Economic Causes Of Theft In 25 OECD Countries: Dynamic Panel Data Analysis

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Received: July 8, 2022 *Accepted: July 29, 2022*

Abstract

There are many reasons for crime, including biological, psychological, economic, and social. The reasons for the crime may vary by the types of crime. While some types of crimes are mostly committed for economic reasons, many factors other than economic factors can be predominantly influential in committing some types of crimes. It is essential to investigate the economic causes of crime types. Because, there may be economic reasons on the basis of crimes stemming from psychological and sociological reasons. In this study context, the economic reasons for theft crime which is mostly committed for economic reasons, were investigated by the System Generalized Moments Method (GMM) for selected countries (25 OECD countries) that are members of the Organization for Economic Development and Cooperation. While determining the OECD member countries, the data set of all the variables (unemployment, Gini coefficient as an indicator of income inequality, consumer price index as an indicator of inflation, social expenditures, and population) included in the analysis was examined, and a standard analysis period (2013-2018) was determined according to these data. Thus, the effect of these variables on theft crime was investigated for the period 2013-2018. In the literature, economic variables were mostly used in the studies on the subject, but there were not many studies investigating the effect of the social expenditure variable on theft crime. For this reason, it is considered that the study will contribute to the literature. According to the system GMM analysis results, while unemployment, inflation rate (consumer price index), and the Gini coefficient positively affect theft crime, social expenditures and population variables shows no effect.

Keywords: Theft Crime, Economic Factors, OECD Countries, Dynamic Panel Data Analysis, System GMM
JEL Codes: D90, D91

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Introduction

Crime jeopardizes the safety of life and property of individuals and disrupts social peace. Crime can negatively affect individuals' life satisfaction and social capital level. In societies with high crime rates, individuals' trust in institutions such as the police and gendarmerie may decrease. Chaos can occur in any society. In this case, the fight against crime is necessary. Crime and the fight against crime (such as the increase in the number of law enforcement, prison, and courthouse) create a cost for the country's economy. For this reason, besides the prevention of crime, it is necessary to investigate the causes of crime. Studies that have been done and will be done in this direction are important. In this context, the economic reasons for crime were investigated in this study. Considering that economic problems may be the basis of many psychological and sociological problems, it is of particular importance to investigate the economic factors affecting crime.

In the study, first of all, the economic theories of crime are briefly mentioned, and the studies that investigate the crimes against property arising from economic reasons are given in Table 1. Table 1 does not include the results of the studies on types of crimes other than crimes against property. In the following stage, the data set and method were explained, the results of the analysis were interpreted, and an evaluation was made within the scope of the analysis results.

In the literature, there are many studies investigating the effect of economic factors on crimes against property. In these studies, research was conducted for country groups. There may be the OECD member countries among the country groups, but there are no studies in which all the countries included in the analysis are members of the OECD. In addition, several studies (Ivaschenko et al. (2012), Johnson et al. (2007)) investigated the effect of social expenditures on crimes against property. In these studies, theft, robbery, and banditry crimes, which are crimes against property, were handled, and research was conducted for the United States of America (USA) and Russia. Again, in these studies, it has been concluded that social expenditures have a negative effect on crimes against property. For the OECD countries, there is no study investigating the effect of social expenditures on crimes against property with the System GMM method (Ivaschenko et al. (2012) used the GMM method). For these reasons, it is consideredthat this study will contribute to the literature.

Theoretical Framework

Due to the limited scope of the study, only economic theories[2] from crime, theories are briefly explained here. Economic theories are explained within the scope of classification made by McCaghy (2003).

Accordingly, economic theories are explained within the scope of the effect of economic structure on crime on the basis of Karl Marx and William Bonger's views and the effect of poverty on crime on the basis of Frank W. Blackmar's views (McCaghy, 2003: 51).

Karl Marx associated crime with the economic structure. According to Marx, the deviant behavior associated with the concept of crime is at the core of capitalism. The deviation is the result of social conflict that arises due to the struggle of individuals in poor economic conditions with poverty and exploitation in capitalist societies. In order for there to be no deviation, the capitalist economic structure must change and become a socialist economic structure. Deviant behavior and non-deviated behavior are in a relationship. Deviant behavior generates employment in some occupations. If it wasn't for the deviant behavior, police and justice workers would be out of work. William Bonger, like Marx, saw crime as related to the economic structure. He argued that in the capitalist economic structure, poverty and, therefore, crime occurs due to selfishness. Bonger stated that in the capitalist economic structure, criminals are punished, but criminal law privileges the economically powerful (dominant) class in the society. According to Bonger, crimes will be greatly reduced in societies where income distribution is fair. These societies are societies with a socialist economic structure in which goods and wealth are distributed equally (Hagan, 1991: 133-134; Mccaghy et all, 2003:51).

