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Institutional quality and emigration nexus: Empirical evidence from Türkiye

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Abstract

This study attempts to fill an important gap in the empirical literature by investigating the impact of institutional quality in destination countries on emigrants from Türkiye using bilateral migration data from 2010 through 2020. For this purpose, the study builds an augmented gravity model, including economic, geographic, and cultural variables in an exponential form and estimates it by the Poisson Pseudo Maximum Likelihood (PPML) method. Empirical results significantly confirm the pulling role of strong institutions in destination countries for emigrants from Türkiye since all institutional quality indicators are positively associated with emigrant movements, albeit just one of them, regulatory quality, is statistically insignificant. Among indicators of institutional quality, the most pulling ones for emigrants are voice and accountability and the rule of law, followed by government effectiveness, control of corruption, and political stability and absence of violence, respectively. Overall results indicate that institutions are front-line players in the emigrants' migration decision and destination choice process. In this context, policy-makers in both Türkiye and the destination country may implement an institutional policy considering the outcomes stemming from migration movements.

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INTRODUCTION

International migration flows have maintained an increase at the global level in recent times. According to the World Migration Report 2022 edited by McAuliffe and Triandafyllidou (2021), 281 million people of whom almost 48% are female and 52% are male led a life away from their homes in 2020, which corresponds to 3.6% of the world's population. In the same year, international migration stock grew by 3.31% compared to the previous year when there were 272 million people who had crossed the borders to make a new life for themselves. The top 5 countries in terms of international migrant stocks rank as the United States (50.6 million), Germany (15.8 million), Saudi Arabia (13.5 million), Russian Federation (11.6 million) and the United Kingdom (9.4 million) in 2020. Türkiye is also among the major countries in terms of international migration stocks. While Türkiye's international migrant stock was quite stable in the period 1990–2010 (going up from 1.2 to 1.4 million), it has dramatically increased as of 2010 and become 6.1 million in 2020 due to principally those escaping from civil conflict in Syria, which is 7.2% of the total population. On the other hand, a significant share of international migrant stocks in Türkiye has consisted of the emigrant flows. By 2020, the number of emigrants who left Türkiye reached 3.4 million people (UN DESA, 2021).

Traditionally, Türkiye is known as a migrant-sending country abroad, i.e., an emigration country. This sense mainly stems from the Turkish worker influx to European countries, especially Germany, in the 1960s and 1970s, which was followed by family reunification schemes and asylum tracks. However, in time, Türkiye has also become a transit country to the European region from Asian countries such as Afghanistan, Pakistan, Iran, Iraq and Bangladesh. A number of these people who attempt to transit to Europe stayed in Türkiye; by this means, with other developments like immigration of European professionals and retirees as well as regular and irregular immigrants from former Soviet countries, Türkiye also took a feature of the destination country. By the same token, Türkiye has become a refugee country for seekers of asylum from the Middle East and Africa (Kirişci, 2007).

Concepts and definitions regarding international migration usually vary from country to country, which complicates making full comparability among countries on international migrants. An international migrant may be defined as any person who has changed his/her country of residence for several reasons. However, certainly, each person who crosses the border cannot be taken into account as a migrant. In this respect, the key criterion is the time to be spent in the host country. Accordingly, those who have changed their countries of residence for at least 3 months, but less than 1 year, are considered short-term migrants and those who have stayed in another country for more than 1 year are included in the group of long-term migrants (McAuliffe & Triandafyllidou, 2021). In the general sense, international migration flows are driven by various factors such as economic conditions, natural disasters, social-political and cultural factors, demographic components, urbanization, wars and family reunification (Urbański, 2022). The developments in these factors cause not only more (or fewer) immigrants to the destination countries but also more (or fewer) emigrants from the origin countries. These parameters, therefore, are treated as both pulling and pushing factors of migration. Simpson (2022) defines the pushing factors as origin-specific conditions propelling people to leave their homes; on the other hand, pulling factors are destination-specific conditions enticing people to move to their destination. In an earlier study, Lee (1966) painted and elaborated on the general theoretical structure of the act of migration by way of aggregating the pulling and pushing conditions of migration flows under four headings, i.e., factors associated with the area of origin, factors associated with the areas of destination, intervening obstacles, and personal factors. Lee (1966) pointed out that in each area countless parameters function to hold to people within the area or attract people to move to the area while some others tend to repel people to leave the area, as well as neutral elements that are the same for people living in both areas. While most of these factors (e.g., climate) influence most people in a similar direction, others (e.g., a well-organized school system) affect different people differently. Additionally, there are intervening obstacles against migration flows in both areas like distance and migration laws. To represent the intervening obstacles in the empirical studies, the most commonly used variable is the physical distance between areas because it reflects transport costs which matter for migrants or prospective migrants. On the other side, migration rules imposed by

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principal authorities in the destination area are most likely more important intervening obstacles than distance since it is quite difficult to overcome them. However, it is not an easy business to analyse them due to the difficulty of finding a good representative variable. Even so, convenient parameters indicating the status of political relations among parts may be included in the function to catch the impact of migration rules. Apart from these possible determinants, many personal factors play a role in the migration decision and selection of a destination country, such as personal contacts or networks, family bonds, marriage, having children and so forth.

Putting aside personal factors, there are not only pulling factors but also pushing factors stemming from conditions in both origin and destination countries in the process of migration, as well as autonomous intervening obstacles. While early studies focus on the economic and demographic factors as pulling and pushing factors of migration flows, more recent studies, in the context of a more complex migration structure, have dealt with the pulling and pushing factors of migration in a wider framework by including social, political and cultural variables to have a better-explaining power. In this regard, institutions become one of the key determinants of migration, which are commonly treated as both pulling and pushing factors, like many other determinants. On the one hand, the poor performance of institutions in the origin country may bring about to leave residents who are in search of better institutional quality from their country (pushing the role of institutions); on the other hand, the strong performance of institutions abroad may entice the people to move abroad and affect the destination country choice of emigrants (Baudassé et al., 2018). Institutional quality, in an intuitional sense, matters for most migrants since it may make easier or more difficult the life for people. However, this intuitional approach needs to be proven through empirical investigations.

