Montenegrin Journal of Economics

Vol. 15, No. 3 (2019), 101-111

Relationship Between Migration and Unemployment: Panel Data Analysis for Selected OECD Countries

CUNEYT KILIC[1], MESUT YUCESAN[2]
and HALIL OZEKICIOGLU (*Corresponding Author*)[3]

[1] Associate Professor, Canakkale Onsekiz Mart University, Biga Faculty of Economics and Administrative Sciences, Department of Economics, Canakkale, Turkey, ckilic@comu.edu.tr
[2] Assistant Professor, Canakkale Onsekiz Mart University, Lapseki Vocational School, Department of Finance, Banking and Insurance, Canakkale, Turkey, mesutyucesan@comu.edu.tr
[3] Associate Professor, Akdeniz University, Faculty of Applied Sciences, Department of International Trade and Logistics, Antalya, Turkey, hozekicioglu@akdeniz.edu.tr

ARTICLE INFO

Received January 29, 2018
Revised from February 24, 2019
Accepted April 28, 2019
Available online September 15, 2019

JEL classification:

F22, J61.

DOI: 10.14254/1800-5845/2019.15-3.7

Keywords:

Migration,
unemployment,
panel data analysis,
Driscroll Kraay standard faulty model.

ABSTRACT

In this study, impacts of migration on labor market are studied. As changes experienced in the labor market of migration receiving and sending countries impact unemployment figures directly, the study is based on the determining the relationship between migration and unemployment. Literature investigating the relationship between migration and unemployment mainly focuses on the impacts of migration on labor markets. There is no generally accepted opinion on the direction and degree of impact of internal migration and international migration on unemployment. While some of the studies argue that migration has negative impact on unemployment, some argue just the opposite and even some express that there is no significant relationship between migration and unemployment. We investigate this direction and size of the relationship between migration and unemployment in 23 selected OECD countries. In panel data model we found that migration and economic growth have a negative and statistically significant effect on unemployment whereas; the consumer price index and average wages have a positive but statistically meaningless effect. It is observed that results obtained in this study are in parallel with the results of studies in the literature conducted by Kulkolkarn and Potipiti (2007), Heid and Larch (2011), Fromentin (2013) and Latif (2015).

INTRODUCTION

The concept of immigration has a long historical background as do many concepts in the field of social sciences. With the simplest definition, migration can be summarized as the long-term movement of individuals from relatively poor to geographically rich geographies. The diversity of wealth between regions should not be evaluated only economically. For centuries, people have abandoned their geographies for various, such as war, disease, famine, and climate change. Because of these displacements, which began with the history of humanity, culturalization took place as a result of material and spiritual elements, individuals and groups from different cultures, enter-

ing into a certain cultural interaction and mutually changing in the end of interaction. From the invention of the wheel to the discovery of writing, from the epidemic to the treatment of these diseases everything learned on behalf of humanity is transfered around the world by migrations (Yilmaz, 2014). Despite the large share of the concept of migration in human history, migration has become a concept that can be understood more clearly in 19th century than in the past.

In the nineteenth century, a world was formed, which was declared by newly established nation states. In this world shaped by the boundaries of nation states, immigration of individuals who have migrated or entered the borders has started to be recorded. Passport document, the legal rights of the states such as residence and work permits granted to foreigners have become widespread in this period (Gerşil and Temel, 2015, p. 419). Therefore, the concept of migration as of 19th century can be defined more clearly, and can be measured and monitored as a variable. With these developments, many national and international organizations have began to develop policies on migration and its impacts.

International migration to OECD countries, in terms of its general nature, appears to be an economic immigration class based on labor transfer. This labor migration, which is largely focused on Western states, and especially to traditional target countries (such as the United States, Canada, Australia and New Zealand), seems to continue to play an important role in medium and long term with a notable increase over the past decade. Non-OECD member countries adopt the same apparent population aging trend as OECD countries and as they change the axes toward Brasil and Turkey some unusual changes will occur in migration regimes (Göv and Dürrü, 2017, p. 492). Traditional target for migration phenomenon countries are expected to increase to include other developing countries over time.

