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INTERNATIONAL MIGRATION IN INDONESIA AND ITS AFFECTING FACTORS: DATA PANEL APPROACH

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ABSTRACT

Availability of employment is a problem that arises in developing countries, which then causes the location to move or migrate from one place to another. The factors that influence the displacement are estimated in this study using the Random Effect model for panel data regression method in the provinces in Indonesia from 2010-2016. The results showed that three variables were found that had a significant effect: the human development index, the number of poor people, and the provincial minimum wage with positive influences for the two initial variables and the latter's negative effect towards migration. Simultaneously, the other two variables, namely the number of unemployed and gross regional domestic income per capita, did not significantly affect the negative influence on migration.

Keywords: Migration, human development index, number of poor people, provincial minimum wage, number of unemployed, gross regional domestic income per capita, Random Effect

Preliminary

Developing countries have similar problems and difficulties, domestic and international, which in common refers to underdevelopment (Todaro 1998). Indonesia is one of the countries that entered into the developing and third-world countries and has characteristics that are not much different from developing countries in general. However, there are quite striking differences compared to these countries, namely the population that can be considered quite a lot. Indonesia ranks fourth globally as the country with the densest population of 261,115,456 people in 2016 (world bank). This situation can be an advantage or disadvantage, depending on how the government can respond to that situation.

According to Mortensen (1986), the availability of employment is a very important thing, especially with an unusual population. Although the presence or absence of a job is due to the number of companies that exist and because of a changing business cycle (Andolfatto 1996). If the availability cannot be fulfilled, there will be a job search to go to another location that provides employment.

Lee (1966) wrote a theory which deals with migration theory that migration has two types: international and internal migration. Internal migration is the transfer of population, either groups or individuals who enter and leave the area of origin to other regions but are still in the same country. International Migration is the activity of moving a population, which includes the displacement of a place of residence, the purpose of migrating, and the desire to settle or not in the destination that crosses a country's borders. In this case, migration occurs because of the desire to meet financial needs.

However, there are no jobs that are following the offerings and capabilities possessed by the individual.Research conducted by Sjaastad (1962) related to migration indicates that the poor tend not to move because they cannot pay the costs of migration. Although in the Hampshire study (2002), it was found that the poor would tend to migrate as an alternative to getting out of the poverty line when other methods failed. These differences in results indicate that research related to migration needs to be done so that the government's policies will be able to help people meet their daily needs. Other studies related to migration were carried out by Adams and Page (2005), Fan and Stark (2007), Ahmad et al. (2008), Agisty (2013), Mihi-Ramírez, Rudžionis, and Kumpikaitė (2014), Nabila and Pardede (2014), and Forte and Portes (2017).

Literature review

The initial theory of migration was proposed by Lee (1966), who explained the driving and pulling factors for someone to migrate between countries. Among the driving factors of the country of origin of migrant workers is the consideration of low salaries, limited employment, and low social access in the country of origin. The attractive factors in destination countries are competitive salaries, low unemployment rates, and leaving someone from their home country (Lee 1966). Some notions of attraction and thrust are as follows:

1. Factors from the area of origin are the driving factors for someone who wants to leave the area from where he came.
2. Destination areas exist from other regions and have an attraction for someone moving to the area.
3. Inhibiting factors where these factors become obstacles to the occurrence of migration.
4. Individual or personal factors, which are fundamental things to migration.

The definition of thrust and attraction can be illustrated in the figure below:

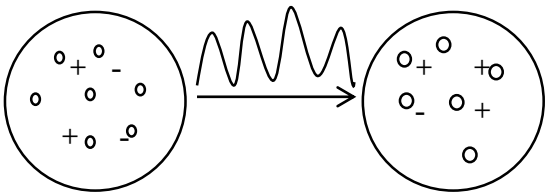

Figure 2.1

Some factors that can be found in the area of origin, area of purpose, and obstacles. Another theory put forward by Todaro (1998) is that an economic phenomenon often triggers migration. It is formulated that migration develops because of the differences between expected income and those in rural and urban areas. The basic assumption used is that migrants pay attention to the various job opportunities available to them and choose to maximize the benefits they expect from migrating. This theory views that they will migrate if the income they "expect" in the city is higher than the average income in the village.

