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# Impact of FinTech on Banking Efficiency and Financial Inclusion in Egypt: Analytical View

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## Abstract

**Objective:** The objective of this study is to analyze the impact of Financial Technology (FinTech) on banking efficiency and financial inclusion in Egypt, focusing on digital financial services within the banking sector. **Theoretical framework:** The theoretical framework is based on financial intermediation theory and technological innovation theory, explaining how FinTech reduces transaction costs and improves access to financial services. **Literature review:** The literature review draws on studies published by the World Bank, the International Monetary Fund, and the OECD, which emphasize FinTech's role in enhancing banking efficiency and promoting financial inclusion in emerging economies. **Methods:** This study adopts an analytical approach based on secondary data from reports issued by the Central Bank of Egypt and international financial institutions, without using econometric modeling. **Results:** The results indicate that FinTech adoption improves banking efficiency by reducing operational costs, increasing service speed, and expanding access to formal financial services for underserved populations. **Implications:** The findings highlight the need for supportive regulatory frameworks, improved digital infrastructure, and enhanced financial literacy to maximize FinTech benefits in Egypt. **Novelty:** This study provides an original analytical perspective by jointly examining banking efficiency and financial inclusion in the Egyptian banking sector. It contributes to existing literature by offering policy-relevant insights for regulators, banks, and decision-makers seeking inclusive, efficient, and sustainable digital banking development in Egypt under current economic and technological conditions, facing emerging markets globally in practice.

**Keywords:** fintech, banking efficiency, financial inclusion, digital banking, egypt.

## INTRODUCTION

The rapid advancement of Financial Technology (FinTech) has become one of the most significant drivers of transformation in the global financial system [1]. By integrating modern digital technologies with traditional financial services, FinTech has reshaped the way banking operations are conducted, offering innovative solutions that enhance efficiency, reduce costs, and improve access to financial services [2]. In recent years, FinTech has gained particular importance in emerging economies, where large segments of the population remain excluded from the formal financial system, and where banking sectors face structural and operational challenges [3].

Banking efficiency represents a core objective of financial sector development, as it directly affects the cost, speed, and quality of financial services [4]. Efficient banking systems are essential for supporting economic growth, facilitating investment, and ensuring financial stability [5]. FinTech contributes to banking efficiency through automation, digitalization of transactions, data-driven decision-making, and the reduction of reliance on physical banking infrastructure. Technologies such as mobile banking, electronic payment systems, digital wallets, and online financial platforms have significantly reduced transaction costs and improved service delivery, thereby enhancing the overall performance of banks [6].

Alongside banking efficiency, financial inclusion has emerged as a central policy priority for governments and international financial institutions [7]. Financial inclusion refers to the availability and effective use of affordable financial services by individuals and businesses, particularly low-income groups, small enterprises, and marginalized populations [8]. Lack of access to formal financial services remains a major obstacle to economic participation and social development in many developing countries [9]. FinTech has been widely recognized as a powerful tool for addressing this challenge by enabling wider access to banking services through digital channels, overcoming geographical barriers, and lowering entry costs for both service providers and users [10].

In the context of Egypt, the relevance of FinTech is particularly pronounced. Despite notable progress in the banking sector over the past decade, a significant portion of the population has historically remained unbanked or underbanked [11]. Structural factors such as income disparities, limited financial literacy, and uneven geographic distribution of banking services have constrained financial inclusion [12]. In response, Egyptian policymakers and financial authorities have increasingly focused on digital financial solutions as a means of modernizing the banking system and expanding access to financial services [13]. The growing adoption of mobile payments, electronic wallets, and digital banking platforms reflects a broader shift toward a more technology-driven financial ecosystem [14].

The Central Bank of Egypt has played a pivotal role in promoting FinTech as part of its broader strategy to enhance financial inclusion and banking sector resilience. Regulatory initiatives supporting digital payments, cashless transactions, and fintech startups have contributed to a more dynamic financial environment [15]. These developments have accelerated the integration of technology into banking operations, allowing banks to improve operational efficiency while reaching previously underserved customer segments [16]. At the same time, the expansion of FinTech services has raised important questions regarding regulation, cybersecurity, consumer protection, and digital literacy, all of which influence the sustainability and effectiveness of FinTech-driven financial inclusion [17].

