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The Dynamic Effect among Institutional quality, Financial Inclusion, and GDP Growth in MENA Countries: Evidence from FMOLS and DOLS Approaches [1]

التأثير الديناميكي بين جودة المؤسسات والشمول المالي ونمو الناتج المحلي الإجمالي في دول الشرق الأوسط وشمال أفريقيا: أدلة من نهجي FMOLS وDOLS

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Abstract

Growth-promoting Policies need to be informed by a deeper understanding of the factors that influence it, particularly institutional quality and financial inclusion. While many studies present findings concerning single relationships between these variables and economic growth, only a limited number analyse the collective impact of all three components. This paper investigates the long run relationships between financial inclusion, institutional quality, and economic growth for a sample of 19 MENA countries. Using FMOLS and DOLS approaches, The findings indicate a positive correlation between institutional quality and economic growth, thereby attesting to the importance of the variable. The series of financial inclusion, on the contrary, does not indicate any significant influence on economic growth. Conversely, the quality of institutions seems to have an adverse impact on financial inclusion. This has very important policy implications: poor institutional frameworks hinder economic growth. Improvement in the business environment and development of transparent institutional and legal systems are definitely required if MENA countries are to reap the benefits of economic growth with financial inclusion. Low current levels, the insufficient expansion of banking services, political instability, restrictive regulations, lack of financial awareness, and cultural skepticism about conventional banking are the major factors behind the low impact of financial inclusion. Improving the efficiency of the banking sector, supporting SMEs, and innovative technologies in digital payments would steer financial inclusion toward stimulating economic growth. A reduction in the cost of financial services, regulation of the informal sector, and a strong promotion of financial culture are desirable by policymakers for the achievement of these goals.

Keywords*:* Financial inclusion, Institutional quality, economic growth, FMOLS, DOLS

الملخص

تحتاج السياسات الداعمة للنمو إلى فهم أعمق للعوامل المؤثرة فيه، لا سيما جودة المؤسسات والشمول المالي. وبينما تقدم العديد من الدراسات نتائج تتعلق بالعلاقات الفردية بين هذه المتغيرات والنمو الاقتصادي، فإن القليل منها فقط يحلل الأثر الجماعي لهذه المكونات الثلاثة. تبحث هذه الدراسة في العلاقات طويلة الأجل بين الشمول المالي وجودة المؤسسات والنمو الاقتصادي لعينة من 19 دولة من دول منطقة الشرق الأوسط وشمال أفريقيا (MENA). باستخدام منهجي FMOLS وDOLS، تشير النتائج إلى وجود علاقة إيجابية بين جودة المؤسسات والنمو الاقتصادي، مما يبرز أهمية هذا المتغير. أما بالنسبة

للشمول المالي، فلا تشير السلسلة إلى أي تأثير ذي دلالة إحصائية على النمو الاقتصادي. وعلى النقيض، يبدو أن جودة المؤسسات تؤثر سلبًا على الشمول المالي.

تحمل هذه النتائج دلالات سياسية هامة: الأطر المؤسسية الضعيفة تعيق النمو الاقتصادي. وبالتالي، يتطلب تحقيق دول منطقة الشرق الأوسط وشمال أفريقيا لفوائد النمو الاقتصادي المترافق مع الشمول المالي تحسين بيئة الأعمال وتطوير أنظمة مؤسسية وقانونية شفافة. تشمل العوامل الرئيسية وراء التأثير المنخفض للشمول المالي المستويات الحالية المنخفضة، والتوسع غير الكافي للخدمات المصرفية، وعدم الاستقرار السياسي، واللوائح التقييدية، وانخفاض الوعي المالي، والشكوك الثقافية تجاه النظام المصرفي التقليدي.

إن تحسين كفاءة القطاع المصرفي، ودعم الشركات الصغيرة والمتوسطة (SMEs) ، وتطوير التقنيات المبتكرة في مجال المدفوعات الرقمية يمكن أن يوجه الشمول المالي نحو تحفيز النمو الاقتصادي. كما أن خفض تكلفة الخدمات المالية، وتنظيم القطاع غير الرسمي، وتعزيز الثقافة المالية بشكل قوي تعتبر أمورًا مرغوبة من قبل صناع السياسات لتحقيق هذه الأهداف.

الكلمات المفتاحية: الشمول المالي، جودة المؤسسات، النمو الاقتصادي، FMOLS، DOLS

1. Introduction

A burgeoning field of research is the examination concerning the association between financial inclusion (FI) and economic growth. FI has been viewed as a vital economic policy by many countries, as it is important for the advancement of the economy. Undoubtedly, initiatives targeting the promotion of FI can foster better access to financial services, encourage consumption and investment, raise levels of income, decrease the inefficiencies in the markets, alleviate issues of disparities and impoverishment, and ultimately enhance the GDP growth. Beck et al. (2007); Lee et al. (2020); Norris et al. (2015).

Emerging circumstances related to the COVID-19 epidemic offer fresh prospects for enhancing the availability of financial services. Given the present circumstances, digital FI has become highly significant as it facilitates the implementation of social distancing measures and further mitigates the financial consequences of the crisis. Enhancing accessibility, particularly through digital financial services (DFS), promotes wider economic engagement, thereby making a significant contribution to GDP growth Yang and Zhang (2020); Klapper and Miller (2021); Uwah et al.(2022).

Furthermore, 7 out of 17 Sustainable Development Goals have been recognized to be facilitated by FI. The G20 has reiterated its dedication to promoting global FI and emphasized its strong commitment to implementing the G20 High-Level Principles for Digital FI. Furthermore, the World Bank Group considers FI to be a pivotal element in diminishing severe poverty and promoting equitable development. According to the United Nations frameworks, promoting FI is a key objective closely tied to fostering enduring, inclusive, and economic growth sustainability, alongside the provision of adequate job opportunities for everyone Nguyen (2020).

In their study, Barajas et al. (2020) underscored the significance of FI indicated that this measure had a positive effect on the country's economy. However, untangling the complex effects in the economy as financial services reach more people and businesses is quite a huge task. Therefore, the current empirical studies aim to investigate the correlation between FI and GDP growth. The influence of institutional quality (IQ) on GDP growth is currently extensively examined in academic literature, as it is seen to be of great significance. Specifically, a robust legal framework reduces the underlying moral hazards of both bank- oriented and market-oriented financial systems, therefore reducing inherent funding limits for borrowers. La Porta et al. (1998). Contemporary research further underscores the notion that an enhancement in IQ significantly contributes to financial stability, facilitate financial development, stimulate investment, and eventually propel economic expansion. In addition, institutions not only support an economy's effective functioning at any point in time but also have to evolve over time to design regulations compatible with the new demands brought forth by the emerging markets and technologies Masuch et al. (2016).

