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QUANTITATIVE RESEARCH

The impact of introduction of Islamic finance in Pakistan on inclusive growth

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Abstract

Purpose: This paper examines the impact of Islamic finance on inclusive growth in Pakistan. While financial development is widely recognized as a driver of economic growth, through efficient capital allocation, investment promotion, and expanded credit access, conventional financial systems have often been associated with rising inequality and financial instability. Islamic finance, grounded in principles of risk-sharing, ethical investment, and asset-backed transactions, presents a potentially more inclusive and stable alternative that aligns financial intermediation with real economic activity.

Design/Methodology/Approach: The study employs the Autoregressive Distributed Lag (ARDL) model to analyze both short- and long-term relationships among financial development, Islamic finance, and inclusive growth over the period 1990–2021. An Inclusive Growth Index and four Financial Development Indices are constructed using Principal Component Analysis (PCA), guided by frameworks from the IMF, World Bank, and ADB. To capture the unique effects of Islamic finance, the model incorporates an Islamic finance dummy variable alongside key control variables. Individual financial indicators are also analyzed to uncover dimensions potentially obscured by composite indices.

Findings: The results reveal that financial development significantly enhances inclusive growth, and the integration of Islamic finance has a positive and statistically significant effect. These findings underscore

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the role of Islamic finance in promoting a more equitable and resilient financial system.

Originality/Value:

The study contributes to the literature by providing empirical evidence on the potential of Islamic finance in contributing to inclusive economic growth in context of developing economy. Unlike the existing literature, the study adopts a more nuanced approach by developing a holistic composite index of financial development, incorporating wide range of financial and economic indicators. It recommends policy measures to further strengthen Islamic finance in Pakistan through digital banking, inclusive Islamic microfinance, and the development of robust Sharīʿah-compliant capital markets. Such reforms can promote financial inclusion, diversify economic growth drivers, and enhance the stability of the financial sector.

KAUJIE Classification: G1, H1, J2

JEL Classification: G21, G28, E44, O16, D63, Z12, O53

INTRODUCTION

The relationship between finance and economic growth is well-established in the literature, with financial institutions and markets recognized as key drivers of economic activity. Financial development contributes to economic growth by improving capital allocation, promoting good governance, enhancing risk management, and enabling efficient resource mobilization. However, conventional financial systems have drawn criticism for becoming increasingly detached from the real economy, often engaging in speculative and non-productive transactions (Cecchetti and Kharroubi, 2015). Further, conventional financial systems have come under criticism for prioritizing speculative trading, risk-shifting, and value extraction over investment in the real economy (Minsky, 1986; Krippner, 2005; Palley, 2007; Rajan, 2005; Orhangazi, 2008).

In response to these concerns, Islamic finance has emerged as a viable alternative that seeks to align financial activity with the real economy through adherence to Sharīʿah principles (IMF, 2015). Rooted in ethical and socially responsible investment, Islamic finance prohibits interest (Ribā) and speculative behavior (*Gharar*), emphasizing risk-sharing, asset-backing, and transparency. Empirical evidence supports its positive economic contributions. Beck, Demirgüç-Kunt, and Merrouche (2013) argue that Islamic financial

institutions foster entrepreneurship and extend financing to sectors often overlooked by conventional finance. Similarly, Iqbal and Mirakhor (2011) highlight Islamic finance's potential to enhance financial inclusion by offering Sharīʿah-compliant products to previously excluded populations. Kabir et al., (2022) conclude that Islamic finance has strong static and dynamic impact on the real economic growth of OIC countries as well as the whole world. Butt et al.,, (2023) argue that despite the technical limitation of having an encompassing proxy to measure the impact of Islamic finance, it has significant positive relation to economic growth. Hanif et al.,, (2024) found evidence of significant contribution of Islamic finance to economic growth in fifteen sample countries. Naz and Gulzar (2023) found that Islamic banking and capital market have significant long-term correlation with GDP growth.

The role of Islamic finance in promoting inclusive and sustainable growth is increasingly acknowledged. Studies by Abduh and Omar (2012), Yusof and Bahlous (2013), and Tabash and Dhankar (2014) report a positive correlation between Islamic finance and economic growth. However, economic growth should not be viewed solely in terms of increased national income. Broader dimensions such as inclusivity and sustainability are essential. For instance, Purvis et al.,, (2019) emphasize the three pillars of sustainability, while Klarin (2018) and the Asian Development Bank (2013) advocate for economic strategies that fulfil basic needs, expand socio-economic opportunities, and protect vulnerable populations within frameworks of fairness and equity. Raimi et al.,, (2024) undertook a critical literature review and found that Islamic finance promotes sustainable development goals through mechanisms such as Green Sukuk, microfinance and Islamic impact investing.

In this broader context, Islamic finance aims not only to support economic growth but also to ensure it is both inclusive and sustainable. The sector shares core values with the United Nations Sustainable Development Goals (SDGs), including ethics, equity, and environmental stewardship. Nevertheless, Ahmed et al.,, (2015) note a persistent gap between the theoretical potential of Islamic finance and its actual contribution to SDG attainment, highlighting a disconnect between objectives and implementation. Salah Alhammadi (2024) argue that Islamic finance holds huge potential of economic diversification aligned with sustainable development goals in the GCC region.

Pakistan provides a compelling case study for examining this relationship, given its dual financial system comprising both conventional and Islamic components. This study assesses the impact of Islamic finance on inclusive growth in Pakistan from 1990 to 2021, using a dummy variable to capture the effect of Islamic finance's formal introduction. Given the recent constitutional amendment and the judgement by Federal Shariat Court regarding complete elimination of Ribā by 2028, it is imperative to evaluate the potential impact of Islamic finance on inclusive economic growth.

The research employs an expanded methodology that goes beyond traditional proxies of financial development, such as credit or banking ratios, by incorporating indicators across eight dimensions of financial institutions and markets, following frameworks developed by the World Bank and IMF. It also constructs a composite index to evaluate inclusive growth more holistically. By analyzing both the pre and post-introduction periods of Islamic finance in Pakistan, the study aims to identify any differential impacts associated with the sector's development.

Despite the rapid global expansion of Islamic finance, reaching USD 3.38 trillion in assets by 2023 and projected to grow to USD 6.7 trillion by 2027 (ICD-LSEG, 2023), evidence of its contribution to inclusive growth remains limited, particularly in Pakistan. Islamic finance has made significant inroads in the country's financial sector, accounting for over 22% of Islamic banking assets, 66% of listed market capitalization in Sharīʿah-compliant securities, and 46% and 65% of mutual and pension fund assets under management, respectively (SECP, 2023). Yet, the link between this financial deepening and broader economic growth remains ambiguous. For instance, Goaied and Sassi (2010) found little correlation between Islamic banking and growth in the MENA region, though other studies have reported more positive findings (Abduh and Omar, 2012; Yusof and Bahlous, 2013; Tabash and Dhankar, 2014).

This inconsistency underscores the need to evaluate Islamic finance within a more nuanced and multidimensional framework of financial development. Most existing studies fail to account for the complexity of financial systems or to compare conditions before and after the introduction of Islamic finance.

To fill these gaps, this study adopts advanced methodologies and comprehensive indicators to revisit the determinants of financial development and assess whether the growth of Islamic finance contributes to inclusive growth in Pakistan. The core research questions explore the extent to which Islamic finance, alongside broader financial development, positively influences inclusive growth.

The study offers two key contributions. First, it introduces a broader and more nuanced set of financial development indicators, contributing to a holistic understanding of dual financial systems. These findings have the potential to inform policy aimed at cultivating robust ecosystems for both Islamic and conventional finance. Second, should the study confirm that Islamic finance significantly enhances inclusive growth, it could justify greater policy emphasis on sector development. This may include fostering specialized Islamic financial institutions such as venture capital funds, real estate investment trusts (REITs), and exchange-traded funds (ETFs). Conversely, if the impact is found to be limited, the findings could prompt a re-evaluation of the operationalization of Islamic finance to ensure it aligns more closely with its foundational principles.

To address these gaps, the study advances two hypotheses. First, it examines the impact of Islamic finance on inclusive growth in the presence of a composite measure of financial development, constructed through various methodological approaches. The core premise is that the influence of Islamic finance on inclusive growth will be more pronounced and significant when financial development is measured through more comprehensive frameworks. Second, the study investigates the effect of financial development, employing multiple constructs derived from the latest approaches to measuring financial development, on inclusive growth. The subsequent factor loading analysis offers deeper insights into which categories of indicators contribute most effectively to inclusive growth.

The second section provides an overview of the existing literature. Data and research methodology are discussed in the third section. Estimation results and the ensuing discussion is provided in fourth section, while the last section contains conclusion of the study and key policy recommendations.

LITERATURE REVIEW

Concept of Inclusive Growth

The theoretical foundations of economic growth and development have evolved significantly over time, drawing upon a range of perspectives, models, and empirical insights. Economic activity, at its core, seeks to satisfy the needs of individuals and communities through the exchange of goods and services. This activity not only enables a better standard of living but also drives resource creation and trade, thereby facilitating economic growth (Cornwall, 2018). At the national level, economic growth manifests through improved living standards, reduced unemployment, and enhanced development opportunities. According to Kaldor (1961), economic growth is characterized by consistent increases in per capita output and physical capital per worker, stable rates of return on capital, and relatively constant capital-to-output ratios and income shares. Meanwhile, Kuznets (1981) identifies structural transformations, increased foreign commerce, and technological advancement as key features of economic growth.

