The Financial Kuznets Curve in European Union

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Abstract

The new phenomenon called as financial Kuznets curve hypothesis indicates that financial development initially leads to deterioration in income distribution and income inequality reduces with the certain level of financial development by providing easy access to financial instruments for the low income households. This study investigates the existence of financial Kuznets curve hypothesis in 20 European member countries for the period from 1992 to 2013. In addition with financial development, we also used real GDP per capita and period dummy for 2008 financial crisis as an explanatory variable. The panel long-run estimator results show that economic growth leads to increase in income inequality. Moreover, income distribution is negatively affected by 2008 financial crisis. When the results are evaluated with the main aim of the study, it is concluded that inverted U-shaped financial Kuznets curve hypothesis is valid in EU member countries.

Keywords: Financial Development, Inequality, Kuznets

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1. Introduction

Increasing income inequality is accepted as one of the most important problem for policy-makers in all countries. The common view is that the income inequality may be harmful on economic activities and macroeconomic stability of global economy. However, the problem of income inequality is mostly ignored by policy-makers.

The view on the using the financial instruments to reduce income inequality was debated by many researchers. Galor and Zeira (1993) argue that the countries which have insufficient financial depth, deregulation policies in financial system will be detrimental on economic growth and increase income inequality. On the other hand, Canavire-Bacarreza and Rioja (2008) argue that facilitating the access of low-income households to financial resources leads to increase the investment possibility of these households and decrease the income inequality. Similarly, Aghion and Bolton (1997) emphasized the importance of financial development to decrease income inequality. Moreover, Greenwood and Jovanovic (1990) adapted the Kuznets curve to the financial development-income inequality nexus and argue that there is inverted U-shaped relationship between financial development and income inequality. According to this view, in the early stages of development, financial markets are almost disappearing and economic growth is very slow. In this stage, income inequality increases with the development in financial system. Over time, individuals who benefit from financial resources will increase and as a result of this stage, economic growth will increase and inequality will begin to decrease. After 2008 global financial crisis, the debate on the effects of financial system on income distribution has been arisen again. Many researchers investigated the validity of financial Kuznets curve by examining the effects of financial development on income inequality. Ang (2008) searched the relationship between financial development and income inequality in India for the period of 1951-2004 and concluded that there is no evidence of financial Kuznets hypothesis in India. Law and Tan (2009) investigated the effect financial development on income inequality in Malaysia for the quarterly period from 1980 to 2000 using ARDL bound test approach and the results indicate that there is no any relationship between financial development and income inequality in Malaysia.

Shahbaz and Islam (2011) examined the relationship between financial development and income inequality for the period of 1971-2005 in Pakistan using with ARDL bound test approach and VECM Granger causality. The study concluded that financial development decreases income inequality while the financial Kuznets curve hypothesis is not valid. Batuo et al. (2012) investigated the relationship between financial development and income inequality in 22 African countries for the period of 1990-2004 using with panel GMM and rejected the existence of financial Kuznets curve hypothesis.

Satti et al. (2015) searched the existence of financial Kuznets curve hypothesis in Kazakhstan for the period from 1991 to 2011 using with ARDL bound test and the results of the study show that there is U-shaped relationship between financial development and income inequality therefore the financial Kuznets curve hypothesis is not confirmed. Shahbaz et al. (2015) examined the validity of financial Kuznets curve hypothesis in Iran for the period from 1965 to 2011 using ARDL and VECM Granger causality methods. The financial Kuznets curve hypothesis is confirmed by the findings of this study.

2.Model, Data and Methodology

The annual data used in this paper includes the period from 1992 to 2013 for 20 European Union member countries: Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Poland, Portugal, Romania, Slovak Republic, Spain, Sweden and the United Kingdom. The empirical model to investigate the validity of financial Kuznets curve hypothesis is as follows;

$$〖lnIE〗_it=β_0+β_1 lnY_it+β_2 ln〖FD〗_it+β_3 〖lnFD〗_it^2+D08+ε_t \quad (1)$$

where IE refers to income inequality, Y implies real gross domestic product (GDP hereafter) per capita, FD (FD2) indicates the financial development (the square of financial development) and D08 refers to period dummy of 2008 financial crises. Income inequality (IE) is measured in Gini coefficient and obtained from the SWIID 5.1 (Standardized World Income Inequality Database) of Solt (2016); real gross domestic product per capita (Y) is measured in millions of constant US dollars and financial development (FD) is measured in the share of domestic credit provided by financial sector in gross domestic product. Both Y and FD series are retrieved from World Development Indicators database of World Bank. All series are used in natural logarithm. Based on the model, inverted U-shaped financial Kuznets curve is confirmed when $β_2>0$ and $β_3<0$.