Frank W. Blackmar has linked crime to poverty. He investigated the impact of bad economic conditions on crime by examining a family in Kansas. Thinking that deviant behavior is most common in Kansas, he conducted his research in Kansas. It has been determined that theft, begging, and prostitution is high in poor families in Kansas. Blackmar described poor families who committed crimes as "dark in color, dirty like smoke" (McCaghy et all, 2003:54-55).

[2] For detailed information on crime theories, see
Dündar, Ö. (2017). Malvarlığına Karşı İşlenen Suçlar İle İşsizlik Arasındaki İlişkinin Mekansal Bağımlılığı: Türkiye Üzerine Bir Uygulama (Yayınlanmamış doktora tezi). Manisa Celal Bayar Üniversitesi, Sosyal Bilimler Enstitüsü.
Dündar ve Kesbiç (2020). Malvarlığına Karşı İşlenen Suçların Suç Teorilerine Göre Mekansal Analizi. Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 23(44), 911-936.

Literature Review

Table 1 contains studies investigating the effect of economic factors on crimes against property. In some studies in Table 1, types of crimes other than crimes against property and factors other than economic factors are included in the analysis. However, these crime types and factors are not given in the table in order not to take up space in the table since they are out of the scope of the study. According to most of the studies in Table 1, economic factors are the cause of crimes against property. Again, according to most studies, unemployment and income inequality positively affect crimes against property. There are several studies (Ivaschenko et al. (2012), Johnson et al. (2007), and Worrall (2005)) investigating the effect of social expenditures on crimes against property. Ivaschenko et al. (2012) and Johnson et al. (2007) concluded that social expenditures have a negative effect on crimes against property. Worrall (2005) concluded that welfare expenditures have no effect on crimes against property. There are few studies investigating the effect of inflation on crimes against property. Table 1 shows one of these studies. Aksu and Akkuş (2010) concluded that inflation has a positive effect on crimes against property.

Table 1: Studies Related to Crimes Against Property

Author/ Authors and Year of the Study	**Analysis Method**	**Analysis Period**	**Country/Countries in Analysis**	**Dependent Variables and Independent Economic Variables in Analysis**	**Analysis Result**
Sugiharti vd. (2022)	Generalized Method of Moments (GMM)	2010-2019 period	Indonesia	*Dependent Variables:* Crimes Against Property (Robbery, Fraud) *Independent Economic Variables:* Income Inequality	Income inequality and unemployment have a positive effect on crimes against property.
Odabaşı (2022)	Least Squares Method Two Stage Least Squares (2SLS) Fixed Effects Method	2015-2019 period	Turkey	*Dependent Variables:* Crimes Against Property (Theft) *Independent Economic Variables:* Unemployment, Income	According to the Least Squares Method, while unemployment and income inequality have a positive effect on theft crime, income has no

				Inequality, Income	effect on theft crime. According to the 2SLS Method unemployment, income inequality and income do not have an effect on the crime of theft. According to the Fixed Effects Method, while income inequality has a positive effect on theft crime, unemployment and income have no effect on theft crime.
Atems (2020)	Structural Vector Autoregressions (SVAR) Model Variance Decomposition Analysis	1960-2015 period	United States Of America (USA)	Dependent Variables: Crimes Against Property (Auto Theft, Burglary And Larceny) *Independent Economic Variables:* Income Inequality (Gini Coefficient)	Income inequality has a positive effect on crimes against property. According to the variance decomposition analysis, the power of income inequality to explain crimes is low.
Bhorat vd. (2020)	Ordinary Least Squares (OLS) Method	2011 year	South Africa	*Dependent Variables:* Crimes Against Property (Non-Residential Theft, Residential Theft, Motor Vehicle Theft) *Independent Economic Variables:* Income Inequality	Income inequality has a positive effect on crimes against property.

