

THE EFFECT OF MINIMUM WAGE INCREASING TO UNEMPLOYMENT RATE IN INDONESIA FOR PERIOD 1992–2010

PENGARUH KENAIKAN UPAH MINIMUM TERHADAP TINGKAT PENGANGGURAN DI INDONESIA PERIODE 1992–2010

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ABSTRAK

Penelitian ini berusaha untuk menjelaskan bukti empiris kenaikan upah minimum terhadap pengangguran. Kenaikan upah minimum seharusnya menjadi keuntungan bagi angkatan kerja. Sayangnya, teori makro ekonomi menyatakan bahwa akibat dari kenaikan upah minimum memiliki hubungan yang positif dengan surplus tenaga kerja. Metode penelitian yang digunakan dalam penelitian ini adalah regresi sederhana dengan menggunakan data panel. Hasil penelitian ini adalah setiap kenaikan upah minimum maka secara signifikan meningkatkan jumlah pengangguran pada periode 1992–2010 di Indonesia. Setiap kenaikan upah minimum sebesar 10% akan meningkatkan pengangguran sebesar 11,35%. Penelitian ini juga menemukan bahwa terdapat perbedaan akibat yang ditimbulkan oleh kenaikan upah minimum untuk masing-masing provinsi yang tergantung kepada biaya produksi, kelebihan tenaga kerja, dan PDB Provinsi.

Kata kunci : pengangguran, upah minimum, Indonesia

ABSTRACT

This research is trying to explain Indonesian empirical evidence about minimum wage increasing effect towards unemployment. Minimum wage increasing should become a benefit for labour force. Unfortunately, macroeconomics theory stated that the effect of minimum wage increasing has positive correlation with labour surplus. Research method that will be used in this paper is simple regression by using panel data. The result of this research is increasing minimum wage will be significantly affect unemployment for period 1992–2010, in Indonesia. For every 10% minimum wage increasing will affect unemployment about 11,35% positively. This research also find that for every province there will be a different unemployment increasing percentage possibly depends on cost of production, labour surplus, and provincial GDP.

Keywords: unemployment, minimum wage, Indonesia

INTRODUCTION

The enactment of Act No. 13 of 2003 about Manpower had been prevailed determination of minimum wage system by provincial/district/city authority. As an implementation of this new act, minimum wage was determined by the Governor and no longer determined by the central government. Provincial/district/city minimum

wage governed by Article 88 of Act No.13 of 2003 which is stated that the government sets minimum wages based on decent living needs and regarding to productivity and economic growth. Furthermore, in article 89, it was declared that the minimum wage consists of the minimum wage by province/district/city and by sector in the province/district/city. Thus the provincial minimum

wage was set by the respective governors by taking consideration from the Wages Councils and the Provincial or regent/mayor.

Handayani's research background was based on workers rallies and demonstrations. The main demands of this rallies and demonstrations were increasing minimum wage. Increasing in minimum wage indicates that the aim of regional minimum wage increases was improving the welfare of workers and would reduce conflicts between workers and the company. In line with Handayani's research results, one of government purpose mentioned in the Act No. 13 of 2003 consideration is to realize the welfare of workers/labourers and their families with considering the developmental progress of the business world. However, the government's efforts to improve the welfare of the workers/labourers by increasing the minimum wage had a further effect on the labour force. One of the macroeconomics theories was explaining about minimum wage increasing effects on unemployment rate called the Law of Minimum Wage.²

The Law of Minimum Wage stated that any increase in the minimum wage would potentially increase the number of unemployed. Figure 1 could give a clear illustration of the relationship between minimum wage and unemployment. At the time the government set a minimum wage, then the balance will shift the labour market, especially minimum wages from W_E to Minimum Wage horizontal line. Labour demand would be reduced by $L_E - L_D$. Offers of employment will

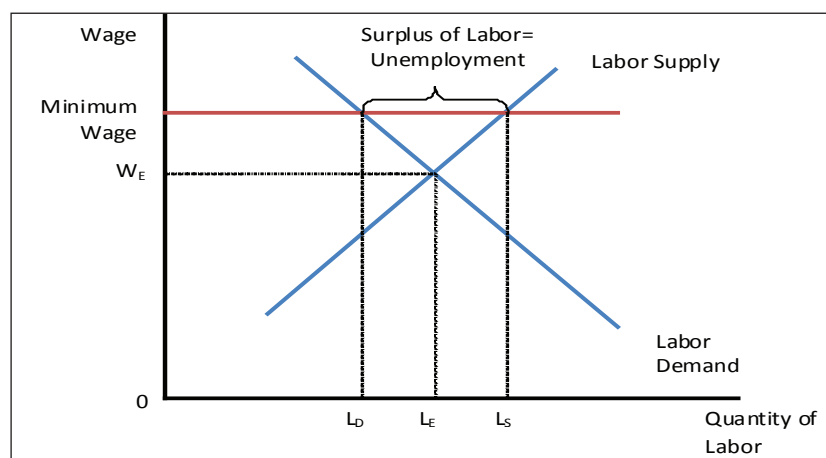
increase by $L_E - L_S$. As a result, there would be a labour surplus ($L_D - L_S$). These labour surplus reflects that there has been unemployment.

The main problem in this paper is how provincial minimum wage increase will affect the unemployment rate. Furthermore, has every province got the same effect from minimum wage increasing?

The purpose of this study is to determine the relationship between the minimum wage and unemployment rate and also to find which province that suffered the greatest impact of minimum wage increases.

