

Unemployment or Inflation? What Does the Misery Index Say about the Causes of Crime?*

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Abstract

Even if the analysis of illegal activities takes attention after the 1960s in economics, the cause and consequence of crime is an old subject for social sciences. The first period of crime and economics analysis was micro-based theories focusing on a person's intensive for illegal activities. However, in recent years macroeconomics based analysis gain weight in literature instead of micro-based cost-benefit analysis of crime. The study examines the misery index and crime linkages for the 'Fragile Five', using dynamic panel data analysis for 2004-2017. It is found that the increases in the index of misery cause rising crime rates.

Key words: Misery index, Crime, Fragile Five, unemployment, inflation

1. Introduction

In the last two decades, the number of people killed in homicides increased by nearly 120.000 worldwide. Moreover, each year from 2000 to 2017, 65.000 people were killed on average by organized crime groups. Criminal activities cause more deaths in comparison to armed conflicts and terrorism. High population density, poverty, inequality, unemployment, political instability, deficiencies about the rule of law, gender inequalities, high prevalence of mental illness and drug dependence, widespread practice of keeping weapons, and organized crime

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networks feed into the risk of violent crimes in urban areas (UNODC, 2019). These statistics make it evident that crimes have become a major scene in our lives. In relation to this, government intervention for public security as well as personal efforts for private security are vital for living in a safe space (Freeman, 1999).

The interrelation between crime and economics stem from the material and nonmaterial cost producing nature of criminal activities. Although the analysis of illegal activities is an old topic for economists, it was nonetheless ignored until the 1960s. Crime gained currency after Gary Becker's (1968) pioneering article "Crime and Punishment: An Economic Approach", although the article's rational decision making assumptions for criminals are inconsistent with the crime analysis in sociology and psychology (Sullivan, 1973; Eide, Rubin and Shepherd, 2006). The first period of analyses on crime and economics consists of micro-based theories focusing on a person's tendency for illegal activities and law enforcement trade-off. The economic influence over crimes' primary effect is related to the anticipation and consequence of, as well as the response to, crimes' cost. The primary effect analysis corresponds to the first-period crime analyses in economics. The secondary economic effect of crime is related to its damage over regional or national economies through income levels, quality of living, investment climate, tourism, etc. Hence, the crime factor, which is also important in terms of global competitiveness, provides an insight into the credibility of countries. In recent years, macroeconomics based analysis has gained weight in the literature instead of micro-based cost-benefit analysis of crime (Merlo, 2004; Mojsoska and Dujovski, 2017).

The relationship between crime and misery index is one of the most vivid debates in the empirical economics literature (Tang and Lean, 2009; Igbinnedion and Ebomoyi, 2017; Ajide, 2019). The misery index is calculated through the summation of unemployment and inflation rates, a simple way of measuring an economy's performance. There are two different versions of the index: the unweighted version developed by Okun, and the extended version with interest rates and growth rate developed by Barro. As a macroeconomic performance indicator, the misery index is used for measuring different types of relations in the applied economics literature. Yılmaz and Özmen Yılmaz (2018) use the misery index with local election results while Kibritcioğlu (2007), Adrangi and Macri (2019) use it with national election results to compare the success of political parties. Olds (2013) analyze how the misery index affects public policy preferences whether liberal or not. Akpınar et al. (2013) apply the misery index to determine regional development differences. Clark et al. (2004), and Özcan and Açıkalın (2015) use misery index to find relations between macroeconomic performance and lottery ticket sales. Dadgar (2018) underline the institutional dimensions of economic growth and examine the impact of economic growth and governance on the misery index. Ali et al. (2015)

investigate the misery index's impact on human capital outflow. Welsch (2007) seek macroeconomic performance and life satisfaction linkages by using the misery index. Yang and Lester (1999) apply the original and revised versions of the index to explain suicide rates; based on their research, they have found the original version of the index to be more successful in explaining suicides. Sadeghi et al. (2014) examine the influence of income inequality on the misery index of Iran via nonlinear time series analysis. Despite these studies, the misery index's reliability for measuring macroeconomic performance is not accepted by all economists (Işık and Öztürk Çetenak (2018). This is also accompanied by challenges to improve the index (Cohen et al. 2014).

