the industry was on minimum wage workers the greater the percentage change in unemployment was. Secondly, a minimum wage increase with a "direct impact of 10% would reduce employment by 2.4%" (Kohen pg.521, 1982).

For Aspen Gorry (2013), it was very important to concentrate on the issue of youth unemployment. On the article "Minimum wages and youth unemployment", Aspen Gorry created a model to quantitatively assess the impact of minimum wages on unemployment rates for young workers with a low level of education. In his findings, Gorry shows that from the simulated average unemployment rate of 11.8% the model predicts that a 30% increase in minimum wage would only increase unemployment by 1.4% points for young workers. A larger increase in the minimum wage of 50 and 70% would increase unemployment for young workers by 4.5 and 15.4 percentage points, respectively. Older workers are virtually unaffected by a 30% increase in the minimum wage while there are small effects for larger increases of the minimum wage that decline as workers age. According to Gorry this shows that minimum wage has a nonlinear effect on unemployment. Minimum wage has a higher effect on employees with lower experience while the older population who has accumulated this experience is unaffected by the change. In terms of long run effects what does this entail? Primarily, missing skill accumulation early in life has long run implications for wage growth if the person is unable to make up for the lack of skill accumulation while unemployed. In short, he describes that workers who are exposed to high minimum wages early in life will have a lower probability of becoming employed and experienced as well as earning lower wages when older. An increase in minimum wage results in young workers earning slightly higher wages on average when employed, while leading to lower wages when older. Ultimately he found strong evidence that higher minimum wage leads to a more compressed earning profile by age.

Pedace and Rohn (2011) examined the relationship between minimum wage and unemployment durations for different samples of workers grouped by gender, age, skill, and educational attainment using the Displaced Worker survey. Results suggested that increased minimum wage generally decreased the unemployment length for high school graduate or college graduate males, but conversely, caused higher unemployment lengths for high school male dropouts and females at all educational levels. However, the effect of minimum wage on

unemployment cannot be determined since several confounding variables cannot be discerned from the data analysis. For instance, high turnover rates are linked to higher minimum wage (i.e. higher minimum wages increases marginal costs), but also decrease unemployment durations. Labor force transitions and the efficiency wage model also have notable correlations between minimum wage and unemployment.

The relationship between unemployment and minimum wage will be analyzed on a state-by-state basis as opposed to on a national scale. This method allows the comparison of various minimum wages and unemployment rates during the same time period and with similar economic conditions. This method will be also be accurate because some states have a different minimum wage than the national minimum wage. If a state has a set minimum wage below the national minimum wage, the national minimum wage supersedes the state law. However, if the state minimum wage is higher than the national one, the state minimum wage can be considered the actual minimum wage for that state. Ultimately, using the state-by-state method allows an increase in data points as well as a greater variance in the minimum wage to more closely analyze the correlation. The new perspective on the issue allows for this paper to contribute to the literature on the subject.

3. Data

The research question being assessed is whether a change in minimum wage among other factors will have an effect on unemployment. Specifically, will an increase in minimum wage increase unemployment rate? The economic relationship between minimum wage and unemployment was analyzed using state-by-state data in three different time periods: pre-recession (2002-2006,) recession (2007- 2009) and post recession (2010-2012). For each of these time periods, both a simple and multiple regression models were generated using data collected from every state (in the United States) including Washington D.C., resulting in 51 observations. The observations of each state are actually time averages of annual data collected on the state during the given time periods.

3.1 Simple Regression Data

For a simple regression the sole interaction between minimum wage and unemployment rate was assessed. The simple regression model for each time period follows Equation 1,

$$unemployment = \beta_0 + \beta_1(minWage)$$

where β_1 represents the proportional unit for unit change between minimum wage and

unemployment. The data gathered for unemployment rate and minimum wage were both obtained from the Bureau of Labor Statistics from the years between 2002 and 2012.