Today, central banks provide priority to FI by focusing on implementing essential rules, procedures, and instruments to enhance the availability of financial services and create a conducive atmosphere for strengthening FI. Neglecting to do so may weaken the impact of FI on economic development, with critical elements like IQ influencing this outcome. Evidence from numerous studies suggests that countries that lack adequate legal structures are unable to successfully leverage the initiatives of financial institutions, resulting in diminished economic growth. Eldomiaty et al. (2020); Feghali et al. (2021); Ha and Nguyen (2023).

Beyond this, FI can also help improve the competitive standing of the MENA region, generating employment opportunities, boosting income, and improving living standards. Establishing new cellphones and payment providers usually

promotes innovation and growth, providing an opportunity for countries in the MENA region to include their underprivileged citizens into the official financial system. Additionally, there is an increasing recognition at the top levels of political leadership that economic growth and inclusive finance are closely connected, defining complementary aspects of the same endeavor.

Nevertheless, in spite of significant endeavors and attempts, and of a progressive rise in FI throughout the last ten years, the countries in the MENA region still trail behind in this aspect compared to other developing nations. As per the Global Findex Database 2021, the MENA region stands out as the most financially excluded region globally. Alarmingly, just 48 percent of those aged 18 and older in the region, excluding high-income economies, have an account, a figure starkly contrasting by 23 percentage points lower than the average for emerging economies.

Furthermore, there is a dearth of empirical studies regarding the correlation between FI and economic growth, especially in the context of emerging countries. The majority of empirical studies are related to developed countries, with few referring to developing countries. Also, studies either theoretical or empirical usually consider FI and institutional factors as distinct causes of economic prosperity. No previous study has conducted panel cointegration tests to examine the aggregate influence of these variables on the GDP growth in the MENA area. The objective of this study is to fill the existing void in the literature, particularly in relation to the current financial crisis, increasing debt levels, and the socio-political turmoil impacting several MENA countries.

Utilizing panel cointegration tests, the study aims to examine the interaction between FI indicators and IQ indicators to determine their combined impact on economic growth in MENA countries.

The successive parts of the paper are organized as follows. Section 2, reviews FI in terms of concept, evolution, and determinants. Section 3 provides a review of the pertinent research on the interdependent connection between FI, economic growth, and IQ. Section 4. a comprehensive summary of the data, statistical insights, and methodological framework. The empirical findings and the accompanying debate are presented in Section 5, while conclusion, recommendations, and future research are presented in Section 6.

2. Financial Inclusion: Concept, Evolution, and Determinants

2.1. The Concept

Although a range of definitions for FI by both scholars and practitioners can be found, it is an umbrella term that holds varying indicators and characteristics.

FI, as delineated by the World Bank, encompasses the accessibility and usage of various financial services by all sectors of society, including institutions and individuals, through formal means. These services encompass savings accounts, payment and transfer services, insurance, financing, and credit. FI also encompasses the development of more appropriate financial services at competitive pricing. Additionally, FI seeks to safeguard the entitlements of financial service consumers, promoting their effective management of their money and saved funds. This aims to prevent certain persons from utilizing unregulated and unofficial routes, which frequently impose exorbitant fees. Demirgüc-Kunt and Klapper (2012) fully put this into quantifiable figures by meaning FI as a percentage of adults above 15 owning their own or joint accounts at formal financial sector entities. Amidžić and Mialou (2014) argue that low-income families and communities should be able to do banking transactions without having to incur out of pocket costs that are unnecessary to the process. FI concept is presented by Babajide et al. as a process by which the number, quality and effectiveness of financial services is increasing so economic opportunities broaden, and livelihoods get improved. Kim (2016) highlighted the idea of FI where people a granted the opportunity to use formal financial services instead of depending on informal alternatives mainly in the midst of depriving financial situations.

The measurement of FI involves evaluating the accessibility of financial services, which represents the supply side, and quantifying their usage and utilization on the demand aspect. Hence, FI seeks to enhance the availability of financial services by focusing on enhancing both the supply and demand sides.

FI, as described in the United Nations report (2016), refers to the reliable and cost-effective provision of financial services that enable the impoverished to participate in the formal economy. FI, as defined by Beck et al (2007), Sarma (2008), and Bruhn and Love (2014), refers to the utilization of formal financial services by individuals who are impoverished, marginalized, and those employed in the informal sector.

2.2. Evolution Towards the Concept of FI

The formulation of the notion of FI is a direct result of the advancement of the theory of financial liberalization in recent decades. Prior to the 1980s, numerous developing nations allocated governmental funds to certain sectors, such as farmers and small enterprises. The use of these funds was organized and specific sectors for their utilization were identified. "Targeted credit" programs assumed that rural poor were unable to afford or bear market interest rates, and thus, they

needed subsidized loans to build capital. To achieve these goals, deposit rates were often subject to regulatory ceilings. As a result of this credit rationing, savings volumes decreased, investment declined, and it did not encourage optimal resource allocation. These measures weakened the performance of financial institutions, and these programs proved not only unsustainable but also failed to improve the access of financial services to the poor, especially in rural areas Elisabeth and Otero (1992).

Moreover, McKinnon and Shaw (1973) noted that financial repression distorted interest rates' role and lowered economic growth rates. They suggested that the ideal solution is to liberalize the restrictions from the financial system and allow the interaction of market forces to stimulate economic growth. A new approach in the late 1980s was directed to the performance of financial institutions and their capacity to deliver services in a sustainable and wide-reaching way. The basic assumptions of this approach were that the poor could generate economic surpluses that would enable them to pay the real cost of loans and increase savings rates. The term "microfinance" became a substitute for "microcredit" to include a range of financial services of loans, deposits, insurance, payments, and money transfers provided by various financial institutions Hannig and Jansen (2010).

Morduch (1999), and Robinson (2001), propose that financial institutions targeting low-income individuals promote beneficial economic growth for the impoverished. Without access to finance, economic growth is adversely affected while poverty is aggravated. Thus, financial sector's concern has turned towards factors that would contribute to what is called financial breadth.

With the growing interest in the financial aspects of alleviating poverty, FI has become a new strategic goal, in the quest to attain economic growth, with other objectives such as financial stability, financial integrity, and financial consumer protection, which tries to balance goals called the I-SIP theory Tomilova and Valenzuela (2018).

2.3. The Determinants of FI

The conventional metric for assessing FI in an economy is the percentage of people that is served by financial institution branches and ATMs, as well as the amounts of deposits and loans provided to households with low incomes and small businesses. Beck and Demirgüc-Kunt (2008). Nevertheless, the presence of financial services does not necessarily imply FI, as individuals may choose to exclude themselves from financial services either because they do not require them or because of religious or cultural considerations; Either due to involuntary

exclusion, which arises as a result of the lack of sufficient income, or due to high lending risks, or due to discrimination against certain population groups on social, religious, or cultural grounds, and finally due to the high cost of financial services Williams et al. (2017).