This study seeks to provide an insight into the impact of unemployment and inflation, which are the components of the misery index, on crime rates. The study contributes to the misery index and crime linkage literature in different aspects. It reveals which misery index component (inflation or unemployment) has more impact on crime. In addition, as the concept of crime is a dynamic phenomenon, a dynamic panel data analysis method has been used in the study. The study takes into account many factors including income, income inequality, mental illness, education, poverty, population density, and the rule of law. Another aspect that sets this study apart is the fact that it examines the group of countries called the *fragile five* due to their high inflation, weak growth, high foreign deficit and high dependence on hot money.

The remainder of the paper is organized as follows. After the introduction, the empirical literature on the misery index and crime is presented in section 2, while the study's data, model, and methodology are discussed in section 3. Afterwards, the findings of the study are elaborated in section 4. The conclusion and proposed suggestions are presented in the final section

2. Literature review

The role that economic condition plays in crime rates is discussed in the literature through different aspects; however, the findings do not create a consensus about the role that macroeconomic variables play in crime rates. Tang and Lean (2009) underline the inconsistency of the relationship between unemployment and crime rates. On one hand, some studies in the literature support that unemployment and crime have a positive relationship. On the other hand, there are researches that show a negative relationship between the two. These researches argue that during periods of unemployment, individuals decrease their luxury expenditure and they prefer to stay at home or near their home. By using this second approach, which argues for a negative relationship, Tang and Lean (2009) also mention the motivation and opportunity effect that inflation and unemployment have on

criminal activities. The other component of the misery index is inflation, and its interaction with criminal activities emerges from inflation's negative impact on the purchasing power of real income, especially for low income-skilled labor. The other interaction channel between these two is related to criminals' demand increase accompanied by high profits in illegal activities. Inflation also makes institutional arrangements meaningless, and in comparison to stable prices, it makes social control harder (Ajide, 2019).

In his paper, Levitt (2004) discusses the reason for the falling crime rates in the US during the 1990-2001 period. He supports that macroeconomic variables like growth, unemployment rate, and wages of low-income workers have a statistically significant but small relationship with crime rates. The findings indicate linkages between property crime and macroeconomic variables, especially unemployment, but they do not point to violent crimes like homicide or rape. Lewitt (2004) states that even if there is a relationship between crime and economy, it can be explained indirectly through governments' budget spending. National or local governments' budget spending levels have great importance for protecting society from crimes. Moreover, there is an indirect and inverse relation between criminal control variables such as police, prisons, courts, etc. İmrohoroğlu et al. (2006) apply overlapping generation framework to measure the effect that unemployment rate, fraction of low human capital individuals in an economy, apprehension probability, duration of jail sentences and income inequality have on crimes. Application results indicate that a large proportion of criminal profiles are employed persons and income inequality is a major determinant for criminal activities. In spite of these results that propose an indirect relationship, Baharom and Habibullah (2008) provide empirical evidence about how macroeconomic variables directly affect crime rates. Their panel data analysis findings show that macroeconomic variables and crime rates are closely related to income and unemployment rates in the case of eleven European countries. Tang's (2009) findings are consistent with Baharom and Habibullah's (2008). The evidence from the cointegration and Granger causality tests in Tang's (2009) study imply that inflation and unemployment were the determinants for crime rate in Malaysia for the period between 1970 and 2006. Igbiniedion and Ebomoyi (2017) investigate the socio-economic and demographic determinants of crime in Nigeria. Their study employs cointegration and error correction methods for the period 1981-2015 and reveals that the misery index (a proxy for inflation and unemployment) is statistically significant and has a positive relationship with crime rates. Lorde et al. (2016) seek to find relationships between misery index and five different types of crime (property crime, theft from motor, theft of motor, fraud and robbery) as well as tourism linkages in Barbados for the period between 1999 and 2012. They have found that while crime affects the country's tourism potential negatively, the loss in tourism also encourages crime;