Dündar ve Kesbiç (2020).	Spatial Panel Data Analysis Spatial Autoregressive Model (SAR)	2008-2018 period 2013-2018 period	Turkey (26 regions)	*Dependent Variables:* Crimes Against Property (Theft, Robbery, Fraud, Damage to Property) *Independent Economic Variables:* Unemployment, Gross National Product Per Capita	Crimes against property spread among 26 sub-regions of Turkey. Unemployment has a positive effect on crimes against property. Gross domestic product per capita positively affects theft, robbery, and damage to property and negatively affects fraud.
Dündar ve Kesbiç (2019).	Spatial Panel Data Analysis Spatial Autoregressive Model (SAR)	2008-2014 period	Turkey (26 region)	*Dependent Variables:* Crimes Against Property (Theft, Robbery, Fraud) *Independent Economic Variables:* Unemployment, Gross National Product Per Capita	Crimes against property spread among 26 sub-regions of Turkey. Unemployment has a positive effect on crimes against property. Gross domestic product per capita has a positive effect on theft and robbery crimes and a negative effect on fraud crimes.
Buonanno et al. (2014)	Fixed Effects Method	1970-2010 period	15 European Union country and Norway, Canada, USA	*Dependent Variables:* Crimes Against Property (Burglary, Robbery) *Independent Economic Variables:* Unemployment	Unemployment does not affect burglary and robbery.

Enter ve Sieger (2014)	Fixed Effects Method	2005-2009 period	Germany	*Dependent Variables:* Crimes Against Property (Burglary, Auto Theft) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.
Speziale (2014)	GMM	2000-2005 period	Italy	*Dependent Variables:* Crimes Against Property (Robbery, Theft, Fraud) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.
Aaltonen et al. (2013)	Fixed Effects Method	2001-2006 period	Finland	*Dependent Variables:* Crimes Against Property (Thefts and Larcenies) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.
Janko ve Popli (2013)	Fixed Effects Method	1979-2006 period ve 1986-2006 period	Canada	*Dependent Variables:* Crimes Against Property (Burglary, Robbery) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.
Boaitey (2013)	Random Effects Method	1990-1997 period	Canada	*Dependent Variables:* Crimes Against Property (Burglary, Auto Theft, Have Stolen Goods, Fraud) *Independent Economic Variables:*	Unemployment positively affects crimes against property, and income harms crimes against property.

				Unemployment, Income	
Maddah (2013)	GMM	1997-2006 period	Iranian	*Dependent Variables:* Crimes Against Property (Theft) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.
Rufrancos et al. (2013)	OLS	2013 year	Developed Countries	*Dependent Variables:* Crimes Against Property (Auto Theft, Burglary, Shoplifting, Other Theft) *Independent Economic Variables:* Income Inequality	Income has a positive effect on crimes against property.
Fallahi et al. (2012)	Autoregressive Conditional Heteroskedasticity (ARHC) Autoregressive Distributed Lag (ARDL) Cointegration Method	1976:01-2004:04 period	USA	*Dependent Variables:* Crimes Against Property (Burglary, Auto Theft) *Independent Economic Variables:* Unemployment	In the long run, unemployment has no effect on burglary and auto theft. In the short run, unemployment has a negative effect on burglary and a positive effect on auto theft.
Ivaschenko et al. (2012)	GMM	1995-2007 period 2008-2010 period	Russia	*Dependent Variables:* Crimes Against Property (Theft, Robbery, Banditry), *Independent Economic Variables:* State Social Expenditures	Unemployment, and income inequality (Gini coefficient) has a positive effect on crimes against property, while real income and social expenditures have a negative effect.
Altındağ (2011)	OLS Two Stage Least Squares	1995-2003 period	33 European Countries	*Dependent Variables:* Crimes Against Property	Unemployment has a positive effect on crimes against crime.

				(Robbery, Theft, Motor Vehicle Theft) *Independent Economic Variables:* Unemployment	
Ata (2011)	Cross-Sectional Analysis	2008 year	27 European Union Member Countries	*Dependent Variables:* Crimes Against Property (Theft, Robbery) *Independent Economic Variables:* Unemployment, Net Wages Per Capita	While unemployment positively affects crimes against property, the net wage per capita has no effect.
Gillani et al. (2011)	Johansen Cointegration Granger Causality Tests	1975-2008 period	Pakistan	*Dependent Variables:* Crimes Against Property (Theft, Burglary, Robbery, Gang Theft, Cattle Lifting) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property. While unemployment is a granger cause of robbery, gang theft, and cattle theft, it is not a granger cause of burglary.
Gronqvist (2011)	Pooled Least Squares Method	1985-2007 period	Sweden	*Dependent Variables:* Crimes Against Property (Theft) *Independent Economic Variables:* Youth Unemployment	Youth unemployment has a positive effect on crimes against property.
Wu ve Wu (2011)	Random Effects Method	2002-2007 period	England	*Dependent Variables:* Crimes Against Property (Robbery, Burglary, Theft, Motor Vehicle Theft, Damage to Property) *Independent Economic Variables:*	Income inequality positively affects robbery, burglary, theft, motor vehicle theft, and fraud and has a negative effect on the crime against property.