Within this framework, extensive studies were conducted to investigate the determinants of FI. For instance, by conducting a FI analysis concerning China, Fungáčová and Weill (2015) determined that a positive correlation of high levels of education along with greater economic well-being was translated into better usage of commercial bank accounts and borrowing services. Zins and Weill (2016) examined the determinants of FI in 37 African nations utilizing the Global FI Index database. The findings demonstrate that although gender and age are important factors influencing FI, educational attainment and income level exert a more substantial effect. Abel et al. (2018) identified the elements that affect FI in Zimbabwe. The study confirmed that age, educational level, and insufficient financial understanding positively affect FI. The necessary papers for opening bank accounts and the distance to the nearest access point are inversely related to FI. Uddin et al. (2017) sought to ascertain the determinants affecting FI in Bangladesh from 2005 to 2014. The study distinguished between the supply and demand elements as determinants affecting FI. The supply-side determinants included bank size, efficiency, and interest rates, whereas the demand-side characteristics were reflected in literacy rates and the total dependency ratio.

Similarly, Soumare et al. (2016) did a study on the determinants of FI in WCA nations, employing the FI database. The study emphasized that, alongside gender, age, and educational attainment, marital status, family size, and faith in financial institutions are the key determinants affecting access to formal finance in these nations. Olaniyi and Adeoye (2016) investigated the determinants of FI in a sample of 15 African nations. Their findings indicated that the extent of FI in the analyzed nations was affected by various factors, including per capita income, money supply as a percentage of GDP, illiteracy rates, and the prevalence of Islamic banking operations.

According to Chithra and Selvam (2013) among the socio-economic determinants and banking variables, population, income level, illiteracy rates, deposit penetration and credit penetration are the significant determinants of FI. Akudugu (2013) analysed the factors that determine the level of FI in Ghana. The findings proved the fact that variables like age, illiteracy, wealth magnitude, ownership of documentation necessary for bank account opening, distance to the nearest reach, lack of confidence in traditional financial services, poverty status,

social networks, and use of social media are some important predictors of FI in Ghana.

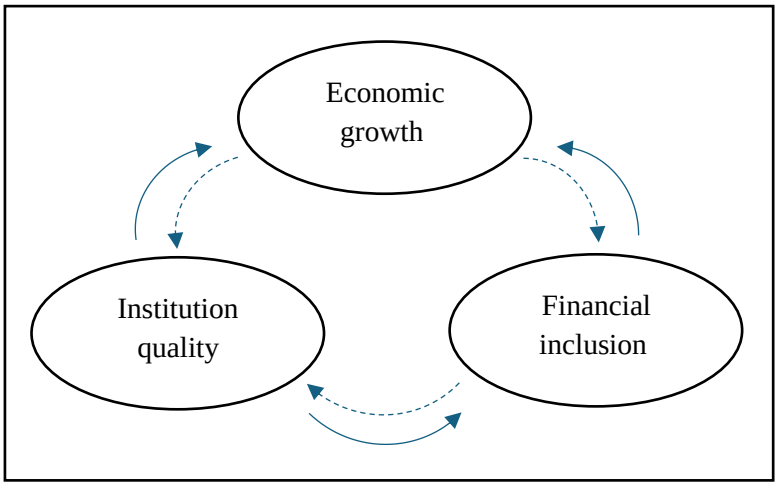
Mas and Morawczynski (2019), researched the use of DFS to overcome some of the conventional deterrents to access among low-income and rural poor populations. The findings indicated that the use of DFS could significantly enhance FI in such categories. Technologies like mobile banking and electronic wallets have, therefore, evaded most of the conventional deterrents which people used to face concerning accessibility to finances, like having banks around or the need for documentation. In addition, the issue of gender inequalities in FI has gained increasing attention in recent scholarship. Individual studies have looked into factors impinging on women's FI, relating to social norms, legal regimes, and access to resources (World Bank 2020). In that direction, Demirgüc-Kunt et al. (2021) draw on the need to pursue gender-sensitive policies and interventions with a view to addressing and reducing the gap in financial access between the genders. Evidence from various studies shows that women are more deprived than their male counterparts in terms of access to formal financial services, aside from other constraints such as legal restrictions and social norms. Policies and related interventions that relate to the gaps in the response of FI must be responsive to the needs of women. Cull et al. (2020) evaluated the effects of the COVID-19 pandemic on FI, focusing on marginal groups in light of using DFS for giving humanitarian help and support. They realized how the pandemic accelerated inequities both in the use and access to finance for the general populace and the most vulnerable groups. However, DFS played a major role in the cushioning effect of people from the pandemic and is very instrumental during the crisis. Besides, changing analytics of data and access to huge quantities of information create new opportunities both for the measurement and expansion of FI. Chen and Xu (2021), review all sorts of alternative data sources, including phone use and social network data, to credit score for the purposes of extending credit facilities to marginal groups. They find that sources of data identified as alternative-such as smartphone activity and social media information-are especially valid in assessing creditworthiness and in extending access to financial services. Big data analytics can thus introduce improvement in credit evaluation processes, hence reaching out with financial services to less privileged sections of society.

It is clear from previous studies the lack of consensus on the determinants of FI and that these determinants differ from one country to another. However, according to Sarma (2016), widespread penetration into society and usage of

banking services credit occurs within any financial system when access points to bank transactions are readily available. Accordingly, we employ three metrics to assess the availability of conventional financial services as substitutes for the FI index: the ATMs (per 100,000 adults), the commercial bank branches (per 100,000 adults), and the domestic loan to private sector ratio to GDP.

3. Literature Review

The following circular flow illustrates the theoretical framework of the possible interaction relation between the three variables under consideration. In the next section, we will discuss this interactive relationship in some detail by reviewing the relevant previous studies.



3.1. The Nexus between FI and Economic Growth

Economic theory posits four hypotheses to explain the correlation between financial development and economic growth. First, the supply-leading hypothesis by Schumpeter (1912) indicates that financial institutions can mobilize domestic savings, enhance capital accumulation, and transfer resources to sectors that promote long-term growth. Secondly, the demand-pulling hypothesis Robinson (1952), which states that the expansion of the real economy will lead to an increase in demand for financial services. Third, The feedback hypothesis, introduced by Patrick (1966), posits that financial development and economic growth mutually impact one another. Fourth, the independent hypothesis Lucas (1988) which argues that academics tend to massively overstate the significance of financial variables in shaping economic growth.

