Pamukkale Üniversitesi
Sosyal Bilimler Enstitüsü Dergisi
Pamukkale University Journal of Social Sciences Institute
ISSN 1308-2922 E-ISSN 2147-6985

Article Info/Makale Bilgisi
Received/Geliş:08.08.2020 **Accepted/Kabul:**13.01.2020
DOİ:10.30794/pausbed.778218
Araştırma Makalesi/ Research Article

Odabaşı, S. (2021). "The Economics of Crime and Immigration: A Panel Data Analysis" *Pamukkale Üniversitesi Sosyal Bilimler Enstitüsü Dergisi*, Sayı 45, Denizli, ss. 387-399.

THE ECONOMICS OF CRIME AND IMMIGRATION: A PANEL DATA ANALYSIS

Suzan ODABAŞI*

Abstract

Immigration has become an increasingly important problem of the nations during the last half-century. This paper investigates the impact of immigration on crime rate by using a county-level panel data set from the United States of America (USA). County-level panel data for the period from 2012 to 2015 for 3142 counties are collected from the Census Bureau and the Federal Bureau of Investigation (FBI). The findings from the fixed effect approach (FE) show that any change in the percentage of domestic immigrants has impact on violent and property crimes but not murder. The estimates find a limited association between international migration and incidence of crime. Data show that international migration and domestic migration have significantly different impact on the incidence of violent and property crimes. Also, the results show that unemployment rate is an important economic factor that affects the number of crimes per 100,000 people.

Keywords: *Economic development, Crime, Unemployment, Immigration, Economics of crime*

JEL Classification: *012, K42, J00, F22, J15,*

SUÇ EKONOMİSİ VE GÖÇ: PANEL VERI ANALİZİ

Öz

Son elli yıl süresince gerçekleşen göç hareketleri ulusların giderek artan önemli bir sorunu haline gelmiştir. Bu çalışma, Amerika Birleşik Devletleri ilçe (county) düzeyinde verilerini analiz ederek göç hareketlerinin suç oranları üzerine etkisini incelemektedir. 2012 ve 2015 yılları arasını kapsayan 3142 yerleşim biriminden elde edilen veriler ABD Federal Araştırma Bürosu (FBI) ve ABD Nüfus Sayım İdaresi'nden elde edilmiştir. Sabit etki modeli kullanılarak elde edilen sonuçlar göstermektedir ki yurtiçinde gerçekleşen göç hareketliği şiddet suçları ve mala yönelik suçlarda istatistiksel olarak önemli etkiye sahiptir ancak cinayet suçlarında bu etkiyi görmek mümkün değildir. Ayrıca işsizlik oranı, her 100,000 kişide meydana gelen suç oranı üzerinde etki gösteren önemli iktisadi faktörlerden biridir. Analiz sonuçlarına göre uluslararası göç hareketliliği ile suç oranları arasında bağlantı açık olarak izlenmemektedir. Ayrıca uluslararası gerçekleşen göç hareketleri ile yurtiçinde gerçekleşen göç hareketleri suç oranları üzerinde önemli düzeyde farklı etkiye sahiptir.

Anahtar Kelimeler: *İktisadi kalkınma, Suç, İşsizlik, Panel Veri, Suç ekonomisi.*

* Dr., Usak University, Faculty of Economics and Administrative Sciences, Department of Economics, USAK.
e-mail: suzan.gurgil@usak.edu.tr (ttps://orcid.org/0000-0002-4646-8640)

Introduction

Since the 1940s the inflow of the immigrants into the United States of America shows a consistent increase. According to the last statistics the USA immigrant population exceeded 47 million (Figure 1 & 2). Consequently, the number of immigrants today account for 14.3% of the U.S. population. (Immigration Data & Statistics, 2019). Based on the Pew Research Center estimates about 25% of the immigrants in the U.S. are unauthorized immigrants (The Pew Research Center, 2020).

Using the Migration Policy Institute statistics, one can see that there is a large geographic variation in immigration from county to county. While Harris county (TX), Los Angeles county (CA), and Cook county (IL) have relatively higher immigrant population, Dewey (TX), Madison (ID), and Blaine (NE) have relatively lower immigrant population. Besides social and political results of this immigration movement, the inflow of refugees shows up as an important economic issue for two main reasons. The first reason is about crime rate. According to widespread concern in native population, increased immigration results in an increase in crime rate. There are several studies that investigate the impact of immigrants on crime (Sampson, 2008; Bianchi, Buonanno, & Pinotti, 2012). One can see that sociologists and economists may have different conclusions about the relationships between crime and immigration. According to Sampson's study (2008) as a sociologist, immigrants, especially Mexicans are less likely to commit a crime. His findings show that a first-generation immigrant is 45 % less likely to commit a crime than a third generation American (Sampson, 2008). Additionally, Sampson points out that establishing reputation or preserving honor of immigrant's own culture can be two important reasons to avoid violence. On the other hand, one can see that empirical studies in the economics of crime shows that immigrants may have impact on increased crime. In another empirical study, Bianchi Buonanno, and Pinotti (2012), investigated a linkage between migration and crime across Italian cities. Their findings show that immigration has a very small impact on the robbery rate. Additionally, it is important to remark that the effects of immigration on each crime rate is not statistically different from zero (Bianchi, Buonanno, & Pinotti, 2012).

