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THE RELATIONSHIP BETWEEN INCOME INEQUALITY AND FINANCIAL DEVELOPMENT: IS THE FINANCIAL KUZNETS CURVE VALID IN MIDDLE-INCOME COUNTRIES?

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Abstract: Income Equality is one of the most significant ongoing problems on the national and global scales. It is accepted that Income Equality has many causes and is a social problem encountered by countries on both national and international levels. In terms of its consequences, it is seen to create negative situations including low growth rates, increased inequality of social opportunities in various areas such as health, education, nutrition and housing, and poverty. While fields such as development economics, fiscal policy and social policy are employed in terms of proposing solutions to Income Equality, it is argued that increased Financial Development would also contribute to the solution to this issue. The aim of this study is to test the validity of the Financial Kuznets Curve hypothesis. The study covers the period 2002-2018. 21 middle-income countries were used and analyzes were made using panel data. According to the analysis made by Fixed Effects, Pooled OLS and Two-Stage System GMM methods, an inverse U relationship was found between Financial Development indicators and Income Equality. In other words, it was concluded that the Financial Kuznets Curve hypothesis is valid in the 21 middle-income countries examined in this study. Accordingly, Financial Development can be considered as an important tool for reducing Income Equality.

Keywords: Financial Development, Financial Kuznets Curve, Income Equality, Middle Income, Panel Data

JEL Classification: O15, C33, G20, O11

INTRODUCTION

The pioneering research examining the relationship between Income Equality (INEQ) and economic growth that was conducted by Simon Kuznets (1955, 1963) has revealed the character of long-term changes in personal income distribution and focused on the causes of these changes. Kuznets (1955) looked for answers to the questions, “Does the income distribution inequality in a country increase or decrease during the country’s growth?”, “Which factors determine the long-term levels and trends of INEQ?”. He used the examples of Germany, England and USA in his study. He stated that data about these countries are limited[1] , but the study could be a starting point (at least for the period when the study was carried out) for some inferences about long-term changes in developed countries. In his study, it was stated that a striking progression towards inequality was observed from the 1920s to the time of the study in relative income distribution measured by annual income incidence in highly broad classes. On the other hand, Kuznets (1955: 4) also stated that this trend may have, perhaps, started in the period before World War I. According to the general conclusion derived from the data in his study, income distribution inequality increases in the initial stages of economic growth, but begins to decrease after a certain point as economic growth continues. In other words, the “Inverted-U” Kuznets' hypothesis argues that as the economic

[1] He even stated that he was aware of the insufficiency of reliable information, but he aimed to build something diligently on a shaky surface (Kuznets, 1955: 26).

growth performance of a country increases, INEQ initially increases and declines afterward through the progression of this economic growth. The main equation of the hypothesis shows that INEQ increases at the initial stages along with real GDP, it decreases along with the increase in real GDP after it reaches the peak point, and there is a second-order relationship. The stated equation is as follows (Thornton, 2001):

$$INEQ_{it} = \beta_0 + \beta_1 lnY_{it} + \beta_2 (lnY)^2{}_{it} + \varepsilon_{it} \quad (1)$$

In the equation, INEQ is income inequality, and ln Y is the natural logarithm of real GDP. According to the Kuznets Curve hypothesis, the coefficient for β_1 must be positive, and the coefficient for β_2 must be negative. In this case, the inverted-U hypothesis will be confirmed.

Kuznets (1955: 16-17) asserted that one of the most significant reasons for this result is the transition from agriculture and rural areas to industry and cities at the initial stage. Accordingly, especially in periods where industrialization and urbanization advance rapidly, and the urban population increases fast with immigrants coming from the agricultural areas of the country and from abroad, INEQ will increase. After a certain time following the initial rough stages of industrialization and urbanization, a larger part of the urban population will become "natives". That is, in time, larger proportions of the urban population will have been born in cities rather than rural areas and started to utilize the opportunities of urban life more. This means that this part of the population has gained a better chance for struggle, association, and integration. Next, the productivity of the older, settled urban population that has adapted well to urban life will increase, the political power of low-income urban groups will rise in time, the enaction of various protective and supportive laws that aim to oppose the most unfavorable effects of industrialization and urbanization and support the claims of broad masses for rights will be achieved, and consequently, INEQ will start to decrease.