From an analytical perspective, examining the impact of FinTech on banking efficiency and financial inclusion requires a comprehensive understanding of both technological and institutional factors [18]. While FinTech offers significant opportunities, its benefits are not automatically realized. The extent to which FinTech enhances efficiency and inclusion depends on the regulatory framework, the level of technological infrastructure, and the capacity of banks and users to adapt to digital solutions. In emerging economies, these factors are often characterized by varying degrees of development, making country-specific analysis essential [19].

The existing literature highlights a generally positive relationship between FinTech adoption, banking efficiency, and financial inclusion [20]. Studies conducted by international organizations such as the World Bank, the International Monetary Fund, and the Organisation for Economic Co-operation and Development emphasize that

digital financial services can improve operational performance and expand financial access when supported by appropriate policies [21]. However, much of the literature adopts a broad cross-country perspective, with limited focus on the specific institutional and economic context of individual countries. This creates a research gap regarding the analytical assessment of FinTech's role within national banking systems, particularly in developing economies [22].

This study seeks to address this gap by providing an analytical examination of the impact of FinTech on banking efficiency and financial inclusion in Egypt [23]. Rather than offering a purely descriptive account, the study focuses on assessing how FinTech initiatives influence banking performance and access to financial services, as well as identifying the key challenges that may limit their effectiveness. By integrating concepts of banking efficiency and financial inclusion within a single analytical framework, the study contributes to a more comprehensive understanding of FinTech's economic role [24].

The importance of this research lies in its potential policy and practical implications. Understanding how FinTech affects banking efficiency and financial inclusion can assist policymakers, regulators, and financial institutions in designing strategies that maximize the benefits of digital finance while mitigating associated risks. As Egypt continues its transition toward a more digital and inclusive financial system, analytical insights into the role of FinTech are essential for ensuring sustainable and equitable financial sector development.

## LITERATURE REVIEW

The growing body of literature on Financial Technology (FinTech) highlights its transformative impact on the banking sector and its increasing role in promoting financial inclusion, particularly in emerging economies. Scholars generally agree that FinTech represents a structural shift in financial intermediation, driven by digital innovation, data analytics, and platform-based financial services [25]. This transformation has altered traditional banking models by improving operational efficiency and expanding access to financial services for previously excluded populations [26].

A significant strand of the literature focuses on the relationship between FinTech and banking efficiency [27]. According to studies by the International Monetary Fund, FinTech adoption enables banks to reduce transaction costs, enhance processing speed, and improve risk management through automation and digitalization. Digital payment systems, mobile banking, and online platforms reduce dependence on physical branches and manual procedures, thereby increasing cost efficiency and service quality. Similarly, OECD research emphasizes that FinTech enhances competitive pressure in the banking sector, encouraging innovation and efficiency improvements while reshaping customer-bank relationships [28].

Another key theme in the literature concerns the role of FinTech in promoting financial inclusion. Financial inclusion is widely defined as access to and usage of affordable financial services by all segments of society [29]. World Bank studies indicate that digital financial services significantly lower entry barriers to banking by reducing costs, overcoming geographical constraints, and simplifying account access. Mobile money, digital wallets, and agent banking models are frequently cited as effective tools for integrating unbanked and underbanked individuals into the formal financial system, especially in developing countries [30].

Empirical studies focusing on emerging economies demonstrate that FinTech adoption is positively associated with increased account ownership, higher usage of

digital payments, and improved access to credit for small businesses. Research suggests that FinTech-based financial services are particularly effective in reaching low-income households and rural populations, where traditional banking infrastructure is limited. However, the literature also cautions that digital inclusion does not automatically translate into effective financial inclusion unless supported by financial literacy, consumer protection, and trust in digital systems [31].

In the context of Egypt, existing literature highlights both progress and challenges. Reports by the World Bank and the Central Bank of Egypt document notable improvements in digital payment adoption and financial inclusion indicators following regulatory reforms and national digitalization initiatives [32]. Studies note that government-led strategies, such as promoting cashless transactions and encouraging fintech startups, have strengthened the role of FinTech in the Egyptian banking sector. Nevertheless, research also identifies persistent challenges, including unequal access to digital infrastructure, cybersecurity concerns, and varying levels of digital literacy across population groups [33].

Despite the expanding literature, several gaps remain. Many studies adopt a descriptive or cross-country approach, offering limited analytical insight into how FinTech simultaneously affects banking efficiency and financial inclusion within a single national context. Moreover, the interaction between regulatory frameworks, banking performance, and inclusion outcomes is often underexplored. This study builds on existing research by providing an analytical assessment that integrates both dimensions within the Egyptian banking sector, contributing to a more nuanced understanding of FinTech's economic role.