The second concern of a high immigration rate is about the decreasing trend in wages and an increase in unemployment rate. The results from a report written in 2013 show that immigration does decrease the wages for the natives by increasing the supply of workers (Camarota,2013). While economic theory accepts that immigration makes an economy larger, it is mostly dependent on the native economy. As explained by Camarota (2013), in a larger economy, like the USA, the impact of immigrants on the gross domestic product (GDP) of native populations is strongly limited. On the other hand, most of the natives who lose their jobs are not high school graduates (Camarota, 2013).

The main objective of this paper is to investigate an empirical relationship between immigration and crime across the USA counties. As far as is known this study develops the first detailed economics model of how immigration will affect criminal activity in the United States counties from 2012 to 2015. The remainder of this paper is organized as follow: section 1 provides a review of literature, section 2 provides econometric model, empirical specification and econometric methodology, section 3 explains the data with some recent studies, and section 4 presents the results from the fixed effect approach (FE).

2. Literature Review

There existing a large literature on the economics of crime and immigration (Jörg , 2010; Bell, 2019; Piopiunik & Ruhose, 2015; Freedman, Owens, & Bohn, 2018). As explained by Becker (1968), crime is an economically important subject. Becker accepts that social gain from illegal behaviors and social damage to the victims are two components of criminal behaviors. After Becker's pioneer study (1968), economists focused on the economic theory of crime and determinants of crime.

Theories on how crime and immigration are related to each other have discussed intensively by researchers during the last century. Kubrin and Mioduszewski (2018)'s recent study provides the theoretical perspectives on the crime and immigration relationship. Natives believed that immigrants are more likely to commit crimes. This belief is supported to prevent immigrant's inflow. Three of the channels which immigrants might affect the host country's economy are: (i) unemployment rate , (ii) lower prices, (iii) crime. Unemployment rate is one of

the channels which immigrants can affect the economy. Because of the language barriers, adaptation problems, discrimination in housing, and employment market the immigrants are more likely to search job for lower prices (Reid et al., 2005). So, it is possible to see that in the host countries, price reduction can take place. While the lower prices in the refugee-receiving regions are acceptable by natives, an increase in the unemployment rate is not preferred. Additionally, as discussed in the crime literature, unemployment can be one of the strong economic factors that positively related to crime (Costantini et al, 2018).

Several researchers support that there are two main approach to describe the crime-immigration link. The first approach supports that a wave of immigration causes an increase in crime because it changes the demographic profile of population share of the population such as the teenage and young adult years of the life course (Ousey and Kubrin, 2018).

Another group of researchers argue that as results of immigration, economic deprivation and competition in local labor markets might be seen. For example, immigration increase competition for jobs and increase unemployment rate. As a result of increase in unemployment there will be a rise in poverty rate for both immigrants and native population. These economic conditions increase motivations for violence (Reid 2005).

The relevant literature points out that immigration and unemployment are two important subjects which are associated to crime. The relationship between crime, immigration, and unemployment are associated with each other as illustrated with the following diagram.

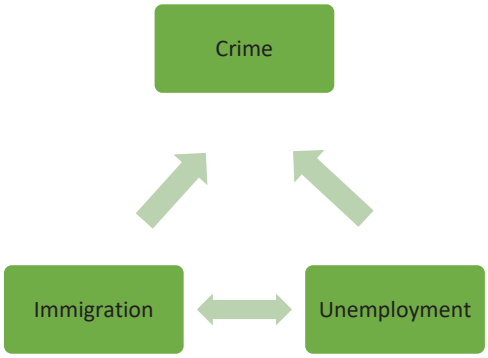


Figure 1: the diagram of crime, immigration, and unemployment nexus

Crime rates could be affected by increase in unemployment rates. A positive association between unemployment and crime are conducted by several researchers (Altindag, 2012; Gould, Weinberg, & Mustard, 2002; Raphael & Winter-Ebmer, 2001; Odabasi 2019). Raphael and Winter-Ebmer's study (2001) explains that there was a remarkable decrease in crime during the 1990's in the USA. Based on their instrumental variable (IV) estimation, the decrease in crime rate was associated with a decrease in unemployment rate (Raphael & Winter-Ebmer, 2001). Additionally, Aaltonen et al. (2013) supports that the association between unemployment and crime remains unclear. While their results support theories that accept unemployment as a determinant of crime, the effects of unemployment are more significant on the incidence of property crime (Aaltonen, Macdonald, & Martukainen, 2013).

Another study which shows the relationship between crime and unemployment was conducted by Fougére et al (2009). Their study used a regional level data set to estimate the impact of higher unemployment rates on the crime statistics for the period 1990 to 2000. Their estimation has two main results. The first result shows that in cross section dimension, crime and unemployment rate are positively related with each other. Their second finding points out that to decrease crime, young unemployment should be decreased (Fougére, Kramarz, & Pouget, 2009).

In addition to the impact of unemployment on crime, immigration is also seen as another concern which may have a positive impact on crime. A recent study conducted by Blanchflower et al. (2009), examined the impact of

the flow of the workers on the unemployment rate in the United Kingdom (UK). According to their study, one of the economically important impacts of immigration is that inflow of workers into the UK increased supply more than demand. Therefore, it has an impact to reduce the natural rate of unemployment. Secondly, an increase in the labor force results in a fear of unemployment. In the non-union sector, immigration had a downward impact on wages (Blanchflower & Shadforth, 2009). Immigration and crime are also empirically investigated by Bianchi et al. in 2012. Their findings show that while immigration increases only robbery, other crime types are not significantly affected by immigration (Bianchi, Buonanno, & Pinotti, 2012).