The evolution of economic thought has produced various theories explaining the sources and mechanisms of growth. Early theories such as mercantilism emphasized the accumulation of national wealth, advocating trade surpluses and cheap credit as means of generating prosperity (Osipian, 2007). Physiocrats, meanwhile, considered agricultural production the sole contributor to national wealth and supported minimal state intervention. Classical economists, led by Adam Smith, viewed trade and factor productivity as drivers of prosperity, with Smith emphasizing self-regulating markets and endogenous drivers of growth like investment and population dynamics.

Subsequent theorists, such as Malthus (1803), warned of resource constraints due to unchecked population growth, introducing the concept of diminishing returns. Ricardo (1817) furthered the classical tradition with his theory of comparative advantage, encouraging specialization in sectors where a country has an edge. Mill (1848) linked capital and labor to wage dynamics, while Keynes (1936) underscored the importance of aggregate demand, advocating government intervention to stimulate economic activity through fiscal and monetary tools. Keynesian ideas were expanded by followers who

stressed ever-increasing investment as vital for economic balance (Lavrov and Kapoguzov, 2006).

Schumpeter (1948) introduced innovation as a cornerstone of growth, highlighting the role of entrepreneurs in driving economic development through new combinations and technologies. This paved the way for neoclassical theories in the 1950s and 1960s, which emphasized technological advancement, resource optimization, and minimal government interference. These theories argued that competitive markets naturally lead to efficient outcomes. Neo-Keynesian approaches were criticized for overemphasizing capital accumulation and neglecting market self-correction mechanisms.

Solow's exogenous growth theory integrated savings, labor force expansion, and technical progress as key drivers of long-term growth. He posited that equilibrium in aggregate demand and supply is vital and that only technological advancement enables sustained growth. Endogenous growth theories later expanded the framework to include internal factors like human capital quality, intellectual property rights, innovation ecosystems, and state support for science and technology. These theories recognized the multidimensional nature of growth and its dependence on institutional and policy environments.

Economic growth, however, is not always indicative of improved welfare for the broader population. This distinction leads to the concepts of sustainable and inclusive growth. Sustainable growth ensures that current economic progress does not compromise the ability of future generations to meet their needs. Purvis et al., (2018) identify three sustainability pillars: social, economic, and environmental. Klarin (2018) elaborates that sustainable development should address basic human needs, equality, cultural diversity, and ecological integrity, though many countries face structural constraints such as limited financial resources and conflicting global goals.

Inclusive growth refers to growth that not only raises overall income but also distributes the benefits widely across the population. According to the Asian Development Bank (2013), inclusive growth broadens access to socio-economic opportunities while safeguarding vulnerable groups within a framework of fairness and justice. Ali (2007) highlights employment, productivity, human capital, and social safety nets as key components of inclusive growth. Elena and Susana (2010) add that it should allow

individuals to both contribute to and benefit from economic progress. Vellala et al., (2014) criticize approaches focused solely on redistributive mechanisms and advocate for capacity building to empower individuals, which is central to inclusive economic strategies.

Finally, while often used interchangeably, economic growth and economic development are distinct. Economic growth is a narrower concept focused on increased output or income, whereas development includes qualitative improvements in living conditions and access to services. Economic development is broader and longer-term, measurable through indicators like the Human Development Index (HDI) or Human Poverty Index (HPI). Sen (2000) challenges traditional metrics of development, arguing that true development is about expanding freedoms, enabled by healthcare, education, and civic rights, not just about rising GDP or industrial output.

Concept of financial development

The concept of financial development is rooted in the broader discourse on economic growth, with capital and investment identified as essential elements requiring a well-functioning financial system. According to Čihák et al., (2012), the financial system plays five critical roles: producing information, monitoring investments, managing risk, pooling funds, and facilitating trade. An efficient financial system ensures a smooth flow of funds from savers to enterprises that need capital for expansion and productivity enhancement. Levine (2005) echoes this, highlighting that such a system mobilizes savings, allocates capital efficiently, and supports productive investment, thereby fueling economic growth.

Financial development is a relative term typically gauged in proportion to the economy's size. Historically, this has been approximated using ratios such as private credit-to-GDP or market capitalization-to-GDP (Rajan and Zingales, 1998; Arcand et al.,, 2015). While these measures initially showed that financial development contributes positively to economic growth, more recent insights suggest that this effect plateaus beyond a certain threshold. In response, the World Bank (2012) introduced a broader framework to measure financial systems across four key dimensions: depth, access, efficiency, and stability. The IMF (2016) built on this by launching nine indices to represent the functional aspects of financial institutions and markets, offering a more holistic view of financial development.

The ADB (2011) posits that the growth of banking institutions and stock markets significantly boosts per capita GDP, particularly in developing Asian economies. The structure, whether bank-based or market-based, matters less than the extent of overall financial development. Čihák et al.,, (2012), however, stress that a financial system's structure is critical in complex and evolving markets, as different institutional setups (e.g., banks vs. investment funds) cater to varying economic needs. Regardless of the system type, these institutions channel funds to productive uses, reinforcing the link between finance and economic growth.

Levine (2005) suggests that financial development is a process that reduces the costs of acquiring information, enforcing contracts, and executing transactions. This evolution brings about new markets, products, and institutions that improve efficiency and expand services. While the effectiveness of financial systems varies by country, success in mobilizing funds and facilitating trade is key. Institutions require timely, accurate information to make informed lending and investment decisions, underlining the foundational role of transparency and governance.

In theoretical terms, financial development is closely tied to business growth. Businesses initially rely on internal resources but soon require external financing through private credit or equity investment (Levine, 2005). In developing countries, limited access to formal finance remains a significant constraint, hampering enterprise growth (Armendariz de Aghion and Morduch, 2005). This underscores the necessity for accessible, inclusive financial systems.

Efforts to measure financial development have evolved considerably. The World Bank's 2012 framework benchmarks financial systems using a 4x2 structure focused on depth, access, and efficiency. It draws on data sources like the Financial Access Survey (IMF), Global Findex (World Bank), and FinStats. Despite this progress, researchers still face difficulties in obtaining precise, comparable measures across countries. The IMF's 2016 financial development index offers a composite measure by aggregating nine indices into a comprehensive tool covering 183 countries over several decades. The index is developed using a standardized methodology involving variable normalization, aggregation into sub-indices, and consolidation into a single metric, following OECD guidelines (JRCEC,

2008). While the IMF consolidates these variables into a composite index, the World Bank employs a cluster-based approach, classifying countries with similar financial characteristics to facilitate comparative analysis.

The finance-growth nexus

The link between financial development and economic growth has long been debated. While early theorists such as Bagehot (1873) emphasized the role of finance in industrialization, later scholars like Goldsmith (1969) and Schumpeter (1934) stressed the capacity of banks to promote innovation and technological advancement by financing entrepreneurs with high-growth potential. In contrast, some scholars such as Robinson (1952) believed finance merely follows economic progress, while others like King and Levine (1993) argued that finance also leads development. Lucas (1988), however, dismissed the importance of finance as overstated.

The literature presents a mix of views: some argue that financial development drives growth, others that it follows growth, and still others that it has limited relevance. For example, while Levine and Zervos (1996), Xu (2000), and Levine et al., (1999) support a positive role, Greenwood and Jovanovic (1990) find a bidirectional relationship. Gurley and Shaw (1955), and Tobin (1965) focus on the monetary aspects of financial development, while Levine (1997) sees capital accumulation and innovation as its key transmission mechanisms.

The structure and role of financial institutions evolve in response to market needs. Initially designed for safekeeping, these institutions expanded to provide lending, investment, and intermediation services. Financial markets later emerged to meet broader capital demands. The form and function of financial services vary across contexts, shaped by each country's economic structure and institutional needs. Thus, financial development should be understood broadly, without limiting analysis to specific models or institutions. Importantly, not all financial innovation contributes to growth; instruments that serve speculative rather than productive purposes may decouple finance from the real economy, potentially hindering development.

Islamic finance and inclusive growth

Islamic finance has been widely discussed as a potential driver of inclusive growth due to its emphasis on real-sector linkages, ethical investment, and risk-sharing mechanisms. Ahmed (2010) underscores the asset-backed nature of Islamic finance, highlighting how it ties financial activities to tangible economic sectors such as trade, agriculture, and infrastructure. This channeling of resources into productive investments supports GDP growth and job creation. Chapra (2011) reinforces this by outlining key Islamic finance conditions that restrict speculative and fictitious transactions, such as the prohibition of selling debt and requirements for asset ownership and genuine trade. These constraints ensure a stronger connection between financing and the real economy, facilitating the provision of essential goods and services. Butt et al.,, (2023) argue that despite the technical limitation of having an encompassing proxy to measure the impact of Islamic finance, it has significant positive relation to economic growth. Kabir et al.,, (2022) conclude that Islamic finance has strong static and dynamic impact on the real economic growth of OIC countries as well as the whole world.