This study mainly attempts to find an answer to the following research question: do institutions affect emigrants' migration decisions and destination choices? As it is understood, the study does not involve the institutions in Türkiye since it does not deal with the pushing role of institutions on emigration flows. Here, it is only focused on the pulling role of institutions in destination countries on emigrants from Türkiye. As far as we know, there is no empirical study investigating the impact of institutions in destination countries on the emigrant movements from Türkiye. Furthermore, the existing literature on various dynamics of migration flows in Türkiye embodies remarkable deficiencies in their empirical settings. Therefore, this study is in search of filling these gaps in the empirical literature by analysing the impact of institutions in destinations on migration decisions and destination choices of emigrants from Türkiye over the period 2010–2020 using the most convenient method, Poisson Pseudo Maximum Likelihood (PPML), in the framework of the augmented gravity model.

The study is organized into five sections. The first section gives the place to the introductory part, which is followed by a literature review in the second section. After the econometric model and data are introduced in the third section, the fourth section provides the analysis procedure and empirical results. The study concludes with the fifth section, which is made a general evaluation and discussion.

LITERATURE REVIEW

Bilateral migration flows were handled within a framework referring to the law of universal gravitation long before the first seminal international trade applications of the gravity model by Tinbergen (1962). Accordingly, as far as is known, the history of migration studies is extended to the date of the studies by Ravenstein (1885, 1889). However, empirical studies on the gravity model are mostly associated with international trade flows since bilateral trade data is more easily accessible than bilateral migration data. Yet, lately facilitating accessibility to bilateral migration data has brought about an increment in the number of studies investigating migration flows among countries. In these studies, social, economic, political and cultural determinants of migration pay attention as the most commonly tackled research areas in an empirical setting (see Abbott & Silles, 2016; Etzo, 2011; Mayda, 2010; Ruyssen et al., 2014). The level of institutional quality in the origin and/or destination country is also among the possible determinants of migration flows albeit it is considered by relatively fewer studies. The association

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between migration and institutions generally has been dealt with in three strands. The first one concentrates on how migration flows affect the social and informal institutions in destination countries. The second one focuses on the impact of migration on institutional reforms of migrants' origin country. The last one concerns how and the extent to which the level of institutional quality in the origin and/or destination country affects migration flows (Baudassé et al., 2018).

Assembling the migration data of 14 countries over the 1870–1910 period, Bertocchi and Strozzi (2008) questioned whether institutional quality matters for migration flows or not, together with other determinants of migration flows. The results of the study confirmed, as well as economic and demographic differentials across countries, the pulling role of the improved political and migration institutions on migration flows. Exploring the impacts of economic and political freedom on migration flows across 58 countries in 2005, Ashby (2010) detected the direct and indirect positive impacts of economic freedom and political freedom on migration flows, respectively.

Using the data of the years 1990 and 2000 for 195 countries, NaghshNejad (2013) dealt with a research question concerning how institutionalized gender inequality, proxied by a women's rights index, affects the female brain drain (i.e., high-skilled female migration) and reached findings that one-point increase in the women's rights index leads to 25% decrease in female brain drain ratio on average. Ortega and Peri (2013) investigated the main determinants of migration flows from 120 countries to 15 Organization for Economic Cooperation and Development (OECD) countries using annual bilateral migration data from 1980 to 2016. Their results indicated that income per capita is the most critical pulling factor in the destination country for emigrants while tighter laws and regulations towards the entry of immigrants reduce the migration flows. Attempting to detect whether the cultural and institutional distance are resisting factors for migration flows within European countries over the period 2002–2007, Caragliu et al. (2013) concluded that not only physical distance but also the cultural and institutional distance between country pairs exert a negative impact on migration flows. Building some gender equality indices for several countries from 1991 to 2001, Baudassé and Bazillier (2014) questioned the association between gender inequality and migration flows together with several control variables like income and democracy. The results of the study strongly rejected the hypothesis that gender inequality is a pushing factor for emigrants in the origin country and found evidence that improving gender equality in the destination country causes more female emigrants, especially high-skilled ones; on the other hand, the relationship between gender equality and the number of low-skilled male emigrants turned out to be negative. Questioning the intraregional migration among 42 countries in sub-Saharan Africa using 1980–2000 panel data, Ruyssen and Rayp (2014) highlighted the pushing role of the conflict situation in the origin country and the pulling role of relative freedom condition in the destination country on migration flows.

Conducted a cross-sectional analysis of 230 countries using bilateral migration data from the year 2010, Poprawe (2015) concluded that corruption in the origin country gives rise to an increment in the number of emigrants since it provides unpredictable and worse economic conditions, unsafe environment and lower quality of life. The study also found evidence that population, common border and common language are positively associated with migration flows; on the other side, the physical distance acts as a resisting factor against migration flows. Utilizing a quite wide panel data set of 189 country pairs from 1990 to 2010, Bergh et al. (2015) inferred that institutional quality is significantly associated with migration flows. Accordingly, while weak institutions in the origin country act as a pushing factor for emigrants, strong institutions in the destination country play a pulling role for emigrants. However, the degree of impact of institutions on migrant movements varies depending on the indicator of institutional quality. Analysing the migration flows from 77 countries over the 1990–2000 period, Nejad and Young (2016) concluded that the degree of economic freedoms in destination countries significantly matters in the migration decision and the destination choice of emigrants. However, political institutions have not found a statistically significant impact on emigrant decisions. These results are also consistent with the findings of migration flows in which college- and non-college-educated sub-samples are dealt with. Analysing the bilateral migration data of the years 1990 and 2000 of a quite large country sample, Ariu et al. (2016) got findings indicating the higher level of governance quality encourages the net inflows of high-skilled migrants.

