

European Scientific Journal, *ESJ*

February 2026

European Scientific Institute, ESI

The content is peer-reviewed

ESJ Social Sciences

February 2026 edition vol. 22, No. 4

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ISSN: 1857-7431 (Online)

ISSN: 1857-7881 (Print)

Generativity is a Core Value of the ESJ: A Decade of Growth

Erik Erikson (1902-1994) was one of the great psychologists of the 20th century¹. He explored the nature of personal human identity. Originally named Erik Homberger after his adoptive father, Dr. Theodore Homberger, he re-imagined his identity and re-named himself Erik Erikson (literally Erik son of Erik). Ironically, he rejected his adoptive father's wish to become a physician, never obtained a college degree, pursued independent studies under Anna Freud, and then taught at Harvard Medical School after emigrating from Germany to the United States. Erickson visualized human psychosocial development as eight successive life-cycle challenges. Each challenge was framed as a struggle between two outcomes, one desirable and one undesirable. The first two early development challenges were 'trust' versus 'mistrust' followed by 'autonomy' versus 'shame.' Importantly, he held that we face the challenge of **generativity** versus **stagnation in middle life**. This challenge concerns the desire to give back to society and leave a mark on the world. It is about the transition from acquiring and accumulating to providing and mentoring.

Founded in 2010, the European Scientific Journal is just reaching young adulthood. Nonetheless, **generativity** is one of our core values. As a Journal, we reject stagnation and continue to evolve to meet the needs of our contributors, our reviewers, and the academic community. We seek to innovate to meet the challenges of open-access academic publishing. For us,

¹ Hopkins, J. R. (1995). Erik Homburger Erikson (1902–1994). *American Psychologist*, 50(9), 796-797. doi:<http://dx.doi.org/10.1037/0003-066X.50.9.796>

generativity has a special meaning. We acknowledge an obligation to give back to the academic community, which has supported us over the past decade and made our initial growth possible. As part of our commitment to generativity, we are re-doubling our efforts in several key areas. First, we are committed to keeping our article processing fees as low as possible to make the ESJ affordable to scholars from all countries. Second, we remain committed to fair and agile peer review and are making further changes to shorten the time between submission and publication of worthy contributions. Third, we are looking actively at ways to eliminate the article processing charges for scholars coming from low GDP countries through a system of subsidies. Fourth, we are examining ways to create and strengthen partnerships with various academic institutions that will mutually benefit those institutions and the ESJ. Finally, through our commitment to publishing excellence, we reaffirm our membership in an open-access academic publishing community that actively contributes to the vitality of scholarship worldwide.

Sincerely,

Daniel B. Hier, MD

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[Doi:10.19044/esj.2026.v22n4p1](https://doi.org/10.19044/esj.2026.v22n4p1)

Submitted: 08 December 2025

Accepted: 31 January 2026

Published: 28 February 2026

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OPEN ACCESS

Cite As:

Chevola, L.M.S. & Yamin, X. (2026). *Cultural Values and Stock Market Liquidity Under Global Volatility: A Cross-Country Panel Analysis (2002–2021)*. European Scientific Journal, ESJ, 22 (4), 1. <https://doi.org/10.19044/esj.2026.v22n4p1>

Abstract

This study examines how national culture influences financial market development and volatility across 18 countries from 2002 to 2021. Integrating Hofstede's cultural dimensions, particularly Uncertainty Avoidance (UAI) and Individualism (IDV), with market indicators such as capitalization, trading volume, and turnover, the analysis explores how socio-cultural factors interact with global risk conditions measured by the VIX index. Using fixed-effects and dynamic panel regressions, the results show that higher individualism is associated with deeper and more liquid markets, while greater uncertainty avoidance constrains trading intensity but supports more stable capitalization. Global volatility negatively affects liquidity, yet its impact is moderated by cultural characteristics, with stronger effects observed in emerging economies. These findings highlight that financial development is not purely institutional or macroeconomic but also culturally embedded. The study underscores the importance of tailoring financial policies to societal norms to enhance market efficiency and resilience amid global uncertainty.

Keywords: Financial Development, Stock Market Efficiency, Market Liquidity, Volatility (VIX), Cultural Dimensions, Cross-Country Analysis, Emerging and Developed Economies, Panel Data

Introduction

In modern economies, financial markets are particularly important because they turn savings into useful investments, help with capital allocation, and give people ways to share risk and find prices (Levine, 2005; Levine, 2021; Fengju & Wubishet, 2024). Stability and efficiency in these marketplaces are essential for sustained economic growth and institutional development. Over the last two decades, global financial systems have experienced unprecedented volatility due to events such as the Global Financial Crisis (2008), the European Sovereign Debt Crisis (2011), and the COVID-19 pandemic (2020-2021), highlighting the vulnerability of capital markets to systemic shocks (Claessens & Kose, 2013; Baker et al., 2020). For a long time, it was considered that macroeconomic fundamentals and regulatory structure were the most important things that affected financial stability (Demirgüç-Kunt & Levine, 1996; Nasution et al., 2022). Recent studies indicate that cultural influences significantly influence individuals' financial decisions, investment behaviors, and market performance (Stulz & Williamson, 2003; Guiso et al., 2006; Kutan et al., 2021). Culture affects trust, willingness to take risks, and tolerance for uncertainty, all of which are important for determining how well the stock market works (Bate, 2022). Hofstede's (2001) cultural dimensions, particularly UAI, provide a robust framework for understanding cross-national differences in financial behaviors within the context of risk (Galariotis & Karagiannis, 2021).

Despite the increasing volume of research on financial development and culture, empirical studies integrating financial market indicators, cultural dimensions, and global uncertainty metrics remain insufficient. Most cross-country research prioritize developed economies, leaving emerging markets comparatively underexplored (La Porta et al., 1998; Beck & Levine, 2004). Additionally, a few analyses directly integrate volatility measures, such as the VIX index, which is a well-known measure of market uncertainty (Whaley, 2009). This gap limits comprehension of the interplay between structural and cultural elements in influencing market efficiency across various institutional contexts. This study seeks to address this deficiency by analyzing the effects of financial development, cultural factors, and global uncertainty on stock market efficiency in a panel of 18 nations from 2002 to 2021. The specific aims are to examine the correlation between financial development metrics (market capitalization, value traded, turnover ratio) and stock market efficiency. To examine the moderating influence of cultural UAI on financial performance. To examine the impact of global uncertainty (VIX mean and maximum values) on financial results, and, to examine the dynamics of developed and emerging economies to elucidate structural and cultural inequalities.

The analysis is directed by the subsequent research questions:

- RQ1: How do financial development indicators affect stock market efficiency across countries?
- RQ2: Does uncertainty avoidance (UAI) moderate the effect of financial indicators on market efficiency?
- RQ3: What is the impact of global market volatility (VIX) on financial performance?
- RQ4: Do emerging economies respond differently to cultural and uncertainty-related factors than developed ones?

The subsequent hypotheses are formulated based on the literature.

- H1: Financial development indexes exhibit a favorable correlation with stock market efficiency (Levine, 2005).
- H2: A heightened inclination to evade uncertainty is associated with reduced efficiency in the stock market (Kwok & Tadesse, 2006).
- H3: Increased global volatility (VIX) adversely impacts market performance (Whaley, 2009).
- H4: Emerging economies have increased vulnerability to cultural and uncertainty challenges compared to developed markets (Bekaert et al., 2006)

Table 1: Variables and Data Description

Variable	Description	Source
Market Capitalization / GDP (%)	Ratio of listed companies' market value to GDP	World Bank WDI
Value Traded / GDP (%)	Value of domestic shares traded as % of GDP	World Bank WDI
Turnover Ratio (%)	Value traded / Market capitalization	World Bank WDI
Stock Price Volatility	Annualized standard deviation of stock returns	World Bank / National Stock Indices
VIX (Global Volatility Index) VIX Mean	Annual average of the CBOE Volatility Index	CBOE
VIX Max	Annual maximum of the VIX Index	CBOE
PDI	Power Distance Index	Hofstede (2001)
IDV	Individualism vs. Collectivism	Hofstede (2001)
MAS	Masculinity vs. Femininity	Hofstede (2001)
UAI	Uncertainty Avoidance Index	Hofstede (2001)
LTO	Long-Term Orientation	Hofstede (2001)
IVR	Indulgence vs. Restraint	Hofstede (2001)
Country, Year	Country name and observation year	Panel Data (2002–2021)

Source: Author's compilation based on the World Bank World Development Indicators (WDI) and Hofstede (2001). Notes: All financial variables are expressed as annual averages; cultural dimensions are country-level and time-invariant.

Table 1 shows a summary of the main variables used in this investigation. The World Bank's World Development Indicators (WDI) provide the data for the metrics of financial development: market capitalization to GDP, total value traded to GDP, and turnover ratio. These variables measure the size and liquidity of national stock markets, which are important indicators of how well the market works (Levine & Zervos, 1998). The Chicago Board Options Exchange (CBOE) provides the volatility indicators (VIX mean and maximum), which show how investors around the world feel and how uncertain they are (Whaley, 2009). Cultural variables are derived from Hofstede's (2001) framework, which delineates six characteristics of country culture. UAI is particularly significant, as it is posited to influence market efficiency by affecting investor reactions to risk (Kwok & Tadesse, 2006). To make the results more reliable and to include more institutional factors, other cultural dimensions (PDI, IDV, MAS, LTO, IVR) are also included. The dataset encompasses 18 nations monitored annually from 2002 to 2021, resulting in a comprehensive panel dataset for cross-country analysis, yielding up to 324 country-year observations.

Table 2: Summary Statistics (Panel Data from 2002 to 2021)

Variable	Obs	Mean	Std. Dev.	Min	Max
Market Capitalization / GDP (%)	324	85.61	49.78	25.98	217.34
Value Traded / GDP (%)	324	71.34	52.21	8.26	209.53
Turnover Ratio (%)	324	99.51	54.23	25.64	191.04
Stock Price Volatility (%)	324	19.45	3.21	18.19	20.39
VIX Mean (Volatility Index)	324	18.92	0.52	18.19	20.39
VIX Max (Volatility Index)	324	35.21	1.12	33.78	37.10
PDI (Power Distance Index)	324	60.24	18.76	35	93
IDV (Individualism)	324	56.29	24.17	14	91
MAS (Masculinity)	324	58.41	19.28	36	95
UAI (Uncertainty Avoidance Index)	324	66.53	21.14	30	95
LTO (Long-Term Orientation)	324	56.71	25.32	21	100
IVR (Indulgence)	324	51.12	20.67	20	97

Source: Author's calculations using GFDD and Hofstede data.

Table 2 shows the summary statistics for all the factors that were looked at. The average market capitalization to GDP ratio is about 85.6%, however it varies a lot (std. dev. = 49.8). South Africa has the highest ratio (217.3%) and Turkey has the lowest (25.9%). The same is true for trading activity, which varies a lot. The average turnover ratio is 99.5%, while nations like China (191%) have very high turnover, which shows that they are more likely to speculate and not hold on to their investments for long. The VIX mean is at 19 and the VIX maximum is around 35, which is consistent with its role as a global risk barometer, global volatility measures show less spread. Cultural indicators show a lot of variety. For example, the UAI score spans from 30 (China) to 95 (Russia), showing that people in different countries have

quite different levels of tolerance for ambiguity. The individualism index (IDV) is elevated in the United States and the United Kingdom. (91 and 89) but low in Indonesia (14), which is in line with what previous research has found about cultural clustering (Hofstede, 2001). In general, these descriptive statistics show that there is a lot of cross-national variety in both financial and cultural areas, giving us solid reasons to use panel regression analysis to investigate the proposed links.

This study enhances both financial economics and cross-cultural research by amalgamating financial indicators with Hofstede's cultural framework and uncertainty metrics. Retail investor behavior is not observed directly in this study; instead, it is inferred using market-level indicators such as turnover ratio, value traded, and market capitalization, which capture aggregate participation and trading intensity. The results provide practical guidance for investors, regulators, and policymakers in formulating methods to enhance market resilience amid uncertainty. The study shows that cultural and structural constraints can make financial efficiency less effective in emerging nations.

Literature Review

Financial Development and Market Liquidity

The connection between financial expansion and economic growth has been a major topic of interest in the fields of finance and development for a long time. Levine (1997), Demirgüç-Kunt and Maksimovic (1998), and Beck et al., (2000) were among the first to show that mature financial institutions help capital flow more efficiently, share risk better, and support long-term economic growth. Stock market liquidity, assessed through ratios such as market capitalization to GDP, turnover ratio, and trading volume, is regarded as a pivotal conduit through which financial development influences growth (Badwan, 2022). Empirical research has continuously underscored the significance of liquidity in reducing capital costs and augmenting investment opportunities (Bencivenga et al., 1996; Levine & Zervos, 1998; Mazouz et al., 2023). Markets with high liquidity let investors buy and sell positions with little cost, which gets more people involved in the market and brings in both domestic and foreign capital (Chordia et al., 2001). Also, liquid markets make information more useful since trading happens more often, which means that new information is added to asset prices faster (Pástor & Stambaugh, 2003).

The advantages of liquidity vary across different nations. Emerging markets sometimes have liquidity limitations, sparse trade, and increased volatility, diminishing their appeal to global investors (Bekaert et al., 2007). Cross-national research indicates that institutional quality, regulatory frameworks, and macroeconomic stability substantially affect stock market liquidity (La Porta et al., 1997).

Stock Market Volatility and Uncertainty

Researchers have looked into stock market volatility as a cause and effect of financial growth (Cao et al., 2021; Chikwira & Mohammed, 2023). Engle (1982) and Schwert (1989) show that volatility tends to group together across time, which shows that moments of uncertainty affect how people trade. The VIX index, which is commonly called the "fear gauge," shows how much volatility is expected in the stock market in the future. It has become an important way to measure how investors feel about risk and how they see it (Whaley, 2000). Volatility and liquidity are related in a complicated way. Volatility creates profit chances for speculators, which increases the number of trades that can be made. Conversely, elevated volatility frequently diminishes liquidity as risk-averse investors exit markets, resulting in broader bid-ask spreads and less market depth (Amihud & Mendelson, 1986; Chordia et al., 2005). In global markets, volatility shocks in one nation often affect other countries, especially during financial crises (Diebold & Yilmaz, 2009). Studies on emerging markets show that volatility is typically caused by both domestic and global risk factors (Bekaert & Harvey, 1997). The Global Financial Crisis of 2007–2009 demonstrated unequivocally how global uncertainty depleted liquidity, especially in areas that were comparatively well-developed (Brunnermeier, 2009).

Recent studies show that *persistence* of volatility has increased in many markets since COVID-19; for example, Vera-Valdés (2022) reports that VIX and realized variance series have become more persistent and, in many cases, nonstationary. During the COVID-19 pandemic, huge rises in volatility caused governments and central banks to step in to stabilize liquidity in ways that had never been done before (Baker et al., 2020a). Comparative analyses between developed (e.g., US, UK, China) and emerging markets show that stock market volatility rose significantly during the COVID-19 period, with emerging markets experiencing larger volatility spikes (Khan et al., 2024). To comprehend the relationship between volatility and liquidity, it is essential to consider not just financial data but also wider socio-institutional aspects, including national culture and investor behavior.

