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# Determinants of Unemployment: Empirical Evidences from 7 Province in Indonesia

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**Abstract-** The study investigates the economic growth, inflation, minimum wage and unemployment data for seven province in Indonesia between the years of 2004 to 2012. Reggression Analysis with SPSS 18 to examining the empirical relationship among the economic growth, inflation, minimum wage and unemployment. The results of the study reveal that while the economic growth and unemployment variables have insignificant effects on the unemployment, the inflation and unemployment variables have positive and significant effects on unemployment, the minimum wage and unemployment variables have insignificant effects on unemployment.

**Index Terms—** Economic Growth, Inflation, Wage, Unemployment

## I. INTRODUCTION

Population 7 Province in Indonesia in 2010 amounted to 140.5 million people, or 60.67% of Indonesia's population and is the highest concentration of population in Indonesia. Population density is estimated at 1039.1 people per km<sup>2</sup>, with the highest density of Jakarta reached 14 469 inhabitants per km<sup>2</sup>, and the lowest of Bali Province 673 people per km<sup>2</sup>. The rate of population growth of Java Bali region in the period 2000-2010 to reach 1.4 percent / year, equal to the national population growth rate, with the highest growth rate in the province of Banten at 2.78 percent / year and Bali by 2.15 percent, and the lowest The province of Central Java. Nearly 67.4 percent of the population belong to the productive age (15-65 years), and has a dependency ratio was 48 percent lower than the national 51.3 %.

Economic growth and unemployment remain important problems of every country regardless of their economic development level. Countries target their economy policies towards establishing economic growth and reducing unemployment. Although, there is a wide literature about the relationship between economic growth and unemployment, there is not a consensus on the direction and intensity of the relationship. Differences in the economic structures of countries also reflect upon the relationship between economic growth and unemployment to a great extent. The inverse correlation between economic growth and unemployment was first stressed by Okun (1962). Following studies have mostly

proposed evidence that is parallel to Okun's study. It is possible to group these studies in the literature into two.

7 Province in Indonesia has achieved macroeconomic stability, but this was not sufficient to reduce unemployment. The economy grew by 6 percent between 2004 and 2012 and inflation of a single digit was achieved during the same period. This suggests that achieving macroeconomic stability is not sufficient to create the much-needed jobs and reduce unemployment. Statistics from the various issues of the Labour force indicate that employment grew by less than or one percent per year during the period 2004 to 2012.

A minimum wage that is set at too high level can have a negative impact on employment. By pushing firms with low value added out of the market, the minimum wage increases inflows to unemployment. By introducing wage rigidity at the bottom of the wage distribution and by preventing firms from offering lower wages, notably to new hires, the minimum wage reduces inflows to employment. Substantial upward adjustments in the minimum wage can also generate general wage pressures as employees seek to re-establish wage differentials above the minimum wage. Increase in the average minimum wage each year to 7 Provinces in Indonesia from 2004 to 2012 by 9 percent.

## II. LITERATURE REVIEW ON DETERMINANTS OF UNEMPLOYMENT

There are various studies that investigated the determinants of unemployment. Some studies analysed the determinants of unemployment from a microeconomic perspective, while others investigated the macroeconomic determinants of unemployment in both developed and developing countries. There are also different theoretical models that are relevant for the investigation of the determinants of unemployment.

Dickens, et.al. (1999) studying the industry-based British Wages Councils between 1975 and 1992. The empirical results reveal that minimum wages significantly compress the distribution of earnings but do not have a negative impact on employment.

Madeline (2000) examines the effect of minimum wage increases on teen hours of work and employment using both state- and individual-level panel data in the US. The state-level results indicate that minimum wage increases may lower



employment rates but do not adversely affect hours among either working teens or all teens. The individual-level results do not indicate that minimum wage increases have a significant negative effect on hours worked by low-wage teens who are likely to be affected by a minimum wage increase. The results suggest that low-wage teens are less likely to remain employed, relative to high-wage teens, when the minimum wage is raised.