The relationship between economic growth and INEQ still maintains its importance today. Parallel to this, the development and diversification of financial systems has been increasing in recent years. For this reason, there has been an increase in scientific studies focusing on the relationships between financial development (FD)-economic growth and FD-INEQ. There are 4 main views for the relationship between economic growth and FD (Kandır, İskenderoğlu & Önal, 2007: 312).

i) Economic growth facilitates FD.
ii) FD supports economic growth.
iii) There is a mutual interaction between them.
iv) There is no significant bond between the two.

Moreover, it is stated that FD affects INEQ and poverty from two aspects. The first one of these is the direct participation of broader masses that consist especially of the impoverished in the economy by increasing their access to financial services (Kappel, 2010: 2). For example, microcredit practices are seen as one of the methods that are aimed to be used for this purpose. With the implementation of microcredits, it is aimed to facilitate access to a series of suitable financial services (Yunus, 2004: 4077). However, it is accepted that facilitating the access of the impoverished to financial services with microcredits will not eliminate poverty by itself. Nevertheless, it is emphasized that in any case, microcredits create a positive effect on the quality of life of millions of impoverished people by facilitating their access to loans, savings, insurance, transfer orders, and other financial services that are otherwise inaccessible (ILO, 2005). Therefore, the role that could be played by practices such as microcredits is increasingly gaining more acceptance in the provision of basic financial services. The second of the aspects mentioned above is that FD offers better investment opportunities for firms and entrepreneurs. For instance, improved economic performance will reach the impoverished indirectly through ways such as better employment opportunities (Kappel, 2010: 2).

Depending on these relations, beyond the classical Kuznets Curve hypothesis, especially after the 1990s, the literature has started to enrich with the testing of the FKC. The study by Greenwood and Jovanovic (1990) on financial development-income distribution inequality is important in this sense. In their study,

by bringing a different perspective of the Kuznets Curve hypothesis, INEQ and FD were linked. In the pioneering study of their, the researchers expressed the idea that INEQ increases at the first stage of FD, and as FD continues to increase, INEQ declines. This is due to the high cost of financial intermediation services at the initial stage. Subsequently, with the economic growth, the performance of FY increases and accordingly, financial intermediation costs decrease due to the ease of access to financial services. This way, as the performance of FD increases, INEQ starts to decrease. This hypothesis, which is known as the FKC in the literature, has become the topic of several studies in time.
The aim of the study, which was prepared based on all these explanations is to test whether the FKC hypothesis proposed by Greenwood & Jovanovic (1990) is valid. In this context, this study focuses on 21 middle-income countries and the period of 2002-2018. The analysis employs the Two Step System Generalized Method of Moments (2SSGMM), which takes the problem of endogeneity into account. As opposed to other studies in the literature that have used the Gini coefficient as an indicator of INEQ, this study uses the ratio of the share of the first (top) 20% in the total income to the share of the last (bottom) 20% as data.

1. EMPIRICAL LITERATURE

Pioneering studies on INEQ have investigated the topic mostly by linking it to economic growth. In the first study on this subject (Kuznets, 1955), cross-sectional data were used. It was determined that there is an inverted U-form relationship between INEQ and economic growth, according to the data obtained from the study on the UK, Germany and USA economies using the cross-sectional data.
Nevertheless, based on the idea that cross-sectional data analysis provides inadequate results, several studies have been conducted to test the inverted-U hypothesis of Kuznets. While some of these studies have used times series analyses, some have utilized panel data analyses. The results obtained in these studies have varied according to their analysis methods (Anand & Kambur, 1993; Dawson, 1997; Thornton, 2001; Alvargonzález, M., Lopez-Menendez, A. J., & Perez, R., 2004; Frazer; 2006; Barro, 2008; Bahmani-Oskooee, M., & Gelan, 2008; Shahbaz, 2010; Kim, Huang & Lin 2011; Jovanovic, 2018).
Following studies research the relationship among INEQ and economic growth, the literature has been expanded, and the topic of INEQ has been studied in the context of its relationship to FD. While the first theoretical study was carried out by Greenwood and Jovanovic (1990), the empirical literature has started to develop only recently. Some studies focusing on the relationship between FD and INEQ are listed in Table 1. Studies in the literature were examined under two categories as linear and non-linear regression models. In the studies conducted by Bittencourt (2010), Mookerjee and Kalipioni (2010), Kaulihowa and Adjasi (2018), and Zhang and Naceur (2019), who investigated the relationship between these two factor using linear models, the researchers obtained findings that FD reduces INEQ. On the other hand, Jauch and Watzka (2016) and de Haan, Pleninger and Sturm (2018) found a positive relationship between these variables. Moreover, mixed findings were obtained about the indicators that were in the studies by Roine, Vlachos and Waldenström (2009) and Leve and Kapingura (2019), whereas no statistically significant finding was obtained in the studies by Law and Tan (2009) and Özcan (2020).