As stated by Jörg (2010), there are several mechanisms by which a change in the number of immigrants may have impact on crime rates. The first channel, purely mechanical population effect, supports that an inflow of immigrants is likely to increase the total number of crimes because it increases the population density. The other channel is spillover effects. Immigration can be expected to increase in unemployment rate and decrease in wages (Jörg , 2010).

There are several studies which investigate the determinants of immigration. The influence of education on crime prevention is discussed by a number of researchers (Clark, Hatton, & Williamson, 2007; Lewer & Berg, 2008; Sejas & Salvador, 2006). Improving education supports better social benefits, and through better social and economic outcomes, a reduction in crime can be observed. In additional to the educational attainment, the existing literature supports that median household income have significant impacts on crime, particularly, the crimes which are income motivated such as property, robbery, and burglary (Odabasi,2019).

3. Empirical Methodology

The economic model of crime was developed by Becker in 1968 and then improved by Ehrlich (1973). After these two pioneer studies, a large literature on crime and determinants were developed by economists. In this section, a simple economics of crime model is presented to explain the framework.

As pointed out in Becker's study (1968), crime is an economically important subject. Since the turn of the 20th century, the cost of crime has become an increasingly important problem. Thus, understanding the roots of crime in order to decrease the cost of crime is highly important (Becker, 1968). The "social loss function" is formulated by Becker as measurement of the social and economic losses from illegal behaviors.

Becker's social loss function (1968) explains that crime has three components. The first is the net social result. This component is about the social gain from illegal behavior and social damage to the victim. The cost from the offensive activities is a function of harmful activities. Furthermore, the theory assumes that the expected gains to offenders are also positively related to harmful activities. The second component is the cost of conviction and apprehensiveness. Based on the literature, an increase in the activity leads to an increase in the economic cost. The theory assumes that an increase in the probability of conviction or the number of offenses can increase total costs. The last one is related to the supply of offenses. This approach points out that an increase in the probability of conviction and punishment is negatively related to offense rate.

In this section a simple standard economic model of crime is used to investigate the impact of immigration and unemployment on crime.

(1) CR_{it}=f ($DMig_{it}$ $IMig_{it}, MHHInc_{it}, HSGrad_{it,}, BSGrad_{it,}, Unemp_{it}, LF_{it}, u_{it}$)

(2) $Immigrant_{it} = g\ (Unemp_{it}, MHHInc_{it}, e_{it})$

Equation (1) presents a crime supply equation where "" is the crime rate, "" is the percentage of domestic immigrants in each county, is the percentage of international immigrants in each county,"" is the median household income, "" is the percentage of the high school graduate rate, " and "" is the unemployment rate, and "'' is the labor force participation rate. The error term "" covers the unobserved individual attributes. This model assumes crime rate as a function of the percentage of immigrant population, high school graduation rate, percentage of people who have at least an undergraduate degree, labor force participation rate, and unemployment rate. Equation (2) shows that immigrant population is the function of unemployment and median

household income. The error term in the second equation presents the unobserved personal characteristics that may affect immigrant population.

This model estimates that an increase in the unemployment rate may decrease the number of immigrants in the related county. Also, a decrease in the household income can affect the immigrant population negatively. Based on equation (1), an increase in immigrant population may lead to an increase in the number of crimes. In this case, the answer of how the impact of immigration on crime $(\frac{\partial CR_i}{\partial Immigrant_i})$ is a very impactful question to predict the model.

$$(Crime_{ijt}) = \alpha + \beta_1 DMig_{ijt} + \beta_2 IMig_{ijt} + \beta_3 MHHInc_{ijt} + \beta_4 HSGrad_{ijt} + BSGrad_{ijt} + \beta_5 Unemp_{ijt} + LF_{ijt} + \mu_i$$

In this equation, "i" refers to counties, "j" refers to states, "t" refers to years. The results from the estimations are discussed below.

Typically, the fixed effect approach would be used to deal with unobserved time-invariant characteristics across locations. The dataset used in the present study benefits from the aggregate statistics for US counties. Therefore, the fixed effect approach works reasonably well with high rates. As a result, the best way to go about a regression in this context is the fixed effect approach.

Additionally, a Hausman test is run to test if the regressors and unique error are correlated. The test hypothesis is that these are not correlated. The Hausman test result is Prob>Chi2= 0.457. In conclusion, the Hausman test results shows that a fixed effect approach will perform better than a random effect approach.