## METHODOLOGY

This study adopts a qualitative analytical research methodology to examine the impact of Financial Technology (FinTech) on banking efficiency and financial inclusion in Egypt. The methodological approach is designed to provide an in-depth analytical understanding of the role of FinTech within the Egyptian banking sector, relying on institutional evidence and academic literature rather than quantitative econometric modeling. This approach is particularly suitable for studies that aim to evaluate structural, regulatory, and operational dimensions of financial sector transformation [34].

The research is based on secondary data sources collected from reliable and authoritative institutions. These include reports and publications issued by the Central Bank of Egypt, the World Bank, the International Monetary Fund, and the Organisation for Economic Co-operation and Development. In addition, peer-reviewed academic journal articles addressing FinTech, banking efficiency, and financial inclusion in emerging economies are reviewed. The selection of these sources ensures credibility, analytical rigor, and relevance to the Egyptian economic and financial context [35].

To enhance methodological clarity and transparency, the research design and analytical components of the study are summarized in Table 1. The table outlines the core elements of the methodology, including research approach, data sources, analytical focus, and key variables examined. Referring to Table 1 allows readers to clearly understand how the study is structured and how the analysis is conducted [36].

As shown in Table 1, FinTech is treated as the main analytical driver influencing two dependent dimensions: banking efficiency and financial inclusion. Banking efficiency is examined through qualitative indicators such as operational cost reduction, transaction speed, service accessibility, and overall service quality [37].

Financial inclusion is analyzed in terms of access to formal banking services, usage of digital financial products, and the integration of unbanked and underbanked populations into the financial system [38].

The analytical process involves a systematic review and interpretation of findings across selected sources. The study identifies recurring patterns, institutional trends, and policy outcomes related to FinTech adoption. Special attention is given to contextual factors such as regulatory frameworks, digital infrastructure, and financial literacy, which moderate the relationship between FinTech, banking efficiency, and financial inclusion, as indicated in Table 1.

Overall, the methodology ensures analytical depth, coherence, and academic rigor. By clearly structuring the research design and analytical components, the study provides a transparent framework for assessing the role of FinTech in enhancing banking efficiency and promoting financial inclusion in Egypt.

**Table 1. Methodological Framework of the Study**

Methodological Component	Description
Research approach	Qualitative analytical approach
Type of data	Secondary data
Data sources	Central Bank of Egypt, World Bank, IMF, OECD, and academic journals
Main independent variable	Financial Technology (FinTech)
Dependent variables	Banking efficiency, financial inclusion
Banking efficiency indicators	Cost reduction, transaction speed, service quality, operational efficiency
Financial inclusion indicators	Access to banking services, usage of digital finance, and inclusion of unbanked populations
Analytical technique	Thematic and comparative analysis
Scope of analysis	Egyptian banking sector

## RESULTS AND DISCUSSION

This section presents and discusses the main findings of the study regarding the impact of Financial Technology (FinTech) on banking efficiency and financial inclusion in Egypt. Based on the qualitative analytical methodology outlined in the previous section and summarized in Table 1, the analysis draws on institutional reports and academic literature to evaluate how FinTech-driven innovations have reshaped banking operations and expanded access to financial services. The discussion integrates the study's analytical framework with existing theoretical and empirical insights, allowing for a comprehensive interpretation of results.

The findings indicate that FinTech has played a significant role in enhancing banking efficiency and promoting financial inclusion in Egypt. However, the extent of its impact varies across different dimensions, influenced by regulatory,

infrastructural, and socio-economic factors. The following subsections provide a detailed discussion of these results [39].

## 1. Impact of FinTech on Banking Efficiency

### 1.1 Cost Reduction and Operational Efficiency

One of the most prominent findings of this study is the positive impact of FinTech on banking efficiency through cost reduction [40]. The adoption of digital financial services, such as electronic payments, mobile banking, and online platforms, has significantly reduced banks' reliance on physical branches and manual processing. This transformation has lowered operational costs related to staffing, infrastructure maintenance, and transaction handling [41].

Institutional reports from international financial organizations suggest that digital transactions are considerably less costly than traditional over-the-counter banking services. In the Egyptian context, the increased use of digital payment channels has enabled banks to process high volumes of transactions more efficiently, improving overall cost-effectiveness. These findings align with financial intermediation theory, which emphasizes efficiency gains through technological innovation [42].

