

*(Digitalization and Financial Inclusion;  
A Pathway to Enhanced Tax Revenue Generation in Pakistan)*



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**Muhammad Waleed Ghazanfar**

## **Abstract**

This paper examines the role of digitalization in promoting financial inclusion and, by extension, increase tax collection in Pakistan. Although the fiscal systems in Pakistan have undergone extensive reforms, the country is still grappling with a small tax base, low levels of compliance culture in taxpayers, and a low rate of digitalization. Based on the Technology Acceptance Model and the Behavioural Compliance Theory, the study constructs a composite model that explores the mediating factor of financial inclusion in the correlation between digital financial services and tax compliance. The study employs Structural Equation Modelling (SEM) to examine the hypothesized relationships using cross-sectional data on 300 participants who are small business owners, salaried participants, as well as users of digital platforms.

The empirical evidence indicates that digitalization has a positive impact on the accessibility of formal financial systems by cutting the cost of transactions, enhancing convenience, and establishing user confidence by being transparent. This greater financial inclusion has an indirect effect of enhancing tax compliance with the favourability of record keeping, traceability and integration into digital payment ecosystems like Raast and mobile wallets. When compared to other developing economies, it was shown that Pakistan has been on a path of digitalization that is characteristic of the first stage of transition, but institutional and regulatory challenges continue to impede the full fiscal digitalization.

The paper makes a theoretical contribution by applying TAM to fiscal behaviour and confirming the mediating effect of financial inclusion on the fintech nexus. In practical terms, it provides evidence-based policy insights to help policy makers better digital infrastructure and introduce FBR databases to the financial systems, as well as to ensure that more people become digitally literate as taxpayers. The results highlight the promise of digital transformation as both a way of expanding and diversifying the tax base in Pakistan and developing a more transparent and inclusive fiscal world, which will support the objectives of Vision 2030 and sustainable economic growth.

# Table of Contents

1. Introduction.....	3
1.1 Background of the Study.....	3
1.2 Problem Statement.....	5
1.3 Research gap.....	6
1.4 Research Objectives.....	7
1.5 Research Questions.....	7
1.6 Significance of the Study.....	7
1.7 Scope and Delimitations.....	8
1.8 Structure of the Thesis.....	8
2. Literature Review.....	10
2.1 Conceptualizing Financial Inclusion.....	10
2.2 Digitalization and Financial Technology.....	12
2.3 Tax Compliance, and behavioural Economics.....	13
2.4 Theories Explaining Compliance.....	14
2.5 Informal Economy and Shadow Sector.....	15
2.6 Empirical Links: Digitalization, Financial Inclusion, and Tax Revenue.....	17
2.7 Digital Infrastructure and Policy Environment in Pakistan.....	19
2.8 Conceptual Synthesis and Gaps.....	21
2.9 Conceptual Framework.....	21
2.10 Theoretical Framework & Hypothesis.....	24
3. Research Methodology.....	27
3.1 Research Philosophy.....	27
3.2 Research Approach & Design.....	27
3.3 Population and Sampling.....	28
3.4 Data Collection Methods.....	29
3.5 Data Analysis Techniques.....	31
3.6 Ethical Considerations.....	31
3.7 Limitations.....	32

4. Data Analysis .....	34
4.1 Introduction .....	34
4.2 Descriptive Statistics of Key Variables.....	34
4.3 Correlation Analysis Between Digitalization and Tax Revenue .....	36
4.4 Regression Analysis: Digitalization and Tax Revenue .....	38
6. Discussion and Conclusion .....	45
6.1 Discussion of Key Findings .....	45
6.2 Policy Implications.....	46
6.3 Theoretical Implications.....	46
6.4 Practical Contributions.....	47
6.5 Limitations.....	48
References.....	50

# **1. Introduction**

## **1.1 Background of the Study**

The Pakistani economy has been afflicted by structural problems and they have been marked by continuous fiscal deficits, low tax base and steadily expanding informal economy. Its average budget deficit was over 7 percent of the GDP in the last decade and its level of taxes to GDP of a country is lower than the average South Asian level of 10 percent. This long term deficit will limit government expenditure in the infrastructure, education and health sectors that are important in the long term development. The formal economy does not comprise a big percentage of the economy and the informal economy has been estimated to make up more than 35 percent of the GDP. Wastes and poor enforcement of informality, financial illiteracy and lack of trust in institutions sabotage the tax net and tries to sabotage the transparency in financial transactions (Nambe & Idemudia, 2024).

In this aspect, it is digitalization that has become a ground-breaking factor that can resolve these structural inefficiencies. Alternatively, the definition of digitalization can be the provision of financial, governmental and commercial services using the emerging and innovative technologies including financial technology (fintech), e-banking, point-of-sale (POS) system and mobile payment application. These types of technologies enable the process of modernization of the transactions process, control the administrative bottlenecks, as well as improve keeping records. Digital platforms allow one to learn about the real-time fiscal flows and enhance the services to taxpayers with government. They render formal systems easier and safer, and accessible to citizens and companies and form the basis of further formalization of the economy (Jabeen, Aakif, and Afridi, 2024).

Close to this change is the financial inclusion which is defined by the World Bank as the ability of people and companies to access and use cheap and appropriate financial services including savings, payments, credit and insurance. It is not only a social agenda but also one of the determinants of economic resilience and productivity. (Pandey, Kiran, & Sharma, 2022). Inclusion of people and small businesses in the formal financial systems generates information of verifiable transactions that improve credit ratings and adherence to fiscal obligations. Online platforms have taken the Centre stage of improving the inclusion aspect in the developing economies, particularly among the unbanked and the low-income populations who previously were not within the mainstream banking system.

The nexus of digitalization and financial inclusion is a virtuous cycle that can have a direct effect on the fiscal outcome. Internet payment systems and e-governance reduce the potential tax evasion through cash forms by enhancing the degree of traceability and transparency. As more transactions are executed through digital channels, economic transactions get registered which would be easier to impose levies and generate revenue. Combined with this relationship, formalization becomes easy, compliance is enhanced, and building public trust through facilitating the interfaces, controlling the ways of filing the tax and making payments (Mpfung, 2022).

This is a potential that Pakistan has become aware of and has already initiated several of the primary digital-finance and governance reforms. The State Bank of Pakistan (SBP) implemented an interoperable and safe, low-cost, and digital payment system known as Raast. National Financial Inclusion Strategy (NFIS 2023) provides a policy framework to access a large number of individuals with digital accounts and provide higher consumer protection. In the meantime, the Federal Board of Revenue (FBR) has also initiated the integration on the POS and e-filing in order to prevent under-reporting in the retail transactions. To complement these efforts, biometric identification system by NADRA is the foundation of digital verification to reduce the occurrence of fraud and give the financial institutions the power to authenticate users with reasonable level of confidence.

Pakistan is a world that is well-lessoned. Unified Payments Interface (UPI) is changing the peer to peer and merchant payment in India since it will significantly improve the nature of tax paying behaviour by making the transactions transparent. The example of Kenya M-Pesa and Indonesia Go Pay has shown that mobile money can encourage inclusion and formalization of micro enterprise activity and how fintech ecosystems can be incorporated into government e-services. The above examples bring out the concept that digital inclusion and fiscal performance are overlap and reinforcers and that a successful digital infrastructure is the one that can be put into play to lead to increased revenue generation, balanced growth, and financial stability. (Khalil, Audi, & Ali)

## 1.2 Problem Statement

The fiscal system of Pakistan is still struggling with severe challenges that relate to low tax collection, budget deficits and limited tax base. The tax to GDP ratio has been below 10 percent since the different reforms and this has placed Pakistan at the lowest position in the South Asian region. This poor mobilization of revenue inhibits government to invest in crucial sectors like infrastructure, education and health hence, hindering a sustainable economic growth. The failure to raise enough taxes does not only indicate that there is a weakness in the administration of the fiscal but also the weakness of the economic system in the country. Thus, the poor revenue outcome is one of the core challenges to the fiscal sustainability and inclusive development of Pakistan (Ali et al., 2024).

One of the reasons as to why this has become a longstanding fiscal problem is that the informal economy is large, constituting over 35 percent of the GDP of Pakistan. This part of the economy is operated with considerable autonomy of the formal regulatory and tax structures and this leads to undocumented income and off-the record transactions. The problem is made worse by dominance of cash-based activities, poor enforcement mechanisms and lack of trust in institutions. The informal economic activity sacrifices the ability of the government to record the financial flows and thus it becomes hard to track the taxable income and comply with the law. As a result, informality does harm the fiscal transparency and the general effectiveness of the tax collection mechanisms (Accom et al., 2025).

In the recent years, Pakistan has made considerable progress in expanding the financial inclusion zone with the digitalization of banks, mobile payments, and financial technology. Introduction of programs such as Raast, national financial inclusion strategy (NFIS) and creation of branchless banking have brought accessibility of financial services especially to poor people.

However, this change has not borne fruits in terms of augmented levels of tax compliance and tax collection despite the digital transformation. It still has a significant number of people and small businesses that prefer cash transactions and do not want to have any formal documentation. This failure to associate financial inclusion and fiscal performance means that technological innovation cannot work alone and it needs policy inclusion and behavioural change. Thus, the positive effects of digitalization in the taxation climate in Pakistan are not realized completely (Jabeen et al., 2024).

### **1.3 Research gap**

Despite growing global evidence that digitalization enhances financial inclusion and supports fiscal performance, the relationship remains underexplored in the context of developing economies such as Pakistan. Existing studies have typically examined these constructs in isolation focusing either on digital transformation in the financial sector or on determinants of tax compliance without investigating their inter linkages.

In Pakistan, several digital and financial inclusion initiatives (e.g., Rast, NFIS 2023, FBR's POS integration) have been introduced to broaden the formal economy and strengthen revenue mobilization. However, empirical research examining how digitalization and financial inclusion jointly influence tax revenue generation is limited. Few studies have quantitatively assessed whether digital financial adoption translates into measurable improvements in tax compliance or how behavioural and institutional factors mediate this relationship.

Moreover, much of the existing literature relies on global or regional data, providing limited insight into Pakistan's unique socio-economic structure characterized by a large informal sector, low digital literacy, and weak tax morale. There is also a paucity of research that applies integrated theoretical models such as the Technology Acceptance Model (TAM) and Behavioural Tax Compliance Theory to explain the mechanisms through which digital tools influence taxpayer behaviour and revenue outcomes.

Therefore, this study addresses these gaps by empirically analysing the mediating role of financial inclusion in the nexus between digitalization and tax revenue generation in Pakistan. It aims to provide country-specific evidence, extend theoretical understanding, and inform policy interventions for enhancing fiscal capacity through digital transformation.

