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Internal Migrations as a Driving Force of Regional Disintegration: An Empirical Analysis of NUTS-2 Regions in Turkey*

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Abstract: Internal migrations, which involve population movements within the borders of a country for economic, political or social reasons, is seen as both a cause and a result of regional imbalances. In this framework, the effect increasing internal migrations have on developed and underdeveloped regions may differ through the effect of the different socio-cultural and economic conditions between regions. The aspect of imbalance is directly related to the extent to which migration affects parameters such as wage, production, consumption, human capital levels, entrepreneurial migration, unemployment, and household income in regions with different stages of development. This study analyzes the effect internal migration has on regional imbalances in Turkey's NUTS-2 regions during 2008-2019 using the bootstrap quantile regression method. According to the analysis findings, internal migration increases growth in all NUTS-2 regions, but this effect is stronger at higher income levels. In this context, as a region's income levels increase, the effect of net migration on growth also increases. When considering the migration direction to be from low-income regions to high-income regions, internal migration has been found to increase interregional disintegration in Turkey.

Keywords: Internal migration, regional disintegration, regional disparities, regional imbalance, bootstrap quantile regression.

Öz: Ekonomik, politik veya sosyal nedenlerle ülke sınırları içindeki nüfus hareketlerini kapsayan iç göçler bölgesel dengesizliklerin hem sebebi hem de sonucu olarak ön plana çıkmaktadırlar. Bu çerçevede bölgeler arasındaki sosyo-kültürel ve iktisadi koşulların etkisi ile artan iç göçlerin gelişmiş ve azgelişmiş bölgeler üzerindeki etkisi farklılaşabilmektedir. Dengesizliğin yönü ise göçlerin farklı gelişmişlik düzeyine sahip bölgelerin ücret, üretim, tüketim, beşeri sermaye düzeyi, girişimci göçü, işsizlik, hane halkı geliri gibi parametleri ne oranda etkilediği ile doğrudan ilişkilidir. Bu çalışmada, Türkiye'de Düzey-2 bölgelerinde 2008-2019 döneminde iç göçlerin bölgesel dengesizlikler üzerindeki etkisi Bootstrap Kantil Regresyon yöntemi kullanılarak analiz edilmiştir. Analiz bulgularına göre iç göçler, tüm Düzey-2 bölgelerinde büyümeyi artırmakta ancak bu etki yüksek gelir düzeylerinde daha güçlüdür. Bu bağlamda, bölgelerin gelir düzeyleri arttıkça net göçün büyüme üzerindeki etkisi de artmaktadır. Göç yönünün düşük gelirli bölgelerden yüksek gelirli bölgelere doğru olduğu göz önüne alındığında, Türkiye'de iç göçlerin bölgeler arasındaki ayrışmayı artırdığı bulgusuna ulaşılmıştır.

Anahtar Kelimeler: İç göç, bölgesel ayrışma, bölgesel farklılıklar, bölgesel dengesizlik, bootstrap kantil regresyon.

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Introduction

The first studies on migration started with Ravenstein's *Laws of Migration* (1885, 1889); afterwards, many approaches have been published to explain migration. In this context, Stouffer (1940) emphasized the migration-distance relationship; Lee (1966) argued push and pull factors; and Lewis (1954), Todaro (1969) and Harris-Todaro (1970) argued migrations to be based on wage differences between countries based on Hicks' (1932) neo-classical macro theory. Schultz (1971) and Todaro (1980) emphasized the importance of benefits and costs in migration decisions based on Sjaastad's (1962) cost-benefit approach. Piore (1979) referred to labor force demand being caused by industrialization in his dual labor market thesis. Meanwhile, Wallerstein (1974) based migration on the differences in labor and capital between core and periphery countries in the world-systems theory. Massey et al. (1987), Boyd (1989), and Fawcett (1989) emphasized relations networks and suggested that networks between migrants and potential migrants are decisive for migration. Stark (1978; 1991) provided a new perspective on migration with his theory of the new economics of migration, which bases migration on minimizing the risks of things such as drought, hurricane, or sudden unemployment. Each of these theories provide a significant contribution to the migration literature from different perspectives.

