

THE DETERMINANTS OF INTERNAL MIGRATION: THE CASE OF TURKEY

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Abstract

This study investigates the determinants of the net migration statistics at regional level-1, consisting 12 regions, according to the Nomenclature of Units for Territorial Statistics (NUTS) of Turkey during the period 2008-2014 utilizing Feasible Generalized Least Squares. The results show that the coefficient of poverty variable found negative as consistent with literature. This finding suggests that migration movements are still one of the important strategies against poverty. In the study, the amount of exports and electricity per person used as a proxy for the level of development of the regions found significant and positive on the net migration rate of the region. This result shows that the level of development of a region is related to the net migration of that region in the same direction. Therefore, policy makers should implement policies on internal migration movements to decrease differences in income inequality and development levels between regions.

Keywords: *Net Migration Rate, Panel Data, Feasible Generalized Least Squares*

JEL Code: O15, C23, R23

1.INTRODUCTION

The internal migration phenomenon has increased in some periods since 1950's in Turkey. There is a tendency to move from the rural area to the urban area and especially from the less developed regions to the developed regions. A significant part of these migrations have been the results of economic, social and political reasons. In particular, the unbalanced distribution of income and employment are the mains factor for increasing migration.

In 1950s, Turkey witnessed migration from rural to urban areas because of the development of industrialization and service sector in cities. Unemployed labor force in villages move to cities to seek a job. In 1970s, it is observed that while there was a decrease in migration from the rural areas to the urban areas, there was an increase from urban areas to urban areas. Between 1970 and 1980, the great majority of total internal migration movements constitute immigration from urban areas to urban areas. With the implementation of free market economy, privatization, communication and the development of transportation conditions, individuality the importance of civil society the speed of migration in Turkey has been accelerated in 1980s and 1990s. On the other hand, internal migration has intensified due to political reasons. This period was specially characterized with the compulsory and voluntary migration. Because of terrorism in East and Southeast of Turkey, thousands of people had to migrate. A substantial population initially migrated to Diyarbakir, Van then Istanbul, Izmir, Adana, Bursa, Mersin. Migrating further amplified existing urban problems (Icduygu and Sirkeci, 1999, p. 251-253).

Lucas (2015) points out that there are several reasons for the internal migration. It follows as employment opportunities, differences in earnings, risk strategies on seeking a job, availability and quality of amenities, education, forced migration and violence. Employment opportunities are an important reason for migration. Most industries and facilities are located in urban areas. The majority of employment in rural areas are working in agricultural sector, as a rapid growth and employment opportunities were not expected in this sector, thus, labor force move to urban areas from rural areas. Because of differences in earnings can cause to migrate across country. In this case, people are confronted with the risk on seeking a job. Hence, migrate to look for a job encounters probability of not finding employment. With the availability and quality of amenities, it implied that

improved amenities such as better education and health conditions, infrastructure might have an impact on migration decision. The other reason is the forced migration and violence (Lucas, 2015, p. 6-12)

Net migration is defined as the differences between in-migration and out-migration for a specific area. If in-migration is bigger than out-migration, net migration becomes positive, on the other hand, if out-migration is bigger than in-migration, net migration becomes negative. Table 1 presents the net migration rates for 12 regions in Turkey during 2008-2014. As it is shown in Table 1, the net migration rates of Istanbul, West Marmara, Aegean, East Marmara and Western Anatolia regions are positive, while Central Anatolia, Western Black Sea, Northeast Anatolia, Middle East Anatolia and Southeastern Anatolia are negative. Besides, it is observed that the net migration rate of the Mediterranean region in 2011-2013 is negative and the net migration rate of the Eastern Black Sea region is negative during the sample period except for 2009 and 2012. The rest of paper organized as follows. The second section shows literature, the third presents the data and model, the fourth shows methodology and empirical results, the fifth concludes.

