The Regional Economic Effects of Immigrant Labor Force Granted Work Permit in Türkiye

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Abstract

The global increase in international migration and its significant impacts are keeping migration debates current. International migration, the vast majority of which occurs for economic reasons, impacts both destination and source countries economically, socially, politically, and culturally. The regional variation in international migrant workers arriving in Türkiye, with their concentration in industrial and tourist cities, further enhances the importance of analyzing regional impacts. In this context, this study aims to determine the relationship between the number of migrant workers granted work permits in Türkiye and unemployment, inflation, economic growth, and per capita income at the regional level. In models using panel data analysis, the period 2011-2019 was selected due to the limited data available and the publication of regional macroeconomic variables until 2019. Furthermore, because the number of migrant workers granted work permits is published on a provincial basis, these data have been converted to regional data. The series for the relevant period consist of annual data and examine the relationship between the number of migrant workers granted work permits and regional macro variables in 26 regions. There are a limited number of studies in the literature on the economic impact of migrant workers who are granted work permits at the regional level. Therefore, this study is considered original and will make a significant contribution to the literature. According to the findings obtained from Panel Data Analysis, an increase in the number of migrant workers granted work permits at the regional level increases the regional GDP rate, regional unemployment rate, regional inflation rate, and regional per capita income. Reducing the number of unskilled migrant workers and encouraging skilled migrant workers in Türkiye is crucial, as the number of migrant workers increases regional unemployment and inflation rates. The fact that migrant workers increase regional unemployment while simultaneously boosting economic growth stems from the employment of migrant workers in so-called secondary market jobs that no one wants.

Keywords: Migration, International Labor Migration, Growth, Unemployment, Panel-Regression Analysis

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Türkiye'de Çalışma İzni Verilen Göçmen İş Gücünün Bölgesel Düzeyde Ekonomik Etkileri

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Öz

Uluslararası göç hareketliliğinin küresel anlamda artması ve etkilerinin önemli boyutlara ulaşması göç konusuna yönelik tartışmaları güncel tutmaktadır. Büyük çoğunluğu ekonomik nedenlerle gerçekleşen uluslararası göçler hedef ve kaynak ülkeleri ekonomik, toplumsal, siyasal ve kültürel açıdan etkilemektedir. Türkiye'ye gelen uluslararası göçmen işçilerin bölgelere göre farklılık göstermesi, sanayi ve turizm şehirlerinde yoğunlaşması neticesinde bölgesel etkilerin analiz edilmesinin önemi daha da artmaktadır. Bu doğrultuda çalışmada Türkiye'de çalışma izni verilen göçmen işçi sayısı ile işsizlik, enflasyon, ekonomik büyüme ve kişi başına düşen gelir arasındaki ilişkinin bölgesel düzeyde belirlenmesi amaçlanmaktadır. Panel veri analizinin kullanıldığı modellerde bölgesel makroekonomik değişkenlerin 2019 yılına kadar yayınlanması ve verilerin kısıtlı olmasından dolayı 2011-2019 dönemi seçilmiştir. Ayrıca çalışma izni verilen göçmen işçi sayılarının il bazında yayınlanmasından dolayı bu veriler bölgesel veriye çevrilmiştir. İlgili döneme ilişkin seriler yıllık verilerden oluşmakta ve 26 bölgede çalışma izni verilen göçmen işçi sayısı ile bölgesel makro değişkenler arasındaki ilişki ele alınmaktadır. Literatürde çalışma izni verilen göçmen işçilerin bölgesel düzeyde ekonomik etkilerine yönelik çalışmalar sınırlı sayıda mevcuttur. Bu sebeple çalışmanın özgün olması ve literatüre önemli bir katkı sağlayacağı düşünülmektedir. Panel Veri Analizinden elde edilen bulgulara göre bölgesel düzeyde çalışma izni verilen göçmen işçi sayısındaki artış, bölgesel GSYH oranını, bölgesel işsizlik oranını, bölgesel enflasyon oranını ve bölgesel kişi başına düşen gelir düzeyini artırmaktadır. Göçmen işçi sayısının bölgesel düzeyde işsizlik ve enflasyon oranlarını artırması bakımından Türkiye'de niteliksiz göçmen iş gücü sayısının azaltılması ve nitelikli göçmen işçilerin teşvik edilmesi büyük bir önem teşkil etmektedir. Göçmen iş gücünün bölgesel işsizlik oranını arttırırken aynı zamanda ekonomik büyümeyi de arttırması kimsenin yapmak istemediği ikincil piyasa olarak adlandırılan işlerde göçmen işçilerin istihdam edilmesinden kaynaklanmaktadır.

Anahtar Kelimeler: Göç, Uluslararası İş Gücü Göçü, Büyüme, İşsizlik, Panel Regresyon Analizi

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1. Introduction

The phenomenon of migration is considered to be an active process, such as capital, financial movements, and information flows, which moves beyond national borders. The self-renewing nature of migration and its continued relevance to date resulted in new types of migration. From this aspect, although migration has been a necessary action for individuals or masses, it has diversified depending on the reasons, distances, durations, and objectives in the following process. Migration movements, which occurred due to demographic growth and climate change in ancient times, were replaced by forced migration movements. International labor migration began as slave labor migration because of factors such as conquest or war. Since the end of the Middle Age, the development of European countries and their expansion into colonial territories has increased the demand for labor. Within this context, labor migrations began with slaves, who were forced into migration to work in the sugar, cotton, and coffee plantations in the northern and southern continents discovered in the 16th century.