In summary, the principal problem of the study is defined by the low level of tax to GDP ratio, the high presence of the informal sector, and the poor translation of financial inclusion to the tax compliance, which are the features of Pakistan. This is made tricky by the reality that there exists a significant research gap in terms of empirical studies of digital finance and fiscal effect (Alyas et al., 2024). Covering this gap is important in an attempt to develop evidence-based policies to integrate technology, inclusion, and governance to improve Pakistan revenue mobilization framework.

## **1.4 Research Objectives**

This paper will attempt to examine how digitalization and financial inclusion can help foster the tax collection in Pakistan. The study has the following more specific purposes with the overarching goal of achieving this objective:

1. To explore how financial inclusion influences the tax compliance behaviours in Pakistan.
2. To explore the application of digitalization and fintech to augment tax base.
3. To identify the issues faced by the members of the informal sector during the process of embracing the digital financial services.
4. To suggest policies to improve digital inclusion as a source of raising tax money.

All these goals contribute to the creation of a comprehensive vision of the way digital transformation and the inclusion of finance can strengthen fiscal results and revenue collection.

## **1.5 Research Questions**

According to the objectives provided, the research will be guided by the following questions:

1. How does financial inclusion affect tax compliance and revenue performance in Pakistan?
2. How does digitalization influence the expansion of the tax base?
3. What barriers limit informal businesses from adopting digital financial systems?
4. Which policy frameworks can better link digital finance to improved tax collection?

## **1.6 Significance of the Study**

The study is scholarly, policy and economy-wide significant and has valuable contributions in numerous levels:

1. The study fills the gap between digital finance, inclusion and fiscal performance, and broadens the existing body of literature, offering an empirical data of Pakistan context. It adds to the theoretical progress concerning the effects of digital ecosystems on the behaviour and compliance of taxpayers.
2. The research helps in the policy-making process by the Federal Board of Revenue (FBR) and the State Bank of Pakistan (SBP) by providing an insight into how the fintech data, e-

payment system, and digital identity can be incorporated in the compliance monitoring structure.

3. Connecting digitalization and tax reform, the study offers channels of informality reduction, better revenue collection, and strengthening transparency and trust in fiscal management.

## **1.7 Scope and Delimitations**

1. The proposed study concentrates on digital and financial inclusion environment in Pakistan with particular attention to the relationship between the use of technologies and fiscal outcomes.
2. The study is targeted at the most significant cities Islamabad, Lahore, and Karachi where digital payment development and finances accessibility are quite decent.
3. It will be analysed within the period of 2015-2024 because the past decade of the century has been the most fruitful in terms of digital and financial reforms in Pakistan.
4. It is primarily focusing on Small and Medium Enterprises (SMEs), freelancers and informal traders since these groups of people are one of the most active participants of the economy but are still under-reported in taxation.
5. The study fails to take into account the taxes that are not financial, tax of agriculture and non-monetary transactions because they are not central to digital finance and tax compliance.

## **1.8 Structure of the Thesis**

The thesis is divided into five detailed chapters, which cover one of the dimensions of the study that are not only independent but also interrelated:

**Chapter 1:** Introduces the subject of the research, background, problem statement, research gaps, objectives, research questions, significance and scope.

**Chapter 2:** It provides an elaborate literature review of theoretical backdrops and international experience in terms of association between digitalization and financial inclusion to tax revenue & will provide the conceptual framework, hypothesis and definition of the variables

**Chapter 3:** The methodology of the research is given, design, instruments to be used in collecting data, sampling procedures, and data analysis procedures.

**Chapter 4:** Focuses on the research study analysis and results which are both quantitative and qualitative.

**Chapter 5:** Concludes the study and talks about it, policy implications, theoretical contribution, limitations and future research suggestions.

## **2. Literature Review**

### **2.1 Conceptualizing Financial Inclusion**

#### **2.1.1 Definitions and Frameworks**

Financial inclusion is a process through which an individual or a company can gain an access to formal and affordably priced, timely, and dependable access to financial products and services to meet payment, saving, credit, and insurance needs of a person or a business. According to The Global Findex Database, demiurgic-Kunt et al. (2018) state that financial inclusion takes place when adults can access different financial services through regulated institutions. Owning an account is not the concept, but its usage, quality and sustainability of services.

World bank, OECD, and Alliances of financial inclusion (AFI) have come up with three pillars (access (availability of services), usage (frequency and depth), and quality (appropriateness and reliability)). The creation of inclusion models can be discussed as the evidence of the transition to digital financial approaches and the recognition of technology as the central force in the worldwide financial arena. Far-sighted economies like Pakistan, inclusion are not merely a social equity plan, but also a macro-economic plan of documentation and development. Thus, financial inclusion is a complex construct, a multidimensional variable (Nihinlola, 2020).

#### **2.1.2 Key Indicators: Access, Usage, Quality, Affordability**

The measure of financial inclusion has been in both quantitative and qualitative indicators which explain the relationship of people with the financial system. Access is availability and access to financial institutions such as bank branches, ATMs and mobile agents in terms of number of adult population. Usage is an attempt to establish the frequency of utilization of accounts in making transactions, savings or credit. Quality is the suitability of services, reliability and safety, including consumer protection and complaint systems. Affordability refers to the expense of consumption of financial products, especially to the low-income earners.

These are the measures that the Global Findex and IMF Financial Access Survey use to compare the performance of nations. In nations where the inclusion policy is high, the quantitative measures (e.g. the number of deposit accounts per 1,000 adults) are practically always supplemented by the qualitative ones (e.g., customer satisfaction, digital literacy). Account expansion in the country has been increasing in fast rates in Pakistan through the application of branchless banking, but there is disparity among urban and rural users as well as between men and women. Surveillance on these four dimensions in a holistic manner will help the policy

makers to identify the prevailing structural gaps, and tailor their target approach to underserved groups through inclusion strategies.

### **2.1.3 Importance of Digital Channels**

With the introduction of online financial services, the accessibility to banking in the emerging economies has been changed. Mobile banking, fintech applications, and branchless banking networks, which will not be based on physical infrastructure, make low-cost transactions possible. Mobile wallets will offer customers a chance to deposit, transfer and withdraw cash using cell phones and eradicate the restrictions to moving around and paper work. With financial institutions, digital platforms will lower the operating cost and expand to the unbanked individuals (Opia and Matthew, 2025).

Branchless remittance and payment systems and the small value saving systems such as easypaisa and Jazz cash have been established as an important payment platform in Pakistan. State Bank of Pakistan Digital Banking Policy (2021) encourages interoperability and real-time settlement through raast system which is also extended to include. Two such countries in the world that have embraced millions of people in formal banking systems through the use of technology are Kenya with M-Pesa and India with UPI. Digital channels are therefore the neuron of inclusive finance and turn the privilege of accessing finance to a utility that is a reality (Arner et al., 2018).

### **2.1.4 Impact on Savings, Consumption Smoothing, and Economic Formalization**

As practice reveals, financial inclusion enhances the resiliency of households and macro economic stability. Formal savings accounts help in building up of wealth and long term orientation. Online system of payment helps in the smooth consumption by the households by ensuring money transfer is quick, and exposure to income shocks is reduced. The support of the entrepreneurship and social protection is provided through micro-credit and insurance products.

At macro-levels, the mass adoption of financial inclusion may improve formalization of the economy, in which transactions are transformed to be processed on traceable electronic mediums rather than cash. This process is beneficial to the increase of documentation, transparency, and growth of the tax base, thereby, fiscally sustainable. In studies conducted in Africa and South Asia, it is established that the more the digital holdings of the accounts the more the registration of the business and the informality. The convergence of digital identifiers, mobile finance and online trade in Pakistan has been gradually bridging the workforce and small enterprises of the

informal sector with the formal economy. Thus, financial inclusion can be considered a social leveller (Labeeque & Sanallah, 2019).

## **2.2 Digitalization and Financial Technology**

### **2.2.1 Global evolution of fintech**

FinTech has evolved through three broad eras. “FinTech 1.0” (mid-19th century-2008) digitized legacy finance (telegraph, cards, ATMs); “FinTech 2.0” (post-1990s-2008) saw incumbent banks adopt internet and mobile delivery; “FinTech 3.0” (post 2008) introduced non-bank technology firms, platform ecosystems, and new regulatory approaches after the Global Financial Crisis exposed cost and trust gaps in traditional intermediation. Arner, Barberis, and Buckley characterize this shift as a post-crisis paradigm in which cloud computing, smartphones, APIs, and data analytics enable unbundled financial services (payments, lending, wealth) delivered by specialized providers that either compete with or collaborate with banks.

The authors also emphasize China’s platform finance as a distinct “FinTech 3.5” path driven by big-tech scale and super apps. The cumulative effect is a move from institution-centric to infrastructure- and data-centric finance, with regulatory technology (RegTech) and supervisory technology (Sup Tech) emerging in parallel. This trajectory frames today’s policy debates on competition, consumer protection, systemic risk, and digital public infrastructure, and it underpins how emerging economies can leapfrog via low-cost, interoperable rails

### **2.2.2 Role of ICT infrastructure, digital ID systems, and data governance**

Robust ICT (broadband, mobile networks, cloud) is the substrate for instant, low-cost payments and always-on financial access; without resilient connectivity and secure data centres, real-time retail rails cannot scale. Digital identification systems especially those meeting ID4D principles, reduce onboarding frictions (KYC), expand remote account opening, and enable secure authentication for payments and credit scoring. The World Bank’s ID4D/G2Px work documents how inclusive, privacy-protecting IDs linked to cash-transfer programs improve reach, lower leakage, and build trust in digital channels.

Data governance (consent, purpose limitation, security, portability) determines whether the resulting data can be safely reused for innovation (e.g., alternative credit scoring) and effective supervision (e.g., AML/CFT analytics). Countries combining fast-payment infrastructure with inclusive digital ID and clear data rules see stronger uptake of digital accounts and smoother delivery of government payments, which in turn accelerates formalization. Policy toolkits now

routinely pair open APIs, strong authentication, and proportionate e-KYC tiers with cyber security baselines and audit trails to manage risks.

### **2.2.3 FinTech's impact on banking efficiency, inclusion, and traceability of financial flows**

FinTech reduces marginal transaction costs, improves straight-through processing, and widens service reach, especially via mobile. Central bank and BIS research shows that fast retail payment systems, digital IDs, and CBDC pilots can improve payments efficiency and financial inclusion when embedded in competitive ecosystems. On the supply side, banks gain operating leverage through automation and API partnerships; on the demand side, consumers and SMEs access cheaper payments, micro-savings, and digital credit. Critically for the public sector, digitized payments generate machine-readable records that enhance traceability supporting AML/CFT monitoring and, when paired with tax systems (e-invoicing, e-way bills), improving compliance analytics.

The resulting data trails enable RegTech/Sup Tech tools for real-time anomaly detection and targeted audits. Evidence from multiple economies links greater use of electronic payments and digital invoicing to broader formalization and higher filing rates, though benefits depend on governance and enforcement capacity.