				Income Inequality, Unemployment	Unemployment has a positive effect on burglary, theft, and motor vehicle theft and a negative effect on fraud and damage to property.
Aksu ve Akkuş (2010)	Bound Testing	1970-2007 period	Turkey	*Dependent Variables:* Crimes Against Property (Total Value of Theft, Robbery, and Fraud Crimes) *Independent Economic Variables:* Unemployment, Inflation, Per Capita Income	Inflation and unemployment positively affect crimes against property, while real per capita income has a negative effect.
Baharom ve Habibullah (2009)	Random Effects Method	1993-2001 period	11 European Countries	*Dependent Variables:* Crimes Against Property (Burglary, Motor Vehicle Theft) *Independent Economic Variables:* Unemployment, Income	Unemployment has a positive effect on burglary and motor vehicle theft. Income has a positive effect on motor vehicle theft and a negative effect on burglary.
Saridakis ve Spengler (2009)	GMM	1991-1998 period	Greece	*Dependent Variables:* Crimes Against Property (Burglary, Motor Vehicle Theft, Robbery) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.
Baharom ve Habibullah (2008)	Fixed and Random Effects Method	1991-2003 period	11 European Countries	*Dependent Variables:* Crimes Against Property	Unemployment has a positive effect on crimes against property.

				(Burglary, Motor Vehicle Theft) *Independent Economic Variables:* Unemployment, Income	Income has a positive effect on motor vehicle theft. Income has a negative effect on burglary.
Hipp (2007)	2SLS Method Regression Analysis Method	2000 year	18 counties of the United States 1 Province of Russia	*Dependent Variables:* Crimes Against Property (Robbery, Burglary, Motor Vehicle Theft) *Independent Economic Variables:* Income Inequality	Income inequality has a positive effect on crimes against property.
Johnson et al. (2007)	Fixed Effect Model	1930-1940 Great Depressio n Era	USA	*Dependent Variables:* Crimes Against Property (Larcenies, Robberies, Burglaries, Auto Thefts) *Independent Economic Variables:* Government Aid Expenditures	Government aid spending on crimes against property has a negative effect.
Edmark (2005)	Fixed Effect Model	1988-1999 period	Sweden	*Dependent Variables:* Crimes Against Property (Burglary, Auto Theft, Bike Theft, Shop Theft, Motor Vehicle Theft, Robbery) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.
Neumayer (2005)	Fixed Effect Model	1980-1997 period	59 Countries	*Dependent Variables:* Crimes Against	Income inequality has a positive effect on

				Property (Robbery, Looting) *Independent Economic Variables:* Income Inequality (Gini Coefficient)	looting and robbery crimes.
Worrall (2005).	Fixed Effect Model	1990–1998 period	USA (California)	*Dependent Variables:* Crimes Against Property (Robbery, Burglary, Larceny) *Independent Economic Variables:* Welfare Expenditures	There is no effect of welfare expenditures on crimes against property.
Narayan ve Smyth (2004)	Cointegration Analysis Vector Error Correction Model Granger Causality Analysis	1964-2001 period	Australia	*Dependent Variables:* Crimes Against Property (Burglary, Theft, Motor Vehicle Theft, Robbery) *Independent Economic Variables:* Young Male Unemployed, Average Weekly Real Income of Men	There is a long-run relationship between the young male unemployed and men's average weekly real income and motor vehicle theft. There is no long-term relationship between the young male unemployed and men's average weekly real income and burglary, theft, and robbery.
Edmark (2003)	Fixed Effect Model	1988-1999 period	Sweden	*Dependent Variables:* Crimes Against Property (Theft, Rıobbery, Auto Theft, Bike Theft, Motorcycle	Unemployment has a positive effect on theft, auto theft, and bicycle theft. Unemployment has no significant

				Theft, Shop Theft, Fraud) *Independent Economic Variables:* Unemployment	effect on robbery, motorcycle theft, shoplifting, and fraud crimes.
Melick (2003)	Cross-Sectional Analysis	1979 ve 2001 period	20 Countries	*Dependent Variables:* Crimes Against Property (Motor Vehicle Theft) *Independent Economic Variables:* Unemployment	Changes in the unemployment rate have a positive effect on motor vehicle theft. Unemployment has a negative effect on motor vehicle theft.
Nilsson ve Agell (2003)	OLS 2SLS Method	1996-2000 period	Sweden	*Dependent Variables:* Crimes Against Property (Burglary, Auto Theft, Theft, Robbery) *Independent Economic Variables:* Unemployment	According to the results of OLS, unemployment has a positive effect on burglary and auto theft crimes. According to the results of the 2SLS, unemployment has a negative effect on burglary and auto theft crimes.
Carmichael ve Ward (2001)	OLS	1989-1996 period	England	*Dependent Variables:* Crimes Against Property (Theft, Burglary, Robbery, Fraud, Forgery) *Independent Economic Variables:* Unemployment Men	Young and adult male unemployed have a positive effect on fraud, forgery, theft, and burglary. Adult male unemployed only have a positive effect on robbery.
Raphael ve Winter-Ebmer (2001)	OLS	1971-1997 period	USA	*Dependent Variables:* Crimes Against Property (Burglary, Theft, Auto Theft)	Unemployment has a positive effect on crimes against property.