Many studies confirm that FI has a positive impact on economic development. In contrast, financial exclusion, specifically the absence of access to financing,

can result in entrapment in poverty and exacerbate inequality Aghion and Bolton (1997); Banerjee and Andrew (1993); Galor and Zeira (1993).

Demirgüc-Kunt et al (2017) contend that providing marginalized individuals with access to the official financial system and sufficient credit will empower them to invest in education and business enterprises. This, in turn, can lead to long-term improvements in economic growth and productivity. The study conducted by Mohieldin et al. (2011) confirmed that approximately 30% of the variability in poverty rate changes between governments can be ascribed to differences in the degree of financial development.

Furthermore, apart from the immediate economic advantages, the advancement of the financial system may give birth to two further improvements. First and foremost, FI can enhance the efficacy and productivity of executing government payments through social security systems, which are crucial for the welfare of numerous impoverished individuals. Furthermore, the implementation of financial innovation might result in reduced transaction costs and enhanced availability of diverse financial resources, enabling new private sector institutions to integrate into the formal financial system Cull et al. (2014).

In addition to the above, numerous studies examining the correlation between finance and growth have yielded inconclusive results. Where Kaminsky and Schmukler (2003) and Loayza and Ranciere (2006) Loayza and Ranciere (2006) affirmed that finance positively influences long-term GDP growth. While this relationship is non-linear if the volume of financing exceeds 100% of GDP.

From another perspective, Ozili et al. (2023) examined this relationship in countries with different religious and secular orientations. Their analysis, which examined data from 23 countries from 2006 to 2020, revealed that in secular nations, the proliferation of bank branches and increases in web usage positively influence economic growth. Nevertheless, in these secular nations, a large density of ATMs and increased internet usage were seen to have an adverse impact on economic growth. Bank branch outreach-driven FI has been shown to be successful in stimulating economic growth in impoverished religious countries.

On the other hand, empirical evidence on the impact of FI on economic growth and poverty reduction has varied depending on the type of financial service in question. First, with regard to access to basic payments and savings, the results confirm that providing individuals, especially those among poor households, with savings accounts has supportive effects on increasing the amount of savings Aportela (1999); Ashraf et al. (2006), fosters profitable investment Dupas and Robinson (2013), as well as boosts consumption, income, and preventive health

investment Ashraf et al. (2006); Dupas and Robinson (2013), and Women Empowerment Ashraf et al. (2010); Suresh and Dutta (2018).

Second, as economic theory indicates that improving the availability of credit might have a beneficial impact on poverty reduction. Access to credit will also ensure a balance between consumer spending and saving. Moreover, empirical evidence substantiates the concept that improved availability of financing fosters entrepreneurial endeavors by diminishing obstacles to investment and facilitating the growth of small enterprises beyond their original limitations. Beck et al. (2007); Banerjee and Duflo (2007). However, Emara and El Said (2021) emphasize that achieving these results is only possible via the existence of monitoring and regulatory systems that support the ideals of judicial independence and law enforcement, contract enforcement, corruption prevention, and institutional stability.

Third, Furthermore, multiple research investigations have empirically recorded the impact of microfinance on the overall welfare and financial resources of families. This encompasses beneficial effects on consumption, self-reliance, as well as dimensions of wellness and social welfare Mader (2016); Kaboski and Towsend (2011), Karlan and Zinman (2010), Khander (2005).

3.2. The Correlation between IQ and Economic Growth

Theoretical literature presents persuasive arguments outlining the crucial significance of IQ in stimulating economic growth. Yet, empirical research frequently encounters difficulties in unraveling the connection of causality between institutions and growth because of endogeneity and measurement problems. Nevertheless, the theoretical insights obtained from many economic viewpoints emphasize the need to promote IQ as a fundamental element of sustained economic growth.

Neoclassical growth theory suggests that institutions are fundamental determinants of economic growth. Institutions shape incentives for investment, innovation, and productivity enhancement. Economists such as Douglass North emphasized the critical role of secure property rights and the enforcement of contracts in fostering capital accumulation and technological progress North (1990). While Property rights theory posits that well-defined and enforceable property rights are essential for fostering investment and economic development. Institutions that safeguard property rights provide individuals and businesses with the confidence to engage in productive activities, leading to capital formation and economic growth Acemoglu et al. (2001). On the other hand, Institutional complementarity theory suggests that the effectiveness of institutions depends not

only on their individual quality but also on their compatibility and synergy with other institutional arrangements. Well-functioning institutions tend to reinforce each other, creating a conducive environment for sustained economic growth Hall and Soskice (2001). In addition, dynamic theories of institutional change underscore the evolutionary nature of institutions and their impact on economic outcomes. Scholars argue that IQ can evolve over time through processes of endogenous institutional change, with significant implications for long-term growth trajectories Acemoglu et al. (2005).

The theoretical literature also demonstrates the subsequent effect of IQ on GDP growth through FDI, trade openness and liberalization, and effective resources allocations Nguyen (2020); Rachdi et al (2018); Saidi et al. (2017), and Abdulahi et al (2019).

The findings from empirical research predominantly demonstrate a substantial correlation between quality of institutions and GDP growth. The study conducted by Cherif and Dreger (2016) examined a panel of 15 MENA nations from 1990 to 2007 and found that IQ significantly contributes to improving financial development, which in turn fosters higher GDP growth. Additionally, they advocated for the implementation of improved legal frameworks and anti-corruption measures as essential tactics for expediting genuine economic integration. Besides, An analysis by Rachdi et al. (2018) elucidated the interplay of financial liberalization, economic growth, and the quality of institutions. They analyzed data from 15 countries from the MENA region from 2000 to 2013. The study emphasises that economic growth is favorably influenced only by elements such as law and order and accountability in democracy. In his study, Abubakar (2020) establishes a positive relationship between economic growth and IQ, namely contract-intensive money, as well as a robust governance index. Nevertheless, the influence of the latter seems to be marginal. Emara and Rebolledo (2021) analyze the correlation between economic freedom and economic production in the Asia-Pacific (APAC) and Organisation for Economic Cooperation and Development (OECD) countries. The analysis reveals that economic freedom positively influences GDP growth across each country examined. The research undertaken by Matallah and Benlahcene (2021) examines the influence of the quality of governmental services on the economic development of 15 MENA countries between 1996 and 2018. The findings suggests that the efficacy of the government has a substantial and beneficial influence on the economic growth of these countries. To investigate the relationship between trade openness and inclusive economic growth in Sub-

Saharan Africa (SSA), Agyei and Idan (2022) analyse the impact of IQ. Their results suggest that institutions are essential in enhancing the robust correlation between trade openness and inclusive growth in the region. dada and Abanikanda (2022) examine IQ moderates Nigeria's hypothesis of growth driven by foreign direct investment. Their findings highlight a significant interaction between IQ and foreign direct investment, which positively impacts economic growth. This underscores the essential function of institutions in enhancing absorptive capacity. Da Veiga et al. (2022) analyze the essential determinants of economic development in African countries, discovering a positive correlation among institutional, economic, and social factors, suggesting that countries with robust institutional indicators also exhibit satisfactory economic and social performance, and vice versa, although this association is less precise in 2014 compared to 1996.