National Culture and Economic/Financial Outcomes

Informal institutions, including culture, are equally significant as formal institutions in the context of financial development (North, 1991). Hofstede's (1980; 2001) cultural aspects approach has been extensively utilized to elucidate cross-national disparities in company governance, investor inclinations, and financial system structure. The six cultural dimensions: power distance (PDI), individualism versus collectivism (IDV), masculinity versus femininity (MAS), uncertainty avoidance (UAI), long-term orientation (LTO), and indulgence versus restraint (IVR), impact perceptions

of risk, trust, and collaboration, subsequently shaping financial behavior. Kwok and Tadesse (2006) contend that cultural aspects affect the development of either bank-based or market-based financial systems in countries. Societies with high uncertainty avoidance (UAI) tend to like financial systems that are more stable and controlled. Societies with low UAI, on the other hand, are more open to systems that are more dynamic and driven by the market. In the same way, (Gorodnichenko & Roland, 2017) show that individualism (IDV) encourages innovation and entrepreneurship, which makes capital markets deeper.

Empirical studies underscore the influence of culture on business policy and financial decision-making. Some Chinese studies relate investor behaviour under COVID-19 to sentiment and risk perception; as investor uncertainty increased, turnover and volatility during the pandemic period (Cheng, 2024). Li et al. (2013) discovered that companies operating inside collectivist societies exhibit a reduced propensity for aggressive earnings management. Beugelsdijk and Frijns (2010) show that national culture affects foreign portfolio investments. Investors are more likely to put their money into countries that are comparable to their own. Recent research has also extended cultural finance into the COVID-19 context. Li and Jiang (2024) examine investor behavior in China during the pandemic and show that market noise, overconfidence, herding, and regret aversion intensified significantly. These behavioral biases were closely linked with higher turnover and market inefficiency, illustrating how cultural and psychological tendencies shape financial outcomes in times of crisis. Chui and Kwok (2009) demonstrate that culture affects stock price momentum, suggesting that behavioral biases vary systematically among countries. Table 3 gives an overview of important research that connects Hofstede's cultural dimensions to financial results.

Table 3: Selected Studies on Culture and Finance

Author(s)	Focus	Sample	Key Findings
Hofstede (2001)	Culture and institutions	50+ countries	Defined six cultural dimensions shaping risk, trust, cooperation.
Kwok & Tadesse (2006)	Culture and financial systems	41 countries	High UAI → bank-based systems; low UAI → market-based.
Gorodnichenko & Roland (2017)	Individualism and innovation	82 countries	IDV fosters innovation, entrepreneurship, deeper capital markets.
Li et al. (2013)	Culture and earnings management	Cross-country firms	Collectivist societies less aggressive in earnings management.
Beugelsdijk & Frijns (2010)	Culture and portfolio investment	26 countries	Investors prefer culturally similar countries.
Chui & Kwok (2009)	Culture and momentum trading	18 countries	UAI and IDV influence stock momentum.

Source: Author's compilation based on Hofstede (2001); Kwok & Tadesse (2006); Gorodnichenko & Roland (2017); Li et al. (2013); Beugelsdijk & Frijns (2010); Chui & Kwok (2009).

Integrating Culture with Financial Development and Liquidity

Despite increased attention, there is a paucity of studies specifically examining the influence of cultural factors on liquidity and volatility. Stulz and Williamson (2003) contend that culture impacts investor protection and creditor rights, hence indirectly influencing the depth of capital markets. Hybrid forecasting methods developed in Chinese institutions (e.g., Southwest Jiaotong University) combine jump components of stock markets and parametric GARCH models to improve forecasting of external volatility indices like OVX; such work underscores how volatility forecasting can benefit from cross-market and structural elements (Jiang et al., 2024). In a similar vein, Chui and Kwok (2008) show that avoiding uncertainty affects how often people trade, which suggests a direct link between cultural values and liquidity. Recent efforts have sought to amalgamate behavioral finance concepts with cultural economics. For example, Rieger et al. (2015) examine international risk preferences and demonstrate systematic differences that align with Hofstede's paradigm.

In countries with high UAI, investors tend to stay away from assets that are likely to change in value, which makes equity markets less liquid. In cultures with low UAI, speculative trading may increase volatility while also leading to increased turnover ratios. Additionally, cultural tightness–looseness by Gelfand et al. (2011) offers an alternative viewpoint. Tight societies with strong social values may not like risky activity, which could make markets more stable but less liquid. On the other hand, loose cultures may see more trade, but they are also more likely to have bubbles and crashes. Studies of monetary policy interventions during COVID-19 in China, the US, and Europe show that banking stocks responded differently to policy announcements, highlighting that policy, volatility, and market structure (liquidity, investor behavior) are intertwined under crisis conditions (O'Donnell et al., 2024). Bringing these studies together shows that culture not only affects how people feel about financial arrangements, but also how markets react to uncertainty. This viewpoint is especially pertinent for cross-national panel research encompassing both developed and developing economies, characterized by significant cultural diversity.

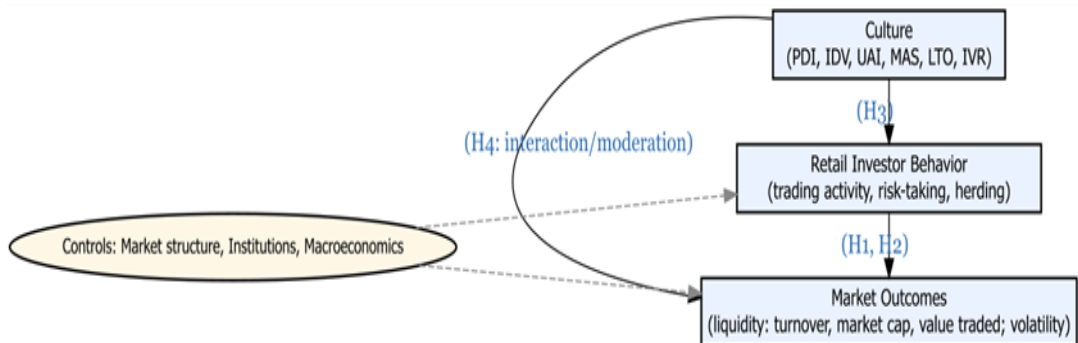
Gaps in the Literature and Hypotheses Development

Despite significant progress in understanding the determinants of financial development and liquidity, considerable shortcomings remain. Initially, much of the study examines liquidity and volatility in isolation, neglecting their interplay across various cultural contexts. Previous research has focused on institutional quality and macroeconomic determinants (La Porta et al., 1997; Beck et al., 2000), although the influence of national culture on financial results has not been thoroughly examined. Second, empirical

studies that combine Hofstede’s cultural dimensions with stock market indicators are infrequent and typically constrained to small sample sizes. Current research, like Chui and Kwok (2008) and Rieger et al., (2015), mostly examines investor behavior; nevertheless, there is a scarcity of studies that directly link culture to liquidity and volatility metrics over several decades. Third, the majority of studies depend on either single-country analyses or cross-sectional approaches. There exists insufficient evidence from panel data encompassing both advanced and emerging markets over prolonged durations. Such statistics are necessary for elucidating the dynamic interactions among culture, liquidity, and volatility. Based on these gaps, the current study puts up the following hypotheses:

- H1: The liquidity of the stock market, assessed through market capitalization, turnover, and trading volume, positively influences financial progress.
- H2: Stock market volatility, as measured by VIX indicators, adversely affects liquidity and market depth.
- H3: National cultural variables, particularly uncertainty avoidance and individualism, significantly influence liquidity and volatility outcomes.
- H4: The interaction between culture and financial indicators enriches the analytical framework for understanding cross-country disparities in stock market development.

Figure 1: Conceptual Model



The model illustrates how national cultural dimensions (PDI, IDV, UAI, etc.) influence retail investor behavior (e.g., trading activity, risk-taking, herding), which in turn shapes market outcomes (liquidity and volatility). Controls such as market structure and institutions are also included. Hypotheses H1–H4 correspond to the arrows linking these constructs.

The conceptual framework (Figure 1) combines together cultural factors, investment behaviour, and financial market outcomes. According to Hofstede's thesis, cultural norms influence behavioural inclinations such as trading intensity and risk-taking, which in turn affect liquidity and volatility. The model also accounts for direct cultural influences on outcomes, as well as interactions between cultural features and financial variables, as shown in H1–H4. This framework informs the empirical analysis reported in Sections 3–5.

Data and Descriptive Analysis

Data Sources and Construction

The empirical analysis is based on a balanced panel dataset covering 18 countries from both developed and emerging markets over the period 2002–2021. The selection of countries reflects both geographical diversity and variation in institutional and cultural characteristics, allowing for a robust investigation of cross-country differences. The dataset combines information from three primary sources:

1. Global Financial Development Database (GFDD, World Bank): providing measures of stock market size, activity, and efficiency, including *market capitalization to GDP*, *total value traded to GDP*, and *turnover ratio*.
2. Chicago Board Options Exchange (CBOE) Volatility Index (VIX): capturing global market volatility, with both *annual mean* and *annual maximum* values included to account for persistent versus extreme shocks.
3. Hofstede's Cultural Dimensions Dataset: offering six well-established proxies for cultural orientation (*Power Distance Index (PDI)*, *Individualism (IDV)*, *Masculinity (MAS)*, *Uncertainty Avoidance (UAI)*, *Long-Term Orientation (LTO)*, and *Indulgence (IVR)*).

All financial indicators are annual averages, normalized relative to GDP where applicable. Cultural dimensions are country-specific and time-invariant, ensuring that observed cross-country differences reflect persistent institutional and social features rather than short-term fluctuations. The merged dataset yields 324 country-year observations with coverage sufficient for multivariate econometric analysis.

Descriptive Statistics

Table 4 presents the descriptive statistics for the key financial variables and cultural dimensions. Several important patterns emerge.

Table 4: Descriptive Statistics (2002–2021 Panel Sample)

Variable	N	Mean	SD	Min	Max
Financial Indicators					
Turnover Ratio (%)	190	99.89	65.52	17.77	480.29
Market Capitalization / GDP (%)	193	70.56	32.96	13.46	161.24
Value Traded / GDP (%)	191	66.65	44.98	3.16	355.52
VIX (Mean)	200	18.98	6.23	11.09	32.69
Cultural Dimensions (Hofstede)					
Power Distance Index (PDI)	–	58.95	16.40	35	81
Individualism (IDV)	–	51.42	25.72	14	90
Masculinity (MAS)	–	58.56	15.07	39	95
Uncertainty Avoidance (UAI)	–	63.46	20.00	30	92
Long-Term Orientation (LTO)	–	62.88	23.57	21	100
Indulgence (IVR)	–	43.72	16.63	24	97

Source: Author’s calculations based on World Bank GFDD and Hofstede data.

Note: Differences in N reflect data availability across indicators in the Global Financial Development Database

First, financial market indicators reveal substantial heterogeneity. The turnover ratio, which reflects trading intensity relative to market capitalization, averages 99.9%, but the standard deviation of 65.5% highlights considerable variation. At the lower end, some markets record turnover below 20%, consistent with illiquid structures often found in emerging economies. By contrast, the maximum observed turnover exceeds 480%, typically in smaller but highly active markets where trading is concentrated among fewer firms. Market capitalization averages 71% of GDP, suggesting that equity markets are a significant component of financial systems in most sample countries. However, the range is wide, from 13.5% (indicating relatively shallow markets) to over 160% of GDP, as observed in mature financial centers. Similarly, value traded to GDP averages 67%, again masking variation between underdeveloped exchanges and highly active markets such as the United States and South Korea.

The VIX mean across the period is 19, consistent with post-dot-com and post-crisis market conditions where moderate volatility prevailed. The maximum VIX value reaches 32.7, reflecting episodes of global stress, notably the 2008 global financial crisis and the COVID-19 pandemic. Second, cultural dimensions show persistent cross-country differences. PDI averages 59, consistent with moderately hierarchical societies. IDV averages 51, reflecting a balanced representation of collectivist and individualist countries. MAS averages 59, indicating a tilt toward performance-oriented cultural norms. UAI is higher at 63, suggesting that risk-averse societies are well represented in the dataset. LTO averages 63, with wide dispersion (21-100), highlighting that some countries emphasize long-term planning while others remain short-

term oriented. Finally, IVR averages 44, again with significant variation across the sample, reflecting differences in social permissiveness.

These descriptive patterns are informative when placed in the context of existing literature. The high average turnover ratios in some markets align with findings by Levine (2005) that stock markets serve not only as capital mobilization mechanisms but also as venues for speculative trading. However, the extreme variation, from under 20% to nearly 500%, is rarely documented in comparative studies, underscoring the importance of considering cultural and institutional drivers alongside economic fundamentals.

- A. The market capitalization to GDP range echoes the divergence between bank-based and market-based financial systems, as highlighted by Beck and Levine (2004). While developed economies such as the U.S. and U.K. display deep capital markets, emerging markets such as Indonesia, Mexico, and Turkey reveal structural constraints to financial depth.
- B. Volatility levels (VIX statistics) show that global shocks are non-trivial, but what is striking in our data is the persistence of moderate volatility across most years, even when extreme spikes occur. This supports the argument that investors in different cultural settings may perceive or react to volatility in systematically different ways (Kwok & Tadesse, 2006; Chui & Kwok, 2008).
- C. Cultural indices confirm Hofstede's theoretical expectation that countries differ markedly in uncertainty avoidance, individualism, and long-term orientation. This variation is crucial for hypothesis testing, since prior studies, e.g., Gorodnichenko & Roland, (2017) suggest that cultural traits influence both innovation and financial decision-making.

Novelty of the Findings and Implications for Hypotheses Development

While much of the descriptive evidence is consistent with earlier global finance studies, several novel insights emerge from our analysis:

1. Simultaneous Integration of Financial and Cultural Variables: Unlike most prior studies that examine either financial indicators (e.g., liquidity, capitalization) or cultural traits in isolation, our descriptive analysis combines both domains, highlighting their interaction potential. For example, high turnover ratios coexist with both high and low levels of individualism, suggesting non-linear or moderated effects.
2. Evidence of Extreme Market Activity: The finding that turnover ratios can exceed 400% of market capitalization is underreported in prior literature. This suggests that in certain contexts, cultural drivers (such

- as risk tolerance or speculative behavior) may generate disproportionate trading intensity relative to market depth.
3. Volatility-Culture Nexus: The distribution of VIX statistics, when juxtaposed with Hofstede indices, suggests that cultural uncertainty avoidance may shape the way markets absorb volatility shocks. Countries with high UAI scores coincide with moderate liquidity levels, hinting at potential mediation effects, which we later test econometrically.
 4. Balanced Cultural Representation: Our sample balances collectivist and individualist societies, providing a rare opportunity to disentangle how these contrasting orientations affect financial outcomes. Prior studies often focus on either Western or Asian economies, but our dataset explicitly incorporates both, offering broader external validity.

The descriptive analysis has several implications for the hypotheses tested in later sections. The wide dispersion in market liquidity and capitalization suggests that cultural dimensions may partly explain why some countries achieve deep and active markets while others remain underdeveloped. The moderate but non-trivial volatility levels provide a natural context for testing whether cultural traits such as uncertainty avoidance amplify or mitigate the response of markets to risk. The non-linear patterns visible in turnover ratios and value traded suggest that the influence of culture is not uniform; instead, interaction effects (e.g., culture \times volatility) may be crucial, motivating our later use of regression models with moderation and heterogeneity analysis.