so, the relationship in question becomes multifaceted. In the study, the Markov Switching model is preferred in order to take into account the non-linearity of the relationship between the misery index and crime. The findings support that the misery index and the lagged value of crimes are procyclical variables with the exception of theft from motor crimes. When the misery index is divided into sub-variables as unemployment and inflation, no significant relationship between crime and economic variables are found. In the study, the importance of supply-side policies to fight inflation and unemployment is emphasized by reminding the Philips curve type trade-off. Tang and Lean (2009) examine the misery index and crime rates in the United States from 1960 to 2005 by generating a new crime function which does not cause multicollinearity and misspecification problems. The aim of their study is to examine whether motivation or opportunity effect of crime is valid in the US by using Autoregressive Distributed Lag Models (ARDL) and Vector Error Correction methods. The empirical results show that the motivation effect is stronger than the opportunity effect in the US.

Ajide (2019) and Saboor et al. (2017) assess the institutional dimensions related to the subject. Ajide (2019) examines institutional quality and the misery index's impact on Nigeria's criminal activities for the period between 1986 and 2016 using the ARDL method. The results support that the institutional variable is negative and has a significant effect on the criminal activities in Nigeria only in the short run. The misery index's sub-components inflation and unemployment have significant relations with criminal activities both in the short run and in the long run. Saboor et al. (2017) research the impact of democracy and misery index on criminal activities in Pakistan for the period 1975-2013. They employ Granger causality and ARDL methods with both versions (Okun and Barro) of the misery index for making their analysis. The findings from their empirical analysis support a significant long-run relationship with Okun's misery index, in contrast to the insignificant relationship found with the Barro index in both the short and long run. Furthermore, they reveal the positive impact of quasi-democracies on criminal activities. The study deduces that Pakistan's weak government institutions lead to an interaction between democracy and crimes.

3. Data and methodology

This study investigates the effects of the misery index and its components, unemployment and inflation, on crime rates between the years 2004 and 2017 in Brazil, Indonesia, India, South Africa and Turkey, a group of countries known as the Fragile Five, using dynamic panel analysis. In addition to the misery index, defined as the sum of unemployment and inflation, other factors that affect crime have also been taken into account in the evaluation of the models to avoid omitted

variable bias. In this context, all variables used in the model and their definitions are given in Table 1.

Table 1
Data Specification and Source

Variable		Source
lcrime	The logarithm of the total prison population per 100,000 inhabitants	UNODC
misery	Unemployment rate + inflation rate	Author's calculation
unemployment	Unemployment, total (% of the total labor force)	World Bank
inflation	Inflation, consumer prices (annual %)	World Bank
lgdp	The logarithm of GDP per capita, PPP (current international \$)	World Bank
poverty	Poverty headcount ratio at \$1.90 a day (2011 PPP) (% of the population)	World Bank
inequal	Gini coefficient (inequality in net income)	SWIID
density	Population density (people per sq. km of land area)	World Bank
educ	Meaning years of schooling	UNDP
rule	Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence.	World Bank
mental	Share of the total population with a given mental health or substance use disorder	University of Oxford

While the average of the logarithm of crime, which is used as the dependent variable in the model, is approximately 5, the lowest value is from India in 2004 and the highest value is from South Africa in 2004. When the misery index is evaluated, the average is found to be approximately 17, with the lowest being in India in 2017 and the highest being in South Africa in 2016. Regarding unemployment, which is one of the components of the misery index, India has the lowest value in 2008 and South Africa has the highest in 2004. The lowest value regarding the misery index's other component, i.e. inflation, is in South Africa in 2004 and the highest value is in Indonesia in 2006. In terms of GDP, the lowest value is in India in 2004 and the highest value in Turkey in 2017. On the basis of the poverty variable, the lowest value comes from Turkey in 2006 and the highest from India in 2004. The lowest income inequality is found to be in Indonesia in 2004, and the highest in South Africa in 2007, whereas the lowest population density is detected to have been in Brazil in 2004, and the highest in India in 2017. The average number of years of education is the lowest in India in 2004 while it is

the highest in South Africa in 2017. In terms of the rule of law, the lowest value belongs to India in 2005 and the highest value to South Africa in 2006. Finally, mental illness data shows that the lowest value is in Indonesia in 2017 and the highest value in Brazil in 2005 (Table 2).