Most of migrations are based on economic reasons such as unemployment and better living conditions (Thet, 2014; Piesse, 2014); however, in agriculture-dominated economies in particular, low agricultural productivity is one of the major causes of migration (Deshingkar & Grim, 2004). In addition, prominent factors in migration decisions are globalization (Čiarnienė & Kumpikaitė, 2008); education (Rosenzweig, 2005); natural disasters such as earthquakes, hurricanes, and floods (Hear, Bakewell, & Long, 2012), migration legislation (Deshingkar & Grimm, 2004); war and invasion (Rose et al., 2011); political instability (Williams & Pradhan, 2009); socio-cultural opportunities (Cultland, 2011); and climatic conditions (Broeck & Lilleør, 2011).

Migrations affects labor markets (Organisation for Economic Co-operation and Development [OECD], 2016), economic growth (Bayraktar & Özyılmaz, 2019; Gómez & Giráldez, 2017), poverty (Bayraktar & Özyılmaz, 2018; Skeldon, 1997), education (Amuedo-Dorantes & Pozo, 2010), production and consumption (Adams & Cuecuecha, 2013), and social structure (Öztürk & Altuntepe, 2008) in various ways. Migrations affect social life by way of things such as slums and urban harmony problems (Es & Ateş, 2004) and outbreaks (Bayraktar et al., 2020) and is also directly related to crime rates. In addition, remittances provide additional income for education, housing, and

health expenditures (Adams & Cuecuecha, 2013), as well as insurance against cyclical shocks, especially in lower-income households (Airola, 2007). Meanwhile, migration plays a decisive role in regional disparities in various ways. For example, increases in wage inequalities (Ackah & Medvedev, 2012; Wolszczak-Derlacz, 2009) and production capacity (Kangasniemi et al., 2012) lead to loss of productive labor (Haque & Kim, 1995; Wang, 2014) and provide additional household income through remittances (Özyılmaz et al., 2019; Wondimagegnhu, 2012).

One of the topics of discussion in the literature is the impact internal migration has on regional imbalance. While internal migration may lead to an increase in production due to the increase in labor demand through industrialization in developed regions and thus an increase in economic growth, it may also cause a loss of human capital and a decrease in agricultural production, slowing the development rate of rural areas (Bayraktar & Özyılmaz, 2019). Therefore, internal migration can have a positive effect on output in both developed and underdeveloped regions. However, the opposite may also be the case. Therefore, the net effect of internal migration varies by country and by region.

Turkey is one of the countries with high regional disparities. Economic and socio-cultural opportunities as well as direct foreign investments are clustered in the relatively developed regions of East Marmara, West Marmara, Istanbul, Western Anatolia, and Mediterranean regions; Eastern Turkey, in particular Central Anatolia and the Black Sea regions, are underdeveloped socio-economically. Employment, security, education, and low agricultural productivity are among the causes of internal migration as well as interregional development differences. Table 1 includes some macroeconomic indicators in order to reveal the interregional differences.

Table 1

Selected Indicators for Turkey's NUTS-2 Regions (Source: TurkStat Regional Statics 2019)

