

Is Fueling the Economy with Too Much Finance Good?

Ahmet USTA¹

Abstract

This study provides evidence on the nonlinear effects of financial development on economic growth and income inequality in Turkey over the period 2001:Q1 and 2020:Q4. To document how financialization affects economic growth and income inequality, we estimate dynamic OLS (DOLS) and conduct Toda-Yamamoto Granger causality test. We find evidence of a nonlinear relationship on the financial development and economic growth nexus, and financial development and income inequality nexus. In the initial period of financial development, economic growth increases, and income inequality widens, after a certain threshold economic growth decreases and income distribution becomes more equal. We also test causality patterns and find a bilateral causation between financial development and economic growth, and a one-way causality from income inequality to finance.

Keywords: Financial development, Economic growth, Income inequality

JEL Classification: C22, E44, O15, O16, O40

Ekonomiyi Fazla Finansallaştırmak İyi midir?

Özet

Bu çalışma, 2001:Ç1 ve 2020:Ç4 döneminde Türkiye'de finansal gelişmenin ekonomik büyüme ve gelir eşitsizliği üzerindeki doğrusal olmayan etkilerine dair kanıtlar sunmaktadır. Finansallaşmanın ekonomik büyüme ve gelir eşitsizliğini nasıl etkilediğini ortaya koymak için dinamik olağan en küçük kareler yöntemi ve Toda-Yamamoto Granger nedensellik testi kullanılmıştır. Finansal gelişme ve ekonomik kalkınma ilişkisi ile finansal gelişme ve gelir eşitsizliği ilişkisinin doğrusal olmadığına dair kanıtlar ortaya konmuştur. Finansal gelişmenin ilk döneminde, ekonomik büyümenin arttığını ve gelir eşitsizliğinin daha da bozulduğunu, belirli bir eşikten sonra ekonomik büyümenin azaldığını ve gelir dağılımının daha dengeli hale geldiği söylenebilir. Ayrıca nedensellik testi ile finansal gelişme ile ekonomik kalkınma arasında iki yönlü Granger nedensellik söz konusu iken, gelir eşitsizliğinden finansal gelişmeye doğru tek yönlü Granger nedensellik tespit edilmiştir.

Anahtar Kelimeler: Finansal gelişme, İktisadi büyüme, Gelir eşitsizliği

JEL Sınıflandırması: C22, E44, O15, O16, O40

1. Introduction

Analyzing the impact of financialization on economic growth and income inequality has received a significant attention in recent decades. It is well known that the financial development may influence economic growth positively. A healthy financial system can strength the overall economy by facilitating risk sharing and increasing savings, which lead to an efficient allocation of resources

¹ PhD., Department of Economics, Recep Tayyip Erdogan University, ahmet.usta@erdogan.edu.tr
orcid.org/0000-0001-9899-8072

(Peia and Roszbach, 2015; Nguyen et al., 2019). Thus, financial constraints of agents get relaxed, and their investment opportunities increase. As a result of this process, income distribution across different group of people is affected. So, the degree of financial deepening has direct impact on income inequality, as well.

According to Kuznets (1955), there is an inverted U-shaped (non-linear) relationship between economic growth and income inequality. The development in the economy initially increases income inequality, but after a certain point it decreases the income inequality. Greenwood and Jovanovic (1990) suggested that financial development may have impact on the idea behind the Kuznets curve hypothesis. Their results highlight the link between financial development, economic growth, and income inequality. Therefore, understanding the role of financial development on growth and income distribution in an economy is important.

There is a large body of empirical literature that presents evidence on the impact of financial development on the economic growth and income inequality. The finance-growth nexus and the finance-inequality nexus have been studied extensively². In general, the studies in the finance-growth nexus are classified into two groups. First, empirical works document linear effect of financial development on growth. Second, empirical studies present non-linear impact of financialization on economic growth (Soedarmono et al., 2017). The literature on the nexus between finance and inequality can be classified into three groups. First, inequality-widening hypothesis suggests that the finance increases inequality. Second, inequality-narrowing hypothesis implies that the well-functioning of the financial markets reduces income inequality. Third, inverted U-shaped Kuznets curve hypothesis showing a non-linear relation between financial development and income distribution (Chiu and Lee, 2019).

