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The Spatial Linkages Between International Migration and Security: The Empirical Findings From Türkiye Hosting Most Refugee In The World

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ABSTRACT

The increasing international migration in the world, especially due to the conflict, have potential negative impacts in immigrant countries. An increase in crime rates caused by unemployed immigrants who cannot meet their food and housing needs is one of them. Accordingly, the study investigates the effects of international immigrants, whose numbers reached about 3,9 million in Türkiye, on violent and financial crime rates. The Spatial Error Panel Model with Fixed Effects covering Türkiye's 26 NUTS-II regions and 2016-2019 period indicate that there are positive and statistically significant relationships between immigrants and these crime rates. However, the negative impacts of international migration on security are mainly observed in financial crimes rather than violent crimes. Furthermore, the most important determinants of these crimes are high food and housing costs. And also, there is a negative relationship between uneducated employment and financial crimes rather than violent crimes. On the other hand, the findings indicate that regions have spatial dependency positively in terms of violent crimes. It means that as average violent crimes increase in the neighbors of a region, the violent crimes of that region also increase.

Keywords: Financial Crimes, International Migration, Spatial Panel, Data Analysis, Violent Crimes.

JEL Classification Codes: C33, F22, R10

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INTRODUCTION

According to Hobbes, the most basic need is security, which the absence of fear of attack and the absence of a threat to the existing values as defined by Wolfers, within the framework of international relations (Hobbes, 2007; Wolfers, 1952). After the Second World War, it was seen that for a long time, military security was taken as the basis and the state was accepted as the main reference object, with the effect of the realist paradigm (Morgenthau, 1997; Waever, 2008). In other words, the traditional security, depending militaristic aspects of national states, was accepted during the Cold War Period while the security concept gained a wider perspective, with the evolution of the international system to a multipolar structure especially since 2000's. In fact, it is highly associated with the expanding interdependency which facilitates the reflection of negative effects as well as positive effects experienced in any state after the Cold War (Keohane and Nye, 2011). Since, expanding dependency has led to a situation that can affect many

actors with social, economic, political and intellectual phenomena apart from state-centered or regional-level evaluations (Cha, 2000; Mittelman, 2002). Thus, re-answering questions such as security for whom/what and security against which threat has become necessary. In other words, as threats become multidimensional structure, the security concept has expanded to include social, individual, economic and environmental factors (Buzan, 1983; Brauch, 2009).

In this sense, international migration, reached dramatic levels in last two decades, become a threat to national security within the framework of social and economic security as well as internal security (Brettel and Hollified, 2000). Since, according to International Organization for Migration (IOM) statistics, the stock of international migrants has exceeded 280 million by 2022, and it has reached 3.6% of the world's population. Among these immigrants, the number of people who forced migration from their own countries and/or in need of international protection due to reasons such as conflict, violence,

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persecution, fear, or violation of human rights has reached 104 million increasing by 5.5 times in last two decades.

Considering the geographical distribution of immigrants, it is understood that migration mobility, turning into an international security problem, could become a serious security problem for Türkiye hosting most refugees in the world. Indeed, according to United Nation (UN) (2020) and United Nations High Commissioner for Refugees (UNHCR) (2022) statistics, Türkiye, which has 6,1 million immigrants coming for different reasons, is the country hosting 3,9 million refugees. It is a potential problem for Türkiye in terms of internal, social, and economic security due to the negative impacts of international migration. Since, various factors in the adaptation and integration processes to the host country could push immigrants to crime and/or cause increases in general crime rates (Bell, 2019). In fact, according to the opportunity structure theories, which suggest that immigrants are disadvantaged, compared to the citizens of that country in gaining economic power, due to this disadvantageous situation, it is thought that these immigrants, who cannot obtain the desired economic power through legitimate means, could resort to illegitimate means (Merton, 1938). On the other hand, if immigrants gain wide employment opportunities, the crime tendencies of the citizens, who lost their employment opportunities, may increase in order to regain their lost economic power (Wilson, 1996). From this point of view, it should not be ignored that as the number of international immigrants living in a society increases, increases in crime rates depending on social, psychological, and economic conditions, may be observed and this situation may pose a threat to national security. Indeed, according to Turkish Statistical Institute (TSI), in Türkiye, total crime rates increased about 50% in the 2016-2019 period. Furthermore, increases in financial crime rates reached about 58% while violent crime rates were 28%.

Therefore, the study investigates the relationship between international immigrants and violent and financial crimes in Türkiye, hosting the most refugees in the world, by spatial econometric methods for develop policy proposals minimizing negative impacts of international migration. In this regard, firstly, the economic and social determinants of crime were discussed conceptually and theoretically; afterwards, the empirical literature is summarized. Finally, based on the findings of spatial econometric analyzes that are constructed in parallel with theoretical and empirical

literature views, suggestions for immigration policies implemented in Türkiye, have been developed.

