



The Failure of Foreign Direct Investment to Explain Unemployment Rate and the Mediating Role of Economic Growth and Minimum Wage

Jumhur Tegep*, Eddy Suratman, Sukma Indra

Faculty of Economics and Business, Universitas Tanjungpura, Pontianak, Indonesia. *Email: jumhurie@yahoo.com

Received: 01 January 2018

Accepted: 25 February 2019

DOI: <https://doi.org/10.32479/ijefi.7524>

ABSTRACT

This research aims to discover and test macroeconomic variables which can mediate the relationship between Foreign Direct Investment (FDI) and unemployment rate in Indonesia. Employing integrated alternative model using macroeconomic variable as mediating factors, it uses path analysis to test a panel data from 36 Indonesian provinces within 17 years (422 observations). In order to calculate inter-variables' direct effects, it employs bootstrapping method. This study successfully found that gross domestic product (GDP) and provincial minimum wage can directly mediate FDI and unemployment rate. On the other hand, domestic investment and the number of workforces cannot mediate the relationship between FDI and unemployment rate. These results confirm that FDI cannot directly explain the change in unemployment rate without the mediation of economic growth and provincial minimum wage in Indonesian labor market. FDI's inability to directly explain unemployment is because the existing investment is capital- and technology-intensive; hence, at the first stage, it influences output growth more. To conclude, government policy to attract FDI needs to be followed by other policies aiming to enhance the skill of local labors, so that they can be absorbed by FDI.

Keywords: Economic Growth, Investment, Unemployment Rate, Mediating Variable

JEL Classifications: E24, F21, F43

1. INTRODUCTION

Unemployment rate refers to the number of people within certain population who are actively seeking for jobs (Aurangzeb and Asi, 2013). High level of unemployment rate carries some consequences toward financial condition, psychological state, physical condition, and government budgetary burden (due to decreasing income from tax and increasing expenditure); also, in the long term, it causes the loss of labor expertise which later reduces national productivity and future income of people (CBO, 2013). Government have implemented various policies to reduce unemployment rate by attracting foreign investment, pushing private investment domestically, and improving government investment.

In this globalization era, foreign investment, which flows more freely to all over the world, can become an alternative to reduce unemployment rate (Mucuk, 2013). However, foreign direct investment (FDI) (hereafter, FDI) has different influences in each country, area, and local economy sector in terms of reducing unemployment rate (Palát, 2011). On one hand, FDI can create new job opportunities to reduce unemployment rate (Schmerer, 2014), so some researchers suggested some policies to improve inward FDI rate (Shaari et al., 2012). However, in reality, FDI is frequently incapable of directly explaining unemployment rate (Hisarcıklılar et al., 2014; Parvathamma, 2014)

Global, regional, and bilateral cooperations established by Indonesian government have positively influenced the number of inward FDI in Indonesia. Based on the data from National

Statistics Bureau (BPS), between 2000 and 2016, the flow of FDI in Indonesia kept increasing, although it has not evenly distributed among provinces (62.52% in Java island with 6 provinces and 37.84% outside Java Island with 28 provinces). On the other hand, the average ratio of labor absorption per IDR 1 trillion of FDI in Indonesia showed a decreasing trend from 5014 workers to 3090 workers in 2016. For the last few years, foreign investors have inclined to bring workers from their home countries to work on their projects in Indonesia. It is proven by an increasing trend of foreign workers in Indonesia and it reached the peak in 2011 with 77,307 foreign workers (28.7% from China; 16.8% from Japan; and 11.4% from South Korea) (Nakertran, 2016). Government attracted FDI to Indonesia to open new job opportunities and reduce unemployment rates; contrary to such objectives, unemployment remains exist and FDI has no significant influence to reduce it. This condition signals another factor which may mediate FDI and unemployment rate in Indonesia. This research aims to ensure which macroeconomic variables are capable to be the mediator.

Even though FDI is an important factor in enticing economic advancement (Sârbu, 2016), its influence to economic growth frequently depends on trade policy regime, human resource quality, financial sector advancement, and institutional quality of host country (Denisia, 2010). Some results of empirical research (Ndikumana & Verick, 2008) found positive relationship between FDI and output, particularly in manufacturing sector, as it may help improve export rate which leads to economic growth. Chee & Nair (2010) found that FDI has a positive impact on economic growth and they suggested more policies to attract more FDI domestically.

The relationship between economic growth and unemployment rate can be considered as puzzle in economics. The inversed relationship between economic growth and unemployment rate was initially emphasized by Okun (1962). However, the relationship between these two variables are not uniform in all economies, so there has been no consensus about direction and intensity of the relationship between them, both theoretically and empirically (Özel et al., 2013).

Various literatures showed that FDI has enormous and positive influences on local workers' wage in host countries. It is based on the assumption that foreign companies tend to provide higher wage to their own workers, because their workers are assumed to have higher productivity than local workers (Bircan, 2013). However, literature about the impact of inward FDI on wage rate in Indonesia has been scarce. Most studies only focused on the impact of FDI on wage rate in Central and East European countries (Bellak et al., 2008). Therefore, analyzing consequences of inward FDI on wage rate in Indonesia provides meaningful addition to the body of literature.

