

PRIMARY RESEARCH

Nexus between Islamic Bank Decomposed Financing and Agriculture Output Growth in Pakistan

Sadia Yasmin ^{1*}, Mohammad Ayaz ²

^{1, 2} Dr. Hasan Murad School of Management, University of Management and Technology, Lahore, Pakistan

Keywords

Islamic Consumer Finance
Islamic Producer Finance
Threshold effects
Output Growth

Received: 19 October 2022

Accepted: 12 December 2023

Abstract.

Purpose: This study fills that gap by dividing Islamic finance into consumer financing (ICF) and producer financing (IPF) and assessing their quadratic role in agricultural productivity in Pakistan employing quarterly data from 2010 Q1 to 2020 Q4. We will also estimate a threshold point for each financing category.

Methodology: This study has used auto-regressive distributive lag (ARDL) with quadratic specifications, which is based on quantitative time series analysis. Additionally, the nonlinear effect of Islamic financing is visualized by plotting the predicted coefficients.

Findings: This research showed a u-shape profile for a quadratic model of IPF confirming the hypothesis of 'more finance, more growth', whereas an inverted u-shape profile for the quadratic model of ICF confirming the hypothesis 'too much finance'. Empirical findings indicate that additional finance is not necessarily desirable, and highlighted that a 'Threshold' level is more important to facilitate agriculture output growth in Pakistan.

Originality: This study adds to the body of knowledge regarding the threshold impact of Islamic financing on agricultural productivity.

Policy Implications: One of the key implications to policy-makers is to reconsider Islamic financing policies to contribute significantly to Pakistan's growth process.

KAUJIE Classification: F51, G1

JEL Classification: M5, Z12

*Corresponding author: Sadia Yasmin

†Email: sadia.yasmin84@gmail.com; ORCID: <https://orcid.org/0000-0001-7005-0351>

INTRODUCTION

In a country, economic growth is defined as a nation's ability to produce more products and services than it did the year before. Economic progress and change depend on the financial sector's expansion (Hassan et al., 2011). Indicators including financial sector development, human development index, and total factor productivity can be used to assess the development and growth of an economy. Progress and development of an economy primarily depend upon how well the financial sector performs (Arshed et al., 2020; Nguyen, 2022). Based on Schumpeter (2008), a significant body of research has been done on the relationship between the emergence of the financial sector and economic growth. Development of the financial sector is beneficial for the economy (Gurley & Shaw, 1955), because the functions of financial intermediaries include encouraging savings, advancing technology, offering chances for divergence, and raising the effectiveness of resource distribution. Financial sector development is advantageous for economic growth because financial intermediaries' operations include mobilising savings, and technological advancement, offering opportunities for diversity (Zafar & Sulaiman, 2020).

Countries with robust financial institutions generate internal credit expansion rather than relying on foreign financing sources, as countries with undeveloped financial systems do. Economic growth and the financial sector are associated primarily for various reasons. First of all, financial support is essential for all types of operations, indeed, established finance arrangements serve to minimize costs and, as a result, improve the quality of capital availability (Hassan et al., 2011). Second, Islamic financial development incorporates additional benefits such as Shari'ah-compliant economic transformation, commendable risk-sharing mechanisms, and returns integrated with the performance and risk of the venture, which leads to prosperity (Badawi, 2014). These incidental aspects are both supply-leading and demand-following (Hassan & Kalim, 2017).

Gross Domestic Product (GDP)

GDP encompasses the value added of industrial output, agriculture output and services output. So, we consider the following production function among GDP and all three sectors of production.

$$GDP = (AGR + IND + SER) \quad (1)$$

Here, agricultural sector output is denoted by AGR, IND denotes industrial sector output, and services sector output is denoted by SER. The primary sector, agriculture, industry, and the services sector are the three main groups into which sectors are separated. GDP specifies the total value added produced within a nation's borders, whether by its firms or not, during a given period, usually a year. In FY 2021 the share of agriculture sector to GDP of Pakistan is 25.71 percent, industrial sector reports 18.11 percent whereas 56.18 percent came from services sector, which is more than half of the total contribution to GDP. Since each of the three economic sectors is distinct and has various financial requirements, each sector requires capital to meet its specific growth demands. Therefore, we used agriculture output specifically as the dependent variable in this study.

Agriculture Sector and Economy of Pakistan

The annual revenue of Agriculture in FY 2020 stands at 2,362,209.00 PKR million in GDP. During pandemic Covid-19 global economic crisis, positive growth rate of agriculture productivity in FY2020 has shown as 2.67 percent without any physical damage. In a developing country like Pakistan, this sector is most promising, dependable and abundant source for the economy. Statistically, employed 45 percent of the total labore force in Pakistan ([Asghar & Salman, 2018](#)) and contributed 25.71 percent to GDP.

Financial Development and Output Growth

Last few decades, there seems a general consensus among researchers and economists on a positive relationship exists between financial development and economic growth. However, many empirical studies postulate contradictory evidence ([Arcand et al., 2015](#); [Deidda & Fattouh, 2002](#); [Demetriades & Rousseau, 2016](#); [Kalim et al., 2016](#)). Pakistan is an agrarian country and agriculture provides the raw material to industrial production. Farmers cannot yield the maximum possible production of wheat due to lack of adequate financing facilities which could be the main reason of food insecurity in Pakistan ([Sardar et al., 2013](#)). Conventional banks are providing credit against high collateral as well as on high interest rates, consequently, the profit of the borrowers decreases ([Yasmin et al., 2022](#)). Credit can have a positive significant impact to enhance productivity but financial constraints are the barriers to any income generating activity, growth can only occur if these obstacles are overcome. In developed countries, financial system is generally strong and can facilitate the capital mobilization between surplus and deficit sector, eventually leading to productivity and economic growth. On the other hand, financial system is less developed in middle income countries with less efficient banking intermediation. Developing countries have seen improvements in the effectiveness of their financial markets since the 1980s. Every economic activity needs financing, which increases the enterprise's potential and profitability. Furthermore, beyond a certain point, financial progress may be detrimental ([Arcand et al., 2015](#); [Benczúr et al., 2019](#)). Underfinancing, on the other hand, may have a positive (u-shaped) impact on output, while over-financing may have a negative (inverted u-shaped) effect.

Every sector of production has its unique composition, and finance has a varied impact. According to the law of diminishing returns, as productivity achieves its full potential, adding more input might be less effective, and productivity eventually declines (neoclassical economists). The global financial crisis of 2007-2008 created an inverted u-shaped relationship between finance and growth ([Law & Singh, 2014](#)), whereas some researches produced a u-shaped profile in support of the assumption that more finance leads to higher growth ([Jalil et al., 2010](#)). To look into the proposition "too much finance", we will include a quadratic term in our model to analyze the nonlinear impact of Islamic decomposed financing on agricultural productivity. Existing research has measured the development of the Islamic banking industry using just one indicator, for instance, total Islamic bank financing, Islamic banking deposits, and Islamic banking assets ([Arshed et al., 2020](#)). Therefore, our study considers to test the u-shaped or inverted u-shaped outcome for Islamic financing and particular sector's output

growth in the context of Pakistan.