4.Data

The sample of the counties and description of the data sources are explained in the Table 1. All the counties in the USA are analyzed for years from 2012 to 2015. Each county data are collected from the public data sources. Crime measure provides the number of offences occurred in a calendar year. Each variable and data sources are explained below:

4.1 Data on Crime

In the present study, crime is employed as the dependent variable. The FBI UCR program provides statistics on the number of crimes occurred in a calendar year. Crime data for nine main crime categories are obtained from the FBI statistic's department. The FBI's Uniform Crime Reporting Program divides the violent crime into four offense categories: murder, forcible rape, robbery, and aggravated assault. For property crime, there are also four crime categories: burglary, larceny-theft, motor vehicle theft, and arson. Chart 1 shows the distribution of crime from 2012 to 2015. The definition of murder excludes suicides, deaths caused by negligence and accidental deaths. The definition of rape includes attempts to rape and rape by force. Robbery is defined as attempting or taking of anything by violence or force or threat of force or by putting the victim in danger. The last crime type, an aggravated assault is defined as an unlawful attack or threatened assault with a weapon. Under property crime, three categories are stated; burglary, larceny-theft and motor vehicle theft. The definition of burglary includes any unlawful entry to commit a theft. Larceny theft defined as any unlawful carrying, leading or riding away properties. The motor-theft is also defined as a theft or attempt to theft a motor vehicle (FBI, 2018).

Because of the limited participation of law enforcement and limited data availability for arson, this crime type is not analyzed in our study.

It is important to state that data availability has become one of the reasons to apply this research question for the U.S counties. The FBI provides county level crime statistics for each crime categorized and the dataset is publicly available for researchers. While the FBI provides the crime statistics annually several other variables in the model are not available for every year. Therefore, the time period is limited from 2012 to 2015.

4.2 Data on Immigration

Immigration data comes from the Census Bureau. The Census Bureau database provides three different immigration categories: (1) international migration, (2) domestic migration, (3) net migration. In the present study international migration and domestic migration are employed. The variable of *international immigration* shows the number of people who moved from another country to the United States. The variable of domestic immigration shows the number of people who moved within national boundaries. To have a better understanding, these two variables are calculated as the percentage of international/ domestic immigrants in each county.

4.3 Social and Economic Indicators

The main model in the present study considers that unemployment rate, labor force participation rate, median household income level, high school graduation and bachelor degree graduation rate are the factors which impact the incidence of crime.

The unemployment rate data are gathered from the Local Area Unemployment Statistics (LAUS) program of the Bureau of Labor Statistics. Unemployment rate represents the population who are aged 16 and older in civilian labor force. It gives the rate of the population who are unemployed but seeking work. Some of the different methods used to produce unemployment rate data are (1) a signal-plus-noise time-series model, (2) a building block approach and (3) disaggregation procedures for most of the counties in the USA. Also, the results are consistent with the national labor force and unemployment measures from the Current Population Survey (countyhealthrankings, 2016). The variable of labor force participation shows the percentage of people employed and looking for work. The labor force participation statistics are obtained from the Census Bureau.

Median household income level shows the annual income level of the households for each county. Median household income data are based on the average income distribution of all individuals. The data is calculated by the changes of inflation rate with 2012 accepted as the base year.

High school graduating rate shows the percentage of population with at least high school graduation. Similarly, the percentage of individuals with at least a bachelor's degree is included in our model.

5.Results

The data in Table 2 shows that property crime has the highest mean value among the crime categories (about 77 per 100,000 people). Charlotte, Virginia has the highest property crime per capita by 5132 in 100,000 people. The lowest mean value is seen for murder. While San Juan, Colorado has the highest number of murder (13 per 100,000), Charlotte Virginia and Lipscomb, Texas follow by about 8 and 7 murder in 100,000 people.

Additionally, the statistics from the Census Bureau show that Orange County, Florida has the lowest number of native households among the metropolitan areas. Orange County is followed by Bronx County (New York) and Kings County (New York). The lowest native household numbers are Caddo Parish (Louisiana), Westmoreland County (Pennsylvania) and Stark County (Ohio).

In Table 2, the statistics are presented on the factors has impact on the crime rate. Overall, the sample contains about 2500 observations. This number is dropped from 3141 to around 2500 because of data availability and missing observations issues. Additionally, the FE estimation results of the influence of the immigration rate on crime categories are provided in Table 3 and Table 4. Violent crime rate is chosen as it includes all murder, rape, assault and robbery. Property crime rate covers burglary, motor theft and grand larceny. The distribution of these crime types is also visually presented in Chart 1.

The variable of interest in this section is the international immigrant population and the domestic immigrant population. Control variables include high school graduation rate, bachelor's degree graduation rate, unemployment rate, labor force participation, and adjusted median household income. Standard errors that are obtained at the county level are reported in parenthesis. The results are presented from Table 3 and Table 4.

5.1 Results for Violent Crime Categories

Table 3 shows the results from the estimation of the fixed effect approach for the violent crime categories in the United States counties. Column 1 contains the results for all violent crimes. Column 2 presents the results for murder, column 3 presents the results for rape, column 4 presents the results for robbery, and column 5 presents the results for assault.

Firstly, among the independent variables, domestic immigration, unemployment rate, and bachelor's degree graduate rate are associated with the violent crime. The results show that percentage of the domestic immigration in a population and violent crime are positively associated with each other. As the percentage of immigrant population in a county increases, the violent crime rate in the county also increases. This result consists with literature which investigates the relationship between crime and immigration (Bianchi, Buonanno, & Pinotti, 2012). Additionally, the model presents a relationship between the number of violent crime and bachelor's degree graduation. This coefficient is negative -0.17 for the overall sample.

In terms of the effect of immigration, one can see that domestic immigration rate has more statistically significant impact on the incidence of violent crime. As seen on Table 3, an increase in the domestic immigration is positively associated with the violent, rape, assault but not murder and robbery. On the other hand, the results point out that international migration is related to the incidence of crime for only robbery with the coefficient of 1,033. While there is not a straight forward link between crime and international immigrants, several studies found a limited relationship between immigration and crime (Bianchi, Buonanno, & Pinotti, 2012).