Table 1: The net migration rates for 12 regions in Turkey during 2008-2014

Level 1	Regions	Net migration rates						
		2008	2009	2010	2011	2012	2013	2014
TR1	Istanbul	2.1	3.06	7.77	8.98	2.2	4.69	1
TR2	West Marmara	9.73	4.03	4.62	4.95	7.74	5.89	13.96
TR3	Aegean	3.7	1.74	0.1	0.13	2.6	1.59	4.61
TR4	East Marmara	12.57	6.37	5.51	6.18	5.27	6.56	7.69
TR5	West Anatolia	2.98	4.6	5.59	7.05	3.62	3.84	5.25
TR6	Mediterranean	2.15	0.52	0.58	-1.24	-1.09	-0.72	0.35
TR7	Central Anatolia	-9	-4.99	-8.95	-8.78	-4.11	-4.8	-6.63
TR8	West Black Sea	-4.35	-2.4	-11.16	-8.8	-3.2	-5.69	-7.72
TR9	East Black Sea	-2.24	0.63	-8.98	-9.88	7.29	-3.61	-1.77
TRA	Northeast Anatolia	-26.12	-14.72	-13.58	-12.46	-15.35	-19.19	-19.34

TRB	Middle East Anatolia	-10.89	-9.09	-9.08	-16.49	-7.19	-7.12	-12.23
TRC	Southeastern Anatolia	-7.56	-7.12	-3.8	-4.11	-7.55	-5.7	-6.12

Source: TURKSAT

2. LITERATURE

There is a great deal of studies on the determinants of internal migration in countries. In this study, a brief literature is given about driving force of migration in Turkey. Yamak and Yamak (1999) investigate the relationship between the net migration rates of 67 provinces using the income figures per capita in 1980-1990. According to the results the regional inequity of income has an important effect on the internal migration. Ozmucur and Silber (2002) examine the effect of internal migration on spatial inequality in Turkey using structure of output, the composition of income, the size of the households and the relative importance of the various regions variables. They found that internal migration has an impact on spatial inequality. Besides, the results show that internal migration from rural to urban areas and among regions leads a rise in the inequality of per capita income. Peker (2004) investigates the reasons behind migration for farms in Erzurum, Turkey. He concludes that the implementing policies about agricultural problems and social facilities in rural areas might decrease the internal migration. Evcil, et al. (2006) investigate the patterns of regional migration in Turkey using multivariate analysis of variance to compare geographic regions. They found four different migration directions including from urban to urban, urban to rural, rural to urban and rural to rural. Among regions Marmara Region differs from the others in terms of urbanization, job opportunities, education, climatic and geographic condition levels. Gokhan and Filiztekin (2008) examines the determinants of internal migration utilizing extended gravity model of migration for the period 1990-2000. They found that income differences, unemployment and social networks affect integral migration.

Bulbul and Kose (2010) argue that the reason of the migration from underdeveloped Eastern and South-Eastern to Western regions is the high level of income per capital. They analyze 12 regions of differences and similarities according to demographic and socio-economic factors utilizing Multidimensional Scaling Analysis. They found both two and three dimensions. The results reveal that Istanbul and Northeast Anatolia regions substantively differ from the other

regions. The nearest regions are Western Marmara, East Marmara and Western Anatolia. Demirkaya and Artvinli (2011) investigate the reason behind immigrating to Tarsus, Antalya and Fethiye. They found that finding a job, poverty play an important role in the migration decision. Coban (2013) assesses three periods of internal migration in Turkey according to the push and pull approaches. She argues that education, job opportunities, health care, environmental factors are playing an important role on migration. Tutar ve Ozyakisir (2013) examine the determinants of immigration from TRA2 Region of Turkey (Ağrı, Kars, Iğdır, and Ardahan) to Istanbul. TRA2 region's economic factors (unemployment, poverty, social security) lead to move to Istanbul. Zeren (2013) investigates the determinants of the net migration level according to the NUTS 3 level of 81 provinces for 2000 applying spatial probit model. She finds that industrialization, welfare, and human capital affect the level of net migration.