Before continuing with a regression analysis of these models there are certain criteria that each linear regression model should meet to in order to obtain the best linear unbiased estimator of the coefficients given by the ordinary least squares estimator. The assumptions that must be met are called the Gauss Markov Assumptions, which can be referenced in the Appendix (Wooldridge 2012).

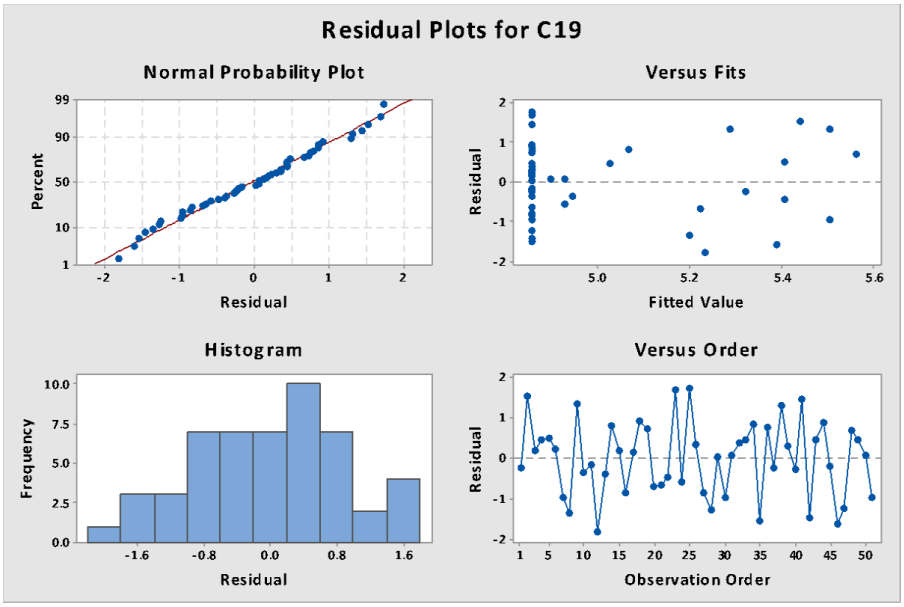

Figure 2: Summary Statistics

Based on the residual plots above, we can determine that the SLR.1 is met where the independent variable is linearly related to the dependent variable. Because the data was obtained at the national level and it includes the entire population of the United States, it can be concluded that assumption of SLR. 2 is met which is also supported by the figure above showing a random distribution. The sample outcomes on the independent variable are not all the same because the sample included 50 different states plus D.C.. Lastly in order to have a good estimator of the problem it is assumed that the variables confined within U, the error, are equal to zero.

3.2 Multiple regression Data

The multiple regressions for each time period are defined below as Equation 2.

$$unemployment = \beta_0 + \beta_1(minWage) + \beta_2(EduLevel) + \beta_3(\%ofMinWage) + \beta_4(GDP) + \beta_5(taxRate) + U$$

The β_2 coefficient shows the correlation between unemployment and education level, for this model being the percentage of the workforce that graduated high school. The β_3 coefficient shows the relationship between the percentage of minimum wage employees and unemployment rate. The Bureau of Labor Statistics collected the data for the percentage of minimum wage workers per state. Similarly β_4 shows the relationship between GDP and unemployment rate and β_5 is the relationship between state and local taxes per capita and unemployment rate.

Each of these variables was included because it could possibly have an impact on the level of unemployment of the state. The educational attainment level of a state, found using the American Community Surveys, should have a positive impact on employment so unemployment will likely be less in a state with a higher level of educational attainment. The percentage of minimum wage workers, was included to see how it was affected unemployment rate. Based on the conclusion made by the simple regression analysis, GDP per capita was included as a variable to show the overall health of the state economy would likely affect the unemployment level in the state. As the overall state economy increases in health, GDP per capita, the unemployment is expected to decrease. Last of all, tax rate per capita was included to show the differences between states' business environments. Some states will have high tax rates on business while others will be more business friendly; this difference could be an external factor that affects the level of employment in a state.