Usmani (2010) elaborates on the ethical foundations of Islamic finance, such as the prohibition of Ribā (interest) and emphasis on fairness and transparency. He argues that these principles enhance the resilience of financial institutions and promote sustainable development, which are critical for inclusive growth. His analysis of the 2008 financial crisis suggests that Islamic institutions were less affected due to their avoidance of interest-based and speculative transactions, which contributed to the system's attractiveness during the 2010s.

In the literature on financial development, two complementary theoretical perspectives are particularly relevant: Islamic finance theory and financial deepening theory. Islamic finance theory emphasizes risk-sharing and asset-based financing as its defining features. Rather than charging interest on loans, Islamic financial institutions utilize partnership-based modes such as modaraba and Mushārakah, in which profits and losses are shared between financiers and entrepreneurs. In addition, transactions are closely tied to tangible assets through contracts like modaraba (cost-plus financing) and ijarah (leasing). This asset-backing ensures a strong connection between financial activity and the real economy, discourages excessive speculation, and promotes stability. By aligning finance with real

economic activity, Islamic finance is argued to facilitate a more equitable distribution of wealth and foster inclusive growth (Iqbal & Mirakhor, 2011). On the other hand, the theory of financial deepening underscores the role of financial institutions in enhancing economic growth by mobilizing dispersed savings, pooling them into a broader capital base, and channeling these resources toward productive investments. Through improved information and risk assessment, financial deepening enables efficient allocation of capital while also providing mechanisms for risk diversification. These features encourage greater investment in innovative, high-return projects, thereby accelerating growth and development (King & Levine, 1993). Taken together, both perspectives highlight the importance of well-structured financial systems in promoting stability, efficiency, and inclusivity in the economy.

Several empirical studies have validated the positive link between Islamic finance and economic growth. Abduh and Omar (2012) find a significant long-run relationship between Islamic finance and growth in Bahrain, although not in the short-run. Yusof and Bahlous (2013) confirm similar outcomes in Malaysia, Indonesia, and GCC countries, showing both short- and long-run positive impacts. Tabash and Dhankar (2014), using data from UAE and other Gulf countries, demonstrate that Islamic bank financing is positively correlated with real economic indicators such as FDI and sectoral investments, which contribute to infrastructure and services development. Naz and Gulzar (2023) found that Islamic banking and capital market have significant long-term correlation with GDP growth.

In Pakistan, Nawaz et al., (2019) highlight a mutually reinforcing relationship between Islamic finance and population growth. As the demand for Sharīʿah-compliant services rises with population growth, more resources are channeled into housing and SME sectors, further enhancing employment and living standards. Ejaz and Khan (2014) argue that Islamic financial contracts foster a closer integration with the real economy through genuine transactions and risk-sharing arrangements, especially in housing finance, where Islamic structures like diminishing Mushārakah ensure shared ownership and discourage speculative bubbles.

Kassim (2016) provides cross-country quantitative evidence supporting the role of Islamic finance in stimulating industrial production and GDP growth in dual-banking economies,

particularly within ASEAN. His findings in Malaysia show that a 1% rise in Islamic bank financing corresponds to a 0.152% increase in industrial output, underscoring the sector's capacity for mobilizing investment. Salah Alhammadi (2024) argue that Islamic finance holds huge potential of economic diversification aligned with sustainable development goals in the GCC region. Bukhari (2019) similarly identifies a positive correlation between Islamic banking, gross fixed capital formation, and industrial output in Pakistan, highlighting the relevance of Islamic finance for national economic planning.

Although some studies, such as Goaied and Sassi (2010), report negligible or negative associations in the MENA region, the overall literature affirms the role of Islamic finance in facilitating inclusive growth. This is particularly evident when Islamic finance is integrated into dual systems and is supported by effective policies.

Beyond the financial instruments, Islamic finance also contributes to inclusive growth through its redistributive tools, Zakat, Sadaqah, and Waqf, which promote social equity by transferring wealth from the affluent to the disadvantaged. Shabbir et al., (2018) and Banna and Alam (2020) argue that these instruments are vital in addressing poverty and enhancing financial inclusion. Said et al., (2020) and Beck et al., (2013) note that Islamic financial products are especially beneficial in underserved regions, helping reduce income inequality and enabling access to credit for small businesses and low-income households. Iqbal and Mirakhor (2011) echo these findings, citing the role of profit-and-loss sharing in fostering equitable development.

Fasih (2012) discusses the compatibility of Islamic finance with the Indian constitutional goal of socialism, arguing that it aligns with broader national objectives of inclusive growth. Kassim (2016) further notes that Islamic finance helps distribute wealth more equitably, supporting a more balanced and sustainable development model.

While these theoretical perspectives establish a strong conceptual foundation, empirical research directly examining the link between Islamic finance and inclusive development remains limited. Much of the existing scholarship has focused either on general economic growth or on isolated indicators of inclusion. A comparative assessment of Islamic and conventional financial components within dual systems could therefore yield deeper insights. This highlights the pressing need for further research on the unique contributions

of Islamic finance to inclusive and sustainable development across diverse economic contexts.

Summary of literature review and research gaps

In view of the above, it may be inferred that considerable effort has already gone into estimating and measuring financial development and its impact on economic growth. Furthermore, the financial development-economic growth relationship has been explored from several angles, with the results overwhelmingly indicating a substantial positive correlation. The studies also emphasize the significance of separate regression modelling in capturing country-specific economic dynamics and facilitating meaningful cross-country comparisons. However, as financial development moves beyond banking institutions and Islamic finance emerges as an alternative financial system, additional dimensions such as the role of Islamic capital markets, Islamic collective investment vehicles, and other Islamic non-bank financial intermediaries must be explored. Because Islamic finance is expected to be more strongly correlated with economic growth, it is necessary to examine and estimate the impact of introduction of Islamic finance in Pakistan's dual-system economy in order to determine whether its introduction has strengthened the financial development-economic growth nexus.

RESEARCH METHOD

The prime objective of this research is to empirically analyze the impact of Islamic finance integrated financial development during the period 1990 to 2021, considering the evolution of approaches in its measurement, on the inclusive growth while focusing on the introduction of Islamic finance in Pakistan. Research in this area is essential as it provides empirical evidence on the dynamic relationship between financial development, economic inclusivity and financial stability.

New approaches in measuring financial development

The concept of financial development has evolved significantly over time, transitioning from simplistic monetary aggregates to more comprehensive and multidimensional measures that better reflect the complexity of modern financial systems. Early studies from

the 1950s to 1970s, such as Goldsmith (1969), used basic indicators like money supply (M2/GDP) and bank deposits to GDP, focusing primarily on the size of the financial sector. By the 1980s–1990s, emphasis shifted to banking sector indicators like private credit to GDP and interest rate spreads, as highlighted by King and Levine (1993), though these measures neglected the growing role of financial markets. In the 2000s, scholars began incorporating stock and bond market indicators, such as market capitalization and turnover ratios, to capture the broader landscape of financial development. The 2010s saw the rise of composite indices like the IMF's Financial Development Index (Svirydzenka, 2016), which integrate multiple dimensions such as depth, access, and efficiency. In the 2020s, digitalization and financial inclusion emerged as key areas of focus, with new metrics like mobile money usage and digital payment volumes, as tracked by the World Bank's Findex Database. However, the expansion of indicators poses data availability challenges, particularly for countries like Pakistan, limiting empirical studies to those dimensions where reliable data exists.

Two distinct analyses on Islamic finance and inclusive growth

The study employs a systemic approach to evaluate the impact of financial development, following the introduction of Islamic finance, on inclusive growth. The approach of this study not only exhibits the inherent relationship between the variables but also accounts for the historical evolution of the financial development over time. Consequently, the analysis has been divided in two distinct analyses, as exhibited in the following figures.

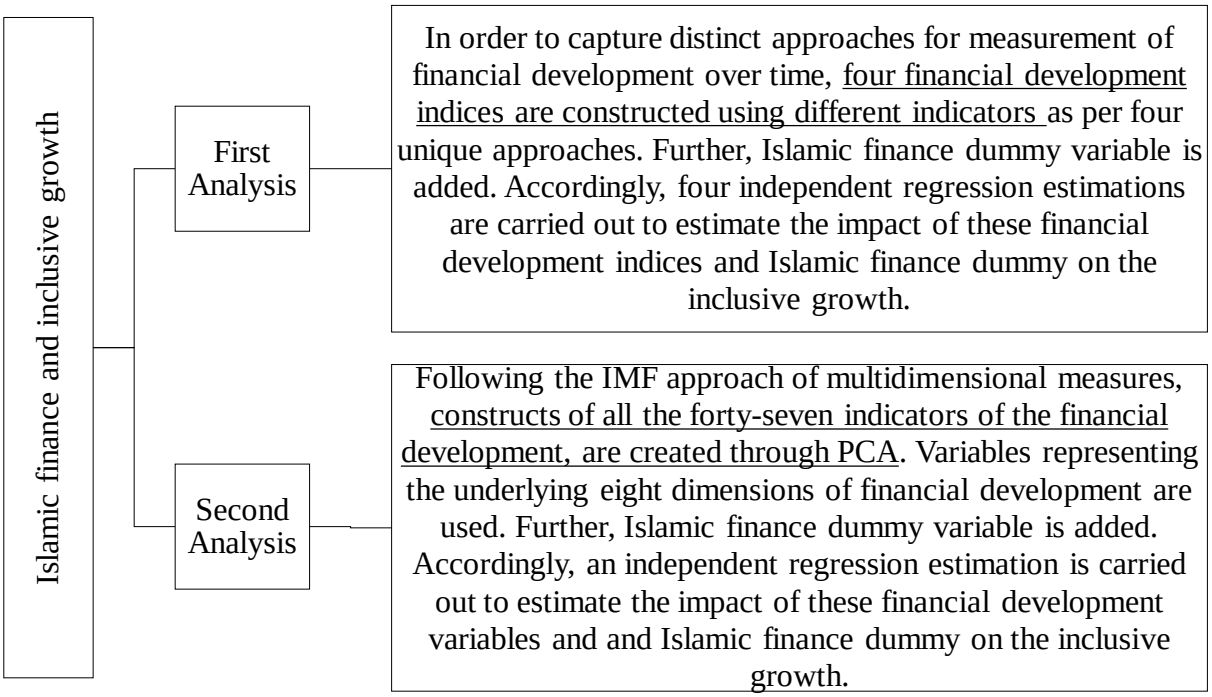

Figure 1: Conceptual Overview of Islamic Finance and Inclusive Growth (Source: Author's own illustration)