Banks are financial institutions that function as an intermediary between two parties, namely the over-funded party and the underfunded party. Being an important institution in the community, the bank's main business is to provide clients finances and other financial services (Kassim, 2016). Simply defined as an intermediary whose business activities include collecting funds from the community and channel back to the community and providing other banking services (Nawaz et al., 2019). In the case of conventional finance, interest is perceived as the cost of capital, so the prices rise in proportion to increases in the cost of production. There will be more supply and less demand eventually production falls. Conventional financing is not directed toward production, and the financing institution bears no risk. Whereas, Islamic banks operate in accordance with the Quran and Sunnah where *riba* is strictly prohibited (Islam, 2015). Islamic bank contributes in financial development (risk sharing, equity financing and debt financing) and financial development adds to a country's output growth. Islam focus on moderation. Comparing the financing mechanism of Islamic and conventional bank, where conventional banking is functional for centuries giving loans with interest. Every financing facility which conventional banks provides either to finance consumer or producer is a loan bearing interest. facility.

Islamic Banking in Pakistan

The Islamic finance industry is gaining momentum, particularly in Muslim countries and generally around the world, yet its growth is rapid. Efforts in Pakistan to transform the traditional financial system to an Islamic finance system began in the mid-1960s. moreover, in the 1980s, practical efforts were made. As per Pakistan's Constitution, Article 38(f) "interest must be removed from the country as soon as possible." By following this article, Islamic banking system in the country than officially started in 1980s, and State Bank of Pakistan has made certain changes in the rules and regulations of banking ordinance according to the guidelines provided by Islamic Ideology Council. In order to facilitate interest free transactions, some amendments were made in Banking company ordinance of 1962. A specified time lag was given to the banking industry to convert their banking operations as full full-fledged Islamic system. This endeavour may have been contested later, in the early 1990s, before a Shariah court through arguments, accordingly some of the products were tagged as haram. However, Shariah Court and the Supreme Court of Pakistan have directed the decisions in 1992. There are currently 22 Islamic banking institutions operating in Pakistan, with a full-fledged Islamic bank having been formed in 2002. including full-fledged Islamic banks, Islamic banking windows and standalone branches. Many customers, including Muslims and non-Muslims switched from conventional to Islamic because of its gratified features. Islamic banking network has been expanding and flourishing throughout the country for the past two decades, accounting for more than 18 percent share (Fig. 1) of the total banking system and that is showing an upward trend.

Role of Islamic banking in promoting disaggregated output The advancement of the Shariah compliant financing system surely has a positive impact on the economy (Nawaz et al., 2019). A large body of research examines how a well-developed and efficient financial system is

intimately related to economic growth. Research indicates that the Islamic banking system has an impact on economic growth through a variety of channels (Abduh & Azmi Omar, 2012; Arshed et al., 2020; Furqani & Mulyany, 2009; Tabash & Dhankar, 2014; Yasmin et al., 2022). The Islamic banking system is basically product and investment-based system, which has propensity to upsurge the output growth in every sector of the economy. Having the range of unique and comprehensive products, Shariah based financing mechanism can cover all the farm size groups (Iqbal & Mirakhor, 2011).

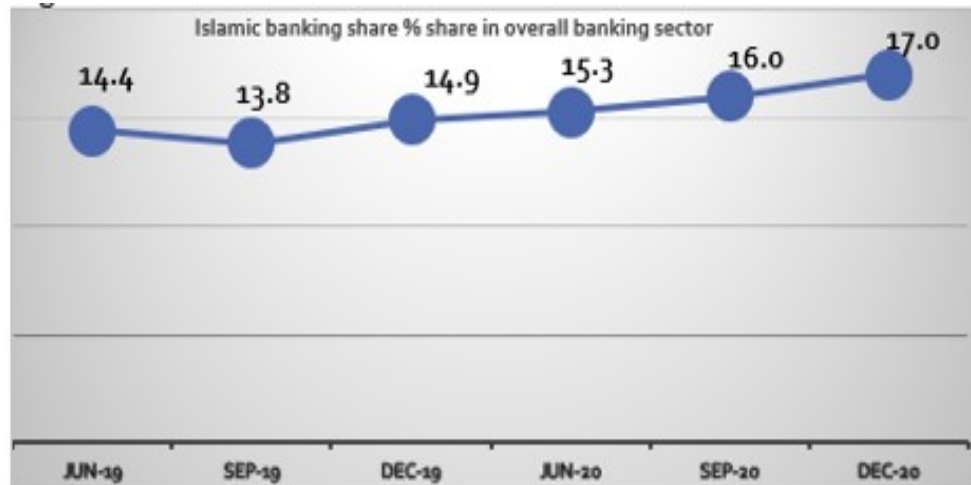


FIGURE 1. SBP Islamic Banking Bulletins

Islamic financial system having distinguishing characteristics of profit and risk sharing principle enable it to significantly contribute to the economic development in the country by facilitating borrowers. Islamic financing promotes social justice by promoting equitable resource allocation and can provide long-term economic success. Unlike conventional banking, Islamic banking's financial instruments are not perfect substitutes for one another, which means that products are sector-specific for instance salam and istisna. Hence they have diverse effects on the economy. The Islamic financial system can eliminate debt financing and improve the efficiency of financial resources (Manzoor & Arshed, 2021). Products offered by Islamic banking can fairly deal with every kind of business, and present several products unanimously for all the sectors of economy.

Decomposed Financing by Financial Intermediaries

A fundamental notion in economics is supply and demand. Where demand refers to how many (quantity) of products and services the consumer desires at a given price level. Supply refers to the amount of (quantity) supplier is willing to supply on a certain price level. When the demand and supply equate, it is said to be an equilibrium point, where a buyer is willing to buy goods at the same price that the seller is willing to sell (Arshed et al., 2020). The banking industry is critical in creating demand or supply. Because a bank acts as a debtor and earns interest on loans, the bank focuses on the customer's creditworthiness rather than the use of lending in conventional finance. Obtaining financing facilities from formal sources

creates many problems for the borrowers either from SME, Agriculture or even for corporate clients (Kohansal et al., 2013). They face many problems like complex procedures, lack of collateral, high interest rates and lag time between credit approval and its utilization for the productivity as the major hurdles (Chandio et al., 2016). The literature explored the interest rate charged and the procedures to obtain financing in Pakistan from ZTBL. Their respondents are business oriented involved in poultry, livestock and farming activities. Results postulate a positive significant relationship among agricultural credit and productivity.

Producer finance is referred as supply-side financing, and the State Bank of Pakistan categorizes it into three components; SMEs financing, corporate financing, and agriculture financing. In case of high interest rates in conventional financing, borrowing with Islamic bank ground repulse and evade interest-based financing. As a result, to get and return finance from the bank the borrowers financial constraints should be efficiently prioritized to increase their output. In favor of farmers, profit-sharing mechanism based on Shariah rulings is most suitable principal especially for agriculture sector (Khasanah et al., 2013). Islamic bank shares their profit and loss with the borrowers fairly. Islamic financing can stimulate real economic activities and facilitate the economy by sharing risk and ensuring social as well as financial stability (Islamic Development Bank, 2015). Different banks charge different amounts of interest, whereas the availability of *riba* free financing aid to improve the socio-economic well-being of the borrower, on time availability of financing facility encourages the borrower to produce at maximum level. It can create employment opportunities and boost production, which ultimately reflects a country's economic growth. Islam supports a more effective financial system that is free from exploitation and interest, lowering production costs, boosting economic activity, and motivating individuals to participate in the economy on profit and loss basis.