In order to examine the long-run relationship between income inequality, real GDP per capita and financial development, we first test the stationary properties of all series. Therefore, this study uses both the LLC panel unit root test of Levin et al. (2002) and the IPS panel unit root test of Im et al. (2003). In testing procedure, the null hypothesis of unit root process is tested against the alternative hypothesis which implies the stationary process for both unit root tests.

After determining the stationary properties of the series, we use the panel cointegration method developed by Pedroni (1999). Pedroni (1999) developed seven statistics to examine the possible long-run relationship between variables with the null of there is no cointegration. Finally, we utilized with the panel fully modified ordinary least squares (FMOLS) method of Pedroni (2000) to investigate the long-run coefficients of cointegrated variables.

3.Empirical Findings

We first test the stationary properties of real GDP per capita, income inequality and financial development using with both the LLC panel unit root test and the IPS panel unit root test. The results of panel unit root tests are shown in Table 1. According to the obtained results, the null of unit root process can not be rejected at the level form of variables for both LLC and IPS unit root tests. On the other hand, at first differenced form, all variables become stationary and the null of unit root can be rejected. Therefore, it can be said that all series are I(1).

Table 1. The results of panel unit root test

Variables	LLC	IPS
Level[a]		
lnIE	0.179 [0.571]	-0.928 [0.176]
lnY	3.554 [0.998]	6.013 [0.999]
lnFD	-0.876 [0.190]	-0.112 [0.455]
First Differences[b]		
lnIE	-6.904 [0.000]	-8.172 [0.000]
lnY	-6.486 [0.000]	-5.982 [0.000]
lnFD	-3.847 [0.000]	-4.849 [0.000]

Note: The maximum lag lengths were selected automatically using with Schwarz Information Criteria. Numbers in brackets are p-values. Newey-West bandwidth selection with Bartlett kernel is used for LLC test. a indicates intercept and trend, b indicates the intercept

In the second step, we examine the existence of long-run relationship between variables using with panel cointegration test of Pedroni (1999). As a shown in Table 2, based on the results of Panel ν-statistic, Panel PP-statistic, Panel ADF-statistic, Group ρ-statistic and Group ADF-statistic, the null of there is no cointegration between income inequality, real GDP per capita and financial development is rejected.

Table 2. The results of panel cointegration test

	Statistics	*p*-values
Panel ν-statistic	1.912	0.027
Panel ρ-statistic	0.394	0.653
Panel PP-statistic	-1.401	0.081
Panel ADF-statistic	-3.546	0.000
Group ρ-statistic	-2.395	0.028
Group PP-statistic	-1.010	0.156
Group ADF-statistic	-4.125	0.000

After determining the validity of the long-run relationship between variables, we examine the long-run parameters of variables with panel FMOLS estimator. The results of panel FMOLS estimator are illustrated in Table 3. As a shown in Table 3, the increase in real GDP per capita leads to increase in Gini coefficient. It means that increasing GDP increases income inequality in EU member countries. In addition, the Gini coefficient is positively affected by 2008 financial crisis. This finding can be interpreted as 2008 financial crisis leads to increase the income gap between the high-income households and low-income households. Finally, we found that the sign of the coefficient of financial development is positive and the square of financial development decreases the income inequality. Therefore, it can be said that the U-shaped financial Kuznets curve is confirmed in EU member countries.

Table 3. The results of FMOLS long-run estimator

Variables	Coefficients	*t*-statistics
lnY	0.159***	15.265
lnFD	0.039**	2.407
lnFD2	-0.024**	-2.326
D08	0.079***	2.748

Note: *, ** and *** indicates statistical significance at 10, 5 and 1 percent level, respectively.

4.Conclusion

The aim of this study is to examine the validity of financial Kuznets curve hypothesis in 20 European member countries for the period from 1992 to 2013. For this aim, we investigate the effects of real gross domestic product per capita, financial development, the square of financial development and period dummy variable which implies 2008 financial crisis on the Gini coefficient. The study utilized with the panel cointegration method to search the possible long-run relationship between variables and also used panel cointegration estimator to obtain the long-run coefficients of the variables.

The cointegration test results indicate that real GDP per capita, financial development and Gini coefficient are cointegrated. In addition, the cointegration estimator results show that increased in real GDP per capita leads to increase in income inequality. Likewise, the coefficient of the dummy variable is positive therefore we can concluded that income distribution changed in favor of high income households as a result of 2008 financial crisis. Furthermore, obtained findings show that the sign of the coefficient of financial development is positive and the sign of the coefficient of the square of financial development is negative. This means the financial Kuznets curve hypothesis is exists in EU member countries.

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