The global-total number of migrants residing outside their country of origin was calculated to be 281 million in the year 2020. Within this context, the number of international migrants increased by approx. 48 million between the years 2000 and 2010 and by 60 million between the years 2010 and 2020 due to the labor migrations or family migrations. Humanitarian crises in various countries around the world increased the number of refugees and asylum-seekers by 17 million during the period between the years 2000 and 2020. The number of refugees and asylum-seekers showing a rapid increase trend over the past 20 years reached 12% of the total number of international migrants worldwide. The proportion of international migrants to the global population was reported to be 4% (UN DESA, 2020, p.6). Given the data of the year 2020, 65% (182 million) of international migrants worldwide live in high-income countries, whereas 31% (86 million) reside in middle-income countries, with a majority preferring countries with upper-middle income levels. Furthermore, approx. 12 million (4% of the total) migrants reside in low-income countries (Mcauliffe, M. and Triandafyllidou, A., 2021, p.3). Therefore, the effects of international migrations on destination and source countries have become an important research topic.

Considering the context of international migration regimes, Türkiye has transformed from a country, which has been sending labor migrants to Western European countries, into a country, that receives migrants since the 2000s. Migration movements in Türkiye have increased due to both its geographical location and the economic, political, and security problems in the neighboring countries. Türkiye's popular maritime routes, besides its connection to Asia, Europe, and Africa, result in intense influxes of migrants and they use Türkiye as a transit country. Even though foreign workers' participation in the labor force in Türkiye has reached a remarkable level in recent years, migrant workers granted work permits became visible in the 1990s (İçduygu et al., 2014, p.57-58). The number of migrant workers granted work permits in Türkiye was only 855 individuals in the year 2003. However, it reached the number of 300,000 in the year 2024. (Republic of Türkiye Ministry of Labour and Social Security [MoLSS], 2024). The educational levels, occupational skills, sectoral distribution, and economic effects of these workers are very important. The significance of these factors will increase in the coming years. Thus, examining and determining these effects will shed light on the future policies to be implemented. Furthermore, the difference in the regional distribution of migrant workers

leads to regional differences in their economic effects. There are only few studies carried out on the effect of migrant workers on macroeconomic indicators, and they have been examined mainly at a theoretical level. No study focusing specifically on their regional effects could be found. Therefore, by using empirical methods, the present study aims to investigate the effects of international migrant workers on the Turkish economy at the regional level.

This study also aims to investigate the relationships between selected macroeconomic variables such as unemployment, inflation, growth, per capita income, and international labor migration at the regional level through econometric analysis. In this context, the relationships between the number of migrant workers granted work permits in 26 regions and inflation, growth, unemployment, and per capita income were examined by using the panel data analysis method (Level 2). Since the publication of data on the number of migrant workers granted work permits at the regional level started in 2011 and there are limited data available, the period from 2011 to 2019 was selected. The series for the relevant period consists of annual data and the relationship between the number of migrant workers granted work permits in 26 regions and regional macroeconomic variables was analyzed. Examining the migration literature thoroughly, previous studies carried out on migration focus mainly on refugees, asylum-seekers, and net migration. Thus, the present study is expected to significantly contribute by filling the gap in the literature by analyzing the economic effects of migrant workers granted work permits at the regional level. Moreover, no study carried out on the economic effects of migrant workers granted work permits at the regional level could be found in the literature.

In this context, the study first examines international labor migration, its causes, economic impacts, and the historical development of international labor migration in Türkiye. The study then conducts a literature review on the economic impacts of labor migration and includes an econometric methodology and dataset. The relationship between the number of migrant workers granted work permits and inflation, unemployment, growth, and per capita income is then estimated at a regional scale using panel data analysis. Finally, the results are interpreted by considering the findings of the analysis and solution suggestions are provided accordingly.

2. International Labor Migration

The migration phenomenon, rooted in history, is as ancient as human civilization itself. Although colonization and conquest policies have led to forced migration or the displacement of people to new settlement areas, the underlying factor is the need for labor. In this context, the demand for slave labor in the newly discovered continents of the 16th century, such as North and South America, for working in sugar, coffee, and cotton plantations, highlights the importance of labor demand and lays the foundation for international migration movements (Castles et al., 1984, p.761-762).

2.1. Reasons for International Labor Migration

Internal and external economic dynamics play a significant role in international labor migration. In addition, geographic location, climate and natural disaster-related unemployment, political turmoil, and war environments are the fundamental factors playing a role in international labor migration (Hanson and McIntosh, 2016, p.66). From this perspective, migrant flows occur due to economic and non-economic reasons.

International migration movements guided by push and pull factors also occur depending on the network of relationships. Rapid population growth, lack of economic opportunities, political instability, natural disasters, and authoritarian regimes force individuals to migrate to other countries as push factors. High demand for labor, developed sectors such as agriculture and industry, and additionally, high levels of political freedom and economic opportunities constitute attractive factors for individuals making migration decisions. Furthermore, in cases where the network of relationships is well developed, migrants having work experience in different countries and knowledge about job opportunities have a significant impact on making international migration a continuous phenomenon (International Organization for Migration [IOM], 2003, p.2).

2.1.1. Economic Reasons

The previous mass migration movements were primarily driven by economic reasons. In this regard, the first mass migration began with the introduction of the African labor force in America to meet the agricultural labor demand between 1619 and 1776. In Europe, during the period of the Industrial Revolution, a significant labor shortage emerged, and many countries received approx. 52 million migrants between 1846 and 1932. Furthermore, to rebuild the European economy and recover from the destruction caused by World War II, many European countries, primarily Germany, met their labor demand by making use of the immigrant labor supply from countries such as North Africa, Italy, Spain, Türkiye, Portugal, and Greece (Castles and Miller, 2009, p.77). After the Industrial Revolution, economic, social, and political factors came to the forefront as the most significant causes of migration. In this context, individuals have prioritized cities or countries that have higher income levels. Therefore, the driving factors of migration can be associated with high unemployment, low wage levels, and insufficient job opportunities in the destination country. Furthermore, political factors, low living standards, and negative economic expectations can also be mentioned. Furthermore, high wages, ample job opportunities, and political freedoms in host countries are also attractive reasons for migration (Ramirez and Kumpikaite, 2014, p.526).