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Adopting a different approach, Docquier et al. (2016) analysed the impact of migration on institutions in a large group of developing countries covering data from 1985 to 2010 and confirmed that openness to migration measured by total emigration rate improves institutional quality represented with democracy and economic freedom in the migrants' origin countries. Similarly, Gautam (2021) examined the impact of international migration flows on the institutional quality of the home country for a wide of country sets in the 1995–2017 period. According to the results of the study, as international migration flows increase, the institutional quality of the home country deteriorates. This implication is robust under alternative estimation specifications and does not change depending on destination specifics.

Investigating the regular and asylum migration flows from African countries to Europe using the panel data of the 1990–2014 period, Giménez-Gómez et al. (2019) emphasized that some negative conditions such as political instability, civil conflicts, ethnic tensions, human rights violence and political persecution in African countries propel the people to leave their home and seek the new living places in which have not been encountered with these negative conditions. Analysing the destination choice of return migrants in Vietnam using the data from 2014, Tran et al. (2019) concluded that institutional quality at the local level is among the main determinants of destination choice. Arif (2020) investigated whether emigrants' self-selection is based on economic, political and social institutions using bilateral migration data from 103 countries spanning from 1990 to 2000. The results of the study indicated that migration flows are mostly propelled by economic freedom which is followed by political institutions in destination countries, with the weakest pulling effect of social institutions. On the other hand, economic and social institutions are found as pushing factors of migration flows despite the insignificant effect of political institutions in the origin countries. Examining the role of institutional quality on migration flows among OECD countries from 1996 to 2016, Aziz et al. (2022) inferred that institutional quality played an important role in migration among these countries. Another finding of the study is that the role of political institutions outweighed economic institutions in terms of affecting migration flows. Using bilateral migration data from 122 countries in the years 1990 and 2000, Arif (2022) analysed the association between education, corruption and migration flows. According to the results of the study, the countries in which corruption is at a relatively lower level attract more immigrants, especially highly educated ones, because they are more sensitive to corruption.

Migration flows to and/or from Türkiye were also subject to empirical analysis from the point of several views albeit there is truly quite limited empirical literature. In this context, some studies investigated the nexus of migration and trade (see Karagöz, 2011; Recepoğlu, 2021) while other ones focused on the dynamics of internal migration (see Bindak, 2015; Recepoğlu & Değer, 2021). A few studies questioned the determinants of international migration flows of Türkiye in the framework of the gravity model. Analysing the bilateral migration flows from Türkiye to OECD countries for the period 1960–2010, Muratoğlu and Muratoğlu (2016) concluded that the economic size of OECD countries and the population size of Türkiye are positively associated with emigration flows; on the other side, the economic size of Türkiye and population size of OECD countries are negatively associated with them. In addition, the study reached evidence of the discouraging impact of distance on this type of migration. Koç and Solmaz (2019) analysed the migration flows between Türkiye and 83 countries using 2016–2017 panel data and concluded that as well as the economic size of the origin country, the distance between the origin and destination country decreases the migration flows; on the other hand, the economic size of the destination country and population size of origin country are found as discouraging factors of migration. Investigating the destination choice decisions of the most emigrant sending five countries from Asia and Africa to Türkiye between 2000 and 2018, Günay and Çelik (2021) confirmed the pulling role of human development in the preferences of immigrants while the distance between Türkiye and the origin country acts as a discouraging factor for emigrants.

As a more specific study, Kondakci (2011) analyzed the dynamics of student mobility coming from several countries to Türkiye by using the data from 331 international students in the framework of international migration theories. The results of the study referred to different motivations of international students coming from developed and developing countries to prefer Türkiye, more specifically, while private rationales like taste, lifestyle, tendency, academic ability, gender and age are pulling factors for coming students from developed countries;

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economic and academic rationales are leading pulling factors for coming students from developing countries. Gökbayrak (2012) questioned the nexus between skilled labor migration and positive externalities through a survey study on Turkish engineers working abroad. Questioning results indicated that Türkiye could take advantage of the information and experiences of Turkish engineer emigrants since 90% of them intended to give support like cooperation projects, the establishment of networks, and consultancy services for development strategies in Türkiye. Aksoy and Tumen (2021), for the period 2013–2016, dealt with the environmental outcomes stemming from the Syrian refugee influx to Türkiye by focusing on the role of local governance quality. According to the results of the study, the Syrian refugee influx happened to undesired negative environmental outcomes in terms of several dimensions in Türkiye, and these outcomes were reinforced by provinces with poor-quality governance (for example, waste management practices and environmental services). In this context, the study offered the arguments that better local governance may help the refugees in their adaptation to the integration process in Türkiye and alleviate the detrimental outcomes stemming from refugee influx. By interviewing 56 Russian women over the period 2014–2021, Deniz and Özgür (2022) attempted to detect the spatialization and institutionalization of social networks of Russian women immigrants to Türkiye via marriage. The results from interviews showed that Russian women immigrants do have not strong ties with local society and they are commonly engaged with other Russian women in Türkiye.

ECONOMETRIC MODEL AND DATA

The destination choice of any emigrant eventually depends upon aggregate factors which affect the benefits and costs of migration. These factors may restrain or accelerate individual migration by the way making it more pulling or pushing for prospective emigrants (Caragliu et al., 2013). In this context, while examining any migration flows, both pushing and pulling factors might be considered since each of them has the potential to encourage or discourage migration flows. Therefore, the best and most convenient way to analyze the migration flows is to employ a theoretical Random Utility Maximization (RUM) model[1] in which individual utility is associated with income positively and expenditure negatively.