Mankiw¹ stated that unemployment are caused by several causes like job-search process, the minimum wage law, labour unions and collective bargaining, and the theory of efficiency wages. The minimum wage law had more effect on teenager unemployment, within an arguing that teenager labour inexperienced and expertise less. Further, Mankiw stated that every 10% increase in the minimum wage will increase teenager unemployment rate by 1–3%.

Based on research conducted by Rama,³ a background of significant increases of minimum wage in Indonesia in the early 90's showed that in nominal terms, the value of the minimum wage rose by three times, but in real terms it just increased by two times. Rama uses simple and multiple regression models, with several models to show the effect of minimum wage increases to salaries, labour, and investment. The results showed that the effect of doubled minimum



Source. Mankiw, N.G. *Principles of Macroeconomics 5th edition*.

Figure 1. The Law of Minimum Wage

wage will result in a decline in urban labour force by 2 percent. Research conducted by Alatas⁴ concluded that the increase in the minimum wage will adversely affect small companies' workers and national companies rather than worldwide companies.

Lewis⁵ who conducted research in Australian labour market was concluding even more greater percentage effect from minimum wage increasing. Lewis stated that every 10% increase in average wages will reduce employment about 8%. Further, it was stated that impact from minimum wages increasing on total employment and unemployment would be minimal with greatest effect on low-skilled and low-pay workers.

On the other side, Danziger⁶ stated that impact of the increased minimum wage should give a positive impact on worker welfare. Danziger stated that the effect of minimum wage increases will be split between low-paid workers who will benefit more from a minimum wage increase and high wages' worker who will get less benefit.

Based on theory and previous researches, this research will use two hypothesis which will be tested in this paper, namely:

H_0 : increase in minimum wage will not affect the unemployment rate

H_{a1} : increase in minimum wage will affect the unemployment rate

H_{a2} : increase in minimum wage will affect the unemployment rate with a different effect for each province in Indonesia

The rest of this paper will be organized as follow, methodological research will be explained first. After research method, result and discussion will be explained. At last, conclusion and recommendations will be stated.

RESEARCH METHOD

This research was a library research which was conducted at the period of June 18 until July 3, 2011 with location at the Centre for Development, Education, Training and Research Institute of Sciences of Indonesia. Methods of data collection were secondary data from CEIC database for unemployment and minimum wage that was available at the Fiscal Policy Office, while the data of the Consumer Price Index has been already

published by the Central Bureau of Statistics. Period 1992–2010 was used because there are data at CEIC database for Provincial Minimum Wage, while for unemployment had wider range from 1981–2010.

In this paper, definition of minimum wages and unemployment are taken from Indonesian Central Bureau of Statistics website, which is minimum wages was defined as a basic wages included fringe benefit, with condition that the lowest basic wages is about 75% from minimum wages. Then unemployment can be defined as someone who is willing to work and able to work but cannot get any job yet.

Province can be defined based on Act Number 32 Year 2004 about Local Government. At Article 2 subsection (1) explain, that the Republic of Indonesia is divided into provinces and the province, divided into districts and cities and each has a regional government. Province as a local government lead by a governor as mentioned at Article 1 Subsection (3). In this research, province means all provinces that are located in Indonesia territory.

Data analysis methods used in this paper is a simple regression, the same method used by Rama.² The provincial unemployment data for 2000 and 2001 was not found both in Central Bureau of Statistics website nor CEIC Database. To overcome this problem, simple regression used for each province is a year as an independent variable and unemployment as the dependent variable. Inflation effect also must be taken into consideration. To measure the effects of inflation, the data was adjusted with Customer Price Index with base year 2007. Adjustments are needed to obtain the actual value of money by using the consumer price index which is one of the used general price indexes.⁷

Simple regression model that will be used in this paper is:

$$Y_t = \alpha + \beta_1 X_{t-1} + \varepsilon \dots\dots\dots(1)$$

Where:

Y_t = Provincial Unemployment in Year t

α = Constant

β = effect of X on Y

X_{t-1} = Minimum Wage in year t-1

ε = Error term, the practical error in the calculation

Minimum wage variable in the year t-1 was used with an assumption that rising minimum wage in year t will cause unemployment in year t+1 because employers still wait until the end of year to do efficiency by cutting their budget.

The regression model in equation 1 will be tested by using hypothesis. According to Supranto,⁸ the hypothesis is an assumption that the proportion or assumption is probably true. Hypothesis can be used as a basis for decision making or problem solving or for further researching. Further, Supranto stated that the hypothesis should be expressed quantitatively. Meanwhile hypothesis testing is defined as a procedure that allows a decision to be made, which is the decision to reject or not to reject the hypothesis being tested.

Hypothesis testing process involves two types of hypothesis, the null and the alternative hypothesis. Supranto⁸ stated that the null hypothesis, a hypothesis to be rejected, must be defined in a clear parameter value. While the alternative hypothesis may be expressed in several possibilities. Therefore, the hypotheses which paper will be tested are:

H_0 : $\beta = 0$; (there is no relationship between X and Y)

H_a : $\beta \neq 0$; (there is a relationship between X and Y)

Hypothesis significant test in this paper will use t-test only. T-test is a statistical test to calculate individual regression coefficients significance. In the t-test, the t-count value will be compared with the t-table value. If the t-count value > t-table value, then the independent variables will significantly influence the dependent variable.⁹ The value of t-count and the probability is obtained by using Eviews 6 application.

R-square (R^2) will be used to measure the ability of independent variables to explain variations of the dependent variable. Because the equation used in this study is a simple regression with panel data, the adjusted R-Square will be used to determine the ability of the independent variables explaining variations in the dependent

variable. According to Nachrowi⁹, by using adjusted R-Square, the decision which is taken would be more appropriate.

Constant value resulting in the calculation of Coefficients Standard Error with regard to the value of significance will be used as the measurement of magnitude of the influence of wage changes to unemployment.

