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CREDIT ACTIVITY AND GROWTH PERFORMANCE: Evidence from Panel Data[a]

Sadaf MAJEED*, Syed Faizan IFTIKHAR and Zeeshan ATIQ*****

Abstract

This study analyzes the real impact of enterprise credit and household credit separately on economic growth for a selected group of 36 developed and developing countries. Since most of the available literature on growth and finance show contrast in the economic theory and does not distinguish between the household credit and enterprise credit when it measures the relationship between credit growth and economic growth respectively. The unbalanced panel data for the group of 36 countries is used over the period 2000–2016. The empirical results show that by using the full sample, enterprise credit is positively associated with economic growth but household credit tends to hamper the economic growth. However, individual analysis of developed and developing countries shows that the financial sector provide considerable growth to support its role in terms of credit to enterprise in developing countries. In contrast, the enterprise credit seems to have no role in promoting economic growth of the developed economies, which may be due to their financial crisis. However, investment is quite significant for both developed and developing countries, which indicate that investment has the potential to accelerate economic growth. The evidence also suggest that a more sophisticated enterprise credit policy should be designed in both developed and developing countries to promote economic growth in the long-run.

Keywords: Enterprise and Household Credit, Investment, Economic Growth, Panel Data.
JEL Classification: F32, E22, O40, C33.

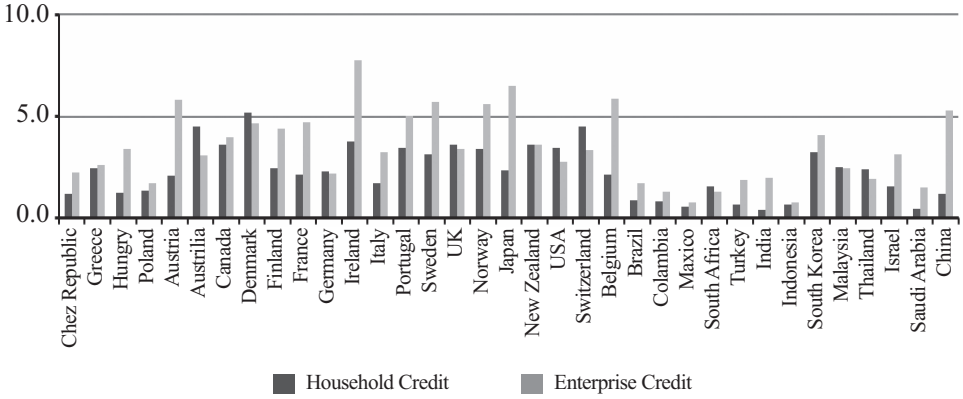
I. Introduction

The economic growth of a country mainly depends upon the factors that enhance the capital accumulation and improve technological progress. The enhancement of these factors could be attributed to a vibrant financial sector. A vibrant financial sector channelizes funds efficiently to more productive utilization. This function of financial sector along with other useful function plays a vital role in capital accumulation and technological innovation. Through their relative functions, banks and financial insti-

[a] Part of Ph.D. thesis of the first author.

* Research Assistant, **Assistant Professor, Applied Economics Research Centre and ***Assistant Professor, Department of Economics, University of Karachi, Pakistan.

tutions create a feasible link between households, firms, and government agencies by transferring funds from lenders to borrowers. Since the financial sector comprises of different sectors, including: banks, nonbanks and other types of financial institutions that tend to offer financial services to the entire economy. The primary recipients of their services are divided into two sectors: households and firms. Most of the available literature only highlights the role of credit to the enterprises; because of their direct role in economic growth and the constraints they face [Levine (2005)]. On the contrary, many cross-country empirical literature [Beck, et al. (2000) and Rajan and Zingales (1998)] used aggregate measure of credit, combining both household and enterprise credit without analyzing the individual impact of these components on economic growth of the country [Beck, et al. (2012)]. Since consumerism in the entire world seems to be on a rise as major economies depend on consumption to boost up their economies. Now a big chunk of loans from the financial sector flows from the financial sector to the household, which they use for a myriad of purpose. There is also a dire need to measure the impact of household credit on economic growth [Beck, et al. (2012)]. Moreover, the two types of borrowers (household and firms) vary in terms of use of funds and might have a different effect on macroeconomic performance [Buyukkarabacak and Krause (2009)].



Data Source: Bank for International Settlements (2017), Calculated by authors.

FIGURE 1

Developed and Developing Countries:
Credit to Household and Enterprise as percent of GDP (2008-2016 annual average)

Figure 1 shows the behavior of household and enterprise credit of developed and developing countries. Household and enterprise credit in developing economies has been growing very rapidly after financial crises in 2008. Several factors such as macroeconomic stability, financial deepening, and availability of new lending instruments

explain the recent strong expansion of credit in these economies. In some countries like South Korea and China, average credit to enterprise sector exceeded 4 and 5 per cent respectively. On the other hand, enterprise credit has exceeded large than household credit in Austria, Ireland, Japan and Belgium. Although new loan financing declined relatively more in developed countries because the banking shock mainly affected to financial institutions.