Based on the results of some empirical studies, the relationship between labor market and minimum wage is either positive, or negative, or even unrelated at all; all depend on the assumptions about the characteristic of labor market. Sabia et al. (2012) discovered that an increase in minimum wage has huge, yet negative impact for young labors. Herr and Kazandziska (2011),

in a project supported by International Labor Organization about minimum wage in developing and developed countries, found that the increase of minimum wage has no significant influence on labor market, either systematically, positively, or negatively. Paper et al. (2010) analyzed the effect of minimum wage on the income level and employment level in the United States between 1990 and 2006 and concluded that there is no detected job loss due to an increase in minimum wage rate. Based on the data between 1990 and 2012 in the United States, Allegretto et al. (2011) found that the influence of increasing minimum wage on youth unemployment is not significant.

Frequently, some theories show that a third variable can increase understanding about the relationship between two main variables (independent and dependent). The third variable, which is positioned as a mediator, is hypothesized to be connected in a causal link between independent and dependent variables; in other words, independent variables influence mediating variable and mediating variable, in turn, influences dependent variable. Mediating variable refers to one (or more) variable(s) mediating the relationship between dependent and independent variables (Muller et al., 2005). One of the reasons why mediating role is tested is to understand mechanism in which independent variable influences dependent variable. Mediating analysis is an important part of an analysis process. Shrout & Bolger (2002) and stated that mediation happens when the causal effects of some X variables on Y results can be explained by M as mediating variable. Studies on the influences of mediating variables in economy were conducted by Badr and Ayed, 2015; Çelebi et al., 2015; Mahmood, 2015; Nordin et al., 2015; Nwankwo & Igweze, 2016. Based on the explanation above, the further objective of this research is to determine what kind of mediating variable will be found; and whether the mediator fully or partially mediate the relationship in this research.

At the second part, this research presents a short review on relevant empirical studies. Then, at the third part, it presents research methodology. At the fourth part, it describes the results of statistical tests, along with discussion and interpretation of the empirical results. Lastly, the fifth part explains research conclusion.

2. LITERATURE REVIEW

FDI frequently considers capable of driving the development in developing countries, because it brings along capital, technology, management knowledge, work, and access to international market. Therefore, many countries formulate certain policies to attract FDI to flow in their countries. FDI is believed to help host countries to create new jobs, reduce unemployment rate, and obtain high-quality labors, so that the host country can employ more efficient resources to improve overall productivity level (Moraru, 2013). FDI is also considered as one of the most important factors to stimulate economy (Kuliaviene & Solnyskiniene, 2014); however, in order to obtain the whole benefits, the host countries should have profitable business environment (Kurtishi-Kastrati, 2013) and in order to create such conditions, government role is absolutely necessary (Imoughhele & Ismaila, 2014). A study conducted by Laskien and Pekarskien (2011) showed that FDI has significant

impact on the increase of labor productivity, though its influence on productivity growth is diverse among various economic sectors. In practice, foreign investors frequently obtain special rights from the government. This special right can bring about negative impacts on domestic producers (Antwi et al., 2013), because local producers may lose their market position due to monopoly rights of foreign investors. Hence, according to Ozturk (2007), FDI can impact economic growth negatively. To make FDI having positive impact on economic growth, institutional factors of the host countries shall be repaired (Heang & Moolio, 2013).

One of the main challenges in most modern states is unemployment rate, which can lead to social, economic, and political pressures to economic decision makers (Grahovac & Softić, 2017). However, globalization and international capital can provide big opportunities for developing nations to fund their economic development (Balcerzak and Zurek, 2011). According to some findings of a study by Mpanju (2012) in Tanzania between 1990 and 2008 which employed econometric analysis of ordinary least square (OLS), FDI has significant effects on job opportunity, or negatively influences unemployment rate. Shaari et al. (2012) researched the impact of FDI on unemployment rate and economic growth in Malaysia by analyzing data between 1980 and 2010 using OLS method and concluded that FDI helps increase economic growth (per Gross Domestic Product [GDP]) and reduce unemployment rate in Malaysia. Stamatiou and Dritsakis (2014) employed several econometric models to evaluate FDI impacts on unemployment rate and economic growth in Greece using annual data between 1970 and 2010 and concluded that both in long-term and short-term, FDI improves economic growth and reduces unemployment rate in Greece. Lastly, Djambaska and Lozanoska (2015) found that in the short-term and long-term, FDI can increase economic growth and decrease unemployment rate in the Republic of Macedonia.