RESULTS AND DISCUSSION

Data used in this paper is a combination of time series data and cross-section data, which is also known as panel data. The data comprises of 26 provinces, with some adjustment like exclusion of East Timor and new provinces after 1999 which will be merged into original provinces like Papua Barat, Bangka Belitung, Banten, Gorontalo, Riau Islands, North Maluku, and West Sulawesi. Period of secondary data is from 1992–2010. There is limitation on year period because CEIC database and Central Bureau of Statistics for Minimum Wage started being surveyed since 1991 while unemployment data started from 1981.

To prove the model at equation 1, regression method with balanced panel data will be used. Data processing will be done by using Eviews Version 6 application. Then for both variable used in Eviews spreadsheet will be converted into natural logarithm. Table 2 will show regression results using normal regression method.

Table 2 shows that although minimum wages variable is statistically significant at 0.0000, the R-squared is not significant with value 9.83%. Constant was found significant with t-value 42.02 and probability value 0.0000 and minimum wage significant at t-value 7.32 and probability value 0.0000. Although statistically minimum wages are significant statistically, R-squared is too low. Therefore, can be concluded that using all provinces in one regression calculation without differentiation cannot give clear explanation about the effect of increasing minimum wages to unemployment.

According to Widarjono,¹⁰ Hausman test can be used by using the chi-squared distribution with the degree of freedom as the number of independent variables. If the Hausman statistic value is greater than the critical value then the

Table 2. Original Regression Result

Dependent Variable: LNUNEMPLOY?

Method: Pooled Least Squares

Date: 07/26/11 Time: 21:41

Sample: 1992 2010

Included observations: 19

Cross-sections included: 26

Total pool (balanced) observations: 494

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.944684	0.236668	42.01960	0.0000
LNMINWAGE?	0.140821	0.019218	7.327730	0.0000
R-squared	0.098398	Mean dependent var		11.63625
Adjusted R-squared	0.096566	S.D. dependent var		1.220046
S.E. of regression	1.159643	Akaike info criterion		3.138142
Sum squared resid	661.6279	Schwarz criterion		3.155156
Log likelihood	-773.1211	Hannan-Quinn criter.		3.144822
F-statistic	53.69563	Durbin-Watson stat		0.181767
Prob(F-statistic)	0.000000			

Source : Author's calculation based on Eviews Application output

appropriate model is Fixed Effect, whereas if the value of Hausman statistic is smaller than the critical value, then the appropriate model is the Random Effect.

The Likelihood-ratio test as shown at Table 3 implies that the right effect of panel data to be used in this paper is fix-effect. Because cross section probability is less than 5%, this model can be concluded that fix-effect model can be used.¹⁰ Fix-effect methods used to find different effect of minimum wage increasing to unemployment. Regression results using fix-effect method as shown in Table 4.

After completing data analysis using fix-effect regression method, R-squared increased significantly to 81,6% with adjusted R-squared 80,6%. Every province now has their own constant which is stated as benefit of fix-effect method that the intercept may be changed for each individual and time.⁹

Hypothesis analysis will be divided into two sections. First section is to explain effect

of minimum wage increasing to unemployment without considering provincial base (first hypothesis). Second, analysis using provincial regression will be used to obtain more information from regression result (second hypothesis). After hypothesis analysis, possible caused for the regression output will be presented based on theory and statistical data.

Based on regression result at Table 2, equation 1 can be rewritten as:

$$\text{LNUNEMPLOY} = 9.95 + 0.14 * \text{LNMINWAGE} \quad (2)$$

Equation 2 can be explained by using simulation of 10% minimum wage increasing. By replacing variable Lnminwage with 10% amount, model at equation 2 can be used to simulate effect directly to unemployed number. After replacing the variable value, it results in 11,35% increasing of unemployed number. This result means that in Indonesia, with available data, increasing in minimum wage by about 10% will give bigger effect rather than Mankiw.² Using same simulation by double the minimum wage based on Rama³

research's result, will increase unemployment by about 23,95%. Result of this research is also huger than Lewis's research with 8% increasing in unemployment. From simulation of equation 2 can be concluded that the macroeconomic theory and research stated by Mankiw,² Rama,³ and Lewis⁵ is proven statistically in Indonesia although it has a greater effect.

Based on result on Table 4, it can be inferred that there is autocorrelation problem. It might be caused by the value of minimum wage variable for the early of 90's which tends to constant for two years. Based on Widarjono,¹⁰ to minimize and fixing autocorrelation problem in the model, lag model, t-1 is used in regression variable. Further, by using panel data, autocorrelation problem as one of classical assumptions may have to be modified. For each individual it can be assumed that there is no autocorrelation over time.¹¹

Based on regression result at Table 4, equation 2 can be rewritten as:

$$\text{LNUNEMPLOY} = 9.93 + \text{provincial constant} + 0.14 * \text{LNMINWAGE} \dots\dots\dots(3)$$

Further, second hypothesis will be proved by using fix-effect method regression. Based on Eviews output, by using assumption of minimum wage increasing 10%, result on Table 5 shows that every province has a different constant value. it means that every minimum wage increasing at same percentage will affect every province with a different unemployment increasing.