Following Čihák et al., (2012), the IMF (2016), and the World Bank's Findex Database approaches for measurement of financial development, the indicators are identified and classified according to four features of financial development; (a) depth, (b) access, (c) efficiency, and (d) stability. These features are separately studied for financial institutions and financial markets covering eight (8) dimensions of financial development.

Construction of inclusive growth index

This research uses Khan et al.,'s (2016) approach to construct an index of inclusive growth based on the ADB's methodology, developed by McKinley (2010). The methodology is based on four pillars, including (a) economic growth, employment, and infrastructure; (b) inequality, poverty, and general equity; (c) accessibility; and (d) social protection and governance. These four pillars of inclusive growth are made up of ten (10) specific areas, with a total of thirteen (13) indicators as enlisted at Appendix -I under these areas. The theoretical basis for the dataset for dependent variables used in the research is exhibited below.

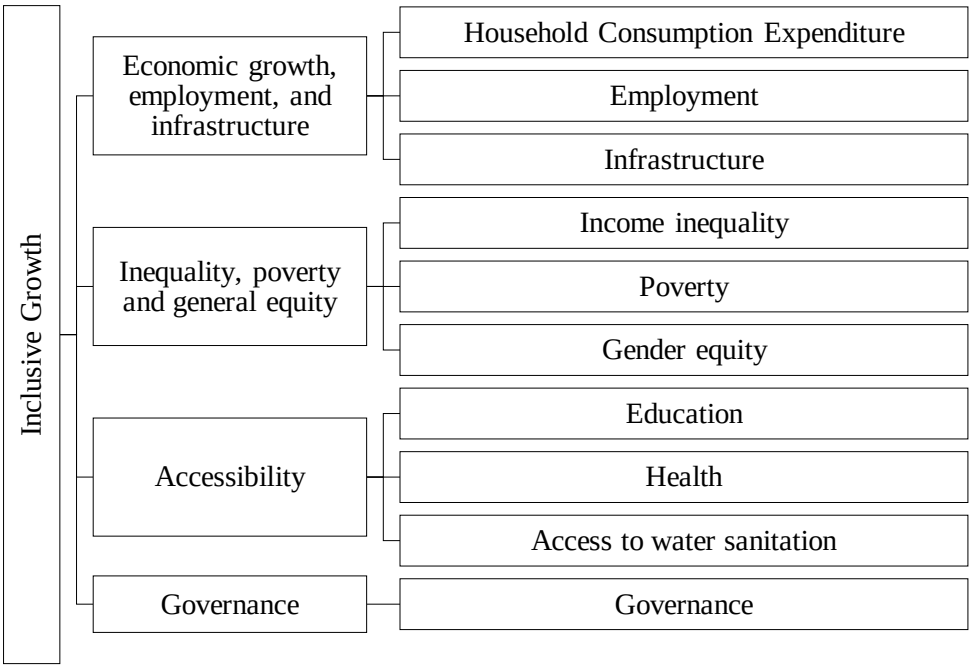

Figure 2: Determinants of Inclusive Growth

The indicators are used to estimate the dependent variable with thirty-two annual observations each for the period 1990 to 2021. However, the process of assigning weights to different dimensions can be subjective, potentially introducing bias. Additionally, Khan et al.,'s (2016) ' choices may not universally reflect the relative importance of each dimension across different contexts. This study, therefore, does not follow his scoring methodology and weighting scheme.

Indicators, constructs and indices for independent variables

The research uses a set of explanatory and control variables to gauge the impact of Islamic finance integrated financial development on inclusive growth. Following contemporary practices, this research employs a large range of forty-seven indicators representing the four dimensions of financial development for financial institutions and financial markets, with thirty-two annual observations each for the period 1990 to 2021. We employed forty-seven (47) indicators as explanatory variables, as enlisted at Appendix-II (a), encompassing the dimensions of depth, access, efficiency, and stability in both financial markets and financial institutions. The selection of these indicators was guided by the methodologies of

the World Bank and the ADB, while also considering data availability. A graphical illustration of the index creation is provided below.

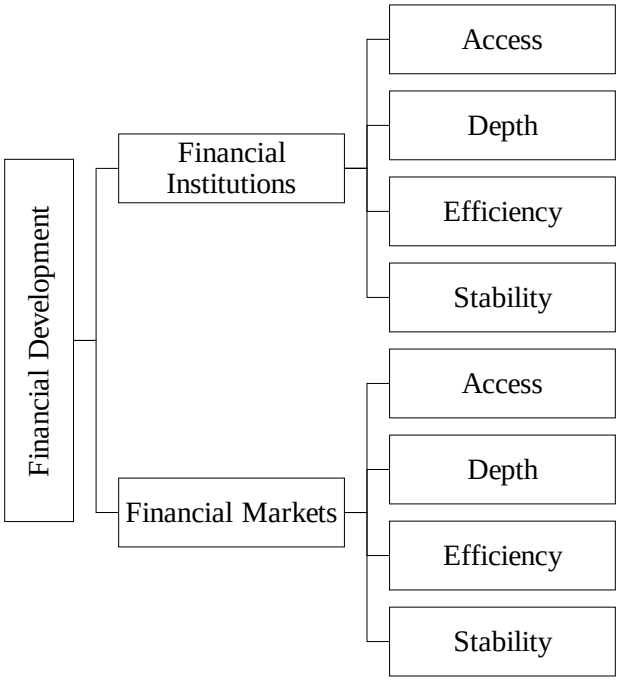

Figure 3: Determinants of Financial Development

Since Islamic finance commenced in the beginning of the 2000s in Pakistan, the study employs an additional dummy variable to see the impact of the introduction of Islamic finance in Pakistan along-with and three (3) control variables i.e, inflation, government expenditure, and trade openness, for robustness of results.

Selection of data reduction techniques

With a large dataset comprising numerous indicators, this study employs Principal Component Analysis (PCA) as a suitable data reduction technique due to its computational efficiency, robustness across contexts, and extensive application in financial research (Jolliffe & Cadima, 2016). While both PCA and Factor Analysis (FA) are commonly used for dimensionality reduction, they differ in purpose and assumptions. FA, particularly Confirmatory Factor Analysis (CFA), is theory-driven and models latent constructs, but is

less suited for time series data due to its assumption of independent observations and fixed covariance structures (Kline, 2014). Exploratory Factor Analysis (EFA), though more flexible, shares similar limitations in handling time-dependent data. PCA, introduced by Hotelling (1933), transforms correlated variables into orthogonal principal components, focusing purely on maximizing explained variance. It does not rely on theoretical assumptions and has been widely adopted in financial development studies, such as those by Svirydzenka (2016), Čihák (2012), and Gries (2009), to construct indices by aggregating multiple financial indicators. While PCA lacks interpretability compared to FA, its simplicity and effectiveness in summarizing complex, high-dimensional data make it the preferred method in this study for reducing variables in a time series context.

Construction of variables

The Inclusive Growth Index (IGI) in this study was constructed using a methodology partially based on Khan et al., (2016) and the Asian Development Bank's framework. The selection of dimensions and indicators for IGI followed the precedent of Khan et al., due to their relevance and the availability of required data. To construct the IGI, we employed PCA to reduce dimensionality and extract the most informative components from the dataset. Depending on how much variance is explained, either the first principal component or a weighted combination of multiple components (based on eigenvalues) is used to form the index. The choice between using a single or multiple component depends on how well the components capture data variability, with practical thresholds typically ranging from 70% to 90% of explained variance. If variance is more evenly spread across components, equal weighting may be applied for simplicity and interpretability, a method supported in literature for its robustness in various contexts.

In addition to IGI, the study constructs indices of explanatory variables drawn from multiple sources. We develop four financial development indices (FDI1 to FDI4) via PCA, each representing a distinct approach to measuring financial development. This differentiation provides insights into how shifting definitions of financial development influence inclusive growth. PCA was also used to derive additional explanatory constructs from large datasets.