THE DETERMINANTS OF CRIME

International Migration and Crime

International migration, defined by IOM as “the movement of persons away from their place of usual residence and across an international border to a country of which they are not nationals” refers to human movements covering all types of migration (Sironi and Emmanuel, 2019).¹ Migration, which has existed for various political, economic, ecological and social reasons throughout history, has become more visible, especially towards the end of the 20th century, with the effect of globalization. In other words, international migration, which has gained a global dimension and accelerated, has turned into a multidimensional process that also affects cultural, demographic, political and economic fields (Faist, 2003). For this reason, international migration, like as the changing perception of security, also began to take its place on the security agenda of states towards the end of the Cold War.

For instance, Huntington (1993) pointed out that immigration would pose a threat to national security; Weiner (1993) argued that the increase in international migration would pose a threat to international stability and security. Besides Buzan et al. (1998) evaluated migration in the context of social security; Huysmans (2000), also, associated the inclusion of immigration on the security agenda by states as a phenomenon that disrupts public order and poses a threat to internal stability. Böhmelt and Mehrl (2022) on the other hand, tried to present a perspective on the migration-security relationship with quantitative data through their interdisciplinary studies.

From a sociological point of view, migration, which is considered as a source of social disorder and crime, poses a potential threat to national security. Thusly, there is a widespread belief in OECD countries that the immigrant population commits more crimes than the local population, thus increasing the crime rates (Bauer et al., 2000). In this context, there are statistics from different regions examining the relationship between immigrants and crime in the literature (Vasiljevic et al., 2019; Hagan et al., 2008; Bell et al., 2013).

¹ In this context, international migration includes all types of migration as circular migration, climate migration, displacement, economic migration, facilitated migration, family migration, forced migration, human mobility, irregular migration, labor migration, migrant, migration, safe, orderly, and regular migration, resettlement, return migration.

The first reason for the relationship between immigration and crime stems from the argument that criminal tendencies are more common in young adults, adolescents and men (Hirschi and Gottfredson, 1983; Waters, 1999). Since these demographic characteristics are at the forefront in international migration, it is expected that there will be an increase in crime rates. The second is related to the fact that the population instability that will be experienced with migration leads to social disorder. Indeed, migration, which triggers population and housing instability, has the potential to bring about the erosion of social control. This disruption of control is a critical factor in increasing crime rates (Shaw and McKay, 1942; Lee and Martinez, 2002). Third, according to the opportunity structure theory, the argument is directly related to economic poverty. Accordingly, the lack of unqualified and modern working skills of immigrants will lead to limited employment opportunities; it is thought that unemployed or low-paid immigrants will seek economic opportunities that they cannot obtain through legal means, in criminal-prone alternative ways (Reid et al., 2005).

On the other hand, international migration is more than just demographic mobility. Because it is a process that affects the society by bringing along cultural encounter and diffusion, social differentiation, and harmony-incompatibility processes. For this reason, it is possible that functionalist approaches, based on the relationship between socio-economic structure of society and crime, could be associated with migration. In this context, theories based on the opportunity structure firstly focus on the potential of immigrants' tendency to crime. The fact that immigrants coming to a new country initially experience poverty (Clark, 1998) and are exposed to discrimination in the labor market (Waldinger, 1993) cause the immigrant population to experience some economic barriers. Factors such as language, culture and educational differences could increase economic barriers by prolonging the integration process. These barriers cause immigrants to be disadvantaged in reaching their economic goals compared to the citizens of the country. This situation increases the potential of immigrants to resort to crime for successes that they cannot achieve through legitimate means (Merton, 1938).

The second argument focuses on the indirect effect of immigrants on the increases in crime rate caused by the citizens. Immigrants can displace the citizens of the country if they can obtain various opportunities in employment (Beck, 1996). Because the preference of immigrants for reasons that provide cost advantages

for employers such as low wages or unregistered employment, especially in some sectors where skilled labor is not needed, will cause the citizens to be excluded from these sectors. Citizens of countries that are disadvantaged in the opportunity structure and whose employment opportunities are lost will increase their crime tendencies in order to regain their lost economic power (Wilson, 1996). This shows that as the international migrant population increases in a region, there may be increases in all types of crimes, especially economic crimes, directly or indirectly.

Indeed, several empirical studies (Buonanno and Montolio, 2008; Alonso et al, 2008; Cracolici and Uberti, 2008; Kakamu et al., 2008; Alonso et al., 2012; Piopiunik and Ruhose, 2017; Feng et al., 2019) have reached the conclusion that the increases in immigration rates increase crime rates.