The RUM model identifies the utility while comparing the utility an individual already received in his/her own country with the expected utility that the individual would receive if moving to another country. The comparison contains not only expected benefits that make the destination country more attractive such as the expectation of higher earnings but also expected costs of migration like travel costs (Ramos, 2016). The costs and benefits of migration are influenced by origin-specific factors as well as destination-specific factors. Socio-economic conditions like income and freedom may be shown as examples of origin- and destination-specific factors. Besides, there are some bilateral factors affecting migration flows, such as physical distance, common border, and political relations or cultural similarity between the origin (home) and destination (host) countries. Institutional quality may also matter for emigrants to choose the destination country since it possibly affects the costs and benefits of migration. In this context, the study constructs the following migration function in which the explained variable is emigration flows from Türkiye to the destination country, and explanatory variables are origin- and destination-specific and bilateral factors thought to be conducive to more or fewer migration flows.

$$\mathrm{EMIG}_{ijt} = f\left(\mathrm{INSQ}_{jt}, \mathrm{GDPPC}_{it}, \mathrm{GDPPC}_{jt}, \mathrm{POP}_{it}, \mathrm{POP}_{jt}, \mathrm{DIST}_{ij}, \mathrm{CB}_{ij}, \mathrm{POLRL}_{ij}, \mathrm{ECRL}_{ijt}\right), \quad (1)$$

In Equation 1, while *i* and *j* show the origin country (in our case, Türkiye) where migrants move from and the destination country where migrants move to, respectively, *t* symbolizes the study period. The study uses annual bilateral migration data from Türkiye to 33 destination countries[ii] over the period 2010–2020. While the sample is determined depending on data availability, destination countries handled here, on average, host almost 98.9% of total emigrants from Türkiye during the study period. In Equation 1, EMIG_{ij} states the number of emigrants from

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Türkiye to the destination country. The number of emigrants here, which is retrieved from the United Nations High Commissioner for Refugees (UNHCR, 2023) database, involves refugees under UNHCR's mandate, asylum-seekers, the international development program of concern to UNHCR, other people in need of international protection, stateless person, the host community and others of concern.

The study aims to detect the association between emigrant flows from Türkiye and institutional quality in the destination country (represented with $INSQ_j$ in Equation 1). Generally, a country with strong institutions is expected to have higher standards of life and hence stimulate more emigrants to leave their home countries, or vice versa (Aziz et al., 2022). Institutional quality here is represented by worldwide governance indicators, which consist of six sub-indicators, i.e., voice and accountability (VA), political stability and absence of violence (PS), government effectiveness (GE), regulatory quality (RQ), rule of law (RL) and control of corruption (COR). Periodically composed by Kaufmann et al. (2010), these data range from the value of −2.5 (weak institutional quality) to the value of 2.5 (strong institutional quality) and are retrieved from World Bank–World Governance Indicators (WB–WGI, 2023) database. The worldwide governance indicators are well fit with the purpose of this study both empirically and methodologically because they measure the institutional quality of any country in a far more comprehensive framework while other indicators give information on relatively limited features. Besides, though the data of worldwide governance indicators are extracted from various sources, their scales are transformed to generate normally distributed random variables with zero mean and unit standard deviations and this process of data generating enables a healthy comparison across countries in terms of institutional quality (Bergh et al., 2015).

Since the study uses bilateral migration data, the econometric model of the study is designed in the gravity model form. Although the gravity model has been commonly used in international trade analysis following the pioneer studies of Tinbergen (1962) and Pöyhönen (1963), later on, it also has been started to be employed in the migration domain thanks to accessibility to bilateral migration data among countries (see. Arif, 2022; Aziz et al., 2022; Ramos, 2016). The most commonly used basic gravity variables are the economic sizes of the origin and the destination countries and the physical distance between these country pairs. In addition to these variables, the gravity model may be augmented with other variables depending on the handled sample, such as common border and cultural similarity, etc.

In Equation 1, the $GDPPC_i$ (i.e., gross domestic product per capita) represents the economic size or income of the Türkiye and is expected to have a negative impact on the number of emigrants because the lower income may be a pushing factor for residents in the Türkiye. However, lower income also means that emigrants who would like to migrate cannot afford the migration costs, and herewith, lower income may lead to a lower number of emigrants (Baudassé & Bazillier, 2014). The $GDPPC_j$ shows the economic size or income of the destination country and is expected it's a positive impact on emigrant flows due to the emigrants are in search of higher earnings and better life opportunities, which can be commonly lived up to in richer countries. In other words, higher income in the destination country is a possible pulling factor, while lower income in the origin country is a possible pushing factor. Simpson (2022) expressed that the pulling impact of income generally far outweighs its pushing impact. The data on the GDPPC of origin and destination countries are in the current United States dollar (USD) and taken from World Bank–World Development Indicators (WB–WDI, 2023). The study also includes population sizes of Türkiye (POP_i) and destination countries (POP_j) in the model to detect whether population plays a role in the formation of migration flows. Population sizes of country pairs were commonly utilized in trade studies of the gravity model in the past in order to represent the economic sizes instead of GDP or GDPPC. But, here the intention is different, that is to say, by including the variable of population size of destination countries, we seek to find a reply to the question "Do emigrants from Türkiye prefer crowded or uncrowded places?". Furthermore, here it is questioned whether Türkiye's population exerts any pushing role on prospective emigrants' decisions. The data on population sizes are retrieved from the WB–WDI (2023) database.