Based on the above hypotheses, this study investigates the association between the financial development, economic growth, and distribution of income in Turkey. On the contrary to the recent literature that highly concentrated on a group of economies with different characteristics, we believe that a single country analysis is helpful to provide country specific policy suggestions. Motivated by the relevant literature, we pose the following questions: 1) In what extent the financial development affects the economic growth and income inequality? 2) What are causal relationships among these concepts, if any? To answer these questions, we study the dynamic OLS to obtain long-run relationships and causality between financial development, growth, and income inequality.

Our estimation results from time series analysis suggest that there is a non-linear relationship between financial development and economic growth and, income inequality. First, in the early stage of financialization we observe the economic growth improves, but it worsens beyond a threshold level of financial development. Second, estimation results suggest an inverted U-shaped relationship between financial deepening and income inequality. We confirm the Kuznets curve

² Section 2 provides an overview of previous research on this topic.

hypothesis since the income inequality widens in the early stage of financialization and narrows after a certain level of financial development. Third, we find a bilateral and significant causality between the financial development and economic growth. However, we observe a significant causality running from income inequality to financial deepening.

The organization of the rest of this study is as follows. Section 2 reviews the concept of financialization and relevant literature. Section 3 presents data and empirical methodology used in this paper. Section 4 presents the empirical evidence. Section 5 concludes the paper.

2. An Overview of the Concept of Financialization and Literature

2.1. Financialization and Some Stylized Facts in Turkey

Although the definition of financialization is still yet unclear and undeveloped, it is an important concept that should be considered especially after the global financial crisis (GFC) in 2008. The roots of the concept of the financialization lie in the alteration of behavioral patterns of agents in the capitalist economies (Lapavitsas, 2013:794). The systematic and behavioral changes manifest itself in the non-financial corporations, financial intermediaries, i.e., banks, and households. Non-financial corporations have become less reliant on banks and sought their own financing, banks have expanded their services along with the technological development and provided a variety of services with fees and commissions, and finally households have taken place in the financial system as an investor and borrower (Lapavitsas, 2011). All three elements have become more financialized.

Financialization in Turkey has been assessed mainly through consumer credits and developments in housing market (Karaçimen, 2014; Erol, 2019; Yeşilbağ, 2020). Karaçimen (2014) followed a political economy framework and offered an extensive summary of transformations within the scope of financialization to explain the drivers of increasing consumer debt in Turkey. Several dimensions including developments in banking sector, labor market, and welfare policies were analyzed to explain increasing demand for consumer credit in Turkey. The author highlighted the impact of the deep integration of Turkish economy into global economy mainly through capital flows, which could affect banking sector activities via different channels. She argued that the dependence of Turkish corporations on domestic banks has decreased because they are able to borrow from abroad. Thus, to make profits, the lending activities of banks have shifted to households. Due to high rates of unemployment, wage stagnation and insecure job opportunities, the households have leaned on the consumer credits even for daily consumption. Booms in the construction industry has accompanied with a steep rise in the debt burden of non-financial corporations, i.e., construction and real-estate companies. Together with the residential mortgages provided to households, construction industry has become financialized (Erol, 2019).

According to TurkStat, the GINI coefficient as a measure of income inequality was estimated at 0.395 in 2019, while it was at around 0.402 in 2010. In Turkey, the mean household income has increased gradually in the last decade. Regarding the

types of income, the total share of wage and salaries decreased by 1.8 % and reduced to 46.7% in 2019 compared to 2018. In the Turkish economy, the mean annual income has increased at most in the construction sector by 18.9% in 2019.

Banks for International Settlement (BIS) reports the total credit to private non-financial sector, including non-financial corporations, households and non-profit institutions provide services to households. In the third quarter of 2019 and 2020, the amount of total credit in Turkey was around 3,3 and 4,5 trillion of TL, respectively. In the same quarters, the share of the total credit in GDP in 2019 and 2020 was around 80% and 94.7%, respectively.

2.2. Literature Review

This research is related to two strands of the relevant literature. First, it can be classified under the group of empirical research on the financialization and economic growth. Second, it is related to the studies, which investigate the impact of financialization on income inequality.