Table 5 shows that West Java is the worst province which will suffer if there is 10% increase in minimum wage with unemployment increase about 13,9%, followed by Middle Java with 13,2%, and East Java with 13,1%. Last province with lowest unemployment increasing is Bengkulu with 9,96%. It can be concluded

form Table 5 that simulation of 10% increasing in minimum wages affects unemployment rate for the range of 9,96 to 13,9% positively. Once more, it is clear that this result is higher than Mankiw's² or Rama's³ although it is closer to Lewis research results for 8% in Australia.¹⁴

Higher percentage of unemployment increasing in West Java, Middle Java, East Java, and DKI Jakarta might be explained by using result of Bell's research¹⁶ which is stated that minimum wages had no effect on wages or employment in the formal sector because the minimum wage relative to the wages of formal sector workers. The minimum wage was more likely to have an effect in informal sector, where there was a significant numbers of workers paid at or below minimum wages.¹⁵

To explain the different effect for every province, cost of labour, labour surplus, and provincial GDP will be considered as other explaining factors.

For province with the high effect of minimum wage increasing, there might be correlated with cost of production. When wage rise is minimum, employer will take serious action by downsizing labour quantity. Using equation 1 already proven statistically significant in equation 2, minimum wage raise in year t will be result in additional jobless worker at year t+1. It means that there is lag about one year before it takes effects. Correlation between minimum wage and downsizing was explained by Levin¹² stating that when cost of labour was increasing, firms were willing to hire fewer worker and employments would be drop.

It might be also correlated with surplus of labour in those provinces. Unfortunately, data about provincial labour surplus cannot be found at CEIC Database and the Central Bureau of

Table 3. Likelihood Ratio Test

Redundant Fixed Effects Tests			
Pool: Untitled			
Test cross-section fixed effects			
Effects Test	Statistic	d.f.	Prob.
Cross-section F	73.350717	(25,467)	0.0000
Cross-section Chi-square	787.766473	25	0.0000

Source: Author's calculation Based on Eviews Application Output

Table 4. Regression result with Fix-Effects

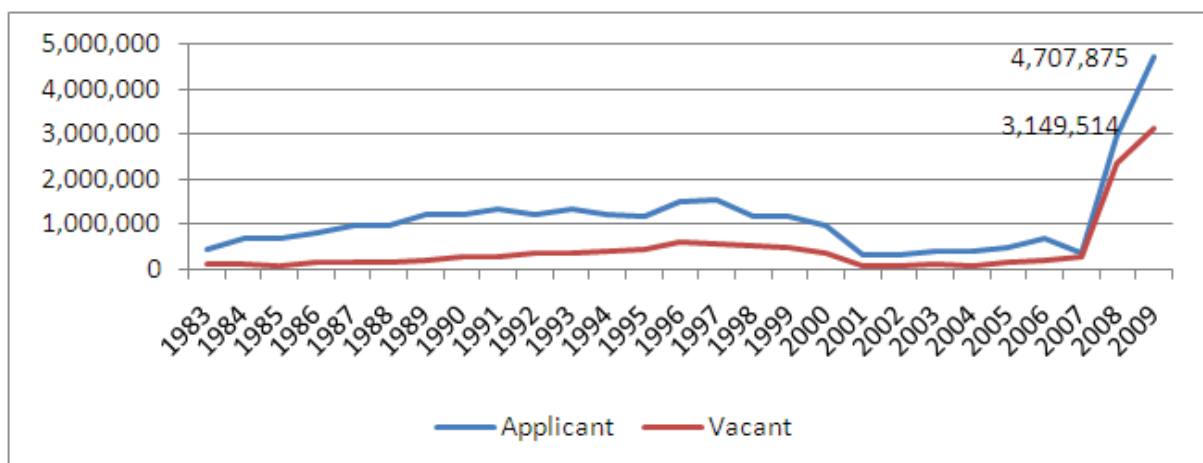
Dependent Variable: LNUNEMPLOY?				
Method: Pooled Least Squares				
Date: 07/26/11 Time: 21:18				
Sample: 1992 2010				
Included observations: 19				
Cross-sections included: 26				
Total pool (balanced) observations: 494				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.933156	0.109579	90.64834	0.0000
LNMINWAGE?	0.141780	0.008898	15.93320	0.0000
Fixed Effects (Cross)				
_NAD—C	-0.006317			
_SUMUT—C	1.101564			
_SUMBAR--C	0.073411			
_RIAU—C	0.205931			
_JAMBI—C	-0.882041			
_SUMSEL--C	0.485345			
_BENGKULU--C	-1.382211			
_LAMPUNG--C	0.262350			
_DKIJAKARTA--C	1.299077			
_JAWABARAT--C	2.622288			
_JAWATENGGAH--C	1.934656			
_YOGYAKARTA--C	0.126595			
_JAWATIMUR--C	1.841221			
_BALI—C	-0.714518			
_NTB—C	-0.576262			
_NTT—C	-0.825033			
_KALBAR--C	-0.469971			
_KALTENG--C	-1.264896			
_KALSEL—C	-0.515089			
_KALTIM--C	-0.253052			
_SULUT—C	-0.158128			
_SULTENG--C	-0.839887			
_SULSEL—C	0.773217			
_SULTRA--C	-1.161125			
_MALUKU--C	-0.713955			
_PAPUA—C	-0.963169			
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.816997	Mean dependent var		11.63625
Adjusted R-squared	0.806808	S.D. dependent var		1.220046
S.E. of regression	0.536254	Akaike info criterion		1.644688
Sum squared resid	134.2944	Schwarz criterion		1.874381
Log likelihood	-379.2378	Hannan-Quinn criter.		1.734865
F-statistic	80.18723	Durbin-Watson stat		0.896494
Prob(F-statistic)	0.000000			

Source: Author's calculation Based on Eviews Application Output

Table 5. Fix-Effect Method Result (sorted by worst effect at unemployment number)