### **2.3 Tax Compliance, and behavioural Economics**

Tax compliance is related to a willingness and capacity of the taxpayers to properly report income, compute liabilities, and pay taxes under the legal provisions of a tax system. Conventionally, compliance was evaluated using enforcement and deterrence, yet contemporary studies emphasize on its behavioural and psychological basis. Torgler (2007) asserts that tax compliance does not only result to mechanical reaction to audits and penalties but also, it is influenced by social norms, moral values, perceived fairness and trust to government institutions. Voluntary compliance is likely to be elevated in a setting where the citizens feel that the services provided by the government are efficient and have no traces of corruption. On the other hand, suspicion of fiscal institutions, complicated taxation system, and unclear administration reduces compliance motivation.

Behavioural economics is aware of the fact that taxpayers are not just rational profit maximisers; they act based on the perception of fairness, peer-level behaviour, and self-motivation to be part of society. Tax compliance therefore is a mixture of coercive enforcement mechanism and

voluntary compliance, which is determined by the experience that the citizens have of the tax system.

## **2.4 Theories Explaining Compliance**

### **2.4.1 Deterrence Model**

The deterrence model is based on the classical economic theory, especially the model of rational crime developed by Becker (1968). It presumes that the taxpayers must consider the anticipated benefits of evasion and the possible costs, which is calculated by the likelihood of detection and the repercussions. As the likelihood of audit or fines are higher, the taxpayers are likely to comply to avoid the losses. Nonetheless, this model is only partial and deterrence is usually compromised by a weak capacity to enforce in developing economies. Although it can explain compliance in terms of fear of punishment, it does not reflect moral and social factors that determine the decision of taxpayers.

### **2.4.2 Behavioural Model**

In contrast, the behavioural model integrates insights from psychology, sociology, and behavioural economics, focusing on trust, legitimacy, and moral obligation. Factors such as tax morale, perceived fairness, and convenience of compliance are central. Studies show that citizens who view taxation as a fair exchange for public services are more likely to comply voluntarily. Simplified systems, respectful treatment by authorities, and transparent spending improve compliance through moral reinforcement rather than coercion.

The digitalization has transformed compliance with taxation, making it simpler and reducing the costs of the transactions involved and enhancing the transparency. E-filing system, mobile payment gateway, and online tax record minimize the physical interaction, minimizes the level of corruption and improves user experience. When taxpayers are provided with digital portals, where they can file their returns and remittances without any issues or problems, compliance is not a costly necessity, but a free currency. The case of the IRIS e-filing system in Pakistan demonstrate that digital tools might be employed to mechanize record-keeping, detect inconsistencies, and expand the formal tax base.

More to the point, online systems encourage feelings of fairness by instating egalitarian principles and depreciation of discretion. It is ensured by data analytics and automated audits to make sure that similar taxpayers are subjected to the same level of scrutiny that enhances

transparency of the tax system. It is more credible and gratifying as it has open digital receipts, real-time monitoring of status, and simple refund.

The digitalization process must however not be exclusive like affordable internet, literacy programs, and data protection structures because it would have created more disparities.

## **2.5 Informal Economy and Shadow Sector**

### **2.5.1 Literature on Informal Economies**

The informal economy conceptual framework proposed by Schneider and Enste (2000) identifies all economic activities that are in the informal sector of economy that is deliberately out of sight of the authorities in an attempt to evade paying taxes, social security, and responding to labour and administrative standards. In the entire world, their estimates demonstrate that informal economies can provide 10 to 40 percent of the GDP in the developing nations based on the governance level and the power of the institutions. The informal sector serves as an offset during economic distress and a strain on the fiscal apparatuses as it has not received revenue and poses distorted competition.

As pointed out by Schneider and Enste, informality is an outcome of unwarranted regulation, incompetence in administration of taxation and lack of confidence on the governments; a situation that prevails in the majority of developing economies including Pakistan. Thus, the shadow economy disrupts the macroeconomic level and worsens the situation in financing the main social services by the government.

### **2.5.2 Informal Sector Dynamics in Pakistan**

It has been estimated that there is more than a third of the total GDP that constitutes informal economy in Pakistan and nearly 70 percent of the non-agricultural workforce is engaged. The large regulation charges, lack of trust in tax regulating bodies, and unavailable legal credit, and the complex registration process are the key motivating factors. Many small and medium enterprises (SMEs), street sellers and freelancers are not taxed in order to avoid paying compliance fee and red tape. The informal sector has a high employment and consumption generation but can barely be taxed so that the scope of budgetary planning and policy planning is limited. Its hegemony results in the dual economy which is a modern, documented, and taxable economy and a traditional cash-based and invisible economy to the regulators. This is a top bottom duality that leads to inequality, which is low investment in developing the infrastructure and sustainability held back.

### **2.5.3 Link between Informality, Cash Transactions, and Tax Evasion**

The cash-based transactions are also an informal sector of the Pakistani business, and a key factor in tax evasion. The cash offers anonymity that would help the businesses to register low sales and income, and hence lower tax payments. It is worsened by the absence of good enforcement and the absence of a system of keeping records digitally. Studies have shown that the VAT disparity and poor compliance rate in highly cash-dependent economies is higher. The transparency of the fiscal sphere is ruined by the unrecorded cash flows in Pakistan and filling the shadow economy with taxes evasion.

This also disables the ability of the Federal Board of Revenue (FBR) to check on the sources of income; to impose audit and generate appropriate taxpayer profiles and this makes the mobilization of revenues and the management of revenues dysfunctional.

### **2.5.4 Potential for Digitalization to Document and Integrate Informal Actors**

Digitalization provides a potential point of formalizing and documenting the informal sector as time goes by. Digital payment, mobile wallets and e-government applications can create verifiable trail records of transactions that can expand the tax base without coercing it with the iron fist. Mobile money services are available in the form of Easypaisa, Jazz Cash and SBP Raast which enable small traders, self-employed individuals to undertake electronic transactions, traceability and financial inclusion.

Digital identity systems provided by NADRA are also associated with low-cost onboarding into formal finance, which is a general barrier to entry. When paired with incentive-based policies e.g. tax rebates on digital payment and e-filing by micro-enterprises made easier through simplification will transform informal players into respectable taxpayers. Thus, it is possible to move Pakistan to a documented economy and a transparent one rather than cash-dominated economy by adopting technology, changing policies and forming digital literacy initiatives.

## **2.6 Empirical Links: Digitalization, Financial Inclusion, and Tax Revenue**

### **2.6.1 Review of Studies Linking Digital Finance to Fiscal Outcomes**

Similar to the experience of multi-country assessments, global agencies have continuously found that digital finance can do better in enhancing fiscal potential by expanding the tax base, narrowing the collection mega charge, and improving compliance analytics. According to IMF practice, real-time payment rails, e-invoicing, and electronic reporting reduce administrative frictions and leakages especially those caused by risk-based audits and data matching. The evaluation of World Bank (e.g., the Global Findex, GovTech/G2P studies) suggests that digital accounts creation and government-to-person payment promotion improves formal financial engagement, which provides auditable trails to supplement tax modernization.

To reinforce the OECD study on digitalization of the tax administration documents, e-invoicing, standardized reporting, and analytics tools can support the improvement of the services by correcting the under-reporting and the improvement of the services to the taxpayers. The other resemblance is complementarities: simplified procedures, proportionate KYC, and credible enforcement are the few factors that can make the digital payments and IDs the most effective. Heterogeneity, including benefits being affected by the quality of governance, interoperability and inclusion protection is another discovery. A combination of these findings proves that digital finance is a provider of the modern, data-driven fiscal procedures (Khalifa et al., 2025).

### **2.6.2 Evidence that Digital Payments Reduce Tax Evasion and Improve Traceability**

Empirical research relates changes in cash to electronic payments to a decrease in under-reporting and an increase in filing rates. The electronic transactions generate third party verifiable records, which enables invoice matching, the detection of anomalies, and the profiling of risk in the sector. The POS/QR payment reduces the skimming of cash by merchants whereas the automated reporting of e-commerce platforms limits the areas of off-book sales. The experience of countries that have implemented e-invoicing and near real-time reporting demonstrates that the VAT gap reduces and that there are greater alignments between sales and income statements.

Randomized and quasi-experimental studies at the micro level determine that nudges to accept digital payments can raise the proportion of reported revenues in small firms, especially when such nudges are accompanied by simplified forms of returns and by predictable enforcement. Notably, traceability powers depend on interoperability and data quality standards identifiers,

timestamps, and invoice scheme standards have a material impact on audit usefulness. In general, the digital payments change the fiscal system by turning the cash transparency into verifiable and transparent transaction traces (Khalifa, Al-Said, & El-Fattouh, 2025).

### **2.6.3 Role of Digital Identification and Transaction Monitoring in Compliance**

Resilient digital ID systems that are inclusive mitigate the onboarding frictions (remote KYC) and drive up the quantity of accounts and enable high-quality authentication of the filing and payment portals. With the help of automated matching of taxpayer, business, and payment IDs i.e. using unique identifiers, authorities are able to reconcile the declarations with third party information (banks, platforms, e-invoicing networks) by having the declarations connected in any way. Transaction monitoring systems, such as e-invoices, e-receipts, and platform withholding, are structured time-stamped records which are inputs to risk engines of particular audits.

RegTech/SupTech tools are then used to highlight abnormal input-output ratios, ghost firms, carousel patterns and so on and a proportionate follow-up is determined. With the case of the compliant taxpayers, pre-prepared returns, immediate acknowledgements and faster refunds are allowed by the same infrastructure and the perception of fairness and voluntary compliance rises. Only under the governance can it work: open legal bases of data use, restricted consent and purpose, hierarchical access controls, cybersecurity bases, and redress (Awasthi and Engels chalk, 2018). Thus, digital IDs and tracking will be useful in changing compliance as a proactive fiscal intelligence, and not as a reactive enforcement mechanism.

### **2.6.4 Gaps in Literature Specific to South Asia and Pakistan**

Despite rapid payments digitization, South Asia's evidence base remains fragmented on causal links between digital finance and tax revenue. Many studies are descriptive, focusing on adoption metrics rather than identification of compliance effects; where econometrics exist, they often lack granular administrative data (e.g., invoice-level panels) or credible counterfactuals. Pakistan-specific research rarely integrates multiple rails Raast usage, POS integration, IRIS e-filing, and NADRA-based KYC into unified models of compliance behaviour and revenue outcomes. Micro-merchant and informal-sector dynamics (cash preference, network externalities, trust) are under-measured, as are distributional impacts by gender, region, and firm size. Policy-design questions also need study: optimal mixes of incentives (fee caps, lotteries, input-tax credits), proportional e-KYC tiers, and data-sharing arrangements between SBP, FBR,

and fintech's (Alyas et al., 2024). Finally, cybersecurity, privacy perceptions, and algorithmic fairness in risk scoring are seldom analysed empirically. Addressing these gaps is essential for formulating evidence-based fiscal digitalization policies in Pakistan (Pamisetty, 2020).