Other Determinants of Crime

It is seen that the reasons for the increases in crime rates are the subject of many studies, since it is a social problem that is becoming increasingly evident in all developed or developing countries. When the empirical studies on the socio-economic determinants of crime are examined, it is seen that income, inflation which is actually associated with purchasing power of individuals, education, unemployment and spatial closeness are among the prominent determinants of crime apart from migration.

Becker (1968), one of the leading studies investigating the causes of crime from an economic perspective, emphasizes the importance of economic gains in committing crimes. Accordingly, the criminal makes a cost-benefit analysis between legitimate and illegitimate behaviors before committing a crime and decides to commit a crime if the benefit from the crime is greater than legitimate activities. Emphasizing the importance of income level in committing a crime, Ehrlich (1973), decides whether the person who will commit the crime depending on the income level of the person in front of him. It is supported by findings of several empirical studies (Narayan and Smith, 2004; Pazarlıoğlu and Turgutlu, 2007; Baharoom and Habibullah, 2008; Aksu and Akkuş, 2010; Dursun et al., 2011; Ulucak and Bilgili, 2020).

On the other hand, inflation could be accepted as other important determinants of crime (Tang and Lean, 2007; Seals and Nunley, 2007; Gillani et al., 2009; Torruam and Abur, 2014; Rosenfeld and Levin, 2016; Rosenfeld et al., 2019)

and it is actually related with income level. Since, in high inflationary periods, it may cause the cost of living to rise and individuals to have difficulty in purchasing goods and services. In other words, when inflation is high, individuals' purchasing power will weaken, economic life will become more difficult, and if this situation creates pressure on individuals, it can be expected that some individuals' tendency to crime will increase (Adekoya and Razak, 2016).

Furthermore, education level of individuals is one of the other important determinants of crime (Lochner and Moretti, 2004; Aksu and Akkuş, 2010; Machin et al., 2011; Hjalmarsson and Lochner, 2012; Rivera, 2016; Furqan and Mahmood, 2020; Ulucak and Bilgili, 2020). Educated individuals can also avoid the costs of committing a crime because they could find more qualified jobs. Since these individuals know the criminal burdens of committing a crime, they cannot take these risks and their probability of committing a crime decreases (Machin et al., 2011). In the studies on uneducated individuals, as in the studies of Jonathan et al., (2021), it is seen that in societies with low education level and low literacy, individuals will increase their tendency to commit crimes by joining criminal gangs, and such people do not hesitate to take risks and they also tend to commit crimes. It is stated that this will increase crime rates.

Another important determinant of to commit crime is unemployment (Carmichael and Ward, 2001; Narayan and Smith, 2004; Edmark, 2005; Baharoom and Habibullah,

2008; Fougere et al., 2009; Andresen, 2012; Wu and Wu, 2012; Recher, 2020; Mazoredze, 2020; Ayang et al., 2022; Asante and Bartha, 2022). When unemployment is high, it can be expected that the tendency of individuals to commit crimes will increase. In the event of an increase in unemployment, it is expected that the incomes of individuals will decrease, the returns from illegal work will increase, so crime rates will increase (Raphael and Winter, 2001). When unemployment is high, the relative marginal benefit of income in the legal labor market of individuals decreases, and therefore, it is expected that illegal activities in the country will increase, and crime rates can be expected to increase in parallel (Altındag, 2012).

Finally, as Kierepka (2022) states, when crimes accumulate in a certain region, these crimes increase the crime rate of neighboring regions. In addition, as stated in the literature in this area, an increase in crime rates in a region increases crime rates in other regions (Andresen, 2006; Lauridsen et al., 2013; Maghularia and Uebelmesser, 2019; Leiva et al., 2020; Adeyemi et al., 2021). For this reason, the problem of crime can turn from a regional problem into a national problem. From this point of view, especially in an economy which the cost of living for basic needs such as housing and food are high, the tendency of uneducated individuals, who could not find a job, to commit crimes will be significantly higher; it could be thought that increasing crime rates may spread between regions and turn into a national problem.