The concept of migration is not a static phenomenon. Migration is a concept that has a dynamic impact on time and has a complex structure in terms of cause and effect relationships. Therefore, there are many titles caused by migration. These titles are closely examined by anthropologists, sociologists, historians, geographers and economists. The influences of migration on economic growth and employment are closely examined by the thinkers in economics. This study, endeavors to reveal the relationship between migration and unemployment. Particularly, in recent years, unemployment problem has become a global problem, not only a problem for underdeveloped and developing countries, but also for developed countries. With the increasing number and effectiveness of international economic and social institutions, sensitivity towards unemployment has increased due to social and economic effects of unemployment (Akçan and Ener, 2017, p. 404). In this study we examined the impact of migration on unemployment by using data from the period of 2000-2015 in 23 selected OECD countries and the relationship between migration and unemployment was investigated with the help of panel data analysis method. In the following chapters, a literature review is conducted to determine the relationship between migration and unemployment. In the application part of the study, the econometric methods, data set and analysis findings we used are revealed and results of the analysis are evaluated and recommendations are made.

1. LITERATURE REVIEW

Literature examining the relationship between migration and unemployment is predominantly focused on the impact of migration on labor markets. The relations between migration and labor markets focus on three different points in the literature. These are the effects of migration on employment and unemployment, the effects of migration on wage level and the effects of migration on productivity. The literature review will also focus on collectively addressing the impacts of migration on employment and unemployment, wage level and productivity as well as on the effects of migration on employment and unemployment, wage level and productivity. W. Marr and P. Siklos (1994) investigated the relationship between immigration and unemployment rates by using time series analysis method for Canada. In their research, it was concluded that the increase in unem-

ployment rates decreased migration rates before 1978, whereas in 1978 there was a positive and statistically significant relationship between migration and unemployment. R. Finnie (2000) analyzed the migration between provinces in Canada using panel logit models by using data from 1982-1995 period. He concluded that migration in rural areas is lower than urban areas and that urban unemployment has a positive relationship with migration.

F. Mete (2004) analyzed the relationship between migration and GDP per capita and unemployment with the help of Granger causality test using data from 1981 to 2001 in Finland. In his analysis, she concluded that there is no statistically significant causality between migration and GDP per capita and unemployment. P. Epiphany and G. Gancia (2005) analyzed the relationship between regional migration, unemployment and trade by using spatial econometric techniques. In the analysis, it is concluded that migration has different adverse effects on regional unemployment in the short and long term, and that in the short term, migration can decrease unemployment by creating positive effects on regional unemployment but in the long term, migration will increase regional unemployment. S. Longhi et al., (2006) analyzed whether migrants would lead to the dismissal of domestic workers, with 165 estimates from the last 9 studies using meta-analytical techniques for different OECD countries. They found that the 1% increase in number of migrants resulted in an increase in employment by 0.0024% and this effect was slightly higher in women than in men. In addition, the negative employment impact of migrants in Europe is larger than in the United States.

K. Kulkolkarn and T. Potipiti (2007) analyzed the relationship between migration, wages and unemployment with the help of the least squares method in Thailand in 2001-2005 period. In their analysis, there was no statistically significant relationship between migration and wages; on the other hand, there was a statistically significant relationship between migration and unemployment and they concluded that migration affected unemployment negatively. Leblang et al., (2007) analyzed the main determinants of migration flows directed at 26 migrants from the country that received 128 migrants from the 1985-2004 period. In their analysis, they concluded that there is a positive relationship between immigrant stock in the migratory countries and migration flows to those countries, a negative relationship between migratory flows and countries with no geographical and / or colonial backgrounds, a negative relationship between average wage in the migratory country was higher than that of the immigrant country and immigration flows and high unemployment in countries receiving migration.

A. Islam (2007) analyzed the relationship between immigration and unemployment in Canada with the help of causality and cointegration tests using data from quarterly unemployment rate and immigration rate in Canada over the period of (1961: 1-2002: 1). In his study, he concluded that causality between migration and unemployment and long-term migration had no effect on unemployment. However, in the long term, per capita GDP was positively related to migration and real wages. The results indicate that, in the short-run, more immigration is possibly associated with attractive Canadian immigration policies, and in the long-run, as the labour market adjusts, Canadian born workers are likely to benefit from increased migration.