Okun (1962) also stated that there is an inversed relationship between real output and unemployment rate. This idea is widely accepted as Okun Law which assumed that if economic growth reaches more than 2.25%, each 1% increase in real output leads to a 0.5% decrease in unemployment rate. Further studies on the inversed relationship between economic growth and unemployment rate were conducted by Bankole and Fata (2013) on Nigerian economy between 1980 and 2008 and concluded that Okun Law does not apply to Nigerian economy. Akram et al. (2014) conducted a similar study on Pakistan economy between 1972 and 2012 and concluded that Okun Law is considered invalid for Pakistan. Moreover, Makun and Azu (2015) analyzed the relationship between economic growth and unemployment rate in Fiji during the period of 1982 and 2012 and concluded that there is a long-term relationship between economic growth and unemployment rate. Djambaska and Lozanoska (2015) admitted the significant relationship between economic growth and unemployment rate, though it largely depends on samples and explored contexts. Further study on Okun Law was conducted by Ruxandra (2016), who researched on the relationship between economic growth and unemployment rate post-2007 in Rumania, found that Okun Law can be applied for Rumania economy.

Wage rate in host country can improve due to FDI. Gopinath and Chen (2003) researched about the influence of FDI on the wage rate in host country by considering knowledge factor. They concluded that inward FDI improves wage rate only among skilled labors, both in developing and developed countries. Vijaya and Kaltani (2007) tested the influence of FDI on nominal income by employing wage bargaining approach in manufacturing sector in 19 countries between 1987 and 2001. They found that FDI decreases wage rate and influences female workers more; each 1% increase in inward FDI causes 0.045% decrease in wage rate.

Classical economists linked unemployment rate where the labor market is unbalanced because real wages are set at inappropriate levels. Akpansung (2014) employed estimation techniques of OLSs, Granger Causality, CUSUM, and CUSUM squares stability tests for Nigeria economy between 1999 and 2012 and found that minimum wage positively correlates with unemployment rate with correlation coefficient of 0.8328. Empirical results show consistent evidences that an increase in minimum wage is related to an increase in unemployment rate. Neuzil (2006) tested and measured relationship between minimum wage and level of unemployment in the United States between 2002 and 2012. The period was categorized into three models, namely pre-recession, recession, and post-recession. Simple regression model concluded that minimum wage influences unemployment rate. For multiple regression model, it is concluded that minimum wage rate significantly influences unemployment rate during unstable economic conditions (recession and post-recession). Karamanis and Naxakis (2014) tested the relationship between minimum wage rate and unemployment rate in Greece's labor market between 2000 and 2013 and found that minimum wage rate in Yunani does not really influence unemployment rate.

Mediating variable mediates independent and dependent variables, so that independent variable indirectly influences the change in dependent variable. Empirical research about the influence of mediating variable in economy sector was conducted by Badr and Ayed (2015) in North African countries between 1961 and 2012. Analysis results showed that FDI is incapable of mediating some macroeconomic variables on economic growth (in terms of GDP). Çelebi et al. (2015) examined mediating effect of FDI on the relationship between logistic performance and economic growth using hierarchical regression method. Based on the analysis results, FDI's mediating effect on the relationship between those two variables is statistically significant. Nordin et al. (2015) conducted a research focusing on three important issues, namely economic freedom, FDI, and economic growth. Employing threshold estimation method to analyze samples from 1980 to 2012 on Malaysia economy, they concluded that to certain levels, economic freedom plays important role in mediating FDI and economic growth in Malaysia. Nwankwo and Igweze (2016) combined an increase of workforce population and high inflation rate and found that they could mediate government expenditure and unemployment in Nigeria. All studies above try to explore whether relationship between independent and dependent variables will be different if the third variable is added as a mediator. Such research is needed because some theories frequently display that

the third variable can increase understanding about the relationship character of two variables (Shrout & Bolger, 2002).

3. EMPIRICAL METHODS

This research employed panel data which included time series data from 2000 to 2016 from 26 Indonesian provinces and obtained 422 observations. The data were obtained from National Statistical Bureau (BPS) Indonesia. The data were processed using IBM software of SPSS-23. Another data employed from this research encompassed unemployment rate, FDI, domestic investment, gross domestic products, minimum wage, and number of work force.

3.1. Multicollinearity Test

Multicollinearity test between independent variables was conducted using variance inflation factor (VIF). If VIF value was less than 10 and/or tolerance level was >0.01, it can be concluded that there was no multicollinearity problem.

3.2. Indirect Effects

This research followed simple mediating model as suggested by Kenny and David (1986). It included some variables, namely independent variable (FDI), dependent variable (TPT), and mediating variable (M). Mediating variable consisted of PMDN, PDRB, UMP, and AKT. This model represented the sequence of causality, such as FDI influences M then influences TPT. Moreover, FDI showed indirect effect on TPT, yet it was not transmitted through M, as shown in Figure 1. Meanwhile, the size and significance of these variables' coefficients would determine the nature of mediation and it could be explained by structural equation 1-6 (Nwankwo & Igweze, 2016).