Table 1: Features of Variables

<i>Variables</i>	<i>Abbreviation</i>	<i>Explanation</i>	<i>Expected Sign</i>	<i>Source</i>
<i>Dependent Variables</i>	crmvil100	violent crimes per one hundred thousand people in a region		TURKSTAT
	crmfina100	financial crimes per one hundred thousand people in a region		TURKSTAT
<i>Independent Variables</i>	mig100	migrants per one hundred thousand people in a region	+	TURKSTAT
	lnffood	12-month food inflation rate (2003 constant prices)	+	CBRT
	lnfhouse	12-month housing inflation rate (2003 constant prices)	+	CBRT
	uneduemp100	uneducated employment per one hundred thousand people in a region	-	TURKSTAT
TURKSTAT : Turkish Statistical Institute CBRT : Central Bank of the Republic of Türkiye				

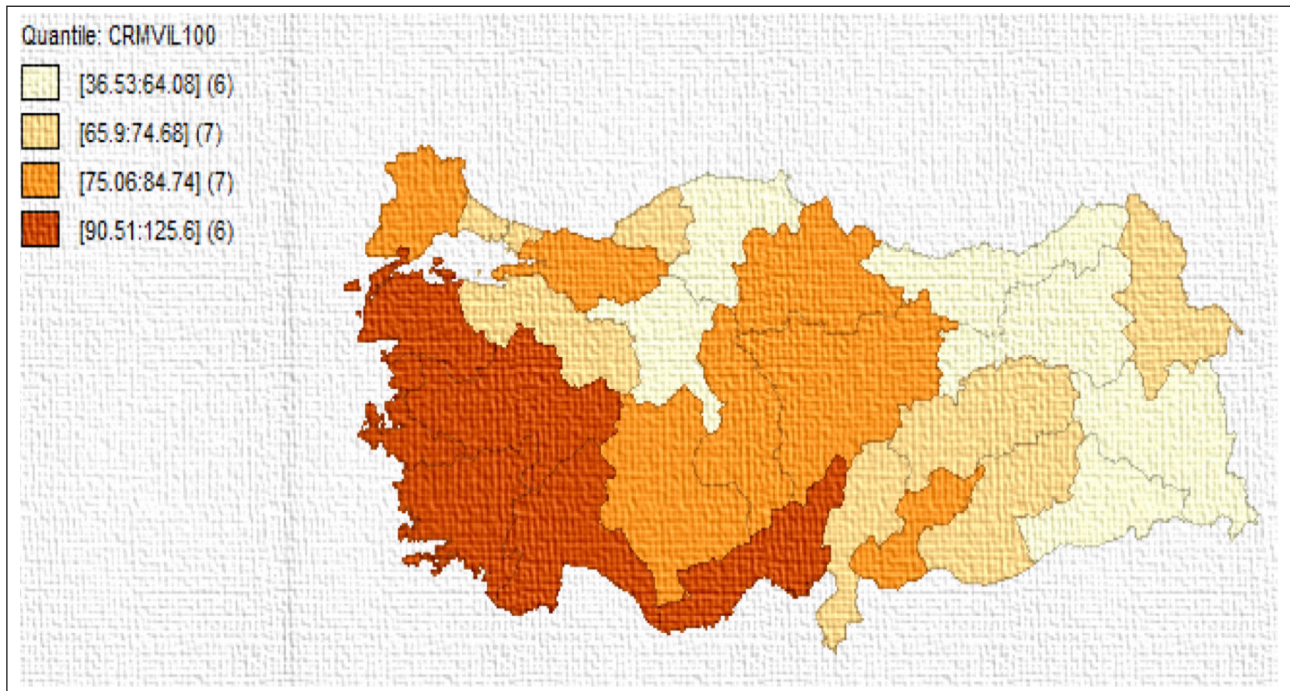


Figure 1: Spatial Patterns of Violent Crimes per One Hundred Thousand Persons (2016-2019 Average)

Source: It is compiled by the Authors (statistics increase as the colors get darker).

EMPIRICAL ANALYSIS

Data and Variables

Increasing of crime rates, in both immigrant countries and regions, is one of the potential negative impacts of international migration. Indeed, opportunity costs of especially uneducated or unskilled poor migrants, who could not find a job and could not meet their food and housing needs easily, are lower than educated and skilled citizens in any society. In other words, propensity of migrants to commit a crime is higher than citizens.

TURKSTAT database provides statistics on a wide range of crimes. In this study, fraud, forgery, embezzlement, smuggling, extortion, theft, and crime against property are grouped as financial crimes while murder, sexual crimes, deprivation of liberty, extortion, manufacture and trade of drugs or stimulants, crimes related to firearms and knives, and threats are grouped as violent crimes. Moreover, bribery crime was not included in the analysis due to lack of data. Therefore, in alternative econometric models investigating the social cost of migration by crime rates, violent crimes per one hundred thousand people (*crmvil100*) and financial crimes per one hundred thousand people (*crmf100*) are accepted as dependent variables, which are quantified as the

sum of the crimes specified.² Migrants per one hundred thousand people (*mig100*), uneducated employment per one hundred thousand people (*uneduemp100*), food inflation (*inffood*) and housing inflation (*inffhouse*) are accepted as independent variables. Table 1 includes detail information about them.