The overall results from the economic factors show some significant coefficients. While unemployment rate has statistically significant impact on violence, murder, robbery and assault, it does not show an impact on the incidence of rape. Another finding highlights that educational factors are more impactful on the assault but not the other violent crime categories. As seen on the Table 3, bachelor's degree graduation rate and high school graduation rate have a negative association with the incidence of assault. The coefficients are -187, 4 and -0.159. These findings prove that an increase in high school graduation rate or bachelor's degree graduation rate in a population results in a decrease in the number of assaults per 100,000.

5.2.Results for Property Crime Categories

Table 4 shows the results from the fixed effect approach for the property crime categories in the United States counties. Column 1 contains the results for all property crimes. Column 2 presents the results for burglary, column 3 presents the results for grand larceny, and column 4 presents the results for motor vehicle theft.

In terms of effect of immigration, the estimates show that domestic immigration has more impact on the property crimes than violent crimes. As seen on Table 4, domestic immigration is positively associated with all property crimes in overall US counties. On the other hand, the estimates show there is no evidence on the impact of international migration on the incidence of property crime. As stated by several previous studies, international migration is not linked with higher crime rates in the United States (Ewing, Martinez, & Rumbaut, 2019).

Income motivated crimes such as property theft, robbery, and burglary are more likely to be affected by the changes in individuals' welfare and income level changes. The results from this model also confirm that unemployment rate is an important and strong factor which might affect the incidence of property crimes. As stated in Table 4, unemployment rate has a positive association with burglary, grand larceny, and motor vehicle theft. The estimates show that a 1% increase in the unemployment rate results is an increase in 17 more burglaries, 20 more grand larcenies, and 40 property crimes per 100,000 population.

Also, it is important to note that there are a number of mechanisms that can motivate a positive impact of migration on crime. For example, migrants can be poorly educated or less productive in some industries. As a result, migrants may have less opportunity in the job market (Altindag, 2012).

6.Summary and Conclusion

While a recent report from the (American Immigration Council, 2019) explains that immigration is not linked to higher crime rates, little is known about what factors related to immigration have impact on the incidence of crime at the county level. This study examines the empirical relationship between immigration and crime across the Unites States counties.

The estimates find a limited association between international migration and incidence of crime. Data shows that international migration and domestic migration shows significantly different impact on the incidence of violent and property crimes. Also, the results show that unemployment rate is an important economic factor affects the number of crimes per 100,000 people. Particularly, income motivated crimes are more likely to be affected by the changes in the unemployment rates.

For policy purposes, an understanding of how change in the percentage of immigrants in a population may affect incidence of crime is important. In this study, an empirical approach is conducted to evaluate how economic and demographic factors are associated with the incidence of crime. The results indicate that international migration has a limited effect on crime while domestic mobility has higher affect. Additionally, the results also show that education can be another important factor to improve policies to decrease crime. Therefore, education and unemployment rate should be considered by the policymakers when designing policies.

It is important to be stated that this study has some limitations. The dependent variables are obtained from the FBI UCR program. For a number of reasons there are a number of crimes which are not reported. Additionally, the FBI UCR program does not provide crime statistics for each state. So, for some states. there is not any crime information.

References

Aaltonen, M., Macdonald, J. M., & Martukainen, P. (2013). Examining the Generality of the Unemployment-Crime Association. *Criminology, 51(3):561-594.*

Altindag, D. T. (2012). Crime and unemployment: Evidence from Europe. *International Review of Law and Economics*, Volume 32, Issue 1 145-157.

American Immigration Council. (2019). Retrieved from https://www.americanimmigrationcouncil.org/.

Becker, S. G. (1968). Crime and punishment: An economic approach. *Journal of Political Economy*, 169-217.

Bell, B. (2019). "Crime and immigration," IZA World of Labor, Institute of Labor Economics (IZA), pages 1-33, January

Bianchi, M., Buonanno, P., & Pinotti, P. (2012). Do Immigrants Cause Crime? *Journal of the European Economic Association*. Volume 10, Issue 6.

Blanchflower,, D. G., & Shadforth, C. (2009). Fear, Unemployment and Migration. *The Economic Journal*, Vol. 119, No. 535 136-182.

Burdett, K., Lagos , R., & Wright, R. (2003). Crime, Inequality, and Unemployment. *The American Economic Review*, VOL. 93, NO. 5 1764-1777.

Camarota, S. A. (2013). *The Fiscal and Economic Impact of Immigration on the United States.* Washington: The Joint Economic Committee.

Clark, X., Hatton, T. J., & Williamson, J. G. (2007). Explaining U.S. Immigration, 1971–1998. *The Review of Economics and Statistics*, Vol. 89, No. 2 (May, 2007), pp. 359-373.

Costantini, Mauro, Iris Meco & Antonio Paradiso (2018) Do inequality, unemployment and deterrence affect crime over the long run?, Regional Studies, 52:4, 558-571, DOI: 10.1080/00343404.2017.1341626

Ehrlich, I. (1973). Participation in Illegitimate Activities: A Theoretical and Empirical Investigation. *Journal of Political Economy*, Vol. 81, No. 3, pp. 521-565.