Table 1. Literature Summary

Author(s)	Period	Country/Countries	Method	FD Indicator	INEQ Indicator	Finding
Linear Regression Models						
Law & Tan (2009)	1980-2000	Malaysia	ARDL	Stock market capitalization (% GDP) Share of credit to private sector in GDP	Gini coefficient	No statistically significant finding was obtained.
Roine, Vlachos & Waldenström (2009)	1913-2004	16 Countries	First-Differenced GLS (FDGLS)	The Sum of Bank Deposits and Market Capitalization	First 1 (P99-100) First 10–1 (P90-99) Last 90 (P0–90) First 1/10 (P99–100/P90–99) First 01/1 (P99.9–100/P99–99.9)	Mixed
Bittencourt (2010)	1985-1994	Brasil-6 Regions	POLS, FE	Money Supply (M2) Share of credit to private sector in GDP personal credit Money Supply (M3)	Gini coefficient	FD reduces INEQ.
Mookerjee & Kalipioni (2010)	2000-2005	70 Countries	OLS, IV	Number of bank branches (per 100,000) Minimum amount to open checking and savings account Location to submit loan applications	Gini coefficient	FD indicators reduce INEQ.
Jauch & Watzka (2016)	1960-2008	138 Countries	FE, 2SGMM	Share of credit to private sector in GDP	Gini coefficient	FD increases INEQ.
De Haan, Pleninger & Sturm (2018)	1975-2005	89 Countries	FE	Share of credit to private sector in GDP	Gini coefficient	FD increases INEQ.
Kaulihowa & Adjasi (2018)	1980-2013	16 African Countries	PMG	Share of credit to private sector in GDP	Gini coefficient	FD reduces INEQ.
Leve & Kapingura (2019)	1980-2016	7 SADC Countries	GMM	Bank Credit to Bank Deposits (%) Stock Market Turnover Ratio	Gini coefficient	Mixed

				Banks' Private Credit (% GDP) Liquid Assets to Deposit and Short-Term Funding (%) Bank Lending-Deposit Spread Total Bank Assets (% GDP)		
Zhang & Naceur (2019)	1961-2011	143 Countries	OLS, IV Regression	FD Index	Gini coefficient	FD reduces INEQ.
Özcan (2020)	1992-2015	16 Emerging Market Economies	CCE, AMG	FD Data	Gini coefficient	No statistically significant finding was obtained.
Non-Linear Regression Models						
Nikoloski (2013)	1962-2006	Developed and Developing Countries	Dynamic GMM	Share of credit to private sector in GDP	Gini coefficient	FK Inverted-U Curve Hypothesis is valid.
Shahbaz et al. (2015)	1965-2011	Iran	ARDL	Share of credit to private sector in GDP	Gini coefficient	FK Inverted-U Curve Hypothesis is valid.
Baiardi & Morana (2016)	1985-2013	19 EU Member Countries	OLS, GMM	Money Supply M3	Gini coefficient	FK Inverted-U Curve Hypothesis is valid.
Hepsağ (2017)	1961-2015	5 G7 Countries	DOLS	Share of credit to private sector in GDP	Gini coefficient	FK Inverted-U Curve Hypothesis is valid for the US, Italy & Canada, it is Invalid for the UK and Germany.
Bittencourt et al. (2019)	1976-2011	50 US States	FE	nominal per capita stock market wealth/nominal per capita personal income	First 10 % income shares First 1 % income shares Gini coefficient	FK Inverted-U Curve Hypothesis is valid only for the states with a below-average INEQ level.
Cong Nguyen et al. (2019)	1961-2017	21 Emerging Market Economies	FMOLS, DOLS	FD Index	Gini coefficient	FK Inverted-U Curve Hypothesis Is Valid.
Sayar, Erdaş & Destek (2020)	1990-2013	23 Developing Countries	FMOLS	Share of Domestic Loans Provided for Private Sector (% GDP)	-Gini coefficient	FK Inverted-U Curve Hypothesis Is Not Valid.