Code	NUTS-2 Region	Per GDP ($)	Unemp. (%)	% of Populace w/ MA/PhD	Gini	Exports ($1,000)	R&D labor force	Poverty rate (%)	Agricult. (% GDP)	Industry (% GDP)	Service (% GDP)
TRA1	Erzurum, Erzincan, Bayburt	6,027	11.2	14.03	0.32	37,783	4,361	20	0.1671	0.1846	0.549
TRA2	Agri, Kars, Igdir, Ardahan	4,088	9.8	10.69	0.36	114,908	1,546	16.8	0.2809	0.0849	0.535
TRB1	Malatya, Elazig, Bingöl, Tunceli	5,528	9.9	15.77	0.3	490,086	5,339	15.5	0.1137	0.2004	0.5867
TRB2	Van, Mus, Bitlis, Hakkari	3,810	25.9	10.98	0.35	101,042	2,680	15.4	0.1628	0.1045	0.6335
TRC1	Gaziantep, Adiyaman, Kilis	5,958	15.2	12.53	0.34	7,950,443	3,855	12.3	0.0641	0.3909	0.4457
TRC2	Sanliurfa, Diyarbakir	3,575	23.4	11.05	0.39	372,725	3,442	16.8	0.1749	0.1717	0.5542
TRC3	Mardin, Batman, Sirnak, Siirt	4,708	30.9	12.04	0.36	1,371,989	1,397	15.4	0.1154	0.1701	0.6152
TR10	Istanbul	15,285	14.9	19.93	0.43	88,827,640	87,166	17.7	0.0011	0.2338	0.6659
TR21	Tekirdag, Edirne, Kirklareli	10,916	11	14.95	0.36	2,196,398	6,609	18.8	0.08	0.4585	0.3622
TR22	Balikesir, Çanakkale	8,307	8.3	16.47	0.38	748,927	3,441	17	0.147	0.282	0.4718
TR31	Izmir	10,663	16	19.78	0.36	12,168,872	18,679	19.8	0.0438	0.3106	0.5463
TR32	Aydin, Denizli, Mugla	8,202	9.2	16.72	0.32	4,198,089	6,426	17.4	0.1352	0.2354	0.5301

TR33	Manisa, Afyon, Kütahya, Usak	7,792	9.8	13.18	0.34	3,321,752	7,803	14	0.145	0.3647	0.3911
TR41	Bursa, Eskisehir, Bilecik	10,239	11.2	17.14	0.3	12,122,356	17,154	13.5	0.046	0.4305	0.4243
TR42	Kocaeli, Sakarya, Düzce, Bolu, Yalova	11,510	13.5	16.26	0.31	16,014,264	22,254	15.5	0.0313	0.4262	0.4432
TR51	Ankara	12,508	14.2	23.78	0.35	8,464,471	57,200	17.1	0.017	0.2574	0.6263
TR52	Konya, Karaman	7,311	8	14.08	0.35	2,257,039	7,828	16.8	0.1997	0.2622	0.4389
TR61	Antalya, Isparta, Burdur	9,927	13.3	17.93	0.36	2,187,233	8,544	18.8	0.0975	0.1393	0.6639
TR62	Adana, Mersin	7,005	11.9	15.72	0.38	5,039,100	7,387	20.4	0.1122	0.2297	0.5588
TR63	Hatay, Kahraman-maras, Osmaniye	5,697	18.1	13.52	0.36	4,260,399	3,777	19.8	0.0879	0.3318	0.481
TR71	Kirikkale, Aksaray, Nigde, Nevsehir, Kirsehir	6,450	13.3	13.33	0.34	482,715	4,676	17.4	0.2155	0.2216	0.4636
TR72	Kayseri, Sivas, Yozgat	6,893	14.5	14.68	0.35	2,602,461	7,611	17.6	0.1033	0.294	0.5034
TR81	Zonguldak, Karabük, Bartin	6,395	9.6	13.65	0.28	816,494	2,689	13.9	0.065	0.3413	0.4945
TR82	Kastamonu, Çankiri, Sinop	6,428	7.6	12.48	0.34	375,412	1,651	19.8	0.1716	0.2182	0.511
TR83	Samsun, Tokat, Çorum, Amasya	5,740	8.3	14.35	0.35	2,403,208	5,577	17.6	0.1647	0.1817	0.5543
TR90	Trabzon, Ordu, Giresun, Rize, Artvin, Gümüshane	6,183	9.9	15.01	0.35	1,906,896	6,719	17.4	0.1351	0.2187	0.547