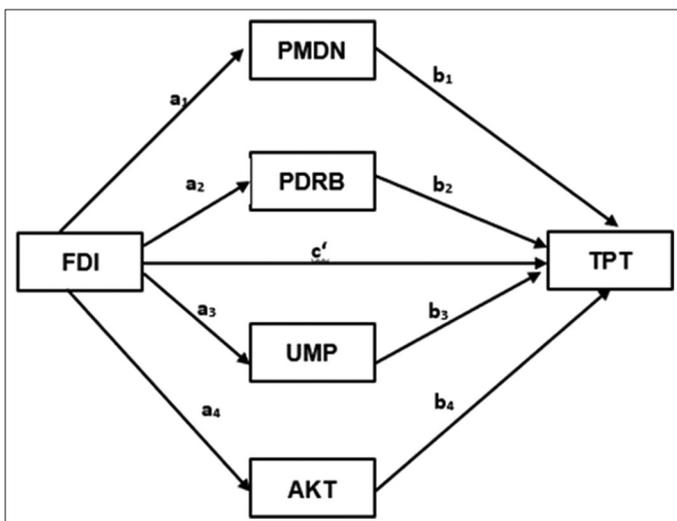
$$TPT = i_1 + c'FDI + u \tag{1}$$

$$PMDN = i_2 + a_1FDI + v \tag{2}$$

$$PDRB = i_3 + a_2FDI + v \tag{3}$$

$$UMP = i_4 + a_3FDI + v \tag{4}$$

Figure 1: Research model



$$AKT = i_4 + a_4FDI + v \tag{5}$$

$$TPT = i_3 + c'FDI + b_1PMDN + b_2PDRB + b_3UMP + b_4AKT + e \tag{6}$$

Where u, v, and e were random terms which fulfilled the usual OLS assumptions. These following terms were the variables in this research: TPT was unemployment rate, FDI was FDI, PDRB was gross domestic product proxied with economic growth, UMP was provincial minimum wage, and AKT was work force. Equation (1) was employed to calculate the direct effect of independent variable (FDI) on dependent variable (TPT). Equation (2-5) was employed to calculate how mediators were influenced by independent variable. While Equation (6) displayed how independent variable and mediating variable (M) influence dependent variable (TPT) when the direct effect of the independent variable (FDI) was included. As shown by, this method required that coefficient a, b, and c to be statistically significant, with c' value less than c value (c' < c). Perfect mediation occurred when c' equals to 0. In this case, the total effect of c value was fully mediated; while partial mediation occurred when the total effect was partly transmitted through the mediators. However, according to MacKinnon et al. (2016), c value's significance was not absolutely needed to consider mediating effect. The total effect of FDI on TPT, which was measured with coefficient c in equation (1), could be written as the combination of direct and indirect effects. If OLS was employed to estimate a model, the total effect was the additional amount of direct effect and mediation (or indirect effect); while indirect effect was obtained from stating the relationship as:

$$c = c' + ab$$

Coefficient a represented the effect of independent variable (FDI) on mediating variable (M); while coefficient b represented the effect of mediating variable (M) on dependent variable (TPT). The values of ab reflected how much unit in independent variable (FDI) indirectly influenced dependent variable (TPT) through mediating variable (M).

3.3. Testing Indirect Effect

Because this research employed >1 mediating variable, then in order to measure indirect influence, it employed bootstrapping method. Calculation process was conducted by macro formula from SPSS which was designed by Preacher and Hayes and known as PROCESS (Hayes, 2013). This method was believed as the most accurate method to measure indirect effect. The advantages of this model were that it did not need normal distribution assumption of the sample and the measurement of standard error. Therefore, this approach avoided possible problems which might appear if certain standards were not fulfilled. Only one analysis was needed to measure the effect of mediation and could be employed to formulate a more complex model with >1 mediating variables (Hayes, 2013).

4. EMPIRICAL RESULTS

4.1. Multicollinearity Detection

SPSS software was employed to calculate VIF. Based on the calculation in Table 1, VIF for all variables were <10 and the

tolerance value was >0.01. It can be concluded that there is no multicollinearity problem in the model.

4.2. Path Analysis for Direct Effect

Path analysis (a) tried to evaluate four variables which can possibly mediate the relationship between unemployment rate (TPT) and FDI, namely PMDN, PDRB, UMP, and AKT. Therefore, four models of path coefficients (a) are displayed in Table 2.

In order to ensure FDI's significance in predicting potential mediating variables, P-value was compared to significance level. In path coefficient analysis (a), all independent variables were statistically significant in predicting mediating variables and showed that all variables can be mediating variables (Kenny et al., 1986). Meanwhile, direct influences of mediating variable on dependent variable (path coefficient [b]) are displayed in Table 3. In order to ensure the significance of potential mediating variables in predicting dependent variable (TPT), P-values was compared to significance level ($\alpha = 0.05$).

Table 3 showed that PMDN and AKN are not significant in predicting unemployment rate (TPT), because its P-value is higher than the significance level ($\alpha = 0.05$). Insignificance of PMDN and AKT further emphasized that both variables cannot be mediators between FDI and TPT.