By offering services like credit cards, lease finance, and overdraft balances, banks enable customers to spend more money through consumer financing, which raises demand for goods and services. Additionally, the bank offers discounts on several brands, such as shoes, apparel, dining establishments, and department stores, which encourages people to spend more. Consumer financing in Pakistan is generally characterized by state bank into four product types which includes; Personal Loans (for individuals to meet their expenses, also includes revolving credit and running finance facility for the individuals), credit cards, car financing and House Finance. Financing facilities provided by conventional banks whether a house loan, automobile financing or credit cards is basically interest-bearing loan that is more concerned about the creditworthiness of a client rather than where he will spend the money (Faizulayev, 2011). Moreover, the loan compounds if the client is unable to repay. The promotion of credit card debt by offering a discount on different brands, conventional banks have framed people into expensive loans. Because of the wide variation in interest rates, especially in the financial sector, competitiveness generally has a negative impact on an economy. There is no way to justify the enormous profit margins made at the expense of depositors' money (Hassan et al., 2011). The economy faces a high level of inflation as a result of rising consumer borrowing levels and rising demand for goods and services (Arsene & Guy-Paulin, 2013).

IFSB and AAOFI provide several guidelines to ensure transparency and strengthen governance and disclosure of Islamic financing. Shari'ah law prohibits debt for consumption, therefore, Islamic banks provide service by purchasing an asset on behalf of the consumer and selling it to him in lump sum payments, instalments, or on a rental basis. Furthermore, Islamic banks provide consumer loans to help people survive and improve their standard of living. Islamic consumer financing is given to debtors based on musharaka, murabaha, and ijarah mechanisms ([Chapra, 1991](#)). Consequently, the bank that was either directly or indirectly involved in the purchase of the consumed asset. Social restraint is encouraged via Islamic consumer financing. Prior literature assert that the way society purchases influences every aspect of the economy. If people waste their money on things like fun and frolic, the capital for more useful purposes will become scarce.

Problem Statement and Research Gap

Financial constraints are widely seen as a major impediment to any income-generating activity, particularly in developing nations such as Pakistan. As a result, if financial restraints are removed, growth will begin. Available literature primarily focused on bank financing and growth ([Hassan et al., 2011](#); [Kalim et al., 2016](#); [Kassim, 2016](#); [Tabash & Anagreh, 2017](#)). However, these studies only explored the causality of financing considering a single indicator like total financing by bank, assuming all financing has equal effect on growth ([Tekilu et al., 2018](#)). Furthermore, literature neglected the Islamic financing nonlinear dynamics on sectoral development, since the composition and financing demands of each sector change, and financing might have a varied impact ([Ustarz & Fanta, 2021](#)), therefore the outcome may differ. Nonlinear relationships between financing and growth are examined by [Beck et al. \(2008\)](#) demonstrated that the type of financing could be important, and fund beneficiaries may also have an effect on the outcome ([Benczúr et al., 2019](#)). For example, if consumer financing has a negative impact on growth whereas producer financing has a positive impact, the vanishing or non-linear impact of total finance on growth may be established as the proportion of financing to consumers increases ([Arcand et al., 2015](#)).

To fill the gap, this research explores the quadratic effect of Islamic consumer and producer finance on agricultural production growth in Pakistan. Because the hypotheses of u shape profile 'more finance more growth' (Levine, 2003) and inverted u-shape profile 'too much finance' ([Arcand et al., 2015](#)) exist in the literature, previous findings provoke some contradictory evidence on the finance growth nexus ([Arcand et al., 2015](#)). This research will reveal the nature of the association between finance and growth, whether it is u-shaped or inverted u-shaped, and will establish an optimal or threshold level of financing to predict how much financing is required to significantly improve agricultural productivity growth in Pakistan. In this study, the dependent variable in the nonlinear model is agriculture output, whereas Islamic decomposed financing (ICF, IPF), inflation and interest rate are taken as independent variables. We believe that the findings of this research will support decision makers, practitioners and academicians to comprehend the importance of Islamic financing principles to accelerate the agriculture output growth in Pakistan.

Research Objectives

Number of empirical research indicate a linear association between the financial sector and economic growth. Specifically, no empirical research has been conducted by considering the effect of Islamic decomposed financing on agriculture sector output in Pakistan. The main objective of this research is to investigate the quadratic outcome of Islamic consumer and Islamic producer financing on agriculture output growth in Pakistan. Products of Islamic banking are different from its conventional counterparts, there are no substitutes available for financing so, the results might be different. The availability of credit facilities is critical to propelling output growth (Nawaz et al., 2019), but above a steady threshold level, where funding could become less productive and more expensive. As a result, this research examines the disbursement of ICF and IPF in connection to the ideal financing level to forecast how much finance is needed to significantly promote agricultural output growth.

LITERATURE REVIEW

Several empirical studies examined the role of financial sector development in economic growth are available in literature using time series data, panel data, cross country or at firm level for instance (Beck & Levine, 2005; Kaleem & Abdul Wajid, 2009; Pradhan et al., 2017; Sardar et al., 2013; Uddin et al., 2013) by and large. Proponents of the hypothesis about 'more finance more growth' states a positive association between indicators of financial sector development and economic growth in a country.

The starting point of the theoretical justification on financial development and economic growth nexus can be perceived from the work of Gurley & Shaw (1955) which states that finance plays an imperative role in any business and economic activity and improves the capacity and profit of the business. Academics and intellectuals have long been fascinated by the relationship between financial development and economic progress. This relationship is worth investigating for emerging countries such as Pakistan, which has a dual banking system. It is pertinent to investigate whether financial sector development will lead to growth in the economy or verse versa. Hassan et al. (2011) empirically examined the middle-income countries' bank financing and economic growth relationship. Results indicate a positive relationship between finance and growth in emerging economies. Nonetheless, research on the connection between finance and economic growth provides conflicting results (Schularick & Taylor, 2012).

Sardar et al. (2013) portray that small farmers can benefit from the Islamic mode of financing as the products offered by Islamic financing institutions are more appropriate for small farmers so their productivity increases. Kalim et al. (2016) empirically investigated the role of Islamic financing products in Pakistan's economic growth from 2006-2013. They found a linear relationship between Islamic financing and economic growth. Economic growth starts to accelerate when financial development reaches to a turning point. The literature state that higher financial development enhances growth which produces u-shaped profile.

However, research indicates that financial development may have a detrimental impact on growth once a turning point is reached. This raises questions about non-linearity and the threshold influence on the finance-growth nexus. [Arcand et al. \(2015\)](#) also documented the 'Too much finance hypothesis, which relates to the law of diminishing returns, which supports the vanishing effect. The marginal effect of finance is stated to be positive until a specific threshold point is reached, but then the influence diminishes. [Deidda & Fattouh \(2002\)](#) found that financial sector development has a more significant impact on economic growth in emerging economies as compared to developing countries. Using time series data, [Sardar et al. \(2013\)](#) found an inverted u-shaped relationship between the development of the financial industry and economic growth. [Arcand et al. \(2015\)](#) claim that when lending to the private sector surpasses 80% of GDP, a threshold effect occurs. An empirical investigation on the non-monotonic link between finance and economic growth was conducted by [Demetriades & Rousseau \(2016\)](#). They concluded that a number of factors, such as bank regulation and supervision, also had an impact on this association. According to [Yasmin et al. \(2022\)](#), when private sector lending exceeds a certain threshold, financing begins to harm growth.

Unlike traditional financing systems, Islamic financing employs the profit-sharing principle, which is free of interest ([Yasmin et al., 2022](#)). Islamic banks offer new strategies to aid agricultural growth ([Koçturk et al., 2013](#)). According to literature supporting the agriculture sector with PLS schemes by adopting al-musqa and al-muzara'ah contracts the economic well-being improved in Malaysia. [Manzoor & Arshed \(2021\)](#) investigated the impact of Islamic and conventional bank consumer and producer financing on inflation. The results reveal that Islamic consumer financing participates well in inflation management but Islamic producer financing does not in the context of Pakistan. [Law & Singh \(2014\)](#) state that more finance does not certainly improve economic growth. Similarly, [Sardar et al. \(2013\)](#) analyzed the finance and economic growth nexus in middle income countries using the threshold effect for the period of 1980 to 2008. Results postulate an inverted U-shape profile in the long run. [Yasmin & Ayaz Dr \(2023\)](#) also revealed that financial development has a "vanishing effect" on economic growth.