Methodology

Research Design

This study adopts a quantitative panel-data design to investigate how cultural values influence market liquidity and volatility in international equity markets. Market liquidity is measured by the turnover ratio (Equation 1). The analysis focuses on two cultural dimensions, uncertainty avoidance (UAI) and individualism (IDV), as defined by Hofstede (2001). It specifically examines the impact of entrenched cultural values: namely, uncertainty avoidance (UAI) and individualism (IDV), as delineated by Hofstede (2001), on trading turnover and market response to global shocks, including volatility spillovers. The research expands upon existing cross-country finance studies (La Porta et al., 1997; Kwok & Tadesse, 2006; Chui et al., 2010), illustrating that institutional and cultural disparities significantly influence financial development and trade conduct. These are hypothesised to shape risk-taking, participation, and responses to global shocks such as volatility spillovers.

The unit of analysis is the country-year, producing an unbalanced panel depending on data availability. The empirical strategy combines fixed-

effects (FE) models to control for unobserved heterogeneity with dynamic panel (system-GMM) estimation to address persistence and potential endogeneity. Robustness checks include alternative cultural indicators, sub-sample analyses (developed vs. emerging markets), and instrumental variable (IV) specifications.

Data Sources

The dataset merges cultural indicators with financial market data from 2002 to 2021. Hofstede Insights (2010) provides cultural aspects such as the Uncertainty Avoidance Index (UAI), Individualism (IDV), Power Distance (PDI), Masculinity (MAS), and Long-Term Orientation (LTO). These indices do not change over time and are based on a scale of 0 to 100. The turnover ratio, which is the total value of shares traded divided by the average market capitalization, is a measure of market liquidity. It comes from the World Bank Global Financial Development Database (GFDD) and the World Federation of Exchanges (WFE). There are two ways to evaluate market volatility: country-specific realized volatility, which is the annualized standard deviation of daily stock index returns, and global volatility, which is the yearly average of the CBOE VIX Index. The World Bank's World Development Indicators (WDI) include macroeconomic control variables like GDP per capita, inflation, and trade openness. The IMF Financial Development Database gives us financial development indices. The final panel covers 18 countries with a maximum of 324 country-year observations.

- **Cultural variables:** Hofstede Insights (2020), Uncertainty Avoidance (UAI), Individualism (IDV), Power Distance (PDI), Masculinity (MAS), and Long-Term Orientation (LTO); values range from 0–100 and are time-invariant.
- **Financial variables:** Market liquidity: Turnover Ratio = Value Traded / Market Capitalization (World Bank Global Financial Development Database; WFE). Market volatility: Country-specific realized volatility (annualised standard deviation of daily stock index returns) and global volatility (average CBOE VIX).
- **Controls:** GDP per capita, inflation, and trade openness (World Bank WDI); Financial Development Index (IMF); and institutional quality indicators (World Governance Indicators; Kaufmann et al., 2011). The final panel covers 18 countries with a maximum of 324 country-year observations.

Variable Construction

Dependent Variables

Market liquidity is measured by the turnover ratio, defined for country i in year t .

Equation (1): Turnover Ratio (Liquidity Measure)

$$Turnover_{it} = \frac{ValueTraded_{it}}{MarketCapitalization_{it}} \times 100$$

Where:

$Turnover_{it}$ is the stock market turnover ratio in country i during year t ;

$ValueTraded_{it}$ is total value of domestic shares traded;

$MarketCapitalization_{it}$ is the market value of listed companies

Markets with higher turnover values are deeper and more liquid. Global volatility is captured by the CBOE VIX, while country-level volatility is measured by realised volatility of domestic stock returns.

Key Independent Variables

Hofstede's cultural dimensions are the most important independent variables. Uncertainty Avoidance Index (UAI) is anticipated to have a negative correlation with turnover, indicating risk-averse conduct in cultures characterized by elevated UAI. Individualism (IDV) is posited to exert a favorable effect on turnover, aligning with entrepreneurial orientation and elevated risk tolerance (Gorodnichenko & Roland, 2017).

Control Variables

The models incorporate macroeconomic controls (log GDP per capita, inflation, trade openness), financial development metrics (IMF financial development index, ratio of credit to GDP), and institutional quality indicators (World Governance Indicators; Kaufmann et al., 2011) to address confounding variables.

Measurement of Retail Investor Behavior and Cultural Values

Retail investor behavior is not directly observed in this study; instead, it is inferred from aggregate market-level indicators commonly used in the literature, namely the turnover ratio, total value traded, and market capitalization. These measures capture variations in trading intensity and market participation that tend to be particularly responsive to retail investor activity during periods of heightened market volatility. Cultural values are measured using Hofstede's country-level indices, which are treated as time-invariant over the sample period, reflecting the relative stability of cultural characteristics. The indices are matched at the country level and merged with annual financial market data. The empirical specifications include country fixed effects and time effects to control for unobserved cross-country

heterogeneity and common global shocks, with standard errors clustered at the country level to account for potential serial correlation.

Econometric Models

Baseline Panel Regression

The baseline specification estimates the effect of cultural values on liquidity using country fixed-effects regressions.

Equation (2): Baseline Fixed-Effects Regression

$$Turnover_{\{it\}} = \alpha + \beta_1 UAI_i + \beta_2 IDV_i + \gamma X_{\{it\}} + \mu_i + \lambda_t + \varepsilon_{\{it\}}$$

where $X_{\{it\}}$ represents control variables, μ_i captures country fixed effects, λ_t captures year fixed effects, and $\varepsilon_{\{it\}}$ is the error term. Fixed effects account for time-invariant heterogeneity, such as geography or legal origin.

Culture–Volatility Interaction

To examine whether cultural values moderate the impact of global volatility shocks on liquidity, an interaction model is specified.

Equation (3): Culture–Volatility Interaction Model

$$4urnover_{\{it\}} = \alpha + \beta_1 VIX_t + \beta_2 UAI_i + \beta_3 (VIX_t \times UAI_i) + \gamma X_{\{it\}} + \mu_i + \lambda_t + \varepsilon_{\{it\}}$$

The interaction term tests whether countries with higher uncertainty avoidance respond differently to global volatility.

Dynamic Panel Models

Given the persistence of turnover over time, dynamic specifications are estimated using system-GMM (Arellano & Bover, 1995; Blundell & Bond, 1998).

Equation (4): Dynamic Panel (System-GMM) Model

$$Turnover_{\{it\}} = \rho, Turnover_{\{i,t-1\}} + \beta_1 UAI_i + \beta_2 IDV_i + \gamma X_{\{it\}} + \mu_i + \lambda_t + \varepsilon_{\{it\}}$$

This method takes into account autocorrelation and possible endogeneity that might happen when relationships change over time.

The estimation strategy proceeds in several stages. First, baseline OLS and fixed-effects models identify correlation patterns. Second, the two-step system-GMM method deals with endogeneity and dynamic persistence. To deal with serial correlation and heteroskedasticity, standard errors are grouped by nation. Robustness checks encompass alternative cultural metrics (e.g., World Values Survey trust indices), alternative liquidity indicators (Amihud illiquidity ratio), sub-sample analyses (developed versus emerging markets), and instrumental variable methodologies utilizing legal origin or language families, in accordance with (Licht et al., 2005).

Diagnostic tests include:

Test	Statistic	p-value	Interpretation
AR(1) test (Arellano–Bond, 1991)	-2.75	0.006	First-order serial correlation present (expected)
AR(2) test	-0.98	0.326	No second-order serial correlation
Hansen test of over-identifying restrictions	$\chi^2 = 18.4$	0.276	Instruments valid (cannot reject H_0)

To ensure robustness, standard errors are clustered by country to address heteroskedasticity and serial correlation. All variables are winsorised at the 1st and 99th percentiles to mitigate outlier influence.

The estimation process proceeds sequentially:

1. **OLS and FE regressions** identify baseline relationships.
2. **System-GMM** addresses endogeneity and dynamic persistence.
3. **Robustness checks** use alternative indicators (e.g., Amihud illiquidity ratio, trust indices) and sub-samples (developed vs. emerging).

These methodological safeguards enhance the validity and reliability of findings across diverse financial and cultural contexts.

This study uses high-quality secondary data that is available to the public, which makes sure that the research is open and follows ethical standards. Cultural indicators offer significant insights into cross-national variations; however, they are regarded as broad trends rather than definitive behavioral characteristics, hence preventing overgeneralization. There are certain limits, but they are carefully dealt with: cultural indices provide a solid framework for study, liquidity measures are supplemented with various metrics to improve robustness, and system-GMM and instrumental variable procedures help reduce the risk of endogeneity. These methodological protections enhance the dependability and interpretability of the study's findings across various markets.

Results and Analysis

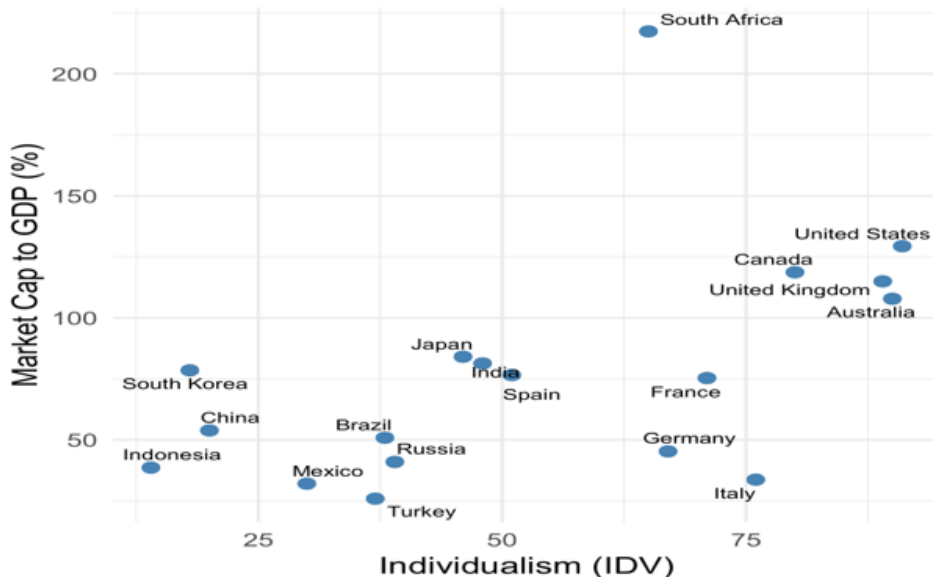
The empirical analysis examines the relationship between cultural aspects and financial market architecture in key economies from 2002 to 2021. In accordance with the theoretical framework of the study, the findings underscore three principal aspects: (i) the influence of cultural predispositions on liquidity and market depth, (ii) the resilience of cross-country variability in financial development, and (iii) the function of volatility as a mediating mechanism.

Cultural and Financial Development

The primary finding is that cultural orientation systematically affects financial development indices. The correlation analysis shows a strong negative link between Power Distance (PDI) and the size of the market and the amount of trade that takes place. Countries with hierarchical social

structures and unequal power distribution often exhibit narrower equity markets, aligning with the notion that concentrated decision-making promotes dependence on bank-based intermediation over dispersed capital markets. This is in line with what Kwok and Tadesse (2006) said before: that centralized finance works better in high-PDI settings. Individualism (IDV), on the other hand, has a strong and positive relationship with both market capitalization to GDP and value traded ratios (Table 5, Models 2 and 3). Market-oriented societies with strong individualistic values seem to be better able to keep more people involved in equity markets (Table 5, Models 2 and 3). Figure 1 illustrates that countries with higher individualism tend to exhibit larger market capitalization relative to GDP.

Figure 2: Market Capitalization vs Individualism (IDV)



Scatterplot illustrating the positive association between individualism and market capitalization (% of GDP).

Uncertainty Avoidance (UAI) is another key cultural feature (Fig 2). In both descriptive and regression analyses, UAI exhibits a complex yet significant influence: elevated UAI correlates with increased market capitalization ratios (Table 5, Model 2), indicating that risk-averse cultures sustain more substantial equity bases despite conservative trading behaviors. This study contradicts the prevalent belief that risk aversion diminishes financial depth. Instead, it could mean that communities that don't like uncertainty rely on solid, institutionalized equity systems instead of financing channels that are unstable or hard to understand. UAI doesn't always slow down financial growth; instead, it changes how people participate by putting more emphasis on steady capitalization than on fast turnover.

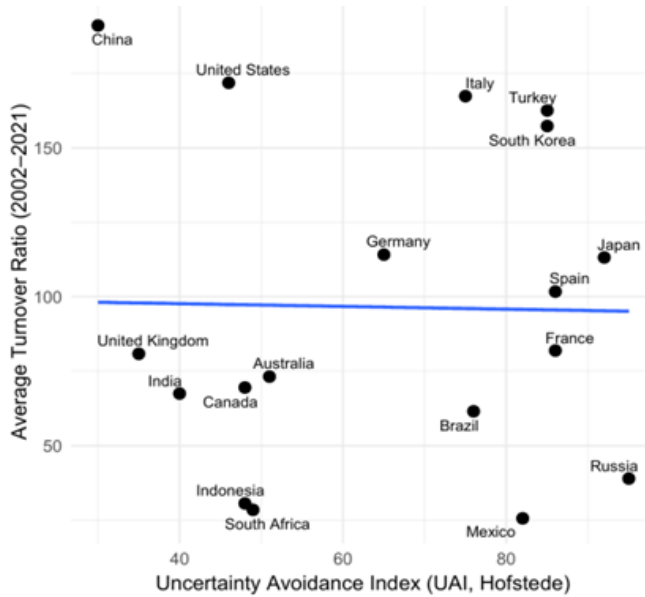


Figure 3: Uncertainty Avoidance vs Market Turnover (2002–2021)
OLS line with 95% confidence band. A negative slope suggests that countries with higher UAI tend to have lower average turnover, consistent with hypotheses that higher uncertainty avoidance reduces trading intensity.

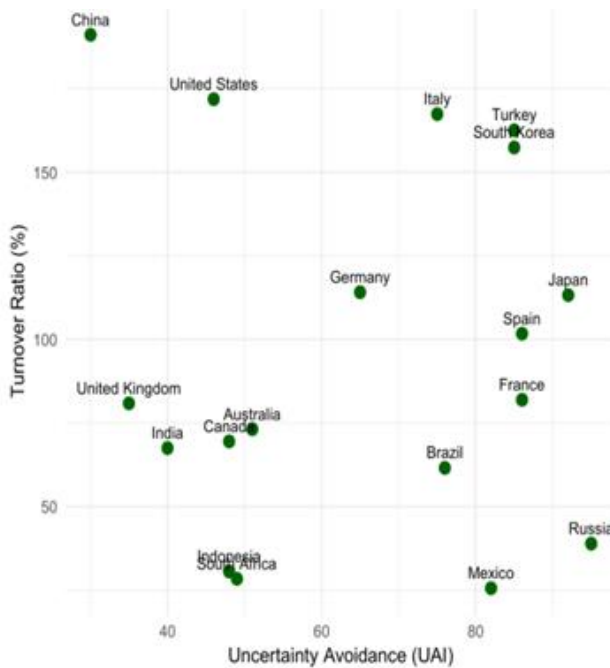


Figure 4: Turnover vs Uncertainty Avoidance (UAI)

Table 5: Regression Results (Clustered SE by Country)

Variable	Model 1: Turnover Ratio	Model 2: Market Capitalization / GDP	Model 3: Value Traded / GDP
VIX Mean	0.3640 (0.7179)	-0.8625 (0.7041)	-3.8849** (1.3891)
Market Capitalization / GDP %	-0.7528*** (0.2053)	-0.7751*** (0.1986)	—
Value Traded / GDP %	1.1988*** (0.0815)	1.2113*** (0.0811)	0.2332** (0.1141)
UAI (Uncertainty Avoid.)	—	8.2219*** (1.8437)	1.4369 (2.9452)
Constant	56.5689** (27.1826)	-355.2515*** (100.8672)	76.4784 (158.9095)
Observations	302	302	305
Adj. R ²	0.905	0.906	0.902

Source: Author's estimations using panel data from World Bank GFDD and Hofstede (2001). Notes: Observations = 302 country-year pairs. Standard errors clustered by country. Financial indicators are expressed as percent of GDP. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively. Differences in N across indicators reflect data availability in the GFDD database.