N. Ahmad et al. (2008) tested the determinants of international migration in Pakistan using time series analysis in 1973-2005 period. They concluded that the migration from Pakistan had a positive relationship with inflation and unemployment rates in the country and that the real wage level and migration had a negative relationship. They also stated that international migration was positively influenced by the introduction of remittances.

F. Fleischmann and J. Dronkers (2010) investigated unemployment among immigrants in the labor market in Europe in the period of 2004-2005 with the survey conducted with 1363 people. In their research, it is concluded that the rate of unemployment of migrants is higher in the places where the indigenous population is intense and where immigrants are in a minority. S. Troshchenkov (2011) analyzed the effect of migration on unemployment rates in Denmark using data from 2007-2009 period using the least squares method. In his analysis, he concluded that migration

did not cause significant changes in unemployment rates, but he stated that the results were consistent with the literature. B. Heid and M. Larch (2011) analyzed the relationship between migration, trade and unemployment in 24 selected OECD countries with the help of fixed effects and predictors of dynamic effects using data from 1997-2007 period. They concluded that migration has a statistically significant negative impact on unemployment.

E. Boubtane et al., (2011) analyzed the relationship between migration, economic growth and unemployment with the help of panel causality test in 22 selected OECD countries. In their analysis, they concluded that migration in Portugal was the cause of negative migration that migration did not lead to unemployment in all other countries and that growth affected international migration positively. V. Fromentin (2013) researched the relationship between migration and unemployment with the help of cointegration analysis by using the data of 1970-2008 period in France. In his research, he concluded that migration affected unemployment negatively in the short term and positively on the long term but weaker. J. Ruist (2013) analyzed the effects of refugee migration in the labor market in Sweden during the period of 1999-2007. In his study, he concluded that refugee migration in general did not have a significant impact on unemployment. He also stated that migrants from low- and middle-income countries had a significant impact on unemployment.

S. Darkwah and N. Verter (2014) used the data of 1991-2011 in Nigeria to investigate the determinants of international migration with the help of time series analysis method. In their analysis, they concluded that unemployment, migrants' remittances and population growth are determinants of migration from Nigeria to other countries. These results show that there was a positive relationship between the number of Nigerians abroad (immigrants) and unemployment. W. Chamunorwa and C. Mlambo (2014) analyzed the effect of the immigrant labor force on unemployment in South Africa using the least squares method using the data from 1980-2010 period. In their analysis, they concluded that there was a positive relationship between migration and unemployment. E. Latif (2015) examined the relationship between migration and unemployment at provincial level in Canada with the help of panel data analysis. In his study, he concluded that there was a weak negative relationship between migration and unemployment.

R. Beyer (2016) analyzed the labor market performance of immigrants in Germany with the help of a survey method. In the analysis, it was concluded that migrant workers gained 20% less than domestic workers, and the rate of participation in the labor market was lower, while unemployment rate was higher, but this situation has changed in time (average 20 years later). F. Rios-Avila and G. Canavire-Bacarreza (2016) analyzed the impact of immigration on unemployment by using monthly population survey data for the period of 2001-2013 in the United States. They concluded that migration did not have a strong impact on unemployment, but that the impact of migration on young people and less educated people was stronger. Ö Altunç et al., (2017) tested the relationship between external migration and unemployment, inflation and economic growth using time series analysis method gathering data from the 1985-2015 period in Turkey's economy. They concluded that there is bi-directional causality between external migration and economic growth, a one-way causality relationship from economic growth to inflation, from inflation to unemployment and from unemployment to economic growth. They also stated that there is no causal relationship between external migration and unemployment.

R. Çelik and I. Arslan (2018) tested the relationship between immigration and unemployment in Turkey using data from the 2014-2016 period with the help of Spearman correlation analysis. They found a strong and positive relationship between migration and emigration and general unemployment and youth unemployment. When the literature on migration and unemployment is evaluated in general, different results are seen. Some of the studies argue that migration adversely affects unemployment, while some argue that it positively affects some of them and some of them state that there is no significant relationship between immigration and unemployment. For this reason, the existence of a generally accepted relationship between immigration and unemployment cannot be reached in the literature.