No	Province	Constant	Minimum Wage Increase	Unemployment Increase
1	West Java	12,555444	10	13,973244
2	Middle Java	11,867812	10	13,285612
3	East Java	11,774377	10	13,192177
4	DKI Jakarta	11,232233	10	12,650033
5	North Sumatera	11,03472	10	12,45252
6	South Sulawesi	10,706373	10	12,124173
7	South Sumatera	10,418501	10	11,836301
8	Lampung	10,195506	10	11,613306
9	Riau	10,139087	10	11,556887
10	Yogyakarta	10,059751	10	11,477551
11	West Sumatera	10,006567	10	11,424367
12	NAD Aceh	9,926839	10	11,344639
13	North Sulawesi	9,775028	10	11,192828
14	East Kalimantan	9,680104	10	11,097904
15	West Kalimantan	9,463185	10	10,880985
16	South Kalimantan	9,418067	10	10,835867
17	NTB	9,356894	10	10,774694
18	Maluku	9,219201	10	10,637001
19	Bali	9,218638	10	10,636438
20	NTT	9,108123	10	10,525923
21	Middle Sulawesi	9,093269	10	10,511069
22	Jambi	9,051115	10	10,468915
23	Papua	8,969987	10	10,387787
24	South East Sulawesi	8,772031	10	10,189831
25	Middle Kalimantan	8,66826	10	10,08606
26	Bengkulu	8,550945	10	9,968745

Source : Author's calculation

**Graphic 1.** Job Vacant and Applicant in Indonesia Period 1983–2009 (in person)

Source : CEIC Database

Table 6 Unemployment ages (person)

Year	Aging Range (Years)									
	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60
1997	1.387,629	1.598,429	749,307	236,816	105,757	42,055	28,232	13,275	20,549	15,257
1998	1.444,181	1.936,540	925,969	334,046	158,962	103,945	74,066	46,363	33,515	4,896
1999	1.766,300	2.241,702	1.108,892	436,899	212,540	110,002	75,419	37,454	37,107	4,004
2000	1.817,086	2.120,246	1.024,022	407,273	168,658	107,636	98,027	32,655	21,369	16,259
2001	2.337,639	2.561,088	1.183,912	532,709	309,911	235,708	200,435	165,293	121,758	356,578
2002	2.837,922	2.942,158	1.306,194	595,133	392,483	246,128	200,320	223,939	174,245	213,582
2003	2.648,878	3.061,558	1.318,418	610,819	365,484	237,484	208,027	212,842	177,550	690,030
2004	3.026,523	3.250,522	1.393,305	654,326	379,219	270,846	203,285	220,416	183,665	669,144
2005	3.166,144	4.293,492	1.758,062	800,055	467,643	306,101	228,181	190,742	166,754	522,092
2006	2.955,431	3.860,785	1.763,273	740,823	403,123	334,223	205,216	202,283	169,991	296,852
2007	2.423,262	3.236,774	1.820,570	1.045,374	656,908	288,884	180,755	127,406	113,013	118,196
2008	2.305,670	2.725,347	1.759,409	1.020,500	698,672	360,375	196,379	144,216	99,347	84,600
2009	2.302,632	2.519,137	1.537,665	825,672	557,130	432,691	333,067	231,664	149,288	73,671
2010	2.145,468	2.177,596	1.431,390	787,077	493,461	371,338	273,585	203,075	162,678	274,111

Source : CEIC Databases

Statistics. In Indonesia, surplus of labour always become a problem as shown in Graphic 1. Graphic 1 is based on national job vacant and applicant. From graphic 1, it can be concluded that jobs applicant always above jobs vacancy level, which means that after 2007 there had been a significant increasing both for job vacant and applicant.

With a lot of labour surplus, firms will not have difficulties to find new labour if they need it. Tier as stated in Greene¹⁴ who explained that two groups most affected by the minimum wage increasing are the poor and the young. A teenager's first job is often one that entails very little or no skills. The turnover of workers at those level is very high. Tier's explanation also found in Indonesia also found at Indonesian statistical data as show by Table 6.

Young age's generation unemployment, between ages 15 to 19, 20 to 24, and 25 to 29 years old, dominates for every year as shown at Table 6. It means that unemployment composition in Indonesia is mostly filled by younger workers. Causes of young workers unemployment possibly because of job-search process.² Job searcher becomes greater barrier if supported by the act of labour force that does not actively make labour force looking for job.¹⁵

Another explanation might be related to Provincial GDP. As shown at Table 7 that most GDP came from Java Island and Sumatra Island. Higher GDP means that production of goods and service is higher too. The relationship between unemployment and GDP is called Okun's law.¹³ It can be explained as in order to increase the economic output of a country, people will need to go back to work, thus lowering unemployment. Higher GDP will affect unemployment negatively.

Unfortunately, this research finding does not support Okun's Law. Possible reason for this situation is when economic output increases, firms typically do not hire new workers but have their current workers work for longer hours to maintain the same production level. Some industries have to increase returns to scale while labour force increase had a multiple effect on output.¹¹

When an industry does some efficiency a longer working hours, labour surplus cannot be absorbed by industry and cause higher unemployment. It is in line with the theory of efficiency wages stated by Mankiw² that firms will operate more efficiently when wages are above equilibrium level. Firms will get profit from keeping high wages. Furthermore, Mankiw explains about four types of efficiency wages

Table 7 Percentage of Provincial GDP Contribution (in percentage)