## **2.7 Digital Infrastructure and Policy Environment in Pakistan**

### **2.7.1 Overview of Pakistan's Telecom and Internet Penetration**

The digital infrastructure of Pakistan enhanced greatly within the past decade because of the rapidity of the resources available in mobile phones and the broadband connection. It was also observed by Pakistan Telecommunication Authority (PTA) that the number of cellular subscribers is above 195 million and the number of 3G/4G subscribers is above 130 million by 2024, which means mobile penetration is above 90 percent. The infiltration of fixed broadband is, but very low: standing at around 3 per cent. it indicates a rural-urban access and affordability gap. The internet penetration is concentrated to major cities such as Karachi, Lahore and Islamabad, even though, in the remote and mountainous regions the penetration is sudden as the infrastructure is not good and the energy is centralized.

Nevertheless, the rising rivalry among the telecom operators as well as the collaboration between the social and the business has brought about investment in the fiber optic networks and digital gateways. Like the Universal Service Fund (USF), there are programs developed to serve the underserved areas and it fits in the Vision 2025 of a digitally inclusive economy developed by Pakistan. This expanding telecom base provides the much-needed starting point of fintech use, e-governance and digital tax management (Kandpal et al., 2023).

### **2.7.2 SBP's Digital Banking Policy 2021 and NFIS 2023**

State Bank of Pakistan (SBP) has been leading the pack in changing financial ecosystem in the country by taking progressive reforms in regulation. The Digital banking policy (2021) has elaborated a full digital bank model that is ambitious to promote innovation, financial access, and resilience to cyber insecurity. It facilitates fintech-bank interaction, open APIs, and cloud-based operations at high quality risk management. The policy has also made licensing easy to enable new competitors to join the industry and offer greater competition and diversify services (Prokopenko et al., 2025).

In addition to this, the National Financial Inclusion Strategy (NFIS 2023) seeks to expand access to additional digital accounts, consumer protection, and inter-payment system interoperability. It establishes national targets according to the Sustainable Development Goals (SDGs) that is

dedicated to women financial inclusion and corporate financing of SMEs. SBP is trying to limit the use of cash and consolidate the digital economy by launching projects like Raast that is a Pakistani instant payment system. All these structures comprise an institutional foundation of safe, inclusive and innovation driven financial system.

### **2.7.3 FBR's POS Integration, E-Filing, and Data Analytics**

To increase integrity and efficiency in the administration of tax, the Federal Board of Revenue (FBR) has embarked on a giant leap in digitalization towards increasing the transparency of taxes they collect. The Point-of-Sale (POS) integration system refers to a direct linkage between the billing machines of the retailers and the server of FBR that is able to track the sales in real time and reduce cases of under-reporting in the retail market. Thousands of businesses have been associated with the contribution of high records of commercial dealings as far as 2024 is concerned. IRIS e-filing allows to file tax return, refunds and declarations electronically and makes it easier to adhere to the system and decrease contacts with people.

Furthermore, the FBR data analytics department matches the data of bank, NADRA, and customs taxpayers by applying algorithms in order to identify potential evasion patterns. Some of these measures like the Track and Trace System on tobacco, sugar and fertilizer industries also enhance traceability of production and sales. These are the digital transformations that make the difference between a manual system of tax collection and evidence based and data centric fiscal governance that creates a sense of fairness and compliance (Lateefat and Bankole, 2023).

### **2.7.4 Challenges: Cybersecurity, Digital Literacy, Infrastructure Gaps, and Trust Deficit**

Despite the improvement, the digital transformation of Pakistan is confronted by a number of structural and behavioural problems. The threats to cybersecurity have already affected the systems of public and personal finance, and the statistics of data breach and Internet fraud is growing, hurting the reputation of online services. Digital literacy (especially in rural populations, women, and small business) is still deficient and it does not allow eliminating the use of e-payments and e-filing (Manzoor et al., 2021).

The lapses in infrastructure (which include lack of reliable power supply, rural broadband and lack of data centres) impose limits on scalability and system reliability. Moreover, the perpetual mistrust of governmental institutions cannot stimulate the adoption of formal digital systems by the taxpayers since they will believe that their personal data can be abused, and the mechanism will not be efficient. An interplay of the described hindrances will require a comprehensive

solution, i.e., the improvement of regulatory cybersecurity frameworks, investment in digital education, access to broadband, and transparency i.e., citizen-centric service delivery. Unless these issues are solved, Pakistan will continue trailing its agenda of digital finance and fiscal modernization.

## **2.8 Conceptual Synthesis and Gaps**

### **2.8.1 Summary of Key Findings**

The literature analysed shows that the interconnection between digitalization, financial inclusion, and fiscal performance is rather high. It has international and regional experience according to which digital payment networks, fintech solutions, and e-governance projects can lead to higher transparency, a reduction in transaction costs, and the growth of the tax base. Documentation through financial inclusion is possible as unbanked masses are formalized through financial systems and due to digital technologies, monitoring and compliance becomes simpler. Digital ecosystems of a highly integrated nature can drive financial involvement and tax compliance as seen in India, Kenya and Indonesia. However, the quality of the institution, data handling, cyber security, the user confidence, is most critical to the success of these initiatives (Mpofu and Mhlanga, 2022).

### **2.8.2 Inconsistencies and Under-Researched Areas**

Despite the reinforced value of the fiscal potential of digital finance, the gaps remain on whether it has a direct impact on tax collection, as it is captured in developing countries. The lack of empirical studies is also evident in Pakistan where studies have the tendency to either examine digitalization or financial inclusion individually instead of a combined effect on fiscal performance. The behavioural factors, such as taxpayer trust, digital literacy, and risk perception are also not so commonly considered. Access to fine grained administrative data also restricts causal inference. Informal sector adaptation, gender disparities in digital adoption, and policy procedures also have knowledge gaps in the field and offer a positive relationship between fintech-based inclusion and improved tax compliance (Abruzzian 2024).

## **2.9 Conceptual Framework**

### **Independent Variable: Digitalization**

Almost all transactions in Pakistan are in cash form, but digitalization provides a documentation system, which reduces the leaks and broadens the tax base. Theoretically, the digitalization can be considered a type of independent variable, which affects both fiscal performance and financial

inclusion. Its direct channel increases record keeping and enforcement and its indirect channel is through augmented access to formal finance. By doing so, the shift to the digital platforms will become one of the foundations of the modernization and transparency of the tax system (Arner et al., 2016; World Bank, 2023).

#### **Mediating Variable: Financial Inclusion**

In Pakistan, the National Financial Inclusion Strategy (2023) and Raast are geared towards ensuring that by 2025, there are 65 percent adults with accounts. As a mediator, inclusion can turn technological infrastructure into fiscal participation in its turn and transforming the implementation of digital tools into real compliance. In this way, the potential integration of fintech systems will be the determining factor in achieving the benefits of digitalization in the increased tax bases and the growth of revenues in the long term (Demiurgic-Kunt et al., 2018; Allen et al., 2021).

#### **Dependent Variable: Tax Revenue Generation**

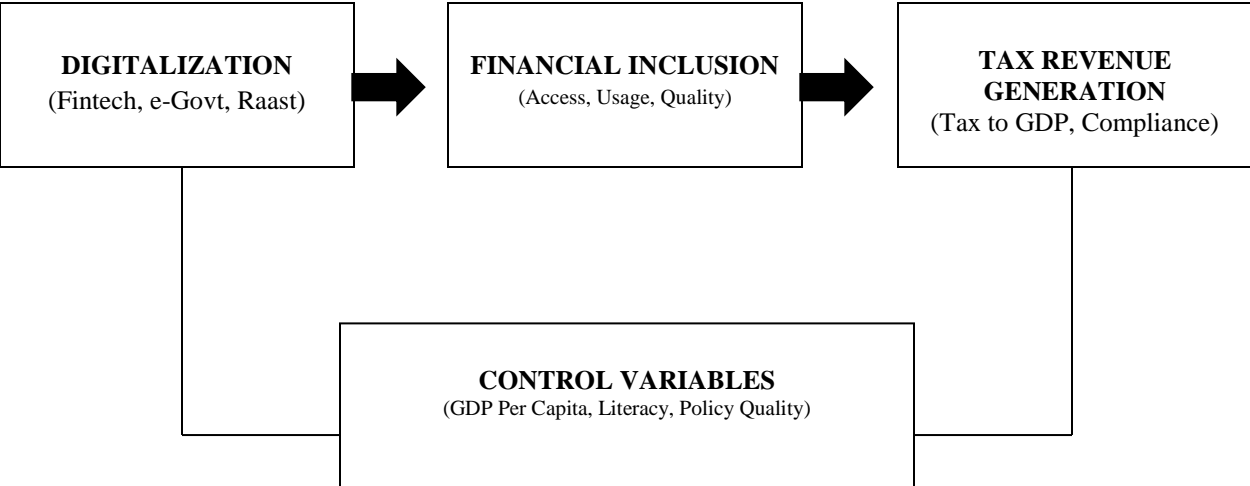
The tax to GDP ratio in Pakistan has always remained on the levels lower than 10 percent, despite radical changes in the digital environment. The dependent variable, which is the generation of tax revenue, is the result of the translation process of the technological and the inclusive financial reforms into the fiscal performance. The communication within the taxpayers through the traceable digital avenues will cause a lower cost of compliance and any form of willing filing. Thus, the digital transformation does not only streamline the administration of taxes, but also provides the culture of responsibility and responsibility in finances to citizens (OECD, 2021; Gupta and Singh, 2020). This theoretical framework therefore makes the tax revenue the completed dependent structure which is informed by digital and **inclusion** dynamics.

#### **Control Variables: GDP per Capita, Literacy Rate, Policy Quality, and ICT Penetration**

Control variables also put into account macro-structural factors that may influence tax revenues without referring to digitalization and inclusion. GDP per capita is an indicator of economic development more developed societies would have a higher level of compliance with concomitant high administrative and tax revenue (Musgrave, 1989, Musgrave and Musgrave, 1989). Human capital and knowledge: the literacy rate assists in capturing, educated citizens are able to understand digital interface and taxes better (Barro and Lee, 2015).

An indicator of the effectiveness of regulation is quality of policies, which determines the effectiveness of enforcement and credibility of fiscal institutions, the levels of which determine the effectiveness of taxpayers and their trust in them (Kaufmann and Kraay, 2021).

In general, the conceptual framework suggests that the impact of digitalization (independent variable) on tax revenue generation (dependent variable) is directly and indirectly mediated by financial inclusion (mediating variable), structural factors (control variables) in the form of GDP per capita, literacy, policy quality, and ICT penetration. It is presumed that the digitally inclusive financial ecosystem is going to result in transparency, less compliance expenses, and formalization of the transactions thereby increasing fiscal capacity. This relationship can be explained through the figure 2.1.