Table 2
Descriptive Statistics of Variables

Variables	Mean	Std. Dev.	Min	Max	CADF	Δ CADF
lcrime	4.797	0.906	3.382	5.959	0.167 (0.566)	-1.363 (0.086)*
misery	17.208	7.916	5.048	33.146	0.455 (0.676)	-3.089 (0.001)***
unemployment	10.572	8.252	2.268	29.576	-0.929 (0.176)	-1.477 (0.070)*
inflation	6.636	2.549	-0.692	13.109	0.203 (0.580)	-3.240 (0.001)***
lgdp	9.237	0.536	7.928	10.237	-1.058 (0.145)	-1.495 (0.067)*
poverty	9.872	9.623	0.200	38.200	-0.377 (0.353)	-1.402 (0.080)*
inequal	45.763	11.097	32.200	63.900	-0.487 (0.313)	-2.347 (0.009)***
density	142.576	143.958	22.015	450.243	0.079 (0.532)	-1.904 (0.028)**
educ	7.370	1.464	4.700	10.200	1.433 (0.924)	-1.978 (0.024)**
rule	-0.124	0.277	-0.822	0.255	0.785 (0.784)	-1.480 (0.070)*
mental	13.552	1.577	10.635	15.404	1.754 (0.960)	-1.390 (0.082)*

Notes: CADF unit root test was applied because the variables have cross-sectional dependence. Below CADF standardized Z[t-bar] statistics are p values in parenthesis. *, **, *** refer to a significance level of 10%, 5% and 1%, respectively. It is concluded that the integrated degrees of the variables are I(1)

Since economic behavior in a period is largely influenced by past experiences and old patterns of behavior, it is important to consider the lags of variable as explanatory factors when examining economic relations. In panel data models, dynamic structure is often used. Dynamic panel data models, unlike static panel data models, are models that contain lag of variable/variables. Dynamic panel data models can be analyzed under two groups: Distributed lags in panel data models and autoregressive panel data models. In autoregressive panel data models, the lagged values of the dependent variable are included as independent variables; In distributed lag panel data models, the lagged values of the independent variables

are included as independent variables (Tatoğlu, 2012). Based on the fact that the effect of unemployment, inflation and the misery index on crime rates is a dynamic phenomenon, the system GMM (Generalized method of moments), which is one of the dynamic panel data analysis estimates, is used in the study. Dynamic panel data analysis measures the effect that the dependent variable in the previous period has on the dependent variable in the current period. Therefore, the autoregressive panel data model is taken into account. In dynamic models, the lag of the dependent variable and the error term are related, causing the estimates made by fixed and random effect models to yield bias and inconsistent results (Baltagi, 2008, pp.147-148). In order to eliminate these problems, the GMM method is applied in dynamic panel estimations. Two basic GMM estimators, “difference GMM” and “system GMM”, can be used in dynamic panel analyses. First difference GMM developed by Arellano and Bond (1991) the estimation method takes into account the estimation of the first difference of each equation and uses lag level values of explanatory variables as instrumental variables. The system GMM approach developed by Arellano and Bover (1995) and Blundell and Bond (1998) is based on combining the difference equation and the level equations. This method is proposed as an efficient instrumental estimator with the method of orthogonal deviations instead of the first difference. Blundell and Bond (1998) found that difference GMM has a weak predictive power in a finite sample and that coefficient estimates are biased, and the predictive power of system GMM is higher. This method is preferred in the analysis since it is determined that System GMM has higher predictive power among the estimators based on the GMM method. In this context, the models estimated by the one-step system GMM method are as follows¹:

$$\Delta \text{crime}_{i,t} = \gamma_1 \Delta \text{crime}_{i,(t-1)} + \beta_1 \Delta \text{misery}_{i,t} + \delta_1 \Delta Z_{i,t} + \Delta \varepsilon_{i,t} \quad (1)$$

$$\Delta \text{crime}_{i,t} = \gamma_2 \Delta \text{crime}_{i,(t-1)} + \beta_{12} \Delta \text{unemployment}_{i,t} + \beta_{22} \Delta \text{inflation}_{i,t} + \delta_2 \Delta Z_{i,t} + \Delta \varepsilon_{i,t} \quad (2)$$