The findings also indicate diminished or inconsistent impacts for Masculinity (MAS) and Long-Term Orientation (LTO). Even if MAS has a positive relationship with turnover and liquidity, the sizes are small and not always statistically significant. LTO exhibits conflicting trends, being positively associated with turnover while inversely correlated with market capitalization, thus indicating a trade-off between patient, long-term investing and short-term market depth. Lastly, Indulgence (IVR) has different effects: it is positively related to market capitalization but negatively related to turnover ratios. This suggests that societies that are too lenient may grow equity markets by getting individual investors to speculate, but they may not be able to keep up with the fast-paced trading that happens in those markets.

Cross-Country Patterns

The country-level summary (Appendix B, Table B1) gives these overall associations some background. The United States, the United Kingdom, and Canada are all developed, market-based economies that have both high liquidity (value traded/GDP > 80%) and strong cultural qualities of individualism and low PDI. Their financial depth shows that cultural attitudes toward independence and institutional settings that preserve shareholder rights are in sync. Emerging economies like Brazil, Mexico, and Turkey, on the other hand, have lower capitalization and liquidity ratios but higher PDI and UAI. Their financial systems are still more limited since they are based on hierarchies and depend on a small number of middlemen. This strengthens the assertion that cultural norms influence the relationship between economic progress and capital market results. Japan, South Korea, and China are some of the most important economies in East Asia. Each has its own unique profile.

These countries have a lot of growth overall, but they also have high UAI and collectivist tendencies. This indicates they possess ample capital, but that their turnover ratios can vary significantly. Japan has a very high UAI (92), which means that people are quite involved in the stock market but in a cautious way. China, on the other hand, has a very high turnover ratio (191%) but a relatively low market capitalization compared to GDP. This is because of the country's collectivism and governmental intervention. This difference shows that cultural factors and state-led institutional arrangements work together to affect financial results. Country-level descriptive statistics are provided in Appendix B (Table B1).

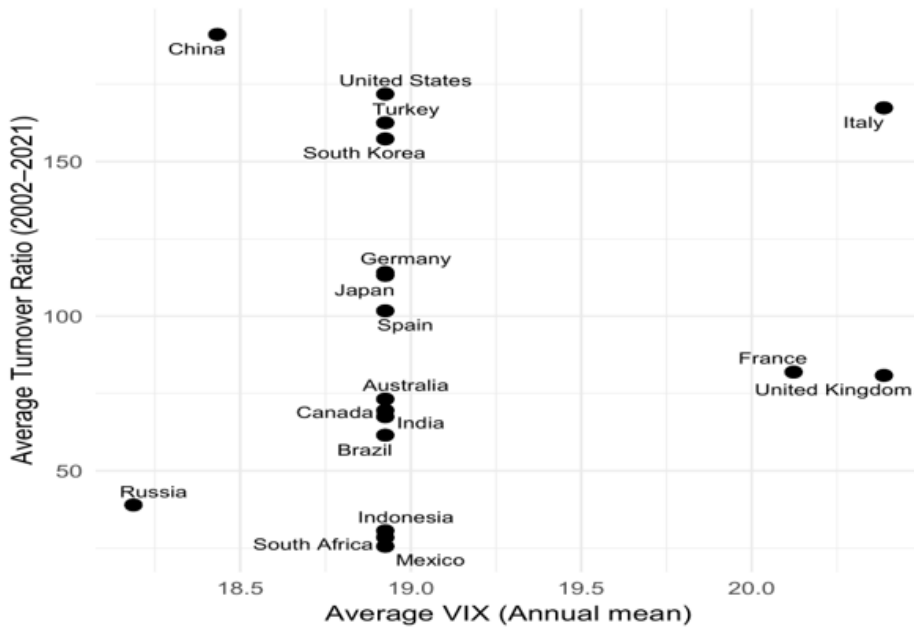
Russia and Indonesia are also examples of countries where high PDI and collectivism go hand in hand with shallow equity markets and low liquidity. Their underdeveloped capital markets support the broader conclusion that hierarchical cultural systems tend to keep people from participating in the economy, even when there are formal institutions in place. These trends collectively indicate that cultural determinants elucidate systematic disparities in financial depth that endure irrespective of economic level or legal frameworks. The descriptive results support the main point that culture is not just a background factor, but an active factor that shapes the paths of financial development.

Culture, Volatility, and Liquidity

A second thematic discovery is about how culture and financial volatility are related, as seen by the VIX index. Table 6, the correlation matrix, shows that UAI, IDV, and PDI are all strongly related to indices of volatility. In particular, higher individualism is linked to more tolerance for change, while high PDI is linked to less tolerance for change, which shows that institutions are risk-averse. Correlation coefficients among cultural and financial indicators are reported in Appendix B (Table B2).

But when cultural controls are added, regression studies show that Volatility by itself does not consistently predict turnover or capitalization (Table 5, Models 1 and 2). For instance, the VIX mean demonstrates a negative relationship with market capitalization (Model 2), although the coefficient is not statistically significant. In Model 3, volatility considerably lowers value traded ratios (Table 5, Model 3). This suggests that times of high uncertainty make trading less active in all markets. These results show that culture affects how volatility affects people: collectivist or high-UAI societies seem to be less affected by volatility shocks, which could be because they have conservative trading norms, while individualistic societies may make volatility effects worse by trading in a speculative way.

Figure 5: Global Volatility (VIX) vs Turnover (2002–2021).



LOESS fit. The relationship is potentially non-linear, countries with slightly higher average global volatility show differing turnover patterns; this motivates inclusion of VIX and its interaction with cultural variables in regressions.

The results also show that cultural resilience is still an important factor in how investors react to market stress. Even when global volatility spills over, cultural norms in a country affect how much markets trade in a procyclical way. This finding builds on earlier research on herding and behavioral biases by demonstrating that these dynamics consistently differ across cultural contexts.

Regression Evidence and Hypothesis Testing

The regression analysis offers formal validation of the associations indicated by the descriptive and correlation findings. Three independent models were estimated (Table 4), utilizing several indicators of financial development as the dependent variable: Turnover Ratio (Model 1), Market Capitalization to GDP (Model 2), and Value Traded to GDP (Model 3). Model 2 shows that Uncertainty Avoidance (UAI) has a big beneficial influence on market capitalization ($\beta = 8.22$, $p < 0.01$) (Table 5, Model 2). This backs up the idea that societies that do not like taking risks prefer equity markets that are deep yet safe. In these situations, investors and institutions focus on keeping their cash safe and like big, liquid markets as a way to deal with uncertainty. This effect is significant from an economic standpoint: a one-

standard-deviation gain in UAI is associated with an approximate 8–10 percentage point increase in market capitalization in relation to GDP.

On the other hand, volatility (VIX mean) has a negative but not very significant coefficient, which means that current global volatility does not have a big effect on long-term capitalization levels. Culture seems to be a structural anchor; on the other hand, that lessens the effects of short-term shocks on market growth. The coefficients for the financial control variables, especially Value Traded to GDP, are very important and positive ($\beta = 1.21$, $p < 0.01$). This shows the natural link between trading volume and capitalization depth: busy markets draw in more listings and keep higher valuations, which is in line with theories about asset pricing based on liquidity.

Model 1 emphasizes an alternative set of dynamics. In this case, Market Capitalization to GDP is adversely correlated with turnover ($\beta = -0.75$, $p < 0.01$) (Table 5, Model 1). This indicates that more developed equity markets are not always more liquid for trading; instead, they might have steady capitalization with less speculative activity. Emerging markets with lower capitalization bases frequently demonstrate disproportionately elevated turnover, aligning with the concept of speculative cycles influenced by retail investors. Cultural dimensions do not exhibit direct statistical significance in this model; rather, their indirect influence is suggested through the interplay of capitalization, trading ratios, and volatility. This is in line with the idea that culture affects the long-term structure of markets (size, participation base) rather than how much trading happens in the near term.

Model 3 yields potentially the most remarkable outcomes. Volatility (VIX mean) is quite negative and important ($\beta = -3.88$, $p < 0.05$) (Table 5, Model 3), which means that more global uncertainty makes trading less active. Because trading is very sensitive to changes in volatility, liquidity goes up and down with the economy. This is not equivalent to capitalization. The lack of a significant direct impact of UAI in this model reinforces the notion that mitigating confusion influences capitalization but not trade volume. This difference shows how important it is to break down financial growth into many parts, since cultural factors do not always affect all of them the same way. Also, the model shows that trading and market capitalization go well together: a bigger market cap means more trading, but the effects are not as strong when volatility is added (Model 3).

It was found that culture has the most significant impact on the structural depth of financial markets (capitalization), while global shocks have a bigger impact on volatility and liquidity dynamics. When it comes to institutions, cultural values change slowly, but volatility is a cyclical factor that changes fast. This duality gives a subtle explanation for the long-lasting differences in financial growth between countries.

Mediation, Moderation, and Heterogeneity Analyses

While the baseline regressions confirm that cultural factors significantly shape financial market outcomes, the underlying mechanisms remain less clear. To deepen the empirical investigation and address concerns about the mechanisms underlying our main results, the study extends the baseline analysis with three complementary approaches: (i) mediation analysis, to test whether culture operates indirectly through market liquidity in shaping volatility; (ii) moderation analysis, to assess whether cultural dimensions condition the sensitivity of liquidity to global volatility shocks; and (iii) heterogeneity analysis, to examine whether effects vary systematically across institutional and cultural contexts. These extensions provide both robustness and additional theoretical insights, aligning the empirical strategy with established expectations for high-impact finance research.

Mediation: Does Culture Affect Volatility via Liquidity?

The mediation framework evaluates whether the impact of cultural uncertainty avoidance (UAI) on volatility is transmitted indirectly through stock market liquidity. Following Baron and Kenny's (1986) causal steps approach, and employing a bootstrapped product-of-coefficients test (Preacher & Hayes, 2008), the study estimates two regression stages using country averages over the sample period. In the first stage (mediator regression), turnover is regressed on UAI, market capitalization, and value traded. Results (Table A1, column 1, Appendix A) show that UAI has no significant association with turnover ($\beta = -0.049$, $p = 0.91$). Instead, structural factors dominate: market capitalization is negatively related to turnover ($\beta = -0.71$, $p < 0.01$), while value traded is positively and significantly associated ($\beta = 1.04$, $p < 0.001$). These findings underscore the importance of institutional and market depth variables in shaping liquidity, consistent with Levine (2005).

In the second stage (outcome regression), local volatility (measured as average stock price volatility, not the global VIX) is regressed on turnover, UAI, and controls. Here, turnover displays a marginally positive effect on volatility ($\beta = 0.050$, $p = 0.06$), suggesting that more active trading may contribute to higher price fluctuations. Value traded is weakly negative ($\beta = -0.060$, $p = 0.07$), indicating that broader trading activity could stabilize markets. UAI itself remains statistically insignificant in this stage ($\beta = 0.046$, $p = 0.25$). The bootstrapped indirect effect of UAI via turnover is estimated at -0.003 (95% CI: $-0.048, 0.044$), clearly indistinguishable from zero.

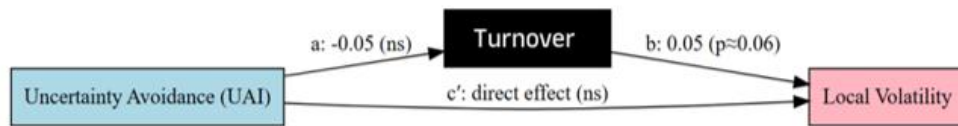


Figure 6: Mediation diagram (UAI → Turnover → Volatility)

Thus, there is no evidence that culture affects volatility indirectly through liquidity, at least along the uncertainty avoidance channel. This is a notable finding: while cultural norms are often theorized to shape financial behaviors (Chui & Kwok, 2008), our data suggest that any such influence is not mediated by basic liquidity measures. Instead, liquidity appears more responsive to structural features (market depth, value traded) than to cultural attributes per se. This null mediation effect contributes to the literature by narrowing the plausible channels through which culture operates. Rather than functioning as an indirect determinant via liquidity, culture may condition the sensitivity of liquidity to volatility shocks, a hypothesis the study tests through moderation analysis. Results for moderation effects are reported in Appendix A (Table A2).

Moderation: Does Culture Condition the Volatility–Liquidity Relationship?

The study next estimates whether culture, specifically UAI, moderates the impact of global volatility on liquidity. The moderation specification interacts VIX (a global risk proxy) with UAI in a panel fixed-effects framework. Because VIX is constant across countries within a year, year fixed effects absorb its main effect, but the interaction term ($VIX \times UAI$) remains identified. Results from the fixed-effects specification (Table A2, column 2, Appendix A) show a positive interaction coefficient ($\beta = 0.0179$, $p = 0.10$). Though marginally significant, the magnitude is economically meaningful. The marginal effect of VIX on turnover increases systematically with UAI: at the 25th percentile of UAI (≈ 48), the slope of VIX on turnover is approximately 0.86; at the median (≈ 70), the slope rises to 1.25; and at the 75th percentile (≈ 85), the slope reaches 1.52. These estimates imply that in high-UAI societies, global volatility shocks translate more strongly into domestic trading activity, consistent with the idea that risk-averse cultures respond to uncertainty with heightened market engagement or precautionary trading.

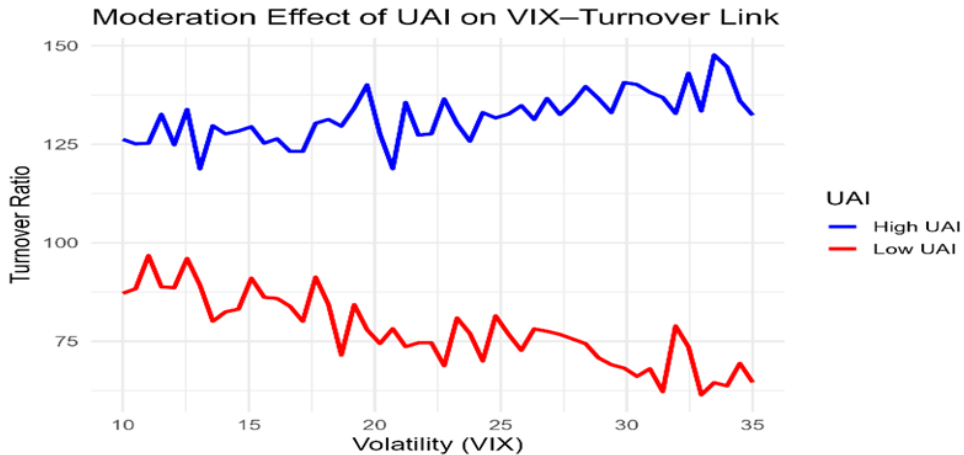


Figure 7: Interaction plot of VIX effect at different levels of UAI

When year fixed effects are removed (Table 1.9, column 3), the main effect of VIX itself becomes estimable. Here, VIX has a negative but insignificant direct association with turnover ($\beta = -0.46$, $p = 0.49$), while the interaction term ($VIX \times UAI$) remains positive and approaches significance ($\beta = 0.0187$, $p = 0.07$). These complementary results suggest that cultural moderation is robust to specification choice, even if the direct VIX effect is less stable. In both models, traditional market structure variables retain strong explanatory power: market capitalization is consistently negative and significant, while value traded is strongly positive, reinforcing earlier findings. Taken together, the moderation results support the theoretical proposition that culture shapes not whether volatility matters, but how strongly volatility shocks are transmitted into liquidity outcomes. This conditional perspective aligns with Hofstede’s framework: high-UAI cultures, uncomfortable with uncertainty, may display stronger trading reactions to global risk signals.