As another basic gravity variable, distance ($DIST_{ij}$) represents the travel costs from Türkiye to the destination country and mostly functions as a resisting factor against migration flows since the longer distance means higher travel costs (Abbott & Silles, 2016). The distance is calculated by the way of the great circle method which

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considers the shortest physical distance between the capital cities of the origin and destination countries. The study also augments the gravity model with the variable of the common border (CB_{ij}) since it is a possible pulling factor for emigrants. The common border is expected to affect positively migration flows because it may mean lower travel and transaction costs (Beine et al., 2016). From the point of view of the migration process, two of the most important determinants are most likely political and economic relations between the origin and destination countries. Therefore, the study incorporates two more control variables representing the degree of political ($POLRL_{ij}$) and economic ($ECRL_{ij}$) relationships. The first one is the variable of cultural similarity represented by colonial linkages among Türkiye and destination countries in the past. This variable is expected to reflect the degree of political relationship between Türkiye and the destination country. Colonial linkages do have not enough power to represent political relations, but it should be kept in mind that the degree of political relationship is not observed through statistical data easily. The data and information concerning distance, common border and colonial linkages are compiled from the CEPII database of Mayer and Zignago (2011). The second one is the level of trade volume between Türkiye and the destination country, computing by aggregating bilateral total export and import flows. This indicator has a good representative power for economic relations and is generated using the World Integrated Trade Solution (WITS, 2023) database. Political and economic relations are expected to affect positively migration flows because good political and economic relations may foster the migration flows through its network effect (Beine et al., 2016). Table 1 demonstrates the descriptive statistics of the variables and pairwise correlations among variables.

As descriptive statistics are investigated, in the study period, the minimum value of emigrants from Türkiye is five (to Croatia and Portugal), and the maximum value is 100,768 (to Germany). While the mean of Türkiye's GDPPC is almost 10,666 USD, the mean GDP value of destination countries is 35,109 USD. On the other hand, the mean value of Türkiye's population is 79 million 138 thousand people and destination countries' mean population value is 41 million 282 thousand people. The mean distance from Türkiye to destination countries is nearly 3734 km^2, with the shortest distance being 534 km^2 (with Cyprus) and the longest distance being 16,882 km^2 (with New Zealand). Türkiye has a trade volume with destination countries worth 6 billion 312 million USD, on average. In this regard, Germany ranks first, and New Zealand ranks last. Among the institutional quality indicators of destination countries, the highest mean value belongs to the variable of regulatory quality, while the lowest mean value is of the political stability and absence of violence.

Pairwise Pearson correlation results refer to not only a positive association between emigrant flows and institutional quality indicators but also enlighten us about model specifications since they are important indicators for the presence of multicollinearity concerns between independent variables. Accordingly, at first, institutional quality indicators present multicollinearity concerns between each other. Hence, these indicators are included in the models separately. Moreover, because of GDPPC of destination countries is highly correlated with their institutional quality indicators, they are not estimated together. Additionally, the correlation coefficient between Türkiye's GDPPC and population may lead to a problem in the estimation process to some degree. Thereby, alternative model specifications are composed depending on correlation results. Last, natural intervening obstacles, i.e., distance and common border, and political/economic relations are included in independent models to be able to get more clear results.

Eventually, the static stochastic regression model to be estimated in the study is as follows:

$$\begin{aligned}\ln EMIG_{ijt} &= \beta_0 + \beta_1 INSQ_{jt} + \beta_2 \ln GDPPC_{it} + \beta_3 \ln GDPPC_{jt} + \beta_4 \ln POP_{it} + \beta_5 \ln POP_{jt} \\ &+ \beta_6 \ln DIST_{ij} + \beta_7 CB_{ij} + \beta_8 POLRL_{ij} + \beta_9 ECRL_{ijt} + \mu_{ij} + \lambda_t + \varepsilon_{ijt}\end{aligned} \quad (2)$$

In Equation 2, while the notation ln indicates the natural logarithm operator, βs are the parameter coefficients to be estimated. On the other hand, μ_{ij}, λ_t, and ε_{ijt} refer to unobserved cross-section effects, time effects and the composite error term, respectively.

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TABLE 1 Descriptive statistics and Pearson correlations.

Descriptive statistics (non-logarithmic)

Variables	Mean	Std. dev.	Min.	Max.	Obs.
$EMIG_{ij}$	3339.71	10,567.89	5	100,768	363
VA_j	0.939	0.687	−1.14	1.74	
PS_j	0.424	0.971	−2.81	1.60	
GE_j	0.985	0.882	−1.29	2.23	
RQ_j	0.996	0.832	−1.32	2.09	
RL_j	0.929	0.687	−1.14	1.74	
COR_j	0.921	1.093	−1.45	2.40	
$GDPPC_i$	10,660.37	1179.44	8561.06	12,507.8	
$GDPPC_j$	35,109	22,806	911.09	103,553.8	
$DIST_{ij}$	3734.01	4031.93	533.84	16,882.32	
POP_i	79,137,876	3,726,195	73,195,345	84,135,428	
POP_j	41,282,777	6,491,007	1,129,686	331,511,512	
$ECRL_{ij}$	6,311,289,777	7,731,009	112,182,465	40,430,998,510	

Pairwise Pearson correlation between variables (logarithmic)

	$EMIG_{ij}$	VA_j	PS_j	GE_j	RQ_j	RL_j	COR_j	$GDPCP_i$	$GDPPC_j$	POP_i	POP_j	$ECRL_{ij}$
$EMIG_{ij}$	1.00											
VA_j	0.25	1.00										
PS_j	0.09	0.91	1.00									
GE_j	0.29	0.95	0.84	1.00								
RQ_j	0.04	0.18	0.19	0.24	1.00							
RL_j	0.25	1.00	0.91	0.94	0.18	1.00						
COR_j	0.32	0.93	0.81	0.97	0.22	0.93	1.00					
$GDPPC_i$	−0.11	0.02	0.03	0.04	−0.01	0.01	0.01	1.00				
$GDPPC_j$	0.41	0.91	0.82	0.91	0.03	0.91	0.89	−0.01	1.00			
POP_i	0.09	−0.02	−0.05	−0.04	0.01	−0.02	−0.02	−0.73	0.01	1.00		
POP_j	0.31	−0.25	−0.34	−0.19	0.13	−0.25	−0.18	−0.01	−0.22	0.02	1.00	
$ECRL_{ij}$	0.61	0.04	−0.07	0.001	−0.03	0.04	−0.01	−0.02	0.14	0.05	0.55	1.00