2.1.2. Political Reasons

Politically motivated migrations have a more complex structure when compared to economic reasons, in terms of both the individuals being subject to migration and the reasons for migration (Ljungholm, 2014, p.742). Individuals living in countries with various repressive regimes such as wars, coups, and totalitarian regimes are forced to leave their countries. In case of politically motivated migrations, the pressure and violence implemented by legal or illegal actors on individuals or masses play an important role. Displaced people and forced migrants, facing a power they cannot overcome on their own, either move helplessly to other regions or prefer to seek refuge in different countries. While this power factor creates state violence in some countries, it also creates some organizations or structures taking advantage of the governance vacuum in some others. As a result, in both administration forms, masses are forced into migration through pressure and violence (Kapur, 2014, p.488).

2.1.3. Demographic and Environmental Reasons

Migration can also occur due to demographic reasons such as birth and death, in addition to economic and political reasons (Sirkeci and Cohen, 2015, p.11). Population growth rates

and population differences between cities and countries are significant factors influencing migration decisions. Despite the advancements in industry and health in developed countries, the population growth rate is quite low, and the populations of some countries tend to decline. This decline originates from the low birth rates. However, despite high infant and maternal mortality rates and inadequate health conditions, high birth rates and rapid population growth are observed in underdeveloped countries (United Nations, 2020, p.21). Therefore, there is a tendency for migration from densely populated countries with high population growth rates to countries with lower populations and low birth rates. Besides population growth, the high level of economic and social development and better living conditions in destination countries remarkably affects the decision to migrate to these regions. In these regions, easier access to services such as education, healthcare, public services, infrastructure, and transportation in comparison to rural areas leads to immigration (IOM, 2008, p.31).

2.2. Economic Effects of International Labor Migration

International labor migration has many effects, including economic, political, cultural, demographic, social, and psychological effects (Tarasyev and Jabbar, 2018, p.409). The effects of international labor migration can be analyzed in the context of the sending and receiving countries. From a basic perspective, international labor migration increases the population of the receiving country while decreasing the population of the sending country. It also changes the age, gender, and distribution of the population. From an economic perspective, a distinction arises between labor-exporting countries and labor-importing ones. Large-scale migration from countries that export labor leads to a decrease in the unemployment rate and a decrease in the demand for consumer goods and services, whereas remittances from workers working abroad contribute positively to the balance of payments (Öberg, 1995, p.1-3). International labor migration can be either temporary or permanent. Temporary migrations are beneficial for the balance of payments, while permanent migrations have harmful effects on the sending countries. Brain drain, i.e., the involvement of skilled labor in migration movements, is considered to be the transfer of human capital to developed countries. It negatively affects the sustainable development and growth rates of developing countries. From the aspect of the receiving country, however, the absence of labor investment costs and the ability of skilled labor to meet labor needs have a positive effect. In addition, countries importing migrant labor also prevent wage increases in labor markets (Borjas, 1989, p.451).

In conclusion, since the concept of international migration was introduced to economic literature in the recent period, it remarkably hinders the clear demonstration of the impact of migrant labor on sending and receiving countries. As different variables were used in models employed in empirical analyses conducted for the same country, the empirical findings yield different hypotheses. In this context, while the results of one analysis for a country argue that migrant labor increases employment and labor productivity, another analysis claims that it does not affect labor productivity and employment. There is no doubt that the economic effects of migrant labor on sending and receiving countries are significant. However, as stated in the literature, it is not a valid option to interpret the effects of migrant workers on all countries based on empirical or descriptive studies conducted on a country, region, or continent. The economic and non-economic effects of migrant workers on countries vary depending on factors such as gender, educational background, personal skills, age, adaptation to the destination country, and whether the

migration is temporary or permanent, as well as the economic structure of the sending and receiving countries, the labor market, and the labor force market structure.

2.3. Migration Policy and Migrant Employment in Türkiye

After the Republic era, Türkiye has received various migration flows from different religious and ethnic backgrounds and different countries. The arrival of large populations has transformed Türkiye's position in the international migration regime from solely being a sending country to becoming a receiving country as well. Especially after the year 1970, international migration movements from the neighboring and surrounding countries to Türkiye encompass various migration practices such as refugees, asylum-seekers, transit migrants, and undocumented workers. In addition, as a result of globalization and liberal economic policies, foreign citizens finding employment opportunities in different countries in professional fields has led to an increase in work permits and residence permits in Türkiye (Kirişçi, 2002, p.2). Migration movements in Türkiye have been increasing due to its geographical location and the economic, political, and security problems in the neighboring countries. Türkiye's important sea routes and its connection between Asia, Europe, and Africa have resulted in a high influx of migrants and caused the country to be used as a transit country by migrants. İçduygu (2003) classified migrations into Türkiye into two categories: regular migration and irregular migration. Irregular migration includes transit migration, circular migration, and movements of refugees and asylum-seekers. Regular migration, however, includes individuals coming to Türkiye for educational purposes and migrants, who are granted residence and work permits (İçduygu, 2003, p.12). The regular migration movements towards Türkiye are generally divided into three periods: 1923-1945, 1945-1980, and post-1980 periods (İçduygu and Sirkeci, 1999, p.263).