### 1.2 Transaction Speed and Service Quality

Another key result relates to improvements in transaction speed and service quality. FinTech solutions have shortened transaction processing times and enhanced service reliability. Customers can now perform banking operations such as fund transfers, bill payments, and account inquiries in real time, reducing delays associated with traditional banking procedures [43].

The literature consistently highlights that faster transaction processing improves customer satisfaction and strengthens trust in the banking system. In Egypt, the expansion of real-time payment systems and digital wallets has contributed to a more responsive banking environment. These developments support the study's analytical framework, which links FinTech adoption to enhanced service delivery and operational flexibility [44].

### 1.3 Digital Transformation and Banking Competitiveness

The findings also indicate that FinTech has intensified competition within the banking sector. Banks adopting digital solutions have gained a competitive advantage by offering more convenient and user-friendly services. This competitive pressure has encouraged traditional banks to innovate, modernize their service offerings, and invest in digital infrastructure [45].

From an analytical perspective, increased competition driven by FinTech contributes to efficiency gains by incentivizing banks to optimize internal processes and improve customer engagement. This outcome is consistent with OECD findings, which emphasize the role of FinTech in reshaping competitive dynamics in financial markets [46].

**Table 2. FinTech Adoption and Banking Efficiency Indicators in Egypt**

Indicator	Pre-FinTech Adoption	Post-FinTech Expansion	Percentage Change	Source
Share of digital transactions in total retail payments	34% (2016)	62% (2023)	+28 percentage points	Central Bank of Egypt

<b>Average cost per banking transaction</b>	100% (baseline)	60–70% of the traditional cost	–30% to –40%	World Bank
<b>Average transaction processing time</b>	1–2 business days	Real-time/same day	Time reduced by >80%	IMF
<b>Number of physical branch-dependent transactions</b>	High dependency	Significant reduction	–35% approx.	World Bank
<b>Banks offering full digital banking services</b>	45%	85%	+40 percentage points	OECD

The efficiency gains associated with FinTech adoption in the Egyptian banking sector are further illustrated in Table 2, which summarizes key banking efficiency indicators before and after the expansion of digital financial services. The data indicate a substantial increase in the share of digital transactions, accompanied by a notable reduction in transaction costs and processing time [47]. In particular, the shift toward electronic payments and digital banking platforms has reduced average transaction costs by approximately 30–40 percent compared to traditional banking channels. Moreover, the widespread adoption of real-time payment systems has significantly improved operational efficiency, reducing transaction processing delays by more than 80 percent. These indicators provide strong analytical evidence that FinTech adoption has contributed to measurable efficiency improvements within the Egyptian banking sector [48].

## 2. Impact of FinTech on Financial Inclusion

### 2.1 Expanding Access to Financial Services

The findings of this study indicate that Financial Technology (FinTech) has played a substantial role in expanding access to formal financial services in Egypt. Digital banking platforms, mobile-based financial services, and electronic payment systems have significantly reduced both geographical and cost-related barriers that traditionally constrained access to banking services. As a result, individuals in rural and underserved areas are increasingly able to engage with formal financial institutions without the need for physical bank branches [49].

Empirical evidence supports this conclusion. According to World Bank Global Findex data, the percentage of adults in Egypt with access to a formal financial account increased from approximately 33% in 2017 to nearly 56% in 2022. This improvement coincides with the rapid expansion of digital financial services, particularly mobile wallets and electronic payment applications. Furthermore, data from the Central Bank of Egypt indicate that the number of registered mobile wallet accounts exceeded 30 million by 2023, reflecting a sharp rise in digital financial participation [50].

This expansion is especially significant given Egypt’s long-standing challenges related to income inequality, regional disparities, and uneven banking infrastructure. Historically, limited branch penetration and high transaction costs excluded large segments of the population from formal financial services [51]. FinTech-enabled solutions have mitigated these constraints by offering low-cost, accessible, and user-friendly financial products. These developments are consistent with World Bank

findings, which emphasize that digital finance can accelerate financial inclusion by lowering access barriers in developing economies [52].

