An Empirical Analysis of the Relationship between Unemployment and Theft Crimes

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ABSTRACT: The purpose of this study is to examine the effect of unemployment rate on theft crimes among the provinces of Iran. This study covered the annual data from 1997 to 2006 by using of GMM method. Results have shown that there is a strong significant and positive relationship between unemployment and theft crimes in various categories. Other factors such as poverty and demographic characteristics influence on people's motivation to crime commitment of theft. Results from estimation of crime models demonstrated that there is a significant and positive relationship between unemployment rate and theft in Iran. In fact, to fight theft crimes, government have to use policies that cause reducing the unemployment rate in society.

1. Introduction

Recent researches show that crime is one of the economic issues. These researches have stressed that economic factors impact on the rate of crimes committed by people. Crime, according to Becker's theory (1968), is one of the economic activities, as person's decision for participating in crime follow from rational criminal behavior. Criminals firstly compare the costs and benefits due to the crime and then decide about participating in crime activities. Costs of crime contain capture, convincement and types of punishment; benefits contain properties and assets that criminals get them after committing crime. On the Becker's model, economic factors such as unemployment and income shortages can influence expected utility due to the crime and then impact on individual's motivation for participating in crime. Many researchers have investigated the effect of economic factors on crime. Ehrlich (1973) extended Becker's theory by introducing a time allocation model and tested the relationship between economic factors and crime rate. He found a significant positive link between unemployment rate and crime. Fleisher (1966), Smite et al., (1992), Carmichael and Ward (2001), found the same result in separate studies. Cantor and Land (1985) didn't confirm positive effect of the unemployment on crime. Income inequality is another factor that encourages individuals to commit crime. Inequality causes that people try to compensate income differences by crimes commitment such as burglary, larceny, assault and murder. Chiu and Madden (1998) and Kelly (2000) showed that there is a significant positive relationship between crime rate and inequality.

In another study, Burch (2007) investigated the effect of income inequality in the United States counties. He confirmed positive impact of inequality on crime rates in a cross-section analysis but this finding was not confirmed in the time series analysis. In addition, the effect of other factors on crime such as, population density, percent of population between ages 18 to 24 and percentage Black has been supported in the cross sectional regression. Recent studies of researches confirm the effect of economic factors on crimes. Saridakis and Spengler (2009) showed that there is a significant and positive relationship between unemployment and property crime rates by panel data approach in Greece. Also Choe (2008) founded that there is a strong and robust relationship between relative income inquilinity and burglary crime in the United States with panel data. In this study, the effect of age and poverty on burglary has been confirmed. Tang et al., (2009) stressed the effect of unemployment associated with inflation on crime. Maddah (2011) founded the positive and significant relationship between income inequality and murder and vehicle theft with coefficient of 0.084 and 0.332 using crimes data of 26 provinces during the period 1998 to 2006 in Iran.

This researches show that economic factors influences commitment crime. In fact, economic factors impact on the costs and benefits due crime and motivate individuals to commit crime. There is a shortage of empirical work about the investigation of relationship between economic factors and theft crimes in Iran. This paper, attempts to test the relationship between unemployment and theft crimes among the provinces all over the Iran by panel data approach. In this study, we will use theft crimes in different categories as dependent variable that is a new work in comparison with past studies. In the other hand, issue of crime economy has been investigated in Iranian economy that has different condition of economy and social with other samples of ago studies.

2. Data

The data set in this study are derived from statistical yearbook of Iran in various years. In this yearbook, statistics of theft in various categories, unemployment rate and population data have been published officially. Some statistics are not available such as poverty directly so that I constructed a suitable index of the poverty. This index is introduced as the average ratio of comestible and non-comestible costs per province to the same costs in the country. Table 1 provides descriptive statistics related to the research data.

Table 1. Descriptive statistical of unemployment and crime among the provinces of Iran (1997-2006)

	Mean	Median	Max	Min	Std. Dev
Theft of car and their accessories (per 100000 inhabitants in a province)	36.38	24.55	218.4	6.06	41.53
Theft of livestock (per 100000 inhabitants in a province)	8.37	6.41	39	0	6.39
Theft from Houses (per 100000 inhabitants in a province)	42.79	36	148.5	11.6	24.3
Theft from Shops (per 100000 inhabitants in a province)	18.12	14.9	510.55	2.91	31.62
Other Theft (per 100000 inhabitants in a province)	76.76	58.26	306.63	12.63	56.6
%Unemployment Rate	13.25	12.53	35.3	4.1	4.48
%Poverty	92.67	91.95	231.9	55	18.31
%Percentage of population aged (15-19)	12.64	12.42	20.4	10.61	1.17
%Percentage of population aged (20-24)	10.9	10.8	14.34	8.3	1.36
Population density	63.9	46.45	424	5.2	1.2
Observations	260	260	260	260	260

3. Methodology and Empirical Analysis

In order to empirical test the relationship between economic factors and crime rate of theft; we have introduced the following model:

$$Crime_{it} = \alpha + \beta X_{it} + \varepsilon_{it} \qquad , \qquad \varepsilon_{it} = \eta_i + V_{it} \qquad (1)$$

