



Amina Kamilova

Labor Economics – Research Paper

03.12.2018

ADA University

I **pledge** my honor that I have not violated the **Honor Code** during  
this examination

*How do labor unions and annual wages affect the unemployment rate in Netherlands?*

## **1.Introduction**

As time passes and the world population accrues a greater amount, this gradual growth engenders the discussions about the issues concerning to the social and financial domains more. One of the cardinal and arduous parts of these issues can be contented as the decision-making process of the job enrollment or specialization, workplace choice, salary earnings, consumption and leisure allocations, and so on. “The most important social welfare program in America is a job”. The former Speaker of the United States House of Representatives, Newt Gingrich expressed the significance of the job with this quote. As the job market is in the interest of many people there are many discussions and researches devoted to this issue and more professionally labor economics is considered as an apropos tool, which delineates various demotic problems and their effects in the job sector, and apprises the community about the possible solutions to them. Due to the reason that labor economics alludes to employment as a critical part of social and governmental issues, to my point of view, it is worth to conduct a study relating to it. The labor market described as consisting of three significant actors, who are employees, employers, and government. Government interventions are inevitable and intense part of controlling labor market. In addition to government interference, there also exist private organizations, which sustain the employers in ameliorating their working conditions, salaries by creating so-called labor unions. And wage is the payment to the employees by private enterprises or governmental institutions. The goal of this paper is to conduct a research about the effects of annual wages and labor unions on the employment level. Although there are numerous of works related to that topic there is a need for the study that unifies the variables that I combined in this paper for more specific and precise estimations. For this research, Netherlands is chosen as the target location, which is in the list of countries where I can live in future. Coming to question why especially this concept, there are several reasons. First of all, in Chapter 3 we have covered the consequences of wage reduction that explained by marginal cost approach, and substitution and scale effect approach and both characterizing the effect as the rise in employment. Secondly, in Chapter 12 we have covered the types of unemployment and in this section the structural unemployment and one of its reasons-labor unions got my attention. Thus, as in the contemporary society both private sector (labor unions, wages) and governments (wages) espouse into the

employment levels by taking initiatives in order to bolster the economy and community, I wanted to conduct an empirical study relating to the above-mentioned two theories and explore whether they apply in reality in Netherlands or not. Considering the three discrete interesting topics, deriving an expository investigation of their relationship would amalgamate allure and efficacy in it.

There is of course, some work that examines this relationship; nevertheless, my work focuses on the effects of collective bargaining percentage that describes a labor union power and existence, and annual wages together with the intermediate educational population percentage of labor force and GDP effects on employment level that as far as I researched not have been in the same regression model. Regarding to the raise of hypothesizes of labor unions a paper by Villanueva Ernesto, where he concludes the collective bargaining benefit as reduction in wage inequality and cost as causing less employment (2015, p.3-4). On the other hand, another detailed paper stated that exploring the 1970s and the 1980s, Bruno and Sachs (1985) found a positive relationship of collective bargaining and lower unemployment (Adascalitei, Dragos, Khatiwada, Miguel A., Pignatti Morano, 2015, p.8). Furthermore, in one of the papers it is argued that wage decline is successful initiative to consider to increase employment and output level due to the marginal cost reduction ( R.B.Bangs, 1942, p.256). Additionally, an article by Ryan Fuhrman stated that the economic growth measured by GDP causes a fall in unemployment rate (2008). Finally, another paper mentioned that educational decision is important, as the unemployment rate is lower for the skilled proportion of the people (Brauninger.M, 2000, p.499). All of these sources provide us with the useful information about the interactions among the variables; however, there is a need to run regression in order to have specific outcomes.

## **2.Data and Methodology**

In order to implement the research and get results from it I accessed to the data that referred to the official online website database called, World Bank and OECD stat. For the purpose of deep analysis I run my model according to the recent statistics on the time interval from 1996 to 2016. One country with many variables on the time range 1996-2016 formed a time series data.

The dependent variable was the unemployed people ratio to the total labor force, meaning u-rate expressed with percentage. One of the main independent variables were the annual wage expressed with dollars and in order to get more

precise results it was converted to the percentage by taking the log. Another main variable was the labor union and I used the percentage of employers with collective bargaining that was a good indicator of the labor unions existence in Netherlands. I also included other explanatory variables in my regression model such as, the GDP and took a log of it to have correct estimators, and the percentage of working age population with the intermediate education (upper or post secondary education according to the International Standard Classification of Education) in the labor force. And the error term was specified as the inflation and gini coefficient. My regression model looked like:

$$\text{unemppr} = \beta_0 + \beta_1 * \text{bargain} + \beta_2 * \text{logannualwg} + \beta_3 * \text{intedlfpr} + \beta_4 * \text{loggdp} + u$$