## 2.2 Inclusion of Unbanked and Underbanked Populations

The results further demonstrate that FinTech has been instrumental in integrating unbanked and underbanked populations into the formal financial system. Digital wallets, simplified know-your-customer (KYC) procedures, and mobile-based account registration have reduced entry requirements, making financial services more accessible to low-income individuals, informal workers, and small enterprises [53].

Recent estimates suggest that more than 60% of newly opened financial accounts in Egypt over the past five years are linked to digital platforms rather than traditional branch-based banking. This trend highlights the effectiveness of FinTech solutions in reaching population groups that were previously excluded due to documentation requirements or high service costs. Small and micro-enterprises, in particular, have benefited from digital payment tools that facilitate transactions and improve cash flow management [54].

However, the analysis also reveals uneven inclusion outcomes. While urban populations and younger demographics have experienced significant gains from FinTech adoption, rural communities and informal sector workers continue to face obstacles. Limited digital literacy, inconsistent internet connectivity, and lower smartphone penetration restrict the full utilization of digital financial services in certain regions. These disparities underscore the importance of complementary public policies aimed at expanding digital infrastructure and enhancing financial education [55].

The contrast between urban and rural inclusion outcomes is illustrated in Figure 1, which highlights differences in digital financial access and usage across population groups. The figure demonstrates that while urban financial inclusion rates exceed 65%, rural inclusion remains below 45%, indicating persistent structural gaps despite overall progress [56].

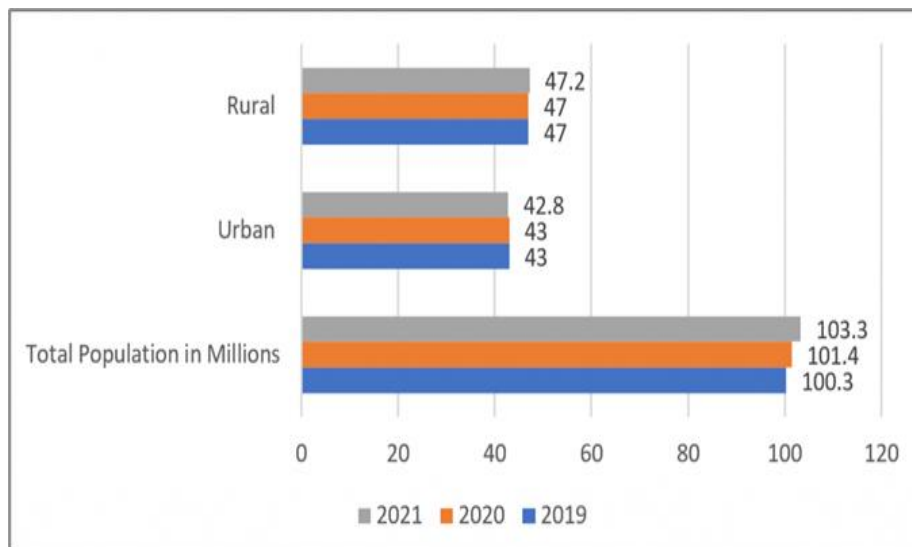


Figure 1. Urban and Rural Population Distribution in Egypt (2019–2021)

## 2.3 Usage and Sustainability of Financial Inclusion

Beyond access, the findings emphasize that effective and sustained usage of financial services is a critical dimension of financial inclusion. Financial inclusion is not solely defined by account ownership but also by the regular and meaningful use

of financial products such as payments, savings, and transfers. The analysis suggests that FinTech has encouraged higher usage rates of digital payments and mobile-based financial tools, contributing to deeper financial engagement [57].

According to IMF estimates, digital payment usage in Egypt increased by more than 70% between 2019 and 2023, reflecting a shift away from cash-based transactions. This increase has strengthened transactional efficiency and enhanced transparency within the financial system. Moreover, digital savings products linked to mobile wallets have contributed to improved financial resilience among low-income users by facilitating small-scale savings [58].

Nevertheless, sustainability remains a key concern. Without adequate financial education, consumer protection frameworks, and cybersecurity safeguards, the long-term effectiveness of FinTech-driven financial inclusion may be compromised. Risks related to fraud, data privacy, and misuse of digital platforms can undermine user trust and limit sustained engagement. These concerns align with IMF perspectives, which emphasize that institutional support and regulatory oversight are essential to maintaining inclusive and resilient digital financial systems [59].