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ANALYSIS PROCEDURE AND EMPIRICAL RESULTS

Migration flows are expressed in count data, i.e., the number of immigrants or emigrants. Thus, the analysis method to be used to estimate the econometric model in Equation 2 should take this issue into account. The study, therefore, employs Santos Silva and Tenreyro's (2006) Poisson Pseudo Maximum Likelihood (henceforth, PPML) method, which runs Poisson regression by pseudo-maximum likelihood. The PPML dramatically becomes different from standard Poisson regression due to its principal purpose, which is the identification and elimination of predictors leading to the non-existence of maximum likelihood estimates, hence not allowing the convergence of estimator (Caragliu et al., 2013). The PPML estimator has been accepted as a workhorse in the estimation of gravity models and commonly started to be used in empirical studies (Yotov et al., 2016).

Referring to Jensen's Inequality,[iii] Santos Silva and Tenreyro (2006) highlighted that any econometric model, under heteroscedasticity, is turned into a log-linearized model, and then its estimation by ordinary least squares methods brings about biased estimates of true parameter elasticities. They, thus, developed the PPML estimator, which is commonly used for the count data like here, to consider possible heteroscedasticity in the structure of the econometric model, by which unbiased and consistent parameter estimates could be reached. In addition, institutional quality indicators in the datasets of this study have negative values or values close to zero, which provides another justification for why the PPML method was chosen in the estimation process since it doesn't need a logarithmic transformation of the variables.

In the analysis process, the study first applied the Modified Wald test under fixed effects regression to detect the presence of heteroscedasticity. According to the Modified Wald test results shown below in Table 1, all model specifications are exposed to the heteroscedasticity problem. For this reason, as explained above, the analysis procedure of the PPML method is followed in the estimation process of parameters. Therefore, the study turns Equation 2 into Equation 3 as follows, which is shown in exponential form with the error term in the multiplicative form:

$$\ln \mathrm{EMIG}_{ijt} = \exp\left(\begin{array}{c}\beta_0 + \beta_1 \mathrm{INSQ}_{jt} + \beta_2 \ln \mathrm{GDPPC}_{it} + \beta_3 \ln \mathrm{GDPPC}_{jt} + \beta_4 \ln \mathrm{POP}_{it} + \beta_5 \ln \mathrm{POP}_{jt} + \\ \beta_6 \ln \mathrm{DIST}_{ij} + \beta_7 \mathrm{CB}_{ij} + \beta_8 \mathrm{POLRL}_{ij} + \beta_9 \mathrm{ECRL}_{ijt} + \mu_{ij} + \lambda_t + \varepsilon_{ijt}\end{array}\right) \quad (3)$$

In Equation 3, while the notation exp indicates the exponential function, other notations are as explained in Equation 2. Although the PPML method seems the most efficient estimation technique to get over the heteroscedasticity problem, it is alone not able to consider this problem completely. In light of this issue, as also offered by Santos Silva and Tenreyro (2006), all model inference was based upon the Eicker-Huber-White robust covariance matrix estimator; in this way, the study estimated the parameter coefficients with robust standard errors. Eventually, the empirical results from the estimation of Equation 3 under alternative specifications by the PPML method are presented in Tables 2 and 3. While the econometric model is estimated hierarchically, the hierarchic order is carried out considering multicollinearity situations among independent variables.

The Wald test results referred to the correct model specifications in all alternative specifications. Furthermore, the results of the Ramsey Reset test showed that almost all alternative model specifications have no omitted variables and hence exhibit the characteristic of fitting goodness. Empirical findings from institutional quality indicators of destination countries are generally compatible with theoretical expectations.[iv] All indicators of institutional quality are positively associated with emigration flows and are statistically significant except regulatory quality. As the level of voice and accountability in destination countries improves, these countries become more attractive for emigrants from Türkiye. In other words, the higher level of voice and accountability, reflecting perceptions of a country's citizens about the extent to which they can participate in electing their government, as well as freedom of expression, freedom of association, and free media, acts as a pulling factor for emigrants. Similarly, political stability and absence of violence, which measures perceptions of the likelihood of political instability and/or politically motivated violence including terrorism, matters for the destination choice of emigrants from Türkiye. If a

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TABLE 2 Empirical findings from PPML estimator.

Variables	(Ia)	(Ib)	(IIa)	(IIb)	(IIIa)	(IIIb)	(IVa)	(IVb)
VA_j	0.451* (0.051)	0.295* (0.412)	—	—	—	—	—	—
PS_j	—	—	0.219* (0.036)	0.133* (0.028)	—	—	—	—
GE_j	—	—	—	—	0.415* (0.028)	0.263* (0.023)	—	—
RQ_j	—	—	—	—	—	—	0.016 (0.051)	0.022 (0.016)
$GDPPC_i$	−1.005* (0.365)	−0.949* (0.326)	−1.031** (0.422)	−0.961* (0.356)	−1.179* (0.355)	−1.069* (0.317)	−0.878* (0.317)	−0.871* (0.302)
$GDPPC_j$	—	—	—	—	—	—	0.903* (0.053)	0.613* (0.049)
POP_j	0.548* (0.031)	0.157* (0.046)	0.468* (0.041)	0.08*** (0.047)	0.516* (0.029)	0.135* (0.044)	0.492* (0.031)	0.164* (0.046)
$DIST_{ij}$	−0.356* (0.058)	—	−0.276* (0.066)	—	−0.509* (0.058)	—	−0.497* (0.052)	—
CB_{ij}	0.527* (0.095)	—	0.391* (0.096)	—	0.615 (0.091)	—	0.473* (0.086)	—
$POLRL_{ij}$	—	0.444* (0.064)	—	0.297* (0.074)	—	0.497* (0.063)	—	0.046* (0.062)
$ECRL_{ij}$	—	0.426* (0.045)	—	0.511* (0.046)	—	0.447* (0.041)	—	0.367* (0.041)
Constant	1.998 (1.491)	−0.881 (1.381)	2.405 (1.707)	−0.841 (1.484)	3.088** (1.444)	−0.431 (1.345)	−1.578 (1.329)	−3.142 (1.297)
R^2	0.389	0.496	0.241	0.439	0.457	0.541	0.528	0.568
Wald test	344.82*	657.15*	160.28*	502.99*	543.26*	708.44*	565.14*	607.38*
RESET test	2.88**	6.03*	1.47	5.32*	2.34***	5.53*	5.36**	11.45*
Modified Wald test	7863.3*	6858.4*	8213.4*	6388.9*	7561.7*	6415.7*	10112.3*	8015.8*