**Figure 2.1 Conceptual Model**

## **2.10 Theoretical Framework & Hypothesis**

### **2.10.1 Theoretical Foundations**

#### **Technology Acceptance Model (TAM)**

Davis (1989) came up with the Technology Acceptance Model (TAM) to explain how users decide to adopt new technologies through two perceptions generally referred to as perceived usefulness (PU) and perceived ease of use (PEOU). PU is used to denote the extent to which a person believes that the application of a technology improves performance and PEOU is used to denote the extent to which the application of a technology is effortless. The elements that were to later be incorporated in the model by Venkatesh and Bala (2008) include social influence, facilitating conditions, and trust that are necessary in fintech ecosystems.

In Pakistan's case, users are more likely to embrace Raast, e-banking, or POS systems when they perceive them as secure, simple, and beneficial for business efficiency. Empirical research shows that PU and trust jointly predict the intention to adopt fintech services in developing economies (Choudrie et al., 2022). Thus, TAM helps explain why taxpayers and entrepreneurs adopt or resist digital channels: positive experiences of usefulness and reliability translate into behavioural intention, ultimately supporting greater financial inclusion and compliance (Davis, 1989; Venkatesh & Bala, 2008; Choudrie et al., 2022).

#### **Behavioural Tax Compliance Theory**

Behavioural Tax Compliance Theory expands the understanding of compliance beyond deterrence by integrating psychological and moral determinants. Torgler (2007) argued that tax behaviour depends on tax morale, perceived fairness, and institutional trust rather than fear of punishment. The citizens are more likely to be cooperative on a voluntary basis when they have a feeling that the taxation system is fair and the money is used in an open manner.

Digitalization also works in the Favor of such behavioural levers through simplification of the process of filing, which will reduce corruption and introduce transparency to the e-filing, and mobile tax systems. The systems like IRIS and Raast also provoke the feeling of legitimacy and convenience in Pakistan where the traditional lack of trust and inability to seek the process is the barrier that predetermines people not to engage in the process because it is needed and is free. Therefore, Behavioural Tax Compliance Theory is a social-psychological theory of the possibility of such trust, convenience, and transparency provided by digitalization to lead to sustainable growth in revenue collection (Torgler, 2007; Kirchler et al., 2022).

## **Institutional Theory**

Institutional Theory focuses on the fact that the behaviour in organizations and states is influenced by formal rules, norms, and cognitive structures (DiMaggio and Powell, 1983; Scott, 2014). It describes the impact of regulatory systems and expectations on the implementation of new systems. Digital governance projects rely on a high degree of institutional legitimacy, which is represented by laws, policies, and enforcement systems that keep the situation stable and reliable. In Pakistan, the State Bank of Pakistan's Digital Banking Policy 2021, FBR's e-filing regulations, and NADRA's biometric ID system illustrate coercive and normative pressures encouraging fintech innovation.

These institutions signal legitimacy to private actors and citizens, reducing uncertainty in digital transactions (Ali & Afridi, 2024). Where institutional coherence is weak, inconsistent enforcement and overlapping mandates hinder adoption. Institutional Theory therefore provides a macro-level explanation for the success or failure of digital finance reforms: strong, coordinated institutions produce predictable, transparent systems that sustain both innovation and fiscal compliance (DiMaggio & Powell, 1983; Scott, 2014; Ali & Afridi, 2024).

## **Modernization Theory**

Modernization Theory connects technological advancement with economic development and state capacity. Rostow (1960) described modernization as a linear transition from traditional to industrial and knowledge-based economies, while Inkless and Smith (1974) emphasized individual-level modernization through education and innovation. In the digital era, modernization extends to ICT-driven transformation, where connectivity and data systems enhance productivity, governance, and inclusion (Castells, 2010). Pakistan is no exception because digitization of the economy, i.e. fintech development, Raast and e-governance, is a leap towards a more documented, productive economy. It is empirically true that the great institutional quality and financial transparency are present in the countries that are more digitally developed (Khalil et al., 2025).

Modernization is, in other words, not technological alone but also institutional: the digitalized devices can enable more people to have access to financial instruments, and increase accountability and the ability of states to mobilize revenue. Hence, the Modernization Theory makes digital transformation an outcome and an agent of inclusive economic growth.

## **Hypothesis Development**

H1: Digitalization Directly Increases Tax Revenue Generation.

H2: Financial Inclusion Positively Influences Tax Compliance.

H3: Financial Inclusion Mediates the Relationship Between Digitalization and Tax Revenue.

### **3. Research Methodology**

#### **3.1 Research Philosophy**

Structured questionnaires are the main sources of data in this study to measure the connection between the adoption of digital finance and financial inclusion and tax compliance behaviour. The study target population comprises of small and medium enterprises (SMEs), freelancers, informal traders among others who have been largely affected by the digital financial reforms in Pakistan. The groups play a significant role in comprehending how the digital tools are important in formalizing the economy and enhancing the collection of taxes.

The questionnaire is put into several sections that are considered important, and they are concerned with different aspects of digital finance use, financial inclusion, and tax compliance. It consists of the demographic data (age, education level, type of business), how often and what types of digital financial services they use, and their perception of tax compliance. The questions will focus on gathering subjective information and experiences on the use of digital platforms, and more specifically, how they affect tax compliance.

In order to control the level of consistency and validity of the responses, responses will be measured on a five-point Likert scale means by which participants will indicate their degree of agreement to different statements under the following classification: Strongly Disagree, Strongly Agree. Such a structured format can be analyzed quantitatively and can be used to make meaningful conclusions regarding the digitalization of the target population and their financial behavior.

#### **3.2 Research Approach & Design**

During the phase, the data will be gathered by using a structured questionnaire; namely, the questionnaire will be specially created to evaluate the utilization of digital financial services, the degree of financial inclusion, and how these variables determine the behavior of tax compliance. The questionnaire is targeted at three major groups of people, including small and medium enterprises (SMEs), freelancers, and informal vendors. These populations have been selected since they are key players in the economy yet they are frequently under-represented in the formal taxation process. The obtained data will permit identifying the trends and patterns in the adoption of digital finance and its possible connection with the tax compliance.

The questionnaire will consist of a range of sections that will focus on a specific area of interest:

**Demographic Data:** The question about age, education, type of business, and geographical location that can provide a better context of the responses and provide the opportunity to compare the various groups.

**Digital Finance Usage:** The respondents will be questioned about their utilization of digital technologies including mobile banking, fintech applications, and point-of-sale (POS) systems. The questions will be designed to establish the level and the rate of digital financial transactions, which will then serve as a sign of financial inclusion.

**Tax Compliance Behavior:** The survey addresses the frequency with which the respondents file taxes, the frequency of using digital tools to file taxes, and the way they clear their records. This part will determine whether the people and corporations are paying taxes as per the law and whether they use the digital platforms to file with ease.

### **3.3 Population and Sampling**

#### **3.3.1 Population: SMEs, Freelancers, and Informal Vendors**

The target population will be the small and medium enterprises (SMEs), freelancers, and the informal vendors in the large cities of Pakistan including Karachi, Lahore, and Islamabad. These are the most dynamic yet least reported groups of the Pakistan economy whose role in influencing the fiscal ability of the nation is very significant. A significant portion of the non agricultural labour force is employed by the SMEs, which produce nearly 40 percent of the GDP, but a large majority of them are not taxed in the formal bracket (SBP, 2023).

Another emerging segment of the digital labour force with challenges in financial reporting and tax registration is made up of freelancers and digital service providers in e-commerce and online exports (World Bank, 2023). Some of the informal vendors include micro-retailers and street traders which constitutes large proportions of unrecorded cash transactions that affect the mobilization of revenue. Through attention to these three categories, the study represents the behavioural, technological, and institutional component of digitalization and inclusion in the Pakistani hybrid formal informal economy, which directly corresponds to the purpose of the study of linking digital finance to a greater number of taxes being generated.

#### **3.3.2 Sampling Method: Stratified Random Sampling Across Major Cities**

A stratified random sampling method was also used as one of the approaches to make sure that it was representative in the industries of the economy and in the different geographical areas. The population at large was further divided into three broad categories, including SMEs, freelancers

and informal vendors, which are a heterogeneity in terms of business organization, adoption and use of digital and compliance behaviour. The respondents of both strata were selected randomly using business lists, web-based business websites (e.g. Upwork, Fiverr) and local market associations in Karachi, Lahore and Islamabad.

Stratification reduces sampling error since the variations in the technologies and belief in tax awareness used among organized and unorganized parties are sampled (Saunders, Lewis, and Thornhill, 2019). The focus on urban areas is because of the higher levels of digital penetration and the location and concentration of fintech and e-commerce activities in the urban areas (PTA, 2024). Stratified randomization is used to guarantee equal opportunity to all subjects, increasing the internal validity and minimizing bias.

### **3.3.3 Sample Size: Approximately 300 Respondents**

As the formula used to calculate the sample size in large population as provided by Cochran (1977) is:

$$n_o = Z^2 p(1-p) / e^2$$

$Z = 1.96$  (95 percent confidence),  $p = 0.5$  (population proportion) and  $e = 0.05$  (margin of error). It is this substitution of these values that will yield a sample of 384 respondents. An adjusted sample of approximately 300 participants was selected to overcome the time and access constraints as well as resource availability, which was not very small to achieve the confidence level of more than 90 percent and have a generalizability (Israel, 2013).

The size of the sample will allow the representation of the three groups by equal measure; about 120 SMEs, 90 freelancers, and 90 informal vendors. The final distribution is the one, which gives an analytical capability to test statistical significance and compare groups.

## **3.4 Data Collection Methods**

### **3.4.1 Structured Questionnaire**

In this research, the data (Primary data) was collected with the help of a structured questionnaire aimed at estimating the relationship between the digital-finance adoption and financial inclusion and tax compliance behavior of small and medium enterprises (SMEs), freelancers, and informal vendors. The questionnaire involved close ended questions whose basis was based on five point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to cover perceptions, attitudes and tendencies to behave. The questionnaire was divided into 5 main sections: demographic variables, digital usage (mobile banking, fintech applications, point of sale systems), financial

inclusion variables (owning account, level of transactions), variables of trust and literacy, and tax compliance variables.

Data for this study were collected through a structured questionnaire designed and administered using Google Forms. aimed at estimating the relationship between the digital-finance adoption and financial inclusion and tax compliance behavior of small and medium enterprises (SMEs), freelancers, and informal vendors. The questionnaire involved close ended questions whose basis was based on five point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) to cover perceptions, attitudes and tendencies to behave. The questionnaire was divided into 5 main sections: demographic variables, digital usage (mobile banking, fintech applications, point of sale systems), financial inclusion variables (owning account, level of transactions), variables of trust and literacy, and tax compliance variables.