The four main characteristics of the Todaro migration model:

1. Rational economic considerations often drive migration. Such as consideration of benefits (benefits) and costs (costs), financially and psychologically.
2. The decision to migrate depends on the "expected" real wage from "what happens," where the "expected" difference is determined by the interaction between two variables, namely the difference in wage behavior between villages and the possibility of getting a job in the city.
3. The possibility of obtaining employment in urban areas is inversely related to unemployment in urban areas.
4. The level of migration that exceeds the growth rate of employment opportunities in urban areas is likely to occur. High unemployment in urban areas is unavoidable because of the severe imbalance between economic opportunities in urban and rural areas in almost all NSBs.

TODARO MIGRATION MODEL

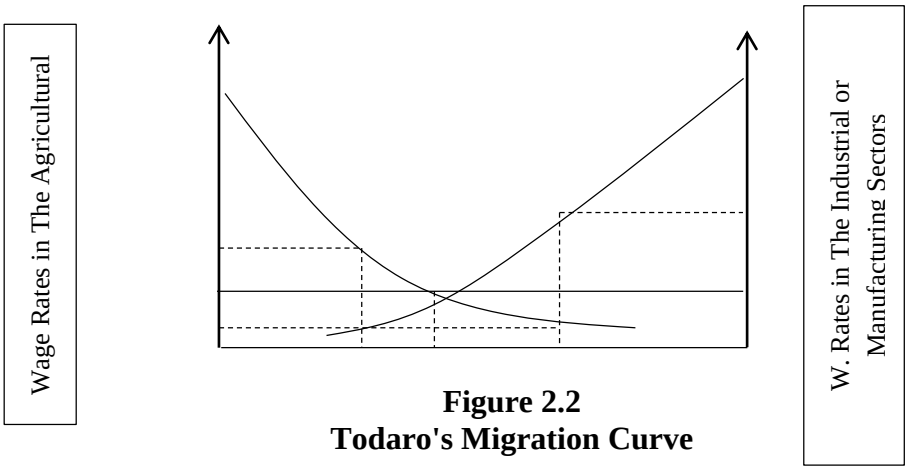

Figure 2.2
Todaro's Migration Curve

In the curve above, it is assumed that there are only two sectors in a country, namely the industrial and agricultural sectors. A curved line illustrates the labor demand level (the marginal product curve of labor) in the agricultural sector down A'. The level of demand for labor in the industrial sector is illustrated by the curved line (from right to left) M'. OA OM describes the total available labor force. In the neoclassical market economy (the market mechanism determines wages and all labor will be absorbed), the equilibrium wage level will occur if W_A * = W_M * with O_AL_A's labor division for the agricultural and O_ML_M for the industrial sector. On the assumption of full employment, all existing labor will be absorbed by the two economic sectors.

If the government determines the workers' wages as W_M 'which is above W_A' and it is assumed that in the economy there is no unemployment, the workforce of O_ML_M will work in the manufacturing industry sector in urban areas, while the rest of O_AL_M will be in the agricultural sector with a wage of O_AW_A *** is smaller than the market wage, O_AW_A *. then there is a gap or difference in the wage rate of W_M - W_A *** (W_M is the level of wages determined by the government). If the rural population is free to migrate, then even though there are jobs as large as O_ML_M, they will still migrate to the city to get wages. Higher. The opportunity points indicated by the q line and the new equilibrium point show by point z, where the difference between the village and city's actual income is the same as W_M-W_A. The number of workers still exists in the sect = or industry as much as O_ML_M with a wage rate of W_M. The rest, L_{us} = O_ML_A - O_ML_M, will be unemployed or enter the low-income informal sector.

The conclusion of Todaro's migration theory consists of several points. First, looking at rational economic considerations and directly related to the benefits or benefits of migration's relative costs itself. Second, the decision to migrate depends on the difference between income levels. Third, getting a job is inversely proportional to the level of unemployment in urban

areas. Fourth, this migration will continue even though urban unemployment continues to increase, with the real reason, wages are higher and more real. The surge that occurred cannot be avoided from the existence of a very severe imbalance of economic opportunities between rural and urban areas (wage level gap) (Todaro 1998).

The research conducted by Adams and Page (2005) titled "Do International Migration and Remittances Reduce Poverty in Developing Countries?" Explains the effects of international migration and remittances on poverty in developing countries. The variables used are GDP per capita, international migration, and the Gini coefficient, with a sample of 71 developing countries. The results found that international migration and influential remittances significantly reduce the severity of poverty in developing countries.