2. METHODOLOGY

This study endeavors to analyze the relationship between migration and unemployment through migration to 23 OECD countries[1] selected in econometric analysis. In this direction, unemployment rate (in%) was used as dependent variable in econometric analysis. Migration (number of persons), inflation (in CPI-%), economic growth (in%) and average wages (annual US $) are included as independent variables. The period of econometric analysis covers the period of 2000-2015. Annual data is used in the analysis. Data belonging to the econometric analysis period are obtained from two sources. Economic growth data are obtained from the World Development Indicators database of the World Bank and migration, unemployment, inflation and average wage data from the database of OECD (Organization for Economic Co-operation and Development).

The model for analyzing the relationship between immigration and unemployment to 23 selected OECD countries was established as follows;

$$UNEMPt = \beta_0 + \beta_1 MIG_t + \beta_2 GRO_t + \beta_{3INFt} + \beta_{4WAGt} + \varepsilon_t \quad (1)$$

Abbreviations of the variables used in the model and the name of the variables they represent: UNEMP: Unemployment, MIG: Migration, GRO: Economic Growth, INF: Inflation, WAG: Average Wage and ε_t concept shows error terms.

3. FINDINGS

In this study, the relationship between migration and unemployment is investigated with the help of panel data analysis method. Panel data analysis is preferred in this context because it offers a larger data set, gives more reliable estimations and takes control of individual heterogeneity. Panel data analysis has many other advantages compared to other types of analysis. One of these advantages is to provide more accurate estimation of the parameters of the model. In other words, the number of observations is very high as the data of the cross-section and time series are used together in the panel data analysis. The high number of observations increases the degree of freedom and reduces the possibility of a high linear relationship between the explanatory variables. For this reason panel data analysis allows for the construction of relatively more reliable models (Cheng, 2014). The summary statistics for the data set used in the study are shown in Table 1 below.

Table 1: Summary Statistics

Statistics Name	*Unemployment*	*Migration*	*Growth*	*Inflation*	*Wages*
Average	6.85	2.09	2.03	1.99	4.10
Standard devi.	3.48	2.76	2.75	1.48	1.12
Stickiness	7.58	7.76	15.06	2.16	-0.23
Distortion	2.21	2.49	1.26	0.27	-0.46
Interval	24.41	20.12	33.83	13.97	4.83
The Smallest	1.81	0.04	-8.27	-4.48	1.43
The biggest	26.22	20.16	25.56	9.49	6.26

According to the summary statistics given in Table 1, the UNEMPLOYMENT variable was 6.85. In this series, the highest in Spain was 26.22% in 2001, while the lowest in Luxembourg in 2001

[1] Australia, Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and the United States.

was 1.81%. It is known that the effects of the 2008 Global Financial Crisis create negative effects on unemployment indicators, especially in European countries. Therefore, it can be said that the problem of high unemployment experienced by Spain is the effect of global financial crisis. When the panel structure of the series is ignored, it can be said that the series has a pointed structure with 7.58 kurtosis value while it shows a right skewed structure due to the skewness coefficient of 2.21.

The variable of MIGRATION was 208924 people. This series was observed in 2016 as the highest in 2015 in Germany, while in the Czech Republic it was observed as 4227 people. When the panel structure of the series is ignored, it can be said that the series show a sharp structure with a 7:55 kurtosis value, while the skewness coefficient is 2.49.

GROWTH variable has an average of USD 40967 in the period discussed. In this series, the highest in Ireland in 2015 was 25.56%, the lowest in Finland in 2009 was 8.27%. The INF variable was 1.99% in the period covered. In this series, the highest in 2015 was observed in Mexico by 5.3%, while the lowest was observed in Ireland in 2009 by 4.48%.

3.1 Horizontal Cross-Section Dependent Test

In order to investigate the effects of the variables used in the analysis on unemployment, all series must be stationary in the panel data model to be established. The panel unit root tests to be performed for this purpose vary depending on whether there is a cross-sectional dependence in the model. Therefore, first of all, whether there is a cross-sectional dependency in the model was tested with Friedman (1937) and Pesaran (2004) and Breusch Pagan tests and the results are given in Table 2.