Hassan et al. (2011) documented the relationship between financial development and economic growth for low- and middle-income countries over 1980 and 2007 by estimating a panel regression and variance decomposition. They used various measures including ratio of domestic credits, money supply, domestic savings, trade, and government expenditures to GDP for financial development. They found that the relation between financial development and economic growth is positive in developing countries. They also found that gross domestic savings has a positive relation with output growth.

Law and Singh (2014) provided evidence on impact of finance on economic growth by using 87 developed and developing countries for the period 1980 and 2010. They estimated dynamic panel threshold regression with three banking sector related measures of financial development including private sector credit, liquid liabilities, and domestic credit (% of GDP). Economic growth is proxied by the real GDP per capita. Findings indicated that the financial development has adverse impact on growth beyond a threshold level, which suggest that the financial development has an inverted U-shaped effect on growth.

Arcand et al. (2015) examined the role of financial depth on economic growth, where the former was quantified by credit to the private sector provided by the deposit banks and other financial institutions and the latter was proxied by annual growth rate of GDP per capita. As an additional set of regressors, they used human capital, trade openness, inflation, and government expenditures (% of GDP) over the period between 1960 and 2010. Their estimation results suggested that the financial depth has a positive correlation with economic growth in countries with small and intermediate financial sector. However, the positive correlation becomes negative after a threshold level, which means that too much finance may lead to negative growth.

Peia and Roszbach (2015) investigated the relationship between financial and economic development empirically by conducting cointegration and causality

analyses for 22 advanced economies over the period between 1973 and 2011. They employed real GDP proxy for the economic development. They identified financial development based on stock market and banking sector, where the former proxied by stock market capitalization as a share of nominal GDP and the latter one proxied by the domestic bank credit to private sector as a share of nominal GDP. They find that the causality running from stock market development to economic development, while there is a reverse causality between the banking sector development and economic development.

Park and Shin (2017) empirically analyzed the relationship between financial development and income inequality in a sample of 162 countries over the period between 1960 and 2011. They employed three different measures for financial development including liquid liabilities (% of GDP), private credit by deposit banks (% of GDP), and stock market capitalization (% of GDP). They used GINI coefficient and the share of national income earned by the richest 1% to measure income inequality. They found a non-linear relationship between financial development and income inequality through panel estimation. Their findings suggested that the financial development influence income inequality with a threshold effect. Up to a threshold point, financial development reduces income inequality. However, beyond the threshold level the financialization increases inequality.

Chiu and Lee (2019) tested whether country risks have impact on financial development and income inequality nexus with a panel data of 59 countries over the period 1985-2015. They estimated panel smooth transition regression model, in which financial development was measured by banking sector development (domestic credit to private sector, % of GDP) and stock market capitalization (% of GDP), and income inequality was measured by GINI coefficients. For the country risks, they used political, financial, and economic risk ratings. Their findings suggest that the impacts of country risks on financial development and income inequality nexus differ with respect to the type of risk.

Cuesta-Gonzalez et al. (2020) analyzed the relationship between financialization and growth with a special attention on income inequality by considering a panel of nine OECD countries between 2000 and 2015. They used net GINI coefficient as the dependent variables and two proxies for financial depth, namely, credit provided to the private sector (% of GDP) and stock market capitalization (% of GDP). They also considered several components including institutional, behavioral, and environmental while analyzing the financialization and income inequality nexus. Main result of the research confirmed that credit expansion led to over indebtedness and asset price appreciation. Moreover, too much finance could result in wealth disparities.

On the ground of above discussion and literature, we test the following hypotheses in this paper:

Hypothesis 1: Financialization has impact on economic growth and income inequality.

If the Hypothesis 1 holds, we expect to have either a linear or non-linear relation on the nexus between finance and economic growth, and finance and income inequality.

Hypothesis 2: There are significant causalities among financial development, growth, and income distribution.

If the Hypothesis 2 holds, we expect that the financialization is useful in forecasting economic growth or income inequality, or vice versa.

3. Data and Econometric Methodology

3.1. Data, Variables, and Sample

In this paper, we use quarterly data over the period between 2001:Q1 and 2020:Q3. This period is important since the economic policies undertaken in post-2001 have led credit debt to increase (Karaçimen, 2014; Erol, 2019). Therefore, observations during this period would let us to investigate the clear impact of financialization on economic growth and income inequality.