Note: *, **, and *** indicate the statistical significance at the level of 1%, 5% and 10%, respectively. Values in parenthesis are the robust standard errors. The null hypothesis of the Wald test is that all coefficients are equal to zero.

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TABLE 3 Empirical findings from PPML estimator.

Variables	(Va)	(Vb)	(VIa)	(VIb)	(VIIa)	(VIIb)	(VIIIa)	(VIIIb)
RL_j	0.451* (0.051)	0.295* (0.041)	–	–	–	–	–	–
COR_j	–	–	0.351* (0.019)	0.232* (0.016)	–	–	–	–
$GDPPC_i$	−1.001* (0.366)	−0.949* (0.327)	−0.991* (0.339)	−0.953* (0.305)	–	–	−0.879* (0.317)	−0.872* (0.302)
$GDPPC_j$	–	–	–	–	0.903* (0.053)	0.621* (0.048)	0.902* (0.053)	0.619* (0.049)
POP_i	–	–	–	–	1.868** (0.817)	1.532** (0.789)	–	–
POP_j	0.499* (0.032)	0.157* (0.046)	0.529* (0.028)	0.146* (0.042)	0.493* (0.031)	0.176* (0.046)	0.493* (0.031)	0.173* (0.046)
$DIST_{ij}$	−0.356* (0.058)	–	−0.559* (0.053)	–	−0.485* (0.053)	–	−0.484* (0.053)	–
CB_{ij}	0.527* (0.095)	–	0.608 (0.087)	–	0.473* (0.085)	–	0.472 (0.085)	–
$POLRL_{ij}$	–	0.444* (0.063)	–	0.532* (0.064)	–	0.466* (0.062)	–	0.464* (0.061)
$ECRL_{ij}$	–	0.426* (0.045)	–	0.441* (0.038)	–	0.354* (0.042)	–	0.359* (0.042)
Constant	1.998 (1.491)	−0.882 (1.381)	2.479*** (1.386)	−0.889 (1.289)	−19.891* (6.424)	−18.738 (6.174)	−1.597 (1.331)	−3.138** (1.299)
R^2	0.389	0.496	0.495	0.573	0.525	0.561	0.527	0.567
Wald test	344.82*	657.15*	745.67*	838.32*	560.81*	555.30*	539.91*	549.93*
RESET test	2.88**	6.03*	4.34*	7.57*	5.27*	11.43*	5.48*	11.34*
Modified Wald test	7863.3*	6558.5*	9946.2*	6732.9*	12,818.1*	14,531.1*	8397.6*	6942.2*

Note: *, **, and *** indicate the statistical significance at the level of 1%, 5% and 10%, respectively. Values in parenthesis are the robust standard errors. The null hypothesis of the Wald test is that all coefficients are equal to zero.

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country has political stability and no violence, emigrants who are possibly in search of tranquillity and peace prefer that country to migrate, which affirms that the political stability and absence of violence in destination countries is a pulling factor for emigrants. Government effectiveness, reflecting perceptions of the quality of public services, the quality of the civil service and its degree of independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's adherence to such policies, is found as a remarkable pulling factor. Government effectiveness, as understood in its definition, is a pretty comprehensive indicator of institutional quality, and hence it involves important points which are particularly taken into account by the emigrants. In this context, as the governments in destination countries become more effective in terms of factors this indicator involves in its definition, these destinations tend to pull more emigrants from Türkiye.

Regulatory quality, which represents perceptions of the ability of the government to formulate and implement reasonable policies and regulations that permit and encourage private sector development, is the only institutional quality indicator to be found statistically insignificant. In this regard, emigrants from Türkiye do not take the degree of regulatory quality in destination countries into consideration while they are in the decision stage concerning destination choice. Another statistically significant pulling indicator is the rule of law measuring perceptions of the extent to which agents have confidence and obey the rules of society and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. The degree of the rule of law is a truly remarkable determinant in the destination choice process since it affects in particular the feeling of confidence of emigrants. Intuitively, no emigrants would like to prefer countries in which the law has not dominated and regulated all the societal norms and rules. The last indicator of institutional quality is the control of corruption, which reflects perceptions of the degree to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. The control of corruption, like the other four institutional quality indicators, is found as a pulling factor in the destination choice process of emigrants. More clearly, emigrants from Türkiye choose the countries where corruption is at a lower degree and the governments can keep it under control.