3.3. The Nexus between IQ and FI

While IQ represents a pivotal role it plays in facilitating FI, it is surprisingly an under-explored branch of study. According to Muriu (2020), it is possible to delineate a theoretical framework of the effect of IQ on FI from theories explaining financial development. The literature indicates that institutional reforms aimed at preventing arbitrary power usage, enabling the government to devise and execute effective policies and regulations that foster private sector growth, maintaining an efficiently functioning political system, minimizing major disruptions or changes over a long period, and legal traditions are factors that show significant effects on financial development. However, caution should be exercised with this interpretation, as financial development does not exactly translate into FI.

In accordance with North (1990) neoclassical theory fails to elucidate economic growth as it just emphasizes market operations while neglecting the temporal evolution of these markets and the significance of institutions. North posits that the theory is predicated on the assumption of stability in the desires of economic agents and the rationality of their decisions; nevertheless, this assumption is implausible. North contends that individuals encounter rare choices and inadequate knowledge, rendering them incapable of regularly making logical judgments without institutional assistance. The existence of robust institutions influences individuals' capacity to adjust to economic fluctuations, hence improving market performance over time. These institutions are pivotal in promoting FI by fostering a conducive financial environment that enhances individuals' access to financial services, hence advancing FI and sustainable economic development Nsiah and Tweneboah, (2023).

The theory of legal institutions suggests that in countries with robust legal systems, there is an underlying presumption that agreements between lenders and borrowers be upheld. This cultivates a sense of assurance among individuals to place their assets in financial institutions and motivates banks to provide loans to smaller, potentially less resilient clients. Therefore, the existence of strong consumer safeguards encourages more ownership of bank accounts, ultimately advancing financial inclusiveness Muriu (2020). In a comparable vein effective regulation should facilitate the use of modern financial systems such as mobile banking, branchless banking, and ATM usage. In addition to lowering transaction costs, these innovations enhance the availability of financial services and enhance the efficacy of legislation in promoting FI. Beck (2016). In addition, a high IQ greatly enhances access to money by lowering the costs associated with information and transactions. On the contrary, inadequate institutional conditions might limit access to financial resources. Levine (1997) argues that political instability undermines FI because ineffective governments are unable of maintaining suitable initiatives for savings and efficient operation of financial systems. Consequently, the individuals lack motivation to partake in financial activity with efficiency.

In addition, Acemoglu et al. (2001) emphasized the significance of IQ, particularly contrasting extractive institutions with inclusive ones. They examined nations with fragile political frameworks and posited that those with inclusive institutions tend to achieve superior economic outcomes. Conversely, underdeveloped institutions can lead to market exclusion, inefficiency, and resource misallocation. Similarly, Aracil et al. (2022) underscored how financial exclusion, exacerbated by institutional weaknesses such as pervasive corruption, might drive impoverished households to resort to informal lending avenues, despite higher expenses and increased risk, thereby impeding accessibility to official financial avenues.

Allen et al. (2016) argued over different factors associated with FI at micro and macro levels, considering the poor, rural people, women, and girls. Such findings indicate that the higher the inclusiveness in finance, the higher it is related to low cost of the accounts, greater availability of financial intermediaries, high legal powers, and socio political stability. After all, not every program trying to foster inclusion does not exactly have the same effectiveness regarding the peculiar features of the targeted group. Saydaliyev et al. (2020) also use a dynamic panel data method when investigating the linkages of the inflows of remittances and FI targeting high receiving developing countries between the years 2011 and 2018.

They identify that the remittances boosting FI are related to higher IQ. Eldomiaty et al. (2020) depend on the Global Findex database of FI indicators flowing in for the years 2011, 2014, and 2017. It advances arguments on behalf of the impact which institution quality has on FI. Their method is to use WGIs as substitutes for measurements of the impact of governmental institutions. Against this background, the impact of the four major monetary indicators like 'borrowing from financial institutions', 'saving at financial institutions', and ownership of 'credit and debit cards' has been estimated with the assistance of panel data analysis and fixed generalized linear model. Controlling corruption, rule of law, government effectiveness, political stability, and Voice, empowerment and accountability turned out to be the significant predictors in determining FI. For instance, Muriu (2020) assessed the impact of the institutional features of 125 countries regarding account ownership between the years 2004-2015. He estimated the classical regression model based on one proxy for FI and three proxies showing the quality of the institution on panel data with fixed effects. These have been pointed out that the rule of law, heightened transparency in the legal system, judiciousness in court procedures, and lastly, good governance has made for increased rates of FI. In this regard, Nkoa and Song (2020) have conducted a study on the impact of IQ on FI. The authors' data were collected for 51 African countries for the period ranging from 2004 to 2018 and were estimated by the GMM method. The findings of this research presented a positive relationship between IQ and FI that improved FI, access, and usage in Africa. The authors have reiterated the most important requirement for improvement in the quality of financial institutions for the assurance of the development of revenue-generating activities in the region.

3.4. Research Gap

While past studies indeed embark on an in-depth investigation of the exact relationship existing between FI and economic growth and that which exists between intelligence quotient and economic growth, despite such valuable contributions, there is still a yawning gap in the study regarding how FI and intellectual capital interact in their influence on economic growth, especially in developing nations like the MENA region. Whereas FI has taken an ever more central space in international economic strategies-in fact, this was underlined in commitments from the G20, with frameworks given by the World Bank and UN-the MENA region still sustains deficits in this regard, its Global Findex Database 2021 showing only 48 percent access to financial accounts in the populace. Furthermore, the research also focuses on developed nations, which keeps the

literature incomplete with regard to how FI and intellectual capital jointly determine economic outcomes, especially in emerging regions such as the MENA region.

Most previous research has analyzed either FI or IQ in isolation, neglecting their collective influence on GDP growth. Furthermore, the distinct socio-political and economic issues encountered by MENA nations, such as the ongoing financial crises, rising debt levels, and regional instability, have not been sufficiently examined concerning FI and IQ. No prior research has utilized panel cointegration tests to examine the cumulative impact of FI and IQ on economic growth within the MENA area. This study aims to address this gap by examining the combined impact of FI and IQ on GDP growth in MENA countries, thereby enhancing the knowledge of their interaction and contribution to economic development.