				Independent Economic Variables: Unemployment	
Chamlin ve Cochran (2000)	Autoregressive Integrated Moving Average (ARIMA) Method	1982-1996 period	USA	*Dependent Variables:* Crimes Against Property (Robbery, Burglary, Theft, Motor Vehicle Theft) *Independent Economic Variables:* Unemployment	Unemployment has no effect on crimes against property. The unemployed in fifteen weeks and more than fifteen weeks has a positive effect on crimes against property.
Elliott ve Ellingwort h (1996)	OLS	1992 year	England	Dependent Variables: Crimes Against Property (Theft, Burglary) *Independent Economic Variables:* Unemployment	Unemployment has a positive effect on crimes against property.

Dataset and Method

Within the scope of the views related to the economic causes of crime, unemployment, and inflation (Consumer Price Index) as an indicator of poverty and the Gini coefficient as an indicator of injustice in income distribution were used as independent variables in the analysis. The independent population variable was included in the analysis as it may have an effect on the injustice in income distribution and bad economic conditions. In addition, the analysis aims to determine whether the state's social expenditures in bad economic conditions affect crime. For this reason, the independent variable of social expenditures is also included. Theft crime, one of the crimes against property based on economic reasons, was included as a dependent variable in the analysis. According to the data set of the mentioned variables, analysis was made for 25 OECD countries[3].

[3] Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Türkiye, United Kingdom, Estonia, Slovenia

Gini coefficient and theft crime data were obtained from the European Statistical Office (Eurostat); unemployment rate, social expenditures, and population variables data were obtained from OECD. Theft crime Eurostat data is available for the periods 1998-2007 and 2011-2020. Data on theft crime for the period 2007-2011 are not available in Eurostat. The Gini coefficient data is available in Eurostat for the period 2012-2021. Some OECD countries do not have data for some years. A typical period (2013-2018) was determined for the analysis, based on the OECD countries data avaliability.

Some of the dependent and independent variables are abbreviated in Table 2 for ease of use. In this context, it is abbreviated as a crime of theft (TC), unemployment rate (UR), Gini coefficient (GINI), consumer price index (CPI), social expenditures (SE), and population (P).

The model of the study was created as full logarithmic because of the convenience of coefficient interpretation. In the model, y_{it}, indicates theft crime, and x_{it} refers to the independent variables (UR, CPI, GINI, SE, and P) that affect theft crime. In the error component ε_{it} consisting of μ_i and v_{it}, μ_i fixed effects represent shocks known as v_{it} idiosyncratic. i is the country (25 OECD countries), and t is the time (2013-2018).

$$y_{it} = \alpha y_{i,t-1} + x_{it}\beta + \varepsilon_{it} \quad (1)$$

Dynamic models express the lagged value of the dependent variable as the independent variable in the model. Since the lagged dependent variable is correlated with the error term in these models, the estimations may not be efficient and unbiased. Therefore, various estimators have been developed. Anderson and Hsiao (1981) wanted to prevent the correlation of the lagged dependent variable with the error term by taking the difference by using instrumental variables (instrumental variables correlated with independent variables uncorrelated with the error term). Arellano and Bond (1991), Anderson and Hsiao (1981) used the lagged values of the dependent and independent variables as instrumental variables in the first difference equation of the Anderson and Hsiao (1981) estimator. Arellano and Bond (1991) developed the GMM method because not all moment conditions were used in Anderson and Hsiao's (1981) estimator. The system GMM estimator, which is an improved version of the Arellano and Bond (1991) estimator, was developed by Arellana and Bover (1995) and Blundell and Bond (1998). In the system GMM estimator, unlike the Arellano and Bond (1991) estimator, difference and level equations are included in the model together. The original and transformed equality are combined in one system. In the untransformed equation, the level values of the lagged first difference variables are included as the instrumental variable. Arellana and Bover (1995) and

Blundell and Bond (1998) stated that in the Arellano and Bond (1991) estimator, the results would not be efficient and unbiased when a short analysis period and unbalanced panel data are used (Blundell ve Bond, 1998: 116-122). Since the system GMM estimator reduces the finite sample bias compared to the difference GMM estimator, it will give efficient and unbiased results (Baltagi, 2005: 147-148).

