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Empirical research on long-run equilibrium between social harmony
and social security incidents

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Abstract

Disharmony in China primarily reflected in the income, education, employment. The research object of this paper was crime in social security incidents. Income inequality and education has been viewed as having important impact on crime. Many literatures reported that higher income inequality is associated with higher crime rates. Some literatures concluded education development can raise the residents' income level and reduce income inequality, thereby result in slower crime growth. In China, residents' income has increased largely. But at the same time, GINI coefficient has continued to improve in recent years, and the crime rate has continually increased. This paper analyzed the long-run and short-run relationships between property crime rate and income inequality, education, unemployment, based on vector error correction model. Variables in the model included per capita annual disposable income of Chinese urban households, GINI coefficient, and enrolment rate of junior secondary graduates entering senior secondary schools and unemployment rate. Data used are time series data from 1978 to 2007 in China. The result confirms the existence of long-run equilibrium relationship between income inequality, education and crime. And income and income inequality effect change in crime rate in short-run significantly.

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Keywords: social security incidents; income inequality; education; vector error correction model; granger causality test

1. Introduction

Along with society development, crime rate has been an outstanding increase in most countries in the world. During the last three decades, criminologists and economist have paid more attentions on the social, economic and demographic determinants of crime. In those literatures, some studies used econometric models to analyze the effects of income inequality and education on crime. However, there are some different research results are reported. The effect of income on crime level is in two aspects. Improved legal income can increases the cost of crime, so reduce the crime rate [1-4]. But on the other hand, the increase of income level also provides more gain from crime [5]. Fleisher and Ehrlich reported the effect of income levels, and income inequality on crime respectively [6-7]. They found income inequality have a significant effect on crime. Fajnzylber and others have reported that income inequality will increase homicide and robbery rates based on the data of 45 countries during the period 1970 and 1994 [8]. Some other studies have also found a positive relationship between income inequality and crime [9-10]. Messner's study shows an insignificant association between income inequality and homicide rates [11]. Brush found income inequality is positively associated with crime rates in the cross section analysis, but negatively associated with crime rates in the time series analysis in United States counties [12].

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The effects of education on participation in criminal activities are also studied extensively. Most economic literatures showed there is a negative effect of education on crime [13-14]. People with higher education level will get greater job opportunities, so have higher legal income, and crime level will be reduced. But some other criminologists argued educated people will easier to carry out some illegal activities and get higher gains, such as high tech crimes [15-16].

Besides the effect of income inequality and education on the incidence of crime, education level is also a major cause affecting the degree of income inequality. Models developed by Schultz, Becker and Mincer predict the relationship between education inequality and income inequality is positive, while increased average schooling has a positive or negative effect on income distribution [17-19]. Kinght and Sabot analyzed the effect of human capital accumulation on income distribution in a dual economy. They pointed out the “composition” effect increase the relative size of the group with more education, and raise income inequality initially, but eventually to lower it. On the other land, the “wage compression” effect decreases the premium on education as the relative supply of educated workers increases, thereby lower income inequality [20]. More detail reviews can be seen in Gregorio and Lee’s literature. In their paper, they pointed out educations factors, such as higher attainment and more equal distribution of education, play a significant role in making income distribution more equal based on the panel data set of more than 100 countries for period between 1960 and 1990 [21].

China is a developing country with large population. In recent years, along with the continual increase of income, Chinese people's living standard continues to improve. China’s per capita annual disposable income has grown to RMB 11759 in 2006 up from RMB 343.4 in 1978, with an average annual growth rate over 7 percent at constant price. Since 1978-2006, government expenditure on education has increased by 15.47 times, the average annual increase rate of 15.43 percent. Since the beginning of 1990s, China has made remarkable growth in education at various levels. In 1990, there were only 40.6 percent primary schools graduates entered senior secondary school, while in 2006, the enrolment rate increased to 75.7 percent. The average rate of growth is 4 percent above. Although education is improved, the quality of population is low, and high-level personnel are rare. China has more than 86,992,000 illiteracies whose age is 15-year-old and above in 2000, and the average schooling year of population over the age of 15 years is only 7.85 years. Employees with education level between primary school and junior high school of accounted for about 75 percent [22]. Income inequality and crime growth are more outstanding in China. Income gap between urban and rural areas has reached 3.28:1 in 2006, and GINI index was or up to 0.45 in recent years. By the end of 2006, the state total expenditure for education reached RMB 478.041 billion, only accounting for 2.27 percent of GDP that year. The total crime rate increased from 55.65 cases per 100,000 inhabitants in 1978 to 354 cases per 100,000 inhabitants in 2006, 6.36 times increase, or an average annual growth of 10 percent above (China Statistical Yearbook, 2007).

The purpose of this paper is to investigate the relationship between education, income inequality and crime. Considering regression analysis and error correction equation was used to analyze the effects of determinants on crime, and determinants are exogenous variables. From discussion we can see, there are complicated relationships between education level, income inequality and crime, so we think there are casual relationships, and the variables in the model are endogenous. So the vector auto regression (VAR) is used for analyzing the impacts between crime rate and education level and income inequality based on a time series data set over period between 1978 and 2006 in China. The rest of the paper is organized as follows. Section II presents the data and pretreatment. Section III introduces the method and presents the results from the VAR model. And, finally, Section IV concludes the analysis.

2. Data

In this article we use time series observations to study the education level, income inequality and crime rate over the period between 1978 and 2006. GINI index is used as the proxy for income inequality. According to current statistical method of income distribution in China, GINI index is calculated in urban and rural regions separately, so there is not official resident’s income GINI coefficient in whole country. So in this article, GINI coefficient for 1976-2006 was produced by a weighted method between urban and rural areas [23]. China achieved "basal popularization of Nine-year compulsory education" in 2000. But in rural areas, particularly in backward areas, the achievements of education popularization is not as effective as in urban areas, the dropout rate in many rural areas show obvious rebound, and in some rural areas the dropout rate is as high as 10 percent [24]. On the other hand, enrolment rate of junior high school graduates was used as the education level indicator. To analyze the impact of education on income level, we introduce real disposable income per capita into the dynamic model, which is calculated at constant price. Most observations used in the model were obtained from China statistical yearbook. We focus on property crimes including burglary, defraud and robbery, which account for average 79 percent of all recorded crimes in China. All variables are expressed in logarithms to reduce the impact of heteroscedasticity. The order of integration of the data was determined using the Augmented Dickey–Fuller (ADF) test, which confirm all the variables were found to be $I(1)$.

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