Akin and Dokmeci (2014) investigates the reasons of interregional migration during 2008- 2010 utilizing a hierarchical cluster analysis. The test result reveals that Istanbul is dominant city in the largest cluster. Akarca and Tansel (2015) investigates the social, economic and demographic features of migrants moving to Antalya and Muğla using gravity model estimated. The results show that labor force moves to these cities to seek for a job in tourism industry. Dogan and Kabadayi (2015) analyze the determinants of internal migration movements between the period of 2008-2012 according to push and pull factors on migration using panel data analysis. Job opportunities, education, health conditions and security have an impact on pulling internal migration. Catalbas and Yazar (2015) examine the determinants of internal migration across regions during the period of 2008-2012 utilizing panel data analysis. The results show that while the effect of territorial migration is negative effect, the effect of the level of wealth of the region, inflation rate, employment rate on territorial migration are positive. Oz ve Celebioglu (2016) analyze the effect of the factors such as unemployment rate, socio-economic development index on migration utilizing spatial analysis dimensions. They found that socio-economic reasons affect the internal migration as the Western Turkey is more industrialized and has more job and higher per capita income level opportunities.

3. DATA AND MODEL

Data for immigration in Turkey collected from the results of the General Population Censuses, Address Based Population Registration System (ABPRS) and Demographic and Housing Survey conducted in 2011. The ABPRS was established in 2007 in order to carry out public services more efficiently, to keep track of population information and population movements on a regular basis across Turkey. From this system, information on the population size and the basic characteristics of the population are obtained according to the settlements (TurkStat, 2016).

This study investigates the determinants of the net migration statistics at regional level-1, consisting 12 regions, according to the Nomenclature of Units for Territorial Statistics (NUTS) of Turkey. As a dependent variable, the Net Migration Rate (NGO) is used in the analysis for the period of 2008-2014. The net migration rate for each thousand migrants is computed by the net migration rate. The net migration rate is shown in Equation 1.

$$NGO_{it} = \frac{NG_{it}}{N_{it} - \frac{NG_{it}}{2}} * 1000 \quad (1)$$

The variable NG_{it} denotes the number of net migration of the region of i in the t period, N_{it} denotes the population of the region of i in the t period and NGO_{it} denotes the net migration rate of the region of i in the t period (TurkStat, 2016).

$$NGO = \beta_1 + \beta_2 Poverty + \beta_3 Unemployment + \beta_4 Education + \beta_5 Export \\ + \beta_6 Terror + \beta_7 Electricity + u_{it}$$

In the model, unemployment rate (unemployment), poverty rate (poverty), number of students studying in higher education institutions (education), export amount per person (export) and electricity amount per person (electricity) are included in the model as explanatory variables. Regional poverty rate is included to the model in order to measure the impact of the regional poverty rate on internal migration. Poverty rate is computed as poverty threshold calculated by using certain ratio (50%, 60% or 40%) of equalised individual median income (TURKSAT, 2016). In this study used poverty rates calculated by taking 60% of the median income of the people living under the poverty line. It is thought that the number of students studying at higher education institutions would be effective in the economic

development of regions where industry and agriculture are not significantly inclined to develop. Therefore, educational change variable is used to determine the effect of education on internal migration. In addition, the regional electricity consumption per capita (kWh) and the per capita export amount (\$ 1000) included to the model to measure the level of the region's development. In the study, to determine the effect of errors on internal migration in Turkey dummy variables are created for Northeast Anatolia, Middle East Anatolia and Southeastern Anatolia regions.

4. METHODOLOGY AND EMPIRICAL RESULTS

The panel data is utilized to investigate the migration determinants among regions in Turkey. Based on the unobserved individual effect, fixed or random effects models are used in panel data models. If unobserved individual effect is treated as a constant term for each cross-sectional unit, then the fixed effects model is used. Besides, random effects model is used in the case of the unobserved individual effect is treated as a random variable. In addition, the fixed effects model is utilized in the case of specific data set such as OECD countries, US states while in the random effects model, random samples are drawn from a large population (Baltagi, 2005, 12-14). In this study, the fixed effect model applied as all of Level 1 statistics included to the sample.