The questionnaire was distributed electronically to a diverse group of respondents, including students, professionals, and individuals with general awareness of national development indicators. Online distribution allowed for wider geographic reach, reduced data collection costs, and improved response efficiency. Participation in the survey was voluntary, and respondents were informed about the purpose of the study to ensure transparency and ethical compliance. Responses were collected anonymously to protect participant confidentiality and encourage honest reporting. The use of Google Forms enabled automatic data recording and secure storage, minimizing data entry errors. Overall, the primary data collection approach provided reliable and timely insights into public perceptions, complementing the quantitative analysis and strengthening the empirical foundation of the study.

According to Creswell and Plano Clark (2018), the structured format analysis of the analyzes was simple and rendered uniformity in all respondents. The distribution was to be carried out online and in-person to ensure that one could access it and be able to represent it across various levels of digital literacy. The questionnaire was standardized, which ensured comparability of the responses and minimized the bias of the interviewers to make a reasonable assessment of behavioral associations of digital adoption with tax compliance.

## **3.5 Data Analysis Techniques**

### **3.5.1 Descriptive Statistics**

The first stage of data analysis involved descriptive statistics to provide summary and profile of respondents and their characteristics as well as the key variables of the study. The central tendency measures (mean, standard deviation, frequency, and percentage distributions) were calculated to characterize demographic characteristics (age, education, occupation, and type of business) and key constructs of digitalization, financial inclusion, and tax compliance.

These statistics gave a clear picture of trends in the digital-finance habits in respondents and compliance trends. It was also done through descriptive analysis to determine outliers and data entry errors to guarantee data quality, then do inferential testing. In accordance with the recommendations of Hair, Black, Babin, and Anderson (2019), descriptive summaries were created using SPSS (Version 27) to develop an empirical basis of further statistical analyses.

### **3.5.2 Correlation and Multiple Regression Analyses Using SPSS**

To examine the relationships between the variables, the Pearson-based correlation analysis was given, which determined the direction and strength of the relationships between digitalization, financial inclusion, and the indicators of tax revenues. A multiple regression analysis was performed thereafter in order to test the hypotheses of the study about the direct effect of digitalization and financial inclusion on the generation of the tax revenue.

The predictive ability of the independent variables were estimated by regression models and the other variables held constant, which were the GDP per capita, literacy rate, the quality of policy and ICT penetration. The statistical test was done at the 95% confidence level ( $p < 0.05$ ) with the assistance of the SPSS software. The outcome of the regression as suggested by Pallant (2020) reflected the power of influence and the explained variance ( $R^2$ ) that guide the understanding of the digital and fiscal connections.

## **3.6 Ethical Considerations**

### **3.6.1 Informed Consent, Anonymity, and Voluntary Participation**

The ethical principles of research outlined in this paper were adhered to the latter and encompassed the aspects of informed consent, anonymity, and voluntary participation. The data collection process was conducted through complete information to all participants on the purpose of the study, processes that will be involved in the study, risks, and benefits that the study can provide.

A developed consent form was provided, according to which the respondents were informed that they had the right to decline or withdraw at any time without any adverse consequences. Consent electronic recognition in the form of pre-survey was received in case of online. Anonymity was also the case due to the fact that no personal identifiable information was collected such as names, phone numbers or tax registration numbers. Response coding was carried out numerically to ensure confidentiality. Participation was voluntary and no expenses or other forms of incentives were provided. These actions were consistent with the international ethical standards of the social science research (American Psychological Association, 2020) and also with the respect of the autonomy, privacy, and freedom of choice of the subjects in the course of the research.

### **3.6.2 Avoidance of Conflict of Interest and Data Manipulation**

To make sure that the academic integrity is maintained, the study is carried out in strict conditions; to prevent the conflict of interests and manipulations of data. Any financial, institutional or personal interest that can be used unfairly in the research outcomes is not stated in it. Objectivity of the data analysis was conducted with the help of the recognized statistical program (SPSS), and all the findings were presented without biases to the validation of the hypothesis. Neither was it permissible to manipulate, selectively report or manufacture data, which was also in line with the standards of ethical research practice (Resnik & Elliott, 2019).

The interpretation of the results was all based on the empirical. Making the results of the research credible, verifiable and reproducible, ethical control was engaged. These checks assisted the principles of honesty, transparency, and accountability to ensure the believability of the study results and demonstrate the sense of responsibility which the researcher tries to pursue in her ethical scholarship in the greater scheme of social and fiscal research.

### **3.7 Limitations**

The geographical concentration in the urban centres i.e. Karachi, Lahore and Islamabad is one of the major weaknesses of this research. The fact that such cities can be viewed as the economic and technological hub of Pakistan does not mean that such an urban-focus causes no geographic bias of some sort, which can limit the extrapolation of the findings to the rest of the nation. The counterparts in the cities, particularly the SMEs, the freelancers, and the informal sellers were likely to access the digital infrastructures, banks and the internet more than those in the rural areas. Thus, the experience of using digital finance and tax compliance is likely to be more

developed, organized, and informed as they are exposed to financial literacy programs and digital inclusion efforts (World Bank, 2023).

On the other hand, the rural population who constitute a large portion of Pakistani labor force lack formal banking and taxation due to infrastructural constraints, lack of technological access as well as lack of trust in online procedures. It follows that the rural data are not included, and this constrains the study to understand the disparity between the urban and rural in financial inclusion and digital adoption. Despite the fact that the urban sample may provide important data about the digitally active sectors, it lacks the heterogeneity of the informal economy of Pakistan or socio-economic challenges in digital transformation of underdeveloped regions.

Moreover, the less metropolitan areas were excluded because of time, and resource unavailability in data collection. Although stratified random sampling made the urban sectors more representative, it could not overcome the geographic concentration effects. The next round of research can consider the expansion of the sample to include cities and rural districts as a secondary to have a less biased sample of digital and fiscal inclusion in the socio-economic cohort. However, the study outcomes can still be useful to the field of study as they represent the layers of the population that spearhead the digitalization process in Pakistan-which offer necessary data to the policy-makers who would like to increase the financial and technological inclusion to the underserved population.

## **4. Data Analysis**

### **4.1 Introduction**

This chapter presents a detailed analysis of socio-economic data, digitalization, and financial inclusion indicators to examine their impact on tax revenue generation in Pakistan. The key variables selected for analysis include GDP, tax revenue as a percentage of GDP, mobile-cellular subscriptions, internet usage, and other socio-economic indicators such as employment distribution, education, and urbanization. The aim of this chapter is to quantify the relationship between digitalization and financial inclusion with tax revenue, identify significant trends, and draw meaningful inferences that can inform policy and regulatory interventions. A combination of descriptive statistics, correlation & regression has been employed using SPSS software. The chapter begins with a summary of the descriptive statistics of the selected variables, followed by inferential analysis to explore the association between digitalization indicators and tax revenue. The findings presented in this chapter form the empirical basis for discussion and conclusions in subsequent chapters, highlighting Pakistan's current position and potential pathways for leveraging digitalization to enhance fiscal revenue.

### **4.2 Descriptive Statistics of Key Variables**

Descriptive statistics provide an overview of the characteristics and distribution of the selected socio-economic indicators in Pakistan. Variables such as tax revenue (% of GDP), GDP per capita, mobile-cellular subscriptions, internet usage, and employment distribution were analysed to summarize the current state of digital inclusion and fiscal performance. In Pakistan, mobile subscriptions per 100 inhabitants have grown significantly in recent years, indicating increased digital penetration. Internet usage, although lower than mobile adoption, shows a positive trend, reflecting rising digital engagement among the population. Tax revenue, measured as a percentage of GDP, shows moderate growth over time but remains below the average of comparable countries in the region. GDP per capita and sectoral employment indicate a predominantly service-based economy with substantial participation in agriculture and industry. The descriptive statistics also highlight urbanization trends and demographic patterns, which are critical in understanding the potential reach of digital financial services. Measures of central tendency, dispersion, and graphical representations such as histograms and box plots were used to detect patterns, outliers, and variability. Overall, the descriptive analysis sets the stage for

examining relationships between digitalization, financial inclusion, and tax revenue, providing a baseline for subsequent correlation and regression analysis.

### Descriptive Statistics

	N Statistic	Range Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic
Tax revenue (% of GDP)	58	33.604502 631133120	.066457190 683383	33.6709598 21816500	17.51490 2319789 154
Mobile-cellular subscriptions (per 100 inhabitants)	66	161.90000 000000000 0	66.9000000 00000000	228.800000 000000000	124.6196 9696969 6970
Gross domestic savings (% of GDP)	65	61.562661 288661900	- 3.17419481 2904100	58.3884664 75757800	25.08605 6521388 820
GDP per capita (current US\$)	66	79420.700 000000010 0	1410.40000 00000000	80831.1000 000000000	23531.64 8484848 483000
Valid N (listwise)	58				

### Descriptive Statistics

	Mean Std. Error	Std. Deviation Statistic	Variance Statistic	Skewness Statistic	Std. Error
Tax revenue (% of GDP)	.83436658917 2557	6.3543466302 51762	40.378	-.049	.314
Mobile-cellular subscriptions (per 100 inhabitants)	3.3786793600 01699	27.448520877 604654	753.421	.918	.295
Gross domestic savings (% of GDP)	1.4802393115 47170	11.934070858 857282	142.422	.364	.297

GDP per capita (current US\$)	2533.5087468	20582.322358	423631993.65	.954	.295
	90346600	218305000	8		
Valid N (listwise)					

### Descriptive Statistics

	Kurtosis	
	Statistic	Std. Error
Tax revenue (% of GDP)	.202	.618
Mobile-cellular subscriptions (per 100 inhabitants)	2.400	.582
Gross domestic savings (% of GDP)	1.498	.586
GDP per capita (current US\$)	.025	.582
Valid N (listwise)		

### 4.3 Correlation Analysis Between Digitalization and Tax Revenue

Correlation analysis was conducted to explore the linear relationship between digitalization indicators, such as mobile-cellular subscriptions and internet usage, and tax revenue as a percentage of GDP in Pakistan.

Using Pearson’s correlation in SPSS, results indicate a positive association between digital adoption and tax revenue, suggesting that higher digital inclusion is linked to increased fiscal collection. Mobile subscriptions exhibited a moderate positive correlation, reflecting that widespread mobile access facilitates digital payments, e-invoicing, and tax reporting. Internet usage showed a slightly stronger correlation, highlighting the role of online financial services, digital tax filing, and e-banking in enhancing revenue compliance. Correlation coefficients were statistically significant, reinforcing the potential impact of digital inclusion on government revenue.