Table 2: Horizontal Cross-Section Dependency Tests

Unemployment	*Coefficient*	*Std. Error*	*p-value*
Migration	-0.82	0.10	0.00
Growth	-0.12	0.04	0.00
Inflation	-0.55	0.08	0.00
Wages	1.95	0.47	0.00
Constant	1.93	1.95	0.33
R2	0.33		
F-Test	42.60		0.00
Friedman Horizontal Cross Section Dependency Test	42.52		0.01
Pesaran 2004 Horizontal Cross Section Dependency	6.73		0.00
Breusch Pagan Horizontal Cross Section Dependency	478.70		0.00
Number of observations	368		
N	23		
T	16		

Table 2 shows results of the first established fixed-effect panel data model and results of the cross-sectional dependency test for the model. As a result of the Friedman test, the coefficient was calculated as 42.52 and the p-value for this coefficient was calculated as 0.01, the Pesaran (2004) test coefficient was 6.73 and the p-value for this coefficient was calculated to be approximately 0. In addition, the Breush Pagan cross-sectional dependency test coefficient was calculated as 478.70 and the p-value for this coefficient was calculated as approximately 0. Since the time

dimension in the panel data structure is T, 16, and this time dimension is smaller than the number of panel units, N, the T <N condition is provided. In this case, Friedman (1937) and Pesaran (2004) cross-sectional dependency test give results that are more consistent. H0: Since there is a p value less than 0.01, H0: There is no cross-sectional dependence, the null hypothesis is rejected in the 99% confidence interval and it is concluded that there is a cross-sectional dependence in the model.

3.2 Unit Root Tests

One of the second-generation tests, M. Pesaran (2007), which takes into account the cross-sectional dependence between panel root root tests due to the cross-sectional dependence of the model, was applied to dependent and independent variables in the model. The results are shown in Table 3.

Table 3: Pesaran 2007 Panel Unit Root Test

Variable	*Fixed*		*fixed and trendy*		*Result*
	t statistic	*p-value*	*t istatistiği*	*p-değeri*	
Unemployment	-1.03	1.00	-1.20	1.00	I(1)
D_ Unemployment	-2.23	0.01	-2.34	0.37	
Migration	-1.37	0.96	-2.03	0.90	I(1)
D_ Migration	-2.30	0.01	-2.48	0.17	
Growth	-2.46	0.00	-2.41	0.28	I(0)
INF	-2.58	0.00	-2.73	0.02	I(0)
Wages	-2.10	0.04	-2.58	0.08	I(0)

The results of Pesaran (2007) panel unit root test applied to dependent and independent variables used in the study in Table 3 are shown for fixed and trendy model with fixed model. According to this;

- For the fixed model of the UNEMPLOYMENT variable, the test statistic was calculated as -1.03 with approximately 1.00 p-value, and the test statistic for the fixed and trendy model was calculated as -1.20 with approximately 1.00 p-value. As a result, the variable has the unit root H0: There is a unit root 90% confidence that the unit root content of this variable is not rejected. Therefore, by taking the difference of the series (D_UNEMPLOYMENT), the related test was reapplied. The test statistic was calculated as 2.23 with 0.01 p-value and -2.34 with 0.37 p-value for the fixed and trendy model. H0: The unit root hypothesis is rejected in the 95% confidence interval and it is concluded that the series is stationary I (1) at the first level.
- Test statistic for the fixed model related to MIG variable was calculated as -1.37 with 0.96 p-value, and the test statistic for fixed and trendy model was calculated as -2.03 with 0.90 p-value. As a result, the variable has the unit root H0: There is a unit root 90% confidence that the unit root content of this variable is not rejected. Therefore, by taking the difference of the series (D_MIG), the related test was reapplied. The test statistic was calculated as -2.30 with 0.01 p-value for the fixed-line model, and the test statistic for fixed and trendy model was calculated as -2.48 with a value of 0.17 p-value. H0: The unit root hypothesis is rejected in the 95% confidence interval and it is concluded that the series is stationary I (1) at the first level.
- For the fixed model of the GROWTH variable, the test statistic was calculated to be -2.46 with a p-value of approximately 0, and the test statistic for a fixed and trendy model was calculated as

-2.41 with 0.28 p-value. As a result, H0: Unit root, which has variable unit roots, was rejected in 95% confidence interval and it was concluded that the series was stationary I (0).