The data selection of this paper is consistent with the previous literature. We use logarithm of real GDP (GDP) as a proxy for economic growth in line with Peia and Roszbach (2015). We follow Nguyen et al. (2019) and Chiu and Lee (2019) to measure income inequality. To do so, we utilize GINI coefficient, which takes any value between 0 and 1. The coefficient indicates an increasing income inequality if it approaches to 1. To measure financial development quantitatively, we use credit to private non-financial sector from deposit banks and other financial institutions as a share of nominal GDP (Arcand et al., 2015). Beck and Levine (2004) considered credit provided by deposit banks only. However, since the economic and financial integration of countries have started to increase in the beginning of 2000s, credit expansion should not have been attributed to domestic banks only. Therefore, it would be more appropriate to use total credit to private non-financial sector provided by the deposit banks and other financial institutions (FIN). Higher value of financial development indicates a higher dependence on the credit provided by corporations serve as financial intermediaries. As suggested by the recent literature, governments have used fiscal policies including progressive taxes, public transfers, and public spending on education to reduce inequality (Park and Shin, 2017). Therefore, we use general government final consumption expenditures as share of nominal GDP (GOV) to measure the impact of fiscal policies as in Hassan et al. (2011) and Nguyen et al. (2019). Finally, we use change in the consumer price index to control distortions in the prices (INF).

3.2. Empirical Methodology

This section presents the methodology that is used in this paper. To investigate the impact of financialization on economic growth and income inequality, the empirical literature follows several techniques including time series and panel data analyses. In both approaches, cointegration and causality tests have been extensively used. This paper uses time series analysis.

As a first step in the time series analysis, before moving to test for the long run relationship and causality analysis, it is important to conduct unit root tests. For this reason, we conduct widely accepted unit root tests including the Augmented Dickey Fuller (ADF) (1979) and Phillips-Perron (PP) (1988). Both tests have the null hypothesis of a unit root in time series. Depending on the order of integration we move on appropriate methodology. If the time series of a variable is not stationary at level, we perform same tests with first differenced form.

Dynamic ordinary least squares (DOLS) approach is used to obtain long-run coefficients. Saikkonen (1991) and, Stock and Watson (1993) obtain asymptotically efficient and unbiased estimates via DOLS with a time domain correction. The advantages of this model are as follows. First, the DOLS deals with the potential endogeneity and serial correlation of independent variables into account by including lead and lag differences of independent variables. Second, the DOLS is applicable irrespective of order of integrations of variables in small samples. Therefore, we estimate DOLS models to obtain long-run coefficients. The DOLS model we estimate in this paper is shown as follows:

$$Y_t = c_0 + \sum_{r=-k}^{r=k} \alpha_j \Delta X_{t+r} + L_i + \varepsilon_t \quad (1)$$

where i is the number of independent variables. α_j is the coefficients of lead and lag differences of independent variables, ΔX . The number of leads and lags are shown by k , which is determined by minimizing information criterion. The long-run coefficients are represented by L_i .

We follow Toda and Yamamoto (1995) (T-Y approach) to test Granger causality. By definition, Y is said to Granger-cause X if current or lagged values of Y contributes to a better prediction of future values of X when compared to X alone. T-Y procedure is applicable regardless of cointegration process of the series. The algorithm of T-Y consists of four steps. First, we find maximum order of integration in the variables, d_{max} . Second, we determine the optimal lag length, k , of the variables in the VAR model depending on the information criterion. Third, we estimate VAR model in levels with a lag of $(k + d_{max})$. In the fourth and the final step, we use Wald test to test the null hypothesis of no Granger causality between variables. The Wald test statistics follows an asymptotically chi-square distribution with k degrees of freedom. To investigate causality between variables, we estimate following general form of VAR model:

$$Y_t = c_0 + \sum_{i=1}^k \alpha_{1i} Y_{t-i} + \sum_{j=k+1}^{d_{max}} \eta_{1j} Y_{t-j} + \sum_{i=1}^k \omega_{1i} X_{t-i} + \sum_{j=k+1}^{d_{max}} z_{1j} X_{t-j} + u_{1t} \quad (2)$$

$$X_t = c_1 + \sum_{i=1}^k \alpha_{2i} Y_{t-i} + \sum_{j=k+1}^{d_{max}} \eta_{2j} Y_{t-j} + \sum_{i=1}^k \omega_{2i} X_{t-i} + \sum_{j=k+1}^{d_{max}} z_{2j} X_{t-j} + u_{2t} \quad (3)$$