De La Cuesta-González, Ruza & Rodríguez-Fernández (2020)	1992-2015	9 OECD Countries	2SGMM	Private credit by deposit banks and other financial institutions (% GDP) Stock market capitalization (% GDP)	Gini coefficient	FK Inverted-U Curve Hypothesis Is Not Valid.
Destek, Sinha & Sarkodie (2020)	1990-2015	Turkey	ARDL	FD Index	Gini coefficient	FK Inverted-U Curve Hypothesis is valid only for the FD Index and the Banking Sector Development Index.
Younsi & Bechtini (2020)	1990-2015	BRICS Countries	FE, POLS, GMM	Domestic credit provided by banking sector Broad money supply (M2) Stock Market Capitalization (%GDP) Share of credit to private sector in GDP FD Index	Gini coefficient	FK Inverted-U Curve Hypothesis is valid.

Source: Own elaboration

Studies examining the nonlinear relationship between FD and INEQ are given in Table 1. Nikoloski (2013), Baiardi and Morana (2016), Shahbaz et al. (2015), Cong Nguyen et al. (2019), and Younsi and Bechtini (2020) have concluded that the FKC hypothesis is valid. As opposed to their conclusion, Sayar, Erdaş and Destek (2020) and de la Cuesta-González, Ruza and Rodríguez-Fernández (2020) reported that the FKC hypothesis is not valid. Hepsağ (2017), Bittencourt et al. (2019) and Destek, Sinha and Sarkodie (2020) provided mixed results about the validity of the hypothesis.

The remarkable point in the literature research is that although different variables have been used as an indicator of FD, many studies have used Gini coefficient data as an indicator of INEQ. However, because the Gini coefficient has some disadvantages[2] , in contrast to the case in the literature, this study uses the ratio of the share of the top 20 % in the total income to the share of the bottom 20 % as INEQ data. While Roine, Vlachos and Waldenström (2009) and Bittencourt et al. (2019) used different income distribution levels in their studies, the literature review in this study did not reveal any other study that used the ratio of the incomes of the first and last 20 % groups.

2. DATA, MODEL, AND METHODOLOGY

In this study, the panel data analysis method was used to investigate the relationship between FD and INEQ within the framework of the FKC hypothesis. Based on the accessibility of data, the study covers 21 middle-income countries[3] and the period between 2002 and 2018.

The analysis in the study consisted of two stages. At the first stage, static quadratic panel data regression models consisting of FD and economic growth as a function of INEQ were estimated:

$$IE_{it} = \alpha_0 + \alpha_1 M2_{it} + \alpha_2 M2_{it}^2 + \alpha_3 PCGDP_{it} + \alpha_4 PCGDP_{\mathrm{l}t}^2 + \varepsilon_{it} \quad (2)$$

$$IE_{it} = \gamma_0 + \gamma_1 CREDIT_{it} + \gamma_2 CREDIT_{it}^2 + \gamma_3 PCGDP_{it} + \gamma_4 PCGDP_{it}^2 + v_{it} \quad (3)$$

IE, which is used in the equations above as the dependent variable, refers to INEQ. There are several studies in the literature that have used the Gini coefficient as an indicator of INEQ (Enowbi Batuo, Guidi & Mlambo, 2010; Nikoloski, 2013; Shahbaz et al., 2015; Jauch & Watzka, 2016; Park & Shin, 2017; Hepsağ, 2017; Azam & Raza, 2018; Kavya & Shijin, 2020; Pata, 2020; Younsi & Bechtini, 2020). However, instead of the Gini coefficient, in this study, data on the ratio of the share of the top 20 % in the total income and the share of the bottom 20 % were used as a different INEQ indicator. This dataset was created by the authors by obtaining data from the World Bank (WB) database. In the equations, M2 is the M2 money supply (% GDP), CREDIT is the credits to the private sector from banks (% GDP), and PCGDP is the per capita GDP (%). All data were obtained from the database of the World Bank.