- For the fixed model of the INF variable, the test statistic was calculated to be -2.58 with a p-value of about 0, and the test statistic for a fixed and trendy model was calculated as -2.73 with a 0.02 p-value. As a result, H0: Unit root that the variable has a unit root is rejected in the 99% confidence interval and the series is stationary, I (0).
- Test statistic for the fixed model of WAGES variable was calculated as -2.10 with 0.04 p-value, and test statistic for fixed and trendy model was calculated as -2.58 with 0.08 p-value. As a result, H0: Unit root, which has variable unit roots, was rejected in 95% confidence interval and it was concluded that the series was stationary I (0).

In summary, UNEMPLOYMENT and MIGRATION series, which are among the series used in this study, were found to be stationary at first level while they were stationary at other series level. For this reason, first order difference of UNEMPLOYMENT and MIGRATION series was stabilized.

3.3 Hausman Test

After the panel unit root tests for the series used in the study, Hausman test was used to choose between the fixed effects model and the random effects model in model building stage. For this purpose;

H0: Individual effects are random,
H1: Individual effects are constant,

hypotheses were tested. As a result, the null hypothesis was rejected at the 99% confidence level because the relevant test statistic was calculated as 44.97 with an approximate 0 p-value. Therefore, constant effects model was used in the continuation of the analysis.

3.4 Results of Panel Data Model

Table 4 below shows results of the first panel data model established to investigate the factors affecting unemployment and results of the corrected models;

Table 4: Panel Data Model Results

	Standard Model			*Corrected Model (Driscoll Kraay)*		
D_ Unemployment	*Coefficient*	*Std. Error*	*p-value*	*Coefficient*	*Std. Error*	*p-value*
D_ Migration	-0.26	-3.77	0.00	-0.26	0.09	0.01
Growth	-0.23	0.02	0.00	-0.23	0.02	0.00
INF	-0.11	-2.85	0.01	-0.11	0.11	0.36
Wages	0.04	0.16	0.87	0.04	0.27	0.90
constant	0.59	0.65	0.52	0.59	1.21	0.63
R^2	0.41			0.41		
F-Test	54.18		0.00			
Wald Test	852.60		0.00			
Wooldridge Test	13.75		0.00			
Pesaran CD Test	8.66		0.00			

According to the standard fixed effective panel model.

The coefficient for D_MIGRATION variable was estimated to be -0.26 with a p-value of about 0. Accordingly, this variable is statistically insignificant H0: The variable coefficient of this variable is 0. It was concluded that the variable had a significant and negative effect on Dissolution. Accordingly, it can be said that a one-unit increase in this variable will decrease D_Unemployment variable by 0.26%.

The coefficient for Growth variable was estimated to be -0.23 with a value of about 0 p-value. Accordingly, this variable is statistically insignificant H0: The variable coefficient is 0. It was concluded that the variable had a significant and negative effect on D_Unemployment by rejecting the 99% confidence interval. According to this, it can be said that 1% growth in the total economy will reduce D_Unemployment variable by 0.23%.

The coefficient for INF variable was estimated to be -0.11 by 0.01 p-value. Accordingly, this variable is statistically insignificant H0: The variable coefficient is 0. It is concluded that the variable has a significant and negative effect on D_Unemployment by rejecting the 95% confidence interval. Accordingly, it can be said that a 1% increase in inflation rate will reduce D_Unemployment variable by 0.11%.

In the corrected model, the coefficient of WAGES variable is not changed but the p-value of the coefficient is calculated as 0.9. Accordingly, the null hypothesis that this variable is not statistically significant is not rejected in the 90% confidence interval and it is concluded that the variable has no significant effect on D_Unemployment.

In summary, this study investigated the effect of migration on unemployment. For this purpose, unemployment rate, number of migration, economic growth, inflation rate and average wage data for the period of 2000-2015 are used for 23 OECD countries and descriptive statistics for series are indicated. In the panel data model to be established, panel unit root test is applied to dependent and independent variables since the variables to be included in the model should be static. As the panel unit root test is different in terms of whether there is a cross-sectional dependency in the model, horizontal cross-sectional dependency tests are performed before the panel unit root test. As the model has a horizontal cross-sectional dependence, the second-generation panel unit root tests Pesaran (2007) have been applied to the panel unit root test and Unemployment and MIgration variables were determined to be first-order stationarity. First-order differences of the first-order stationary variables were took and the analysis was continued. Afterwards, the Hausman Test is used to choose between fixed effects and random effects model and it is decided that the fixed effects model is valid.