I run the regression first and looked at the effects of the variables. Then I checked the heteroskedasticity with both Breusch-Pagan (0.7919) and White (p=0.2440) tests, which contained the null with “homoskedasticity” and failed to reject it meaning there was not heteroskedasticity problem. Moreover, I checked the serial correlation with Durbin Watson (d-stat=1.423338) and Breusch-Godfrey (0.1225) tests that contained the null hypothesis of “no serial correlation” and failed to reject it meaning there was not serial correlation problem. Furthermore, I looked at the multicollinearity and saw that the VIF was not greater than 10 meaning it was okay. In addition, I looked at the correlation between the variables, and they were in the range of “-0.7 and 0.7 “. Also, I plotted the variables with “twoway scatter lfit” command and specified that there is not trending problem in my regression model. Despite all of these satisfied variables and coefficients, there were some pitfalls and difficulties that any research might encounter such as, in order to get these estimations and coefficients I searched a lot for reaching a good data. And some of the other explanatory variables data that I wanted to use lacked and thus, I tried to combine my new variables in a way that they were did not cause any problem.

#### **4. Analysis and Findings**

After the regression, I got the estimation results, which are shown in table 1 below.

According to this estimation my equation is:

$$\text{unemppr} = -119.62 - 0.068\text{bargain} + 47.47\text{logannualwg} - 0.76\text{intedlfpr} - 12.12\text{loggdp}$$

According to this estimation, we can interpret effects of independent variables on u-rate, can construct the estimation intervals, and can test whether they are significant or not. Total number of observations was 18 and the explanation

percentage of variation in u-rate by independent variables was 88%. And if we look at the p-value of F-test we see that my model fitted the data better than the intercept only model meaning the explanatory variables are jointly significant.

Coming to main results, we got that 1% increase in collective bargaining coverage decreases u-rate by 0.06 % and 1% increase in annual wages increases unemployment 0.4747%. Also, 1% increase in intermediate educational labor force leads to 0.7% and 1% increase in GDP leads to 0.1212% decrease in u-rate. And if we look at the p-values of these variables we can see that all of them were statistically significant and one of the main variables p-value was even equal to 0.000, which was satisfactory result.

**Table1**

Source	SS	df	MS			
Model	43.7911198	4	10.94778	Number of obs =	18	
Residual	5.47137504	13	.420875003	F( 4, 13) =	26.01	
Total	49.2624949	17	2.89779382	Prob > F	= 0.0000	
				R-squared	= 0.8889	
				Adj R-squared	= 0.8548	
				Root MSE	= .64875	

  

unemprr	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
bargain	-.0688019	.0291012	-2.36	0.034	-.1316712	-.0059326
intedlfpr	-.7607524	.1246119	-6.10	0.000	-1.02996	-.4915449
logannualwg	47.47082	8.216548	5.78	0.000	29.72004	65.22159
loggdp	-12.13472	4.14409	-2.93	0.012	-21.08749	-3.181961
_cons	-119.6216	51.21777	-2.34	0.036	-230.2708	-8.972285

#### 4. Conclusion

All things considered, it can be concluded that annual wages positive, intermediate educational part of labor force and GDP have negative relationship with the u-rate and these findings are consistent with the previously mentioned literature review. Collective bargaining coverage has negative effect on the u-rate. A paper by states that Netherlands is in the list of countries that enforces and supports well-functioning bargaining and because of the decreased additional labor costs the u-rate also decreases. Also, I think that as the labor conditions improve through bargaining, it shows itself as the motivation for the people to take part in labor force and to be employed. I found this topic interesting and deep that there can be done further investigations by adding other explanatory variables such as, education compensation, unemployment benefits, female participation and so on.

## Reference List

Adascalitei, Dragos and Khatiwada, Sameer and Malo, Miguel A. and Pignatti Morano, Clemente (2015): Employment protection and collective bargaining during the Great Recession: A comprehensive review of international evidence.

Bräuninger, M. (2000). Unemployment Insurance, Wage Differentials and Unemployment. *FinanzArchiv / Public Finance Analysis*, 57(4), 485-501.

Bangs, R. (1942). Wage Reductions and Employment. *Journal of Political Economy*, 50(2), 251-271.

Jan, K, E. (2016). Collective Bargaining Coordination and the Impact on Labor Costs and Unemployment: *The Importance of Supporting Legal Provisions to Create Internal Governability*

Villanueva, E. Employment and wage effects of extending collective bargaining agreements. IZA World of Labor 2015: 136 doi: 10.15185/izawol.136