In order to be able to continue with the analysis of the data and create a multiple regression model the compiled data should meet the same Gauss Markov Assumptions initially stated in section 3.1. Assumption 3 of the Gauss Markov Assumption is different in that no perfect collinearity should be found in the model. There is a slightly high correlation between minimum wage and percentage of minimum wage workers as well as tax rate and GDP per capita. This slight multicollinearity between the two variables could end up being problematic later on, but at this point it cannot be assumed that this will not create a good model. An F-test will be completed for each multiple regression model to determine if the two variables are jointly significant and should be kept in the model. The F-test was calculated using the Equation 3,

$$F = \frac{(R_{UR}^2 - R_R^2)/q}{(1 - R_{UR}^2)/(n - k - 1)}$$

where R_{UR}^2 is the R-squared value of the unrestricted regression model and R_R^2 is the R-squared value of the restricted regression model. Going through the rest of the assumptions using the similar method described above it can be said that these variables can create the least biased

regression model.

4.1 Results: Simple Regression

In order to more fully understand the relationship between minimum wage and unemployment rate the regression model introduced before was run. To test the validity of this regression and of the minimum wage coefficient, β_1, a t-test was performed. For this simple regression analysis, the null hypothesis was $\beta_1 = 0$, which would mean the minimum wage would have no effect on unemployment rate. However, the alternate hypothesis states that $\beta_1 > 0$, showing a direct relationship between minimum wage and unemployment. Table 1 contains the coefficient for minimum wage β_1, the p-value of the coefficient β_1, and the R-squared value of the model for each regression model.

Table 1: Simple Regression Model Results

Dependent Variable Unemployment			
Independent Variables	**Pre-Recession**	**Recession**	**Post-Recession**
MinWage	0.353 (1.72)*	0.670 (2.68)***	1.553 (2.38)**
Intercept	3.132 (2.74)***	1.616 (0.98)	-3.523 (-0.72)
No. of obs.	51	51	51
R-square	0.057	0.128	0.104

For the pre-recession model, there was no statistical significance between unemployment and minimum wage. The β_1 was only statistically significant at the 10% level, with a p-value of 0.091, and the model had a very low R-squared value of 0.057. For the recession model, there was a higher R-squared value of 0.128 and the coefficient for the minimum wage, 0.670, was statistically significant to the 1% level. Consequently, this model completely rejects the null hypothesis, meaning there is statistical significance to show a positive coefficient relating minimum wage to unemployment. It follows economic reasoning to see the effect of minimum wage being more statistically significant for the recession model than the pre-recession model. When an economy falls into a recession, businesses' sales and profits decrease requiring them to restructure to decrease costs as well. As a result, businesses that employ workers in states with a higher minimum wage are more likely to reduce their workforce to reduce costs because the marginal cost of their labor is higher than in states with a lower minimum wage. The post-

recession model doesn't show as much statistical significance as the recession model with significance up to the 5% level. However, the coefficient for the minimum wage was much higher at 1.553. The R-squared value was slightly less than for the recession model, 0.104. The data continues to follow economic reasoning by showing the relationship between minimum wage and unemployment is still significant but not as much as it was during the recession. This shows that as the economy began to recover minimum wage became less of a factor in determining unemployment. The results for the regression models for each time period can be found in Table 3, Table 4, and Table 5, respectively.

4.2 Results: Multiple Regression Model

Once the model for the multiple regression model was run using the variables mentioned previously, a one sided t-test once again was used in order to test the statistical significance of the coefficients in the model. For this multiple regression model the null hypothesis used were, $\beta_1 = 0$, $\beta_2 = 0$, $\beta_3 = 0$, $\beta_4 = 0$, $\beta_5 = 0$, while the alternative hypothesis were $\beta_1 > 0$, $\beta_2 < 0$, $\beta_3 < 0$, $\beta_4 < 0$, $\beta_5 > 0$. Table 2 contains all of the coefficients tested along the t-statistic, the p-value and the R-square for each individual model; that is pre-recession, recession, and post-recession. It should be mentioned that because there was not available data for the percentage of high school graduates after 2010, this dependent variable had to be omitted for the post-recession model.