Eurostat. (2019). Retrieved from Migration and migrant population statistics: https://ec.europa.eu/eurostat/statistics-explained/index.php/Migration_and_migrant_population_statistics

Ewing, W. A., Martinez, D. E., & Rumbaut, R. G. (2019). *The Criminalization of Immigration in the United States.* American Immigration Council.

FBI. (2018). Retrieved from U.S. Department of Justice: https://www2.fbi.gov/ucr/cius2009/about/offense_definitions.html

Fougére, D., Kramarz, F., & Pouget, J. (2009). Youth Unemployment and Crime in France. *Journal of the European Economic Association*, Vol. 7, No. 5,909-938.

Freedman, Matthew, Emily Owens, and Sarah Bohn. 2018. "Immigration, Employment Opportunities, and Criminal Behavior." American Economic Journal: Economic Policy, 10 (2): 117-51.

Gould, E., Weinberg, B., & Mustard, D. (2002). Crime rates and local labor market opportunities in the United States: 1979–1997. *Review of Economics and statistics*, Vol. 84, No. 1 pp. 45-61.

http://www.countyhealthrankings.org/. (2016).

Immigration Data & Statistics. (2019). Retrieved from The Department of Homeland Security: https://www.dhs.gov/immigration-statistics

Jörg , S. L. (2010). Understanding the Impact of Immigration on Crime. American Law and Economics Review Volume 16, Issue 1, Spring 2014, Pages 177–219.

Kubrin, Charis & Miodeszuwski, Michelle. (2018). Theoretical Perspectives on the Immigration-Crime Relationship.

Lewer, J. J., & Berg, H. V. (2008). A Gravity Model of Immigration. *Economics Letters*, Volume 99, Issue 1,Pages 164-167.

Lochner, L., & Moretti, E. (2004). The Effect of Education on Crime: Evidence from Prison Inmates,Arrests, and Self-Reports. *American Economic Review, Vol. 94, No. 1, pp. 155-189.*

(2019). *Migration and migrant population statistics.* Eurostat.

Odabasi, S. (2019). Three Essays on the Economics of Crime. *Auburn University*.

Ousey, C. G.& Kubrin, E,C.(2018). Immigration and Crime: Assessing a Contentious Issue. Annual Review of Criminology, 1:1, 63-84.

Piopiunik, M & Ruhose, J. 2015. "Immigration, Regional Conditions, and Crime: Evidence from an Allocation Policy in Germany," CESifo Working Paper Series 5303, CESifo

Raphael, S., & Winter-Ebmer, R. (2001). Identifying the effect of unemployment on crime. *Journal of Law and Economics*, Vol. 44, No. 1 pp. 259-283.

Reid , L. W. , Weiss , H. E. , Adelman , R. M. , & Jaret , C.(2005). The immigration-crime relationship: Evidence

across US metropolitan areas . Social Science Research , 34 (4), 757–780

Sampson, R. (2008). Rethinking Crime and Immigration. *Contexts 7.1* , 28-33.

Sejas, H. G., & Salvador, G. P. (2006). Determinants of European Immigration: a Cross-Country Analysis. *Applied Economics Letters*, Pages 769-773.

The Pew Research Center. (2020, January 14). Retrieved from The Pew Research Center: https://www.pewresearch.org/fact-tank/2019/06/12/us-unauthorized-immigrant-population-2017/.

Tables and Charts

Table 1. Data Definitions and Sources		
Variable	Definition	Source
Violent	Number of Violent Crime	FBI -UCR
Murder	Number of Murder Crime	FBI -UCR
Rape	Number of Rape Crime	FBI -UCR
Robbery	Number of Robbery Crime	FBI -UCR
Burglary	Number of Burglary Crime	FBI -UCR
Property	Number of Property Crime	FBI -UCR
Grand Larceny	Number of Grand Larceny Crime	FBI -UCR
Motor Vehicle Theft	Number of Motor Vehicle Theft Crime	FBI -UCR
Domestic Immigrants	Domestic Immigrant Rate	Census Bureau
International Immigrants	International Immigrant Rate	Census Bureau
Domestic Immigration	Domestic Immigration Rate	Census Bureau
Unemployment Rate	Percent of unemployed population	Census Bureau
High School Graduate	High School Graduation Rate	Census Bureau
Bachelor's Degree	Bachelor's Degree Graduation Rate	Census Bureau
Median Household Income	Median Household Income	Census Bureau
Labor Force	Labor Force Participation Rate	Census Bureau

Table 2 : Summary Statistics

Variable	Mean	Median	Min	Max
Violent	10.10	6.46	0.00	323.00
Murder	0.16	0.00	0.00	13.90
Rape	1.31	0.65	0.00	69.10
Robbery	0.56	0.00	0.00	117.00
Assault	8.11	4.69	0.00	316.00
Property	76.60	59.50	0.00	5130.00
Burglary	25.20	18.70	0.00	1100.00
Grand Larceny	46.50	35.30	0.00	3850.00
Motor Vehicle Theft	5.04	3.52	0.00	202.00
International Immigration	0.08	0.04	-0.14	2.76
Domestic Immigration	-0.30	-0.30	-25.64	25.00
Bachelor's Degree	18.45	16.70	1.90	80.20
High School Graduate	2.35	0.84	0.00	1.00
Median Household Income	43.98	42.65	21600.00	125.60
Labor Force	58.98	59.60	20.60	93.10
Unemployment rate	6.80	6.50	1.10	20.70
Poverty Rate	17.70	16.70	3.00	51.20