Furthermore, the study was conducted by Fan and Stark (2007) with the title "International migration and educated unemployment." This study describes educated unemployment from some labor markets in developing countries. Developing countries develop education for unemployed people to be more educated. This condition is the prospect of international migration because developing countries will experience the brain drain phenomenon. The research results are the relationship between migration and unemployment, in the latest literature on the benefits of brain drain, showing that educated unemployment is more needed in international migration.

The discussion regarding the variables predicted to influence migration was carried out by Ahmad et al. (2008), Agisty (2013), Mihi-Ramírez, Rudžionis, and Kumpikaitė (2014), Nabila and Pardede (2014), and Forte and Portes (2017). The control variables used are unemployment, remittances, inflation, real wages, income, age, education level, number of dependents, agricultural land area, income, employment status, bureaucracy, characteristics of the area of residence, marital status, the total value of assets held, acceptance of assistance, poverty status, GDP per capita from the country of origin, population, exchange rate, and laws and policies for EEA citizens.

Analysis Method

This study uses quantitative analysis methods with panel data tools. The data used are time-series data from 2010-2016 and cross-sections in all provinces in Indonesia. The variables used in the study are Indonesian labor migrants (TKI) which are the dependent variable with a proxy for the number of Indonesian workers who work abroad officially or who are listed in the National Agency for Placement and Protection of Indonesian Workers (BNP2TKI), per capita GRDP as an independent reference to Forte and Portes (2017) research with a proxy for

the value of GRDP divided by the population in the region and used because it can be a benchmark of the prosperity of a region, the poor become independent of the theory described by Todaro (1998) motivation in migrating with a proxy for the number of people who are below the poverty line in each province, provincial minimum wages (UMP) as in the research of Fan and Stark (2007) and Ahmad et al. (2008) as an independent proxy for a value that has been determined by the government to become a reference for companies in determining the amount of salary given to workers, the number of unemployed becomes independent in accordance with Malthus theory explained by Todaro (1998) with the proxy of the number of people entry into the workforce but not having a job, and the human development index (HDI) as an independent tracing to the indicators of human achievement proclaimed by the United Nations Development Program with a proxy for a scale of development based on aspects of health, knowledge and decent living standards. Because there are provincial or regional dimensions and between times that cause differences in both dimensions and other supporting elements of data availability, the method used in this study is panel data. Another function is to eliminate the error term in the regression results in the form of AI or errors that arise due to differences in characteristics that exist.

In the panel data regression, three approaches can be used (Gujarati and Porter 2008), namely Common Effect or Pooled Ordinary Least Square, Fixed Effect, and Random Effects. Furthermore, determining the best approach can be accommodated by the Chow test to determine between the Common Effect or Fixed Effect, the Hausman test to determine between Fixed Effect and Random Effect, and the Lagrange test between Random Effect and the Common Effect. Do not forget there is also a t-test and F test to show the significance of the relationship between variables specifically and research in general. The feasibility test of data carried out in panel data regression is only 2, namely heteroscedasticity and multicollinearity (Gujarati and Porter 2008).

The research model used refers to Ahmad et al. (2008) and Forte and Portes (2017) with the development of panel shapes and the addition of several variables to become the following models:

$$Log(TKI)_{it} = \alpha + \beta_1 Log(PDRBperKapita)_{it} + \beta_2 Log(UMP)_{it} + \beta_3 Log(JPM)_{it} + \beta_1 Log(JP)_{it} + \beta_4 IPM_{it} + \varepsilon_t$$

TKI	= Indonesian labor
PDRBperKapita	= Gross regional domestic income per capita
UMP	= Provincial minimum wage
JPM	= Number of poor people
JP	= Number of unemployed

HDI = Human development index
α = Coefficient of constant
β = Coefficient of research variable
ε = error term
i = Provinces in Indonesia
t = 2010-2016

Research result

In this study, data quality testing was carried out first so that later the results obtained could avoid bias. The first test was a heteroscedasticity test.

Table 1
Heteroscedasticity Test

VARIABLE	PROBABILITY
LOG(JPM)	0.7634
LOG(UMP)	0.3995
LOG(JP)	0.5736
IPM	0.7642
LOG(PDRB)	0.2709

Source: Results of panel data processing using the E-views program

Looking at the processing results with a confidence level of 5%, we can conclude that there is no heteroscedasticity because the probability value is above the degree of trust. For further testing, namely multicollinearity test. This test is conducted to avoid any relationship between independent variables so that the results obtained do not occur bias.