To decide between the estimated fixed effects (FE) and random effects (RE) models, the Hausman test, which takes the null hypothesis as the random effects model and the alternative hypothesis as the FE model was carried out (Greene, 2008). The results of this test are shown in the columns of Table 2 marked I and II. According to these results, the null hypothesis was rejected for two models, and it was determined that the FE model was applicable.

However, as stated by Younsi and Bechtini (2020:735), in static panel models that are based on FE, country-specific effects are taken as fixed rather than random, and these effects can be related to regressors. For this reason, at the second stage of the study, to find more effective estimators, two different sensitivity analyses were conducted. The first one of these was the Pooled Ordinary Least Squares (POLS) method based on the Driscoll-Kraay (1998) standard error estimator that accounts for heteroskedasticity and autocorrelation problems. The existence of a heteroskedasticity problem in the models was tested using the Modified Wald (MWALD) test. The null hypothesis of the Modified Wall statistic is the presence of "homoskedasticity", while the alternative hypothesis is the presence

[2] The studies by Cowell (2009), Diaz-Bazan (2015), and Park, Kim and Yu (2021) have provided explanations about why the Gini coefficient cannot be an effective indicator of INEQ.

[3] Argentina, Armenia, Belarus, Brazil, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Georgia, Honduras, Indonesia, Kazakhstan, Kyrgyz Republic, Moldova, Paraguay, Peru, Russian Federation, Thailand, Turkey, Ukraine.

of "heteroskedasticity" in the models. The test developed by Baltagi & Lee (1995) was used to test the presence of autocorrelation in the models. According to the results of both tests, the null hypotheses were rejected at a significance level of 1 %. Based on this, there was no problem of heteroskedasticity or autocorrelation in the models. The results are shown in the columns of Table 2 marked III and IV. In the second sensitivity analysis, the endogeneity test developed by Davidson and MacKinnon (1993) was used to test whether the explanatory variables were endogenous. The null hypothesis of this test states that the effects of the endogenous variables are not significant, and therefore, there is no need to use the instrumental variable approach. As the null hypothesis was rejected at a significance level of 1 % according to the results, it was determined suitable to use the Two Step System GMM (2SSGMM) method that is based on instrumental variables in the models. Additionally, 2SSGMM can be used in empirical models that contain fewer periods and relatively more countries, it can overcome the potential endogeneity of the control variables and problems of fixed effects, and it provides more consistent and efficient parameter estimations in comparison to other panel data estimators (Berk et al., 2020: 2). The results of the analysis in this context are shown in the columns of Table 2 marked V and VI.

Arellano and Bond (1991) developed a GMM dynamic panel data estimator including the lags of both the dependent and independent variables as instruments for obtaining the optimum coefficients when T/N is negligible. The estimator developed by Arellano-Bover / Blundell-Bond strengthened the Arellano-Bond estimator by making an additional assumption that the first differences of the instrumental variables are not related to fixed effects. With this assumption, it is possible to use more instrumental variables, and this way, efficiency can be increased substantially. Two equation systems are created as the original equation and the transformed equation, and this technique is called system GMM (Roodman, 2009).

According to Roodman (2006), there are three conditions that provide the validity of the system GMM estimator. The first one is that the null hypothesis stating the "absence of second-order autocorrelation" must not be possible to reject in AR(2). Secondly, the number of instrumental variables in the model must not exceed the number of observations. As a representation of this condition, the probability values of the Hansen test must be greater than the significance level of 5 % or 10 %. Third of all, the lagged value of the dependent variable must be smaller than 1. In this study, to test the effects of FD on INEQ by satisfying the required conditions, the 2SSGMM method, which is a dynamic panel data estimator, was used.

The Hansen test was utilized to test the validity of the instrumental variables, whereas the AR(1) and AR(2) tests developed by Arellano and Bond (1991) were performed to test autocorrelation. Roodman (2006) stated that N must be greater than T for the applicability of this estimator. On the other hand, when N is smaller than T, the Arellano-Bond autocorrelation test may not be reliable.

The static models given in Equations (1) and (2) will be consistent only when the current values of an explanatory variable are independent of its past values. Because static model estimators can be biased when the lagged value of the dependent variable is neglected in macroeconomic models, it is needed to include the lagged value of the independent variable against the biasness of making consistent and unbiased estimations (Saini & Singhania, 2018: 361).