In this study we have attempted to investigate the impact of household and enterprise credit on economic growth individually. The decomposition of credit into household and enterprise credit is considered to be essential for several reasons; firstly, if household credit has an independent effect on economic growth then it may provide the implication of how a theory should develop a link between financial sector development and economic growth. Secondly, the decomposing of private sector credit could provide the understanding to establish the role of the financial sector in real economic activities across countries that indicate depth in insights into various channels through which financial development provides a supporting role in economic growth. The main objective of this study is to examine how the composition of credit by the financial sector, divided between household and enterprises plays a critical role in improving economic growth in developed and developing countries. However, a particular distribution of funds between household and enterprise sector is more important for estimating the economic growth because these two types of borrowers vary in terms of use of funds and might have a different effect on macroeconomic performance.

The formation of a hypothesis is an important task of any empirical research. Analysis of theories and previous empirical research of financial development and economic growth helps to develop the hypothesis. The hypothesis of this study is constructed on the basis of the relationship between bank credit and economic growth in the following manner:

H_O = Composition of credit to household and enterprise sectors promote economic growth of developed and developing countries.

Rest of the study is structured as follows: Section II discusses the theoretical underpinning and empirical research on the subject. Section III presents the model specification, econometric techniques, and data outlines, while Section IV highlights the empirical findings. Finally, conclusion and policy implications related to estimated results are the contents of Section V.

II. Literature Review

The debate on the financial sector and real sector is considered to be one of the most crucial issues in development economics. This section highlights the well-documented literature by both theoretically and empirically.

1. Theoretical Underpinnings

The concept of financial development started since the work of Gurley and Shaw (1967). They highlighted the financial sector's contribution in the growth process of the economy and argued the positive linkages between financial growth and real wealth. As countries grow economically, their financial institutions must be stronger. However, in the economic development literature, the debate on the finance-growth nexus is not a new concept. Generally, two schools of thought attributed to the relationship between the financial sector and real economic activities. The first view was introduced by Schumpeter (1911) in the Theory of Economic Development where he emphasized that banks have a direct influence in enhancing technical innovation and productivity growth which support the overall economic growth. This concept was extensively discussed further by Goldsmith (1969) and after that McKinnon (1973) and Shaw (1973) and many others, who shed light on the role of financial services in real economic activities. They proposed that the financial intermediary development reduces the market friction; as a result, saving rate increases which promote capital accumulation through investment activities.

2. Empirical Literature

Goldsmith (1969) examines the financial intermediary role in the economic growth of 35 countries over the period 1860 to 1963. The author finds that financial growth and economic growth usually occur simultaneously. Goldsmith's study has some drawbacks as it has overlooked some of the important determinants of economic growth. Roubini and Sala-i-Martin (1992) examine the finance-led growth hypothesis by using the Barro-type growth regression model of 53 countries from the period of 1961-1980. They illustrate both theoretically and empirically and conclude that financial repression reduces productivity of capital as well as savings, which hamper long-run economic growth. Atje and Jovanovic (1993) find a significant role of stock market in economic growth in 40 countries. The study concluded that economic growth is positively influenced by stock market development while bank credit provides opposite results. King and Levine (1993) estimated the finance-growth hypothesis by using three growth indicators[1] and four financial development indicators[2] of 80 cross country from the period 1960-1989. They find that economic growth responded positively with various indicators of financial sector development.

Moreover, Odedokun (1996) uses 71 countries annual data with a varying sample of time 1960s and 1980s. This study explains that most of the studies contain biased

[1] These include: per capita growth rates, capital accumulation and productivity growth.

[2] These indicators were: the ratio of deposit money bank assets to total assets, ratio of non financial private sector credit to total credit, the ratio of liquid liabilities to GDP and the ratio of claims on non financial private sector to GDP.

results due to omitting relevant variables; therefore, the author modified a new model that analyses the financial sector role in real economic activity. Levine and Zervos (1998) develop empirical linkages in which economic growth is associated with stock market development and banking sector development. The study used data of 42 countries from the period 1976-1993. The results find that the initial level of stock market liquidity[3] and the initial level of banking development[4] both are positively correlated with long-run economic growth. They come to the conclusion that financial sector is an integral part of economic activities. Demirguc-Kunt and Maksimovic (1998) use various variables to estimate the association between finance-growth linkages; they use 30 cross-country data from the period 1980-1991. They concluded that efficient financial system not only provides a well developed legal system but also makes it easier to avail foreign investment, which ultimately promotes the company's growth. In addition, the estimated results do not support the desired contribution of government subsidies in these economies. Xu (2000) postulates that the development of financial sector is vital to accelerate the economic performance; while well as domestic investment also provides a supporting channel through which financial services accelerate economic growth. Beck, et al. (2000) estimated the finance-growth hypothesis by using traditional cross-section instrumental variable and dynamic panel techniques by using averaged data from 1960 to 1995 for 74 countries. The authors concluded that in order to support the creditor's right there is a need for the legal and accounting reforms as well as, contract enforcement which may improve the efficiency of financial sector and hence accelerate economic growth.