Accordingly, considering that especially forced immigrants are poor and relatively uneducated as well as their cultural mismatch problem, as the share of immigrants increase in any region, increases in both violent and financial crimes could be expected. In other words, *mig100* variable could be taken a negative sign. On the other hand, the crime tendencies of unemployed persons, who could not meet their food and housing needs, increase especially in hyper-inflation periods. Therefore, it is expected that both *inffood* and *inffhouse* variables will take positive signs rather than *uneduemp100* variable.

Econometric Model and Analysis

Two alternative models covering Türkiye's 26 NUTS-II regions and 2016-2019 periods were designed for investigating the effects of international migration on

² Violent crimes include murder, sexual crimes, deprivation of liberty, extortion, manufacture and trade of drugs or stimulants, crimes related to firearms and knives, and threats. Financial crimes include fraud, forgery, extortion, theft, crimes against property, embezzlement and smuggling. Bribery crime was not included in the analysis due to lack of data.

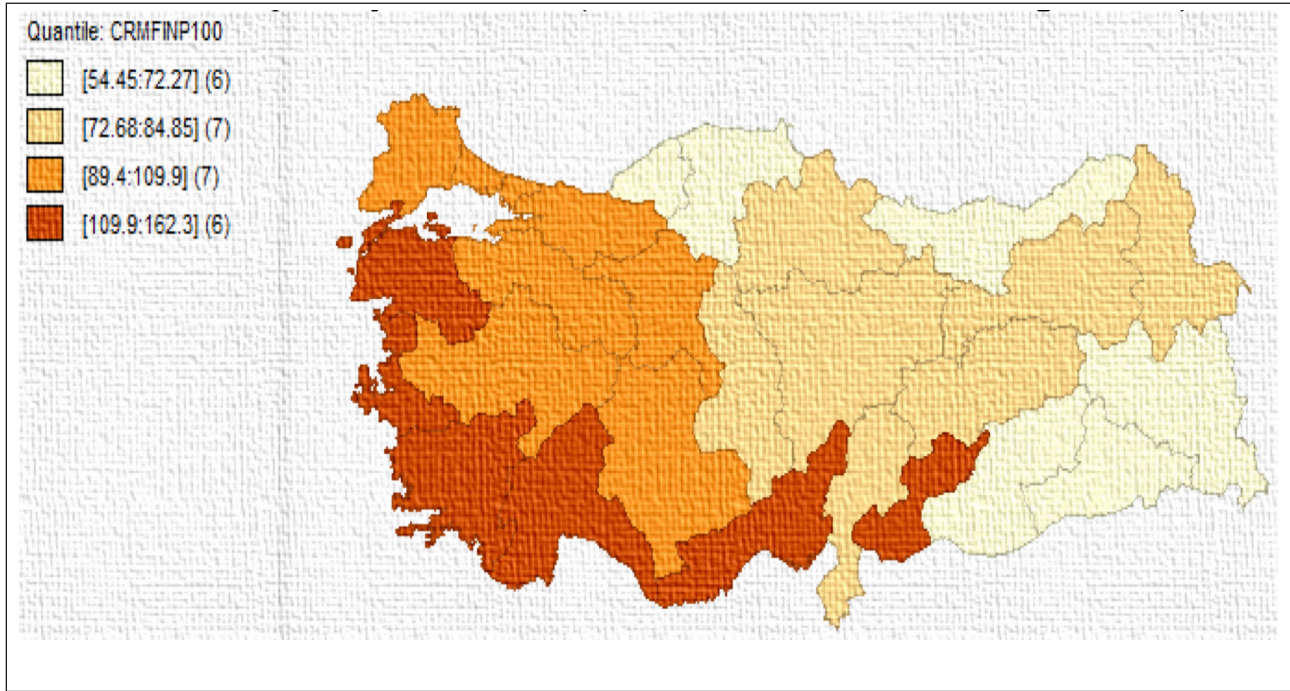


Figure 2: Spatial Patterns of Financial Crimes per One Hundred Thousand Persons (2016-2019 Average)

Source: It is compiled by the Authors (statistics increase as the colors get darker).

both violent and financial crimes. Accordingly, Model 1 investigates the effects of international migration on violent crime rates while Model 2 investigates the effects of international migration on financial crime rates.

$$crmvil100_{it} = f(mig100_{it} + inffoodit + uneduemp100_{it} + ter100_{it})$$

(Model 1)

$$crmfin100_{it} = f(mig100_{it} + inffoodit + uneduemp100_{it} + ter100_{it})$$

(Model 2)