4. Data, Statistical Insights, and Methodological Framework

4.1. Dataset Overview and Descriptive Analysis

This research undertakes an analysis using a dataset including 19 MENA countries to investigate the correlation between FI, IQ, and GDP growth. Dataset covering the period from 1997 to 2022 were gathered from the databases of the World Bank. The list of countries is provided in the appendix.

GDP per capita proxied economic growth in tandem with production theory. The quality of the institution is measured using Institutional Quality Index, which aggregates six major indicators that have been normalized to have a mean of zero and a standard deviation of one and range in a scale approximately from -2.5 to 2.5. Higher values indicate better governance. The index is constructed by using Principal Component Analysis (PCA). In choosing the WGI database, the primary consideration is its copious data availability.

Following established literature (e.g., Muye and Muye, 2017; Olaniyi, 2022; Olaniyi and Oladeji, 2021), the study recognizes the interdependence of these indicators in reflecting institutional development and aggregates them to form the IQ index.

Descriptive analysis for the variables is outlined in Table 1, detailing the mean, standard deviation, minimum, and maximum values. The average level of FI among the MENA countries is found to be low, with a mean of 0.391. The significant variation in FI, reflected by a range from 0.173 to 0.945 and a standard deviation of 0.289, indicates substantial differences among the countries studied.

Table 1. Descriptive statistical data

Variable	Obs.	Min	Max	Mean	SD
FI	480	0.173	0.945	0.391	0.289
IQ	480	-1.877	0.825	-0.350	0.224
GDP	480	-62.425	96.956	0.725	8.787

Despite numerous macroeconomic reforms to make the institutional setting of the market better, some institutional deficiencies still show up in the IQ indicators. The average IQ index stands at about -0.350, showing the generally weak institutional frameworks across the region during the period under study. Besides, there is a wide variation between countries, as captured by the high standard deviation of 0.224. The average economic growth for the panel stands at about 0.725%, ranging from -64.425% to 96.956%, reflecting significant variation in economic performance within the region.

4.2. Methodologies

4.2.1 Model Specification

We utilize the following econometric models to analyze the correlation between FI, IQ, and GDP growth:

Model 1:

$$EG_{it} = a_{it} + \beta_i t + \eta_{1i} FI_{it} + \eta_{2i} IQ_{it} + \epsilon_t \quad (1)$$

Model 2:

$$FI_{it} = a_{it} + \beta_i t + \eta_{1i} EG_{it} + \eta_{2i} IQ_{it} + \epsilon_t \quad (2)$$

Model 3:

$$IQ_{it} = a_{it} + \beta_i t + \eta_{1i} FI_{it} + \eta_{2i} EG_{it} + \epsilon_t \quad (3)$$

The three models are employed to investigate the long-term correlations among the discussed variables. Where, a_i represents the effects peculiar to each country, β_i signifies the deterministic time trend, whereas ϵ_t is indicates the residual term, which accounts for short-term departures from the long-run relationship. The indices i and t denote the nation and time period, respectively.

4.2.2 Levin, Lin, & Chu (LLC) panel unit root Test

The LLC test is applicable to a balanced panel set, where the autoregressive coefficient is presumed to be consistent over the whole panel. The examination is based on the ADF test.

$$\Delta y_{it} = \alpha_0 + \partial_i y_{i,t-1} + \sum_{j=1}^{p_i} \varkappa_{it} \Upsilon_{it} \Delta y_{i,t-j} - \mu \vartheta_{it} + \epsilon_{it} \qquad (4)$$

The differential term is assigned a lag order ∂_i, which is permitted to vary among individuals. The chosen sequence is to guarantee the consistent lack of correlation among the residuals across time. Every variable in the model is denoted as y_{it} . The deterministic component, expressed as ϑ_{it}, may represent a fixed effect or a temporal trend. The LLC approach comprises three consecutive phases. An ADF test is carried out with regard to every cross-section in the panel. In the subsequent step, residuals are derived from two supplementary regressions

$$e_{it} = \Delta y_{it} - \sum_{j=1}^{\partial_i} \varkappa_{it} \Upsilon_{it} \Delta y_{i,t-j} - \mu \vartheta_{it} \qquad (5)$$

$$\pi_{i,t-1} = y_{it-1} - \sum_{j=1}^{\partial_i} \varkappa_{it} \Upsilon_{it} \Delta y_{i,t-j} - \mu \vartheta_{it} \qquad (6)$$

To account for heterogeneity among cross sections, the residuals are weighted by the regression standard error, resulting in $\hat{e}_{it}$ and $\hat{\pi}_{i,t-1}$ as:

$$\hat{e}_{it} = \frac{e_{it}}{\hat{\sigma}\epsilon_i}$$

$$\hat{\pi}_{i,t-1} = \frac{\pi_{i,t-1}}{\hat{\sigma}\epsilon_i}$$

The standard error for each Augmented Dickey-Fuller (ADF) test is denoted as $\hat{\sigma}$. The pooled t-statistic is obtained by calculating the pooled Ordinary OLS regression equation $\hat{e}_{it} = \partial \hat{\pi}_{i,t-1} + \hat{\epsilon}_{it}$. This t-statistic is then compared to critical values to determine whether to accept or reject the null hypothesis. The null hypothesis for the LLC test posits that all cross-sectional units contain a unit root, where the alternative hypothesis proposes that every time series is stationary.

4.2.3 Im, Pesaran and Shin (IPS) panel unit root test:

In the case when the error term u of the model (1.1) is serially correlated, possibly with different serial correlation patterns across cross-sectional units, and the number of time series observations (T) and the number of groups or

individuals (*N*) is sufficiently large, IPS considers the mean of (A)DF statistics computed for each cross-section unit in the panel instead of pooling the data. By substituting the value of u into model (1.1) and taking into account a linear trend for each of the N cross-section units, we obtain:

$$\Delta y_{it} = \alpha_i + \pi_i y_{it-1} + \sum_{j=1}^{p_i} \beta_i \Delta y_{i,t-j} + e_{it} \qquad (7)$$

Where, i = 1,2,3,…, N , t = 1,2,…,T. π_i is the number of lags. e_{it} is the disturbance term. The IPS test hypothesis is:

The null hypothesis is :

$$H_0 : \pi_i = 0 \quad \text{for all } i$$

In contrast to the alternative hypothesis:

$$H_1 : \begin{cases} \pi_i < 0 \quad \text{for all } i = 1,2 \dots, N_1 \\ \pi_i = 0 \text{ for all } i = N_{1+1}, N_{1+2}, \dots, N \end{cases} \quad with\ 0 < N_1 \leq N$$

IPS The formula for computing test-statistics is:

$$t_{IPS} = \frac{\sqrt{N}\,(\bar{t} - E(\bar{t}))}{\sqrt{var(\bar{t})}}$$

IPS tabulates and created the values of $E(\bar{t})$ and $var(\bar{t})$ through simulations.