The dynamic quadratic panel data regression equations that were estimated to test the FKC hypothesis were as follows:

$$IE_{it} = \alpha_0 IE_{it-1} + \alpha_1 M2_{it} + \alpha_2 M2_{it}^2 + \alpha_3 PCGDP_{it} + \alpha_4 PCGDP_{it}^2 + \varepsilon_{it} \quad (4)$$

$$IE_{it} = \gamma_0 IE_{it-1} + \gamma_1 CREDIT_{it} + \gamma_2 CREDIT_{it}^2 + \gamma_3 PCGDP_{it} + \gamma_4 PCGDP_{it}^2 + v_{it} \quad (5)$$

For the hypothesis in the inverted-U form in the framework of the FKC to be valid, the coefficients of FD indicators must be statistically significant and positive, while the coefficients of the squares of FD indicators must be statistically significant and negative. For the sake of simplicity, it is expected for the parameters to be in the form of α_1>0 and γ_1 >0; α_2<0 and γ_2<0. In addition to this, for the classical Kuznets inverted-U curve hypothesis expressing the non-linear relationship between INEQ and per capita

income to be valid, the parameters in the equations must be α_3>0 and γ_3>0; α_4<0 and γ_4<0. The descriptive statistics of the variables in the equations are presented in Table 2.

Table 1: Descriptive Statistics

Variables	Number of Observations	Mean	Standard Deviation	Min.	Max.
IE	357	9.8306	5.4558	3.2952	33.1052
M2	357	43.987	21.085	11.940	127.730
$M2^2$	357	2378.241	2809.041	142.5834	16315.15
CREDIT	357	36.109	20.945	4.110	115.856
$CREDIT^2$	357	1741.377	2241.583	16.89935	13422.67
PCGDP	357	3.478	3.962	-14.379	14.695
$PCGDP^2$	357	27.75925	38.69308	0.000105	215.9719

Souce: Own elaboration

3. FINDINGS

Based on the argument by Brei, Ferri and Gambacorta (2018:15) that linear models might not provide sufficiently effective results, in this study, the FKC hypothesis was tested with the FE, POLS and 2SSGMM estimators by creating non-linear models. The obtained results are shown in Table 3. As in Table 2, according to the L.IE estimation results of the lagged dependent variable providing information about the dynamic features in the models, the coefficients were statistically significant and positive. Moreover, the finding that these coefficients were smaller than 1 also provides information about the need for the preference of the dynamic model.

When the 2ASGMM estimation results in Table 3 are examined, the null hypothesis suggesting that there is no first-order autocorrelation (AR(1)) in the models is rejected, while the null hypothesis that there is no second-order autocorrelation (AR(2)) cannot be rejected. Considering the overidentification test results of Hansen (1982), the failure to reject the null hypothesis shows that the instrumental variables are valid. It is also seen that the models were generally significant based on the probability values of the Wald test. According to the estimation results of model 1 that used M2 money supply as an indicator of FD and model 2 that used the variable of credit to the private sector from banks as an indicator, FD affects INEQ significantly and positively, whereas its square affects INEQ negatively. The FKC hypothesis was found to be valid based on the estimation results of both models. In this sense, the results of this study were consistent with the hypothesis of Greenwood and Jovanovic (1990) and the results of the studies by Nikoloski (2013), Shahbaz et al. (2015), Baiardi and Morana (2016), Cong Nguyen et al. (2019), and Younsi and Bechtini (2020). Additionally, per capita income that was included in the models as an indicator of economic growth affected INEQ significantly and positively, while its square affected INEQ negatively. Hence, the classical inverted-U hypothesis was also determined to be valid.