The fact that two coexisting or parallel banking systems are functioning under the same financial jurisdiction and legal framework makes this study distinctive. this analysis can assist in providing new evidence about the quadratic effect of Islamic decomposed finance on agricultural output, taking into account the supply and demand dimensions of financing.

DATA AND METHODOLOGY

Employing time series data in single-country research could offer a more resilient structure for examining the finance and growth relationship. In this study, the dependent variable is agricultural sector output, while the independent variables are inflation, interest rates, Islamic producers and Islamic consumer finance (Table 1).

Quarterly data from 2010Q4 to 2020Q4 was obtained from legitimate sources like quarterly bulletins of State Bank of Pakistan on Islamic banking and international finance statistics.

Functional forms are as follows:

$$AP = f(IPF + IPF2 + INT + INF) \quad (2)$$

$$AP = f(ICF + ICF2 + INT + INF) \quad (3)$$

The nonlinear impact of financing has been evaluated by [Sardar et al. \(2013\)](#) using a quadratic term, which has been included in this study to explore the hypothesis of "too much finance" and "more finance more growth".

TABLE 1
Construction of Variables

Dependent variable	Symbols	Units	Source
Agricultural sector output	AP	Agriculture production index	IFS
Independent variables			
Islamic producer financing	IPF	%age	SBP
Islamic consumer financing	ICF	%age	SBP
Consumer price index	INF	Consumer price index	IFS
Interest rate	INT	% p.a	IFS

TABLE 2
Nonlinear Model of Financing

α_1, α_2	Positive (+)	Negative (-)	Insignificant
Positive (+)	Exponential Increase	Inverted u-shape	Linear Positive Slope
Negative (-)	U-shaped	Exponential Decrease	Linear Negative Slope
Insignificant	Linear Positive Slope	Linear Negative Slope	No effect

$$Y = 0 + \alpha_1 X_1 + \alpha_2 X_2 \quad (4)$$

$$AP = f\beta_1 IPF_{it} + \beta_2 IPF_{it}^2 + \beta_3 INT_{it} + \beta_4 INF_{it} \dots \dots \varepsilon_t \quad (5)$$

$$AP = f\beta_1 ICF_{it} + \beta_2 ICF_{it}^2 + \beta_3 INT_{it} + \beta_4 INF_{it} \dots \dots \varepsilon_t \quad (6)$$

If [Kuznets \(1955\)](#) assertion of an inverted u-shaped relationship between financial development and economic growth is true, the coefficient of β_1 is statistically significantly positive and the coefficient of β_2 is significantly negative. Supporting the arguments of ([Sardar et al., 2013](#)) that excessive finance hinders growth. In contrast, the coefficients of β_1 and β_2 become significant negative and significant positive, respectively. This shows a u-shaped or anti-Kuznets trend, and supports the proposition 'more financing, more growth,' as indicated by [Ustarz & Fanta \(2021\)](#). The optimal level for both types of financing will be determined by the equation-estimated threshold as equating the first derivative to zero.

$$\beta IF / \beta AP = \beta_1 IF_{it} + 2 * \beta_1 IF_{it} = 0 \quad (7)$$

$$IF_{it}^* = \beta_1 IF_{it}/2 * \beta_2 IF_{it} \quad (8)$$

RESULTS AND DISCUSSION

Descriptive Assessment

Table 3 presents an overview of the variables' attributes. Basic information and data distributional characteristics are presented in the descriptive evaluation. The data is regarded as normally distributed around the mean provided the mean value for each variable is greater than the standard deviation. The Jarque- Bera normality test indicates that the data sets are not normally distributed, yet the central limit theorem demonstrates that the variables are asymptotically normal when the data is large enough ([Lind, 2000](#)).

TABLE 3
Summary Statistics

	LNAP	LNIPF	$LNIPF^2$	LNICF	$LNICF^2$	LNINF	LNINT
Mean	3.1307	4.3444	18.8842	2.4683	6.1261	4.9941	2.2063
Median	3.16	4.35	18.94	2.42	5.84	4.99	2.25
Std. Dev.	0.0594	0.0402	0.348	0.1757	0.8904	0.1764	0.285
Skewness	-0.161	-0.815	-0.7758	0.8957	1.0415	0.0357	0.0241
Kurtosis	1.9023	5.4652	5.2682	3.2848	3.7493	2.3861	1.6696
Jarque-Bera	2.2358	14.9215	12.9012	5.6211	8.3717	0.6526	3.0278
Probability	0.327	0.0006	0.0016	0.0602	0.0152	0.7216	0.2201

TABLE 4
VIF Matrix

	LNAP	LNIPF	$LNIPF^2$	LNICF	$LNICF^2$	LNINF	LNINT
LNAP							
LNIPF	0.2496						
LNIPF2	0.2443	0.9978					
LNICF	0.8116	0.2918	0.2837				
LNICF2	0.8028	0.3082	0.3007	0.9991			
LNINF	0.8516	0.2344	0.2236	0.9033	0.8948		
LNINT	0.2224	0.2594	0.2479	0.548	0.5554	0.3145	

The degree of association between variables is represented in the correlation matrix. The VIF test is used to determine the relevance of two variables in a model. The standard is that the value should be less than 10 therefore, If the variables are highly correlated to each other, it shows that the chosen model has a multicollinearity problem ([Haans et al., 2016](#)). Table 4

displays the statistics of each pair in accordance with the standard value which shows that the variables do not exhibit multicollinearity.

Unit Root Test

The unit root tests, carried out with the ADF and KPSS methods Summarizes in Table 5.

TABLE 5
Unit Root Test

Variables	at Level			1st difference		
	ADF test (Prob)	KPSS test	Decision at level	ADF test (Prob)	KPSS test	Decision at 1st diff.
LNAP	-2.446 (0.1365)	1.2324	Nonstationary	-3.0258(0.0419)	0.2328	Stationary
LNIPF	-1.6511 (0.4466)	0.2321	Stationary	-3.5971 (0.011)	0.2027	Stationary
LNIPF2	-2.4439 (0.1370)	0.2239	Stationary	-4.2840 (0.017)	0.1954	Stationary
LNICF	-2.2040 (0.2082)	0.7558	Nonstationary	-4.1614 (0.002)	0.2845	Stationary
LNICF2	-3.2361 (0.0264)	0.7478	Nonstationary	-5.9107 (0.000)	0.2662	Stationary
LNINF	0.0633 (0.9587)	0.7893	Nonstationary	-4.9441 (0.002)	0.219	Stationary
LNINT	-2.3640 (0.1585)	0.2547	Mixed	-3.5450 (0.011)	0.265	Stationary

Note: KPSS Critical values 0.739 @ 1%, 0.463 @ 5% and 0.347 @ 10%. *Significant at 5%

TABLE 6
ARDL Model Statistics

	$AP = f(IPF + IPF^2 + INF + INT)$	$AP = f(ICF + ICF^2 + INF + INT)$
F-statistic	14.092	13.84
95% Upper bound	5.72	5.06
90% Upper bound	3.03	2.45
Diagnostics Test		
A: Serial correlation	1.643(0.231)	2.24(0.14)
B: Functional form	0.631(0.439)	2.65(0.122)
C: Normality	4.179(0.123)	0.270(0.873)
D: Heteroscedasticity	1.153(0.395)	1.08(0.463)
CUSUM	Stable	Stable
CUSUMsq	Stable	Stable
R-squared	0.97	0.98
Adjusted R-squared	0.96	0.97
DW-Statistics	2.023	2.47

Diagnostics tests are performed without trend and intercept criteria. The ADF test probability values are greater than 0.05 at the level and less than 0.05 at the first difference; as a result, the KPSS test probability values are larger at the first difference and smaller at the level than the critical value, indicating that all of the variables are nonstationary. Indicates that during the study period, changes in legislation, societal shifts, or advancements in technology disrupt the normal pattern of selected variables. Remarkably, our behavior has changed as a result of the knowledge acquired via the OLS technique, making it obsolete. An alternate approach, Autoregressive distributed lag (ARDL) developed by [Pesaran et al. \(2001\)](#),

considers the influence of previous indicators on recent change and builds an equilibrium model.