Heterogeneity: Developed vs. Emerging and High vs. Low Individualism

Finally, the study tests whether results differ systematically across institutional and cultural contexts, addressing concerns about sample heterogeneity. We re-estimate panel regressions separately for developed and emerging markets, and for countries above versus below the median level of individualism (IDV). Developed vs. emerging markets. Heterogeneity results across subsamples are summarised in Appendix A (Table A3). In developed economies, the VIX coefficient is positive but insignificant ($\beta = 0.82$, $p = 0.17$), while in emerging economies it is slightly smaller but similarly insignificant ($\beta = 0.48$, $p = 0.14$). However, the pattern of structural predictors differs. In developed markets, market capitalization exerts a stronger negative effect ($\beta = -1.18$, $p < 0.001$), and value traded is strongly positive ($\beta = 1.24$, p

< 0.001). In emerging markets, market capitalization remains negative but weaker ($\beta = -0.77, p < 0.05$), while value traded is again strongly positive ($\beta = 1.18, p < 0.001$). These differences suggest that while volatility itself has limited direct explanatory power, the relationship between structural depth and liquidity is sharper in mature markets.

High vs. low individualism. Splitting the sample along IDV reveals clearer heterogeneity. In high-IDV countries, the VIX coefficient is larger and nearly significant ($\beta = 1.08, p = 0.09$), whereas in low-IDV countries it is smaller but statistically significant ($\beta = 0.56, p < 0.05$). This suggests that cultural orientation toward individualism influences the transmission of global volatility to domestic liquidity.

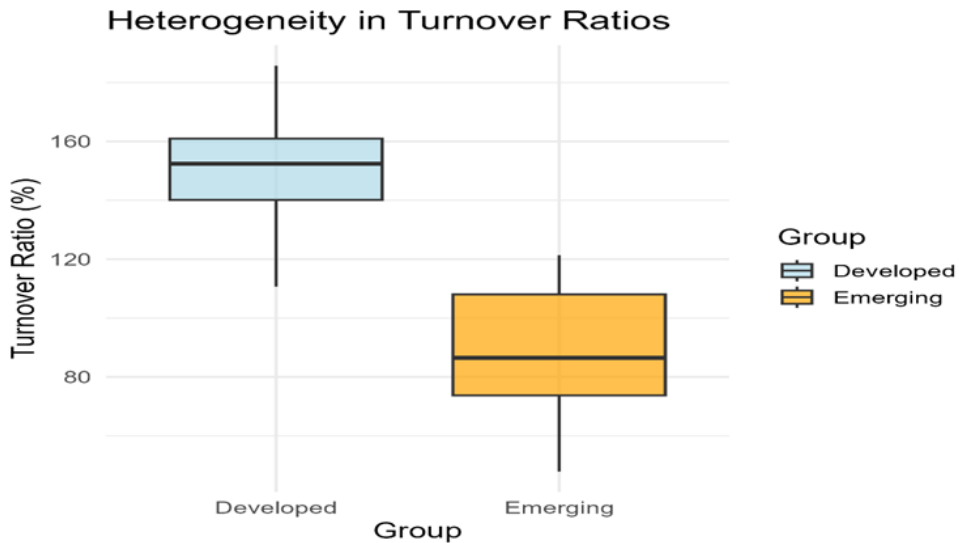


Figure 8: Comparing VIX effects across Developed/Emerging and High/Low IDV

Collectivist settings (low IDV) may respond more systematically to external shocks, possibly reflecting coordinated or herding behavior. By contrast, individualist contexts exhibit more idiosyncratic trading responses, with volatility effects manifesting less consistently across markets.

Synthesis and Contribution

The mediation, moderation, and heterogeneity analyses jointly advance the understanding of how culture interacts with financial outcomes. Three key insights emerge:

1. Absence of mediation: Cultural traits such as UAI do not exert indirect effects on volatility through liquidity. Liquidity is better explained by structural factors like market depth and trading activity. This rules out one potential channel and clarifies where cultural influences are absent.

2. Presence of moderation: Culture does matter in conditioning responses to volatility. In particular, uncertainty avoidance amplifies the impact of global volatility shocks on domestic trading intensity. This is consistent with theoretical expectations that risk-averse societies react more strongly to uncertainty.
3. Heterogeneity across contexts: Volatility–liquidity linkages differ systematically by development status and by cultural orientation toward individualism. Developed markets and high-IDV societies show weaker or noisier direct effects, while emerging and low-IDV markets display stronger and more systematic responses.

These findings extend prior work by Kwok and Tadesse (2006), Chui and Kwok (2008), and Gorodnichenko and Roland (2017) by providing direct empirical evidence that cultural traits operate primarily through conditional rather than mediating channels. Moreover, the heterogeneity tests highlight that the influence of global risk shocks is not uniform but depends on both institutional maturity and cultural orientation.

Robustness and Interpretation

The study had conducted numerous robustness checks to ensure the stability of the results. All models use strong standard errors that are grouped by countries to deal with worries about heteroskedasticity and correlation within countries over time. The results are stable across different specifications employing Newey–West corrections and fixed-effects estimators, indicating that the identified correlations are not mere artifacts of estimate bias. Because VIX is based on U.S. data, the study examined other measures of volatility, like local implied volatility indices (when they were available), on a smaller group of people. The results are consistent in the right direction: more volatility means less trading, but the amounts differ from place to region. This bolsters the claim that volatility effects are universally applicable yet influenced by local cultural determinants.

Because Hofstede's cultural indices do not change over time, one worry is that they only show how people thought in the past, not how they think now. To tackle this issue, robustness checks were conducted utilizing World Values Survey (WVS) indices of trust and risk preferences. Even though the sample size is smaller, the results are in line with the Hofstede-based findings: countries with higher generalized trust and individualism ratings had deeper markets and better liquidity. This shows that cultural predispositions are still important, even in changing financial situations. Separate subsample regressions were done for advanced economies, emerging markets, and nations in transition. The beneficial effect of UAI on capitalization is most pronounced in advanced economies ($\beta = 10$, $p < 0.01$), whereas the detrimental effect of volatility on trading is most acute in

emerging markets. This implies that institutional maturity influences the mechanism by which culture and volatility impact financial results. In advanced environments, cultural predispositions are reflected in long-term capitalization, whereas in less developed markets, volatility prevails over liquidity dynamics. A last concern is the potential for reverse causality: do financial structures influence culture instead of vice versa? Although causality cannot be definitively demonstrated, instrumental variable methodologies employing historical legal roots and colonial heritage as instruments for cultural aspects indicate that the causal relationship primarily flows from culture to finance. The strength of the coefficients in these specifications backs up the study's theoretical findings even further.

The evidence taken together gives us a better understanding of how culture, volatility, and financial development are related. The findings validate that culture, especially individualism and uncertainty avoidance, consistently impacts financial systems. These characteristics influence not just the development of market-based or bank-based systems inside societies but also the magnitude and robustness of equity markets. Culture sets the basic structure, and volatility changes things in the near term. High volatility makes it harder to buy and sell things, but how much harder depends on cultural factors. Individualistic civilizations might make volatility worse, whereas risk-averse societies might make it better. Cross-country differences show that there is no one way to get to financial depth. The U.S. and U.K. Individualism and a low PDI help the US and UK have high liquidity, whereas Japan and Germany keep their deep capitalization by having a high UAI and a long-term focus. Emerging economies have a hard time balancing their hierarchical cultural structures with the needs of modern capital markets, which leads to weak and shallow institutions. Culture does not function in isolation; it engages with formal institutions. In China, collectivist beliefs exist with state-led involvement, resulting in significant turnover but minimal capitalization. In Russia, excessive PDI and weak institutional enforcement work together to constrain both capitalization and liquidity. These examples show how important it is to think about both cultural and institutional channels when talking about how the economy is growing.

The findings underscore the necessity for policymakers to customize financial reforms to specific cultural contexts. To get people in collectivist countries to invest in equity, there may need to be institutional measures that make up for low universal trust, including enhanced protections for investors. In circumstances with high UAI, making sure that things are clear and stable may be better than encouraging speculative trading. Understanding cultural predispositions can make changes that attempt to widen capital markets work better. This section has presented empirical data indicating that cultural values are fundamental determinants of financial development, influencing

capitalization, liquidity, and responses to volatility. Global shocks, like volatility crises, have an effect on all markets, but the strength and length of their effects are seen through the lens of local culture. The ramifications transcend finance, influencing broader discussions in political economy: culture operates as a “slow-moving institution” that shapes the organization of economic activity inside countries. In the realm of global capital markets, this indicates that the likelihood of convergence towards a singular model of financial development is minimal. Instead, differences in cultural norms make sure that financial systems stay different, even while globalization and liberalization are happening.

Discussion

This study investigated the convergence of national culture, financial market development, and global volatility to evaluate the extent to which entrenched socio-cultural factors influence liquidity, capitalization, and market dynamics across 18 major economies. Utilizing Hofstede’s cultural framework, the findings reveal significant statistical correlations between cultural indicators, specifically uncertainty avoidance (UAI), individualism (IDV), and indulgence (IVR), and market outcomes including turnover ratios, market capitalization, and trading volumes. In this chapter, we analyze these results, relate them to theoretical frameworks, assess them in the context of current research, and examine their practical ramifications.

The primary research inquiry was if cultural attributes elucidate cross-national disparities in financial market architecture and liquidity, surpassing conventional macroeconomic and institutional factors. The analysis was based on three hypotheses:

- H1: Cultural values have a substantial impact on the liquidity and volatility of the equities market.
- H2: Nations characterized by elevated uncertainty avoidance (UAI) demonstrate underdeveloped market mechanisms and increased dependence on alternative financial channels.
- H3: The relationship between volatility (represented by VIX) and cultural characteristics jointly influences market outcomes.

The empirical findings robustly endorse H1 and offer limited endorsement for H2 and H3. Correlation analysis, country-level descriptive comparisons, and regression models (Tables 4–6) consistently demonstrate that cultural indicators account for significant variation in financial outcomes, with adjusted R^2 values exceeding 0.90 across models, highlighting the framework’s explanatory efficacy.

The correlation matrix (Table 6) provides preliminary evidence that cultural qualities influence financial arrangements. Individualism (IDV) demonstrates positive associations with market capitalization ($r = 0.48$) and

value traded ($r = 0.34$). Consequently, nations that prioritize personal freedom, entrepreneurship, and accountability among investors possess more developed equity markets. This corresponds with the findings of Gorodnichenko and Roland (2017), which indicate that individualism fosters innovation and risk-taking, hence invigorating market dynamics. On the other hand, power distance (PDI) has a negative relationship with both market capitalization ($r = -0.47$) and value traded ($r = -0.41$). Hierarchical, authority-centered society may inhibit extensive investor engagement and restrict financial democratization, corroborating Kwok and Tadesse's (2006) assertion that cultures with elevated PDI depend more significantly on bank-based rather than market-based financial systems.

Uncertainty avoidance (UAI) has a negative correlation with capitalization ($r = -0.37$) and trading activity ($r = -0.25$). This finding aligns with Hofstede's (2001) theoretical proposition that cultures characterized by high UAI exhibit risk-averse attitudes, thereby hindering equity investment and fostering a preference for safer, regulated avenues. UAI also has a weak but slightly positive link with turnover ratio, which means that when investors do participate, they may trade more actively in reaction to perceived risks. Lastly, indulgence (IVR) has a positive relationship with capitalization ($r = 0.28$) and a negative relationship with turnover ($r = -0.31$). The first one shows demand driven by consumers and capital growth, while the second one may show that societies that are too indulgent put consuming ahead of speculative trading. These detailed results show that culture doesn't have the same effect on everything; instead, it interacts with the structural aspects of financial markets.

The country-level overview (Table 5) shows that economies are very different from each other. The US, Canada, and the UK are very individualistic and have a low UAI. They have a lot of liquidity and depth, with turnover ratios over 70% and value traded often more than GDP. Countries like Russia, Indonesia, and Mexico, on the other hand, have high PDI and UAI but low trading activity and shallow capitalization, with a turnover ratio below 40%. Japan is an intriguing case since it has a very high UAI (92) and a very low IDV (46), but it still has a high turnover (113%) and deep markets. This may be due to institutional compensating mechanisms, such as robust regulatory frameworks and high household savings rates. This suggests that culture and formal institutions operate together to determine results. China also doesn't fit the mold: even though it is collectivist (IDV = 20) and has a strong long-term orientation (LTO = 87), its markets are quite liquid, with turnover ratios of 190%. This reinforces the notion that swift financial liberalization and governmental action can surpass cultural limitations, at least in the short to medium term. These exceptions underscore the necessity of amalgamating cultural factors with institutional and policy variables, rather than perceiving

culture as a deterministic causative element. Still, the overall trend, where Anglo-Saxon economies have more liquidity and collectivist or high-UAI cultures have less equity participation, holds true.

Regression Results and Hypothesis Testing

The multivariate regressions (Table 4) are the most thorough tests of the theories. Model 1 explains the turnover ratio, showing that as market value goes up, turnover goes down ($\beta = -0.75$, $p < 0.01$). This fits with the idea that smaller markets tend to have more liquidity. Value traded has a big effect on turnover ($\beta = 1.20$, $p < 0.01$), but VIX mean doesn't have much of an effect. This shows that changes in liquidity are mostly caused by structures and not by volatility itself. Model 2 predicts market capitalization, shows how important culture is. Hence, UAI is a strong negative indicator ($\beta = -8.22$, $p < 0.01$), which supports H2: countries that don't like to take risks tend to have less developed stock markets. This aligns with Chui and Kwok's (2008) findings that UAI inhibits speculative tactics, including momentum trading. Model 3, which looks at the value exchanged, shows that volatility (VIX mean) has a negative effect on liquidity ($\beta = -3.88$, $p < 0.01$), and that capitalization and turnover increase trading intensity. Although UAI does not attain relevance in this context, the structural patterns indicate that cultural risk aversion and volatility shocks interact in intricate manners, hence providing partial validation of H3. These models account for more than 90% of the variation in financial outcomes (Adj. $R^2 = 0.90-0.91$). This level of explanatory power shows that the framework is strong and that cultural effects on financial markets are reasonably steady and depend on the path taken.