Table 3: Panel Data Estimation Results

Variables	(I) FE	(II) FE	(III) POLS	(IV) POLS	(V) Two Step SGMM	(VI) Two Step SGMM
L.IE					0.9278*** (0.000)	0.9189*** (0.000)
M2	-0.0628** (0.058)		0.1706*** (0.000)		0.028* (0.062)	
M22	-0.0001 (0.678)		-0.0012*** (0.000)		-0.0002** (0.024)	
CREDIT		-0.0524** (0.049)		0.0972*** (0.001)		0.0158*** (0.019)
CREDIT2		-0.00008 (0.778)		-0.0010*** (0.000)		-0.0002*** (0.000)
PCGDP	-0.0133 (0.691)	-0.0112 (0.733)	-0.0504 (0.713)	-0.0782 (0.554)	0.0578*** (0.002)	0.0585*** (0.003)
PCGDP2	0.0037 (0.323)	0.00348 (0.354)	-0.0235** (0.023)	-0.0288*** (0.007)	-0.0122*** (0.000)	-0.0134*** (0.000)
Constant	12.8287***	11.8143***	6.0964***	9.2725***	-	-
R2	0.08	0.10	0.09	0.08	-	-
F statistic	8.17***	10.04***	54.89***	60.72***	-	-
Hausman Test	18.78***	18.83***				
M. Wald Test			17811.16***	8716.99***		
FAC			175.86***	175.37***		
Davidson-MacKinnon Test					26.30631***	21.80224***
AR(1) p-value					0.006	0.005
AR(2) p-value					0.838	0.842
Hansen p-value					0.393	0.393
Wald x^2(chi2) p-value					0.000	0.000
No.obs	357	357	357	357	336	336
No.instr	-	-	-	-	20	20
Note: ***,** and * respectively represent the statistical significance levels of 1%, 5% and 10%. The Davidson-MacKinnon test analyzes the problem of endogeneity. The F statistic test shows the significance of the model, the MWALD test shows heteroskedasticity, and FAC test shows autocorrelation.						

Source: author analysis

CONCLUSION

INEQ is not only the cause but also the result of some other inequalities. Therefore, it is a concept that is closely related to the quality of life of individuals, and more importantly, that of households. The consequences of INEQ constitute the source of several negative issues. While INEQ may emerge as a result of the personal circumstances of individuals, it may also arise due to several economic, social, cultural, political and structural causes that are independent of individuals themselves. The diversity of its causes makes it necessary to implement and investigate different methods for solutions. Thus, INEQ is a multi-aspect concept. It is one of the priority issues that continue to rise and require solutions both in developed-developing-underdeveloped countries and on the international level.

Some studies have revealed that at the initial stages of the developmental processes of countries, INEQ first increases in parallel with an increase in FD levels, while further increases in FD levels may reduce INEQ. Therefore, FD may be one of the solutions that can be used to bring down INEQ through channels such as banking, financial market intermediation, and the accessibility of financial markets. One cannot claim the existence of a consensus in the literature on the view that this solution can reduce INEQ. While results have been mixed, it is generally seen that FD contributes to economic growth, but it does not make a contribution to individuals in low-income groups in especially underdeveloped and developing countries to the desired extent or in an absolute sense. Nonetheless, the findings of other studies suggesting that

such efforts could result in positive outcomes make it important to study the relationships between INEQ and FD.

In this study that was planned within the framework of the FKC hypothesis, analyses were carried out using the data of 21 middle-income countries for the period of 2002-2018. As in the study conducted by Greenwood & Jovanovic (1990), the empirical results showed that the FKC hypothesis is valid. Accordingly, the share of the top 20 % in the total income increases at the initial stage where the FD levels increase, while in the phases of FD that follow, financial markets start to mature, there is an increase in the share of the bottom 20 % group in the total income, and INEQ starts to decline. In the same models in this study, the classical inverted-U hypothesis of Kuznets considering per capita income was also tested, and it was concluded that the classical hypothesis is also valid. According to this result, as the income levels of countries increase, the INEQ levels in these countries increase at first, but as the increase in the income levels continues, INEQ starts to decrease.

In light of the results of this study that covered 21 middle-income countries, some policy inferences can be made for diminishing INEQ. Therefore, to achieve a reduction in INEQ, it is important for financial markets to follow more effective and active policies including practices such as microcredits that promote the access of society to financial services, the improvement of financial literacy levels, and raising the number of measures and efforts regarding the stability and depth of financial markets by improving the banking sector. If financial liberalization is desired, it is also important to implement practices based on a robust planning process. Consequently, FD may be considered a significant instrument in terms of reducing INEQ. However, it is not possible to argue that it is sufficient for reaching this goal by itself. Hence, it is believed to be important that efforts should be made to implement practices that facilitate FD in harmony with complementary policies.

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