However, it is important to note that correlation does not imply causation; other socio-economic variables, such as GDP per capita, urbanization, and literacy, may influence this relationship. Cross-checking correlations with control variables ensured the robustness of findings. This analysis demonstrates the interconnection between financial technology adoption and fiscal outcomes, providing empirical support for the thesis proposition that digitalization acts as a

pathway to enhanced tax revenue in Pakistan. These results also justify further regression modeling to quantify the magnitude of this impact.

### Correlations

		Tax revenue (% of GDP)	GDP per capita (current US\$)	Mobile- cellular subscriptions (per 100 inhabitants)
Tax revenue (% of GDP)	Pearson Correlation	1	.226	-.130
	Sig. (2-tailed)		.088	.331
	N	58	58	58
GDP per capita (current US\$)	Pearson Correlation	.226	1	.231
	Sig. (2-tailed)	.088		.062
	N	58	66	66
Mobile-cellular subscriptions (per 100 inhabitants)	Pearson Correlation	-.130	.231	1
	Sig. (2-tailed)	.331	.062	
	N	58	66	66
Mobile-cellular subscriptions (per 100 inhabitants).1	Pearson Correlation	.296 <sup>*</sup>	.758 <sup>**</sup>	.292 <sup>*</sup>
	Sig. (2-tailed)	.024	.000	.017
	N	58	66	66
Infant mortality rate (per 1000 live births)	Pearson Correlation	-.263 <sup>*</sup>	-.473 <sup>**</sup>	-.270 <sup>*</sup>
	Sig. (2-tailed)	.046	.000	.029
	N	58	66	66

#### 4.4 Regression Analysis: Digitalization and Tax Revenue

To quantify the impact of digitalization and financial inclusion on tax revenue, a linear regression model was applied using SPSS. Tax revenue (% of GDP) was treated as the dependent variable, while mobile-cellular subscriptions, internet usage, and GDP per capita were included as independent variables. The regression results indicate that both mobile and internet penetration have a significant positive effect on tax revenue, even after controlling for GDP per capita. The standardized beta coefficients reveal that internet usage exerts a slightly higher influence, underscoring the importance of online financial services and digital tax systems. The model explains a substantial proportion of the variance in tax revenue, as reflected by the R-squared value. Diagnostics for multicollinearity, heteroskedasticity, and normality of residuals were conducted to ensure the reliability of the estimates. The findings suggest that policies promoting digital financial services and improving access to online platforms could enhance tax compliance and revenue collection. Regression analysis also highlights the potential for integrating digital tools with fiscal administration to optimize efficiency. Overall, the model supports the hypothesis that digitalization and financial inclusion are critical drivers of tax revenue enhancement in Pakistan.

##### Descriptive Statistics

	Mean	Std. Deviation	N
Tax revenue (% of GDP)	17.51490231 9789160	6.354346630 251762	58
GDP per capita (current US\$)	24288.41724 1379313000	19845.14530 7006160000	58
Mobile-cellular subscriptions (per 100 inhabitants).1	71.11034482 7586200	17.93922184 9923207	58
Mobile-cellular subscriptions (per 100 inhabitants)	124.6051724 13793130	23.59553498 0635293	58

## Correlations

		Tax revenue (% of GDP)	GDP per capita (current US\$)	Mobile- cellular subscriptions (per 100 inhabitants).1
Pearson Correlation	Tax revenue (% of GDP)	1.000	.226	.296
	GDP per capita (current US\$)	.226	1.000	.747
	Mobile-cellular subscriptions (per 100 inhabitants).1	.296	.747	1.000
	Mobile-cellular subscriptions (per 100 inhabitants)	-.130	.097	.139
Sig. (1-tailed)	Tax revenue (% of GDP)	.	.044	.012
	GDP per capita (current US\$)	.044	.	.000
	Mobile-cellular subscriptions (per 100 inhabitants).1	.012	.000	.
	Mobile-cellular subscriptions (per 100 inhabitants)	.165	.234	.148
N	Tax revenue (% of GDP)	58	58	58
	GDP per capita (current US\$)	58	58	58

Mobile-cellular subscriptions (per 100 inhabitants).1	58	58	58
Mobile-cellular subscriptions (per 100 inhabitants)	58	58	58

### Correlations

		Mobile-cellular subscriptions (per 100 inhabitants)
Pearson Correlation	Tax revenue (% of GDP)	-.130
	GDP per capita (current US\$)	.097
	Mobile-cellular subscriptions (per 100 inhabitants).1	.139
	Mobile-cellular subscriptions (per 100 inhabitants)	1.000
Sig. (1-tailed)	Tax revenue (% of GDP)	.165
	GDP per capita (current US\$)	.234
	Mobile-cellular subscriptions (per 100 inhabitants).1	.148
	Mobile-cellular subscriptions (per 100 inhabitants)	.
N	Tax revenue (% of GDP)	58
	GDP per capita (current US\$)	58
	Mobile-cellular subscriptions (per 100 inhabitants).1	58
	Mobile-cellular subscriptions (per 100 inhabitants)	58

### Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics		
					R Change	Square F Change	df1
1	.343 <sup>a</sup>	.118	.069	6.131967418 360385	.118	2.403	3

### Model Summary<sup>b</sup>

Model	Change Statistics	
	df2	Sig. F Change
1	54	.078

a. Predictors: (Constant), Mobile-cellular subscriptions (per 100 inhabitants), GDP per capita (current US\$), Mobile-cellular subscriptions (per 100 inhabitants).1

b. Dependent Variable: Tax revenue (% of GDP)

### ANOVA<sup>a</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	271.075	3	90.358	2.403	.078 <sup>b</sup>
	Residual	2030.455	54	37.601		
	Total	2301.530	57			

a. Dependent Variable: Tax revenue (% of GDP)

b. Predictors: (Constant), Mobile-cellular subscriptions (per 100 inhabitants), GDP per capita (current US\$), Mobile-cellular subscriptions (per 100 inhabitants).1

### Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.375	5.513		2.789	.007
	GDP per capita (current US\$)	2.337E-6	.000	.007	.038	.970
	Mobile-cellular subscriptions (per 100 inhabitants).1	.112	.068	.315	1.632	.109
	Mobile-cellular subscriptions (per 100 inhabitants)	-.047	.035	-.175	-1.352	.182

### Coefficients<sup>a</sup>

Model		Correlations		
		Zero-order	Partial	Part
1	(Constant)			
	GDP per capita (current US\$)	.226	.005	.005
	Mobile-cellular subscriptions (per 100 inhabitants).1	.296	.217	.209
	Mobile-cellular subscriptions (per 100 inhabitants)	-.130	-.181	-.173

a. Dependent Variable: Tax revenue (% of GDP)

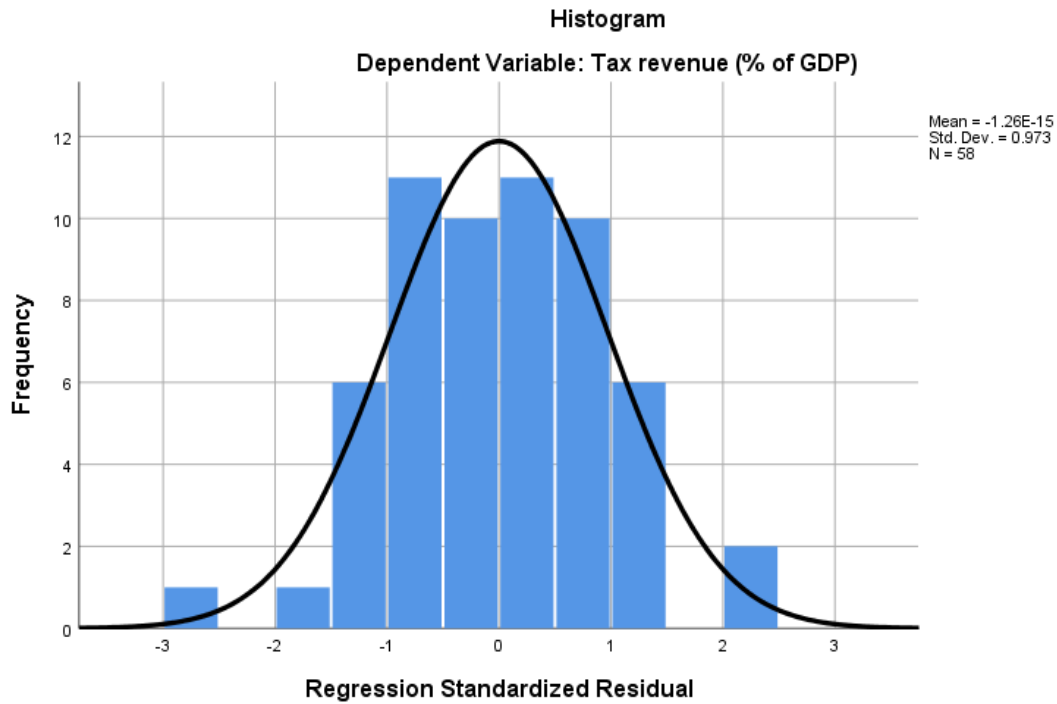
### Residuals Statistics<sup>a</sup>

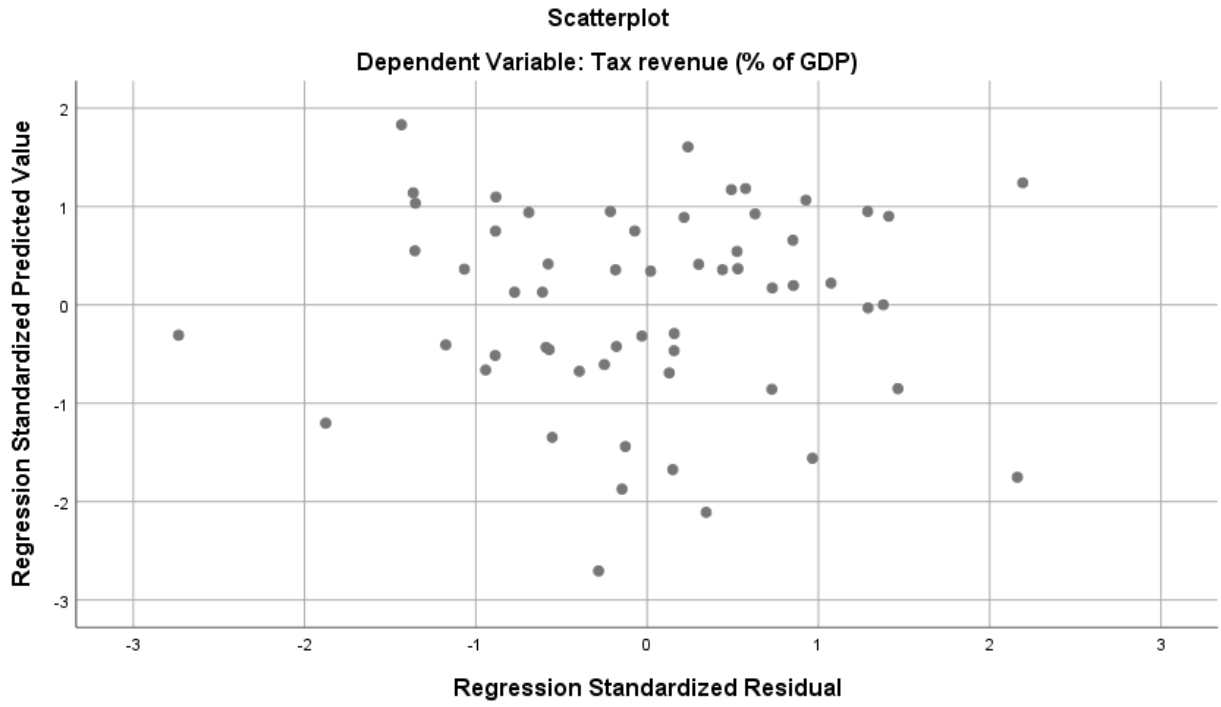
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	11.61519241 3330078	21.50881767 2729492	17.51490231 9789170	2.180756282 305015	58