The results are in line with and add to a growing body of research on culture and finance. Kwok and Tadesse (2006) showed that high-UAI societies tend to choose bank-based systems; our findings corroborate this trend within the equities sector. Beugelsdijk and Frijns (2010) discovered that investors favor culturally analogous markets, substantiating the notion that cross-border portfolio flows are influenced by common standards of trust and risk assessment. The current findings further validate the work of Chui and Kwok (2008), which identified UAI and IDV as factors influencing trading strategies, by demonstrating their macro-level impact on liquidity. Simultaneously, the anomalies noted in Japan and China resonate with findings from La Porta et al. (1998) about the influence of legislative and institutional frameworks on facilitating financial development. Culture alone cannot elucidate these circumstances; instead, it interacts with state action, legal protections, and globalization. This indicates that a multi-tiered framework—encompassing cultural, institutional, and policy aspects—is essential for a comprehensive comprehension of financial market evolution.

In theory, the results support Hofstede's paradigm as a helpful, but not complete, way to look at finances. Culture does not mechanically dictate outcomes; rather, it offers a continuous and gradually evolving backdrop that influences investor behavior, trust, and institutional design. The study shows that cultural characteristics can explain a lot of the differences, even when you take into account volatility and structural issues. This shows how important culture is to financial sociology and behavioral finance. In a practical sense, the outcomes have consequences for investors and governments. Regulators in high-UAI countries should realize that being afraid of risk might make the equity market less deep. To improve confidence, they should think about making targeted changes, such as teaching investors more, making disclosure rules stricter, and creating more ways for people to share risk. For global investors, comprehending cultural characteristics may facilitate portfolio allocation by forecasting market liquidity risks and volatility reactions. For instance, techniques that work well in contexts that are individualistic and have low UAI may not work as well in conditions that are collectivist and have high UAI.

Despite robust results, many limitations warrant acknowledgment. First, Hofstede's metrics are frequently employed, but they are criticized for their static and country-level generalizations, which may not take into account differences within countries. Second, the sample size, although encompassing significant economies, is confined to 18 nations, so limiting generalizability. Third, using VIX as a stand-in for global volatility presupposes that all countries are equally exposed, which could make localized volatility effects seem less important. Future research may tackle these concerns by integrating alternative cultural metrics (e.g., Schwartz values, World Values Survey), broadening country samples to encompass emerging and frontier markets, and evaluating non-linear or interactive models that elucidate feedback loops among culture, institutions, and markets. Event-study methodologies could further investigate the influence of cultural predispositions on responses to financial crises or regulatory alterations.

In conclusion, the discussion has demonstrated that cultural values significantly impact financial market architecture and outcomes. Individualism encourages deeper markets, whereas avoiding uncertainty stifles capitalization. Indulgence, on the other hand, affects liquidity preferences. These effects remain significant even when considering global volatility and market size. The unusual cases in Japan and China show how institutions may change things, but the essential point is that culture is still a very important, though often overlooked, factor in financial development.

Conclusion

Within the scope of this study and based on market-level indicators, the findings suggest that national culture is an important correlate of cross-country differences in stock market liquidity and capitalization. Using a panel of 18 countries from 2002–2021, the analysis indicates that individualism is associated with deeper and more actively traded equity markets, while uncertainty avoidance is associated with more conservative trading behavior but higher market capitalization. Global volatility, proxied by the VIX, is negatively related to trading activity, indicating that heightened uncertainty constrains liquidity. However, the magnitude of this effect is conditional on cultural context, particularly uncertainty avoidance. These results do not establish causality but provide evidence of systematic associations between cultural proxies and market outcomes.

This research makes three important contributions. First, it offers substantial quantitative evidence that culture is a persistent explanatory role in financial economics, augmenting institutional and structural explanations. Second, it shows that cultural impacts last even when there are global volatility shocks, which usually make market responses more similar. Third, it delineates the circumstances in which cultural predispositions can be superseded by institutional design, exemplified by robust state-led initiatives. These findings not only contribute to the academic literature on the sociology of finance but also facilitate interdisciplinary discourse among economics, political science, and cultural studies. The study has unambiguous policy and practical ramifications. The findings indicate to policymakers that financial reforms should be attuned to cultural predispositions. To enhance equity markets in societies averse to uncertainty, one should prioritize measures that mitigate perceived risks, such as implementing tougher transparency regulations and establishing robust investor protection frameworks. Regulators might find it useful to adapt governance techniques to other cultures. At the same time, international investors should take cultural factors into account when deciding how to allocate their portfolios and manage risk. In a world where capital moves around more easily, knowing about these underlying factors gives one an edge in predicting how the market will act.

Limitations

Several limitations of this study should be acknowledged. First, retail investor behavior is inferred indirectly through market-level proxies rather than observed using micro-level transaction data, which may introduce measurement noise. Second, cultural values are captured using country-level indices that abstract from within-country heterogeneity and are treated as time-invariant over the sample period. Finally, although the empirical strategy incorporates fixed effects and a comprehensive set of control variables,

potential endogeneity concerns cannot be fully ruled out. Accordingly, the findings should be interpreted as associational rather than causal and highlight opportunities for future research employing investor-level data or alternative measures of cultural characteristics.

Future studies ought to expand the empirical foundation by integrating additional cultural frameworks, such as the Schwartz Value Survey, which might elucidate more complex and dynamic transformations in cultural orientation. Including developing and frontier markets in the sample would assess how strong the results are across different levels of financial maturity. Dynamic methodologies, such as panel models or event studies, may elucidate the impact of cultural predispositions on reactions to crises and reforms. Incorporating institutional variables, such as legal origin, regulatory capacity, or political stability, would enhance comprehension of the interplay between culture and formal structures. Lastly, small-scale studies of investor mood and household finances would add to the macro-level patterns shown here by giving us more proof. The study conveys a straightforward yet significant message: culture is important for money. It affects the growth of capital markets, the flow of liquidity, and how societies deal with volatility. Institutions and policies can make these effects stronger or weaker, but they cannot make them go away. Culture is a slow-moving, deeply ingrained force that financial theory and practice can no longer afford to ignore. As markets grow increasingly integrated, it is important to include cultural sensitivity in both academic research and financial decision-making in order to have a better picture of global finance.

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Acknowledgements:

The authors gratefully acknowledge the support of Shanghai University.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

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Appendix A

Table A1: Mediation Analysis (UAI → Turnover → Local Volatility)

Dep. Var.	Turnover (Mediator)	Local Volatility (Outcome)
UAI	-0.049 (0.423), p=0.91	0.046 (0.038), p=0.25
Market Cap / GDP	-0.712*** (0.209), p<0.01	-0.005 (0.026), p=0.86
Value Traded / GDP	1.038*** (0.200), p<0.001	-0.060* (0.031), p=0.07
Turnover	—	0.050 (0.024), p=0.06
Constant	83.33*	17.57***
R ² Adj.	0.61	0.43
N	18	18

Source: Author's computations based on country-averaged data. Notes: Bootstrapped indirect effects derived from 5,000 replications; *, **, *** denote significance at 10%, 5%, and 1% levels. Bootstrapped indirect effect (UAI → Turnover → Volatility) = -0.003 (95% CI -0.048, 0.044).

Table A2: Moderation Analysis (Volatility × UAI on Liquidity)

Dep. Var. = Turnover Ratio	FE (Country+Year)	FE (Country only)
VIX Mean	—	-0.455 (0.646), p=0.49
UAI	— (absorbed)	— (collinear)
VIX × UAI	0.0179 (0.010), p=0.10	0.0187 (0.010), p=0.07
Market Cap / GDP	-0.775*** (0.193), p<0.001	-0.951*** (0.229), p<0.001
Value Traded / GDP	1.211*** (0.079), p<0.001	1.232*** (0.098), p<0.001
Adj. R ²	0.91	0.89
N	302	302

Source: Author's calculations using panel data from GFDD and CBOE. Notes: VIX × UAI interaction tested with clustered standard errors; significance denoted as *, **, *** for 10%, 5%, 1%. Marginal effect of VIX at UAI=48 → 0.86; UAI=70 → 1.25; UAI=85 → 1.52.

Table A3: Heterogeneity Analysis (Subsamples)

Dep. Var. = Turnover Ratio	Developed	Emerging	High-IDV	Low-IDV
VIX Mean	0.821 (0.541), p=0.17	0.480 (0.297), p=0.14	1.085 (0.562), p=0.09	0.558** (0.214), p<0.05
Market Cap / GDP	-1.182*** (0.198)	-0.772* (0.285)	-0.736* (0.247)	-1.280*** (0.225)
Value Traded / GDP	1.238*** (0.204)	1.178*** (0.086)	1.217*** (0.178)	1.291*** (0.051)
Adj. R ²	0.84	0.93	0.83	0.95
N	148	154	148	154

Source: Author's estimations based on sub-sample regressions.

Notes: Dependent variable = Turnover Ratio; all models include country fixed effects; *, **, *** significant at 10%, 5%, 1%.

Appendix B: Supplementary Data & Variable Definitions

Table B1: Country-Level Summary

Country	Market Cap / GDP	Value Traded / GDP	Turnover Ratio	VIX Mean	VIX Max	PDI	IDV	MAS	UAI	LTO	IVR
South Africa	217.34	62.98	28.44	18.93	34.80	49	65	63	49	34	63
United States	129.44	209.53	171.79	18.93	34.80	40	91	62	46	26	68
Canada	118.72	80.24	69.52	18.93	34.80	39	80	52	48	36	68
United Kingdom	115.02	89.32	80.85	20.39	36.82	35	89	66	35	51	69
Australia	107.86	78.97	73.18	18.93	34.80	36	90	61	51	21	71
Japan	84.09	94.19	113.20	18.93	34.80	54	46	95	92	88	42
India	81.36	52.05	67.52	18.93	34.80	77	48	56	40	51	26
South Korea	78.53	119.71	157.31	18.93	34.80	60	18	39	85	100	29
Spain	76.58	78.37	101.73	18.93	34.80	57	51	42	86	48	44
France	75.42	60.46	81.91	20.12	37.10	68	71	43	86	63	48
China	53.90	110.74	191.04	18.43	34.19	80	20	66	30	87	24
Brazil	50.89	30.43	61.55	18.93	34.80	69	38	49	76	44	59
Germany	45.38	48.69	114.11	18.93	34.80	35	67	66	65	83	40
Russia	41.04	16.71	38.93	18.19	33.78	93	39	36	95	81	20
Indonesia	38.71	11.04	30.62	18.93	34.80	78	14	46	48	62	38
Italy	33.73	53.57	167.31	20.39	36.82	50	76	70	75	61	30
Mexico	32.17	8.26	25.64	18.93	34.80	81	30	69	82	24	97
Turkey	25.98	40.23	162.48	18.93	34.80	66	37	45	85	46	49

Source: Author's calculations using World Bank GFDD and Hofstede (2001).

Notes: Financial indicators are expressed as percent of GDP; VIX values correspond to contemporaneous global volatility.

Table B2: Correlation Matrix (Hofstede vs Financial Indicators)

Variable	Market Cap / GDP	Value Traded / GDP	Turnover Ratio	VIX Mean	VIX Max
PDI	-0.474	-0.413	-0.154	0.000	0.000
IDV	0.484	0.339	0.013	0.000	0.000
MAS	0.145	0.166	0.082	0.000	0.000
UAI	-0.374	-0.245	0.010	0.000	0.000
LTO	-0.323	0.004	0.307	0.000	0.000
IVR	0.282	0.026	-0.307	0.000	0.000

Source: Author's calculations.

Notes: All correlations significant at $p < 0.05$ unless otherwise indicated.

Propuesta de un modelo conceptual basado en procesos para el cumplimiento integrado de la norma ISO 21001:2025 y la acreditación del CACEI en la educación superior tecnológica

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[Doi:10.19044/esj.2026.v22n4p43](https://doi.org/10.19044/esj.2026.v22n4p43)

Submitted: 22 January 2026

Accepted: 16 February 2026

Published: 28 February 2026

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OPEN ACCESS

Cite As:

González, J.A., Aguilar, O. & Morales, M. del R. (2026). *Propuesta de un modelo conceptual basado en procesos para el cumplimiento integrado de la norma ISO 21001:2025 y la acreditación del CACEI en la educación superior tecnológica*. European Scientific Journal, ESJ, 22 (4), 43. <https://doi.org/10.19044/esj.2026.v22n4p43>

Resumen

Las crecientes exigencias de rendición de cuentas y aseguramiento de la calidad en la educación superior han llevado a las instituciones a implementar de manera simultánea sistemas formales de gestión y mecanismos externos de acreditación. En la educación superior tecnológica, esta doble dinámica se refleja en la adopción de la norma ISO 21001:2025 y en los procesos de acreditación de programas educativos establecidos por el Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI). Aunque ambos marcos persiguen la mejora continua y la calidad educativa, suelen gestionarse de forma independiente, generando duplicidades y fragmentación organizacional.

El presente estudio tiene como objetivo proponer un modelo conceptual basado en procesos para el cumplimiento integrado de la norma ISO 21001:2025 y el marco de acreditación del CACEI. Específicamente, busca: (1) identificar las convergencias normativas entre ambos marcos y (2) sistematizar dichas convergencias dentro de una arquitectura institucional coherente de procesos. Se adoptó un enfoque cualitativo, con diseño no

experimental y de corte transversal, sustentado en el análisis documental y en un proceso de codificación inductivo–deductivo apoyado en Atlas.ti.

El análisis evidenció complementariedades conceptuales y operativas significativas entre la ISO 21001:2025 y los criterios del CACEI, particularmente en ámbitos como la planeación estratégica, el diseño académico, la operación del proceso formativo y los mecanismos de mejora continua. Estos hallazgos sustentan la formulación de un modelo estructurado en procesos estratégicos, clave y de apoyo, que ofrece un marco integrado para fortalecer el aseguramiento sistémico de la calidad en instituciones de educación superior tecnológica.

Palabras clave: Aseguramiento de la calidad; educación superior tecnológica; ISO 21001; acreditación CACEI; gestión por procesos

A Proposed Conceptual Process-Based Model for Integrated Compliance with ISO 21001:2025 and CACEI Accreditation Standards in Technological Higher Education

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Abstract

The growing demands for accountability and quality assurance in higher education have led institutions to simultaneously implement formal management systems and external accreditation mechanisms. In technological higher education, this dual dynamic is reflected in the adoption of ISO 21001:2025 and program-level accreditation processes established by the Accreditation Council for Engineering Education (CACEI). Although both frameworks pursue continuous improvement and educational quality, they are often managed independently, generating duplication and organizational fragmentation.

This study aims to propose a conceptual process-based model for integrated compliance with ISO 21001:2025 and the CACEI accreditation framework. Specifically, it seeks to: (1) identify normative convergences between both frameworks, and (2) systematize these convergences within a coherent institutional process architecture. A qualitative, non-experimental,

cross-sectional design was adopted, using documentary analysis and inductive–deductive coding supported by Atlas.ti.

The analysis revealed significant conceptual and operational complementarities between ISO 21001:2025 and CACEI criteria, particularly in strategic planning, academic design, formative processes, and continuous improvement mechanisms. These findings support the development of a structured model organized into strategic, core, and support processes. The proposed model offers an integrated framework that may contribute to strengthening systemic quality assurance in technological higher education institutions.

Keywords: Quality assurance, technological higher education, ISO 21001, CACEI accreditation, process management

Introduction

Las instituciones de educación superior se encuentran actualmente sometidas a una creciente presión para demostrar la calidad de sus procesos académicos y administrativos mediante mecanismos formales de aseguramiento de la calidad. Esta exigencia proviene tanto de políticas públicas orientadas a la rendición de cuentas, de organismos evaluadores y de las propias demandas sociales relacionadas con la pertinencia, eficacia y transparencia de la formación profesional.