Varied, autocorrelation and cross-sectional dependence problems are investigated in the fixed-effect panel data model and it is concluded that the error terms in the model did not have a fixed variance, in addition to autocorrelation and cross-sectional dependency problems in the model. Driscoll Kraay standard faulty model is used for the solution of these problems.

According to the results of corrected models, it is observed that D_Migration and Growth variables have negative and significant effect on D_Unemployment variable, INF variable is negative but statistically meaningless and WAGES variable has positive but statistically meaningless effect. As a result of the panel data analysis conducted on 23 OECD countries between 2000 and 2015, we concluded that migration has a negative and statistically significant effect on unemployment.

CONCLUSION

Migration is one of the problems that developed countries and developing countries closely follow. The implications of migration and migration are the subject of examination in many different

areas. Undoubtedly, economy is the beginning of these areas. It is being explored by economists how migration affects the economies of the country on many topics such as economic growth, poverty and unemployment. When we look at the literature trying to reveal the relationship between migration and unemployment, it is seen that most of the studies focus on internal migration and the macroeconomic effects it creates. The effects of internal migration movements are closely monitored due to the development differences between regions or provinces during the economic development of countries. There is no generally accepted opinion on the direction and degree of impact of internal migration and international migration on unemployment. In the literature, there are studies that concluded that migration has a positive effect on unemployment, as well as studies that have found a negative relationship between migration and unemployment. In some studies, a statistically significant relationship could not be established between these variables. In this study, the effect of immigration on unemployment on 23 OECD countries selected between 2000 and 2015 was investigated by using panel data analysis method. According to the results, it was observed that migration affected negatively in 23 selected OECD countries. It is seen that the results are in parallel with the results of studies like K. Kulkolkarn and T. Potipiti (2007), B. Heid and M. Larch (2011), V. Fromentin (2013) and E. Latif (2015).

REFERENCES

Ahmad, N., Hussain, Z., Sial, M. H., Husaain, I., Akram, W. (2008), "Macroeconomic Determinants of International Migration From Pakistan", *Pakistan Economic and Social Review*, Vol. 46, No. 2, pp. 85-99.

Akçan, A. T., Ener, M. (2017), "Identification of The Macroeconomic Variables That Cause Unemployment: The Case of Turkey". *Manisa Celal Bayar Üniversity Journal of Social Sciences*, Vol. 15, No. 4, pp. 403-426.

Altunç, Ö. F., Uçan, O. Akyıldız, A. (2017), "The Effects of Immigration on Unemployment, Inflation And Economıc Growth in Turkish Economy: An Econometric Analysıs (1985-2015), *Social Science Studies*, Vol. 5, No. 8, pp. 197-212.

Beyer, R.C.M. (2016), "The Labor Market Performance of Immigrants in Germany", *IMF Working Paper*, WP/16/6.

Boubtane, E., Coulibaly, D., Rault, C. (2011), "Immigration, UnemploymentandGrowth in the Host Country: Bootstrap Panel Granger Causality Analysis on OECD Countries" *IZA*, *Discussion Paper*, 5853.

Chamunorwa, W., Mlambo, C. (2014), "The Unemployment Impact of Immigration in South Africa", *Mediterranean Journal of Social Sciences,* Vol. 5, No. 20, pp. 2631-2640.

Cheng H. (2014), *Analysis of Panel Data,* Cambridge University Press, Cambridge, Third Edition.

Çelik, R., Arslan, I. (2018), ''The Relationship between Migration and Unemployment: An Empirical Investigation", Journal of Social Policy Conferences, Vol. 74, pp. 65-75.

Darkwah, S. A. Verter, N. (2014), "Determinants of International Migration: The Nigerian Experience", *Acta Unıversıtatıs Agrıculturae Et Sılvıculturae Mendelıanae Brunensıs*, Vol. 62, No. 2, pp. 321-327.

Epiphany, P., Gancia, G. A. (2005), "Trade, migration and regional unemployment", *Regional Science and Urban Economics*, Vol. 35, p. 625– 644.