Fialová & Mysíková (2009) doing research in Czech Republic about The Minimum Wage: Labor Market Consequences in the Czech Republic. Using regional data for 1995–2004, it estimates the effect of the minimum wage adjusted for the regional wage differential on regional unemployment. The empirical results reveal that the minimum wage has had a significant impact in terms of increasing regional unemployment and reducing the employment probabilities of low-paid workers.

Eita & Ashipala (2010) investigates the causes of unemployment in Namibia for the period 1971 to 2007. The results revealed that there is a negative relationship between unemployment and inflation in Namibia. Unemployment responds positively if actual output is below potential output, and if wages increase. An increase in investment causes unemployment to decrease significantly. The results provide evidence that the Phillips curve holds for Namibia and unemployment can be reduced by increasing aggregate demand.

Fuad (2011) investigates the relationship between unemployment and economic growth in Jordan through the implementation of Okun's law. Using annual data covering the period 1970-2008, time series techniques are used to test the relation between unemployment and economic growth and to obtain estimates for Okun's coefficient. Namely, the study used Augmented Dickey-Fuller (ADF) for unit root, cointegration test and a simple regression between unemployment rate and economic growth. The empirical results reveal that Okun's law cannot be confirmed for Jordan. Thus, it can be suggested that the lack of economic growth does not explain the unemployment problem in Jordan.

Aminu & Anono (2012) investigates the relationship between unemployment and inflation in the Nigerian economy between 1977 and 2009 through the application of Augmented Dickey-Fuller techniques to examine the unit root property of the series after which Granger causality test was conducted to determine causation between unemployment and inflation, then cointegration test was conducted through the application of Johansen cointegration technique to examine the long-run relationship between the two phenomenon, lastly ARCH and GARCH technique was conducted to examine the existence of volatility in the series. The results indicate that inflation impacted negatively on unemployment. The causality test reveals that there is no causation between unemployment and inflation in Nigeria during the period of study and a long-run relationship exists between them as confirmed by the cointegration test. ARCH and GARCH results reveals that the time series data for the period under review exhibit a high volatility clustering.

Afzal & Awais (2012) investigates the relationship between Inflation-Unemployment Trade Off: Evidence from Pakistan. Using the method of ordinary least squares (OLS) and equation (8) by the method of non-linear least squares (NLS). Data on consumer price index and unemployment were collected from Government of Pakistan (GOP), economic survey (various

issues) for the period 1973 -2010. The empirical results for the first three periods (1974-2010, 1974-82, 1974-92) and the last period 2000-2010 show that show that the Phillips curve holds in Pakistan because the unemployment coefficient is negative and significant. For other periods (1981-2000 and 1981-2010) though there is negative relationship between inflation and unemployment, the unemployment coefficients are not significant.

Dogan (2012) investigates the response of unemployment to selective macroeconomics shocks for the period of 2000:Q1-2010:Q1 in Turkey. It finds that positive shocks to growth, growth in export and inflation reduce unemployment. On the other hand, shocks to exchange rate, interbank interest rate and money supply increase unemployment. The results are consistent with Phillips curve and Okun's Law suggestion. Namely, negative relationship between output and unemployment and positive relationship between unemployment and inflation are found.

Maqbool, et.al.(2013) examining the empirical relationship among the unemployment, population, foreign direct investment, gross domestic product, inflation, and external debt in Pakistan. Autoregressive Distributed Lag (ARDL) approach has been applied to test determinants of unemployment. Empirical results reveal that gross domestic product, population, inflation, and foreign direct investment are significant determinants of unemployment in Pakistan in short-run as well as long-run.

Ozel,et.al. (2013) investigates the economic growth, productivity and unemployment data for seven industrialized countries (G7) between the years of 2000 to 2011. The results of the study reveal that while the productivity and economic growth variables have significant and strong effects on the reduction of unemployment in the pre-crisis period, this effect of productivity becomes insignificant and small after the crisis whereas the effect of economic growth as a decreasing effect over unemployment continues and its impact level rises.

Oloni (2013) investigates the impact the economic growth in Nigeria had on employment generation. The Johansen vector- Error correction model was used in the investigation. The findings revealed that, although economic growth had positive relationship with employment, the relationship is not significant. Foreign private investment has negative impact while Public expenditure has positive and significant impact on employment.