When analyzing the data in Table 1, high differences are found among regional indicators such as income, education, export, R&D workforce, and unemployment. The difference between low- and high-income regions in per capita income is as high as 400%. For example, while the per capita income is $15,285 in TR10 (Istanbul, Tekirdağ), it is $3,575 in TRC2 (Sanliurfa, Diyarbakir). A similar trend exists in unemployment rates. Unemployment reaches 30% in some low-income regions, with this rate being relatively lower in high-income regions. Meanwhile, interregional export differences are also very high. Education levels also increase with income level, but the regional differences in this variable are relatively low. A similar trend is also observed for poverty rates, while this trend is reversed for income inequality. Inequality appears to be higher in high-income regions. When examining regions' sectoral structures, the share of agriculture in GDP, which is very low in high-income regions, is seen to be higher in low-income regions. In this framework, the role regions' sectoral structures have in interregional imbalances can be seen more clearly.

The first part of the study has presented the causes and consequences of migrations. The second part will present the literature. The third section will detail the data and method and the fourth section will discuss the empirical findings.

Literature

The literature contains many studies on the relationship between migration and regional disparities, with the transmission mechanism varying with respect to country. While some studies emphasize remittances, some of them emphasize the importance of labor and productivity. Therefore, while migration increases regional disparities in some countries, in others it decreases regional disparities.

According to the studies emphasizing migration to increase regional disparities, the determining factors are as follows: human capital migration; the involvement of capital and entrepreneurs in the migration process in addition to the labor force; only high-income and middle-income households being able to migrate due to high costs and low remittances; and return migrations being comprised of the elderly, the sick, or those in need of care. All of these have a negative impact on the development of the out-migration regions and a positive effect on the in-migration regions, thus deepening regional disparities.

One of migration's effects on rural economies is closely related to the acceleration of agricultural production. In terms of the agricultural sector, temporary agricultural workers, who are an important workforce at harvest time, as well as the rural

workforce are critically important for attaining the required workforce. Therefore, the heavy flow of out-migration from agriculturally based economic regions may adversely affects these regions' economic growth (Bayraktar & Özyılmaz, 2019; Gurgand et al., 2014).

The most prominent arguments in studies suggesting that migration will reduce regional inequalities are remittances and migration's effect on wages. With the migration of labor from low-income regions to high-income regions, wages are expected to decline with the increasing labor supply in high-income regions, while wages are expected to rise with the decreased labor supply in the low-income regions. Therefore, regional differences are expected to decrease as wages converge. A similar effect exists for remittances. Remittances, which are an important source of income in rural areas in particular, are expected to reduce regional imbalances.

Migration's contributions to innovation are also determinant in creating regional differences. In this context, migrations not only increase the population of the region but also sometimes have a positive effect on innovation. This situation directly affects the growth potential of regions and is one of the factors recently emphasized in the relationship migration has with interregional imbalance (Zhao & Li, 2020; Freeman, 1997). Migrants consisting primarily of a qualified workforce is found to directly increase innovation (Mare et al., 2011).

Borozan (2017) suggested net migration to increase regional disparities and brain drain to have played an important role in these results in Croatia. Wang (2014) found regional disparities to increase due to the poor's inability to migrate as a result of high migration costs in China. Ackah and Medvedev (2012) argued internal migration to lead to interregional productivity differences by disrupting qualified labor distribution in Ghana; Coulombe and Tremblay (2009) argued the same to happen in Canada, as did Fratesi and Riggi (2007) in developed countries and Lipton (1980) in India. Meanwhile, increasing production and consumption positively affects regional development in the regions receiving migration, and this deepens regional disparities.

Phan and Coxhead (2010) found the effect of interprovincial migration on the regional disparities to depend on the region being migrated to, with migration toward industry-intensive regions having reduced regional disparities in Vietnam. According to Zhu and Luo (2010), the expanding labor market brings sectoral developments in urban areas through migration in China; they found this to lead to an expansion of rural production, to increase employment, and to reduce regional disparities. Zhai et al.