Table 2: Multiple Regression Model Results

Dependent Variable Unemployment			
Independent Variables	Pre-Recession	Recession	Post-Recession
MinWage	0.247 0.852	0.6508 1.870*	1.790 1.678*
eduLevel	-0.164 -3.488***	-0.223 -4.005***	N/A
minWageWorkers	-0.202 -0.902	-0.185 -0.788	0.0867 0.365
taxRate	-0.000377 -1.543	-0.0000829 -0.536	-0.000446 -1.680*
GDP	0.0000225 2.232**	0.00000899 0.859	0.0000251 1.357
Intercept	15.777 3.539***	21.589 3.294***	-5.427 -0.602
No. of obs.	51	51	51
R-square	0.3585	0.421	0.191

*** 1%, ** 5%, *10% statistical significance

The multiple regression model showed some interesting results for the pre-recession time period. Surprisingly, minimum wage is not significant at any level despite its statistical significance for the simple regression model. This result could be due to the fact that minimum wage is highly correlated with the percentage of minimum wage, another factor that is not significant at any level. This problem of multicollinearity was addressed with an F-test; the F-test showed the two variables were jointly significant at the 10% level, meaning the model is adequate. It makes economic sense for the minimum wage and percentage of minimum wage workers to be significant in their relation to unemployment. This joint significance can be explained through economic reasoning. When minimum wage increases firms will hire less minimum wage workers causing unemployment rate to increase. It also can be seen from the table that the coefficients for tax rate and GDP per capita are very small and seem almost insignificant and yet that is not exactly the case for GDP per capita; consider the fact that GDP per capita is in tens of thousands of dollars. As a result, even an extremely small coefficient, β_4, can have a tangible effect on the unemployment level. The percentage of high school graduates, eduLevel, is shown to be significant at every level; this is expected as education and

opportunities of employment usually go hand in hand.

For the recession model, minimum wage was significant at the 10% level and eduLevel once again was significant at all levels. Percentage of minimum wage workers along with tax rate and GDP per capita were not significant during this period of time. The minimum wage increased significance for the recession model as compared to the pre-recession model can be explained by the health of the economy. During the recession, the unemployment rate greatly increased which can be attributed to the poor economic structure at the time. This might have had an effect on the model and made it seem like the increase in unemployment rate was correlated to minimum wage. Minimum wage may still have an effect on unemployment rate as the same problem of multicollinearity between minimum wage and percentage of minimum wage workers could be affecting the individual significance of each. To assess whether this model is appropriate the F-test was completed again, resulting in joint significance at the 5% level. Consequently, this model is adequate and both minimum wage and percentage of minimum wage workers are critical and jointly significant. However, the recession could have also made the significance between unemployment rate and minimum wage more apparent. When firms are faced with an economic hardship, the higher minimum wages makes it harder to keep/hire labor. Economic reasoning would lead to this causation as opposed to recession causing bias in the model.

The multiple regression model for the post-recession showed a significance at the 10 percent for the minimum wage and tax rate. These were the only factors significant at any level for this model. This slight increase in the coefficient where it seems like an increase in minimum wage has a much larger effect on unemployment than previews models can be explained by the recession in previous years. The effect that the recession had on the unemployment rate was quite large and this significant increase was only noticeable towards the last year of the unemployment rate spiked by an average of almost 20%. Recovery on the high unemployment rate did not begin until recently and this had an effect on the model covering 2010-2012. Similarly to the previous model, because assumptions cannot be made on whether a variable is insignificant an F-test was performed, once again it was seen minimum wage and percentage of minimum wage employees are jointly significant at the 10% level. In conclusion, this model is adequate and no variables can be ignored.