Umair & Ullah (2013) examined the impact of inflation on GDP and unemployment rate in Pakistan. It was a longitudinal study for the period in 2000-2010. The study concludes that inflation insignificantly influences GDP and unemployment and the correlation is negative. The correlation between unemployment and inflation is positive i.e. 0.477 and is insignificant at 10% level of significance. The correlation between GDP and unemployment rate has also been found insignificant with a value of 0.196.

Cheema & Atta (2014) investigates Economic Determinants of Unemployment in Pakistan: Co-integration Analysis. This study finds the determinants of unemployment by applying the ARDL bound approach using the time series data from 1973 to 2010. The results indicate that unemployment has statistically significant positive relationships with output gap, Productivity and Economic Uncertainty while it has statistically significant negative



relationships with Gross Fixed Investment and Openness of Trade.

Kemi & Dayo (2014) investigates Unemployment and Economic Growth in Nigeria. This study intends to test the validity of Okun's law in Nigeria. In order to examine the relationship between unemployment rate and economic growth, Error Correction Model (ECM) and Johansen cointegration test were employed to determine both the short run and long run relationships among the variables employed in the study. Empirical findings show that there is both the short and the long run relationship between unemployment rate and output growth in Nigeria.

### III. RESEARCH METHODOLOGY

The unit of analysis in this study was 7 Province in Indonesia, and the population of this research are DKI Jakarta Province, West Java Province, Banten Province, Central Java Province, Yogyakarta Province, East Java Province, and Bali Province. The data is taken in the form of a combination of data time series and cross sectional (panel data), so the number of observation data is 63 during 2004 up to 2012. The variables have been obtained from BPS Indonesia and Bappenas Indonesia data bases. The data of the present study was fed into SPSS 18 for examination mathematical calculation. Three variables are used in this study for finding the determinants of unemployment. Variable unemployment rate is used as dependent variable while independent variables are product domestic regional bruto, inflation, and minimum wages. A

simple model is used to examine the variations in unemployment rate 7 Province in Indonesia. There are number of factors which influence the unemployment rate. The functional form of the model is as:

$$UN = f(GDRP, INF, MW)$$

Where

$UN$  = Unemployment rate in percent

$GDRP$  = Gross Domestic Regional Product in percent

$INF$  = Inflation in percent

$MW$  = Minimum Wages in Rupiah (millions)

Research Hypothesis

H1: Gross Domestic Regional Product negative significantly influences on the unemployment rate of the 7 Province economy

H2: Inflation positive significantly influences on the unemployment rate of the 7 Province economy

H3: Minimum wages positive significantly influences on the unemployment rate of the 7 Province economy

### IV. EMPIRICAL RESULTS

On the basis of the quantitative data processed, analysis of the results from secondary data provided us important insight information for the sake of realizing the influential impact on unemployment. The findings are discussed along with critical explanation for the stated hypothesis

Table 1. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Std. Deviation
Minimum wages	310.00	1529.00	672.0651	244.15777
Unemployment_rate	2.04	15.77	7.9649	3.41455
Inflation	2.10	19.60	6.9619	3.83429
GDRP	3.70	7.27	5.7102	.72400

Table 1 explains the descriptive statistics about minimum wages, inflation, unemployment, GDRP. It can be seen that minimum and maximum values of minimum wages, unemployment, and inflation have large gap in the nine years period. The gap indicates that 7 Province's minimum wages, unemployment, and inflation is inconsistent and highly

volatile. While the variation and gap between maximum and minimum values can be found comparatively low, but still inconsistent in some years. The value of the GDRP can be found low while in some cases it is found higher. Therefore it is also found vibrant.