The subscript "i" represents the country, while the subscript "t" represents the time dimension. Since the impact of the misery index and its components (unemployment and inflation) on crime is a dynamic phenomenon, the lag of crime, which is the dependent variable, is added to the models. " $Z_{i,t}$ " refers to the unemployment, inflation and the misery index of the country "i" at the time "t" as well as the control variable matrix affecting crime. Since lagged values are also used as an instrument variable, second-order autocorrelation must not be available for system GMM estimates to be valid. Second-order autocorrelation is required but however first-order autocorrelation is not important. In addition, the validity of the

¹ The difference operator in the equations does not show the difference between the current period and the previous period. The difference operator here represents the difference of the mean of all possible future values of the variable.

instrument variables used in estimation needs to be tested. Sargan/Hansen testing is recommended for this. The null hypothesis of the Sargan/Hansen test is "overidentifying restrictions are valid" (Baltagi, 2008).

4. Empirical results and discussion

This study examines the effects that the misery index and its components, i.e. inflation and unemployment, had on crime between the years 2004 and 2017 in Brazil, Indonesia, India, South Africa and Turkey, a group of countries collectively called the "fragile five", and the findings of the study are presented in Table 3. Four different models are evaluated in the study. In Models 1 and 2, the misery index is examined while in Models 3 and 4, inflation and unemployment are examined. Another difference between the models comes from the high correlation of variables. The correlation matrix for the variables is given in the appendix. Accordingly, since there is more than 80% correlation between the logarithm of GDP and poverty, LGDP and its square are taken into account in one model and poverty in the other model. In all models, the lagged crime variable is statistically significant and positive. This conclusion highlights the importance of addressing the issue dynamically. Accordingly, an increase in crime in the previous period leads to an increase in crime in the current period. When the diagnostics tests are examined, it is seen that all the models are statistically significant according to the Wald test, and the instrument variables are valid according to the Sargan/Hansen tests. It is also understood that there is no second-order autocorrelation.

Table 3
System GMM Estimation Where the Dependent Variable Is the Log of Crime
(Lcrime)

Variables	Model I	Model II	Model III	Model IV
lcrime_{t-1}	0.662*** (0.129)	0.415** (0.206)	0.645*** (0.127)	0.519*** (0.122)
misery	0.112*** (0.003)	0.003 (0.002)		
unemployment			0.015** (0.007)	0.016*** (0.005)
inflation			0.012*** (0.003)	0.008 (0.005)
LGDP	-4.845* (2.594)		-4.266 (3.549)	
LGDP²	0.292** (0.133)		0.265 (0.175)	
poverty		0.018** (0.009)		0.026*** (0.005)
inequal	-0.078*** (0.015)	-0.102*** (0.032)	-0.076*** (0.018)	-0.115*** (0.016)
density	0.008 (0.005)	0.055*** (0.015)	0.006 (0.008)	0.056*** (0.009)
educ	-0.121*** (0.027)	-0.146** (0.067)	-0.124*** (0.028)	-0.089*** (0.019)
rule	-0.081 (0.098)	-0.018 (0.041)	-0.075 (0.101)	-0.237** (0.119)
mental	0.375*** (0.050)	0.252*** (0.085)	0.377*** (0.053)	0.162*** (0.059)
<i>Diagnostics</i>				
Wald test p val.	0.000***	0.000***	0.000***	0.000***
AR(1) p val.	0.051*	0.046**	0.058*	0.062*
AR(2) p val.	0.143	0.233	0.139	0.131
Sargan test p val.	0.418	0.125	0.419	0.497
Hansen J- test p val.	0.227	0.098*	0.232	0.248
Diff-in-Hansen p val.	0.132	0.062*	0.145	0.157

Notes: *,**,*** refer to the significance levels of 10, 5 and 1%, respectively. Robust standard errors are reported in parentheses. However, since the Sargan test did not work with robust standard errors, the Sargan test was calculated based on non-robust standard errors.