Beck and Levine (2004) developed a model in which they relate the stock market and banking sector development with economic activity in 40 countries by covering average data from 1976-1998. By using GMM technique, the results indicate that the stock market and bank both contribute positively to economic growth. Christopoulos and Tsionas (2004) explored the role of financial sector in the long-run economic growth. The results verify a positive co-integration between finance and long-run economic growth, but this study fails to develop bidirectional causality between the parameters. Demetriades and Law (2006) estimate the data of 72 countries with the classification of high-income, middle-income, and low-income countries by using the sample size 1978-2000. They used different variables[5] to examine the effect of financial system on real economic growth. The results found that financial development promotes economic growth if financial development is associated with sound institutional framework. The authors also concluded that better finance is important to promote more growth instead of more finance.

[3] Measured in terms of turnover ratio.

[4] Measured in terms of credit to private sector as percentage of GDP.

[5] These variables were GDP per capita, gross fixed capital formation, liquid liabilities, private sector credit to GDP, domestic credit to GDP, corruption, rule of law, bureaucratic quality, government repudiation of contracts and risk of expropriation.

Leitão (2012) uses GMM system estimator technique by using the panel data set of the European Union (EU-27) from 1990 to 2010. The author used different indicators[6] to develop the finance-growth hypothesis. The results indicate that domestic credit and inflation both have a negative impact on economic growth. Petkovski and Kjosevski (2014) highlighted the importance of banking sector credit in economic growth by using 16 transitional countries from central and South Eastern Europe over the period of 19 Years from 1991 to 2010. The results show that economic growth is negatively associated with credit to the private sector and interest margin of banks. The negative sign of these coefficients is mainly attributed due to non- performing loan and banking crisis during the period of 2008 and 2010. Moreover, the ratio of quasi-money has a positive and significant impact on real economic actives. Sassi and Gasmi (2014) extended the empirical estimation to 27 European countries over the period 1955-2010 by using OLS and GMM economic techniques. They emphasized on the importance of the enterprise credit market and household credit market on the economic growth. They found a positive impact of enterprise credit market in real economic growth, while economic growth is negatively associated with the household credit market. They concluded that credit should be diverted to productive investments and innovations to promote economic growth.

Gozgor (2015) applies the cross-country penal dataset over the period 1970-2010 of 58 developed and developing countries using the following variables,[7] the empirical results find the causality in seven developing countries from domestic credit to economic growth. Conversely, a unidirectional causality in five developed and ten developing economies exist from economic growth to domestic credit. Garcia-Escribano and Han (2015) observed the empirical association between bank credit and economic activity in Emerging markets. They used two dependent variables[8] and three financial development indicators[9] in their study. The results found that corporate credit shocks influence GDP through investment channels with smaller magnitude, but consumer credit shocks influence GDP through consumption channels with a higher magnitude. Ahmed and Bashir (2016) expanded the empirical analysis by analyzing the empirical association between banking sector credit and economic performance in SAARC countries. The authors used six indicators[10] to determine the association between banking sector and economic growth. The results established a significant relationship between banking sector growth and economic activity. They concluded that policymakers and the government should make some rules and regulations to improve financial institutions. Bist (2018) measures the impact of credit to the private sector on economic growth by using 16 African and non-African low-income countries over the period of

[6] These were (i) domestic credit (ii) savings (iii) bilateral trade and (iv) inflation.

[7] These variables were (i) GDP per capita (ii) the ratio of domestic credit by bank as percentage of GDP and (iii) economic globalization index.

[8] These were (i) consumption to real GDP and (2) investment to real GDP.

[9] These were corporate, consumer and housing credit.

[10] These indicators were (i) the ratio of quasi money (ii) bank credit to private sector (iii) export (iv) gross fixed capital formation (v) government expenditure and (vi) inflation.

1995 to 2014. The estimated results positively support the concept of finance-growth nexus in the analysis of both panel data and time series data. The study concludes that policies should be designed to promote more to private sector in these countries.

Previous research studies have explored the finance-growth hypothesis by using different financial indicators and different methodologies. The literature survey revealed that the financial development is directly co-related with economic growth. These studies pay more attention on banking sector credit to promote economic growth. Based on previous literature, this study attempts to fill the gap in literature by examining how the composition of credit by the financial sector divided between household and enterprises plays a role in improving the economic growth in developed and developing countries.