The empirical model designed to assess the impact of financial development on inclusive growth incorporates key variables related to economic factors, financial systems, and control variables. The conceptual framework focuses on inclusive growth, which aims to provide sustainable socio-economic opportunities for a wide population, including vulnerable groups. Studies by Vellala et al., (2014) and Khan et al., (2016) offer insights into measuring inclusive growth by constructing indices that evaluate how growth benefits are distributed across society, integrating multiple dimensions of economic welfare. This research adopts similar frameworks to evaluate inclusive growth.

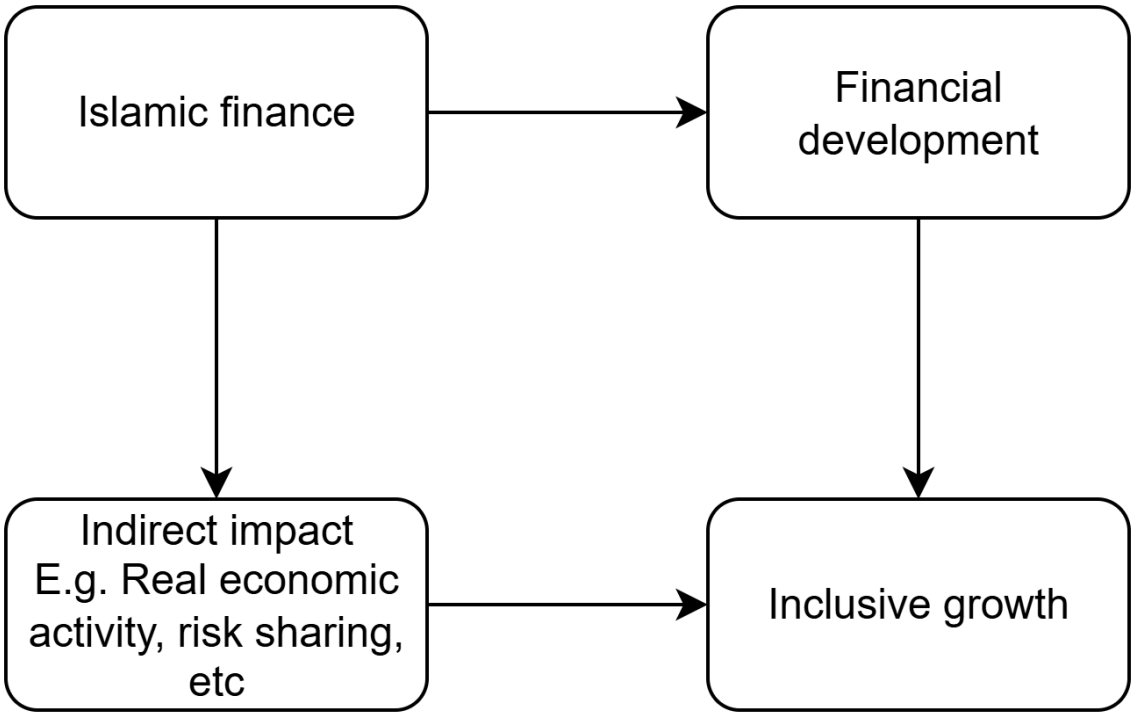

Figure 4: Theoretical illustration of impact of Islamic finance on inclusive growth. Author's own illustration.

Apart from including a dummy variable for Islamic finance, three control variables are incorporated to adjust for additional factors influencing inclusive growth. These variables help improve model accuracy by accounting for confounding influences and reducing omitted variable bias. This study examines key control variables such as inflation, government expenditure, and trade openness. Inflation can hinder economic growth, while government expenditure affects financial system expansion and income distribution. Trade

openness promotes capital flows, technology transfer, and market access, enhancing financial development and inclusive growth.

Econometric model

The econometric model used in this study is built on classical growth theories, such as the Harrod-Domar and Solow-Swan models, and later extensions incorporating human capital and innovation.

In view of the key variables affecting inclusive growth and considering the role of Islamic finance, we can now develop the econometric model as follows,

$$IGI_t = \beta_0 + \beta_1 FID_t + \beta_2 FIA_t + \beta_3 FIE_t + \beta_4 FIS_t + \beta_5 FMD_t + \beta_6 FMA_t + \beta_7 FME_t + \beta_8 FMS_t + \beta_9 FMO_t + \beta_{10} IF + \beta_{11} Z + \varepsilon_t$$

where, IGI refers to inclusive growth index. The financial development parameters include FID which is depth of financial institutions, FIA is access of financial institutions, FIE is the efficiency of financial institutions, and FIS is the stability of financial institutions. Likewise, for the financial markets, FMD, FMA, FME and FMS represent the depth, access, efficiency and stability of financial markets respectively. FMO represents the other variables of financial markets. IF is a dummy variable to represent introduction of Islamic finance in Pakistan. The variable is assigned a value equal to zero till 2005 and equal to 1 since 2016. Z is the vector of all standard growth variables. For the sake of parsimony, no dummies were included to capture industry- or time-specific effects on inclusive growth, as such impacts are negligible once control variables for general economic conditions are incorporated.

Estimation Methodology

This research examines the relationship between Islamic finance integrated financial development and economic growth using annual time series data. Traditional estimation using Ordinary Least Squares (OLS) is only valid when variables are stationary at level. If variables exhibit unit roots and are integrated of order one [I(1)], OLS may only be applied after differencing at the cost of losing long-term relationship information. To avoid this issue and capture any long-run equilibrium among non-stationary variables, cointegration

techniques such as Engle-Granger (1987) and Johansen and Juselius (1990) are explored. These methods, however, require all variables to be integrated at the same order and may suffer from errors in multi-step processes. To address these limitations, the study employs the Autoregressive Distributed Lag (ARDL) approach by Pesaran et al., (2001), which allows for mixed integration orders, avoids pre-unit root testing, handles endogeneity, and captures both short-run and long-run dynamics effectively, even in small samples. The study uses automatic lag length selection based on Akaike and Bayesian Information Criteria to ensure parsimony and avoid overfitting, enhancing model reliability and consistency in capturing underlying data dynamics. To validate the robustness and reliability of the ARDL model, the study conducts several post-estimation diagnostic tests. By systematically applying these diagnostic tools, the study ensures a rigorous analysis of how Islamic finance integrated financial development influences inclusive growth, supporting sound inferences and policy recommendations.

The above model and methodology are expected to result in (a) measurement of financial development, in light of the recent approaches adopted by contemporary researchers and international financial organizations and based on a host of determinants comprehensively covering all components of financial development; and (b) estimation of the impact of Islamic finance on financial development and conditional information under control variables on the inclusive growth.

DISCUSSION

The research discusses the evolution of financial development measurement since the 1950s, emphasizing the need for comprehensive measures to analyze its impact on economic growth, inclusive growth, and sustainable development. It emphasizes understanding the entire financial ecosystem and its impact on the economic system. It also highlights the importance of considering emerging indicators like fintech and digital transactions, and the selection of data, techniques, and econometric models. The findings are compared with existing theories and previous empirical studies.

Empirical Findings

Before conducting analysis, 3 indicators from the inclusive growth and 12 from the financial development datasets were reverse coded to ensure consistency in interpretation and avoid misleading results, as recommended by Beck et al., (2000). Indicators with opposing directional meaning can distort composite indices if not adjusted. Additionally, since indicators come in different units and scales (e.g., percentages vs. absolute values), all were standardized to ensure comparability, equal weighting, and to avoid dominance of any single variable due to scale differences. This standardization process aligns with the practices highlighted by Beck et al., (2000), and Greco et al., (2019), promoting clarity, balanced influence, and methodological robustness in index construction.

For dependent variable, PCA yielded three principal components explaining 82% of the variance but despite the strong contribution of the first component, the presence of significant loadings in subsequent components warranted their inclusion. Composite indices were thus created using equal weights for all retained components to mitigate subjectivity and overfitting. Similarly, for independent variables financial development indices are created apart from separately obtaining constructs for explanatory variables. Three control variables along with an Islamic finance dummy, were included in the analysis.

First analysis: Islamic finance and inclusive growth using four indices of financial development

We analyze the relationship and impact of Islamic finance integrated financial development on IGI using the four different approaches for creating financial development indices. We estimate the equation using the ARDL with maximum lag selection of 1,1 for both short-run and long-run, however, the actual inclusion of lags for each variable was guided by automatic lag selection method.

We conduct unit root tests using the ADF test statistic with the null hypothesis (H_0) that the time series has a unit root and is non-stationary. From the results obtained, it can be observed that all the variables are stationery at level or at first difference, owing to the negative test statistics with 10%, 5% and 1% significance level.