2.3.1. Period of 1923-1945

Türkiye has been a country that has experienced migration since its establishment as a republic. In the early years of the republic, besides the Turks coming from Greece and Bulgaria, including the population exchange migrations, Türkiye hosted migrants from different ethnic backgrounds such as Bosnians, Pomaks, Circassians, and Tatars, who were defined as refugees. The migration of these groups, who are considered to be familiar with the Turkish language and culture, has been encouraged by the state. The main objective of the newly established Turkish state was to establish a nation-state and the development of a homogeneous structure; as a result of these policies, 1.6 million migrants were assimilated between the years 1923 and 1997 (Kirişçi, 2007, p.93). Türkiye's legal regulations and practices regarding the migration can be clearly seen in the Settlement Law enacted in the year 1934. The powers and flexibilities granted to the political authorities by this law resulted in a broad definition of being of Turkish descent and having Turkish culture. Furthermore, considering the external political conjuncture, this law facilitated the acceptance of Muslim groups as "refugees" in Türkiye. The Settlement Law contains privileged provisions for migrants of Turkish descent and Turkish culture when compared to groups having different ethnic backgrounds and cultures. Even though the citizenship process was facilitated for immigrants of Turkish descent, stricter rules were applied to different ethnic groups. Moreover, within the scope of this law, regulations regarding necessary equipment and financial support were implemented for incoming migrants. Similarly, the Residence Law No. 5543 enacted in the year 2006 also requires being of Turkish descent and being attached to Turkish culture

in migration for residence purposes. Article 9 of the same law includes financial assistance to migrants migrating for residency purposes. The fact that the new law requires being of Turkish descent and being attached to Turkish culture, like the Settlement Law enacted in the year 1934, signifies conservative approaches arising from the reflex of maintaining/preserving the homogeneous nation-state. These policies had significant consequences in the management of new migration movements. Other legal regulations have also been built upon the Turkification of the population belonging to different ethnic backgrounds in Türkiye. While the right to become a civil servant is only granted to Turks in Article 4 of Law No. 788, the right to engage in certain professions within the framework of nationalization of trade is only given to Turks (Toksöz et al., 2012, p.17).

2.3.2. Period of 1945-1980

The migrations from Bulgaria played an important role during the period of 1945-1980. Migration waves occurred between 1950-1951 and later from 1969-1978, with a total of 270,000 people coming from Bulgaria to Türkiye. The political structure of migration movements during the post-World War II period reflects the establishment of the communist regime in Bulgaria. Within this context, the Bulgarian government requested the deportation of 250,000 Bulgarian Turks to Türkiye, and in 1950-1951, 154,000 Turkish individuals were expelled from Bulgaria. These migrants were accepted by and settled in Türkiye as residents and placed in different regions of the country. The second major wave of migration started in the 1970s and continued until late 1978. However, these migrants moved to Türkiye willingly (İçduygu and Sirkeci, 1999, p.264). As stated by Kirişçi (1996), a similar mass migration as in Bulgaria also occurred in Yugoslavia. Türkiye politically taking a side with Western countries against the Soviet Bloc became a compelling reason for the forced migration of Turks living in Yugoslavia. As a result of an agreement between the two countries in 1950, 185,000 individuals of Turkish origin who were Yugoslavian citizens migrated to Türkiye until the year 1960 (Kirişçi, 1996, p.394).

2.3.3. Period of 1980-2020

Since the 1970s, the dynamics of international migration have been affected by economic and political events. The dissolution of post-Cold War political mechanisms and the deepening global poverty have increased migration flows to the Northern countries. Those seeking an opportunity to escape from political turmoil and oppressive regimes started to migrate to Western European countries. Civil wars and ethnic cleansing practices in countries such as Bosnia, Kosovo, Bulgaria, and Iraq resulted in larger-scale population movements. Moreover, the proliferation of neoliberal policies also accelerated the international migration movements (Toksöz et al., 2012, p.17).

Since the 1960s, Türkiye has been a country sending migrants to many countries, predominantly the Western European countries. After the adoption of neoliberal policies in 1980 and the disintegration of the Eastern Bloc in the 1990s, Türkiye began to receive temporary and permanent migration of skilled migrants from neighboring countries. The country has particularly received migration movements from Eastern European countries, former Soviet Union countries, and its neighboring countries in the east. Furthermore, it also received undocumented migrants from countries such as Afghanistan, Iran, Iraq, Somalia, Sudan, and Bangladesh; these migrants were aiming to

migrate to European countries via Türkiye. Since these migration flows fall under the category of transit migration, the migrants temporarily stayed in Türkiye for a short-term. However, in case they cannot proceed to other countries, they stay in Türkiye and find an employment opportunity in the informal sector. Undocumented migrant workers enter Türkiye from Romania, Ukraine, Moldova, Georgia, Azerbaijan, Russia, Bulgaria, and Armenia. These migrants are primarily employed in the textile, construction, and service sectors in Türkiye (Gürsel et al., 2002, p.21).

Although the participation of foreign workers in the Turkish labor force reached a remarkable level in recent years, this process dates back to earlier periods; the foreign employees employed in the first factories established in the Ottoman Empire consisted of high-skilled craftsmen and they were brought to the country for the purpose of teaching skills. Then, migrant workers having similar qualifications have been employed in foreign companies both in the past and today. However, these highly skilled workers differ from other foreign workers in terms of the purpose of their arrival and the duration of their stay in Türkiye. The migrant workers granted work permits became more visible in the 1990s (Lordoğlu, 2007, p.15). Türkiye has received a significant number of migrant workers, primarily from neighboring countries. Türkiye has been both a receiving country and a transit country for migrant workers. In particular, the dissolution of the USSR, political changes in Central Europe, regime change in Iran in the 1980s, the fall of the Berlin Wall, conflicts in Yugoslavia, and ethnic attacks on the Kurdish population in Northern Iraq have greatly increased the numbers of migrants and refugees. Another noteworthy aspect of the migration movements in the 1990s is that Bulgaria, Greece, and Azerbaijan were among the first countries from which foreigners entered Türkiye. The fact that these immigrants came from these countries and had Turkish origins and a sense of closeness to Türkiye has been an important factor in facilitating visa arrangements. Economic and political developments in neighboring and surrounding countries of Türkiye have influenced migration movements and have also led to transit migration. In this context, some of the migrants who came for work purposes have considered Türkiye as a transit country and, after working for a while through legal and illegal methods, have migrated to Western European countries (Lordoğlu, 2007, p.12).