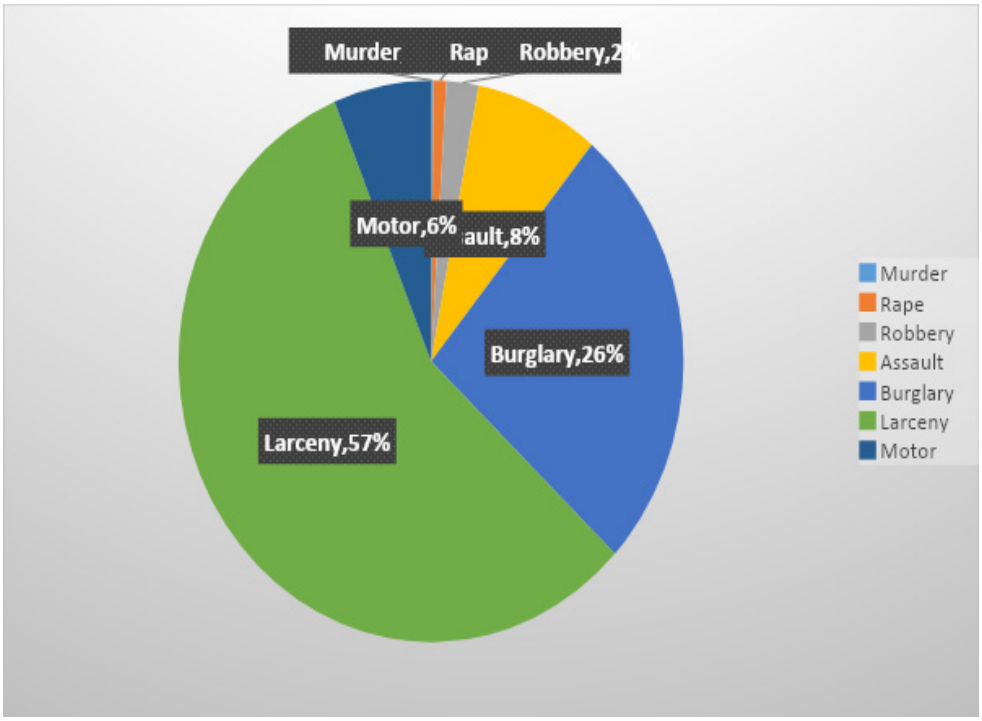
Table 3: Fixed Effect Estimations for Violent Crime Categories					
	Violent	Murder	Rape	Robbery	Assault
Constant	179.447	0.151	10.858	-2.52	167.11
	(641.09)	(2.36)	(11.07)	(13.58)	(250.28)
International Immigration	1.836	0.019	-0.345	1.033***	1.136
	(1.81)	(0.06)	(0.34)	(0.38)	(1.41)
Domestic Migration	0.84***	0.011	0.087**	0.02	0.728***
	(0.18)	(0.01)	(0.035)	(0.039)	(0.144)
Unemployment Rate	0.48***	0.008**	0.009	0.041*	0.415***
	(0.10)	(0.004)	(0.019)	(0.021)	(0.078)
Labor Force	-0.027	0.000	0.000	0.004	-0.032
	(0.033)	(0.001)	(0.006)	(0.007)	(0.02)
Median Household Income	0.000	0.00***	0.000	-0.000***	-0.000
	(0.00)	(1.17)	(0.000)	(0.000)	(0.00)
High School Graduation	-199.669	0.188	-11.635	4.07	-187.4**
	(176.84)	(2.84)	(13.20)	(16.29)	(60.28)
Bachelor's Degree Graduation	-0.17***	-0.001	-0.006	0.002	-0.159**
	(0.035)	(0.001)	(0.007)	(0.007)	(0.027)
R-square	0.42	0.36	0.38	0.32	0.44
Number of Observations	5904	5969	4881	5969	5961

Notes: Standard errors are presented in parentheses. (*) shows p < 0.1, (**), (**) shows p < 0.5, (***) shows p<0.01

Table 4:Fixed Effect Estimations for Property Crime Categories				
	Property	Burglary	G.Larceny	Motor Theft
Constant	415.85	64.37	310.94	48.97
	(558.2)	(158.6)	(397.03)	(37.95)
International Immigration	9.38	-0.052	8.356	0.507
	(15.68)	(4.456)	(11.15)	(1.065)
Domestic Migration	6.183***	1.21***	4.183**	0.694**
	(1.604)	(0.455)	(1.141)	(0.108)
Unemployment Rate	3.942***	1.761***	2.028**	0.103*
	(0.874)	(0.248)	(0.621)	(0.059)
Labor Force	0.191	-0.056	0.172	0.005
	(0.286)	(0.081)	(0.203)	(0.019)
Median Household Income	-0.001**	-0.000	-0.0002	-0.000**
	0.000	(0.000)	(0.0002)	(0.000)
High School Graduation	-404.14	-37.60	-322.86	-49.83
	(669.4)	(190.29)	(476.14)	(45.51)
Bachelor's Degree Graduation	-0.557	-0.236***	-0.237	-0.065***
	(0.308)	(0.087)	(0.219)	(0.021)
R-square	0.35	0.38	0.34	0.36
Number of Observations	5960	5967	5965	5965