FDI positively and significantly influenced economic growth. This finding is in line with FDI theories, because investment is considered as one of the factors influencing economic growth. This research's finding is also in line with previous researches

conducted by Kurtishi-Kastrati (2013) and Moraru (2013) which stated that FDI is one of the most important factors in stimulating the economy. However, in order to reap all of the benefits, Indonesian government should prepare business environment and advantageous policies (Imoughele & Ismaila, 2014). This finding also brings about some policy implications, indicating that in order to improve economic growth, government policies in providing some facilities to attract foreign investment are appropriate alternatives.

Furthermore, this research found that FDI negatively and insignificantly influence unemployment rate, signaling that FDI in Indonesia cannot directly reduce unemployment. This finding is not in line with previous researches conducted by Mpanju (2012) in Tanzania, Shaari et al. (2012) in Malaysia, Stamatiou and Dritsakis (2014) in Greece, and Djambaska and Lozanoska (2015). They all found that an increase in FDI can improve economic growth and reduce unemployment rates in the respective countries. This finding brings about some policy implications that government objective to facilitate foreign investment in Indonesia has not successfully reduced unemployment rate, because most FDI are capital- and technology-intensive. At the same time, there is a tendency that the foreign investors bring some workers from their home countries to do their projects in Indonesia. This finding is in line with the findings of empirical research conducted by Hisarciklilar (2014) which stated that the widespread of new technology usage in production can make foreign investment powerless in reducing unemployment rate.

The influence of economic growth on unemployment rate was negative and significant in Inodonesia. This result confirms that Okun Law applies in Indonesia, because the increase of economic growth can reduce unemployment rate in Indonesia. Therefore, if the government aims to reduce unemployment rate, it needs to consistently attempt to enhance economic growth by encouraging investment, both foreign investment and other kinds of investment, so that Indonesian economic can keep growing sustainably. This research's finding is in line with previous researches which were conducted by Makun and Azu (2015) in Fiji and Ruxandra (2016) in Rumania. All studies found that Okun Law is applicable in those countries. However, this research is not in line with the study of Bankole and Fata (2013) which found that Okun Law is not applicable in Nigeria economy and the study of Akram et al. (2014) which concluded that Okun Law is invalid for Pakistan economy.

This research finds that FDI is positively and significantly related to wage rate in Indonesia. It signals that inward FDI to Indonesia can directly drive an increase in wage rate in Indonesia. This research's finding is in line with the findings from Gopinath and Chen (2003) who stated that inward FDI can improve wage rate due to skilled labors, both in developed and developing countries. This finding brings about logical consequence that the government should pay attention to the fact that inward foreign investment to Indonesia drives an increase in wage rate. Therefore, the government should formulate an appropriate policy about FDI. On one hand, FDI can increase wage rate and people's income; on the other hand, it can also increase domestic production cost along with the increase of wage rate.

Table 1: Multicollinearity test results

Model	Collinearity statistics	
	Tolerance	VIF
PMDN	0.713	1.403
PMA	0.519	1.929
PDRB	0.498	2.007
AKT	0.789	1.267
UMP	0.711	1.407

Source: Data processing results using IBM SPSS 23. Dependent variable: TPT

Table 2: Path coefficient (a)

Variables	Coefficient	Sa	Prob
FDI → PMDN	0.5436	0.0415	0.0000***
FDI → PDRB	0.3804	0.0257	0.0000***
FDI → UMP	0.0767	0.0147	0.0000***
FDI → AKT	0.0542	0.0224	0.0158**

Source: Data processing results using IBM SPSS 23. ***, **Significance level at 1% and 5%

Table 3: Path coefficient (b)

Variables	Coefficients	Sb	Prob
PMDN → TPT	-0.0266	0.0240	0.2678
PDRB → TPT	-0.6604	0.0405	0.0000***
UMP → TPT	0.9136	0.0700	0.0000***
AKT → TPT	0.0482	0.0442	0.2760

Source: Data processing results using IBM SPSS 23. ***, **Significance level at 1% and 5%

4.3. Path Analysis for Indirect Effects

This research employed >1 mediating variable; hence, PROCESS program was applied to process the data as the foundation of analysis and to conclude the findings on the role of mediating variables. The results of data processing for the indirect effects of X on Y can be viewed in the following Table 4:

Based on Table 4, the indirect coefficient of PMDN was recorded at -0.0145; while the confidence interval of 95% from bootstrapping results was written as BootLLCI (lower level of CI) equals to -0.0107 and BootULCI (upper level of CI) equals to 0.0400. As the “0” value is included within confidence interval of 95%, it can be concluded that there was no significant indirect effect of FDI on TPT through PMDN (Hayes, 2013).

Further, indirect coefficient of PDRB was obtained at -0.2512; while the confidence interval (CI = 95%) from bootstrapping results was written as BootLLCI equals to 0.2123 and BootULCI equals to 0.2927. As ‘0’ value is not included within confidence interval of 95%, it can be concluded that there was significant indirect effect of FDI on TPT through PDRB.