We have evaluated the results under the first analysis examining the effects of the financial development indices created under four different approaches, an Islamic finance dummy for Pakistan, and control variables on inclusive growth index. We discuss below the short-run and long-run estimates along with the results of post-regression diagnostic tests, and relate them to similar results reported in the published literature. The estimation result of equation under the four distinct approaches using ARDL is given below

Table 1: Short-Run ARDL Estimates for Inclusive Growth (1990–2021)

Variable/approach	**Approach 1**	**Approach 2**	**Approach 3**	**Approach 4**
IGI(-1)	0.396	0.385	0.523	0.371
	(2.285)**	(2.838)***	(4.162)***	(1.856)*
FD Index	0.050	0.084	0.073	0.329
	(0.674)	(0.451)	(0.354)	(1.029)
FD Index (-1)	0.192	0.392		
	(3.165)***	(2.478)**		
Islamic Finance Dummy	0.110	0.644	0.251 (1.039)	0.328
	(0.892)	(2.028)*		(2.122)**
Islamic Finance Dummy (-1)		-0.688		
		(-3.013)***		
G. Govt. Cons.	0.022	-0.026	-0.071	-0.057
	(0.275)	(-0.485)	(-0.800)	(-0.693)
Inflation	-0.354	-0.098	-0.269	-0.277
	(-3.859)***	(-0.806)	(-2.428)**	(-3.633)***
TO	0.206	-0.069	0.069	0.052

	(1.747)*	(-0.387)	(0.425)	(0.455)
TO (-1)		-0.250		
		(-1.892)*		
R-Sq	0.798	0.812	0.748	0.757
F-Stat	12.987***	10.092***	11.889***	12.507***

Note. t-statistics in parentheses. *p < .10, **p < .05, ***p < .01

Table 2: Long-Run Estimates and Post-Estimation Diagnostics

Variable/Approach	**Approach 1**	**Approach 2**	**Approach 3**	**Approach 4**
FD Index	0.401	0.775	0.154	0.523
	(2.918)***	(2.205)**	(0.330)	(1.340)
Islamic Finance Dummy	0.182	-0.071	0.526	0.523
	(1.065)	(-0.217)	(1.301)	(2.609)*
G. Govt. Cons.	0.036	-0.042	-0.150	-0.092
	(0.276)	(-0.484)	(-0.722)	(-0.746)
Inflation	-0.587	-0.160	-0.566	-0.441
	(-5.443)***	(-0.825)	(-3.859)***	(-3.026)***
TO	0.342	-0.520	0.146	0.083
	(2.355)**	(-1.576)	(0.466)	(0.442)
Constant	-0.060	0.009	-0.241	-0.250
	(-0.399)	(0.075)	(-1.198)	(-1.779)*
F-Bounds Test	3.406* LR exists	3.646* LR exists	2.277 No LR	2.498 Inconclusive

Coint Eq (-1)	-0.603	-0.614	-0.476	-0.628
	(-5.483)***	(-5.728)***	(-4.463)***	(-4.670)***
Heteroskedasticity F-Statistics	0.857	1.581	1.722	0.928
Normality Test Jarque-Bera	0.274	25.400***	11.849***	3.683
Serial Correlation LM Test F-Stats	1.385	1.825	1.503	2.877*
Ramsay RESET Test t-statistic	0.476	0.298	0.455	0.463
CUSUM/CUSUM Sq	S/US	S/US	S/US	S/US

Note: t-statistics in parentheses. *p < .10, **p < .05, ***p < .01, "S/US" = Stable / Unstable

The analysis reveals that measuring financial development using different methodological approaches produces materially divergent outcomes, particularly in its relationship with inclusive growth (IGI). Approaches focused on access and depth of financial institutions and markets (Approaches 1 and 2) show a strong and positive long-run impact on IGI, with a delayed short-run effect, while approaches emphasizing efficiency and stability (Approaches 3 and 4) yield no such relationship. This suggests that in underdeveloped financial systems like Pakistan's, expanding financial access and depth has a more immediate and substantial effect on inclusive growth than enhancing efficiency and stability. This finding is well supported by empirical literature, including works by Gulde and Pattillo (2006), Jahan (2011), and Raza et al., (2019), which emphasize that financial inclusion, particularly through greater access and depth, fosters economic participation, poverty alleviation, and investment. Theoretical frameworks such as Patrick's "stages of development" hypothesis and studies by Ozili (2024) and Saha et al., (2023) reinforce the view that basic financial access is the critical foundation for inclusive growth in developing

countries, while efficiency and stability become more important in mature financial systems.

In terms of Islamic finance, the analysis yields mixed results. While it shows a negative short-run impact under Approach 2, it demonstrates a positive long-run effect only under Approach 4, indicating that Islamic finance's ability to support inclusive growth depends heavily on the maturity and structure of the broader financial system. This aligns with arguments by Chapra (2008), Hasan and Dridi (2011), who highlight that Islamic finance can contribute meaningfully to inclusive development only when embedded within a robust legal, regulatory, and technological framework. As for control variables, inflation consistently exerts a negative influence on inclusive growth, while trade openness is mostly insignificant. The error correction terms confirm stable long-run relationships, with fast adjustments in Approaches 2 and 4. Diagnostic tests indicate general model robustness, though some concerns around normality, serial correlation, and multicollinearity exist, largely by design due to the composite nature of the financial development indices. Overall, the ARDL model affirms that expanding financial access and depth is vital for inclusive growth in underdeveloped systems like Pakistan's, and that Islamic finance can contribute effectively only within a supportive and developed financial environment.

Second analysis: Islamic finance and inclusive growth using constructs of financial development

Now we analyze the relationship and impact of Islamic finance integrated financial development measured using constructs of all forty-seven indicators in relation to eight dimensions and sub-dimensions of financial development, as per the latest practices of the World Bank and IMF, on the IGI. Again, we estimate the equation using ARDL with maximum lag selection of 1,1, with automatic lag selection method and produce both short and long-run estimates along with post-regression diagnostic tests. We also conduct unit root tests using ADF with the null hypothesis (H_0) that the time series has a unit root and it is non-stationary. We found, all the variables are stationery at level or at first difference with 10%, 5% and 1% significance level.

Analysis of factor loadings in rotation matrix

Through PCA, overall, nine factors are extracted from total forty-seven indicators. As per the literature, thirty-two out of these forty-seven indicators represent four dimensions of financial institutions that include ten indicators for depth, three indicators for access, ten indicators for efficiency and nine indicators for stability. Similarly remaining fifteen indicators represent four dimensions of financial markets that include ten indicators for depth, two indicators for access, one indicator for efficiency and two indicators for stability (Appendix-III). One of the dimensions in our analysis was represented by a single variable. Since PCA does not transform single-variable inputs, its standardized value was used directly. This approach is supported by guidance from the OECD (2008), which acknowledges that conceptually important dimensions may be represented by single indicators, provided they are methodologically sound. Prior research also supports that inclusion of such variables, when treated consistently in the normalization and aggregation process, does not bias the final index (Saisana et al.,, 2005)

The literature (Beck, Demirguc-Kunt, and Levine, 2000; Levine, 2005) emphasizes that financial development is multi-dimensional. The eight groups of indicators are standard dimensions in this literature. Each group corresponds to aspects such as the size and liquidity of financial intermediaries (depth), the ability of the financial system to serve the population (access), the cost-effectiveness of financial intermediation (efficiency), and the resilience of the financial system to shocks (stability).

In our analysis, we found that the nine constructs are linked to one or more of the eight theoretical groups considering the cross loadings. We are linking these constructs by considering the rotation sum of squared loadings as a percentage of variance under the respective rotation matric extracted through PCA. For each construct, we note the indicators loaded most heavily on a component and also explain why these indicators are conceptually linked to a specific dimension. The differentiation among constructs allows us to draw policy implications. As such, our analysis is aligned with and has extended previous empirical work of Beck et al.,, (2000), and Levine (2005). The constructs not only capture the composite nature of financial development but also highlight which dimensions are most critical in driving outcomes such as inclusive growth in underdeveloped financial

systems. This approach both validates the use of multiple indicators and provides a nuanced view of how different aspects of financial development contribute to economic performance. We use rotated matrices that cumulatively explain a total variance of 90.4% for the nine constructs.

It is observed that after suppressing the loadings at 0.30, five indicators load on four constructs, sixteen indicators load on three constructs, fourteen indicators load on two constructs, and only twelve indicators load on a single construct. This pattern indicates that quite a few of the indicators is loading on multiple constructs. Linking these nine extracted constructs to the established literature on financial development involves mapping the theoretical dimensions to the empirical indicators and then demonstrating how each construct reflects a key aspect of financial systems.

Regression Results

The regression results of the second analysis concerning the impact of various financial development constructs (FAC_1 through FAC_9), an Islamic finance dummy in case of Pakistan, and control variables on inclusive growth are given below.