Table 2
Multicollinearity Test

	LOG (JPM)	LOG(UMP)	LOG (JP)	IPM	LOG(PDRB)
LOG(JPM)	1.000000	-0.140528	0.472263	-0.019848	-0.030376
LOG(UMP)	-0.140528	1.000000	-0.176868	0.258508	0.434895
LOG(JP)	0.472263	-0.176868	1.000000	0.086219	0.123597
IPM	-0.019848	0.258508	0.086219	1.000000	0.563068
LOG(PDRB)	-0.030376	0.434895	0.123597	0.563068	1.000000

Source: Results of panel data processing using the E-views program

The table above shows that there is no multicollinearity between independent variables because it is found that the correlation value between variables is below 0.8. The next test is the

feasibility test of the approach to determine the best approach used in this study. The first test is the chow test that compares the Common Effect with Fixed Effect.

Table 3
Chow Test

Effects Test	Statistic	d.f	Prob.
Cross-section F	10.226226	(29,175)	0.0000
Cross-section Chi-square	208.164919	29	0.0000

Source: Results of panel data processing using the E-views program

The table results show that the probability value of the chow test results is below the 5% confidence level, so it can be concluded that Ho is rejected and Fixed Effect is the best method to use. Further testing in determining the approach's feasibility is a Hausman test that shows the Fixed Effect and Random Effect as the best approach in the research model.

Table 4
Hausman Test

Test Summary	Chi-Sq. Statistik	Chi-Sq. d.f.	Prob.
Cross-section random	0.922634	5	0.9686

Source: Results of panel data processing using the E-views program

The data processing results in the table above show that the Random Effect method is the best approach in this study because the probability value is higher than the 5% confidence level, so Ho is accepted. The results of data processing for three approaches can be seen in the following table:

Table 5
Common Effect, Fixed Effect, and Random Effect Estimation Results

Dependent Variable: Indonesian Labor Migrants (TKI)	**MODEL**		
	COMMON EFFECT	**FIXED EFFECT**	**RANDOM EFFECT**
Constants	11.53008	4.599855	11.72607
Probability	**0.0180****	**0.7479**	**0.0119****
Number of Unemployed	-0.077098	-0.016787	-0.024330
Probability	**0.3260**	**0.8175**	**0.7157**

Provincial Minimum Wage	-1.943006	-1.765931	-1.923929
Probability	**0.0000*** **	**0.0191** **	**0.0000*** **
Number of Poor People	1.594682	1.509760	1.521956
Probability	**0.0000*** **	**0.0000*** **	**0.000*** **
Human Development Index	0.211593	0.077476	0.197481
Probability	**0.0000*** **	**0.7010**	**0.0024*** **
PDRBPERKAPITA	-0.151099	1.160007	-0.112617
Probability	**0.5493**	**0.6120**	**0.8282**
R-squared	0.628698	0.862207	0.329197
F-Statistics	69.08370	32.20647	20.02264
Probability	**0.0000**	**0.0000**	**0.000000**

*Description: *: significant at level 10%, **: significant at level 5%, ***: significant at level 1%*
Source: Results of panel data processing using the E-views program

The variable number of unemployed workers in Indonesia who work abroad based on the statistical test obtained a coefficient of -0.024330; this value indicates that each increase of 1% can reduce labor migration abroad by 0.02%. The variable number of unemployed has a negative and not significant effect on Indonesian workers' departure abroad with a probability level of 0.7157. This probability value indicates that changes in the number of unemployed people do not affect the number of workers per province in Indonesia who work abroad.

Following the theory put forward by Todaro (1998), someone's primary motivation to migrate is an economic motive. This motivation arises from economic considerations that are considered rational; in this case, mobility has two expectations: the hope of getting a job and the hope of getting a higher income. When the population does not have a job and income will cause unemployment to rise.

One of the factors affecting the decline of Indonesian workers abroad is regional and global economic factors that experience sluggishness or stagnation. The demand for labor abroad to be filled in labor-intensive sectors has decreased (BNP2TKI, 2017). However, from the perspective of Indonesia's national economy, economic growth reached 5.3%. This situation means that the government's attention to the infrastructure sector through large projects built throughout the country will significantly influence a larger workforce's absorption.

Variable provincial minimum wages for workers who work abroad based on statistical tests obtained a coefficient of -1.923929. Local minimum wage variables have a negative and significant effect on Indonesian workers' departure abroad with a probability level of 0.0000. This probability value indicates that changes in the increase in provincial minimum wages can affect the number of workers per province in Indonesia working abroad.