4.3 Pedroni Cointegration test

After performing the panel unit root test and confirming the integration order of the variables, the subsequent step is to assess whether there is co-integration among them. This involves examining if a long-term stochastic trend is present across the variables. To determine the existence of such a long-term relationship, a variety of tests based on residuals and likelihood can be utilized. In this analysis, panel cointegration tests by Pedroni (1999) and Kao (1999) were employed.

The Pedroni test, which is residual based, allows for considerable heterogeneity among the variables. The test formulates the null hypothesis of no cointegration; rejection of this null hypothesis indicates that the variables are co-integrated. Additionally, the Pedroni test provides suitable critical values for complex regressions Pedroni (1999).

4.4 Panel FMOLS and DOLS approaches

Considerably, it is well documented that the application of ordinary least squares to estimate long-run parameters in integrated panels is biased and

inefficient. In this regard, Kao and Chiang (1999) and Phillips and Moon (1999) proposed the dynamic ordinary least squares estimator. The fully modified ordinary least squares approach was suggested for estimating long-run relationships by Pedroni, (2000). FMOLS represents the nonparametric estimation method that embodies two common problems faced by most OLS estimators: endogeneity and serial correlation. Again, it assumes that all the variables are integrated of the same order. DOLS, in contrast, adapts these techniques for use with panel data, building on the time series methodologies introduced by Saikkonen (1991) and Stock and Watson (1993).

5 Results and Interpretation

5.1. Results of the panel unit root tests

In fact, the two variables analyzed should be stationarity for having valid cointegration. Therefore, the unit root properties of the variables analyzed should be checked. LLC and IPS tests are some first generation panel unit root tests that have been used in this study. Table (2) presents the results of these tests. The results indicate that all the variables reject the null hypothesis of non-stationarity at first difference. This, therefore, allows an investigation of the possibility of cointegration between the variables. To this end, the study conducts both Pedroni and Kao panel cointegration tests, the results of which are summarized in Table (3).

In each model, the Pedroni tests indicate that the null hypothesis of no cointegration can be rejected, supporting the alternative hypothesis that cointegration is present. Additionally, the Kao test consistently confirms the presence of long-term cointegration relationships among the three variables. Therefore, it is suitable to advance with the panel FMOLS and DOLS analyses for these models.

Table 2. LLC and IPS panel unit root tests

Variable	LLC		IPS		
	LVL	1st Diff	LVL	1st Diff	Remarks
FI	-0.770	-15.366*	-0.397	-14.887*	I(1)
	(0.107)	(0.000)	(0.225)	(0.000)	
IQ	-0.541	-7.662*	-0.620	-5.597*	I(1)
	(0.216)	(0.000)	(0.148)	(0.000)	
GDP	-1.311	-9.294*	-5.381	-12.912*	I(1)
	(0.174)	(0.000)	(0.114)	(0.000)	

Note: * represents 1% significance level.

Table 3. Cointegration tests for panels

Cointegration test with Pedroni residual			
Models	**Model 1: GDP-FI-IQ**	**Model 2: FI-GDP-IQ**	**Model 3: IQ-FI-GDP**
within-dimension			
Panel v-statistic	5.875*	0.893	0.120
	(0.000)	(0.374)	(0.502)
Panel rho-statistic	-7.255*	-3.980*	-1.101*
	(0.000)	(0.000)	(0.000)
Panel pp-statistic	-19.941*	-5.434*	-1.692*
	(0.000)	(0.000)	(0.000)
Panel ADF-statistic	-12.357*	-6.353*	-2.016**
	(0.000)	(0.000)	(0.035)
between-dimension			
Group rho-statistic	-5.079*	-4.334*	-2.420*
	(0.000)	(0.000)	(0.000)
Group PP- statistic	-10.839*	-8.917*	-4.874*
	(0.000)	(0.000)	(0.000)
Group ADF-statistic	-6.497*	-5.662*	-3.720*
	(0.000)	(0.000)	(0.000)
Cointegration Test with Kao residual			
	t-statistic	t-statistic	t-statistic
ADF	-1.753*	-1.294**	-1.381*
	(0.000)	(0.028)	(0.000)

Note: *, **, and *** expresses significant levels at 1%, 5%, and 10% respectively.

5.2. Panel FMOLS and DOLS results

Table 4 displays the results obtained from the FMOLS and DOLS estimations across the three models. It proves that the long-run effect of financial inclusion on economic growth, for the two methods, is positive and statistically insignificant, which infers that FI does not contribute significantly to economic growth in the selected 19 MENA countries in the long run. The long-run relationship shows that FI and IQ are inversely related, implying that a higher quality of institution does not enhance the effectiveness of FI on economic growth in the MENA region. The results were consistently estimated through both FMOLS and DOLS techniques. Insufficient contribution of FI to growth and the negative impact of IQ on FI are thus explained by the fact that numerous countries of the MENA region still have not reached an institutional threshold which FI would positively contribute to growth. In fact, FI is expected to be growth-enhancing only for countries with strong institutional frameworks. These findings

align with Pearce's observation that inadequate regulations, insufficient supervisory skills, and weak institutional structures impede financial access in the MENA region Pearce, (2011). In nations where market liberalization has begun, the lack of robust political and economic institutions for financial market oversight has contributed to the region's lower level of FI compared to other areas globally. Also, the high prevalence of informal economies in the MENA region further explains the small impact that FI has on economic growth. While the formal economy is well-documented and captured, there is also an equally large informal sector that is not as well understood. The current high taxation, insufficient financial infrastructure, incomplete social benefits, and low competition in the credit markets-all particular features of the present regulatory environment-offer little incentive for the small firm to make the shift from the informal into the formal sector, all of which encourages them to resort to informal financing. Besides, the banking system in MENA remains underdeveloped with regard to providing financial services supporting economic growth. No financial benefits from the bank-based system have trickled down to the poorer segments of the population. Generally, The financial sectors in MENA countries are generally characterized by low size, insufficient diversification, and underdevelopment. This is seen in metrics like bank credit, access to bank accounts, the quantity of financial institutions, and the accessibility of payment systems. Moreover, elevated loan spreads coupled with diminished long-term interest rates fail to incentivize savings. The World Bank report "Doing Business" in 2020 pointed out that access to credit is more difficult in the MENA region compared to other parts of the world, which exacerbates poverty by keeping the poor in the informal sector and represses their social inclusion.