Table 2. Correlations

		Unemployment rate	Minimum Wages	Inflation	GDRP
Pearson Correlation	Unemployment_rate	1.000	-.035	.301	.043
	Minimum Wages	-.035	1.000	-.383	.400
	Inflation	.301	-.383	1.000	-.097
	GDRP	.043	.400	-.097	1.000
Sig. (1-tailed)	Unemployment_rate	.	.393	.008	.369
	Wages	.393	.	.001	.001
	Inflation	.008	.001	.	.225
	GDRP	.369	.001	.225	.
N	Unemployment_rate	63	63	63	63
	Wages	63	63	63	63
	Inflation	63	63	63	63
	GDRP	63	63	63	63



The given table 2 shows the correlation between unemployment, wages, inflation, GDRP of the 7 Province's economy. The correlation between unemployment and wages is negative that 0.393 and is insignificant at the 5 % level of significance. The correlation between unemployment and inflation is positive that 0.008 and is significant at the 5 %

level of significance. The correlation between unemployment and GDRP is positive that 0.369 and is insignificant at the 5 % level of significance. The correlation between unemployment and GDRP is positive that 0.369 and is insignificant at the 5 % level of significance.

Table 3. Regression Results

REGRESSION RESULTS			
Variables	Beta	T-test	Significance Level
(Constant)	3.966	1.122	0.267
GDRP	0.216	0.339	0.736
Inflation	0.297	2.489	0.016
Minimum Wages	0.001	0.511	0.611

The given table 3 shows the statistical results for regression tests. The regression results between the three variables GDRP, Inflation and Minimum Wages shows a positive unit. The findings are proving the phenomenon in such way that one unit change in GDRP brings positive 0.216 unit change in GDP. But the value of t-test is found below the tabulated or standard value of the rule of thumb. Finally for the significance level, it can also be observed to be highly above the required level that is 0.736, therefore, the findings are providing statistical grounds for the rejection of proposed hypothesis H1: GDRP negative significantly influences unemployment rate of the 7 Province economy.

On the other hand, the regression between inflation and unemployment is found to show a positive unit. The findings are proving the phenomenon in such way that one unit change in inflation brings positive 0.297 unit. But the value of t-test is found high the tabulated or standard value of the rule of thumb. Finally for the significance level is also below the required level that is 0.016, therefore, the findings are providing statistical grounds for the accepted of proposed hypothesis H2: Inflation positive significantly influences on th unemployment of 7 Province economy.

The findings are proving the phenomenon in such way that one unit change in Minimum Wages brings positive 0.001 unit. But the value of t-test is found below the tabulated or standard value of the rule of thumb. Finally for the significance level, it can also be observed to be highly above the required level that is 0.611, therefore, the findings are providing statistical grounds for the rejection of proposed hypothesis H3: Minimum Wages positive significantly influences unemployment rate of the 7 Province economy.

7 Province economic growth in Indonesia is not creating new jobs to suppress unemployment. Economic growth can only be enjoyed by the capitalists to achieve maximum benefit through high productivity and efficient with the technology used. The Indonesian government is no longer pursuing the high economic growth, but focus on the creation of new jobs to the people of Indonesia have a job for a prosperous life.

The increase in inflation may lead to an increase in unemployment due to the inflationary impact of the increase in costs in the company so that the company tried to minimize the use of labor and replacing it with technology. Controlling inflation is the key to the success of the government to tackle unemployment. The Indonesian government needs to streamline the control team was formed during this inflation under control of Bank Indonesia as monetary control in Indonesia. The government needs to suppress the dependence

on resources from abroad and seek to strengthen the value of the rupiah against foreign currencies. Community empowerment should be a concern to create industries that can meet the needs of the community so that the dependence of foreign products can be minimized.

The increase in the minimum wage has no effect on unemployment because wage increases each year can be predicted by the employer. Increased wages are routinely performed in each province based on the results of discussions between the government, representatives of employers and workers' representatives. Criteria for the determination of the minimum wage is set by the minister of labor regulations that are tailored to the current cost of living.

## V. CONCLUSION

Economic growth is not significant effect on unemployment is the result of different research results from researchers of various countries in the world. The Government of Indonesia should not pursue high economic growth but focus on creating new jobs to push unemployment.

Inflation is positive and significant effect on unemployment is the thing to get attention by the Government of Indonesia for the Indonesian government can do to control inflation can reduce unemployment. The Indonesian government should seek to reduce dependence on foreign resources and the strengthening of the rupiah against other currencies.

Increasing the minimum wage effect on unemployment is not significantly different from the results of the study from researchers of various countries in the world. This is not a concern for the Government of Indonesia to always increase the minimum wage in each province to ensure the welfare of workers in Indonesia.

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