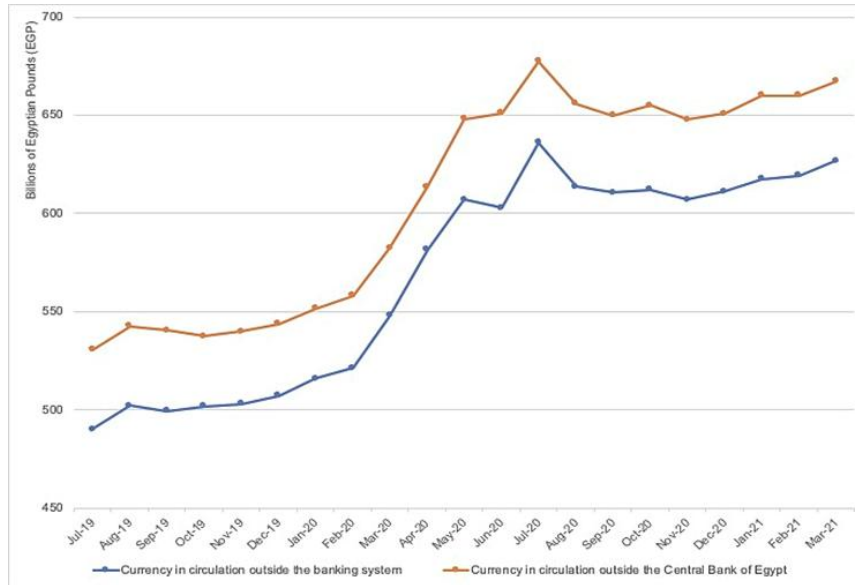
Overall, the findings indicate that while FinTech has significantly advanced financial inclusion in Egypt, sustaining these gains requires a comprehensive approach. Continued investment in digital infrastructure, targeted financial literacy programs, and robust regulatory frameworks are necessary to ensure that FinTech-driven inclusion translates into long-term economic and social benefits [60].

### **3. Regulatory and Institutional Factors Influencing FinTech Performance**

The findings of this study reveal that the effectiveness of Financial Technology (FinTech) in enhancing banking efficiency and financial inclusion in Egypt is closely linked to the regulatory and institutional environment. While technological innovation provides the operational tools necessary for digital transformation, its impact is largely shaped by the quality of regulatory frameworks, institutional capacity, and policy coordination within the financial sector [61].

Over the past decade, regulatory authorities have introduced a series of measures aimed at supporting digital financial services, including electronic payments, mobile wallets, and fintech-enabled banking solutions. These measures have contributed to a gradual but steady increase in FinTech adoption, particularly within the formal banking sector. Regulatory clarity has reduced uncertainty for financial institutions and technology providers, encouraging investment in digital infrastructure and innovation. As a result, FinTech integration within the banking system has expanded alongside improvements in service efficiency and outreach [62].

The relationship between regulatory development and FinTech adoption is illustrated in Figure 2, which presents a line graph showing the parallel growth of digital financial transactions and regulatory support initiatives over time. The figure demonstrates that periods marked by regulatory enhancements are associated with noticeable increases in digital financial activity, suggesting a strong institutional influence on FinTech performance.



**Figure 2. Currency Circulation Outside the Banking System in Egypt (2019–2021)**

Despite these positive developments, the analysis indicates that regulatory and institutional challenges remain. Issues related to data protection, cybersecurity, and consumer rights continue to pose risks to user trust and system stability. Inadequate protection mechanisms may discourage participation in digital financial services, particularly among vulnerable groups and first-time users. These challenges highlight the need for continuous regulatory adaptation to keep pace with rapid technological change [63].

Institutional readiness also plays a decisive role in determining FinTech outcomes. Banks with stronger governance structures, advanced technological capabilities, and skilled human resources are better equipped to adopt and scale digital solutions. In contrast, institutions with limited capacity may struggle to integrate FinTech effectively, potentially widening efficiency gaps within the banking sector [64].

Furthermore, the findings emphasize the importance of coordinated policy efforts. FinTech ecosystems depend on collaboration between regulators, banks, telecommunications providers, and technology firms. Fragmented or inconsistent policies can limit the efficiency and inclusiveness of digital financial services. Therefore, a comprehensive institutional approach is essential for ensuring that FinTech contributes sustainably to banking efficiency and financial inclusion [65].