The null hypothesis of no Granger causality in Equation 2 is $H_0: \omega_{1i} = 0$. A rejection of the null hypothesis implies Granger causality between X and Y . Put differently, in Equation 2 (3), $\forall i$, Granger causality between X and Y is observed if $\omega_{1i}(\alpha_{2i}) \neq 0$.

4. Results

Given the specification explained above, this section presents the results. Before proceeding to estimation results and causality analysis, we examine the stationarity of the variables. The null hypothesis of both ADF and PP tests assumes the unit root. Table 1 displays the results of unit root tests. Schwarz information criterion is used for the optimal lag. As suggested by the p-values in Table 1, the first difference of GDP and FIN are stationary. However, we have inconclusive result about the order of integration of GINI and GOV. INF is level stationary.

Table 1. Unit Root Test Results

Variable	ADF		PP		Order of Integration
	Level	First difference	Level	First difference	
GDP	0.971	0.005	0.558	0.000	I (1)
GINI	0.002	0.037	0.061	0.035	Uncertainty
FIN	0.984	0.000	0.981	0.000	I (1)
GOV	0.534	0.000	0.000	0.000	Uncertainty
INF	0.000	0.000	0.000	0.000	I (0)

To investigate long run relationships between financial development, economic growth, and income inequality we estimate DOLS. Thank to modeling advantages of DOLS we can achieve long-run coefficients. First, we estimate DOLS models with two specifications for each of the dependent variables, i.e., GDP, and GINI. In the first specification, the regressors are FIN and FIN^2 . The reason why we incorporate the squared term of financial development is to investigate whether there is a non-linear effect of financialization on economic growth and income inequality. In the second specification, we consider the impact of fiscal policies and inflation on the growth and income distribution.

The estimation results are in Table 2. In the model where the dependent variable is GDP, the coefficients of the FIN and FIN^2 are statistically significant, while the sign of the former is positive, and the latter is negative in the first specification. This result suggests a non-linear relation between financial development and economic growth. The financialization initially affects economy positively. However, after a certain point the relationship becomes negative. Our finding fits into the literature with the findings of Soedarmono et al. (2017) and Nguyen et al. (2019), who observed nonlinearity in the finance-growth nexus. In the second specification, the impact of fiscal policies measured by the GOV on the GDP is negative. However, the effect is statistically insignificant. The coefficient of INF is negative and statistically significant, which implies that the high inflation is harmful for the economic growth. Model 2 in Table 2 considers GINI as the dependent variable. The estimation results in the first specification suggests a non-linear relation between financial development and income inequality, which follows an inverted U-shaped Kuznets curve hypothesis. These results are consistent with the findings Chiu and Lee (2019) and Nguyen et al. (2019). During the initial phase of

the financialization, rich people could benefit more than the poor people. As the financial development strengthens, the poor people can also get access to financial market and have a chance to increase their investments. Thus, income inequality narrows. In the second specification of the Model 2, we observe that the coefficient of the GOV is negative and statistically significant. This result highlights the income inequality narrowing role of fiscal expenditures as suggested by Piketty et al. (2014), who found that the fiscal policies may reduce the income inequality. The coefficient of the INF shows that high inflation widens income inequality. The economic intuition behind this result should be high inflation has negative and pronounced effect on poor people.

Table 2. DOLS Estimation Results

Regressor	Model 1: GDP		Model 2: GINI	
	1	2	1	2
FIN	4.51*** (0.86) [5.23]		0.14** (0.04) [3.21]	
FIN ²	-4.67*** (0.8) [-5.9]		-0.15*** (0.04) [-4.00]	
GOV		-3.49 (5.3) [-0.65]		-2.6** (1.07) [-2.47]
INF		-10.74** (5.02) [-2.13]		4.62** (1.21) [3.8]
C	16.8 (0.2) [84.7]	18.35 (0.73) [24.93]	0.38 (0.02) [18.31]	0.68 (0.13) [5.00]
Adj. R ²	0.7	0.22	0.93	0.81

Standard errors are in parentheses. t-Statistics are in square brackets. *, **, and *** indicate 10%, 5%, and 1% significance levels, respectively.