Table 6 displays ARDL estimates, When the F test statistic surpasses the (IPF) and (ICF) critical values, this model demonstrates that all independent variables have a causal effect on the dependent variable, despite the variable's nonstationarity and synchronized co-movement. Moreover, the IPF model has a 96% explanatory intensity, whereas the ICF model has a 97% explanatory intensity.

Diagnostic tests are also applied to assess the validity of Islamic finance models and these are: normality test, serial autocorrelation, functional form and heteroscedasticity test. Given that the results of all these tests were not statistically significant, it is possible to conclude that the Islamic finance model used in the study is valid and reliable with a 10% confidence level.

Examining the quadratic impact of Islamic structured finance on the growth of agricultural output was the main goal of this research, either a u-shape or an inverted u-shape. As a result, Table 6 displays long-run estimates for both models of Islamic financing.

TABLE 7
Long Run Estimates of Islamic Decomposed Financing

	Islamic Producer Financing	Islamic Consumer Financing
Regressors	Coefficient (Prob)	Coefficient (Prob)
LNAP	-18.8588 (0.0031)***	
LNIPF2	2.129 (0.0032)***	
LNICF		2.1225 (0.469)***
LNICF2		-0.7263(0.0056)***
LNINT	-0.0410 (0.0281)	0.3490 (0.0106)**
LNINF	0.8512 (0.0003) ***	-1.4166 (0.026)*
TREND	-0.0150 (0.000)	
Threshold	4.42%	1.46%

For the IPF model, ARDL long-run estimates show that the coefficients of 1 and 2 demonstrate a negative and then a significant positive impact of Islamic producer financing on agricultural output growth. In this case, IPF increases by 1% then agricultural output reduces by 18.85% at first, but the output increases by 2.12% at an additional unit of IPF in the long run. The coefficient signals confirm a u-shaped outcome of IPF and agricultural output growth for the proposed model. Once the optimal point of IPF has been reached, agricultural production growth starts to accelerate confirming the 'more financing, more growth' hypothesis (Tabash & Dhankar, 2014). Empirical findings of the study support Schumpeter's (1911) theory of finance and growth nexus. Moreover, since the interest is considered the cost of capital, the prices rise automatically as the cost of capital rises. According to the findings of Islamic producer finance, a 1% increase in interest rates will result in a 0.04% decrease in agricultural output. In order to calculate the rate of return for Islamic financing, the Karachi inter bank offered rate (KIBOR) is used as a benchmark. Producer financing will become more costly if

the benchmark increases because banks will demand a higher equity portion or more rent for debt financing. When integrated with the Islamic producer financing model, inflation shows a positive significant impact on agricultural production growth. Our research findings suggest that a 1% increase in inflation tends to improve agriculture output by 0.85% in the long run. Inflation aids the economy in a variety of ways, including higher investment returns for investors and for productive initiatives. High profits: because producers can sell what they produce at high margins. These empirical findings are consistent with [Kassim \(2016\)](#).

On the other hand, long-run estimates of the Islamic consumer finance model indicate that the linear term is positive for Islamic consumer financing, while the quadratic term is negative as the coefficients of 1, 2 exhibited a positive and then negative impact on agricultural output growth. In this instance, an increase of 1% in Islamic consumer finance (β_1) boosts agricultural output by 2.12%, but increases in ICF diminish output by 0.72% (β_2). As a result, the outcome of indications verifies an inverted u-shaped association between ICF and agricultural output development in the selected model of Islamic consumer financing. Inflation also harms agricultural output growth, as our results demonstrate that an increase of 1% in inflation reduces the output by 1.41%. Rising inflation weakens consumer purchasing power by lowering or reversing real income and wealth gains. It often compels low income and middle-income households to reduce discretionary spending. Prices rise unevenly in an inflationary climate, eventually reducing the purchasing power of particular consumers, and this setback of real income is the foremost cost of inflation. Empirical findings of the Islamic consumer financing model also show that 1% increase in interest rate will increase agriculture output by 0.34% in the long run. Rising interest rates often lead to higher borrowing costs while significantly increasing savers' income. As a result, consumers eventually start spending less and saving more to fulfil basic necessities such as food. In this context, demand for agricultural commodities rises relative to other sectors in the economy. [Beck et al. \(2008\)](#) investigates the nonlinear links between bank lending and productivity growth. Describe how the type of financing may have an impact on the outcome and how fund beneficiaries may also have a nontrivial impact ([Benczúr et al., 2019](#)). This study's empirical findings are consistent with the findings of [Arcand et al. \(2015\)](#).

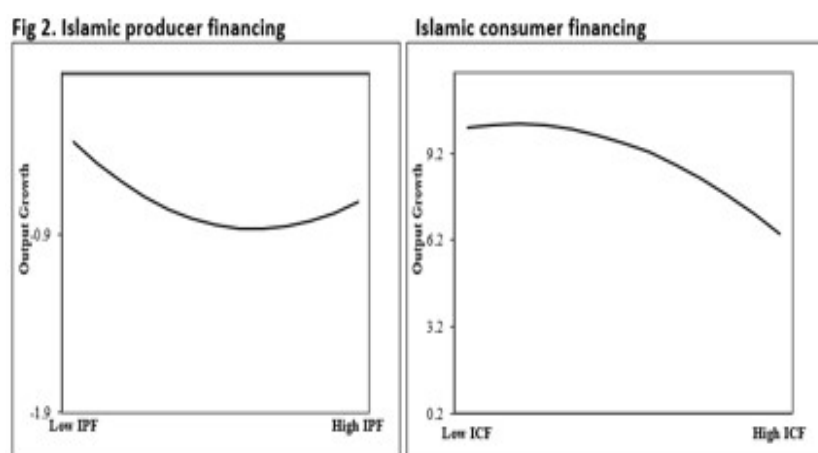


FIGURE 2. Source; Haans et al., (2016)

Summarizing the empirical findings from the analysis, We demonstrate that the impacts of finance on economic growth vary significantly, and these findings are robust to the existence or exclusion of the non-linear Islamic financing term. According to [Haans et al. \(2016\)](#), If the economy is experiencing both positive and negative dynamics at the same time, the use of a nonlinear model, particularly the quadratic specification, is perhaps considered. Moreover, during the analyzed period, Islamic producer financing ought to have a positive nonlinear impact on agricultural output growth, but the study also found a negative nonlinear impact of Islamic consumer financing. Our findings are consistent with [Benczúr et al. \(2019\)](#), although these findings may be limited to the time period under consideration.