Looking at Models 1 and 2, it is seen that the misery index is positive. However, it is clear that it is statistically significant only in the first model. Accordingly, increase in the misery index increases crime. This result is also consistent with the results of Tang's (2009) study. According to the common belief, the economic

problems that emerge encourage individuals to crime, especially income-generating crimes such as property crimes and robbery in order to compensate for income deficiencies (Rosenfeld, 2014). When the literature that examines the relationship between income and crime is examined, it can often be said that the relationship is negative. However, the direction of the relationship can also change according to the type of crime as demonstrated in Khan et al.'s (2015) study. In Model 1, the logarithm of GDP is found to be negative while its square is positive and statistically significant. In other words, while crime decreases as income level increases, it can also be said that crime increases in higher income levels. Therefore, the relationship between these two variables is similar to the "U" shape. To reiterate, when the literature on the relationship between income and crime is examined, it can often be said that this relationship is negative. However, the direction of the relationship can also change according to the type of crime (Levitt, 1999). For this reason, besides income, its square is also added to the model in this study. The poverty variable in the second model is obtained as positive and statistically significant. According to this result, while poverty increases, crime also increases. There is a widespread view that poverty leads people to commit crime. Imran et al. (2018) specifically highlight a strong relationship between property crime and poverty. In both the first and second models of this study, the variables "inequal" and "educ" are statistically significant and negative, while the variable "mental" is statistically significant but positive. According to this finding, increases in income inequality and education decrease crime, while increases in mental illnesses increase crime. The common view is that people with mental illnesses tend to be more prone to acts of violence and aggression; so, they tend to be more prone to crime. It is a well-known fact that education increases the quality of human capital, provides better living conditions, thus preventing transmission of crime. However, this relationship is expected to be positive because the increases in income inequality also increase the trend of crime by increasing the gap between the poor and the rich. However, a negative relationship has been found between income inequality and crime. A similar result was also found by Levitt (1999) in his study on the city of Chicago, USA. Accordingly, when examining income inequality over a significant period of time, homicides were seen to decrease, although the income gap between the richest and poorest communities increased significantly. The variable "rule", which refers to the rule of law, is obtained in both the 1st and 2nd models as negative but statistically meaningless. "Density" variable is positive in both models, but only in the second model, it is found to be statistically significant. This result can be interpreted as crime rates increase if population density increases.

When Model 3 and Model 4 are examined, it can be seen that instead of the misery index itself, its components unemployment and inflation are used. Similarly, due to the high correlation between the variables of LGDP and poverty, the third model contains LGDP and the square of this variable, while the fourth model contains the poverty variable. Unemployment is positive and statistically significant in both models. The inflation variable is also positive in both models but only statistically significant in the third model. According to this finding, it can be concluded that both inflation and unemployment increase crime. However, since both models are statistically significant, and due to the coefficient size, it can be said that unemployment is more dominant in the increase of crime. While LGDP is again negative and its square is positive, both are found to be statistically meaningless. The poverty variable is also found to be positive and statistically significant. This finding strengthens the conclusion that poverty is indeed important in terms of the increases in crime.

Similar to the results of the first and second models, crime decreases as income inequality and education increase, whereas crime increases as mental illnesses increase. Also, these variables are statistically significant. Again, the "density" variable is always positive but only statistically significant in the fourth model. Increasing population density is a factor that increases crime. While the variable of "rule" is negative in both groups of models, it is statistically significant in the fourth model. This shows that with regards to cases of crime and violence, improving social rules as well as the perception of trust and compliance to authorities, such as the police and courts, reduces crime (Table 3). It is thought that the rule of law in a country is influential in reducing crime activities. It is in the literature that good institutional quality increases investment activities by attracting physical and human capital to the country and thereby increases the country's growth performance (Wang et al. 2019). Therefore, in countries where the rule of law is better, crime is considered to be less because human capital is more qualified.