Moreover, indirect coefficient of UMP was recorded at 0.0701; while the confidence interval (CI = 95%) from bootstrapping results was written as BootLLCI equals to -0.0987 and BootULCI equals to -0.0435. Because ‘0’ was not included within the range of 95% confidence interval, it can be concluded that there is significant indirect effect of FDI on TPT through UMP.

Lastly, indirect coefficient of AKT was obtained at 0.0026; while the confidence interval (CI = 95%) from bootstrapping results was written as BootLLCI equals to -0.0027 and BootULCI equals to 0.0099. Because “0” is not included within the 95% confidence interval, it can be concluded that there is no significant indirect effect of FDI on TPT through AKT.

By employing bootstrapping method, this research successfully found that economic growth and provincial minimum wage can mediate FDI and unemployment rate in Indonesia. Although economic growth and wage rate statistically have partial mediation ability, because c’ value is smaller than c value. Hence, it can be concluded that this research’s findings can help us understand that FDI cannot influence unemployment rate directly; however, after it is mediated by economic growth and provincial wage rate, FDI can influence the unemployment rate in Indonesian labor market. These findings are in line with the previous studies (Badr and Ayed, 2015; Çelebi et al., 2015; Mahmood, 2015; Nordin et al., 2015; Nwankwo & Igweze, 2016).

Table 4: Indirect effect (s) of X on Y

Variable	Effect	BootSE	Boot LLCI	Boot ULCI
Total	0.1982	0.0239	0.1505	0.2447
PMDN	-0.0145	0.0129	-0.0107	0.0400
PDRB	-0.2512	0.0206	0.2123	0.2927
UMP	0.0701	0.0140	-0.0987	-0.0435
AKT	0.0026	0.0031	-0.0027	0.0099

Source: Data processing results using IBM SPSS 23

Furthermore, this research’s findings provide a projection for the government that in formulating any policies related to the influence of FDI on unemployment rate, it needs to consider the mediating roles of economic growth and minimum wage. At the initial stage, FDI influences economic growth more and does not influence unemployment rate; hence, in formulating the policy to encourage inward FDI, the government should formulate another policy to improve the skills of Indonesian workers by establishing centers of education and training to educate local labors, so that they have adequate skills to fulfill job requirements of foreign investors and obtain higher wage rate. All this while, job vacancy for FDI-related projects is mostly filled by workers from the home countries. Inward FDI is expected to absorb more local workers. Nevertheless, this research also realizes that the partial mediation of economic growth and minimum wage rate are not the sole variables responsible for explaining unemployment rate in Indonesia. There might be other variables which can mediate FDI and unemployment rate in Indonesian labor market.

5. CONCLUSION AND POLICY IMPLICATIONS

This research aims to discover and test macroeconomic variables which can mediate the influence of FDI on unemployment rate in Indonesia. The data analysis proved that combination of economic growth and provincial minimum wage rate can mediate FDI and unemployment rate in Indonesia. These findings are in line with economic theories which posited that economic growth plays a role in reducing unemployment rate (Okun Law); however, economic growth will not materialize without proportional increase in investment. High level of investment shall increase labor demand, then it will drive an increase in wage rate. However, high level of wage without expertise, skill, and job creation will create more unemployment. Partial mediation of economic growth and minimum wage showed that these variables are not the only ones responsible for mediating FDI relationship with unemployment rate in Indonesia.

Important policy implication from this research’s findings include the need for a consistent policy to improve economic growth by formulating a policy to create conducive investment climate by giving incentives to foreign investors, particularly those aiming to enlarge their production activities in order to increase labor demand. Then, recalling that inward FDI to Indonesia needs to be capital- and technology-intensive; at the same time, a policy to improve local labors’ expertise and skills is needed so that they can be absorbed in the FDI-related projects. All this while, the positions have been mostly filled by foreign workers with higher wage rate. In the long term, it is expected that the increase in inward FDI should influence economic growth and wage rate, as well as to provide alternative to reduce unemployment rate in Indonesia, although it should involve mediating role of economic growth and provincial minimum wage.

Meanwhile, limitation of this research lies in the fact that it covered 26 provinces in Indonesia with similar characteristics and used province’s panel data; however, it only employed four mediating

variables to mediate the influence of FDI on unemployment rate, namely domestic investment, economic growth, provincial minimum wage, and workforce. Therefore, future research should consider wider areas, such as certain regional areas or dividing some countries into categories of least developed countries, developing countries, and developed countries. It should be conducted so the future researchers should learn about the impact of economic inequality which influences unemployment rate in certain countries. Moreover, future research should consider involving other macroeconomic variables, such as export, import, interest rate, money supply, income level, and exchange rate in mediating the influence of FDI on unemployment rate. These important variables were not included in the research due to data limitation.

6. ACKNOWLEDGMENT

We would like to express our gratitude toward the Ministry of Labor and Transmigration, National Statistical Bureau, and Indonesia National Development Planning Agency for their sincere cooperation by providing all the documents and data needed for this research.