5. Conclusions

The simple regression models gives interesting insight. The models show that an increase in minimum wage increases unemployment. Additionally, the models show that the relationship between minimum wage and unemployment varies based on the economies overall health. As the economy's stability increases, the minimum wage is less of a factor in determining the unemployment rate and vice versa. However, this insight is made using only a simple regression model which doesn't take into account various other factors that can affect unemployment rate. Consequently, a multiple regression analysis was necessary for more substantive claims.

A couple, more concrete, conclusions were made using the multiple regression models. First, educational attainment had an even greater effect on unemployment than minimum wage did for the models analyzed in this paper. An inference can be made from the multiple regression models that an attainment of a high school diploma increases the chances of finding employment regardless of the changes in minimum wage. Second of all, an inference can be made that the health of the economy changes the influence minimum wage has on unemployment level. As for the direct relationship between minimum wage and unemployment, the models show that minimum wage has a significant effect on unemployment when the economy is unstable. It was also found that the effect of education level on unemployment rate is more significant than that of minimum wage.

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Appendix

Gauss Markov Assumptions:

Assumption 1. Linear in Parameters

In the population model, the dependent variable, unemployment, is related to the independent variable, minimum wage.

Assumption 2. Random Sampling

Random sample of size n, following the population mode in Assumption 1.

Assumption 3. Sample Variation in the Explanatory Variable

The sample outcomes on minimum wage, are not all the same value.

Assumption 4. Zero Conditional Mean

The error u has an expected value of zero given any value of the explanatory variable.

Table 3: Simple Regression Model for Pre-recession Time Period

Source	SS	df	MS	Number of obs =	51
				F(1, 49) =	2.96
Model	2.68976939	1	2.68976939	Prob > F =	0.0914
Residual	44.4640821	49	.907430246	R-squared =	0.0570
				Adj R-squared =	0.0378
Total	47.1538515	50	.943077029	Root MSE =	.95259

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
MinWage	.3531852	.2051406	1.72	0.091	-.0590602	.7654306
_cons	3.132028	1.14448	2.74	0.009	.8321094	5.431946

Table 4: Simple Regression Model for Recession Time Period

Source	SS	df	MS		
Model	11.2670844	1	11.2670844	Number of obs =	51
Residual	76.6873401	49	1.56504776	F(1, 49) =	7.20
				Prob > F =	0.0099
Total	87.9544245	50	1.75908849	R-squared =	0.1281
				Adj R-squared =	0.1103
				Root MSE =	1.251

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
MinWage	.6699078	.2496738	2.68	0.010	.1681694	1.171646
_cons	1.616449	1.655705	0.98	0.334	-1.710814	4.943711

Table 4: Simple Regression Model for Post-recession Time Period

Source	SS	df	MS		
Model	18.4122112	1	18.4122112	Number of obs =	51
Residual	159.500767	49	3.25511769	F(1, 49) =	5.66
				Prob > F =	0.0213
Total	177.912978	50	3.55825957	R-squared =	0.1035
				Adj R-squared =	0.0852
				Root MSE =	1.8042

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
MinWage	1.553032	.6529965	2.38	0.021	.2407867	2.865278
_cons	-3.523247	4.883271	-0.72	0.474	-13.33655	6.290053

Table 5: Multiple Regression Model for Pre-recession Time Period

Source	SS	df	MS		
Model	15.7314068	5	3.14628135	Number of obs =	51
Residual	28.2076565	45	.626836812	F(5, 45) =	5.02
Total	43.9390633	50	.878781266	Prob > F =	0.0010
				R-squared =	0.3580
				Adj R-squared =	0.2867
				Root MSE =	.79173

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
minWage	.2461605	.2904882	0.85	0.401	-.3389127	.8312337
eduLevel	-.1636968	.0469989	-3.48	0.001	-.2583576	-.0690361
minWageWor~s	-.2034359	.2246588	-0.91	0.370	-.655922	.2490502
taxRate	-.0003781	.0002443	-1.55	0.129	-.0008703	.000114
GDP	.0000226	.0000101	2.24	0.030	2.25e-06	.0000429
_cons	15.78335	4.462991	3.54	0.001	6.794421	24.77227