It has been found that the linear component is positive while the quadratic term is negative, or vice versa, suggesting that the effect of bank financing on growth has reached a turning point in its impact. Figure 2 demonstrates the u-shaped profile for IPF and the inverted u shape profile for ICF model with an understanding of the nonlinear association between the development of ICF and IPF and agriculture output. Within the 95% confidence range, straight line fitted value supports the quadratic relationship between agricultural growth and Islamic finance sector development in Pakistan. [Deidda & Fattouh \(2002\)](#) provided mathematical visualization effects of various outcomes ([Chandio et al., 2016](#)). Following that, our research shows a u-shaped profile for the IPF model, which supports the hypothesis of more finance, and more growth ([Yasmin et al., 2022](#)). Disbursement of Islamic producer finance is 4.30% disbursed in 2020Q4. As determined by the first order derivation (β_{if}/β_{ap}), from the results estimated (see Table 6) IPF can be expanded over the calculated threshold points of 4.43% of total Islamic financing, which will have a positive impact on agricultural output growth in Pakistan. Considering that funding may become more expensive and ineffective after beyond the set threshold.

In contrast, an inverted u shape for ICF model supports the hypothesis of "too much finance" ([Sardar et al., 2013](#)). Disbursement of Islamic consumer financing in 2020Q4 is 2.28% of total Islamic financing, and the determined threshold level of financing is 1.47% as determined by the first order derivation (β_{if}/β_{ap}) from the estimated outcomes (see Table 6). It is suggested that financial deepening may have a detrimental impact beyond the projected threshold beyond which financial development no longer helps to economic growth. Any additional unit of financial development may not cause improved growth due to several reasons such as banking regulations, the rule of law, and political inference for which finance may be diverted to unproductive use. ([Hung, 2009](#)) postulates that enterprise financing tends to facilitate productivity whereas household financing is used for nonproductive purposes. Similarly, there is clear evidence from the estimations that an increase in Islamic consumer financing doesn't have positive impact on output growth after surpassing the threshold level so the policy makers should consider the measures to strengthen the quality of finance rather than only expanding the finance. This relationship in Pakistan has been neglected in research and debates about Islamic financing and economic development in the literature. To fill the gap, we used the methods of [Haans et al. \(2016\)](#) to split Islamic financing into two distinct categories: Islamic consumer financing and the other is Islamic producer financing. This allowed us to confirm the existence of a quadratic effect of financing on output.

The rate at which the short run model converges to the long run model determines the viability of the long run equilibrium.

TABLE 8
Short Run Coefficients of Islamic Decomposed Financing

Islamic producer financing		Islamic consumer financing	
Regressors	Coefficient (Prob.)	Regressors	Coefficient (Prob.)
D(LNAP(-1))	0.0725 (0.6273)	D(LNAP(-1))	1.2733 (0.0121)
D(LNAP(-2))	0.4009(0.0235)	D(LNAP(-2))	0.8767 (0.0154)
D(LNAP(-3))	0.6918 (0.0031)	D(LNICF)	-1.6135 (0.0269)
D(LNIPF)	-2.7537 (0.0030)	D(LNICF(-1))	-2.4298 (0.0071)
D(LNIPF(-1))	2.5837 (0.0066)	D(LNICF(-2))	0.3674 (0.3758)
D(LNIPF(-2))	2.3492 (0.0160)	D(LNICF(-3))	-3.3294 (0.0059)
D(LNIPF(-3))	1.4789 (0.0643)	D(LNICF(-4))	2.9071 (0.0082)
D(LNIPF2)	0.3125 (0.0038)	D(LNICF(-5))	0.8343 (0.0828)
D(LNIPF2(-1))	-0.2883 (0.0075)	D(LNICF2)	0.3011 (0.0363)
D(LNIPF2(-2))	-0.2596 (0.0190)	D(LNICF2(-1))	0.5279 (0.0066)
D(LNIPF2(-3))	-0.1593 (0.0791)	D(LNICF2(-2))	0.0140 (0.8582)
D(LNINF)	-0.0345 (0.8172)	D(LNICF2(-3))	0.7691 (0.7691)
D(LNINF(-1))	-0.0428 (0.8199)	D(LNICF2(-4))	-0.5452 (0.0083)
D(LNINF(-2))	0.2025 (0.3788)	D(LNICF2(-5))	-0.1770 (0.0657)
D(LNINF(-3))	-0.5727 (0.0066)	D(LNINF)	-1.2885 (0.0134)
D(LNINT)	-0.0279 (0.0242)	D(LNINF(-1))	0.1029 (0.5657)
D(TREND())	-0.0102 (0.000)	D(LNINF(-2))	-1.0481 (0.0185)
CointEq(-1)	-0.6820 (0.0001)	D(LNINF(-3))	-1.7763 (0.0062)
		D(LNINF(-4))	0.0253 (0.8872)
		D(LNINF(-5))	1.6532 (0.0124)
		D(LNINT)	-0.0466 (0.1000)
		D(LNINT(-1))	0.2427 (0.0025)
		D(LNINT(-2))	-0.2671 (0.0061)
		D(LNINT(-3))	0.2995 (0.0066)
		D(LNINT(-4))	-0.3894 (0.0084)
		D(LNINT(-5))	0.0212 (0.5139)
		CointEq(-1)	-0.3638 (0.0037)

In Table 7 the coefficients of ecm (-1) for Islamic consumer and producer finance show how any change in policy via an independent variable affects the equilibrium position and shifts the dependent variable in the direction of this new equilibrium. The results are -0.68 and -0.36, respectively, for Islamic producer and consumer finance. We may estimate that the monetary policy targets of financing via Islamic consumer financing will be accomplished in around 0.36 years, and the monetary policy targets of financing via Islamic producer financing will be accomplished in approximately 0.68 years, in order to achieve maximum growth in

the economy.

Stability Test

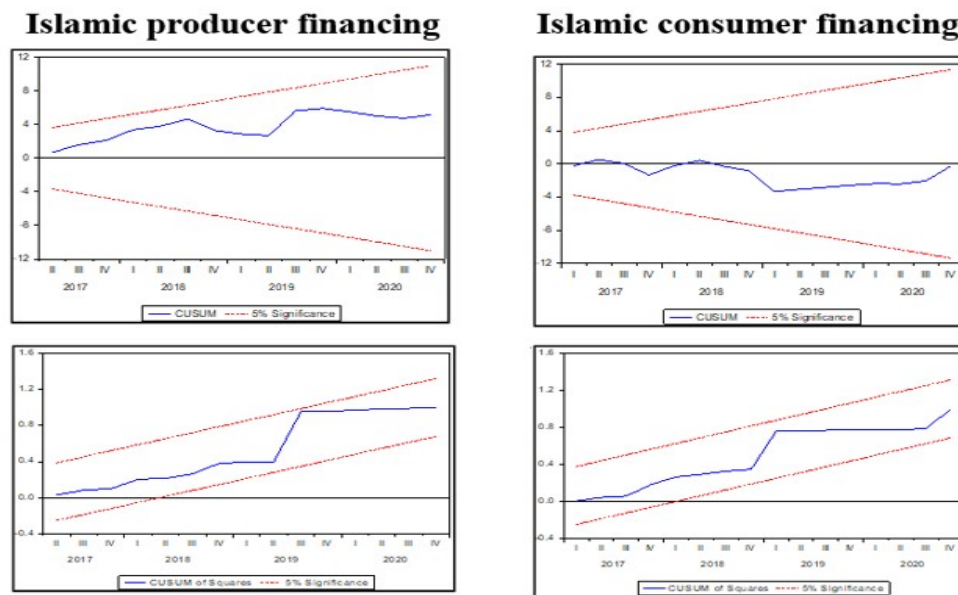


FIGURE 3. Stability Test

To verify the stability of Islamic deconstructed finance models, the cumulative sum of recursive residual (CUSUM) as well as the cumulative sum of recursive residual (CUSUM Square) are utilized, as advised by [Pesaran et al. \(2001\)](#). According to ([Brown et al., 1975](#)), a model stability test is necessary since the presence of cointegration in the model does not indicate that the model is stable. Cusum and cusum square reveal that our model is stable since our estimated findings in the figures below show that the line exists between the critical boundaries, indicating that the model is statistically stable at 5% significance level.