III. Model, Econometric Methodology and Data

This study follows Barro- growth regression which had been developed by Barro and Sala-i-Martin (2004). They highlighted that the average GDP per capita depends on initial GDP per capita. However, to develop a link between finance and long-run economic growth, this study is estimated through an augmented Barro-growth regression, which introduced the concept of financial development in the following manner:

$$g_{it} = \eta_{it} + \alpha_i + \delta f_{it} + \gamma_i C_{it} + \mu_i + \varepsilon_{it} \tag{1}$$

Here, the real economic growth (g_{it}) is determined by the number of various variables, including the initial values of some variables (η_{it}) (such as Initial GDP per capita) and the control parameters, denoted by (f_{it}) which indicate the financial development, (C_{it}) represent a set of conditioning variables and μ_i and ε_{it} represents the error term, in which *i* represent the (units of observation (country) such as (i = 1,2, ..., N) and *t* shows (t = 1,2, ..., T) the time period. The ε is the zero-mean white noise error term and μ is the country-specific component of the error term and it does not assume to have a zero mean. The parameter αi shows a (country-specific) intercept and may change from country to country.

This study focuses on (f_{it}), which measures the role of financial sector in the growth performance. To measure financial development, two financial indicators have been used as described clearly in the data section. However, the main objective of this research is to empirically estimate whether the financial sector affects real economic growth or not. This study has specified, as a modifier opinion, to apply a growth model to describe the following relationships:

$$\begin{aligned} GPC_{it} = {} & \alpha_0 + \beta_1 LGPCI_{it} + \beta_2 LHC_{it} + \beta_3 LEC_{it} + \beta_4 LG_{it} + \beta_5 LINF_{it} \\ & + \beta_6 LT_{it} + \beta_7 LI_{it} + \beta_8 SE_{it} + \xi_{it} \end{aligned} \tag{2}$$

Here, (*GPC*) represents the GDP per capita growth rate, (*LGPCI*) is the log of initial GDP per capita, (*LHC*) is the log of household credit as percentage of GDP, (*LEC*) shows

the log of enterprise credit as percentage of GDP, (*LG*) represents the log of general government consumption expenditure as percentage of GDP, (*LINF*) is the log of annual inflation rate, (*LT*) is the log of trade openness which is measured by the sum of export and import as parentage of GDP, (*LI*) is the log of gross fixed capital formation, (*SE*) shows the ratio of gross secondary school enrolment rate and εit reflects the error term.

This study is mainly focused on the recent empirical literature undertaken by Beck, et al. (2012) and Sassi and Gasmi (2014). Both had mutually agreed that enterprise credit is vital in the process of economic growth, whereas, household credit provides the opposite results within the same context. The role of enterprise credit is expected to be positive in the long-run economic growth while the household sector credit has shown ambiguous impact in this regard.

However, this study expects that $\beta_3 > 0$ and $\beta_2 = 0$ (or $\beta_2 < 0$) or outcomes of both β_2 and β_3 could be negative by Bezemer, et al. (2016). To control other economic growth determinants, this study has used those variables which had been widely used in the growth literature. The conditional convergence theory postulates that the initial value of GDP per capita allows to capturing the convergence effect in the growth model by Sassi and Gasmi (2014). The countries associated with lower initial GDP per capita have shown faster economic growth than countries with higher initial GDP per capita. In addition, empirical literature also highlights the negative role of inflation in the real economic activity. Government spending is expected to have a negative impact on economic growth because of crowding out private investment. However, the theoretical relationship becomes ambiguous in case of the government expenditure on infrastructure promotes economic growth, since it can be negatively or positively related with economic growth. According to Kneller, et al. (1999) if government expenditures are highly associated with investment and infrastructure, it is more likely to have a positive impact on economic growth other than non-productive expenditures which deteriorate the economic growth. Therefore, while describing economic growth; general government expenditures are often represented in the model as a control variable [King and Levine (1993), Levin, et al. (2000)]. The trade openness is expected to promote economic growth through exchange of goods and services and also by enhancing the allocation of capital. Moreover, a variable gross fixed capital formation is used in the model to capture the economic activity in terms of the production of goods and services. However, the investment is an important indicator that channelizes finance through which financial development effects the economic growth [Xu, (2000)].

1. Econometric Methodology

To estimate the role of financial sector in the economic growth performance, this study uses Pooled OLS, Fixed Effect (FE) and Random Effect (RM) techniques for panel data. These techniques are more suitable for the static panel model than a dynamic panel model. In case of a dynamic panel model, the Pooled OLS, Fixed Effects

and Random Effect estimations will be biased and inconsistent. The annual unbalanced data set is used in this study, and there is no time-invariant or dummy variable is connected to the model.

a) Pooled OLS

The pooled OLS has a common constant in the estimation; the general form of the model is explained in the following manner:

$$Y_{it} = \alpha_0 + \alpha_0 x_{it} + \mu_{it} \qquad i = 1 \ldots\ldots\ldots N : t = 1 \ldots\ldots T \tag{3}$$

The pooled OLS technique is also known as the common constant technique. This test estimates a common constant for all cross section by assuming that there is no difference that between estimated cross sections, in addition the error term in pooled regression is white noise and estimated results are unbiased and consistent by applying small sample with large number of identity (country).