Beck and Katz (1995) state that some desirable properties such as groupwise heteroscedasticity, cross-sectional dependency and auto-correlation must be checked before utilizing empirical studies. If one of these assumptions is not provided, the estimator loses its efficiency. To investigate the problems of panel heteroscedasticity, cross-sectional dependency and auto-correlation, various tests have been proposed in panel data models. In this study, Modified Wald Test used to test the panel heteroscedasticity, while for the cross-sectional dependency Friedman Test (1937) utilized. For the auto-correlation problem Durbin Watson test applied suggested by Bhargava, Franzini and Narendranathan (BFN) (1982).

Table 2 shows groupwise heteroscedasticity, cross-sectional dependency and auto-correlation test results. The test results reveal that there is no the problems of auto-correlation and cross-sectional dependency except for groupwise heteroscedasticity. BFN Durbin-Watson test result indicates that there is no auto-

correlation of error term. As there exists groupwise heteroscedasticity, we utilize the Feasible Generalized Least Squares (FGLS) proposed by Parks (1967) and became common by Kmenta (1986), taking into account the groupwise heteroscedasticity.

Table 2: Groupwise Heteroscedasticity, Cross-Sectional Dependency and Autocorrelation Test Results

Tests	Test Statistics	Prob. Value	Results
Friedman Test	3.071	0.9897	No, Cross- sectional Correlation
Modified Wald Test	368.87	0.000*	Yes, Groupwise heteroskedasticity
BFN Durbin Watson Test	1.913		No, Autocorrelation

Note: *statistical significance at the 1 % level.

Table 3 shows Feasible Generalized Least Squares test results. Wald (χ^2) statistics utilized to examine whether the model is significant. According to the FGLS results, Wald (χ^2) statistics found significant. Additionally, all coefficients of variables are statistically significant. The variable of poverty's coefficient is negative as expected. This result indicates that a unit increase in the poverty rate of any region, the migration from the region increase by 0.38 units.

Table 3: Feasible Generalized Least Squares Test Results

Variable	Coefficient	Standard error	Prob. Values
Poverty	-0.380	0.198	0.056
Unemployment	0.426	0.121	0.000
Education	-0.000001	0.0000007	0.038
Export	0.001	0.0003	0.001
Terror	-3.198	1.237	0.010
Electricity	0.004	0.0005	0.000
Constant	-9.955	4.701	0.034
Wald χ^2 (6)	317.09		0.000

According to Table 3, there is a positive relationship between unemployment rate and the net migration rate. The coefficient of education variable affects the net migration negatively. It indicates that the opening of higher education institutions across Turkey could not help to cut off the migration to other regions of Turkey.

5. CONCLUSION

In this study, the determinants of the net migration statistics are examined at regional level-1, according to the Nomenclature of Units for Territorial Statistics (NUTS) of Turkey for the 2008-2014. The results show that the coefficient of poverty variable found negative as consistent with the literature. This finding suggests that migration movements are still one of the main strategies against poverty. Additionally, an increase in the unemployed and the unbalanced distribution of the unemployed population among the regions are one of the most fundamental problems of the developing countries as it leads to migration.

The net migration rates of Istanbul, West Marmara and East Marmara regions for 2008-2014 periods are higher than other regions, and the unemployment rates of these regions are also considerably higher. This finding is consistent with the Lucas (2015). While individuals are expected to migrate where they have more job opportunities, migrations to the same region can cause sudden changes in unemployment rates. The coefficient of terror variable is consistent with the literature as expected. Terrorism is still one of the main internal migrations from the regions where terrorism is felt more. Additionally, it is still an important obstacle in terms of economic and social equality across regions. In the study, the coefficient of the number of students studying at higher education institutions found significant and negative on the net migration rate of the region. This result shows that newly established universities cannot lead to decrease in the migration rate. Overall, the results show that policy makers should implement policies on internal migration movements to decrease differences in income inequality and development levels between regions.

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