Some conditions are required for the validity of the System GMM estimator. Accordingly, there should be no quadratic autocorrelation in the error term. In other words, the null hypothesis (there is no quadratic autocorrelation in the error term) should be accepted according to the AR (2) test result. The number of instrumental variables should be less than the number of observations since too many instrumental variables cause the estimation results to be ineffective and unbiased. According to the Hansen test result, the validity of the instrumental variables in the model, that is, the null hypothesis, should be accepted. The lagged value of the dependent variable must be less than one (Roodman, 2006: 33-43).

Analysis Results

According to the System GMM results in Table 2 below, the model as a whole is significant and has no specification errors. Since the lagged value (TC t-1) of the dependent variable (TC) is statistically significant at the 0.01 level, dynamic properties are valid in the model. Wald test statistic at 0.01 level is statistically significant. Since Hansen and AR (2) test statistics are more significant than 0.05, the null hypotheses required for the validity of the model are accepted. According to the Hansen test statistic null hypothesis, instrumental variables are valid in the model. According to the null hypothesis of AR (2) test statistic, there is no autocorrelation in the model. The validity of the model has been ensured since the aforementioned conditions have been met.

As seen in Table 2, the coefficient of the lagged value (TC t-1) of the dependent variable is positive. Accordingly, the increase in theft crime a year ago increases the theft crime in this period. Again, according to the results of the analysis, unemployment, inflation (consumer price index), and the Gini coefficient have a positive effect on the crime of theft, while social expenditures and population variables have no effect.

According to the results of the analysis, economic factors (UR, CPI, GINI) have an effect on the crime of theft from crimes against assets. The results obtained in the analysis are supported by the results obtained in the studies on the subject (as seen in Table 1). Improvement of

economic conditions (such as decreasing unemployment, inflation, and income inequality) has an impact on the reduction of theft crime in 25 OECD countries. Accordingly, the results of the analysis support the views of Karl Marx, William Bonger, and Frank W. Blackmar in the economic theories of crime that poverty causes crime. In societies where unemployment, inflation, and inequality in income distribution are high, there is impoverishment. Poverty also leads to crime. Policies aimed at reducing poverty rather than increasing social expenditures may be a more radical solution to the prevention of crime. In societies with good economic conditions, there may not be much need for an increase in social expenditures. For these reasons, it can be thought that social expenditures such as the results of the analysis do not have an effect on the crime of theft.

Table 2: System GMM Results

Dependent Variable: Crime of Theft (TC)	
Independent Variables	**Coefficients**
$lnTC_{t-1}$	0.8510458 *** (0.000)
lnUR	0.0657656 *** (0.007)
lnCPI	0.0294074*** (0.000)
lnGINI	0.2422898 *** (0.002)
lnSE	-0.0739979 (0.448)
lnP	-0.0274707 (0.254)
Number of Observations	98
Number of Instrumental Variable	20
Wald (chi2)	5.58e+06 *** (0.000)
AR(1) test probability value	0.050
AR(2) test probability value	0.391
Hansen test probability value	0.843
*** indicates the level of significance at 0.01, ** 0.05, * 0.10 level.	

Conclusion

The results of the analysis support the expectations and the views in economic theories of crime that poverty causes crime. The results of the studies on the subject in the literature also support the results reached in this study. Although the extent of poverty and crime rates of theft differ in 25 OECD countries, it can be said that the economic conditions are similar across the

countries. When a separate analysis is made for each country, there may be a difference in the effect of economic factors on theft crime. However, according to the literature research (as seen in Table 2), it can be accepted that economic factors have an effect on the crime of theft in general. For this reason, it can be accepted that the results obtained for 25 OECD countries are in line with the expectations. In this case, in order to reduce the crime of theft in 25 OECD countries, radical arrangements should be made in the economy by the governments. According to the results of the analysis, economic conditions should be improved, especially on the basis of unemployment, injustice in income distribution and inflation. The high gross domestic product of a country will gain more importance when justice is provided in the distribution of income. When unemployment decreases, unemployment benefits will decrease, and when inflation decreases, it will have a positive effect on low-income individuals. When economic indicators are good, poverty will decrease. Thus, there will be no need to increase the rate of social assistance within social expenditures. The reduction in crime rates by governments following policies that will ensure economic welfare will reduce the costs of governments. Social expenditures such as the fight against crime (such as the increase in the number of law enforcement, prisons, and courthouses), unemployed, and socially insecure people are costly for governments. Ensuring economic welfare will have a significant impact on reducing these costs. For these reasons, the economic development of countries is of great importance in the fight against crime. When poverty decreases, crime will decrease within the scope of economic theories. In this case, crimes against property arising from economic reasons will also decrease.