b) Fixed and Random Effect

The general model of the fixed and random effect is described as follows:
Model of Fixed Effect

$$Y_{it} = \alpha_i + \beta x_{it} + \xi_{it} \tag{4}$$

Model of Random Effect

$$Y_{it} = \alpha_i + \beta x_{it} + \mu_i + \xi_{it} \tag{5}$$

In the fixed effect model, the (slope) coefficients are assumed to be constant but intercept may change across countries, and it does not vary over time. Hence the net effect of the independent variables on the dependent variable is achieved [Torres-Reyna (2007)]. Therefore, the coefficient of ait remains unchanged among cross-section and time. Another vital assumption of the Fixed Effect model is that there is a correlation between predictors and error terms. This method can control the omitted variables bias as well as eliminates the characteristics of time invariants from the independent variables. Therefore, unlike REM, FEM is unable to find the effect of variables whose values remain fixed over time, i.e. gender, religion, and culture informal because these variables show perfect co-linearity with the fixed effect. The distinction between the fixed effect model and the random effect model is due to the difference between the time-invariant single-effects and the explanatory variables. The FEM is uniformly valid if correlation exist between a_{it} and x_{it}, but in this case, REM becomes inconsistent.

In contrast, if a_{it} and x_{it} are not related, REM will be effective and consistent, while FEM is consistent but inefficient.

Before the selection of the model between Fixed Effect and Random Effect, it is essential to find the correlation between a_{it} and x_{it}. The Hausman test can be used under the acceptance of null hypothesis that the random effects are consistent and efficient by rejecting the alternative that the random effects are not consistent. The null hypothesis describes that ait is not correlated with x_{it} and alternative narrates that a_{it} and x_{it} are correlated. If probability lowers than 0.05, then this shows the rejection of null hypothesis, which means that the fixed effect is more appropriate method. For statistic values higher than 0.05, the null hypothesis will be accepted, which means the random effect estimator should be employed.

2. Data Source and Description

To find the impact of composition of credit to household and enterprise on economic growth, this study uses an unbalanced dataset of 36 developed and developing countries (see in Appendix A Table A-1) by using the sample size from 2000 to 2016. The selection of sample size in this study depends upon the availability of the dataset used in the estimation. The data of household credit and enterprise credit has been extracted from Bank for International Settlements (2017) for all countries except Pakistan. The data for Pakistan have been collected from SBP (State Bank of Pakistan). The data for control variables such as gross fixed capital formation as percentage of GDP, consumer price index, GDP per capita growth rate, initial GDP per capita, government consumption expenditure as percentage of GDP, Trade openness and secondary school enrollment are extracted from WDI-World Bank database.

IV. Empirical Results

Empirical results are based on three groups of analysis such as: developed and developing countries combined and developed and developing countries as a separate analysis. This section discusses the empirical findings of the model. The results of the descriptive analysis of all countries and individually developed and developing countries are shown in Table 1.

1. Developed and Developing Countries

Whereas, Table 2 and Table 3 highlight the findings of financial sector credit and long-run real economic growth of all developed and developing countries by using pooled and fixed effect techniques.

The results of Table 2 indicate that credit to the household sector is shown negative and significant impact on economic growth. The sign of the coefficient supports the

literature, i.e. [Beck, et al. (2012)] while the coefficient of enterprise credit is positive and statistically significant. This result postulates that depths in the financial sector in terms of credit issued to the enterprise sector is more beneficial for economic growth. Regarding the other control variables, as had been expected from the theory, inflation effects the GDP growth negatively and the estimated results support this hypothesis as the sign of the inflation for economic growth shows a negative trend and found to be statistically significant. The coefficient of the initial value of GDP per capita is negative and moves on a similar path with the convergence hypothesis. In addition, the coefficient of investment has a significant impact on real economic growth.

Table 3 describes the result of the fixed effect technique. The coefficient associated with household credit is negative and statistically significant; these results are consistent with the theoretical predictions by [Jappelli and Pagano (1994)]. On the contrary, the en-

TABLE 1

Descriptive Analysis of Key Variables

Variables	Countries	Mean	Std.dev.	Minimum	Maximum	Observations
GPC	All	1.8488	2.9437	-8.9979	23.9570	574
	Developed	1.2967	2.6515	-8.9979	23.9560	372
	Developing	2.8657	3.1817	-7.3560	13.6360	202
LHC	All	5.0271	0.9744	0.3467	6.3131	574
	Developed	5.4321	0.5778	3.0492	6.3131	372
	Developing	4.2813	1.1082	0.3467	5.8905	202
LEC	All	5.5523	0.6913	2.4278	7.0469	574
	Developed	5.8470	0.3872	4.7431	7.0469	372
	Developing	5.0097	0.7931	2.4278	6.5006	202
LI	All	3.1082	0.2015	2.4369	3.8180	574
	Developed	3.0816	0.1549	2.4369	3.4601	372
	Developing	3.1573	0.2602	2.5273	3.8180	202
LG	All	2.8722	0.2690	1.8139	3.4051	574
	Developed	2.9715	0.1732	2.3896	3.3298	372
	Developing	2.6895	0.3149	1.8139	3.4051	202
LT	All	4.1987	0.5129	0.5129	5.3988	574
	Developed	4.2654	0.5126	2.9855	5.3988	372
	Developing	4.0759	0.4915	3.0958	5.3111	202
LGPCI	All	10.0083	1.0242	6.9446	11.4170	574
	Developed	10.5844	0.4852	9.3759	11.4170	372
	Developing	8.94734	0.90035	6.94464	10.3076	202

Source: Authors' estimations.

terprise credit has an expected positive sign and showed significant impact on economic growth. Credit to the enterprise sector stimulates the real economic growth through capital accumulation, productivity and allocation of resources [Aghion, et al. (2005, 2010)].