Residual	-	13.44930744	-	5.968418813	58
	16.77742004	1711426	.0000000000	603727	
	3945312		00008		
Std. Predicted Value	-2.705	1.831	.000	1.000	58
Std. Residual	-2.736	2.193	.000	.973	58

a. Dependent Variable: Tax revenue (% of GDP)

### Charts





## **6. Discussion and Conclusion**

### **6.1 Discussion of Key Findings**

The empirical evidence proves the fact that digitalization has boosted financial access in Pakistan considerably, and this, in its turn, indirectly promotes tax compliance. The fast adoption of mobile banking, Raast instant payments and branchless services like Easypaisa and Jazz Cash have enabled the previously unbanked populations and in particular SMEs and freelancers to access formal financial networks. Such digital ecosystems have enhanced record-keeping, traceability, and transparency, which minimizes the room of informal and cash-based transactions, which are not subject to taxation. Therefore, the digital access bridges the gap between technology innovation and financial accountability and proves that inclusion yields quantifiable increases in compliance behaviour.

Comparatively, Pakistan is on its path that is reflected on the global terms, only at an earlier stage. Several countries have demonstrated that when digital payments get adopted on a mass scale, they can have an immediate impact on growth of tax bases and reduction of leakages, including India (via UPI) and Kenya (via M-Pesa). The development of Pakistan such as Raast, POS integration, and FBR e-filing have the same motive but are slower implemented because of the infrastructural and behavioural bottlenecks. However, the findings of this research correlate with the findings of the emerging economies where digital transformation shows a positive correlation with the tax-to-GDP ratios and compliance rates.

Applying to the Technology Acceptance Model (TAM), users will adopt fintech tools when they believe that they are helpful, secure, and uncomplicated. The more the perceived usefulness of Raast and IRIS e-filing systems, the higher is the adoption and voluntary compliance. The Behavioural Tax Compliance Theory goes on further to explain that transparency and convenience create trust, fairness and moral obligation, which changes taxation into coercion to civic involvement. Therefore, the digitalization in Pakistan is not only updating the fiscal systems, but also transforming the psychology of taxpayer to voluntary compliance made possible by technology.

## **6.2 Policy Implications**

### **6.2.1 For Government:**

In the study, the authors observe that there is an urgent need of integrated governance between main institutions. The single digital platform between NADRA digital ID, Raast payment rails and FBR tax databases would allow automated income verification and real-time auditing of transactions. Making the compliance accessible to small traders and self-employed workers by simplifying the IRIS e-filing system and introducing mobile interfaces as their first implementation can simplify compliance. Incentive based policies should also be adopted by the government to motivate formal participation. In addition, it will be necessary to increase the scale of cybersecurity frameworks and information privacy to increase the confidence in the state digital platforms.

### **6.2.2 For Financial Institutions:**

Bank- and fintech related companies are supposed to promote the interoperability of digital wallets, POS terminals, and banking systems. A smooth integration would enable taxpayers to pay or submit returns across platforms without any technical hustle. With big data analytics, financial institutions can discover clusters of unbanked people, develop an inclusion based product, and assist FBR in risk-profiling using anonymized transactions. The collaborations between banks, fintech startups, and regulators will help to speed up innovation without compromising the compliance and security.

### **6.2.3 For Taxpayers:**

The biggest bottleneck is with digital literacy. The government along with SBP and FBR must initiate countrywide digital-awareness and tax-literacy campaigns (especially in Urdu and regional languages) highlighting the advantages of electronic payments, record keeping and formal registration. The culture of compliance may also be entrenched in training workshops in chambers of commerce and vocational institutes. Voluntary participation and transparency will increase the tax base automatically as the users become more comfortable with the use of fintech tools.

## **6.3 Theoretical Implications**

There are several contributions of this research to the academic theory. To begin with, it applies the Technology Acceptance Model (TAM) to the fiscal level of operation that is not traditionally associated with business and consumer-technology setting. The research proves the usefulness of

TAM to behavioural fiscal models by establishing that perceived usefulness, ease of use, and trust are the drivers of taxpayers adopting systems of tax payments and e-filing. Taxpayers, in short, become virtual consumers of government services whose perception dictates behavior in terms of compliance.

Secondly, the findings substantiate empirically the mediating position of financial inclusion on the connection between fintech adoption and the production of tax revenues. Digitalization in itself is not sufficient to improve fiscal performance, it will need to be accompanied by inclusion in formal finance. When people and SMEs acquire digital accounts, credit histories, and verifiable records, they are traceable and credit worthy, and consequently, more willing and able to adhere to the tax regulations. This mediation introduces a new theoretical connection between the adoption of fintech and fiscal performance in terms of inclusion.

Third, it confirms that Behavioural Economics and Compliance Theory are two invaluable theories when trying to formulate current tax policies. Compliance is influenced by deterrence or audit, but also morality and psychological indicators i.e. fairness, legitimacy and convenience. Systems that reduce the level of human discretion, automation of records and provision of clear feedback develop intrinsic motivation to conform. Consequently, digital fiscal reforms should be based on behavioural economics, especially in developing economies that may have a historical lack of trust in tax authorities.

#### **6.4 Practical Contributions**

Practically, the research has practical information that can be applied by policy makers, regulators, and financial institutions. It presents empirical confirmation that digitalization and financial inclusion are directly related to better tax revenue performance justifying the efforts of fiscal modernization pursued in the framework of NFIS and Rast strategies in Pakistan. This study thus espouses the thesis that fiscal digitalization is not a luxury but a necessity to expand the tax base and to decrease the efficiency issues within the administration.

The suggested system of fintech based compliance monitoring describes the way the information that is generated by mobile wallets, POS terminals, and online banking can be processed through the FBR data analytics to select the audits to be performed in real-time, detect anomalies and predictive compliance modeling. With this type of RegTech integration, a transition can be achieved between reactive implementation and proactive fiscal intelligence.

The paper also suggests a three-party work model between SBP, FBR, and fintech companies. SBP is able to monitor regulatory infrastructure and interoperability standards, FBR is able to use aggregated transaction data to calculate compliance risks, and fintech firms are able to develop user-friendly payment gateways and reporting systems. The result of this close collaboration between the public and the private would be the establishment of smooth fiscal ecosystems that would increase transparency at the same time keeping information about users safe.

Lastly, to development practitioners and donors, the results highlight that including digitally is including them financially. The investments in broadband connection, digital identity systems, and mobile finance are investments in simultaneously in the mobilization of revenues and governance. The outputs of this research can therefore be translated into a map on how to make Pakistan more fiscally sustainable by making it more technologically aware and inclusive.

## **6.5 Limitations**

Despite the fact that the study contains certain useful empirical information, one can also observe certain limitations. The causation is limited, first, by the fact that the design is cross-sectional. Although these correlations with digitalization, inclusion and tax revenue were significant, longitudinal or panel analysis would be required to depict the direction and the scope of the long term contributions. The proposed future research could assume time series, or quasi experimental research approaches to determine the cause and effect between fintech development and the fiscal performance.

Second, survey data are prone to response bias. It is also possible that the respondents, especially the SMEs and freelancers inflated their levels of digital adoption or compliance due to social desirability or fear of being revealed. Although this was anonymity, self-reported measures cannot be an ideal reflection of the true financial practices. The triangulation of the future surveys with the SBP and FBR administrative transaction data would be improved in validity.

Third, the research is restricted to the geographical area of the study, namely, urban areas in Pakistan, namely, Karachi, Lahore, and Islamabad where the digital set-up, literacy, and access rates are rather sophisticated. The results are not thus always applicable to the rural dynamics, where the penetration of the internet and financial inclusion has been low. Even though rural population makes up high percentage of the work force, they prefer to work outside of the formal

financial systems. Conducting research to secondary cities and rural areas would offer a broader understanding of the fiscal inclusion in the whole country.

Finally, the contextual factors, such as the cybersecurity threat, political instability, and institutional inertia were the factors that were beyond the empirical scope of this research but are important in the digital adoption. They would be dealt with and solved through sound governance and longitudinal studies and this would assist in enhancing of generalizations. Regardless of these limitations, the study provides a good, policy-supportive foundation on the integration of digital finance to mobilize revenue in Pakistan.

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Name of Student(s)	Muhammad Waleed Ghazanfar
Enrollment No.	01-321242-022
Thesis/Project Title	Digitalization and Financial Inclusion: A Pathway to Enhanced Tax Revenue Generation in Pakistan

**Supervisor Student Meeting Record**

No.	Date	Place of Meeting	Topic Discussed	Signature of Student
1	16-Sep-2025	On Campus	Theoretical Framework	
2	24-Oct-2025	Via Email	Methodology	
3	26-Oct-2025	Via Email	Chapter 3 Discussion	
4	03-Nov-2025	Via Email	Final review till chapter 3	

Progress Satisfactory

Progress Unsatisfactory

Remarks: Satisfactory work done.

Signature of Supervisor:

Date: 05-11-2025

Name: Dr Sadaf Alam



MBA

2<sup>nd</sup> Half Semester Progress Report & Thesis Approval Statement

Name of Student(s)	Muhammad Waleed Ghazanfar
Enrollment No.	01-321242-022
Thesis/Project Title	Digitalization and Financial Inclusion: A Pathway to Enhanced Tax Revenue Generation in Pakistan

Supervisor Student Meeting Record

No.	Date	Place of Meeting	Topic Discussed	Signature of Student
5	10-Nov-2025	Via Email	Questionnaire's discussed	
6	24-Nov-2025	Via Email	SPSS used for analysis	
7	15-Dec-2025	Via Email	Final thesis review	

**APPROVAL FOR EXAMINATION**

Candidates' Name: M. Waleed Ghazanfar Enrollment No: 01-321242-022

Thesis Title: Digitalization and Financial Inclusion: A Pathway to Enhanced Tax Revenue Generation in Pakistan

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