By Todaro's migration theory, migrants will conduct labor migration if their income is higher than the costs incurred when migrating. Wages received by workers will be sent continuously to the country of origin and family. This condition impacts fulfilling family needs and increasing remittances from home countries so that they experience improved economic conditions. Previous research was conducted by Fan and Stark (2007), migration occurred due to an imbalance of income/wages and unemployment caused by an economic downturn. Nevertheless, if the country of origin's economic conditions is moving towards improvement will affect the improvement of income/wages and unemployment and influence the decision to migrate. Likewise, Ahmad et al. (2008) research that the wage variable used has a significant negative effect on labor migration abroad. In the results of statistical tests conducted, provincial minimum wages have a significant adverse effect on Indonesian labor migration abroad. The provincial minimum wage that rises each year causes a decrease in worker migration because the fulfillment of needs has been fulfilled without requiring oneself to return to being Indonesian laborers to obtain higher income.

Variables of the number of poor people on labor migration abroad based on statistical tests obtained a coefficient of 1.521956. This value indicates that each increase of 1% can increase the number of workers who work abroad by 1.52%. The variable number of poor people has a positive and significant effect on Indonesian workers' departure abroad with a probability level of 0.0000. This probability value indicates that changes in the number of poor people can affect the number of workers per province in Indonesia who work abroad. Under Malthus' theory, a population explosion would cause subsistence or a trap model of the low-level equilibrium population trap. This statement is in line with the money statistics test. When the population in a subsistence position tends to be lower than subsistence, the population will try to find a solution to change the situation. In this situation, labor migration can be a solution (Todaro, 1998).

This condition is under the statistical tests that have been carried out if the number of poor people rises, then Indonesian labor migration will also increase. The greater the number of labor migration will reduce the number of poor people per province in Indonesia. The results of statistical tests that have been done and the variable number of poor people have a significant

positive effect on labor migration abroad. This result shows that if the number of poor people experiences an increase will increase labor migration abroad.

The human development index variable on workers who work abroad based on statistical tests obtained the coefficient of 0.197481. The human development index variable has a positive and significant effect on Indonesian workers' departure abroad with a probability level of 0.0024. This probability value indicates that changes in the human development index's increase can affect the number of workers per province in Indonesia who work abroad. According to the United Nations Development Program (UNDP), IPM is an approach to measuring human development's success rate. The higher the value of IPM achieved by a population and country, it will reduce international migration. Due to the achievement of indicators in IPM, namely life expectancy at birth, the average length of the school, education, and per capita expenditure already realized in the country of origin.

The GDP per capita variable for workers who work abroad based on statistical tests obtained the coefficient of -0007214. The GDP per capita variable has a negative and not significant effect on Indonesian workers' departure abroad with a probability level of 0.277. This probability value indicates that changes in GDP per capita increase do not significantly affect the number of workers per province in Indonesia who work abroad. Giuseppe and Jonathan also conducted previous research (2017). This study uses the GDP per capita variable from the country of origin. GDP per capita variable has a negative and not significant effect on international migration. Okun's law explains the negative relationship between output and unemployment; an increase in output will decrease unemployment, assuming that the labor force is constant. Okun concluded that without economic growth, the unemployment rate would continue to increase. It is in line with the statistical tests that have been done on GDP per capita, which have a negative and not significant effect on Indonesian labor migration.

Conclusion

The estimation results show that unemployment, GDP per capita, and provincial minimum wages negatively affect. For the two initial variables, the effect is not significant. At the same time, the provincial minimum wage has a significant effect on labor migration abroad based on Indonesia's provinces for the period 2010-2016. While the different results found in this study that the number of poor people and human development index have a positive and significant effect on labor migration abroad based on provinces in Indonesia for 2010-2016. With the conclusions explained above, the government is expected to be more responsive in responding to improving the quality of human resources (HR) in the Indonesian workforce. It

is so that the workforce controls workers' responsibilities and can increase the chances of workers in the formal sector.The majority of formal sector workers will later positively influence both the country of employment and the country of origin. Moreover, the government can repair and protect the TKI from illegal Turkish agents. It is intended to avoid unwanted problems. So that later, the labor force has clear legal protection and strength. This study's limitation is that the study only covers macroeconomic factors that affect labor migration abroad based on provinces in Indonesia. Labor migration is not only influenced by the five variables used by researchers. The variable data used is also limited by the relevant agencies, so it is expected that further research will be able to multiply data sources and variables with similar research.

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