(2003) argued labor force to decrease in agricultural areas and food prices to increase through the migration of semi-skilled and unskilled labor from rural to urban areas in China; this had positively affected rural regions and reduced rural-urban disparities. According to Guest (1998), remittances in Thailand had increased household income in rural areas; increasing income had created a multiplier effect on the economy by expanding expenditures, thus resulting in regional disparities tending to decrease.

Despite articles suggesting migration to be a determinant of regional disparities, Vakulenko (2016) in Russia and Nguyen et al. (2013) in Vietnam both concluded migrations to not be effective in reducing regional disparities. According to Zhang (2015), the impact of internal migration on regional disparities in China differs with respect to region and time. In this context, while migration increases regional disparities in some countries, it causes regional disparities to decrease in others.

Some studies in the literature have discussed the relationship between internal migration and regional disparities within the framework of convergence analysis, which is the hypothesis of neoclassical theory. According to the theory, per capita income decreases in the in-migration regions and increases in the out-migration regions as a result of labor-force migrations from low-income to high-income regions. Thus, regional income disparities disappear over time; at the end of the process, migrations begin to slow down. When the effects of internal migration on regional disparities are examined within the framework of the convergence hypothesis, Barro and Sala-i-Martin (2004) in the USA and Japan, Østbye and Westerlund (2007) in Sweden, Haaf and Kool (2017) in Germany, and Maza (2006) in Spain all found internal migration to accelerate regional convergence.

Kirdar and Saracoglu (2012) in Turkey, Bunea (2011) in Romania, and Persson (1997) in Sweden all found no evidence for internal migration contributing to regional convergence. While Fratesi and Percoco (2014) emphasized internal migration in Italy to have had a negative impact on convergence, Gezici and Hewings (2004) found this effect to be negative and insignificant in Turkey.

Data and Methods

This study analyzes the impact of internal migration on regional disparities in Turkey's NUTS-2 regions over the 2008-2019 period. The analysis uses the real per GDP ($LGDP_{it}$) as the dependent variable and includes net internal migration (MIG_{it}), employment rate (EMP_{it}), inflation (INF_{it}), and education level (EDU_{it}) as the independent variables. The equation for the model is:

$$LGDP_{it}=\alpha_i+\beta_1 MIG_{it}+\beta_2 EMP_{it}+\beta_3 INF_{it}+\beta_4 EDU_{it}+u_{it} \quad (1)$$

The data used in the study were obtained from the Turkish Statistical Institute (TurkStat) and explanations for all variables are presented in Table 2.

Table 2

Data Description

Variables	Description
LGDP	GDP per capita (TL, based on 2009)
MIG	Net Migration
EMP	Employment Rate (%)
INF	Consumer price index (%)
EDU	Percentage of Populace with MA/PhD (%)

The study uses panel bootstrap quantile regression estimators. Quantiles are resistant to extremes in the dependent variable. Quantile regression analysis also provides more effective results than least squares estimators when the data is not normally distributed. Quantile regressions are widely used in areas where data have distorted distributions such as income and wages variations and is a method designed to present more comprehensive regression findings (Güriş & Sak, 2019; Erilli & Çamurlu, 2018; Koenker, 2005; Leping 2005).

The quantile regression method was developed by Koenker and Bassett (1978). Quantile regression provides robust estimation results in the presence of outliers, allowing parameter estimations in different quantile values from the conditional distribution of the dependent variable. For θ quantile regression, the minimization equation is as follows:

$$\min(\beta\in R^K)[\Sigma(i\in\{i: y_i\geq x_i'\beta\})\,\theta\,|y_i-x_i'\beta| + \Sigma(i\in\{i: y_i<x_i'\beta\})\,(1-\theta)\,|y_i-x_i'\beta|\,] \quad (2)$$

Equation 2 takes a value between 0 and 1 and shows the level of the quantile. For the dimension *Kx*, x_i is the vector of the explanatory variables. When generalizing Equation (2) to the model, the following equation for the linear regression model results:

$$y_i=x_i'\beta_\theta+u_{\theta i}, \qquad Kant_\theta\ (y_i/x_i)=x_i'\beta_\theta \quad (3)$$

$Kant_\theta\ (y_i/x_i)$ indicates the conditional quantile of y_i conditional to the independent variable vector x_i (Saçıldı & Koşan, 2015; Buchinsky, 1998; Koenker & Bassett 1978). However, the bootstrap method is prefered due to the small sample size, as this method is particularly superior over small data sets (Özel & Sezgin, 2012).