Notes: Standard errors are presented in parentheses. (*) shows p < 0.1, (**), (**) shows p < 0.5, (***) shows p<0.01

Chart 1 : Distribution of Crime for 2012-2015



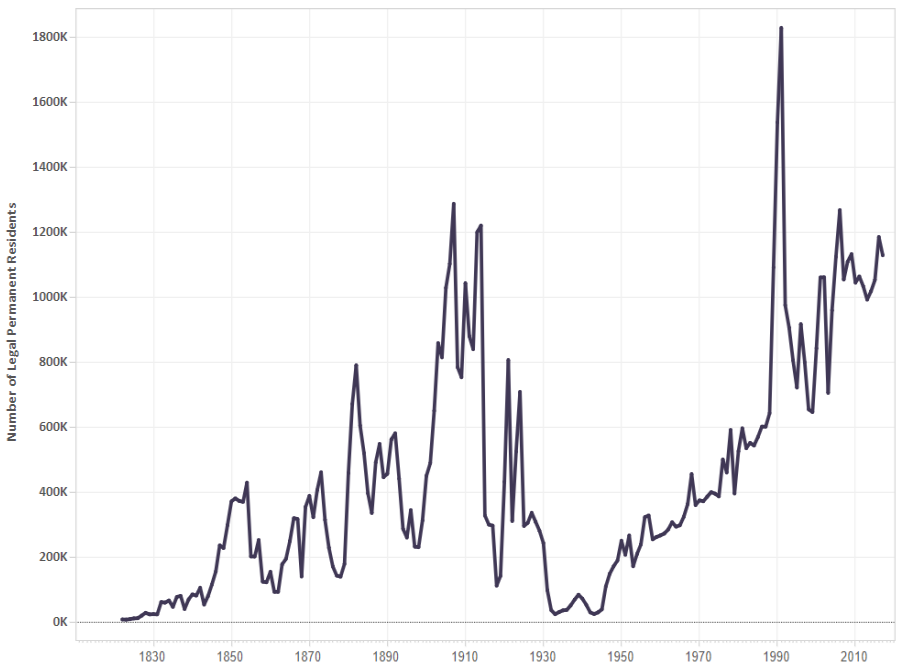


Figure 1: The inflow of legal immigrants in the US
Source: The Department of Homeland Security (2017)

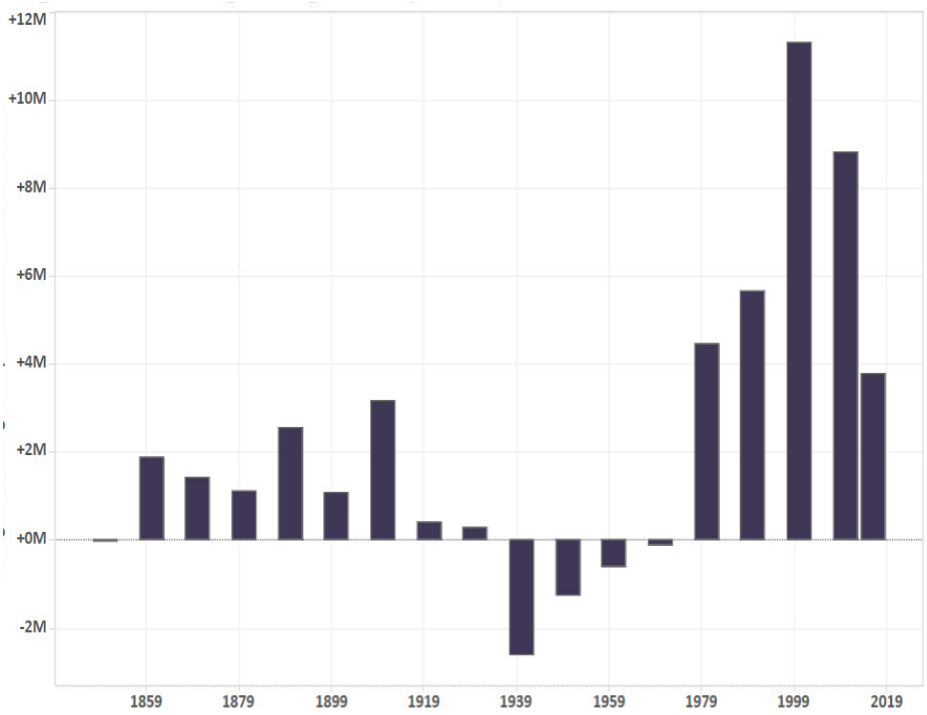


Figure 2: Change in the US immigrant population
Source: Migration Policy Institute (2020)

Beyan ve Açıklamalar (Disclosure Statements)

1. Bu çalışmanın yazarları, araştırma ve yayın etiği ilkelerine uyduklarını kabul etmektedirler (The authors of this article confirm that their work complies with the principles of research and publication ethics).

2. Yazarlar tarafından herhangi bir çıkar çatışması beyan edilmemiştir (No potential conflict of interest was reported by the authors).

3. Bu çalışma, intihal tarama programı kullanılarak intihal taramasından geçirilmiştir (This article was screened for potential plagiarism using a plagiarism screening program).

4. Bu makale için etik kurul izni gerekmemektedir (Ethics committee permission is not required for this article).