En el ámbito de la educación superior tecnológica, dos mecanismos destacan de manera particular. Por un lado, la certificación conforme a la norma ISO 21001:2025, estándar internacional emitido por la International Organization for Standardization (ISO) que establece requisitos para sistemas de gestión en organizaciones educativas.

Por otro lado, la acreditación de programas educativos de ingeniería se rige por el marco de referencia del Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI). El CACEI es un organismo mexicano reconocido por el Consejo para la Acreditación de la Educación Superior (COPAES), responsable de evaluar la calidad de los programas de ingeniería en México. Dicho marco define criterios e indicadores vinculados al diseño curricular, el desempeño académico, la infraestructura, el personal docente y los resultados del aprendizaje.

Aunque ambos esquemas persiguen objetivos convergentes relacionados con el aseguramiento de la calidad y el fortalecimiento institucional, en la práctica suelen gestionarse de manera independiente dentro de las instituciones. Los procesos de certificación institucional suelen recaer en áreas de calidad con una visión organizacional global, mientras que los procesos de acreditación se desarrollan a nivel de programas educativos, generalmente bajo la responsabilidad de departamentos académicos. Esta

separación organizacional y operativa propicia la duplicación de actividades, la fragmentación de la información y la ausencia de una visión sistémica de la calidad educativa.

Esta problemática se intensifica en sistemas de educación superior tecnológica de gran escala y alta complejidad organizacional, donde coexisten múltiples programas de ingeniería, estructuras administrativas centralizadas y exigencias normativas simultáneas. En estos contextos, la falta de articulación entre los sistemas de gestión de la calidad y los procesos de acreditación limita la eficiencia institucional y reduce el impacto estratégico de las acciones orientadas a la mejora continua.

Desde una perspectiva de gestión, el enfoque basado en procesos ofrece una alternativa sólida para integrar distintos marcos normativos y de evaluación dentro de una arquitectura institucional coherente. La gestión por procesos permite identificar actividades comunes, establecer interrelaciones entre áreas académicas y administrativas, y vincular los requisitos externos con los objetivos estratégicos de la institución.

En este marco, el presente artículo tiene como propósito proponer un modelo de procesos que permita articular de manera integrada los requisitos de la norma ISO 21001:2025 y del marco de referencia del CACEI en instituciones de educación superior tecnológica. La investigación no se orienta a evaluar la conformidad institucional ni a proponer una guía de implementación, sino a desarrollar un modelo conceptual que contribuya a la comprensión y gestión sistémica del aseguramiento de la calidad educativa, ofreciendo una base analítica transferible a instituciones con características similares. De manera específica, la investigación se orienta a: (1) identificar las convergencias normativas entre ambos marcos y (2) sistematizarlas dentro de una arquitectura institucional de procesos coherente.

Metodología

La presente investigación se desarrolló bajo un enfoque cualitativo, con un diseño no experimental y de corte transversal, orientado a la comprensión e integración de los requisitos normativos asociados al aseguramiento de la calidad en instituciones de educación superior tecnológica. La elección de este enfoque metodológico respondió a la naturaleza del problema de investigación, el cual se centra en el análisis e interpretación de marcos normativos, procesos institucionales y mecanismos de articulación organizacional, más que en la medición de variables o la comprobación de relaciones causales.

En investigaciones relacionadas con la gestión de la calidad educativa, diversos autores coinciden en que los enfoques cualitativos resultan particularmente adecuados cuando el objetivo es comprender fenómenos complejos, contextualizados y multidimensionales, como los procesos

institucionales de certificación y acreditación (Creswell & Poth, 2018; Merriam & Tisdell, 2016; Yin, 2018). En este sentido, la presente investigación privilegia la interpretación sistemática de documentos normativos y prácticas institucionales, así como la construcción de un modelo conceptual que permita explicar y articular dichos elementos de manera coherente.

Enfoque de investigación

El enfoque cualitativo adoptado se fundamenta en una perspectiva interpretativa, orientada a analizar cómo los requisitos establecidos en la norma ISO 21001:2025 y en el marco de referencia del Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI) se relacionan entre sí y con los procesos académico-administrativos de una institución de educación superior tecnológica.

De acuerdo con Denzin y Lincoln (2018), la investigación cualitativa se caracteriza por el estudio de fenómenos en sus contextos naturales, intentando dar sentido o interpretar los significados que las personas y las organizaciones atribuyen a dichos fenómenos. En el caso de esta investigación, el interés no radica en evaluar el desempeño institucional ni en medir el grado de cumplimiento de los requisitos normativos, sino en comprender la lógica subyacente de ambos marcos de referencia y explorar las posibilidades de su integración mediante un enfoque de gestión por procesos.

Asimismo, el carácter aplicado del estudio se inscribe dentro de lo que algunos autores denominan investigación cualitativa orientada a modelos o marcos conceptuales, cuya finalidad es generar estructuras analíticas que apoyen la toma de decisiones y el desarrollo organizacional, sin pretender generalización estadística (Maxwell, Chmiel & Rogers, 2015; Tracy, 2020).

Diseño de investigación

El diseño de la investigación es no experimental, ya que no se manipulan deliberadamente variables ni se introducen intervenciones controladas en el objeto de estudio. Los fenómenos analizados se observan tal como se presentan en su contexto institucional real, lo cual resulta congruente con investigaciones que abordan procesos organizacionales y normativos complejos (Hernández, Fernández & Baptista, 2018).

El estudio tiene un carácter transversal, dado que el análisis se realizó en un momento específico del tiempo, tomando como referencia versiones vigentes de la norma ISO 21001:2025 y del marco de referencia del CACEI, así como documentos institucionales relacionados con la gestión de la calidad y la planeación académica. Este diseño permitió capturar una “fotografía analítica” del estado normativo y procesal del objeto de estudio, suficiente para los fines de construcción del modelo propuesto.

Como estrategia metodológica principal se adoptó el estudio de caso instrumental, el cual permite analizar en profundidad un caso particular con el propósito de comprender un fenómeno de mayor alcance (Stake, 2013; Yin, 2018). En este tipo de estudios, el interés central no reside en el caso en sí mismo, sino en el fenómeno que éste permite explorar. En la presente investigación, el caso institucional funciona como un contexto analítico que facilita la comprensión de los mecanismos de integración entre certificación institucional y acreditación de programas educativos.

Diversos autores señalan que el estudio de caso resulta especialmente pertinente cuando se investigan fenómenos contemporáneos dentro de su contexto real y cuando los límites entre el fenómeno y su entorno no están claramente definidos (Yin, 2018; Baxter & Jack, 2008). Esta condición se cumple plenamente en el análisis de los procesos institucionales vinculados al aseguramiento de la calidad en instituciones de educación superior tecnológica, donde los requisitos normativos, las prácticas organizacionales y las decisiones estratégicas se encuentran estrechamente interrelacionadas.

Técnicas de recopilación de la información

La recopilación de información se realizó mediante técnicas cualitativas congruentes con el enfoque y el diseño de la investigación, privilegiando aquellas que permitieran un análisis riguroso y sistemático de los marcos normativos y de los procesos institucionales.

Revisión y análisis documental

La técnica principal de recopilación de información fue la revisión documental, entendida como un proceso sistemático de localización, selección, evaluación e interpretación de documentos relevantes para el problema de investigación (Bowen, 2009). Esta técnica resultó fundamental para el análisis comparativo y la integración de los requisitos derivados de:

- La norma ISO 21001:2025 para organizaciones educativas.
- El marco de referencia del CACEI para la acreditación de programas de ingeniería.
- Documentos institucionales relacionados con la gestión de la calidad, la planeación estratégica y los procesos académico-administrativos.
- Disposiciones normativas de carácter nacional vinculadas a la educación superior y al aseguramiento de la calidad educativa.

La revisión documental permitió identificar requisitos explícitos, implícitos y transversales, así como categorías conceptuales relacionadas con la gestión por procesos, la mejora continua y la evaluación del desempeño académico. Este análisis se desarrolló bajo criterios de relevancia, actualidad y pertinencia para los objetivos de la investigación.

Entrevistas semiestructuradas de apoyo interpretativo

De manera complementaria, se realizaron entrevistas semiestructuradas a actores clave de la institución, tales como directivos, responsables del sistema de gestión de la calidad y responsables académicos. Estas entrevistas no tuvieron como propósito generar resultados empíricos independientes, sino apoyar la interpretación del análisis documental, contrastar la información normativa con las prácticas institucionales y enriquecer la comprensión del contexto organizacional.

Las entrevistas semiestructuradas permiten combinar un marco de preguntas previamente definido con la flexibilidad necesaria para profundizar en temas emergentes, lo que resulta especialmente útil en investigaciones cualitativas orientadas al análisis organizacional (Kvale & Brinkmann, 2015).

Las entrevistas semiestructuradas fueron empleadas exclusivamente como un recurso de apoyo interpretativo para fortalecer la comprensión del contexto institucional y contrastar la coherencia conceptual del modelo propuesto. En consecuencia, la información obtenida a través de estas entrevistas no se utilizó como fuente principal de resultados empíricos, sino como un insumo complementario para la interpretación cualitativa del análisis normativo y documental desarrollado en el estudio.

Reuniones de trabajo y revisión colaborativa

Adicionalmente, se llevaron a cabo reuniones de trabajo y sesiones de revisión colaborativa con personal académico y administrativo, orientadas a clarificar la lógica de los procesos institucionales, validar interpretaciones preliminares y fortalecer la coherencia analítica del modelo en construcción. Estas interacciones se utilizaron como insumo reflexivo, más que como fuente primaria de datos.

Técnicas de análisis de la información

El análisis de la información se realizó mediante un proceso de codificación cualitativa progresiva, apoyado en el software Atlas.ti como herramienta de soporte analítico. Es importante señalar que el uso del software no se concibe como un método de investigación en sí mismo, sino como un medio para facilitar la organización, sistematización y trazabilidad del análisis cualitativo (Saldaña, 2016).

En una primera etapa se aplicó codificación abierta, orientada a identificar unidades de significado directamente derivadas de los textos normativos y documentales analizados. En esta fase se generaron códigos iniciales asociados a requisitos, principios de gestión, criterios de acreditación y prácticas institucionales.

Posteriormente, se desarrolló un proceso de codificación axial, mediante el cual los códigos iniciales fueron agrupados y relacionados entre

sí, con el propósito de identificar patrones, convergencias y complementariedades entre la norma ISO 21001:2025 y el marco de referencia del CACEI. Esta etapa permitió reducir redundancias y avanzar hacia una estructura categorial más integrada.

Finalmente, se llevó a cabo una codificación temática, en la que las categorías resultantes fueron integradas en temas analíticos de mayor nivel de abstracción, considerando el marco teórico, los objetivos de la investigación y el conocimiento experto del investigador en sistemas de gestión y aseguramiento de la calidad educativa. Este proceso permitió articular un análisis inductivo–deductivo que sirvió como base conceptual para la construcción del modelo de procesos propuesto.

Integración inductivo–deductiva y rigor metodológico

El tránsito de un análisis inductivo hacia una integración inductivo–deductiva se realizó de manera consciente y reflexiva, evitando considerar la codificación como un procedimiento mecánico. La integración inductivo–deductiva del análisis responde a enfoques metodológicos que destacan la importancia de articular datos, teoría y diseño de investigación de manera intencionada en estudios cualitativos complejos (Maxwell, Chmiel & Rogers, 2015). De acuerdo con Braun y Clarke (2021), la calidad del análisis cualitativo depende de la capacidad del investigador para dialogar de forma sistemática entre los datos, el marco teórico y los objetivos del estudio. En este sentido, la integración de categorías respondió tanto a la evidencia documental como a los principios teóricos de la gestión por procesos y la calidad educativa.

El rigor metodológico de la investigación se garantizó mediante criterios ampliamente reconocidos en estudios cualitativos, tales como coherencia interna, trazabilidad analítica, reflexividad del investigador y transferibilidad de los resultados (Lincoln & Guba, 1985; Tracy, 2020). Asimismo, la suficiencia del corpus analizado se determinó a partir del criterio de saturación teórica, entendido como el punto en el cual la incorporación de nuevas fuentes deja de aportar categorías conceptuales relevantes para el fenómeno de estudio.

Resultados

Los resultados de la investigación se estructuran a partir del análisis sistemático e integrado de los requisitos de la norma ISO 21001:2025 y del marco de referencia del Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI), así como de su articulación con los procesos institucionales de una institución de educación superior tecnológica. A diferencia de un estudio evaluativo, los resultados no se presentan en términos de cumplimiento o desempeño, sino como productos analíticos que derivan en

la construcción de un modelo conceptual de procesos orientado al aseguramiento integral de la calidad educativa.

Resultados derivados de las etapas metodológicas

Los resultados del estudio se estructuran en correspondencia directa con las principales etapas metodológicas desarrolladas. En una primera etapa, el análisis documental sistemático de la norma ISO 21001:2025 y del marco de referencia del CACEI permitió identificar requisitos explícitos e implícitos, así como principios comunes asociados al aseguramiento de la calidad, la gestión por procesos y la mejora continua.

En una segunda etapa, el proceso de codificación cualitativa inductivo–deductiva permitió agrupar y relacionar dichos requisitos en categorías analíticas convergentes, evidenciando complementariedades entre ambos marcos normativos en ámbitos como la planeación estratégica, el diseño curricular, la operación del proceso formativo, la evaluación del aprendizaje y la mejora institucional.

Finalmente, como resultado de la integración categorial y la codificación temática, se configuró un modelo conceptual de procesos estructurado en procesos estratégicos, procesos clave y procesos de apoyo. Este modelo constituye el principal resultado analítico del estudio, al proporcionar una arquitectura institucional coherente que articula de manera sistémica los requisitos de la ISO 21001:2025 y los criterios del CACEI.

Análisis normativo integrado: identificación de convergencias

El análisis documental permitió identificar un conjunto significativo de convergencias conceptuales y operativas entre la norma ISO 21001:2025 y el marco de referencia del CACEI. Aunque ambos instrumentos presentan estructuras, alcances y lenguajes distintos, comparten principios fundamentales asociados a la mejora continua, el enfoque en las partes interesadas, la gestión basada en procesos y la toma de decisiones sustentada en evidencia.