Empirical Results

In cases where data are not normally distributed, quantile regression analysis can give more effective results. The study uses descriptive statistics to determine the distribution properties of the series (Güriş & Sak, 2019); the descriptive statistics for the variables used in the study are presented in Table 3.

Table 3

Descriptive Statistics

Variables	Mean	Median	Max.	Min.	Std. Err.	Skewness	Kurtosis	Jarque-Bera (Prob)
LGDP	9.876	9.863	11.371	8.546	0.570	0.027	2.562	2.5310 (0.2820)
MIG	-1.504	2.075	60.260	-35.150	9.723	0.436	8.184	359.3695* (0.0000)
EMP	44.973	46.150	57.600	25.400	6.154	-0.978	3.950	61.5314* (0.0000)
INF	98.319	8.705	18.260	4.180	3.315	1.109	3.107	64.1142* (0.0000)
EDU	11.003	10.820	23.780	2.960	3.931	0.421	3.133	9.4574* (0.0088)

* indicates rejection of the null hypothesis (normal distribution at a 5% level of significance).

Meanwhile, when examining the descriptive statistics of the series in Table 2, all variables except for *LGDP* are observed to lack normal distribution at a 1% level of significance and to contain extreme values. Therefore, the study has preferred the quantile regression method as it is less sensitive to extreme values. The bootstrap quantile regression method is used with 10,000 replications. Table 4 indicates the analysis results.

Table 4

Analysis Results from the Bootstrap Quantile Regression

Variables	Q 0.20	Q 0.40	Q 0.60	Q 0.80	Q 0.95
MIG	0.00438** (0.00211)	0.00683*** (0.001510)	0.00833*** (0.001603)	0.010886*** (0.001806)	0.013977*** (0.002671)
EDU	0.12092*** (0.006679)	0.12017*** (0.005185)	0.131197*** (0.006899)	0.136852*** (0.007804)	0.131511*** (0.005047)
UNEMP	-0.0077** (0.00302)	-0.008309** (0.002763)	-0.007008** (0.003338)	-0.006066** (0.002986)	-0.006289* (0.003645)
INF	0.02668*** (0.006015)	0.026734*** (0.004606)	0.0278776*** (0.005925)	0.0318459*** (0.005830)	0.034191* (0.005477)
CONS	0.24071*** (0.073109)	8.34462*** (0.054650)	8.288007*** (0.078084)	8.29590*** (0.091294)	8.44702*** (0.056515)
Observations	312				

* $p < 0.01$, ** $p < 0.05$, *** $p < 0.10$. Robust standard errors are given in the parentheses.

In the analysis, 20th, 40th, 60th, and 80th quantiles were used, as well as the 95th quantile for extreme values. According to the study results, a statistically significant and positive relationship is present between net migration and real *GDP* per capita for all quantiles. Namely, net internal migration increases growth in all of Turkey's NUTS-2 regions. However, this effect is stronger on higher income levels. As such, internal migration affects growth more in higher income regions. Given that the direction of migration is from low-income regions to high-income regions, migrations are concluded to increase regional disparities in Turkey.

When examining the effects of other variables on GDP per capita, a statistically significant and positive relationship is seen between education and GDP per capita in all quantiles, with this effect being greater at higher income levels. A statistically significant and positive relationship also exists between inflation and GDP per capita in all quantiles. Similarly, the effect of inflation on income is greater in high-income regions. Meanwhile, a statistically significant and negative relationship is found between unemployment and GDP per capita in in all quantiles.