Conclusion and Policy Recommendations

In the literature, the arguments about "too much finance" and "more finance, more growth" are debated. The nonlinear dynamics of financing in Pakistan were not taken into account in studies related to Islamic financing and productivity growth. Considering this, the effect of Islamic decomposed financing (IPF & ICF) on agriculture growth in Pakistan is empirically examined in this study. Research findings consistently contradicted the concept of an inverted u-shape or monotonic relationship, supporting instead a u-shaped outcome of Islamic producer financing and agriculture output growth in Pakistan. This empirical research also calculated the threshold point of Islamic financing in which beyond a threshold level, IPF development may no longer contribute to economic growth. Moreover, Islamic consumer financing formed an inverted u-shaped profile suggests that ICF deepening might have a negative effect due to debt overhang etc. Disbarment of ICF during the time period of study, already surpassed the intended threshold level of financing. In this scenario, financial development may not

contribute to the economic growth of the country.

Finally, the quadratic model for Islamic producer financing coincides with [Yasmin et al. \(2022\)](#) 'more finance, more growth' proposition. Unlike prior studies, however, the u-shaped profile in Pakistan at present provides new insights, stressing the need for a 'Threshold level' of Islamic financing for agricultural production growth. The analysis, on the other hand, validates the 'too much finance' hypothesis for the quadratic model of Islamic consumer financing ([Arcand et al., 2015](#)), indicating that surplus Islamic consumer finance beyond a specific threshold significantly hinders growth. To promote future growth, policymakers ought to enhance both the volume and the efficacy of the financial system. To deter the "vanishing effect" and prevent the risk of future economic crises, financial regulations must be strengthened and expanded, along with rigorous supervision and monitoring of relevant financial activity.

For regulators to identify the appropriate financial ceiling in order to limit financial activity, threshold points play an important role. Since it is recognized that financial deregulation might be harmful to economic advancement and that tighter financial regulation oversight and screening are required, this cap will require an abrupt reduction in moral hazard in financial activity. Since the financial sector endorses significantly to growth over time, policymakers should thus consistently but carefully increase financial development. Furthermore, as a prerequisite, the degree of economic regulation and macroeconomic indices, such as inflation ([Manzoor & Arshed, 2021](#)), financial sector policies ([Arcand et al., 2015](#)), and financial openness ([Yasmin & Ayaz Dr, 2023](#)), affect the effect of financial development on output growth. These findings demonstrate the resilience of finance in promoting output growth. Our results might be useful to policymakers in setting policies into place that improve the standard of Islamic finance instead of merely expanding it. Islamic finance has proven to benefit society on an individual and societal level, and it fosters greater progress by extending the will of Allah.

Research Contribution

In conventional financing, interest is taken as cost of capital, therefore when it rises than cost of production automatically increases so do the prices (spillover effect: supply increases, demand decreases) eventually production will decrease. In contrast, Islamic finance operates on participatory mode, more assets are engaged here. Debtor and creditor both share their income and loss fairly. Unlike conventional finance, Islamic finance promotes production. there is cost and profit efficiency which would be favorable for the economy as a whole (farmer, consumer, banks). This study can be connected to monetary policy, when money supply increases than banks are asked to give more loans (where 2% is agriculture credit at present). The goals of monetary policy includes price stability, to promote economic growth and equitable distribution of credit. By increasing revenue for farmers, increased productivity also helps to lower poverty ([Chowdhury & Chowdhury, 2011](#)). This is particularly significant since, under a dual financial system, certain issues in the evolution of monetary policy are logically incompatible with Islamic banking, making it especially challenging for professionals in monetary policy to address them politically.

References

- Abduh, M., & Azmi Omar, M. (2012). Islamic banking and economic growth: the indonesian experience. *International Journal of Islamic and middle eastern finance and management*, 5(1), 35–47. doi: <https://doi.org/10.1108/17538391211216811> .
- Arcand, J. L., Berkes, E., & Panizza, U. (2015). Too much finance? *Journal of Economic Growth*, 20(2), 105–148. doi: <https://doi.org/10.1007/s10887-015-9115-2> .
- Arsene, M. F., & Guy-Paulin, D. D. (2013). An econometric analysis of the nexus between credit to the private sector, inflation and economic growth: case of cameroon 1965–2010. *Global Journal of Management and Business Research Interdisciplinary*, 13(7), 41–53.
- Arshed, N., Yasmin, S., & Gulzar, M. (2020). Islamic financing portfolio and its comparative growth potential. *Islamic Banking and Finance Review*, 7, 60–91. doi: <https://doi.org/10.32350/ibfr/2020/0700/440> .
- Asghar, N., & Salman, A. (2018). Impact of agriculture credit on food production and food security in pakistan. *Pakistan Journal of Commerce and Social Sciences (PJCSS)*, 12(3), 851–864.
- Badawi, A. A. (2014). 'education and values' presented at the 9th world islamic economic forum ((wief):(london, 29-31 october 2013). *ICR Journal*, 5(1), 129–134. doi: <https://doi.org/10.12816/0009810> .
- Beck, T., Buyukkarabacak, B., Rioja, F., & Valev, N. (2008). *Who gets the credit? and does it matter? household vs. firm lending across countries* (Tech. Rep.). The World Bank.
- Beck, T., & Levine, R. (2005). Legal institutions and financial development. In *Handbook of new institutional economics* (pp. 251–278. doi: https://doi.org/10.1007/0-387-25092-1_12). Springer.
- Benczúr, P., Karagiannis, S., & Kvedaras, V. (2019). Finance and economic growth: financing structure and non-linear impact. *Journal of Macroeconomics*, 62, 103048. doi: <https://doi.org/10.1016/j.jmacro.2018.08.001>.
- Brown, R. L., Durbin, J., & Evans, J. M. (1975). Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, 37(2), 149–163. doi: <https://doi.org/10.1111/j.2517-6161.1975.tb01532.x>.
- Chandio, A. A., Yuansheng, J., Sahito, J. G. M., & Larik, S. A. (2016). Impact of formal credit on agricultural output: Evidence from pakistan. *African Journal of Business Management*, 10(8), 162–168.
- Chapra, M. U. (1991). The need for a new economic system. *Review of Islamic Economics*, 1(1), 9–47.