No	Provinsi	2004	2005	2006	2007	2008	2009*)	2010**)
1.	Nanggroe Aceh Darussalam	2.28	2.13	2.22	2.01	1.72	1.54	1.47
2.	Sumatera Utara	5.34	5.23	5.14	5.14	5.00	5.08	5.22
3.	Sumatera Barat	1.69	1.67	1.70	1.69	1.66	1.65	1.65
4.	Riau	5.17	5.21	5.36	5.94	6.47	6.39	6.48
5.	Jambi	0.84	0.84	0.84	0.91	0.96	0.95	1.02
6.	Sumatera Selatan	2.91	3.05	3.08	3.11	3.13	2.95	2.99
7.	Bengkulu	0.37	0.38	0.37	0.36	0.35	0.34	0.34
8.	Lampung	1.63	1.53	1.58	1.72	1.72	1.89	2.03
9.	Kepulauan Bangka Belitung	0.53	0.53	0.51	0.51	0.50	0.49	0.49
10.	Kepulauan Riau	1.66	1.54	1.48	1.47	1.37	1.37	1.36
	Sumatera	22.41	22.12	22.27	22.86	22.88	22.65	23.03
11.	DKI Jakarta	16.99	16.25	16.09	16.02	15.84	16.28	16.31
12.	Jawa Barat	13.83	14.58	15.17	14.88	14.81	14.83	14.58
13.	Jawa Tengah	8.75	8.78	9.04	8.84	8.59	8.55	8.41
14.	DI. Yogyakarta	1.00	0.95	0.94	0.93	0.89	0.89	0.86
15.	Jawa Timur	15.43	15.11	15.09	15.13	14.54	14.76	14.73
16.	Banten	3.33	3.17	3.14	3.04	3.27	3.27	3.23
	Jawa	59.32	58.84	59.48	58.84	57.94	58.58	58.12
17.	Bali	1.31	1.27	1.20	1.20	1.21	1.30	1.26
	Jawa & Bali	60.63	60.11	60.68	60.04	59.15	59.87	59.39
18.	Kalimantan	9.49	10.00	9.51	9.40	10.35	9.19	9.13
19.	Sulawesi	4.16	4.07	4.04	4.10	4.28	4.56	4.61
20.	Nusa Tenggara, Maluku & Papua	3.30	3.71	3.50	3.60	3.33	3.72	3.83
	Jumlah	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*) Temporary estimation

**) Very temporary estimation

Source: Indonesian Central Bureau of Statistic

theory such as to keep worker healthy; reduce turnover; keep qualified worker; and keep worker effort at best level.²

CONCLUSION

This paper shows that provincial minimum wage increase will significantly affect the unemployment rate. Based on model at equation 2, a simulation of 10% minimum wage increasing result in 11,35% increasing of unemployed number. This result is higher than Mankiw's² which is around 1–3% increasing. This research finding is also higher than Lewis's⁵ research with 8% increasing in unemployment if using 10% minimum wage increasing. Simulation by doubling the minimum wage based on Rama's³ research result shows that

unemployment will increase about 23,95%.

Every province has a different effect of minimum wage increasing. West Java is the first rank province which will got the higher effect from 10% increasing in minimum wage. If minimum wage increased by 10%, unemployed number will be increased about 13,9%. The lowest effect can be found at Bengkulu Province. The same minimum wage increasing causes increasing in unemployed number by 9,96%. This difference can be explained by using cost production explanation, labour surplus, and provincial GDP.

RECOMMENDATIONS

Based on empirical evidence and possible causes of unemployed number for general and for every

province, some recommendations which can be offered as follow:

1. Every year, minimum wage always increases. Unfortunately, in the real term, minimum wage at year 2010 compared to 1992 increased about 200%. Rather than increased minimum wage every year, which is positively correlated with number of unemployed increasing, government should concern about real income for labour.
2. Every province in Indonesia had a difference GDP. Most of National GDP came from Java and Sumatra contribution which is about 81%. This show that most of national goods and service still centred at Java and Sumatra. Unfortunately, if minimum wages increased by 10%, Java got the most higher effect. It will be better if government more concern about outer Java and Sumatera development which got lower impact from minimum wage increasing.