Firstly, potential spatial dependency relationship between variables was tested by LMLAG and LMERR Tests because of the spatial patterns of both violence and financial crime rates which could be seen in Figure 1 and Figure 2. Accordingly, violence and financial crimes are clustered in the western regions that host the most immigrants. Therefore, spatial dependency needs to be tested due to these clustered patterns. Because, Ordinary Least Square (OLS) estimators are damaged when spatial dependency is ignored. For instance, OLS estimators are lose their efficiency characteristic when spatial dependency is observed in error terms while they are lose their unbiased and consistency characteristic when spatial dependency is observed in dependent variable

(Anselin, 1988). Therefore, Spatial Error Model or Spatial Lag Model depending on Maksimum Likelihood (ML) Estimators should be estimated rather than OLS in such conditions (Anselin and Ray, 1991).

According to results of LMLAG and LMERR Tests in Table 2, there is a spatial dependency observed in error term in Model 1 while there is not any spatial dependency both in error terms and dependent variable in Model 2. Therefore, Model 1 must be estimated by Spatial Error Model rather than Model 2.

Secondly, according to LR and Hausman Tests, random effects are valid for Model 1 and Model 2. Especially in cases where the period is less than the cross section ($T < N$), as in this study, when the units forming the panel are not randomly determined within the large population, fixed effects panel model is appropriate (Gujarati and Porter, 2012). Despite the Hausman test results obtained, it was concluded that the model that best explains the relationship between the variables is the fixed effects panel model, due to the suggestions of Johnston and Dinardo (1997) and the fact that the regions forming the

	Model 1		Model 2	
	Value	Prob.	Value	Prob.
LM _{LAG}	2.01	0.5695	2.10	0.5512
LM _{ERR}	7.18	0.0663	2.06	0.5603

$$\text{crmvil100}_{it} = c + \alpha_1(\text{mig100}_{it}) + \alpha_2(\text{inffood}_{it}) + \alpha_3(\text{uneduemp100}_{it}) + u_{it} \quad (\text{Equation 1})$$

$$u_{it} = \lambda W u + \varepsilon$$

$$\text{crmfin100}_{it} = c + \beta_1(\text{mig100}_{it}) + \beta_2(\text{inffood}_{it}) + \beta_3(\text{uneduemp100}_{it}) + u_{it} \quad (\text{Equation 2})$$

i : 1, 2, ..., 26 (26 NUTS-II Regions)

t : 2016, 2017, ...2019 (4 years)

cross-section have similar characteristics and that they are not randomly determined cross-sections. As a result, since each spatial region is representative of that region and is not randomly sampled, the fixed effects model is more appropriate than the random effects model in panel models representing regions of the country (Elhorst, 2012). Accordingly, Model 1 is estimated by Fixed Effects Spatial Error Model (SEM) while Model 2 is estimated by Fixed Effects Panel Model.³ Their functional forms are showed in, respectively, Equation 1 and Equation 2.

W is a 26x26 spatial weight matrix while λ is a spatial autoregressive coefficient, showing the effects of spatial dependency, in Equation 1. The weight matrix (W) was prepared according to queen border neighborhood criteria. It has the least restrictions among the weight matrix criteria, which means that all border neighbors of a region are given the value 1 while others are given the value 0, regardless of location. It is most suitable criterion for Türkiye's NUTS-II regions, which are not based on geographical dynamics.

Findings

Table 3 shows the findings of Model 1 depending alternative panel estimators that are pooled, fixed effects, random effects with spatial dependency while Table 4 shows the findings of Model 2 depending these alternative panel estimators without spatial dependency.⁴ Table 3 also show the findings of Spatial Durbin Panel Model (SDM) as the largest spatial model. It is seen that there are no significant differences between the fixed effects and random effects results.

The empirical findings indicate that there is positive relationship between immigrants and both violent crimes and financial crimes. Model 1 and Model 2 show that violent crimes per one hundred thousand people increase as 0,05% while financial crimes per

one hundred thousand people increase as 0,1% when immigrants per one hundred thousand people increase as %10. Accordingly, the negative impacts of international migration on security are observed mainly financial crimes rather than violent crimes.

According to Model 1 estimating Spatial Error Panel Model with Fixed Effects (SEM-FE), there is a positive spatial dependency in violent crime rates rather than financial crime rates. Accordingly, violence crime rates increase as 5,6% in that region when the average violent crime rates increase as 10% in neighbors of a region. Secondly, food and housing inflation are the most important determinants of violent crimes. Indeed, when food and housing inflation increase as 10%, violent crime rates increase as, respectively, 11,1% and 8,2%. Finally, there is no statistically significant relationship between uneducated employed persons and violent crimes.