3. Literature Review

International labor migration has become an important research topic in recent years. Migration not only leads to changes in the social, cultural, and demographic structures of countries but also results in significant changes in macroeconomic variables. While the majority of studies in this field are theoretical in nature, empirical studies have been quite limited.

In this context, one of the studies in the literature was carried out by Grossman (1982), who examined the long-term relationships between the share of migrants in the total labor force and the employment rate in the USA by using the cross-sectional analysis method. Given the results reported, the effect of immigrants on the labor markets was found to be significant but very low. Withers and Pope (1985) investigated the relationship between unemployment and international migration by using quarterly data from Australia for the years 1948-1982. The results of the model, which utilizes the Granger Causality method, revealed no causality from international migration to the unemployment rate. However, there was a causality from unemployment to international migration for the years 1948-1982 in Australia. Similarly, Card (1990) analyzed the effect

of unskilled migrants on employment in the USA by using data from 1979-1985 and the Least Squares Method. Net migration and the employment rate in the USA were employed as variables in the analysis. The findings of the study indicate that unskilled immigrant workers had no effect on wage levels and employment in the USA. Marr and Siklos (1994) examined the relationship between international migration and the unemployment rate in Canada by using quarterly data from 1962-1990 and the Granger Causality analysis method. The results showed that international migration had no effect on the unemployment rate before the year 1978. However, it was also found that international migration increased the unemployment rate in the period after the year 1978. Gross (1999) examined the effect of the waves of migrant workers on labor markets in France between the years 1970 and 1990. The simultaneous equation model includes variables such as the unemployment rate, labor force participation rate, real wages, and the number of international immigrants. In this context, it was observed that international migration had a negative long-term effect on unemployment, whereas it led to a slight increase in the unemployment rate in the short-term.

On the other hand, Shan (1999) studied the relationship between international migration and unemployment, real wages, and capacity utilization rates in Australia and New Zealand by using three-month time series data from the period 1983-1995 and the Toda-Yamamoto causality test method; the unemployment rate was the dependent variable, whereas international migration, real wages, and capacity utilization rate were used as independent variables in the model. The results revealed that there was no causality relationship between international migration and the unemployment rate. Kónya (2000) examined the relationship between international migration and unemployment in Australia between 1981 and 1998 by using quarterly data and the Granger Causality method. Given the results achieved, it was determined that there was a negative and one-way causality relationship from international migration to unemployment in the long term. Goldner and Paserman (2004) analyzed the dynamic effects of migrants coming from the former Soviet countries on hourly wages and the labor market in Israel during the period 1989-1999. Considering the estimation results, a 10% increase in immigrant labor in the short-term leads to a decrease in wages ranging between 1.2% and 5.7%. However, it was also found that international migration had no effect on employment in Israel between the years 1989 and 1999, both in the short and long term. Bonin (2005) investigated the effect of the international labor force on wages and unemployment in Germany between the years 1975 and 1997. The results achieved showed that a 10% increase in international migrant workers during that period resulted in a 1% decrease in wages in the labor market, but it did not cause any increase in the unemployment rate. However, it was also noted that immigrant workers with less work experience and those with more work experience caused labor supply shocks in the labor market, negatively affecting the local labor force.

Dustmann et al. (2005) examined the effects of migrant workers on economic growth in the United Kingdom between the years 1983 and 2000 by using the OLS method. The results they achieved indicated that the qualifications of migrant workers and British workers were similar, and international migrants did not have a significant effect on employment, unemployment, and wages. Morley (2006) analyzed the relationship between international migration and per capita GDP for Australia, Canada, and the USA for the period between 1930 and 2002 by using the ARDL bound test approach. The findings achieved in the study revealed a long-term causality relationship from per capita

GDP to international migration. Gomez and Giraldez (2011) focused on the relationship between growth and international migration by using annual data from Switzerland and Germany for the period between the years 1970 and 2005. The ARDL bounds test and Granger causality test were employed by using per capita real GDP and international migration variables. The results indicated a long-term relationship between the variables for Germany. However, no causality or cointegration relationship could be found for Switzerland, although the impact of migration on economic growth in Switzerland was lower compared to Germany. Fromentin (2013) analyzed the relationship between international migration, labor market, and economic growth in France using annual data for the period between the years 1970 and 2008 and the Johansen cointegration test. The results showed no long-term causality relationship between the unemployment rate and international migration in France between 1970 and 2008. Given the results obtained from the error correction model, international migration negatively affects the unemployment rate and slightly increases wage levels in the short term. Migration waves increased unemployment in France slightly in the long run between the years 1970 and 2008. Chamunorwa and Mlambo (2014) carried out a study for South Africa by using the OLS method for the period between 1980 and 2011. The results they achieved indicate a positive and significant relationship between international migration and the unemployment rate.