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APPENDIXES

PROVINCIAL MINIMUM WAGE PERIOD 1992-2010																					
(in Rupiah)																					
No	Prov/Year	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	Aceh	63,990	63,990	78,000	94,500	105,000	115,500	128,000	147,000	171,000	265,000	300,000	330,000	425,000	550,000	620,000	820,000	860,000	1,000,000	1,200,000	1,300,000
2	North Sumatra	57,900	76,500	93,000	112,500	126,000	138,000	151,000	174,000	210,000	254,000	340,500	464,000	505,000	537,000	600,000	737,800	761,000	822,200	905,000	965,000
3	West Sumatra	48,000	52,500	57,000	75,000	97,500	108,000	119,000	137,000	160,000	200,000	250,000	365,000	441,600	480,000	540,000	650,000	725,000	800,000	880,000	950,000
4	Riau	60,000	81,000	81,000	93,000	124,500	138,000	151,500	174,000	218,000	250,700	329,000	394,000	437,500	476,875	551,500	637,000	710,000	800,000	901,600	1,016,000
5	Jambi	49,500	63,000	72,000	90,000	99,000	108,000	119,500	137,500	150,000	173,000	245,000	304,000	390,000	425,000	485,000	563,000	658,000	724,000	800,000	900,000
6	South Sumatra	48,000	48,000	69,000	90,000	105,000	115,500	127,500	146,500	170,000	190,000	255,000	331,500	403,500	460,000	503,700	604,000	662,000	743,000	824,700	927,000
7	Bengkulu	39,000	60,000	60,000	90,000	105,000	115,500	127,500	146,500	160,000	173,000	240,000	295,000	330,000	363,000	430,000	516,000	644,800	690,000	735,000	780,000
8	Lampung	52,500	52,500	73,500	90,000	105,000	114,000	126,000	145,000	160,000	192,000	240,000	310,000	350,000	377,500	405,000	505,000	555,000	617,000	691,000	767,500
9	DKI Jakarta	75,000	75,000	90,000	114,000	138,000	156,000	172,500	198,500	231,000	286,000	426,300	591,266	631,600	671,550	711,843	819,100	900,600	972,665	1,069,865	1,118,009
10	West Java	54,000	54,000	66,000	114,000	138,000	156,000	163,630	160,000	208,800	230,000	245,000	280,799	320,000	366,500	408,300	447,700	516,800	568,200	628,200	671,500
11	Central Java	48,000	48,000	60,000	81,000	90,000	102,000	113,000	130,000	153,000	185,000	245,000	314,500	340,400	365,000	390,000	450,000	500,000	547,000	575,000	660,000
12	DI Yogyakarta	27,000	37,500	48,000	66,000	85,500	96,000	106,500	122,500	130,000	194,500	237,500	321,750	360,000	365,000	400,000	460,000	500,000	566,000	700,000	745,695
13	East Java	42,270	63,000	63,000	90,000	111,000	120,000	124,370	134,000	170,500	214,500	220,000	246,000	281,800	310,000	340,000	390,000	448,500	500,000	570,000	630,000
14	Bali	54,000	60,000	75,000	99,000	117,000	127,500	141,500	162,500	187,000	214,000	309,800	341,000	391,100	425,000	447,500	510,000	622,000	682,700	760,000	829,316
15	West Kalimantan	54,000	54,000	67,500	90,000	105,000	114,000	126,500	145,500	175,000	228,000	304,500	380,000	400,000	420,000	445,200	512,000	560,000	645,000	705,000	741,000
16	Central Kalimantan	48,000	48,000	70,500	82,500	111,000	124,500	138,000	158,500	195,000	285,000	362,000	362,000	425,000	482,300	523,700	634,300	666,000	765,900	873,100	986,500
17	South Kalimantan	39,000	68,250	68,250	90,000	105,000	114,000	125,000	144,000	166,000	200,000	295,000	377,500	425,000	482,200	536,300	629,000	745,000	825,000	930,000	1,024,500
18	East Kalimantan	48,000	48,000	72,000	97,500	126,000	138,000	153,000	176,000	194,000	233,000	300,000	500,000	540,000	572,700	600,000	701,600	766,500	889,700	955,500	1,002,000
19	North Sulawesi	60,000	60,000	60,000	81,000	97,500	108,000	118,000	135,500	155,000	186,000	372,000	438,000	495,000	545,000	600,000	713,500	750,000	845,000	929,500	990,000
20	Central Sulawesi	33,000	33,000	52,500	69,000	84,000	96,000	106,500	122,500	150,000	203,000	245,000	350,000	410,000	450,000	490,000	575,000	615,000	670,000	720,000	777,500
21	South Sulawesi	40,500	52,500	52,500	69,000	93,000	102,000	112,500	129,500	148,000	200,000	300,000	375,000	415,000	455,000	510,000	612,000	673,200	740,500	905,000	1,000,000
22	South East Sulawesi	47,970	63,750	63,750	84,000	100,500	109,500	121,000	139,000	160,000	210,000	275,000	325,000	390,000	470,000	498,600	573,400	640,000	700,000	770,000	860,000
23	West Nusa Tenggara	39,250	45,000	54,000	70,500	88,500	97,500	106,500	124,000	145,000	180,000	240,000	320,000	375,000	412,500	475,000	550,000	645,000	730,000	832,500	890,775
24	East Nusa Tenggara	48,000	48,000	63,000	75,000	87,000	96,000	106,500	122,500	143,000	184,000	275,000	330,000	350,000	400,000	460,000	550,000	600,000	650,000	725,000	800,000
25	Maluku	54,000	54,000	69,000	93,000	114,000	123,000	136,000	156,500	180,000	180,000	230,000	285,000	370,000	450,000	500,000	575,000	635,000	700,000	775,000	840,000
26	Papua	72,000	72,000	105,000	135,000	142,500	154,500	170,000	195,500	225,000	315,000	400,000	530,000	600,000	650,000	700,000	822,500	987,000	1,105,500	1,216,100	1,316,500
		Source: CEIC Database																			