We estimate VAR models to investigate test the Granger causalities between variables. Schwarz information criterion is used for lag selection. According to the Table 1, the maximum order of integration is one. Due to methodological advantage of T-Y procedure, we are not concerned with whether there exists a cointegration between variables or not. Table 3 reports the results. The first two rows show test results for FIN and GDP. Our test results indicate a two-way causation between GDP and FIN, which is consistent with the findings of Hassan et al. (2011) and Demetriades and Hussein (1996). The interpretation of this result would be the growth performance of Turkey leads to an increasing demand for financial services. Moreover, the result suggests that the Turkish economy has experienced a finance-led growth. Last two rows present the causality results between FIN and GINI. We find that the causality runs from income inequality to financial development. This result supports the findings of Park and Shin (2017). Depending on whether income

inequality narrows or widens, people can benefit from financial services. Rich people can get higher returns from financial market as the income inequality widens or poor people can earn and save more as the inequality narrows.

Table 3. Toda-Yamamoto Granger Causality Test Results

Null hypothesis H_0	Wald chi-square Statistic	Prob.	Reject H_0
FIN does not Granger cause GDP	9.6	0.08	Y
GDP does not Granger cause FIN	21.15	0.00	Y
FIN does not Granger cause GINI	14.96	0.18	N
GINI does not Granger cause FIN	28.9	0.00	Y

5. Conclusion

There is a growing importance of financialization in the past decades. Understanding the effects of the financialization on economic growth and income inequality is important. In this study, we examined DOLS and Granger causality tests to report the direction and relationships between financial development, economic growth, and income distribution in Turkey with a quarterly data over the period between 2001:Q1 and 2020:Q4.

In agreement with the recent literature, our findings suggest that developments in financial system initially increases economic growth and leads rich people to increase their earnings more. However, after a certain point financial development is negatively related to economic growth and narrows income inequality. Overall examination of our findings presents an inverted U-shaped curve between financial development and economic growth, and income inequality. We also found that the fiscal policies may lead to a narrow the income disparities among rich and poor people. Our results also confirm that the high inflation has negative impact on economic growth and income dispersion. We observed a bilateral causality between financial development and economic growth, and unidirectional causality from income inequality to financialization.

Undoubtedly, the financial development has an important impact on economic growth and income inequality in the economy. Therefore, policy makers should undertake appropriate reforms and actions to ensure sustainable growth and fair redistribution of national income. The financial system should be regulated in a way that allocation of services should be efficient. Regulatory reforms should be conducted to support financial system in response to destabilizing shocks. There should be an efficient credit allocation to achieve sustainable growth in the economy. Particularly, the primary target should be small and medium firms. Fiscal

policies should be expanded to address the income inequality. The priority of policies in the agenda should address those at the bottom of the income distribution.

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Appendix

Table A.1 Construction of Variables with Their Definitions and Sources

Variable	Construction	Definition	Source
GDP	Logarithm of real GDP	Economic Growth	OECD
GINI*	Level of GINI Coefficient	Income Inequality	TurkStat
FIN	Ratio of credit to private nonfinancial sector from deposit banks and other financial institutions to nominal GDP	Financial Development	BIS
GOV	Ratio of general government final consumption expenditure to nominal GDP	Government Expenditures	OECD
INF	Change in CPI	Inflation	IMF IFS

* Since GINI data not available in quarterly, we used interpolation method to convert annual GINI data into quarterly frequency.

Table A.2 Descriptive Statistics

Variable	Mean	Median	Std. Dev.	Max	Min
GDP	17.52	17.6	0.31	18.03	16.59
GINI	0.4	0.4	0.01	0.46	0.37
FIN	0.54	0.56	0.23	0.94	0.19
GOV	0.13	0.13	0.01	0.17	0.1
INF	0.03	0.02	0.03	0.20	0.0