An excessive trend of the household credit market continues to exist in both developed and developing countries while it shows a negative contribution to economic growth. In contrast, the enterprise credit market shows a weaker growth rate while it promotes capital investments and technological progress [Sassi and Gasmi (2014)].

A positive role of financial sector development is only driven by providing credit to the enterprise sector, but not to the household sector. Moreover, the coefficient of inflation theoretically shows a negative sign and has a significant impact on economic growth. In addition, government expenditure is also negatively associated with economic growth, which means that government spending is not responsible for promoting economic growth. Government spending is expected to have a negative impact on economic growth because of crowding out private investment. However, the theoretical relationship becomes ambiguous in case if government expenditure on infrastructure promotes economic growth since it can be negatively or positively related with economic growth. On the other hand, Kneller, et al. (1999) argued that if government expenditures are highly associated with investment and infrastructure, it is more likely to have positive impact on economic growth other than non-productive expenditures which deteriorate the economic growth. The coefficient of the initial level of GDP per capita is negatively

TABLE 2

Estimated Long-Run Coefficients-
Developed and Developing Countries based on Pooled OLS

(LGPC) is the Dependent Variable			
Regressors	Coefficient	Standard Error	T-Ratio[P-value]
LHC	-0.6505	0.2158	-3.0132 [0.002]
LEC	0.7842	0.3260	2.4054 [0.016]
LG	-2.0177	0.5885	-3.4280 [0.000]
LCPI	-0.9253	0.3376	-2.7407 [0.006]
LGPCI	-0.5428	0.1884	-2.8805 [0.004]
LT	0.1841	0.2235	0.8240 [0.410]
LI	4.5141	0.6315	7.1476 [0.000]
SE	0.0109	0.0077	1.4247 [0.154]
C	0.2152	3.0191	0.0712 [0.943]
R^2	0.270580		
Observations	574		
F-statistic	26.1985[0.000]		

Source: Authors' estimations.

associated with economic growth. Therefore, these results equally validate the hypothesis of conditional convergence applied earlier by De Long (1988). To be more precise, the theory of conditional convergence is based on negative relations between GDP per capita and the initial value of GDP per capita. However, this concept explains that each country moves towards its own converge equilibrium and attains a high growth rate when it moves away from the path. Moreover, the coefficient of investment indicates a positive behavior and a significant level with economic growth. Furthermore, the secondary school enrolment has negative but insignificant impact on economic growth. This result supports the literature of Islam (1995) who assessed that negative sign of the coefficient of human capital is the paradox between the theoretical human capital variable in production function and human capital variable in the regression.

The analysis of financial sector credit to enterprise and household is also important for developed and developing countries respectively. In developing countries, especially in emerging markets, the credit has rapidly increased during the past decade. In such economies, many factors like macroeconomic stability, financial efficiency, access to new lending channels and economic growth provide excelled support to raise credit expansion. However, we have attempted to highlight that whether the composition of credit to household and enterprise reflects the growth promoting factors or not? This

TABLE 3

Estimated Long-Run Coefficients-
Developed and Developing Countries based on Fixed Effect

(LGPC) is the Dependent Variable			
Regressors	Coefficient	Standard Error	T-Ratio[P-value]
LHC	-0.4275	0.1807	-2.3655 [0.018]
LEC	1.0285	0.2683	3.8334 [0.000]
LG	-1.2205	0.4838	-2.5227 [0.011]
LCPI	-1.1569	0.2853	-4.0547 [0.000]
LGPCI	-0.8950	0.1607	-5.5676 [0.000]
LT	0.0775	0.1830	0.4238 [0.671]
LI	4.2550	0.5236	8.1264 [0.000]
SE	-0.0063	0.0066	-0.9540 [0.340]
C	3.0536	2.4748	1.2338 [0.217]
R^2	0.5346		
Observations	574		
F-statistic	26.2792 [0.000]		
Huasman Test			
Chi-Sq. Statistic	45.244 [0.000]		

Source: Authors' estimations.

question is more relevant in those economies where financial development continues to find a deepening role. Similarly, we also highlighted this issue in case of developed countries, which are mainly European countries; where as a well developed financial system supports and enhances the allocation of resources which stimulates economic growth. Therefore, we have attempted to show in this study whether any connection exists between credit composition (household and enterprise credit) and economic growth or not in developed countries where credit growth is one of the factors which triggered the global crisis in 2008.