Altunç et al. (2017) examined the effects of net international migration on GDP, inflation, and unemployment rate in Türkiye for the period between the years 1985 and 2015 by using the Granger Causality method. The findings of the study demonstrated a two-way causality relationship between net international migration and GDP. Additionally, a unidirectional causality relationship was found from economic growth to inflation rate, from inflation rate to unemployment rate, and from unemployment rate to economic growth. Nurdoğan and Şahin (2019) analyzed the impact of the number of foreign residents in Türkiye on unemployment using time series analysis for the period 1995-2019. Considering the findings, it was determined that there was a long-term causality relationship from the number of foreign residents in Türkiye to the unemployment rate. In this context, it can be stated that the increasing number of foreigners in Türkiye between 1995 and 2019 can be considered to be a cause of unemployment. Engin and Konuk (2020) investigated the effects of international migration on unemployment and economic growth for the period between the years 1995 and 2019. The findings of the study revealed a long-term positive relationship between international migration and both unemployment and economic growth. Consequently, migrant labor increases unemployment but also contributes to increased production through cheap labor, thereby enhancing economic growth. Erdem (2022) used two different methods and two different time periods in his study: at the general and regional levels. He analyzed the relationship between the number of migrant workers granted work permits in Turkey and macroeconomic variables using the ARDL method, based on monthly data from 2008 to 2020. He concluded that the increase in the migrant workforce granted work permits increased the unemployment rate in the long term. In addition, the panel data method was used to test the relationship between the number of migrant workers granted work permits at the regional level and regional macro variables for the period 2011-2019. According to the findings obtained from the Panel Data Analysis, the increase in the number of migrant workers granted work permits at the regional level increased the unemployment rate, economic growth, inflation rate, and per capita income.

In conclusion, the studies in the literature generally focus on the effects of international labor migration on economic variables at the country level. Therefore, the economic impacts of international labor migration have not been examined within the regions, cities, or states of a country.

4. Dataset and Econometric Model

4.1. Dataset and Variable Definitions

The empirical analysis of the study examines the relationship between international labor migration and regional macroeconomic variables in Türkiye. The variables included in the panel data analysis include the number of migrant workers granted work permits by province, regional inflation rate, regional unemployment rate, regional per capita income, and regional GDP. A semi-logarithmic model was constructed by taking the logarithm of the variable lnG representing the number of migrant workers granted work permits at the regional level and the logarithm of lnGDP representing regional GDP. The reason for taking the logarithm of the variables is because the number of migrant workers and regional GDP vary significantly across regions. Therefore, when interpreting the results obtained from the models, the logarithmically transformed variables will be interpreted as percentages, while the other variables will be interpreted as units. The data used in the panel data analysis covering the years 2011-2019 were compiled from the statistics published by the Turkish Statistical Institute (TURKSTAT) and the Ministry of Labor and Social Security of the Republic of Türkiye (MoLSS). The limitation of the panel data analysis to the years 2011-2019 is because of the limited availability of regional-level data. Stata/MP 17.0 software package was used in data analysis. Besides that, Level 2 regions were coded and included in the analysis in order to avoid errors in the analysis results in Stata.

Table 1. Definition of Variables

Variable	Definition	Source	Year
lnG	The number of migrant workers granted work permits at the regional level	Derived from TURKSTAT and MoLSS	2011-2019
KBG	Regional per capita GDP (TL)	TURKSTAT	2011-2019
BISZ	Regional Unemployment Rate	TURKSTAT	2011-2019
ENF	Regional Inflation Rate	TURKSTAT	2011-2019
lnGSYH	Regional GDP (Thousand TL)	TURKSTAT	2011-2019
(NUTS)	Level 2 regions		2011-2019

Table 1 provides a detailed description of the regional variables used in the Panel Data Analysis of the present study and the data sources. The lnG variable, which represents the number of migrant workers granted work permits at the regional level, was compiled from TURKSTAT and MoLSS data. Besides that, Level 2 regions, consisting of 26 regions, were coded from 1 to 26 and included in the models. To prevent estimation and interpretation errors in panel regression models, a coding system was preferred for Level 2 regions.

4.2. Study Hypotheses

The hypotheses established in order to regionally analyze the effects of migrants granted

work permits on the macroeconomic variables are presented in Table 2.

Table 2. Null Hypotheses

	Hypotheses	Definitions of hypotheses
Panel Data Analysis (2011-2019) (Annual)	**H1:** Migration - Per Capita Income relationship (Regional-Level2)	The number of migrant workers granted work permits reduces regional per capita income.
	H2: Migration - Unemployment (Regional-Level2)	The number of migrant workers granted work permits increases the regional unemployment rate.
	H3: Migration - Inflation relationship (Regional-Level2)	The number of migrant workers granted work permits increases the regional inflation rate.
	H4: Migration - GDP (Regional-Level2)	There is a positive relationship between the number of migrant workers granted work permits and regional GDP.

5. Empirical Analysis and Results

5.1 Panel Regression Model 1: (Regional GDP – International Migration)

The relationship between international migration and regional GDP at the regional level is examined by using Model 1. Since the logarithmic form of the GDP variable is included in the model, it will provide the economic growth rate. Therefore, the effect of international migrant labor on economic growth is examined in the panel data analysis section of the study.

$$lnGSYH_{it} = \alpha_1 + \beta_{1i}lnG_{it} + \varepsilon_{it} \tag{1}$$

In Equations, i (i= 1........N) refers to Level 2 regions, and t (t=1……T) refers to the period 2011-2019.

Table 3. Model 1: International Migration – Regional GDP Analysis Results

Variables	Coefficients	Standard Error	t-statistics	Probability
lnG	0.3894102	23.30	23.30	0.000
_cons	14.94158	0.1101577	135.64	0.000
Number of Observations	: 234			
F_h**(1. 232)**	: 542.76			
Prob	: 0.0000			
R²	: 0.7006			
Corrected R²	: 0.6993			

The estimation results of the model explaining the relationship between the regional migrant labor force and the regional economic growth are presented in Table 3. In the context of this data, the calculated F-statistic value in Model 1 is greater than the F-table value. In other words, $F_h > F_{Tab}$ or the probability value of the F-statistic is lower than the 0.05 error margin, thus rejecting the null hypothesis in the model where these conditions

are met. Therefore, it can be concluded that the model is significant as a whole.