According to Model 2 estimating Panel Model with Random Effects, food and housing inflation are the most important determinants of financial crimes like as violent crimes. Accordingly, when food inflation and housing inflation increase as 10%, financial crime rates increase as, respectively, 19,2% and 20,8%. On the other hand, there is a negative and statistically significant relationship between uneducated employed persons and financial crime rates; but it is negligible. Accordingly, when uneducated employed persons increase as 10% in a region, financial crime rates decrease as 0,08%.

CONCLUSION

International migration, which has increased worldwide since the 1990's with increasing local-regional conflict environments and inequalities of opportunity triggered by globalization, has been on the security agenda of states especially since the 2000's. In this context, mass-forced migrations, which occur at unexpected times and intensity, appear as a type of migration that states deal with in the context of security due to the migration management problems they create.

³ As seen in Table 3 and Table 4, the random effects results are not different from the fixed effects results.

⁴ The findings about the effects of housing inflation, as an alternative to food inflation, on crime rates could be seen in Table 4 in Appendix.

Table 3: Spatial Regression Analysis Findings

2016-2019 26 Regions	Model 1 Dep. Variable: <i>crmvil100</i> Spatial Panel Models						
	POLS	FE	RE	SEM-FE	SEM-RE	SDM-FE	SDM-RE
Λ				0.56*** (.032)	0.56*** (.0835)	0.54*** (.0646)	0.54*** (.0655)
<i>mig100</i>	-0.001 (.0067)	0.009** (.0043)	0.009** (.0041)	0.005* (.0028)	0.005* (.0031)	0.005* (.0030)	0.004 (.0031)
<i>Inffood</i>	1.31*** (.3141)	1.15*** (.1113)	1.14*** (.1096)	1.11*** (.2422)	1.1*** (.2524)	0.049 (.6021)	0.182 (.5792)
<i>unedue-mp100</i>	-0.008*** (.0014)	-0.002 (.0024)	-0.003** (.002)	-0.001 (.0026)	-0.002 (.0021)	-0.002 (.0030)	-0.001 (.0019)
<i>W* mig100</i>						0.006 (.0124)	0.007 (.0106)
<i>W* Inffood</i>						0.411 (.7349)	0.247 (.6629)
<i>W* unedue-mp100</i>						0.000 (.0043)	-0.002 (.0026)
Log-likelihood				-294.70	-361.71	-291.01	-354.46
R ²	0.28	0.70	0.69	0.69	0.69	0.72	0.72
JB Normality Test	5.865 [.0533]	0.843 [.6561]	0.6308 [.7295]	2.145 [.3421]	2.073 [.3547]	2.274 [.3208]	2.001 [.3676]
Hausman Test		3.34 [.3421]		4.78 [.3110]		13.26 [.0661]	
NxT	104	104	104	104	104	104	104

Note: *, **, *** stands for, respectively, %10, %5 and %1 significance level, statistics in parentheses () stands for var-cov matrices with resistance to heteroscedasticity and autocorrelation; statistics in square parentheses [] stands for p-values.

POLS : Pooled Ordinary Least Square

FE : Fixed Effects

RE : Random Effects

SEM-FE : Spatial Error Model with Fixed Effects

SEM-RE : Spatial Error Model with Random Effects

Due to the lack of access to basic human rights such as the right to life, food and housing, many individuals are forced to migrate. While individuals who migrate forcibly have relatively insufficient access to food, housing, and employment opportunities in the countries they go to, they also experience integration problems in many contexts. As a matter of fact, this inequality of opportunity that all immigrants, especially those who migrate, are exposed to, results in a relatively higher tendency of immigrants to be involved in violence and financial crimes. This situation causes increasing immigration rates to turn into a security problem in countries where an effective management and governance process cannot be allocated.

Türkiye has become the country hosting the largest number of refugees in the world suddenly due to the conflicts in Syria. This situation has caused Türkiye to become sensitive to the negative effects of international

migration, especially as the security issue. In this context, it is aimed to analyze the effects of international migration on security through crime rates and to develop recommendations on migration policies that countries that will face such mass-migration mobility should follow. Accordingly, the findings of econometric models designed by considering the spatial dependency relationship indicate that there is a statistically significant and positive relationship between international migration and both violent crimes and financial crimes. On the other hand, it is understood that the most important reasons for the increases in crime rates are the cost of living for basic needs such as food and housing, and that especially violent crimes spread spatially among regions.