The overall findings of this study indicate that Financial Technology (FinTech) has played a pivotal role in reshaping both banking efficiency and financial inclusion in Egypt; however, this role has not been automatic or uniform across all dimensions [66]. The analysis demonstrates that the adoption of digital financial solutions has contributed to improved banking performance through cost reduction, faster transaction processing, enhanced service quality, and increased competitive dynamics within the banking sector. These outcomes reflect a structural shift away from traditional branch-based banking models toward greater reliance on digital service delivery channels, although the extent of these efficiency gains varies according to institutional and technological readiness [67].

With regard to financial inclusion, the results confirm that FinTech has expanded access to formal financial services, particularly through digital wallets and electronic payment platforms, enabling segments of the population that were previously excluded to integrate into the formal financial system [68]. Nevertheless, the

discussion reveals that the benefits of financial inclusion remain uneven, with urban populations and technologically connected groups benefiting more substantially than rural communities and informal sector workers. This disparity highlights the persistence of structural gaps related to infrastructure availability and digital capability [69].

The findings further emphasize that sustainable financial inclusion extends beyond mere access to financial services and requires consistent and meaningful usage. Although FinTech has increased the frequency of digital payments and facilitated broader engagement with financial products, limited financial literacy and insufficient consumer protection mechanisms may undermine trust in digital financial services and constrain deeper participation over the long term. This underscores the importance of embedding FinTech within comprehensive policy frameworks that promote financial education and institutional trust [70].

From a regulatory perspective, the results indicate that the institutional and legal environment plays a decisive role in shaping FinTech outcomes. Supportive regulatory measures have facilitated innovation and improved banking efficiency, while remaining challenges—particularly in data protection and cybersecurity—continue to pose risks to the sustainability of digital financial development. These findings highlight the complementary relationship between technological innovation and regulatory governance.

Overall, the discussion suggests that FinTech should be understood as an integral component of a broader financial and institutional transformation process. Its effectiveness depends on coordinated efforts among regulators, banking institutions, and technology providers. By offering an integrated analytical assessment of efficiency, inclusion, and regulation, this study contributes to a deeper understanding of digital finance dynamics in emerging economies and provides a robust foundation for the formulation of inclusive and sustainable financial policies in the Egyptian context.

## CONCLUSION

This study examined the impact of Financial Technology (FinTech) on banking efficiency and financial inclusion in Egypt through an analytical perspective that integrates institutional, regulatory, and operational dimensions. The findings demonstrate that FinTech has become a key driver of transformation within the banking sector, contributing to measurable efficiency gains and broader access to formal financial services. These outcomes reflect a structural shift toward digital service delivery models that reduce costs, accelerate transactions, and enhance service quality. With respect to banking efficiency, the analysis confirms that digital financial solutions such as electronic payments, mobile banking, and online platforms have improved operational performance by lowering transaction costs and increasing processing speed. Competitive pressures associated with FinTech adoption have further incentivized banks to modernize internal processes and invest in digital infrastructure. However, efficiency gains are not uniform across institutions, as differences in technological readiness, governance capacity, and strategic orientation influence the extent of benefits realized. In terms of financial inclusion, the study finds that FinTech has expanded access to formal financial services, particularly for previously excluded and underserved populations. Digital wallets and simplified account-opening procedures have facilitated greater participation in the financial system, supporting national inclusion objectives. Nevertheless, the sustainability and depth of inclusion remain uneven, with persistent disparities between urban and rural areas and among demographic groups. This underscores the importance of addressing digital literacy gaps and infrastructure constraints to ensure equitable outcomes. The conclusions also highlight the

decisive role of regulatory and institutional frameworks in shaping FinTech performance. Supportive and adaptive regulation has enabled innovation while safeguarding financial stability, yet ongoing challenges, especially in data protection, cybersecurity, and consumer rights, require continuous policy attention. Overall, the study concludes that FinTech should be viewed not merely as a technological innovation but as an integral component of a broader financial and institutional transformation. Maximizing its benefits in Egypt depends on coordinated efforts among regulators, financial institutions, and technology providers to promote efficiency, inclusion, and long-term sustainability.

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### Author Contribution

Marwa Zaki contributed to the conceptualization of the study, development of the theoretical framework, literature review, methodology design, data analysis, and drafting of the main sections of the manuscript. Mariam Elbanna contributed to data collection, analytical interpretation of results, preparation of tables and figures, critical revision of the manuscript, and final editing. Both authors reviewed and approved the final version of the manuscript and are jointly responsible for its academic content.

### Conflicts of Interest

The author declares no conflict of interest.

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