References

Aaltonen, M.; Macdonald, J. M.; Martikainen, P. & Kivivuor, J. (2013). "Examining the Generality of the Unemployment Crime Association", Amerikan Society of Criminology, 51(3), 561- 594.

Aksu, H. & Akkuş, Y. (2010). "Türkiye'de Mala Karşı Suçların Sosyoekonomik Belirleyicileri Üzerine Bir Deneme: Sınır Testi Yaklaşımı (1970- 2007)", Sosyoekonomi,11(11), 191- 214.

Altındağ, D. T. (2011). "Crime and Unemployment: Evidence from Europe", Auburn University Department of Economics Auburn Economics Working Paper Series, (13), 1-45.

Atems, B. (2020). "Identifying The Dynamic Effects of Income Inequality on Crime", Oxford Bulletin of Economics and Statistics, 82(4), 751-782.

Baharom, A. H. & Habibullah, S. M. (2009). "Income, Unemployment and Crime: Panel Data Analysis on Selected European Countries", 9th Global Conference on Business Economics, 1-11.

Baharom, A. H. & Habibullah, S. M. (2008). "Is Crime Cointegrated with Income and Unemployment?: A Panel Data Analysis on Selected European Countries", Munich Personal RePEc Archive, (11927), 1- 10.

Baltagi, B. H. (2005). Econometric Analysis of Panel Data, John Wiley & Sons, Canada.

Bhorat, H.; Lilenstein, A.; Monnakgotl, J.; Thornton, A. & Van der Zee, K (2020). "Crime and Inequality in South Africa: Non-Linear Outcomes Under Extreme Inequality", Development Policy Research Unit Working Paper 20200, 1-40.

Blundell, R. & Bond, S. (1998). "Initial Conditions and Moment Restrictions in Dynamic Panel Data Models", Journal of Economics, 87(1): 115-143.

Boaitey, A. (2013). "Crime and Unemployment in Turbulent Times: A Canadian Perspective". Research Gate, 1-18.

Buonanno, P.; Drago, F. & Galbiati, R. (2014). "Response of Crime to Unemployment: An International Comparison", Journal of Contemporary Criminal Justice, 30(1), 29-40.

Carmichael, F. & Ward, R. (2001). "Male Unemployment and Crime in England and Wales", Economics Letters, 73(1), 111–115.

Chamlin, M. B. & Cochran, J. K. (2000). "Unemployment, Economic Theory and Property Crime: A Note on Measurement", Journal of Quantitative Criminology, 16(4), 443-455.

Dündar, Ö. (2017). Malvarlığına Karşı İşlenen Suçlar İle İşsizlik Arasındaki İlişkinin Mekansal Bağımlılığı: Türkiye Üzerine Bir Uygulama (Yayınlanmamış doktora tezi). Manisa Celal Bayar Üniversitesi, Sosyal Bilimler Enstitüsü.

Dündar, Ö. & Kesbiç, Y. C. (2019). "Türkiye'de Malvarlığına Karşı İşlenen Suçların Mekansal Bağımlılığı", Anadolu Üniversitesi Sosyal Bilimler Dergisi, 19(2), 171-188.

Dündar, Ö. & Kesbiç, Y. C. (2020). "Malvarlığına Karşı İşlenen Suçların Suç Teorilerine Göre Mekansal Analizi", Balıkesir Üniversitesi Sosyal Bilimler Enstitüsü Dergisi, 23(44), 911-936.

Edmark, K. (2003). "The Effects of Unemployment on Property Crime: Evidence From a Period of Unusually Large Swings in the Business Cycle", Working Paper Series, 14, 1-27.

Edmark, K. (2005). "Unemployment and Crime: Is There a Connection?", Journal of Economics, 107(2), 353–373.

Elliott, C. & Ellingworth, D. (1996). "The Relationship Between Unemployment and Crime A Cross-Sectional Analysis Employing the British Crime Survey 1992", International Journal of Manpower, 17(6/7), 81-88.

Entorf, H. & Sieger, P. (2014). "Does the Link Between Unemployment and Crime Depend on the Crime Level? A Quantile Regression Approach" ,Forschungs institut Zur Zukunft der Arbeit Institute for the Study of Labor, Discussion Paper (8334), 2- 32.

European Statistical Office (Eurostat- European Statistics) (2022). https://ec.europa.eu/eurostat/web/main/data/database (Erişim tarihi: 05 Nisan 2022)

Fallahi, F.; Pourtaghi, H. & Rodriguez, G. (2012). "The Unemployment Rate, Unemployment Volatility and Crime", International Journal of Social Economics, 39(6), 440-448.