In the same argument Hamadi and Awdeh (2020); Emara and El Said (2021) asserted that the MENA area experiences persistent challenges related to significant bank concentration, leading to limited financial accessibility. Indeed, they confirm that this specific location has one of the highest bank/loan concentration ratios globally. Consequently, there is a manifest bias in lending that favors big corporations while disregarding smaller and younger ones. Furthermore, they added that the countries have maintained a quite low level of FI. Consequently, at least half of the adult population in Jordan, Morocco, Tunisia, and Egypt lack sufficient access to financial services, leading them to resort to informal credit or savings options. These results corroborate the observations made by Da Veiga et al. (2022), who posit that nations with well-established financial systems experience superior long-term economic growth in

comparison to countries with a superficial financial system, such as Yemen, Syria, Algeria, and Libya. This deficiency in FI sustains poverty and income disparity among the overall population. Despite the numerous efforts and initiatives, countries in the MENA region continue to be among the developing regions that continue to struggle with FI.

Table 4. Results from FMOLS and DOLS estimation

	Dependent variables					
	GDP		**FI**		**IQ**	
Independent variables	**FMOLS**	**DOLS**	**FMOLS**	**DOLS**	**FMOLS**	**DOLS**
within-dimension						
FI	1.268	1.876			-0.338**	-0.072**
	(1.039)	(1.118)			(-2.380)	(-2.011)
IQ	1.597*	2.052*	-0.086*	-0.052*		
	(3.316)	(2.877)	(-4.226)	(-3.135)		
GDP			0.011***	0.035*	0.008	0.010
			(1.945)	(5.542)	(1.107)	(1.065)
between-dimension						
FI	1.269	1.877			-0.167*	-0.064*
	(1.019)	(1.007)			(-4.139)	(-3.611)
IQ	1.598*	2.053**	-0.085*	-0.052*		
	(2.853)	(2.008)	(-5.364)	(-4.837)		
GDP			0.010**	0.034*	0.007	0.009
			(2.189)	(5.281)	(0.573)	(0.821)

Note: *, **, and *** expresses significant levels at 1%, 5%, and 10% respectively. (.) denotes t-statistics.

Finally, the FMOLS and DOLS models show that IQ has a statistically significant and positive effect on the long run economic growth. The coefficients, ranging from 1.597 to 1.598, and 2.052 to 2.053 for the two models respectively, suggesting that a 1% increase in the IQ could increase economic growth by about 1.597 to 1.598%, and about 2.052 to 2.053% for FMOLS and DOLS respectively. On the other hand, the inverse relationship between the two variables was very weak, and it was insignificant. The findings in the current study support those presented by Abuzayed and Fayoumi (2016); Emara and Chiu (2016), and Rachdi et al. (2018) who also reported a positive connection between GDP growth and IQ, highlighting the significance of institutional improvements for economic development in MENA countries. The findings reinforce the notion that enhancing governance—through reducing corruption, strengthening the legal

regulations, decreasing political turmoil, minimizing domestic violence, and fostering government accountability, is essential for economic development in the MENA area.

6. Conclusion, Recommendations, and Further Research

6.1. Conclusion

The paper contributes to extant literature by conducting a long-run relationship analysis between FI, IQ, and economic growth in 19 MENA nations. The results are useful reading that fills the gap in the literature. This, in brief, brings out the key positive relationship between IQ and GDP growth, and emphasizes the key role robust institutional frameworks play in promoting economic development. That is, IQ improvement is relevant for sustained growth in the MENA region. On the other hand, the research findings showed that FI does not have any significant direct impacts on economic growth within the region, against popular beliefs in its importance regarding economic development. Amazingly, IQ has a negative effect on FI. This might have shown some kind of structural issue in the institutional framework which acts as a barrier to deeper FI. The negative association between IQ and FI indicates that institutional weaknesses could be a barrier to FI, and consequently to financial-inclusion-based economic development policies.

One reason why FI does not have a broader impact on growth is due to currently low levels of FI in many MENA countries. The banking infrastructure in the region suggests that, despite the expansion of bank branches and microfinance organizations, little impact has been achieved regarding financial exclusion. The situation is still exacerbated by political instability, strict controls, and a lack of public awareness regarding financial products. The cultural traits in the region, particularly Islamic views on financing, are instrumental in the financial behavior of the region. These, largely influenced by the abhorrence of usury, narrow the inclusion of traditional financial services and provoke a preference for Islamic banking alternatives.

6.2. Recommendations:

The results from this study carry important policy lessons for the MENA countries in their pursuit of achieving sustainable economic growth with FI improvement. First and foremost, it is required that regional governments focus on increasing the IQ through developing a clear, functional, and non-corrupt framework. This may include advanced rule of law, improved governance, and

regulatory transparency, which all add to economic growth and greater FI. Strengthening the business environment is important because good institutions are critical to enhance the sound and active financial system that is inclusive.

To address the weak impact of FI on growth, policymakers need to improve the efficiency of the banking sector to expand access to underrepresented segments in the market, such as SMEs. These strategies should focus on the reduction of financial services costs, the creation of incentives for banks and microfinance institutions to reach out to a wider population, and enhancement of support to the informal sector. In addition, the regulatory frameworks should be updated with a view to providing more scope for new digital payment systems and innovative financial technologies. Its widespread diffusion could significantly enhance access to financial services, particularly in remote areas where banking infrastructure is minimal. Any government, which advocates the cause of FI , has to be all the more sensitive to the cultural demands and needs when its population is majorly Islamic and normally looks at conventional banking with a degree of skepticism. The betterment at this juncture in the domain of Islamic banking services would help in the process of FI through the provision of culturally acceptable financial services.

6.3. Scope for Further Research:

This paper contributes in a big way to the knowledge base regarding the relations between the variables IQ, FI, and economic growth and at the same time opens up enough scope for further research. Second, further research might elaborate on the cultural aspects of FI in more specific dimensions. The impact of Islamic law on financial behavior in the MENA region, particularly with regard to the choice between conventional banking services and Islamic banking services, is one of the important aspects that have hardly been explored. In this respect, any understanding of the role of cultural and religious beliefs in FI in the region could guarantee more appropriate policy responses.

For instance, future studies should analyze the sectoral impact of FI and IQ on economic growth. So, an economy's various sectors may, in different ways, benefit from FI and improvement of institutions: agriculture, industry, or services. Overall analysis in respect of sectors might pinpoint which are the sectors in the economy that will be in a better position to gain the dividends of both FI and IQ, helping policymakers to optimally focus their efforts**.**

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Appendix

Appendix. Countries

Algeria, Bahrain, Egypt, Arab Rep., Iran, Islamic Rep., Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Aribia, Sudan, Syrian Arab Republic, Tunisia, Turkiye, Yemen, Rep., United Arab Emirates, and Iraq.