2. Developing Countries

In Table 4, the results of fixed effects postulate that in developing countries the household credit has not provided fruitful results in promoting economic growth. This result supports the argument stated by [Jappelli and Pagano (1994)]. He argued that alleviated credit constraints to the household might decrease the saving rate, with negative repercussions for economic growth. Similarly, household credit increases the demand for imported items that are hindrance in economic growth. Consequently, credit to household increases consumption, which creates the demand for imported goods

TABLE 4

Estimated Long-Run Coefficients-
Developing Countries based on Fixed Effect

(LGPC) is the Dependent Variable			
Regressors	Coefficient	Standard Error	T-Ratio[P-value]
LHC	-0.8208	0.3238	-2.5343 [0.012]
LEC	1.5518	0.4605	3.3692 [0.000]
LG	-1.0524	0.8534	-1.2330 [0.219]
LCPI	0.7964	1.1791	0.6754 [0.500]
LGPCI	-0.8744	0.2775	-3.1505 [0.001]
LT	-0.0605	0.4456	-0.1358 [0.892]
LI	4.9195	0.9965	4.9365 [0.000]
SE	0.0050	0.0140	0.3580 [0.720]
C	-10.1224	6.8362	-1.4806 [0.140]
R^2	0.61556		
Observations	202		
F-statistic	11.8091 [0.000]		
Hausman Test			
Chi-Sq. Statistic	17.1368 [0.0287]		

Source: Authors' estimations.

that hamper the economic growth. According to [Buyukkarabacak and Krause (2009)] the household credit increases the import which creates trade deficit.

On the other hand, credit to the enterprise sector shows a significant and positive impact on economic growth, which means that the allocation of credit to the enterprise sector increases the efficiency of investment. It may stimulate economic activity in the long-run instance. The estimated results are similar to and match with the theoretical vision that financial development promotes economic activities by improving firms' financing constraints [Beck, et al. (2012)]. The initial value of GDP per capita is significant and shows a correct negative sign. However, the coefficient of investment in developing countries is positively related to economic growth. This result also indicates that in developing countries, the credit to the enterprise sector is efficiently transmitted into fixed investment.

3. Developed Countries

Table 5 sheds light on finance-growth linkages in developed countries. The results indicate that household lending by the financial sector may deteriorate economic growth in developed countries and this result strongly supports the previous empirical research

TABLE 5

Estimated Long Run Coefficient-
Developed Countries based on Fixed Effect

(LGPC) is the Dependent Variable			
Regressors	Coefficient	Standard Error	T-Ratio[P-value]
LHC	-0.6965	0.2943	-2.3662 [0.018]
LEC	0.2230	0.3698	0.6032 [0.546]
LG	-2.1084	0.6933	-3.0407 [0.002]
LCPI	-1.1769	0.2765	-4.2561 [0.000]
LGPCI	-0.6021	0.3201	-1.8807 [0.060]
LT	0.2582	0.2184	1.1817 [0.238]
LI	2.2446	0.7108	3.1578 [0.001]
SE	0.0027	0.0094	0.2877 [0.773]
C	13.3693	3.8157	3.5036 [0.000]
R^2	0.53374		
Observations	372		
F-statistic	16.5508 [0.000]		
Hausman Test			
Chi-Sq. Statistic	27.5960 [0.000]		

Source: Authors' estimations.

by Sassi and Gasmi (2014). Conversely, the coefficient of enterprise credit is positive but not statistically significant. It may be due to the banking crisis in 2008, where global credit market was almost frozen and most of the investors of South Eastern European countries were involved in this systematic crisis. Rousseau and Wachtel (2011) argued that credit growth might be responsible for producing a weaker banking sector, as being clarified by financial crises. Moreover, Aghion, et al. (2005) also stated that any country with more than some critical level of financial development will speedily converge to long-run growth rate and that all other countries will have lower long-run growth rate.

The control variable such as secondary school enrollment has a positive but insignificant impact on economic growth. According to Khattatk and Khan (2012), the effect of expenditures on primary and secondary education on economic growth in OECD countries is smaller than as seen in other developing countries. Moreover, education duration may not represent a perfect measure of human capital by Gülsün and Asuman (2009).

The coefficients of government expenditure and inflation both have negative and statistically significant relationship with economic growth, whereas investment has a positive role in economic growth. This result shows that during the estimated time span the efficiency of investment has not been influenced by enterprise credit because due to the financial crisis, credit to enterprise has no specific role in promoting the economic growth. However, there are other sources or policies that positively reflect some impact on investment which accelerates economic growth. Moreover, this study is unable to find any significant impact of trade openness on economic growth, although some research supports the positive association between trade openness and economic growth such as Grossman and Helpman (1991), Rebelo (1991) and Leitão (2010), but some studies had found a negative correlation between trade openness and growth by Lai, et al. (2006), and Onaran and Stockhammer (2008).