- Chowdhury, T. A., & Chowdhury, S. S. (2011). Performance evaluation of agricultural banks in bangladesh. *International Journal of Business and Management*, 6(4), 75. doi: <https://doi.org/10.5539/ijbm.v6n4p75> .
- Deidda, L., & Fattouh, B. (2002). Non-linearity between finance and growth. *Economics Letters*, 74(3), 339–345. doi: [https://doi.org/10.1016/S0165-1765\(01\)00571-7](https://doi.org/10.1016/S0165-1765(01)00571-7) .
- Demetriades, P. O., & Rousseau, P. L. (2016). The changing face of financial development. *Economics Letters*, 141, 87–90. doi: <https://doi.org/10.1016/j.econlet.2016.02.009> .
- Faizulayev, A. (2011). *Comparative analysis between islamic banking and conventional banking firms in terms of profitability, 2006-2009* (Unpublished doctoral dissertation). Eastern Mediterranean University (EMU).
- Furqani, H., & Mulyany, R. (2009). Islamic banking and economic growth: Empirical evidence from malaysia. *Journal of Economic Cooperation and Development*, 30(2), 59–74.
- Gurley, J. G., & Shaw, E. S. (1955). Financial aspects of economic development. *The American Economic Review*, 45(4), 515–538.
- Haans, R. F., Pieters, C., & He, Z.-L. (2016). Thinking about u: Theorizing and testing u-and inverted u-shaped relationships in strategy research. *Strategic Management Journal*, 37(7), 1177–1195. doi: <https://doi.org/10.1002/smj.2399> .
- Hassan, M. K., Sanchez, B., & Yu, J.-S. (2011). Financial development and economic growth: New evidence from panel data. *The Quarterly Review of Economics and Finance*, 51(1), 88–104. doi: <https://doi.org/10.1016/j.qref.2010.09.001> .
- Hassan, M. S., & Kalim, R. (2017). Stock market and banking sector. *Pakistan Economic and Social Review*, 55(1), 1–30. doi: <https://doi.org/10.1016/j.qref.2010.09.001> .
- Hung, F.-S. (2009). Explaining the nonlinear effects of financial development on economic growth. *Journal of Economics*, 97, 41–65. doi: <https://doi.org/10.1007/s00712-008-0057-4> .
- Iqbal, Z., & Mirakhor, A. (2011). *An introduction to islamic finance: Theory and practice* (Vol. 687). John Wiley & Sons.
- Islam, S. (2015). Islamic banking: A true alternative to interest-based conventional banking. *International Scholar Journal of Accounting and Finance*, 1(1), 33–40.
- Jalil, A., Feridun, M., & Ma, Y. (2010). Finance-growth nexus in china revisited: New evidence from principal components and ardl bounds tests. *International Review of Economics & Finance*, 19(2), 189–195.
- Kaleem, A., & Abdul Wajid, R. (2009). Application of islamic banking instrument (bai salam) for agriculture financing in pakistan. *British Food Journal*, 111(3), 275–292. doi: <https://doi.org/10.1108/00070700910941471>.

- Kalim, R., Mushtaq, A., & Arshed, N. (2016). Islamic banking and economic growth: Case of pakistan. *Islamic Banking and Finance Review*, 3(1), 14–28.
- Kassim, S. (2016). Islamic finance and economic growth: The malaysian experience. *Global Finance Journal*, 30, 66–76.
- Khasanah, U., Salim, U., Triyuwono, I., & Irianto, G. (2013). The practice of profit and loss sharing system for rice farmers in east java, indonesia. *International Research Journal of Finance and Economics*, 9(3), 1–7. doi: <https://doi.org/10.9790/487X-0930107> .
- Koçturk, O. M., Tepeci, M., Duramaz, S., Yatbaz, A., et al. (2013). The use of agricultural loan: An analysis of farmers' bank selection decisions in manisa, turkey. *Journal of Food, Agriculture & Environment*, 11(3&4), 764–768.
- Kohansal, M. R., Torabi, S., Dogani, A., et al. (2013). Agricultural impact on economic growth in iran using ardl approach co integration. *International Journal of Agriculture and Crop Sciences (IJACS)*, 6(17), 1223–1226.
- Kuznets, S. (1955). International differences in capital formation and financing. In *Capital formation and economic growth* (pp. 19–111). Princeton University Press.
- Law, S. H., & Singh, N. (2014). Does too much finance harm economic growth? *Journal of Banking & Finance*, 41, 36–44. doi: <https://doi.org/10.1016/j.jbankfin.2013.12.020>.
- Lind, G. (2000). Moral regression in medical students and their learning environment. *Revista Brasileira de Educacao Médica*, 24(3), 24–33.
- Manzoor, A., & Arshed, N. (2021). Inflationary dynamics of consumer and producer financing: A case of islamic and conventional banking in pakistan. *International Journal of Islamic Economics and Finance (IJIEF)*, 4(2), 315–346.
- Nawaz, H., Abrar, M., Salman, A., & Bukhari, S. M. H. (2019). Beyond finance: Impact of islamic finance on economic growth in pakistan. *Economic Journal of Emerging Markets*, 8–18.
- Nguyen, P. T. (2022). The impact of banking sector development on economic growth: The case of vietnam's transitional economy. *Journal of Risk and Financial Management*, 15(8), 358.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3), 289–326.
- Pradhan, R. P., Arvin, M. B., Bahmani, S., Hall, J. H., & Norman, N. R. (2017). Finance and growth: Evidence from the arf countries. *The Quarterly Review of Economics and Finance*, 66, 136–148. doi: <https://doi.org/10.1016/j.qref.2017.01.011> .
- Sardar, A., Azeem, M. M., Hassan, S., & Bakhsh, K. (2013). Comparison of efficiency between pure islamic banks and islamic bank windows and role of islamic banking in agriculture sector. *Pak. J. Agri. Sci*, 50(1), 155–161. doi: .

- Schularick, M., & Taylor, A. M. (2012). Credit booms gone bust: monetary policy, leverage cycles, and financial crises, 1870–2008. *American Economic Review*, 102(2), 1029–1061. doi: <https://doi.org/10.1257/aer.102.2.1029> .
- Schumpeter, J. A. (2008). The theory of economic development.
- Tabash, M. I., & Anagreh, S. (2017). Do islamic banks contribute to growth of the economy? evidence from united arab emirates (uae). *Banks & Bank Systems*(12), 113–118. doi: .
- Tabash, M. I., & Dhankar, R. S. (2014). The impact of global financial crisis on the stability of islamic banks: An empirical evidence. *Journal of Islamic Banking and Finance*, 2(1), 367–388.
- Tekilu, T., Wondaferahu, M., & Jibril, H. (2018). The link between financial development and sectoral output growth in ethiopia: The case of agriculture, industry and service sectors. *International Journal of Economics and Management Sciences*, 7(5), 1–12.
- Uddin, G. S., Sjö, B., & Shahbaz, M. (2013). The causal nexus between financial development and economic growth in kenya. *Economic Modelling*, 35, 701–707. doi: <https://doi.org/10.1016/j.econmod.2013.08.031> .
- Ustarz, Y., & Fanta, A. B. (2021). Financial development and economic growth in sub-saharan africa: A sectoral perspective. *Cogent Economics & Finance*, 9(1), 1934976. doi: <https://doi.org/10.1080/23322039.2021.1934976> .
- Yasmin, S., Ayaz, M., & Ashraf, M. A. (2022). Accelerating industrial output growth through islamic bank decomposed financing optimization in malaysia. *iRASD Journal of Economics*, 4(4), 544–560. doi: <https://doi.org/10.52131/joe.2022.0404.0098> .
- Yasmin, S., & Ayaz Dr, M. (2023). Islamic banks’ decomposed financing and industrial output growth in pakistan. *Business Review*, 18(1), 107–131.
- Zafar, M. B., & Sulaiman, A. A. (2020). Islamic banking in pakistan: emergence, growth, and prospects. In *Growth and emerging prospects of international islamic banking* (pp. 61–77. doi: <https://doi.org/10.4018/978-1-7998-1611-9.ch004>). IGI Global.