Table 6: Restricted Model for Pre-recession Multiple Regression

Source	SS	df	MS		
Model	12.0804934	3	4.02683115	Number of obs =	51
Residual	31.8585699	47	.677841912	F(3, 47) =	5.94
Total	43.9390633	50	.878781266	Prob > F =	0.0016
				R-squared =	0.2749
				Adj R-squared =	0.2287
				Root MSE =	.82331

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
eduLevel	-.1405629	.0416333	-3.38	0.001	-.2243183	-.0568075
taxRate	-.000187	.0002376	-0.79	0.435	-.000665	.000291
GDP	.0000209	.0000105	2.00	0.052	-1.64e-07	.0000419
_cons	14.39807	2.799633	5.14	0.000	8.765934	20.0302

Table 7: Multiple Regression Model for Recession, Unrestricted

Source	SS	df	MS		
Model	37.0404746	5	7.40809492	Number of obs =	51
Residual	50.9039143	45	1.1311981	F(5, 45) =	6.55
				Prob > F =	0.0001
Total	87.9443889	50	1.75888778	R-squared =	0.4212
				Adj R-squared =	0.3569
				Root MSE =	1.0636

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
minWage	.6514949	.3474559	1.88	0.067	-.0483173	1.351307
eduLevel	-.2228668	.0556361	-4.01	0.000	-.3349237	-.1108098
minWageWor~s	-.1845267	.2342247	-0.79	0.435	-.6562795	.2872262
taxRate	-.0000833	.0001547	-0.54	0.593	-.0003949	.0002282
GDP	9.04e-06	.0000105	0.86	0.392	-.000012	.0000301
_cons	21.57108	6.545157	3.30	0.002	8.388457	34.7537

Table 8: Multiple Regression Model for Recession, Restricted

Source	SS	df	MS		
Model	20.5573164	3	6.85243879	Number of obs =	51
Residual	67.3870725	47	1.4337675	F(3, 47) =	4.78
				Prob > F =	0.0055
Total	87.9443889	50	1.75888778	R-squared =	0.2338
				Adj R-squared =	0.1848
				Root MSE =	1.1974

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
eduLevel	-.1789537	.0516535	-3.46	0.001	-.2828672	-.0750402
taxRate	.0000468	.0001697	0.28	0.784	-.0002947	.0003882
GDP	.0000114	.0000117	0.98	0.333	-.000012	.0000349
_cons	20.74857	4.345761	4.77	0.000	12.00602	29.49111

Table 9: Multiple Regression Model for Post-Recession, Unrestricted

Source	SS	df	MS		
Model	30.6959856	4	7.67399641	Number of obs =	51
Residual	129.551821	46	2.81634393	F(4, 46) =	2.72
Total	160.247806	50	3.20495612	Prob > F =	0.0406
				R-squared =	0.1916
				Adj R-squared =	0.1213
				Root MSE =	1.6782

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
minWage	1.802189	1.066779	1.69	0.098	-.3451251	3.949503
minWageWor~s	.0890887	.2378043	0.37	0.710	-.3895866	.567764
taxRate	-.0004446	.0002655	-1.67	0.101	-.000979	.0000898
GDP	.0000251	.0000185	1.35	0.183	-.0000122	.0000623
_cons	-5.532941	9.019762	-0.61	0.543	-23.68878	12.6229

Table 10: Multiple Regression Model for Post-Recession, Restricted

Source	SS	df	MS		
Model	15.9022659	2	7.95113296	Number of obs =	51
Residual	144.34554	48	3.00719876	F(2, 48) =	2.64
Total	160.247806	50	3.20495612	Prob > F =	0.0814
				R-squared =	0.0992
				Adj R-squared =	0.0617
				Root MSE =	1.7341

Unemployment	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
taxRate	-.0004449	.0002355	-1.89	0.065	-.0009184	.0000286
GDP	.000037	.0000166	2.23	0.031	3.58e-06	.0000705
_cons	7.81286	.8135793	9.60	0.000	6.177049	9.44867