REFERENCES

- Akpanung, A.O. (2014), An empirical assessment of the effects of minimum wage increases on unemployment during democratic governance in Nigeria. *International Journal of Humanities and Social Science*, 4(13), 87-98.
- Akram, M., Shahzad, H., Raza, S.H., Saqib, Y.M. (2014), An empirical estimation of okun's law in context of Pakistan. *Journal of Finance and Economics*, 2(5), 173-177.
- Allegretto, S.A., Dube, A., Reich, M. (2011), Do minimum wages really reduce teen employment? *Industrial Relations*, 50(2), 205-240.
- Antwi, S., Mills, E.F.E., Mills, G.A., Zhao, X. (2013), Impact of foreign direct investment on economic growth: Empirical evidence from Ghana. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 3(1), 18-25.
- Aurangzeb, Asi, K. (2013), Factors effecting unemployment: A cross country analysis. *International Journal of Academic Research in Business and Social Sciences*, 3(1), 2222-6990.
- Badr, O.M., Ayed, T.L. (2015), The mediator role of FDI in North Africa: Case of Egypt. *Journal of Advanced Management Science*, 3(1), 1-7.
- Balcerzak, A.P., Zurek, M. (2011), Foreign direct investment and unemployment: VAR analysis for Poland in the years 1995-2009. *European Research Studies Journal*, 14(1), 3-14.
- Bankole, A.S., Fata, B.O. (2013), Empirical test of okun's law in Nigeria by. *International Journal of Economic Practices and Theories*, 3(3), 227-231.
- Bellak, C., Leibrecht, M., Riedl, A. (2008), Labour costs and FDI flows into Central and Eastern European countries: A survey of the literature and empirical evidence. *Structural Change and Economic Dynamics*, 19(1), 17-37.
- Bircan, C. (2013), Foreign Direct Investment and Wages: Does the Level of Ownership Matter? SSRN. p157. Available from: <https://www.doi.org/10.2139/ssrn.2332169>.
- Çelebi, Ü., Civelek, M.E., Çemberci, M. (2015), The mediator effect of foreign direct investments on the relation between logistics performance and economic growth. *Journal of Global Strategic Management*, 1(9), 17-21.
- Chee, Y.L., Nair, M. (2010), The impact of FDI and financial sector development on economic growth: Empirical evidence from Asia and Oceania. *International Journal of Economics and Finance*, 2(2), 107-119.
- Congressional Budget Office. (2013), Understanding and Responding to Persistently High Unemployment. High Unemployment: Select Analyses. Congressional Budget Office. p1-46.
- Denisia, V. (2010), Foreign direct investment theories: An overview of the main FDI theories. *Food European Journal of Interdisciplinary Studies*, 2(146), 53-59.
- Djambaska, E., Lozanoska, A. (2015), Foreign direct investment and unemployment evidence from the republic of Macedonia. *International Journal of Economics, Commerce and Management United Kingdom*, 3(12), 73-85.
- Gopinath, M., Chen, W. (2003), Foreign direct investment and wages: A cross-country analysis. *Journal of International Trade and Economic Development*, 12(3), 285-309.
- Grahovac, D., Softić, S. (2017), Impact of the FDI on unemployment rate in countries of West Balkan. *Review of Innovation and Competitiveness*, 3(2), 65-82.
- Heang, L.G., Moolio, P. (2013), The relationship between gross domestic product and foreign direct investment: The case of Cambodia. *KASBIT Business Journal*, 6, 87-99.
- Hayes, A.F. (2013), Introduction to Mediation, Moderation, and Conditional Process Analysis a Regression-Based Approach. New York: The Guilford Press.
- Herr, H., Kazandziska, M. (2011), Principles of minimum wage policy-economics, institutions and recommendations. *International Labour Organization*, (11), 1-28.
- Hisarcıklılar, M., Gultekin-Karakas, D., Asıcı, A.A. (2014), Can FDI be a panacea for unemployment? The Turkish case. *SSRN Electronic Journal*, 2014, 1-30.
- Imoughele, L.E., Ismaila, M. (2014), The nature of foreign direct investment and its impact on sustainable economic growth in Nigeria. *Journal of Economics and Development Studies*, 2(1), 1022-2045.
- Karamanis, K., Naxakis, C. (2014), The Relationship Between Minimum Wage and Unemployment Rate in the Greek Labour Market. Conference Paper.
- Kenny, R.M.B., David, A. (1986), The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 2(1), 23-39.
- Kuliaviene, A., Solnyskiniene, J. (2014), The evaluation of the impact of foreign direct investment on lithuanian economy using. *International Journal of Humanities and Social Science*, 19(1), 16-25.
- Kurtishi-Kastrati, S. (2013), The effects of foreign direct investments for host country's economy. *The European Journal of Interdisciplinary Studies*, 5(1), 26-38.
- Laskien, D., Pekarskien, I. (2011), Investicijas Priiman Č Ios Šalies Darbo Produktivumui Anotacija. Available from: <http://www.internet.ktu.lt/lt/mokslas/zurnalai/ekovad/16/1822-6515-2011-0207.pdf>.
- MacKinnon, D.P., Krull, J.L., Lockwood, C.M. (2016), Equivalence of the Mediation, Confounding and Suppression Effect. *CEUR Workshop Proceedings*, 1621. p36-43.
- Mahmood, T. (2015), Mediating effect of advertising expenditure on labour productivity : A case of manufacturing industries in Pakistan. *Pakistan Development Review*, 1, 1-15.
- Makun, K., Azu, N.P. (2015), Economic growth and unemployment in fiji: A cointegration analysis. *International Journal of Development and Economic Sustainability*, 3(4), 49-60.
- Moraru, C. (2013), Foreign direct investment and economic growth in Romania. *Theoretical and Applied Economics*, 20(5), 125-134.
- Mpanju, A.K. (2012), The impact of foreign direct investment on