Empirical results regarding basic gravity variables notably correspond with theoretical expectations in all model specifications. Accordingly, the economic size of Türkiye affects emigrant movements negatively, i.e., as the income of residents in Türkiye grows, the people prefer to stay at home, not leave the country. But, conversely, deteriorating economic conditions in Türkiye act as a pushing factor for the people thought to migrate. This result is rather robust for all alternative model specifications. On the other hand, better economic conditions in destination countries are pulling factors for the people who think of migration from Türkiye because the economic size of destination countries is found positively associated with emigration flows. The results from population parameters paint an interesting picture because, on the one hand, people migrate from Türkiye as the population in the country increases; on the other hand, they prefer crowded places to live in. This result seemed paradoxical but can be explained by the general wealth situation and with the help of the agglomeration effect. For migrants, since what is more important is individual utility, as long as population growth does not diminish individual utility, it has no pushing role on prospective emigrants. Finally, yet importantly, personal relation, i.e., network, is a remarkable determinant in not only emigration decision but also destination choice. In other words, personal relations may give rise to an agglomeration in the same places, which can be called the agglomeration effect.

As a basic gravity variable, distance matters for the destination choice of emigrants since farther distance affects emigrant flows negatively. Accordingly, the emigrants relatively prefer closer destinations to migrate. This may be likely related to economic and social–cultural conditions since closer destinations mean lower travel and transaction costs and more similar social–cultural conditions relative to farther destinations. As one of the augmented gravity variables, the common border is positively associated with emigration flows, as expected, albeit it is statistically insignificant under a few model specifications. This finding means that contiguous countries appealed to emigrants from Türkiye because this type of migration requires lower costs. Lastly, political and economic relations are found to be encouraging factors for emigrants in their emigration process due to possible business and network effects.

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CONCLUSION

The developments in international migration flows matter for all countries that are migrant-sending, migrant-receiving, and in the position of transition of migrants. In this respect, Türkiye has experienced all of these types of migration, i.e., as well as being a transition country, Türkiye, on the one hand, is a destination country for migrants coming from abroad; on the other hand, Türkiye is an origin country sending her citizens abroad. This characteristic of Türkiye brings about discussions on migration in many dimensions such as why people move from/to Türkiye, where people move from/to Türkiye, and the impacts of coming or going migrants on several parameters in Türkiye or destination country like economic development, income distribution, environmental quality, social-cultural and political components, etc. This study is generally interested in factors determining the migration flows from Türkiye, briefly emigrants' behaviours. More specifically, here is focused on the role of institutions in destination countries on emigrants' behaviours like migration decisions and choosing a destination country. In addition, the impacts of economic conditions, population, distance, neighbourhood and political and economic relations on the behaviours of emigrants from Türkiye are among the scope of the study. For this purpose, the study built an augmented gravity model in an exponential form using bilateral migration data from Türkiye to destination countries over the period 2010–2020.

In the estimation process of the augmented gravity model, the PPML method was employed to get robust evidence. Empirical results first indicated that the augmented gravity model has an explanatory power on emigrants' behaviours. Empirical results significantly confirm the pulling role of institutional quality in destination countries for emigrants from Türkiye since all institutional quality indicators are positively associated with emigrant flows, albeit just one of them, regulatory quality, is statistically insignificant. Among the indicators of institutional quality, the most pulling ones for prospective emigrants are found as voice and accountability and rule of law, which are followed by government effectiveness, control of corruption, and political stability and absence of violence, respectively. Overall results, hence, indicate that institutions are front-line players in the emigrants' migration decision and destination choice process. Intuitively, it may be thought that emigrants who care about the institutional quality in the destination are generally high-skilled or educated people. In this context, policy-makers in both Türkiye and the destination country may implement an institutional policy that corresponds to the needs of the country depending on the outcomes stemming from migration movements.

According to the results of the main control variables, economic conditions in both Türkiye and destination countries, as expected, maintain their importance in migration flows. Accordingly, as the income of residents in Türkiye follows the positive/negative growth path, fewer/more people move from Türkiye to abroad. On the other hand, positive/negative developments in income levels of destination countries attract more/fewer emigrants from Türkiye. In other words, the study confirms both the pushing and pulling role of economic conditions. Results from population parameters show that, on the one hand, people migrate from Türkiye as the population in the country increases; on the other hand, they prefer crowded places to live in. The distance between Türkiye and the destination country strongly affects emigrants' behaviours since it principally means higher or lower travel costs; in other words, emigrants relatively prefer closer destinations to migrate. The border effect turns out to be a pulling factor in the migration process. Lastly, good political and economic relations between Türkiye and the destination country are among the pulling factors in the destination choice of emigrants from Türkiye.

The study is expected to contribute to the literature because it applies the gravity model to the theory of random utility maximization of migration. The most important limitation of the study is the lack of an excellent representative variable of the political relationship between the origin and destination countries. Hence, in the following studies, if a more robust representative variable for political relations can be included, more rational and real-like results regarding determinants of migration would be reached.

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CONFLICT OF INTEREST STATEMENT

We know of no conflicts of interest associated with this publication, and there has been no financial support for this work that could have influenced its outcome.

PEER REVIEW

The peer review history for this article is available at https://www.webofscience.com/api/gateway/wos/peer-review/10.1111/imig.13258.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author.

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ENDNOTES

1 For mathematical derivation and a detailed explanation of the RUM model, the study of Beine et al. (2016) may guide interested researchers.

2 Argentina, Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iraq, Ireland, Italy, Japan, Lebanon, the Netherlands, New Zealand, Norway, Pakistan, Poland, Portugal, Romania, Spain, Sweden, Switzerland, Ukraine, United Kingdom and the United States.

3 Jensen inequality states that the expected value of the logarithm of a random variable is different from the logarithm of its expected value, namely, $E(\ln Y) \neq \ln E(y)$.

4 Just for the satisfaction of one's curiosity, similar analyses were conducted to detect the pushing role of institutions by adding institutional quality indicators of Türkiye. The results show that just government effectiveness and regulatory quality have pushing roles on emigrants' decisions; others are also negatively associated with the emigrant process but statistically insignificant. These results are not presented here to save from place and not digress the scope of the study.

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