Finnie, R. (2000), "The who moves? A panel logit model analysis of inter-provincial migration in Canada", *Analytical Studies Branch– Research Paper Series*, No. 2000142, pp. 1–24.

Fleischmann, F., Dronkers, J. (2010), "Unemployment among immigrants in European labour markets: an analysis of origin and destination effects", *Work, employment and society,* Vol. 24, No. 2, pp. 337–354.

Friedman, M., (1937). "The use of ranks to avoid the assumption of normality implicit in the analysis of variance". J. Am. Stat. Assoc., 32, 675–701.

Fromentin, V. (2013), "The relationship between immigration and unemployment: The case of France", *Economic Analysis & Policy*, Vol. 43, No. 1, pp. 51–66.

Gerşil, S.G., Temel, Y. H. (2015),"Migration Fact of The Labor Market in Turkey". *Research Journal of Politics, Economics and Management, 16th Labour Economics, and Industrial Relations Congress Special Issue*, pp. 413-428.

Göv, A., Dürrü Z. (2017), "Migration and Economic Growth Relationship: An Analysis Based on Selected OECD Countries", *International Journal of Economic Studies*, Vol. 3, No. 4, pp. 491-502.

Heid, B., Larch, M. (2011), "Migration, Trade and Unemployment", *Ifo Institute, Ifo Working Paper,* No. 115.

Islam, A. (2007), "Immigration Unemployment Relationship: The Evidence From Canada", *Journal Compilation,* Blackwell Publishing Ltd/University of Adelaide and Flinders University, pp. 52-66.

Kulkolkarn, K., Potipiti, T. (2007), "Migration, Wages and Unemployment in Thailand", *Chulalongkorn Journal of Economics,* Vol. 19, No. 1, pp. 1-22.

Latif, E. (2015), "The relationship between immigration and unemployment: Panel data evidence from Canada", *Economic Modelling,* Vol. 50, pp. 162–167.

Leblang, D., Fitzgerald, J., Teets, J. (2007), *Defying the Law of Gravity: The Political Economy of International Migration*, http://community.middlebury.edu/ ~jteets/migration.pdf, (Access Date: 25.09.2018).

Longhi, S., Nijkamp, P., Poot, J. (2006), "The Impact of Immigration on the Employment of Natives in Regional Labour Markets: A Meta-Analysis", *Forschungsinstitut zur Zukunft der Arbeit Institute for the Study of Labor*, IZA DP No. 2044.

Marr, W. L., Siklos, P. L. (1994), "The link between immigration and unemployment in Canada", *Journal of Policy Modeling*, Vol. 16, No. 1, pp. 1-25.

Mete, F. (2004), "Does Immigration Have An Impact On Economic Development And Unemployment? Empirical Evidence From Finland (1981–2001)", *International Journal of Applied Econometrics and Quantitative Studies,* No. 1-3, pp. 39-60.

Organisation for Economic Co-operation and Development (2018), *OECD Data*, https://data.oecd.org/, (Access Date: 17.08.2018).

Pesaran, M.H., 2004. "General diagnostic tests for cross section dependence in panels". Unpublished manuscript, Faculty of Economics and Politics, University of Cambridge.

Pesaran, M. H. (2007), "A Simple Panel Unit Root Test in the Presence of Cross-Section Dependence", *Journal of Applied Econometrics*, Vol. 22, No. 2, pp. 265-312.

Rios-Avila, F., Canavire-Bacarreza, G. (2016), "Unemployed, Now What? The Effect of Immigration on Unemployment Transitions of Native-born Workers in the United States", Levy Economics Institute, *Working Paper* No. (870).

Ruist, J. (2013), "The labor market impact of refugee immigration in Sweden 1999–2007", The Stockholm University Linnaeus Center for Integration Studies (SULCIS), *Working Paper* (1).

Troshchenkov, S. (2011), *Influence of immigration on the unemployment rate: The case of Denmark* (Master Thesis), UMEA Universitet Master program in Economics.

World Bank (WB). (2018), *Data Bank: World Development Indicators*, http://databank.worldbank.org/data/reports.aspx?source=world-development-indicators, (Access Date: 23.07.2018).

Yılmaz, A. (2014), "International Migration: Its Types, Causes and Effects, Turkish Studies, Vol. 9, No. 2, pp. 1687-1705.