The R² value, which demonstrates the explanatory power of the model, was found to be 0.7006, which indicates that 70% of the variation in the dependent variable, lnGDP (Regional GDP), is explained by the independent variables. Besides that, the coefficients of _cons and lnG variables were found to be statistically significant at the significance level of 5%. Furthermore, given the results obtained from the Jarque-Bera (JB) test, where the normal distribution of the error term is tested, the Chi-Square (X) value calculated is lower than the table value (0.8189 < 5.991) and it indicates that the error terms are normally distributed.

Examining the coefficients of variables in Model 1, it can be observed that the number of international migrant workers was zero (0) between 2011 and 2019, while the regional GDP growth rate in Level 2 regions was 14.94. On the other hand, a 1% increase in the number of international migrant labor force in Türkiye between 2011 and 2019 will increase regional GDP by approx. 0,39%. Therefore, international migration has a positive effect on regional economic growth at the regional level.

5.2. Panel Regression Model 2: (Regional Unemployment – International Migration)

Within the context of panel data analysis, the relationship between international migration and unemployment at the regional level is examined by using Model 2.

$$BISZ_{it} = \Phi_1 + \beta_{1i} lnG_{it} + \varepsilon_{it} \tag{2}$$

In Equation 2, i (i= 1........N) refers to Level 2 regions and t (t=1……T) refers to the period 2011-2019.

Table 4. Model 2: Migration – Regional Unemployment Analysis Results

Variables	Coefficients	Standard Error	t-statistics	Probability
lnG	0.5226485	0.1623977	3.22	0.001
_cons	6.675466	1.070261	6.24	0.000
Number of Observations	: 234			
F_h(1. 232)	: 10.36			
Prob	: 0.0015			
R²	: 0.0427			
Corrected R²	: 0.0386			

The results obtained from the panel regression estimation of Model 2 are presented in Table 4. Given those obtained results, since $F_h > F_{Tab}$, the model is statistically significant as a whole. The R² value indicates that approx. 4.3% of the variation in the BISZ variable is explained by the independent variables. Furthermore, the coefficients of the _cons and lnG variables are statistically significant at a significance level of 5%. On the other hand, given the Jarque-Bera (JB) test results, the calculated Chi-square (X) value that is lower than the table value (0.8189 < 5.991) satisfies the condition for the acceptance of the H₁ hypothesis, which assumes that the error terms are normally distributed.

Examining the coefficients of the variables in Model 2, it can be observed that while the number of international migrant workers was zero (0) between 2011 and 2019, the

regional unemployment rate in Level 2 regions was 6.7%. A 1% increase in the number of immigrant workers in Türkiye during the period of 2011-2019 leads to an approx. 0.52% increase in the regional unemployment rate.

5.3. Panel Regression Model 3: (Regional Inflation – International Migration)

In Model 3, the impact of international migrant labor on another macro variable, the inflation rate, is analyzed at the regional level. The relationship between the number of migrant workers in Level 2 regions and the regional inflation rate is investigated using Model 3 below.

$$BENF_{it} = \Theta_1 + \beta_{1i}lnG_{it} + \varepsilon_{it} \tag{3}$$

In Equation 3, i (i = 1........N) represents Level 2 regions, and t (t = 1……T) represents the period from 2011 to 2019. The results obtained from the regression estimation of the equation are presented in Table 5.

Table 5. Model 3: Migration - Regional Inflation Analysis Results

Variables	Coefficients	Standard Error	t-statistics	Probability
lnG	0.3571018	0.1516674	2.35	0.019
_cons	8.341204	0.999545	8.35	0.000
Number of Observations	: 234			
F_h(1. 232)	: 5.54			
Prob	: 0.0194			
R²	: 0.0233			
Corrected R²	: 0.0191			

Given the results presented in Table 5, since $F_h > F_{Tab}$, Model 3 is statistically significant as a whole. The R² value indicating the explanatory power of the model was calculated to be 0.0233, indicating that 2.3% of the variation in the BENF variable is explained by the independent variables. In addition, the coefficients of the _cons and lnG variables are statistically significant at a 5% significance level. Furthermore, since $X_h^2 < X_{tab}^2(2)$ in the Jarque-Bera (JB) test result, the H1 hypothesis that the error terms are normally distributed is accepted. When the coefficients of Model 3 variables are examined, while the number of international migrant workers was zero (0) between the years 2011 and 2019, the regional inflation rate in Level 2 regions was 8.3. In Türkiye, a 1% increase in the number of migrant workers between the years 2011 and 2019 resulted in an approx. 0.36 increase in the regional inflation rate.

5.4. Panel Regression Model 4: (Regional Per Capita Income Level - International Migration)

In the panel data analysis section, finally, the relationship between the number of immigrant workers in Level 2 regions and the regional per capita income level was investigated by using Model 4. Model 4 is expressed by equation 4 below.

$$KBG_{it} = \theta_1 + \beta_{1i}lnG_{it} + \varepsilon_{it} \tag{4}$$

In Equation 4, i (i=1........N) represents Level 2 regions and t (t=1……T) represents the period between the years 2011 and 2019. The analysis results regarding the panel regression estimation of Model 4 are presented in Table 6.