The importance of crime type is emphasized in several studies in the literature when the effect of inflation, unemployment and the misery index on crime is investigated. However, the total prison population to represent crime was included in the analysis without considering the types of crime, due to the limitation of data on crime types in this study, which was taken from a macro perspective. Perhaps data on crime types will be obtained when the studies are handled on a micro basis. When each type of crime is treated as a dependent variable and the regression is repeated, it can be explained in more detail how the crime will affect inflation, unemployment, and the index of misery. It is also noticeable that there are clusters in some region when it comes to crime. That is, the increase in crime rates in a region often shows similar effects in neighboring regions. Similarly, in areas where crime rates are low, it is observed that neighbors of these regions also have low

crime rates. Therefore, in future studies, it is thought that the inclusion of neighbors / weight matrices in regressions may be important in regional studies.

5. Conclusion

The crime phenomenon used for all illegal acts is as old as human history. From theft to terrorist incidents, various types of crimes have become ordinary events of modern times. Why individuals or groups of people engage in criminal activities and the negative impact of crimes on society are becoming the subject of many disciplines. Economics is one of the social sciences that investigates the relationship between crime and economy within the framework of its methodology. Studies on the relationship between economy and crime which gained popularity in the economics literature in the 1970s mostly examined the subject under the assumption of instrumental rationality. Therefore microeconomics' tools were used in the first period of crime-economics studies.

In recent years, macroeconomics based analysis of crime instead of micro-based cost-benefit analysis has gained importance in the literature. The misery index, calculated by the sum of unemployment and inflation rates, a simple way of measuring the performance of macroeconomics, is one of the tools used in macro-based analysis of crime. It is used not only measuring crime-economics relations but also wide range of variables such as elections, human capital outflow or institutions. Although there is not any agreement on crime and the misery index analysis results, it is one of the most vivid debates in the empirical economics literature.

In this study, the effects of the misery index and its components, i.e. unemployment and inflation, on crime between the years 2004 and 2017 in Brazil, Indonesia, India, South Africa and Turkey, a group of countries collectively called the "fragile five", are investigated using dynamic panel data analysis method. A dynamic method is preferred based on the fact that the subject of crime is a dynamic phenomenon. The reason why the fragile five is examined is because the high inflation and high unemployment factors, which are the components of the misery index, are common in these countries. Diagnostic tests show that all models are suitable; and the lagged crime, which indicates that the concept of crime is a dynamic phenomenon, has been found to be positive and statistically significant. Accordingly, the increases in crime in the previous period increase crime in the current period.

It has been found that in the fragile five countries, the increases in the index of misery increase crime just like the increases in inflation and unemployment do, which are the components of this index. However, the effect of unemployment on crime is relatively more than the effect of inflation. Therefore, it can be said that

reducing unemployment would be a more effective policy when a choice must be made between the two components to reduce crime. It is also evident that to reduce crime in all models, poverty needs to be reduced and education needs to be increased. Likewise, reducing mental illness is important in preventing crime according to the statistically significant result in all models regarding this variable. Therefore, it is important that people have better living conditions and increased mental quality to reduce crime incidents in the fragile five. There are also findings that show the increase in the rule of law reduces crime, and that population density is influential in terms of increasing crime incidents

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Özet

İşsizlik mi Enflasyon mu? Hoşnutsuzluk endeksi suçun nedenleri hakkında ne diyor?

1960'lı yıllardan sonra iktisat literatüründe yasa dışı faaliyetlerin analizi dikkat çekse bile suçun nedeni ve sonucu sosyal bilimler için eski bir konudur. Suç ve ekonomi analizinin ilk dönemi, bir kişinin yasadışı faaliyetlere yoğunlaşmasının nedenlerine odaklanan mikro temelli teorilerdi. Bununla birlikte, literatürde son yıllarda makroekonomi temelli analiz, suçun mikro temelli maliyet-fayda analizi yerine ağırlık kazanmaktadır. Çalışma, 2004-2017 için dinamik panel veri analizini kullanarak 'Kırılgan Beşli' için hoşnutsuzluk endeksi ve suç bağlantılarını incelemektedir. Hoşnutsuzluk endeksindeki artışların suç oranlarının artmasına neden olduğu tespit edilmiştir.

Anahtar kelimeler: Hoşnutsuzluk endeksi, suç, kırılgan beşli, işsizlik, enflasyon