Source: CEIC Database

PROVINCIAL UNEMPLOYMENT PERIOD 1992-2010 (in person)																				
No	Prov	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	NAD	27.485	57.688	83.688	123.302	108.240	91.539	108.385	125.122	125.055	132.891	149.652	284.034	156.960	237.061	189.169	171.424	171.412	165.361	162.265
2	Sumatera Utara	122.148	136.475	234.498	331.606	303.663	256.390	353.468	387.686	365.168	387.439	562.209	564.410	610.540	656.603	632.049	571.334	554.539	532.427	491.806
3	Sumatera Barat	49.014	42.860	95.393	134.439	86.414	86.985	100.079	113.948	116.967	123.565	182.148	198.856	258.224	264.307	243.525	217.305	173.080	152.586	
4	Riau ⁵⁾	47.595	49.419	80.070	134.578	101.988	103.874	103.176	130.736	126.057	133.439	215.157	251.701	364.594	307.862	274.301	260.215	236.855	248.818	264.296
5	Jambi	16.708	16.007	26.096	60.797	40.670	42.220	28.792	39.724	44.108	46.429	67.092	74.376	73.108	133.964	78.264	76.090	66.371	73.904	83.278
6	Sumatera Selatan ²⁾	88.152	70.810	109.102	202.223	129.676	134.420	81.473	174.559	157.835	165.725	300.728	305.237	316.215	462.608	353.061	347.770	312.078	296.597	278.778
7	Bengkulu	10.644	13.645	17.069	29.747	23.620	24.288	14.916	25.765	25.580	26.932	51.636	54.245	48.312	71.360	48.993	37.681	39.719	42.141	39.285
8	Lampung	33.263	39.754	91.632	172.336	128.798	101.802	138.459	145.931	147.181	156.596	275.253	298.310	249.690	286.891	307.689	269.132	255.217	239.980	220.619
9	DKI Jakarta ³⁾	193.117	174.008	316.131	441.443	363.300	446.720	499.500	668.322	510.454	534.595	549.356	589.682	602.741	652.645	490.761	552.380	580.511	569.337	582.843
10	Jawa Barat ⁴⁾	534.931	561.564	911.059	1.738.974	1.125.848	1.072.515	1.302.133	1.764.384	1.520.537	1.607.124	2.721.591	2.077.624	2.433.275	2.832.676	3.316.142	3.018.976	2.920.144	2.732.292	2.058.539
11	Jawa Tengah	306.920	288.606	504.847	773.504	559.483	568.465	757.905	664.921	717.845	754.003	1.081.694	1.133.188	1.299.220	1.641.569	1.356.909	1.360.219	1.227.308	1.252.267	1.046.883
12	Yogyakarta	37.186	34.148	61.296	76.388	60.760	62.328	56.088	59.236	68.077	70.980	90.436	1.571.420	1.447.263	1.646.056	1.17.948	115.200	107.529	121.046	828.943
13	Jawa Timur	354.237	390.646	548.281	787.793	592.893	569.238	720.234	883.478	780.969	819.394	1.168.461	517.068	549.593	648.124	1.575.299	1.366.503	1.296.313	1.033.512	726.377
14	Bali	21.371	21.137	40.145	88.269	44.629	44.310	52.098	43.699	57.328	60.363	84.047	100.226	89.640	106.430	120.188	77.577	69.548	66.470	68.791
15	NTB	13.863	12.120	24.542	126.062	43.658	30.681	52.992	25.092	50.984	53.778	139.354	123.814	149.156	204.679	186.259	135.264	124.300	131.258	119.143
16	NTT	19.227	19.157	25.908	43.545	38.320	41.525	46.803	50.907	49.122	52.161	84.181	79.891	91.722	99.250	74.744	77.725	80.814	89.395	71.152
17	Kalimantan Barat	18.227	16.489	38.599	88.869	58.746	62.618	62.251	34.927	62.657	66.260	176.485	118.898	153.464	164.526	182.198	138.796	116.782	119.684	101.620
18	Kalimantan Tengah	8.109	7.975	29.306	46.711	24.268	34.300	35.381	30.044	37.413	39.875	57.625	63.001	48.168	46.873	67.631	52.015	47.247	48.435	44.153
19	Kalimantan Selatan	29.376	30.467	40.644	80.639	49.625	44.358	62.850	37.464	56.588	61.652	147.193	121.530	99.975	116.634	144.765	131.935	110.081	115.812	96.674
20	Kalimantan Timur	37.110	34.132	66.910	85.869	79.706	71.874	98.990	128.265	104.124	110.549	135.193	44.645	120.715	135.590	177.997	149.796	157.376	158.224	166.557
21	Sulawesi Utara ⁴⁾	49.047	54.508	95.153	134.228	110.137	96.710	64.203	97.572	113.603	120.058	102.182	49.974	152.368	189.660	171.905	155.969	133.012	137.308	123.208
22	Sulawesi Tengah ⁷⁾	16.808	18.318	40.791	74.103	45.762	35.717	48.789	44.524	55.527	58.948	86.505	43.003	60.692	85.717	119.058	99.219	65.282	66.009	56.228
23	Sulawesi Selatan ⁷⁾	94.338	100.223	160.855	310.388	167.079	138.157	170.042	213.185	219.471	232.213	432.035	586.768	603.220	581.384	428.508	398.348	334.418	337.728	316.256
24	Sulawesi Tenggara	11.256	12.604	19.995	44.446	25.130	19.306	19.126	32.058	30.692	32.572	72.006	86.722	85.455	104.718	89.441	61.162	56.138	47.319	48.221
25	Maluku ⁶⁾	24.044	22.109	31.980	60.277	47.299	48.700	34.040	45.305	50.659	53.426	88.017	90.196	87.609	125.397	100.691	91.404	87.007	91.579	91.306
26	Papua ¹⁾	15.185	15.270	26.050	41.965	36.620	32.780	33.087	63.465	47.026	49.920	68.476	67.788	99.432	96.682	84.505	77.703	73.380	72.694	79.972

Source: CEIC Database

Source: CEC Database

Description:

- 1) It is a combination of Papua and West Papua. West Papua Province was founded at October 4, 1999 Act No. 45 of 1999 with data 2008–2010
- 2) It is a combination of South Sumatra and Bangka Belitung Province. Bangka Belitung was founded at November 21, 2000 Act No. 27 of 2000 with data 2007–2010
- 3) It is a combination of West Java and Banten. Banten Province was founded at November, 21 2000 Act No23 of 2000 with data 2007–2010
- 4) It is a combination of North Sulawesi and Gorontalo. Gorontalo province was founded at November, 21 2000 Act No. 38 of 2000 with data in 2001–2010
- 5) It is a combination of Riau and Riau Islands. Riau Islands Province stood since 2002 Act No. 25 of 2002 with data in 2008–2010
- 6) It is a combination of Maluku and North Maluku. North Maluku Province was founded at October 12, 1999 Act No46 of 1999 with data in 2001–2010
- 7) It is a combination of South Sulawesi and West Sulawesi. West Sulawesi province was founded at October 5, 2004 Act No. 26 of 004 with data 2007–2010