Table 3: Short-Run ARDL Estimates for Inclusive Growth (1990–2021)

Variables	**Coefficient (t-Statistics)**
IGI (-1)	-0.510
	(-3.195)**
FAC_1	-0.326
	(-0.937)
FAC_1 (-1)	0.710
	(2.849)**
FAC_2	-0.029
	(-0.185)

FAC_3	0.371
	(5.767)***
FAC_4	0.188
	(4.666)***
FAC_5	0.096
	(0.501)
FAC_5 (-1)	0.748
	(2.660)**
FAC_6	0.107
	(2.447)**
FAC_6 (-1)	0.083
	(3.172)**
FAC_7	0.092
	(1.748)
FAC_7 (-1)	-0.220
	(-2.506)**
FAC_8	-0.085
	(-1.730)
FAC_8 (-1)	-0.707
	(-1.073)
FAC_9	0.030
	(0.356)

FAC_9 (-1)	-0.081
	(-1.404)
Islamic Finance Dummy	1.382
	(2.544)**
General Govt. Consumption	0.117
	(1.069)
General Govt. Consumption (-1)	0.243
	(1.319)
Inflation	-0.173
	(-1.942)*
TO	-0.045
	(-0.598)
TO (-1)	-0.459
	(-5.696)***
R-sq	0.984
F-Stat	23.324***

Note. t-statistics in parentheses. *p < .10, **p < .05, ***p < .01

Table 4: Long-Run Estimates and Post-Estimation Diagnostics

Long-run estimates	
FAC_1	0.254
	(2.955)*

FAC_2	-0.019
	(-0.186)
FAC_3	0.246
	(4.532)***
FAC_4	0.125
	(5.175)***
FAC_5	0.559
	(4.840)***
FAC_6	0.126
	(4.062)***
FAC_7	-0.084
	(-1.774)
FAC_8	-0.103
	(-3.642)***
FAC_9	-0.033
	(-0.465)
Islamic Finance Dummy	0.915
	(2.993)*
General Govt. Consumption	0.239
	(1.901)*
Inflation	-0.114
	(-1.879)*

TO	-0.334
	(-3.941)***
Constant	-0.506
	(-3.345)*
F-Bounds Test	10.077*** Strong LR
Coint Eq (-1)	-1.510
	(-20.388)***
Post Estimation tests	
Heteroskedasticity: F-Statistics	1.431
Normality Test: Jarque-Bera	1.342
Ramsay RESET Test: t-statistic	1.343
Serial Correlation LM Test: F-Statistics	23.091***
CUSUM/CUSUM Sq	S/US

Note: t-statistics in parentheses. *p < .10, **p < .05, ***p < .01, "S/US" = Stable / Unstable

We interpret the key results in the following paragraphs. In this explanation, both short-run and long-run dynamics, and post-regression diagnostic tests are considered, and parallels are drawn with published empirical findings. The findings suggest a strong and positive role of Islamic finance in promoting inclusive growth in Pakistan. In both the short and long run, the presence or intensity of Islamic finance correlates significantly with higher inclusive growth. This aligns with the literature, including Hasan and Dridi (2011) and Iqbal and Mirakhor (2011), who emphasize Islamic finance's ethical and risk-sharing principles. These principles promote inclusion, especially among populations excluded from the conventional banking system for religious reasons. Islamic finance enhances financial access, supports MSMEs through instruments like Modarabas, and contributes to financial market depth through tools such as Sukuk. Additionally, its reliance on risk-

sharing and asset-backed mechanisms fosters financial stability, which further strengthens the foundations of inclusive growth.

The role of financial development in inclusive growth is multi-faceted. Key indicators, such as access (FAC_3), efficiency (FAC_4 and FAC_5), and stability (FAC_6) of financial institutions and markets, exhibit positive and significant effects on inclusive growth, particularly in the long run. Access to financial institutions (FAC_3) shows a strong current impact, while the efficiency of financial institutions (FAC_4) also contributes positively. The efficiency of financial markets (FAC_5) reveals a delayed but positive impact, consistent with the notion that reforms and institutional improvements take time to manifest economic outcomes. The stability of financial institutions (FAC_6) contributes both immediately and persistently, reinforcing the idea that a resilient financial system underpins sustainable development.

The depth of financial institutions (FAC_1) is not immediately impactful but becomes significant in their lagged form, indicating that deeper financial systems generate growth benefits over time. This delayed effect is in line with findings by Beck et al., (2000), which underscore the long-term nature of financial deepening benefits. Conversely, while some indicators like access and stability show expected positive relationships, others, such as financial market stability, do not significantly impact inclusive growth, possibly due to underdevelopment in these areas.

Control variables provide additional insights. Government final consumption shows a positive, though statistically insignificant, relationship with inclusive growth in the short term, possibly due to its role in providing basic services and reducing poverty. Inflation, however, exerts a consistently negative effect, corroborating the adverse impact of macroeconomic instability on inclusive development. Trade openness also shows a lagged negative effect, suggesting that while liberalization can have long-term benefits, it may introduce short-term vulnerabilities or depend heavily on supportive domestic structures.

Dynamic modelling results indicate a significant and negative coefficient on the lagged IGI, pointing to a mean-reverting process, typical in growth studies, where past performance influences current outcomes. The error correction term is highly significant and negative, with a rapid adjustment speed, implying that short-run deviations from the

long-run equilibrium are swiftly corrected. This supports the robustness and stability of the estimated model.

Diagnostic tests validate the model's appropriateness. The absence of heteroskedasticity and normality of residuals confirm the reliability of test statistics. The Ramsay RESET test finds no functional misspecification, while CUSUM tests suggest no structural instability. However, the LM test signals the presence of serial correlation, which could potentially affect the precision of the estimates, though limitations in data prevent adding more lags for correction.

In conclusion, the study affirms that Islamic finance significantly contributes to inclusive growth in Pakistan, both directly and through enhancing financial development. Financial institution-based constructs play a dominant role, as expected in a bank-based economy like Pakistan's. Despite some mixed findings for certain dimensions, the overarching evidence points to a strong link between financial development, Islamic finance, and inclusive growth. Macroeconomic stability and effective policy implementation remain crucial to harness the full potential of these financial systems.

CONCLUSION

The empirical analyses presented in this study shed light on the complex relationship between financial development, Islamic finance, and inclusive economic growth in Pakistan. The findings confirm that the integration of Islamic finance into Pakistan's financial system plays a significant role in enhancing inclusive growth. Through its emphasis on risk-sharing, ethical investment, and asset-backed financing, Islamic finance strengthens the linkage between finance and the real economy, expands access to underserved populations, and promotes financial resilience.

The first analysis uses composite indices of financial development constructed through four methodological approaches, along with a dummy variable to capture the effect of Islamic finance in Pakistan. Results show that financial development's impact on inclusive growth varies depending on which indicators are used. Depth and access, particularly of financial institutions—demonstrate strong positive effects, while efficiency and stability indicators show weaker influence. Notably, the long-run effects of Islamic finance are

positive only under the fourth approach, underscoring its effectiveness in more mature financial systems with supportive legal and regulatory infrastructure.

The second analysis disaggregates financial development into specific dimensions and confirms that financial institutions have a stronger influence on inclusive growth than financial markets in Pakistan's bank-based system. Islamic finance emerges as a significant and positive contributor to inclusive growth in both the short and long term. This supports prior research asserting that Islamic finance enhances inclusion by providing Sharīʿah-compliant, real-sector-linked financial services in environments where conventional access is limited.

The study also highlights important macroeconomic dynamics: government expenditure fosters inclusion, inflation undermines it, and trade openness has adverse long-run distributional effects in Pakistan. These findings emphasize that financial development is inherently multi-dimensional and context-dependent. Aggregate indices often obscure important variations; thus, policymakers should consider separate dimensions, depth, access, efficiency, and stability, for more accurate analysis and targeted intervention.

Overall, the two analyses underscore the critical need for tailored, context-specific financial development strategies in emerging economies. Islamic finance, when integrated thoughtfully into broader financial systems, can be a key driver of inclusive economic growth. However, its impact on financial stability appears limited, pointing to a primary strength in promoting equity and access rather than systemic resilience.

These insights carry significant policy implications. Financial reforms should prioritize expanding Islamic finance alongside initiatives such as digital banking, inclusive microfinance, and capital market development. Particularly in structurally constrained, underbanked economies like Pakistan, Islamic finance offers a unique opportunity to broaden financial access, align finance with ethical and developmental goals, and accelerate progress toward inclusive and sustainable economic growth.

The analysis of the impact of Islamic finance on inclusive growth is inherently complex, as it is often influenced by multiple confounding factors. This complexity is further compounded by the dual nature of the economy, where conventional and Islamic financial

systems operate in parallel. While the present study offers valuable insights, there remains a need for more in-depth exploration of this subject. Additionally, the development of more refined indices presents a promising avenue for future research.

Policy Recommendations

The findings highlight that financial development must be approached with a context-specific strategy, particularly in countries like Pakistan with underdeveloped financial systems. Expanding financial access is critical in such environments, as broader participation in the financial system lays the foundation for inclusive growth. Unlike more mature financial markets where the focus may shift to ensuring equitable distribution of financial gains, Pakistan needs to prioritize fundamental access to banking and financial services.

To that end, policymakers should focus on enhancing financial intermediation by promoting banking outreach, digital finance, and microfinance services targeting underserved populations. Access to financial services emerges as the most significant factor in early stages of economic development, underscoring the need for inclusive banking solutions tailored to marginalized communities.

Pakistan's financial sector is currently heavily bank-centric, with limited contribution from capital markets. Strengthening the depth and efficiency of capital markets can help diversify financial development and support long-term inclusive growth. Although the impact of deeper financial markets may not be immediate, evidence suggests it becomes significant over time, reinforcing the importance of a forward-looking policy framework.

A focused push for financial inclusion is essential to enable broad-based economic participation. This requires not only expanding institutional access but also ensuring that policies directly benefit small enterprises, women, rural populations, and other underrepresented groups. Digital financial services play a crucial role in this regard, offering scalable and accessible solutions to bridge geographic and social divides.

Islamic finance presents a powerful opportunity to enhance financial inclusion, particularly for individuals who remain outside the formal financial system due to religious considerations. Evidence confirms that Islamic finance has a positive effect on inclusive

growth in Pakistan. This indicates a need to expand Islamic financial products and integrate them into broader financial inclusion efforts, offering alternative, Sharīʿah-compliant financial services.