Where $Crime_{it}$ refers to the theft crimes in different categories (per 100000 inhabitants in province), i is the number of the province in the country ($i = 1,2,3,...,26$) at time t, α is fixed effect, and β refers to the vector of exogenous factors such as unemployment, poverty, demographic characteristics. Also ε_{it} is error term and η_i are unobserved effects per province that may be correlated with some of the exogenous variables. For this reason, we consider one linear dynamic model (an autoregressive panel data model) as follows:

$$\Delta Crim_{it} = \delta_1 \Delta Crim_{it-1} + \delta_2 \Delta X_{it} + \Delta V_{it} \qquad (2)$$

Where Δ refers to first difference of model variables. Here, lagged dependent variable has been appeared as exogenous variable to account for dynamic effects in panel data analysis. For estimation of model (2), we used Generalized Methods of Moment (GMM) that developed by Arellano and Bond (1991).

Tables 2 and 3 provide the results from estimation of crime models by GMM method in two specifications of logarithm and non logarithm. From table 2, confirm robust and positive effect of unemployment on crimes of theft of car and their accessories, theft of livestock, theft from houses and shops at the 0.01 level with coefficients of 0.83, 0.33, 1.22 and 0.96. That means that when unemployment rate increase, each theft crimes of car, livestock, houses and shops will increase, with ceteris paribus. Also from table 3, the estimated effect of unemployment on theft crimes of car and their accessories, houses and shops is significant and positive.

Table 2. Crime models-GMM estimations, non logarithm specification

	Theft of car and their accessories (1)	Theft of livestock (2)	Theft from Houses (3)	Theft from Shops (4)	Other Theft (5)
constant	**0.15** **(12.04)**	**0.36** **(7.99)**	**0.42** **(11.5)**	-0.03 (-1.17)	**0.25** **(12.7)**
Unemployment Rate	**0.83** **(3.97)**	**0.33** **(5.19)**	**1.22** **(7.7)**	**0.96** **(4.42)**	-3.19 (-.6.95)
Poverty	-0.11 (-26.7)	**0.09** **(2.51)**	**0.48** **(7.47)**	**0.84** **(5.36)**	0.07 (1.1)
Percentage of population aged (15-19)	6.43 (0.63)	**0.83** **(1.79)**	-22.8 (-2.5)	0.91 (0.23)	-11.4 (-1.32)
Percentage of population aged (20-24)	-10.6 (-3.8)	-0.74 (-3.2)	**9.4** **(2.15)**	-0.48 (-0.19)	**15.8** **(7.63)**
Population density	**3.8** **(19.6)**	0.013 (0.05)	-1.94 (-2.43)	-0.45 (-0.7)	-1.56 (-4.33)
$\bar{R}^2$	20.72 {20}	20.4 {20}	20.9 {20}	20 {20}	19.31 {20}

Note. – T statistics are in parentheses.

Table 3. Crime models-GMM estimations, logarithm specification

	Theft of car and their accessories (1)	Theft of livestock (2)	Theft from Houses (3)	Theft from Shops (4)	Other Theft (5)
Lagged Crime	**0.41** **(3.56)**	**0.45** **(6.14)**	**0.55** **(6.52)**	**0.26** **(2.13)**	**0.27** **(6.17)**
Unemployment Rate	**0.91** **(4.95)**	0.19 (1.29)	**0.65** **(13.2)**	**0.83** **(5.97)**	-0.33 (-2.8)
Poverty	0.27 (0.32)	0.98 (1.42)	0.56 (1.57)	**1.48** **(2.49)**	-0.32 (-1.6)
Percentage of population aged (15-19)	5.72 (0.4)	0.87 (0.5)	-0.89 (-0.9)	-6.23 (-2.23)	1.79 (1.03)
Percentage of population aged (20-24)	0.45 (0.12)	-0.49 (-0.26)	0.68 (0.62)	-1.33 (-0.59)	2.65 (1.61)
Population density	-1 (-0.17)	-1.1 (-0.18)	-1.65 (-0.57)	5.49 (0.88)	-5.51 (-1.29)
Sargan test {d.f}	19 {20}	20.52 {20}	21.29 {20}	19.4 {20}	22.9 {20}

Note. – T statistics are in parentheses.

Comparison of table 2 and 3 indicates that the significant and positive link between unemployment rate and theft of car and theft from houses and shops is confirmed in both tables. Poverty and demographic characteristics have significant and positive effects on theft crime in some estimated models. From table 2 and 3, we find that there is a strong significant and positive relationship between unemployment and theft crimes among the provinces all over the Iran.

4. Conclusion

In this study, the effect of unemployment on theft crimes in various categories was examined empirically. Based on results from estimation of crime models, we found a strong evidence of significant and positive relationship between unemployment rate and theft by theft crimes data in Iran's provinces over the period (1997-2006). Hence, we can assert that unemployment explains theft crimes change in Iran. This finding corroborates Becker's theory (1968) based upon the effect of economic factors on crime commitment. Unemployed people get properties and assets due theft. In the other words, opportunity costs of convincement and punishment for workless individuals is less than employee. In this condition, unemployed people are encouraged to commit more theft. Based on the present research finding, we propose that government, in order to fight theft crimes, have to use policies that cause reducing the unemployment rate in society. Undoubtedly, expanding job opportunities lead to less theft crimes.

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