- employment creation in Tanzania. *ZENITH International Journal of Business Economics and Management Research*, 60(6), 764-779.
- Mucuk, M., Demirsel, M.T. (2013), The effect of foreign direct investments on unemployment: Evidence from panel data for seven developing countries. *Journal of Business, Economics and Finance*, 2, 53-66.
- Muller, D., Judd, C.M., Yzerbyt, V.Y. (2005), When moderation is mediated and mediation is moderated. *Journal of Personality and Social Psychology*, 89(6), 852-863.
- Ndikumana, L., Verick, S. (2008), The linkages between FDI and domestic investment: Unravelling the developmental impact of foreign investment in Sub-Saharan Africa. *Development Policy Review*, 26(6), 713-726.
- Neuzil, P. (2006), The effect of minimum wage and unemployment across varying economic climates. *Nucleic Acids Research*, 34(11), e77.
- Nordin, N., Putra, S.B., Nordin, N., Zainudin, N. (2015), Evaluating the Role of Economic Freedom in Mediating Foreign Direct Investment on Malaysian Economic. *Proceeding of the 2nd International Conference on Management and Muamalah 2015*. p25-42.
- Nwankwo, C.H., Igweze, A.H. (2016), Factors mediating between government expenditure and unemployment in Nigeria. *Science Journal of Applied Mathematics and Statistics*, 4(2), 43-50.
- Okun, A.M. (1962), *Potential GNP: Its Measurement and Significance*. Cowles Foundation Paper No. 190.
- Özel, H.A., Sezgin, F.H., Topkaya, Ö. (2013), Investigation of economic growth and unemployment relationship for G7 countries using panel regression analysis biga faculty of economics and administrative sciences. *International Journal of Business and Social Science*, 4(6), 163-171.
- Ozturk, I. (2007), Foreign direct investment-growth nexus: A review of the recent literature. *International Journal of Applied Econometrics and Quantitative Studies*, 4(2), 79-98.
- Palát, M. (2011), The impact of foreign direct investment on unemployment in Japan. *Acta Universitatis Agriculturae Et Silviculturae Mendelianae Brunensis*, 59(7), 261-266.
- Paper, I.W., Dube, A., Lester, T.W., Reich, M., Dube, A., Lester, T.W., Across, E. (2010), Minimum wage effects across state borders: Estimates using contiguous counties. *The Review of Economics and Statistics*, 92(157), 945-964.
- Parvathamma, G.I. (2014), FDI in retail sector in india-conceptual, descriptive and analytical study. *IOSR Journal of Economics and Finance*, 5(4), 63-69.
- Ruxandra, P. (2016), The specifics of okun's law in the Romanian economy between 2007 and 2013. *Annals Economy Series*, 1, 50-53.
- Sabia, J.J., Burkhauser, R.V., Hansen, B. (2012), Are the effects of minimum wage increases always small? New evidence from a case study of New York state. *ILR Review*, 65(2), 350-376.
- Sârbu, M. (2016), Current difficulties of regional harmonization in Romania. *Acta Universitatis Danubius*, 12(6), 225-234.
- Schmerer, H.J. (2014), Foreign direct investment and search unemployment: Theory and evidence. *International Review of Economics and Finance*, 30, 41-56.
- Shaari, M.S., Hussain, N.E., Halim, M.S., Bin, A. (2012), The impact of foreign direct investment on the growth of the manufacturing sector in Malaysia. *Journal of Applied Sciences Research*, 1(1), 41-45.
- Shrout, P.E., Bolger, N. (2002), Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods*, 7(4), 422-445.
- Stamatiou, P., Dritsakis, N. (2014), The Impact of Foreign Direct Investment on the Unemployment Rate and Economic Growth in Greece : A Time Series Analysis. *Conference Paper*; 2014.
- Vijaya, R.M., Kaltani, L. (2007), Foreign direct investment and wages: A bargaining power approach. *Journal of World-Systems Research*, 13(1), 83-95.