Conclusion

Migrations affect both socio-cultural and economic life, affecting a wider geography when occurring internationally and affecting all in-migration and out-migration regions when occurring within a country, Today, countries such as Burundi, Iraq, and Syria, where civil war and chaos are experienced, have had a significant portion of their populations forced into internal migration for the safety of life and property; in countries where chaos is not experienced, migration shows a similar trend due to both the inadequacy of social facilities and limited job opportunities in rural areas. In this context, migration affects all regions in both situations in many ways. In some countries, internal migration reduces regional imbalances through channels such as wages and remittances, which can increase imbalances through production, consumption, and productivity channels in other regions. In the context of regional development, internal migration additionally affects low-income regions more in some countries, while in others it may affect high-income regions more.

This study analyzes the effect of internal migration on regional disparities using the bootstrap quantile regression method in Turkey's NUTS-2 regions for the 2008-2019 period. According to the analysis findings, net internal migration increases growth in all NUTS-2 regions, but this effect is stronger in regions with higher income levels. In this context, as the income levels of a region increases, the effect of net migration on growth increases. Considering that the direction of migration is generally from low-income regions to high-income regions, internal migration has been found to increase interregional disintegration in Turkey. When examining the sectoral structures of the regions in Table 2, the regions where the agricultural sector is strongest are seen too be the low-income regions while regions where the industrial sector is strongest are seen to be high-income regions. As one of the most important sources of growth, the industrial sector being the engine of growth in Turkey (Tuncer & Özuğurlu, 2004) and the agricultural sector not having much of an effect on poverty (Cuong, 2010) support these findings. In this context and as emphasized by Bayraktar and Özyılmaz (2019), the higher value added from the industrial sector, which is positively affected by migration makes the impact of migration on economic growth in high-income regions stronger when compared to the agricultural sector.

When examining the effects of other variables on GDP per capita, a statistically significant and positive relationship is seen to exist between education and GDP per capita in all quantiles, with this effect being greater at higher income levels. A statistically significant and positive relationship is also present between inflation

and GDP per capita in all quantiles. Similarly, the effect inflation has on income is greater in high-income regions. However, a statistically significant and negative relationship exists between unemployment and GDP per capita in all quantiles.

In summary, considering that the migration direction is from low-income regions to high-income regions, this suggests that internal migration increases regional disparities. In this context, when migration occurs toward low-income regions, the population increases in these regions, which leads to greater production and consumption. This process, which make rural development possible, reduces regional disparities.

In minimizing the impact migration has on regional disparities, public policies for migration are important. In this context, the following policies are recommended: (Özyılmaz, 2018):

i) Creating pull factors for low-income regions; in this context, qualified workforce should be directed to these regions through regulations that will direct migration.

ii) Migration to low-income regions should be encouraged by improving education, health, and socio-cultural conditions. For example, opening universities in each city has increased migration to these regions, this can thus be said to be a successful policy in this regard.

iii) Public support should be provided as direct public investments or public-private enterprise investments rather than as incentives. Thus, employment opportunities increase in these regions, which leads to an increase in human capital. This ultimately positively affects rural development in low-income regions.

iv) In low-income regions, transforming cities with development potential into attractive places of living ensures firm clustering in these centers with public support; in addition to infrastructure investments, the potential of the region should be increased by involving the public in complementary sectors where the private sector is not found.

v) The construction sector, which has an important share in the national economy, should be supported as a means of migration to low-income regions. In this context, the cost of housing in these regions should be reduced with incentives, and reselling should be prevented by imposing residence requirements.

vi) Considering the weak impact housing has just on immigration, migration to low-income regions should be encouraged through support such as early retirement for return migrants.

vii) The direction of migrations should be determined by revising agricultural policies to include structural changes that will encourage migration to rural areas. Migration to these regions should be encouraged by creating pull factors such as covering the costs of return migration, agricultural support, and land and housing support. In this context, turning some provinces into agricultural production centers is one of the policies for encouraging migration.

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