Table 6. Model 4: Migration – Per Capita Income Level Analysis Results

Variables	Coefficients	Standard Error	t-statistics	Probability
lnG	5429.484	339.3036	16.00	0.000
_cons	-7932.364	2236.137	-3.55	0.000

Number of Observations	: 234
$F_h(1. 232)$	: 256.06
Prob	: 0.0000
R²	: 0.5246
Corrected R²	: 0.5226

As seen in Table 6, since $F_h > F_{Tab}$, it can be concluded that the explanatory variable in the model can explain the dependent variable. Given the R² value (0.5246), 52% of the variation in the variable KBG is explained by the independent variables. Additionally, the coefficients of _cons and lnG variables are statistically significant at the significance level of 5%. Furthermore, according to the Jarque-Bera (JB) test result, since 0.8189 < 5.991, the H₁ hypothesis is accepted, indicating that the error terms are normally distributed. Based on the coefficients of Model 4 variables, it has been determined that a 1% increase in the international migrant workforce in Türkiye between 2011 and 2019 leads to an approximate increase of 5429 TL in regional per capita income level.

6. Conclusion

There have been significant increases in the number of migrant workers granted work permits in Türkiye since the 2000s. In the year 2003, the number of immigrant workers was 855, while it reached approx. 300,000 as of the year 2024. This population particularly concentrates in cities with a focus on industry and tourism. Given all this data, the economic effects of the rapidly increasing number of international migrant workers in Türkiye are significant. Therefore, the main purpose of this study is to examine the macroeconomic effects of this increase in the number of international migrant workers granted work permits at the regional level in Türkiye.

It was found that migrant workers increase regional unemployment and inflation rates and have a positive impact on regional GDP. Therefore, it can be concluded that the obtained result is consistent with the main hypothesis. Specifically, it can be said that the regional economic effects become more pronounced in regions that are more developed in terms of industry and tourism, due to higher migrant employment. According to the findings obtained from the empirical analysis, a 1% increase in the number of migrant workers in Türkiye between 2011 and 2019 increased regional GDP by approx. 0.39 billion Turkish Liras. Possible reasons behind the increase in regional GDP include the employment of migrant workers in jobs with harsh working conditions that the local workforce is unwilling to take, concentration in industrial and tourist cities, and the employment of cheap labor due to an increase in labor supply.

On the other hand, it was determined that a 1% increase in the number of migrant workers leads to an approximate 0.52 increase in the regional unemployment rate. One possible reason for this increase in the regional unemployment rate is the inability to achieve the same level of production increase that would provide equivalent employment despite a faster increase in the number of migrant workers, especially in certain regions. Additionally, the triggering of unemployment due to the predominantly unskilled nature

of migrant labor is another possibility.

Another result is that a 1% increase in the number of international migrant workers between the years 2011 and 2019 led to an approximate 0.36 increase in the inflation rate, which is another macro variable. When evaluating this finding, it can be considered that the increase in the number of regional migrant workers may trigger demand-pull inflation due to an increase in demand for goods and services. Furthermore, it can be said that the strain on the capacity of public services due to the increasing number of migrant workers leads to cost increases, particularly in terms of public services. Finally, the empirical analysis results indicate that an increase in the number of international migrant workers between the years 2011 and 2019 would increase the regional per capita income level by approx. 5,429 Turkish Liras.

It is very important to reduce the number of unskilled migrant labor and encourage skilled migrant workers in order to decrease regional unemployment and inflation rates in Türkiye. In this context, the following policy recommendations can be made for the regulation of migrant workers and obtaining detailed statistical and up-to-date data on migration:

-The majority of international migration movements to Türkiye take place from the Turkic Republics under the Settlement Law, which came into effect in 1934 and was revised in 2006. The 1934 Settlement Law was reorganized in 2006, but the revisions remained limited. In this context, regulating the conditions of being of Turkish descent and feeling connected to Turkish culture while granting citizenship to immigrants will encourage the arrival of qualified migrant labor from different countries.

-The entry of unskilled migrant workers into the country should be kept limited, and the prohibition of occupations for migrant workers should be expanded beyond security institutions. In this regard, an increase in the number of skilled migrant workers will contribute to production and economic growth.

-Türkiye's reservation of not accepting asylum-seekers outside the European Union should be relaxed, and in this context, it should give the impression of being a safe country as a target destination. This will positively impact economic growth through brain drain from various countries, as well as human capital and foreign direct investment.

-Türkiye has not ratified the International Labor Organization's Migration for Employment Convention (No. 97), the Convention on the Reduction of Statelessness, and the Convention Concerning Migrant Workers (No. 143). Therefore, developing policies related to migration governance and collaborating with member countries can contribute significantly to determining the migration strategy within the framework of "well-governed migration," one of the sustainable development goals.

Restrictions on the working areas of migrant workers with work permits should be reduced, and employment opportunities for technically and vocationally qualified migrants with higher education levels should be increased. Additionally, bureaucratic procedures to prevent unregistered employment should be reduced, and inspections of work permits should be increased. Deterrent administrative fines should be imposed on employers who provide unregistered employment, and the oversight mechanisms of relevant institutions should be improved.

-In order to obtain accurate statistics regarding migration and foreigners, relevant institutions should collect data for past years and update existing statistics, keeping records of current information such as birth, death, marriage, divorce, working conditions, purposes of arrival, and residential areas of foreigners residing in the country. This will create a research field in the field of migration where researchers can conduct long-term analysis, comprehensive studies, and evaluations. The limited availability of data in institutions such as the Turkish Statistical Institute (TURKSTAT) and the Ministry of Family, Labor, and Social Services (MoLSS) limits the scope and analysis periods of studies related to migration.

-In current conditions, the Directorate General of Migration Management is under the Ministry of Interior in Türkiye. Establishing a ministry dedicated to migration and collaborating with international migration organizations will contribute to Türkiye's production of more effective migration policies. Additionally, to obtain sufficient and comprehensive statistics in the field of migration, migration institutions should be established and expanded at universities, in addition to the regulations in existing institutions.

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