To check the endogeneity problem in the model, this study has used two stages least square method (2SLS). The results are reported in Table A-1 (Appendix). Column 1 in Table A-2 (Appendix) shows the combined results of developed and developing countries, while columns 2 and 3 provide the separate analysis of developed and developing countries, respectively. The results indicate that the coefficient of household credit has negative and statistically significant impact in developed and developing countries. On the other hand, enterprise credit has positive effect in all the columns, but insignificant in the case of developed countries (column 3). Moreover, government expenditure has a negative impact on economic growth in all columns. The coefficient of trade openness has a positive but insignificant impact on economic growth in both developed and developing countries. Similarly, secondary school enrollment has a positive but only significant impact in developing countries. These results confirm that there is no endogeneity issue in the model because all results are similar to the previous results reported by Table 2, 3, 4, and 5 except secondary school enrollment which was negative but insignificant in case of developed and developing countries in Table 3.

V. Conclusion and Policy Implications

This study captures the effects of the composition of credit to household and enterprise on growth performance of 36 developed and developing countries during 2000-2016. However, the empirical evidence estimates the effect of household and enterprise credit in the economic performance of an economy than the use of the aggregate measure of private sector credit. The key empirical results specifically show that household and enterprise credits both have a considerable effect on economic growth in developing countries. However, household credit hampers the growth in developing countries while, enterprise credit provides a significant role to promote economic growth. Moreover, the convergence indicator supports the theoretical sign and it is statistically significant as well. In addition, the coefficient of investment is significant and positively related with economic activity, indicating that non-financial corporations use enterprise credit to allocate their capital stock, which accelerates the economic growth in developing countries. The coefficients of government expenditure and inflation both have a negative and statistically significant impact on economic growth. Similarly, this study is unable to find a significant impact of trade openness on economic growth. However, the findings of this research suggest that the financial sector development is more effective in delivering and advancing real economic benefits to developing countries. In contrast, the credit to the enterprise sector has no role in promoting economic growth in developed countries which may be associated with the financial crisis in 2008. The household lending by the financial sector may deteriorate the economic growth of developed countries and this result strongly supports the results of previous empirical research. Moreover, the coefficient of investment is shown to be the positive driver of economic growth. This results shows that during the estimated time span the efficiency of investment promotes economic growth through some other channels but not from the sources of enterprise credit in developed counties.

These results assist to provide some policy suggestions for financial development to support growth performance in the long-run. The economic growth policies should be inter-related with the financial policies in both: developed and developing countries. A more sophisticated and comprehensive credit policy should be planned to promote enterprise credit to non-financial corporation, especially in developing countries. Moreover, the monetary authority should tend to modify the credit structure and limit the growth of household credit in order to promote economic growth in both developed and developing countries.

The further research on this issue can also be used by developing the connectivity between credit activity and growth performance of different sectors of the economy, specifically those pertaining to investment and trade sectors in developing and developed countries. Further, the study could also assist to focus on economic globalization and government administrative factors in modeling to develop the relationship between credit and economic growth in several emerging markets and the rest of the world.

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APPENDIX

TABLE A-1

List of Countries

Developed Countries	Developing Countries
Chez Republic, Greece, Hungary, Poland, Austria, Australia, Canada, Portugal, Germany, Belgium, France, Italy, Sweden, UK, Norway, Finland, Japan, New Zealand, U.S.A, Switzerland, Denmark, Ireland.	Brazil, Colombia, Mexico, Turkey, South Africa, China, Indonesia, India, South Korea, Malaysia, Thailand, Pakistan, Israel, Saudi Arabia.

Source: World Economic Situation and Prospects.

TABLE A-2

Endogeneity Test Results

	Developed and Developing Countries	Developed Countries	Developing Countries
Regressors	2SLS	2SLS	2SLS
	(1)	(2)	(3)
LHC	-0.6545	-1.3515	-1.0466
	(0.0030)	(0.0001)	(0.0060)
LEC	0.7798	0.3833	1.4425
	(0.0181)	(0.4109)	(0.0087)
LG	-2.0378	-3.2718	-1.7688
	0.0000	(0.0002)	(0.0823)
LCPI	-0.9152	-0.8933	0.0623
	(0.0070)	(0.0119)	(0.9460)
LGDPI	-0.5454	0.0934	-0.7564
	(0.0040)	(0.8104)	(0.0273)
LT	0.1843	0.2996	0.5505
	(0.4200)	(0.2804)	(0.2910)
LI	4.5119	2.2133	4.9153
	0.0000	(0.0112)	(0.0000)
SE	0.0123	0.0158	0.0300
	(0.1269)	(0.1510)	(0.0338)
Constant	0.1648	13.8097	-9.2657
	(0.9571)	(0.0049)	(0.1319)
R^2	0.27145	0.186	0.3672
Observations	574	372	202
F-statistic	25.941	10.55	11.809
	(0.000)	(0.000)	(0.000)

Source: Authors' estimations.

TABLE A-3

Variance Inflation Factor (VIF)

Combinations	R^2	VIF
LHC, LG	0.1451	1.1747
LHC, LEC	0.6571	2.9239
LEC, LG	0.2842	1.3970
LG, SE	0.1884	1.2321

Source: Authors' estimations.