Gillani, S. Y. M.; Khan, R. E. A. & Gill, A. R. (2011). "Unemployment and Property Crimes in Pakistan", Asian Economic and Financial Review, 1(3), 125-135.

Gronqvist, H. (2011). "Youth Unemployment and Crime: New Lessons Exploring Longitudinal Register Data", Swedish Institute for Social Research, Working Paper (7), 1- 37.

Hagan, F. E. (1991). Introduction to Criminology Theories, Methods and Criminal Behaviour, Nelson Hall Series in Sociology, Chicago.

Hipp, J. R. (2007). “Income İnequality, Race, And Place: Does The Distribution Of Race And Class Within Neighborhoods Affect Crime Rates?”, Criminology, 45(3), 665-697.

Ivaschenko, O.; Nivorozhkin, A. & Nivorozhkin, E. (2012). “The Role of Economic Crisis and Social Spending in Explaining Crime in Russia: Regional Panel Data Analysis”. Eastern European Economics, 50(4), 21-41.

Janko, Z. & G. Popli (2013). “Examining the Link Between Crime and Unemployment: A Time Series Analysis for Canada”, Sheffield Economic Research Paper Series, SERP Number (201300), 2- 20.

Johnson, R. S.; Kantor, S. & Fishback, P. V. (2007). “Striking At The Roots of Crime: The Impact of Welfare Spending on Crime During The Great Depression”, NBER Working Paper No. 12825, 2-43.

Maddah, M. (2013). “An Empirical Analysis of the Relationship Between Unemployment and Theft Crimes”, International Journal of Economics and Financial Issues, 3(1), 50-53.

Mccaghy, C. H.; Capron, T. A. & Jamieson, J. D. (2003). Deviant Behaviour Crime, Conflict and Interest Groups, Pearson Education, Boston.

Melick, M. D. (2003). “The Relationship Between Crime and Unemployment”, The Park Place Economist Article 13, 11(1), 30-36.

Narayan, P. K. & Smyth, R. (2004). “Crime Rates, Male Youth Unemployment and Real Income in Australia: Evidence From Granger Causality Tests”, Applied Economics, 36(18), 2079–2095.

Neumayer, E. (2005). “Inequality and Violent Crime: Evidence From Data on Robbery and Violent Theft”, Journal of Peace Research, 42(1), 101-112.

Nilsson, A. & Agell, J. (2003). “Crime, Unemployment and Labor Market Programs in Turbulent Times”, IFAU- Institute For Labour Market Policy Evaluation, Working Paper No (14), 1-31.

Odabaşı, S. (2022). “Türkiye’de Suç ve İktisadi Belirleyicileri: Panel Veri Analizi”, İzmir İktisat Dergisi. 37(3). 586-606.

OECD (2022) OECD Data, https://data.oecd.org/ (05.04.2022)

Raphael, S. & Winter-Ebmer, R. (2001). “Identifying The Effect of Unemployment on Crime”, Journal of Law and Economics, 44(1), 259-283.

Roodman, D. (2006). “How To Do Xtabond2: An Introduction to Difference and System GMM in Stata”, Center Global Development, Working Paper 103: 1-44.

Rufrancos, H.; Power, M.; Pickett, K. E. & Wilkinson, R. (2013). “Income Inequality and Crime: A Review and Explanation of The Timeâ Series Evidence”, Social Crimonol, 1(1), 2-9.

Saridakis, G. & Spengler, H. (2009). Crime, Deterrence and Unemployment in Greece: A Panel Data Approach. Deutsches Institut für Wirtschafts Forschung, Discussion Papers (853), 2-9.

Speziale, N. (2014). “Does Unemployment Increase Crime?”, Evidence From Italian Provinces. Applied Economics Letters, 21(15), 1083-1089.

Sugiharti, L.; Esquivias, M. A.; Shaari, M. S.; Agustin, L. & Rohmawati, H. (2022). “Criminality and Income Inequality in Indonesia”, Social Sciences, 11(142), 2-19.

Tsushima, M. (1996). “Economic Structure and Crime: The Case of Japan. The Journal of Socio-Economics", 25(4), 497-515.

Worrall, J. L. (2005). “Reconsidering The Relationship Between Welfare Spending and Serious Crime: A Panel Data Analysis with Implications for Social Support Theory”, Justice Quarterly, 22(3), 364-391.

Wu, D. & Wu, Z. (2011). “Crime, Inequality and Unemployment in England and Wales”, Applied Economics, 44(29), 1- 28.