In addition to broadening access, strengthening the regulatory and legal framework surrounding Islamic finance is essential. A supportive regulatory environment can help Islamic finance play a more active role in inclusive economic development by enhancing consumer trust, operational resilience, and sectoral reach.

Improving financial market access and efficiency is also vital for supporting inclusive growth in Pakistan. Ensuring that capital markets and financial institutions operate efficiently and equitably requires better governance, institutional reforms, and capacity-building within regulatory bodies. This includes risk management reforms that address inefficiencies in financial depth and promote responsible financial expansion.

Macroeconomic policies must complement financial reforms to create an enabling environment for inclusive growth. Pakistan needs to address inflation proactively, as it significantly hinders economic inclusion by reducing real incomes and increasing uncertainty. Fiscal reforms that curb inefficient government spending and trade policies that minimize short-term adjustment shocks while promoting long-term integration are also essential components of a cohesive growth strategy.

In sum, Pakistan must adopt a holistic and phased approach to financial development, starting with improved access and inclusion, followed by diversification through capital market development, and strengthened by regulatory oversight and supportive macroeconomic policies. These steps can ensure that financial development acts as a sustained driver of inclusive economic progress.

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Appendix-I: List of Indicators Used to Compute Inclusive Growth Index (IGI)

S. No.	Indicator
1.	GDP per capita growth rate
2.	Employment in industry (% of total employment) (modelled ILO estimate)
3.	Employment in services (% of total employment) (modelled ILO estimate)
4.	Electric power consumption (kWh per capita)
5.	Gini index
6.	Poverty headcount ratio at $2.15 a day (2017 PPP) (% of population)
7.	Ratio of female to male labor force participation rate (%) (modelled ILO estimate)
8.	School enrolment, primary (% gross)
9.	Mortality rate, under-5 (per 1,000 live births)
10.	People using at least basic drinking water services (% of population)
11.	People using at least basic sanitation services (% of population)
12.	Government Effectiveness: Estimate (WDI)
13.	Control of Corruption: Estimate (WDI)

Appendix-II: List of all Indicators of Financial Development under each Dimension and Sub-Dimension

a) Indicators for Explanatory Variables

S. No	Dimensions	Sub-dimension	Indicator
1	Financial Institutions	Depth	Bank Deposits to GDP
2	Financial Institutions	Depth	Central bank assets to GDP (%)
3	Financial Institutions	Depth	Deposit money bank assets to deposit money bank assets and central bank assets (%)
4	Financial Institutions	Depth	Deposit money banks" assets to GDP (%)
5	Financial Institutions	Depth	Domestic Credit to Private Sector (% of GDP)
6	Financial Institutions	Depth	Life insurance premium volume to GDP (%)
7	Financial Institutions	Depth	Liquid liabilities to GDP (%)
8	Financial Institutions	Depth	M2 [Broad money growth (annual %)]
9	Financial Institutions	Depth	Non-life insurance premium volume to GDP (%)
10	Financial Institutions	Depth	Private credit by deposit money banks to GDP (%)
11	Financial Institutions	Access	ATMs per 100,000 adults
12	Financial Institutions	Access	Bank accounts per 1,000 adults
13	Financial Institutions	Access	Bank branches per 100,000 adults
14	Financial Institutions	Efficiency	Bank cost to income ratio (%)
15	Financial Institutions	Efficiency	Bank net interest margin (%)
16	Financial Institutions	Efficiency	Bank noninterest income to total income (%)
17	Financial Institutions	Efficiency	Bank overhead costs to total assets (%)
18	Financial Institutions	Efficiency	Bank return on assets (%, before tax)
19	Financial Institutions	Efficiency	Bank return on equity (%, before tax)
20	Financial Institutions	Efficiency	Credit to government and state-owned enterprises to GDP (%)

21	Financial Institutions	Efficiency	Interest Rate Spread (Lending rate minus deposit rate, %)
22	Financial Institutions	Efficiency	Risk Premium on lending (Lending rate minus treasury bill rate, %)
23	Financial Institutions	Efficiency	Stock Market Return (%, YoY)
24	Financial Institutions	Stability	Bank credit to bank deposits (%)
25	Financial Institutions	Stability	Bank Liquid Reserves to Bank Assets Ratio (%)
26	Financial Institutions	Stability	Bank non-performing loans to gross loans (%)
27	Financial Institutions	Stability	Bank regulatory capital to risk-weighted assets (%)
28	Financial Institutions	Stability	Bank Z-score
29	Financial Institutions	Stability	Insurance company assets to GDP (%)
30	Financial Institutions	Stability	Liquid assets to deposits and short term funding (%)
31	Financial Institutions	Stability	Net open position in foreign exchange to capital
32	Financial Institutions	Stability	Provisions to nonperforming loans (%)
33	Financial Markets	Depth	External debt stocks to GDP
34	Financial Markets	Depth	Gross portfolio debt assets to GDP (%)
35	Financial Markets	Depth	Gross portfolio debt liabilities to GDP (%)
36	Financial Markets	Depth	Gross portfolio equity assets to GDP (%)
37	Financial Markets	Depth	Gross portfolio equity liabilities to GDP (%)
38	Financial Markets	Depth	Outstanding international private debt securities to GDP (%)
39	Financial Markets	Depth	Outstanding international public debt securities to GDP (%)
40	Financial Markets	Depth	Stock market capitalization to GDP
41	Financial Markets	Depth	Stock market total value traded to GDP (%)

42	Financial Markets	Depth	Syndicated loan issuance volume to GDP (%)
43	Financial Markets	Access	Percent of market Capitalization outside of Top 10 largest companies
44	Financial Markets	Access	Value traded excluding top 10 traded companies to total value traded (%)
45	Financial Markets	Efficiency	Stock market turnover ratio (%)
46	Financial Markets	Stability	Bank capital to total assets (%)
47	Financial Markets	Stability	Stock price volatility

b) Indicators for Control Variables

1	Macroeconomic Variables	Macro-variables	General government final consumption expenditure (% of GDP)
2	Macroeconomic Variables	Macro-variables	Inflation%
3	Macroeconomic Variables	Macro-variables	Trade to GDP Ratio

Appendix-III: Analysis of Factor Loadings Underlying Constructs for the Second Analysis

#	Dimension and Sub-dimension	Indicator	Factor Loading	Findings and observations
1.	Financial Institutions - Depth	Domestic Credit to Private Sector (% of GDP)	0.892	The factor **FAC_1** explains 23.22% of variance in rotation sum of squared loadings. The key indicators in this dimension and their respective strong factor loading indicate that this factor is broadly representing the **depth of financial institutions**.
		Life insurance premium volume to GDP (%)	-0.608	
		M2 [Broad money growth (annual %)]	0.527	
		Non-life insurance premium volume to GDP (%)	0.832	
		Private credit by deposit money banks to GDP (%)	0.894	
2.	Financial Markets - Depth	External debt stocks to GDP	0.917	The factor **FAC_2** explains 22.14% of variance in rotation sum of squared loadings. The key indicators in this dimension and their respective factor
		Gross portfolio debt liabilities to GDP (%)	0.350	

		Gross portfolio equity liabilities to GDP (%)	0.301	loading indicate that this factor is broadly representing the **depth of financial markets.**
		Outstanding international private debt securities to GDP (%)	0.352	
		Stock market capitalisation to GDP	0.629	
3	Financial Institutions – Access	ATMs per 100,000 adults	0.368	The factor **FAC_3** explains 11.45% of variance in rotation sum of squared loadings. The key indicators in this dimension and their respective moderate factor loading indicate that this factor is broadly representing the **access of financial institutions**.
		Bank accounts per 1,000 adults	0.491	
4	Financial Institutions – Efficiency	Bank cost to income ratio (%)	0.895	The factor **FAC_4** explains 8.35% of variance in rotation sum of squared loadings. The key indicators in this dimension and their respective factor loading, most of them are very strongly indicate that this factor is broadly representing the
		Bank noninterest income to total income (%)	0.334	
		Bank return on assets (%, before tax)	0.857	

		Bank return on equity (%, before tax)	0.912	**efficiency of financial institutions**.
5	Financial Markets - Efficiency	Stock market turnover ratio (%)	0.914	The factor **FAC_5** explains 8.34% of variance in rotation sum of squared loadings. The key indicator in this dimension and its very strong factor loading indicates that this factor is broadly representing the **efficiency of financial markets.**
6	Financial Institutions - Stability	Bank Z-score	-0.371	The factor **FAC_6** explains 4.63% of variance in rotation sum of squared loadings. The key indicator in this dimension and its moderate factor loading indicate that this factor is broadly representing the **stability of financial institutions**.
7	Financial Markets - Stability	Stock price volatility	-0.557	The factor **FAC_9** explains 3.73% of variance in rotation sum of squared loadings. The key indicator in this dimension and its moderate factor loading indicate that this factor is broadly representing the **stability of financial markets**.
8	Financial Markets - Access		NA	The indicators in this dimension are not loading on independent

				constructs; rather, these are loading on FAC_1, FAC_2, and FAC_3. Therefore, we may not link this dimension to any of the constructs.
9	Unspecified		NA	The factors **FAC_7** and **FAC_8** explain 4.50% and 4.02% of variance in rotation sum of squared loadings, respectively. The loadings of key indicators are not material for these factors; rather, they are cross-loadings on other constructs. Therefore, we club them in a separate dimension titled "unspecified."