The findings show a potential to pose a threat to national security on social and economic axes in cases where migration is not well managed. For this reason, countries

Table 4: Regression Analysis Findings

Model 2			
Dep. Variable: <i>crmfinprop100</i>			
Panel Models			
<i>2016-2019</i> <i>26 Regions</i>	POLS	FE	RE
<i>mig100</i>	-0.002 (.0082)	0.01* (.0071)	0.01*** (.0070)
<i>Inffood</i>	2.05*** (.4254)	1.92*** (.1824)	1.81*** (.1921)
<i>uneduemp100</i>	-0.01*** (.0025)	0.002 (.0039)	-0.008*** (.0031)
R ²	0.49	0.69	0.66
JB Normality Test	9.95 [.0069]	4.051 [.1319]	0.4722 [.7897]
Hausman Test		0.00 [1.0000]	
NxT	104	104	104

Note: *, **, *** stands for, respectively, %10, %5 and %1 significance level, statistics in parentheses () stands for var-cov matrices with resistance to heteroscedasticity and autocorrelation; statistics in square parentheses [] stands for p-values.

POLS : Pooled Ordinary Least Square

FE : Fixed Effects

RE : Random Effects

should develop proactive security policies regarding the possible negative effects of mass-migration mobility on security. In this context, in the short-run, incentives and subsidies policies for the accommodation and nutrition opportunities of the immigrants while the employment policies to increase the employment opportunities of immigrants in the medium-run is necessary for minimizing of potential security problems. However, the pressures on the budget as well as the opportunity costs that will arise in the labor, goods, and housing market due to these expansionary fiscal policies should not be ignored. Indeed, the increased labor supply and the increased aggregate demand for food and housing by immigrants could cause inflation increase and real wage level decreases; this situation may turn into an economic security problem. For this reason, migration policies based on incentives and subsidies should be applied temporary.

In the long run, it is important that the solution processes of the problem are carried out with multiple actors, especially since the effects of mass migration are not limited to the immediate environment. In this context, eliminating the driving factors of migration in

countries that are the source of migration and ensuring the return of forced migrants to their countries should be understood as a common problem of the international community and cooperation between countries should be ensured.

On the other hand, policies for social integration should also be introduced in order to prevent inability to socialize caused by cultural differences. One of the important points of the social integration of immigrants is the language problem. By opening courses that will provide language education to immigrants, the language problem of immigrants can be solved, and social integration can be achieved.

Finally, considering the spatial spillover effects observed especially in violent crimes and the relationship between international migration and crime, it is understood that it is necessary to prevent immigrants from clustering in only one province or region. For this reason, limiting the proportion of the immigrant population in a province or region to the population of that region and limiting the residence permits for immigrants in a province or region could be considered as alternative policy proposals in the short-run and medium-run.

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Appendix

Table 4. Regression Analysis Findings

2016-2019 26 Regions	Model 1 Dep. Variable: <i>crmvil100</i>					Model 2 Dep. Variable: <i>crmfprop100</i>		
	Spatial Panel Models					Panel Models		
	POLS	FE	RE	SEM-FE	SEM-RE	POLS	FE	RE
λ				0.7*** [0.0988]	0.7*** [0.1067]			
<i>mig100</i>	0.01*** [0.0043]	0.01*** [0.0031]	0.01*** [0.0043]	0.008** [0.0031]	0.007*** [0.0029]	0.02*** [0.0067]	0.02*** [0.0047]	0.02*** [0.0065]
<i>infhouse</i>	1.15*** [0.1338]	1.14*** [0.1517]	1.15*** [0.1308]	0.8** [0.3511]	0.8** [0.3780]	1.99*** [0.2075]	2.08*** [0.2486]	2.004*** [0.1997]
<i>uneduemp100</i>	-0.005** [0.0021]	-0.003 [6.3990]	-0.005** [5.2931]	-0.001 [0.0024]	-0.002 [0.0021]	-0.007** [0.0032]	0.0005 [0.0037]	-0.006* [0.0035]
Log-likelihood			-379.23	-299.31	-365.12			-422.05
R ²	0.62	0.62		0.62	0.62	0.66	0.67	
JB Normality Test	0.3898 [0.8229]	2.585 [0.2746]	0.422 [0.8098]	2.932 [0.2309]	2.853 [0.2402]	0.3464 [0.8410]	4.039 [0.1327]	0.7332 [0.6931]
Hausman Test		0.00 [.]		0.00 [.]			0.00 [.]	
NxT	104	104	104	104	104	104	104	104

Note: *, **, *** stands for, respectively, %10, %5 and %1 significance level, statistics in parentheses () stands for var-cov matrices with resistance to heteroscedasticity and autocorrelation; statistics in square parentheses [] stands for p-values.

POLS : Pooled Ordinary Least Square

FE : Fixed Effects

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SEM-FE : Spatial Error Model with Fixed Effects

SEM-RE : Spatial Error Model with Random Effects