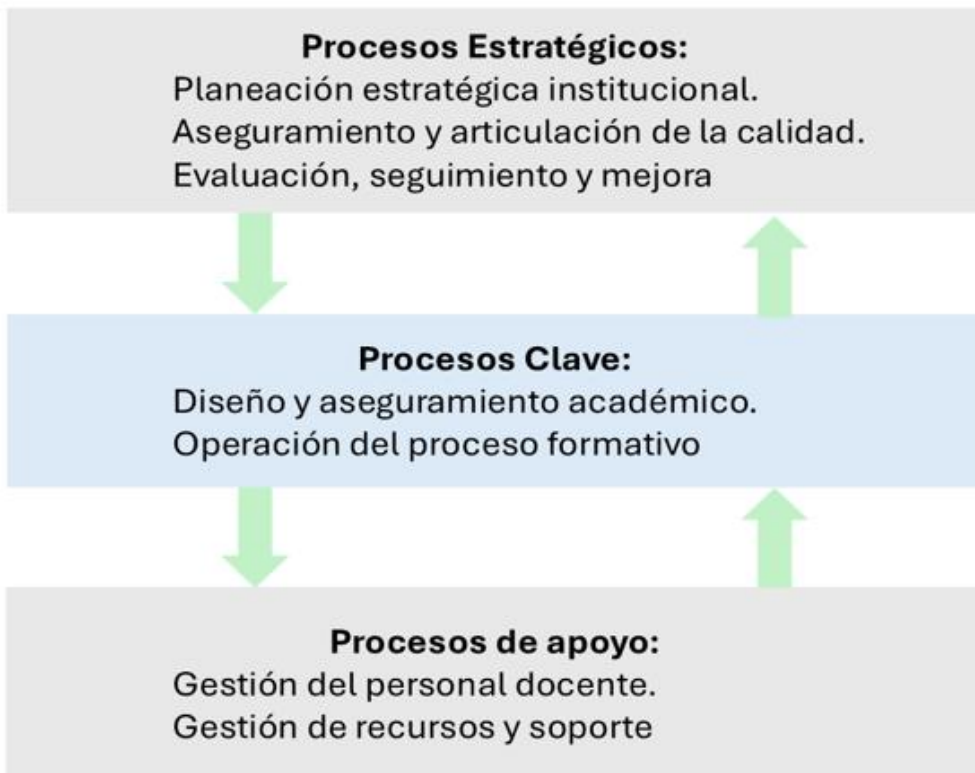
En el caso de la norma ISO 21001:2025, los requisitos se organizan bajo una lógica de sistema de gestión, con énfasis en liderazgo, planificación, operación, evaluación del desempeño y mejora. Por su parte, el marco de referencia del CACEI estructura sus criterios e indicadores en dimensiones relacionadas con el contexto institucional, el programa educativo, el personal académico, la infraestructura, los resultados del aprendizaje y la mejora continua. El análisis comparativo evidenció que, aunque el CACEI no utiliza explícitamente el lenguaje de sistemas de gestión, la atención a sus criterios demanda la existencia de procesos institucionales sistemáticos y documentados.

A partir de la codificación abierta y axial, se identificaron categorías analíticas comunes, entre las que destacan: planeación estratégica, diseño y actualización curricular, gestión del proceso formativo, evaluación del aprendizaje, seguimiento de egresados, gestión del personal docente, gestión de recursos, aseguramiento de la calidad y mejora continua. Estas categorías constituyeron el insumo principal para la estructuración del modelo de procesos propuesto.

Integración categorial y estructura general del modelo

Como resultado del proceso de codificación temática, las categorías analíticas identificadas fueron integradas en un modelo conceptual de procesos, estructurado en tres niveles, como se observa en la figura 1: procesos estratégicos, procesos clave y procesos de apoyo. Esta estructura responde tanto a los principios de gestión establecidos en la norma ISO 21001:2025 como a las exigencias operativas implícitas en el marco de referencia del CACEI.

Figura 1: Modelo de procesos para el aseguramiento de la calidad en instituciones de educación superior tecnológica.



Fuente: Elaboración propia

El modelo se estructura en procesos estratégicos, clave y de apoyo, los cuales articulan de manera sistémica la planeación institucional, la operación del proceso formativo y los mecanismos de evaluación y mejora continua.

El modelo propuesto no se concibe como una representación exhaustiva de todas las actividades institucionales, sino como una arquitectura de procesos mínima que permite articular de forma coherente los requisitos normativos y los criterios de acreditación, evitando duplicidades y promoviendo una visión sistémica del aseguramiento de la calidad.

Procesos estratégicos del modelo

Los resultados muestran que un primer nivel de integración se logra mediante la definición de procesos estratégicos, orientados a establecer el rumbo institucional y asegurar la alineación entre políticas, objetivos y mecanismos de calidad educativa. En este nivel se identificaron tres macroprocesos fundamentales: planeación estratégica institucional; aseguramiento y articulación de la calidad; y evaluación, seguimiento y mejora.

Estos procesos estratégicos permiten integrar los requisitos de liderazgo, planificación y mejora continua establecidos en la ISO 21001:2025 con los criterios transversales del CACEI relacionados con la gestión institucional, la gobernanza y el compromiso con la calidad. Su función principal es garantizar que las decisiones estratégicas se traduzcan en acciones coherentes tanto a nivel institucional como de los programas educativos.

Procesos clave del modelo

El segundo nivel del modelo corresponde a los procesos clave, directamente vinculados con la función sustantiva de la institución: la formación profesional. En este nivel se integran los requisitos operativos de la norma ISO 21001:2025 con los criterios académicos específicos del CACEI.

Los resultados del análisis permitieron identificar dos macroprocesos clave: el diseño y aseguramiento académico, y la operación del proceso formativo. El primero abarca actividades relacionadas con el diseño curricular, la actualización de planes y programas de estudio, la definición de perfiles de egreso y la evaluación de la pertinencia académica. El segundo se orienta a la implementación del proceso de enseñanza-aprendizaje, la evaluación del desempeño estudiantil, el seguimiento académico y la retroalimentación para la mejora.

La integración de estos macroprocesos permite atender de manera simultánea los requisitos de planificación y control del servicio educativo de la ISO 21001:2025 y los indicadores del CACEI asociados a resultados del aprendizaje, eficiencia terminal y formación integral del estudiante.

Procesos de apoyo del modelo

El tercer nivel del modelo está conformado por los procesos de apoyo, cuya función es proporcionar los recursos humanos, materiales y organizacionales necesarios para el adecuado funcionamiento de los procesos estratégicos y clave. En este nivel se identificaron dos macroprocesos principales: gestión del personal docente y gestión de recursos y soporte institucional.

La gestión del personal docente integra requisitos relacionados con la selección, formación, evaluación y desarrollo del profesorado, abordando tanto los criterios del CACEI en materia de perfil académico y experiencia profesional como los requisitos de competencia y toma de conciencia establecidos en la ISO 21001:2025. Por su parte, la gestión de recursos y soporte institucional articula aspectos relacionados con infraestructura, equipamiento, servicios de apoyo y recursos financieros, fundamentales para el cumplimiento de ambos marcos normativos.

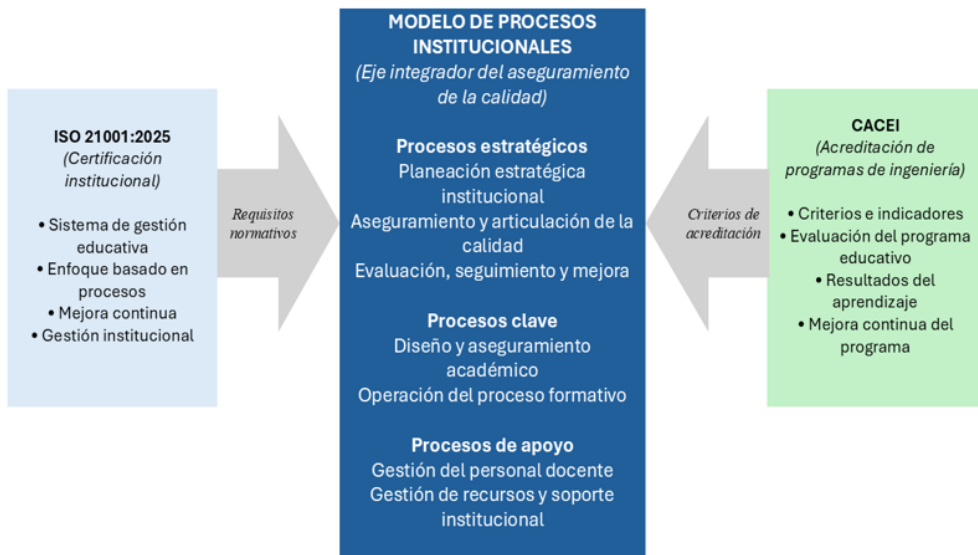
Articulación del modelo con los marcos normativos

Un resultado central de la investigación es la demostración de que los requisitos de la norma ISO 21001:2025 y los criterios del marco de referencia del CACEI pueden ser atendidos de manera integrada mediante una arquitectura de procesos común. El modelo propuesto permite establecer correspondencias claras entre procesos institucionales, requisitos normativos y evidencias esperadas, facilitando una gestión más eficiente del aseguramiento de la calidad.

Es importante destacar que el modelo no se plantea como una propuesta de implementación ni como un esquema de evaluación de conformidad. Su contribución radica en ofrecer una estructura conceptual que clarifica la relación entre certificación institucional y acreditación de programas educativos, proporcionando un referente analítico que puede ser adaptado a distintos contextos institucionales.

Figura 2: Articulación basada en procesos entre la certificación institucional conforme a la ISO 21001:2025 y la acreditación de programas de ingeniería del CACEI.

Articulación de la certificación institucional y la acreditación de programas mediante un enfoque de procesos



Fuente: Elaboración propia.

La figura ilustra el papel del modelo de procesos institucionales como eje integrador que vincula los requisitos normativos de la ISO 21001:2025 con los criterios de acreditación del marco de referencia del CACEI, permitiendo un enfoque sistémico y coherente del aseguramiento de la calidad en instituciones de educación superior tecnológica.

Síntesis de resultados

En conjunto, los resultados evidencian que la fragmentación observada en la gestión de la calidad educativa no es consecuencia de una incompatibilidad entre los marcos normativos analizados, sino de su gestión aislada dentro de las instituciones. El modelo de procesos propuesto configura una arquitectura institucional que articula de manera integrada los requisitos de la ISO 21001:2025 y del CACEI, evidenciando las convergencias identificadas en el análisis normativo.

Discusión

La presente investigación tuvo como propósito central proponer un modelo de procesos que permitiera articular de manera integrada los requisitos de la norma ISO 21001:2025 y los criterios del marco de referencia del Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI) en instituciones de educación superior tecnológica. Los resultados obtenidos, sintetizados en las Figuras 1 y 2, ofrecen elementos sustantivos para analizar

dicha articulación desde una perspectiva conceptual, sistémica y no meramente instrumental.

En esta sección se discuten los principales hallazgos del estudio a la luz de la literatura especializada en aseguramiento de la calidad, gestión por procesos y acreditación en educación superior, así como sus implicaciones teóricas y prácticas.

Integración de certificación y acreditación: coincidencias con la literatura internacional

Uno de los hallazgos más relevantes del estudio es la constatación de que la coexistencia de sistemas de gestión de la calidad y procesos de acreditación no representa, en sí misma, una incompatibilidad normativa o metodológica, sino un problema de gestión fragmentada. Este resultado es consistente con investigaciones previas que señalan que los principales obstáculos en los procesos de aseguramiento de la calidad radican en la forma en que las instituciones organizan y articulan sus mecanismos de evaluación, más que en los marcos normativos que los sustentan (Harvey & Williams, 2010; Lemaitre et al., 2012; Stensaker, 2018).

Diversos estudios han documentado que, cuando los sistemas de gestión de la calidad y la acreditación de programas se implementan de manera paralela e independiente, se incrementa la carga administrativa, se duplican evidencias y se debilita la apropiación institucional de la cultura de la calidad (Scharager & Aravena, 2010; Cardoso, Rosa & Videira, 2018). En este sentido, los resultados del presente estudio refuerzan la idea de que la integración no depende de fusionar instrumentos evaluativos, sino de construir una arquitectura organizacional común, en este caso, basada en procesos.

La Figura 2 del artículo permite visualizar esta contribución al mostrar cómo el modelo de procesos actúa como eje integrador entre la certificación institucional (ISO 21001:2025) y la acreditación de programas (CACEI). Esta representación coincide con propuestas recientes que destacan la gestión por procesos como un mecanismo clave para alinear múltiples sistemas de aseguramiento de la calidad en educación superior (Girmanová et al., 2022; Psomas, Antony & Bouranta, 2018).

El enfoque basado en procesos como elemento estructurante

El énfasis en la gestión por procesos constituye un punto central de la discusión. La literatura sobre gestión de la calidad ha señalado de manera recurrente que los procesos representan la unidad básica para vincular estrategia, operación y resultados (Dumas et al., 2018; ABPMP International, 2019). En el ámbito educativo, este enfoque adquiere particular relevancia debido a la complejidad de las interacciones entre funciones académicas y administrativas.

Los resultados del estudio muestran que tanto la ISO 21001:2025 como el marco del CACEI, aunque con estructuras distintas, presuponen implícitamente la existencia de procesos institucionales articulados. La ISO 21001 lo establece de manera explícita al adoptar el enfoque de sistema de gestión basado en procesos, mientras que el CACEI lo exige de forma implícita al requerir evidencias sistemáticas y consistentes en áreas como diseño curricular, evaluación del aprendizaje y mejora continua.

La Figura 1 evidencia cómo esta convergencia puede materializarse mediante una estructura procesal organizada en procesos estratégicos, clave y de apoyo. Este tipo de clasificación es ampliamente reconocida en la literatura de gestión y ha demostrado su utilidad para clarificar responsabilidades, reducir redundancias y mejorar la coherencia organizacional (Trkman, 2010; vom Brocke et al., 2021). En el contexto de la educación superior tecnológica, su aplicación contribuye a superar la tradicional fragmentación entre áreas académicas y administrativas. Esta visión coincide con la evolución contemporánea de la gestión por procesos, la cual ha dejado de concebirse como un enfoque exclusivamente operativo para consolidarse como un marco integrador que articula estrategia, estructura organizacional y resultados en contextos institucionales complejos (vom Brocke et al., 2021).

Aportes conceptuales del modelo propuesto

Desde una perspectiva teórica, el principal aporte del estudio radica en la formulación de un modelo conceptual de procesos que integra dos referentes de calidad ampliamente utilizados, pero usualmente gestionados de forma aislada. A diferencia de estudios centrados en la evaluación del impacto de la acreditación o de los sistemas de gestión, esta investigación se sitúa en un nivel estructural, proponiendo una arquitectura que permite comprender y organizar el aseguramiento de la calidad de manera sistémica.

Este enfoque dialoga con planteamientos recientes que advierten sobre los límites de concebir la calidad educativa exclusivamente como el cumplimiento de indicadores o estándares externos (Gautier, 2007; Cardoso et al., 2018). El modelo propuesto no reduce la calidad al logro de métricas, sino que la entiende como el resultado de la interacción coherente entre procesos estratégicos, operativos y de soporte, alineados con los objetivos institucionales.

Asimismo, el estudio contribuye a la literatura sobre aseguramiento de la calidad en educación superior tecnológica, un ámbito en el que, como señalan Lemaitre et al. (2012) y Stensaker (2018), aún existe escasa investigación orientada al análisis de modelos de gestión integrados. En este sentido, el modelo presentado ofrece un referente conceptual transferible a instituciones con características organizacionales similares.

Implicaciones para la gestión institucional

Desde el punto de vista práctico, los resultados del estudio sugieren que la adopción de un enfoque integrado basado en procesos puede contribuir a mejorar la eficiencia y coherencia de las estrategias de calidad en instituciones de educación superior tecnológica. Al articular certificación institucional y acreditación de programas dentro de un mismo marco procesal, se facilita la alineación entre planeación estratégica, operación académica y evaluación del desempeño. Este planteamiento es congruente con estudios previos sobre sistemas de gestión de la calidad en organizaciones de servicios intensivos en conocimiento, los cuales señalan que la efectividad de estos sistemas depende más de su coherencia organizacional que del cumplimiento formal de requisitos normativos (Psomas, Antony & Bouranta, 2018).

Es importante enfatizar que el modelo propuesto no constituye una guía de implementación ni un esquema de evaluación de conformidad. Su función es analítica y conceptual. La aplicación del modelo en contextos institucionales específicos requeriría procesos adicionales de adaptación, validación y gestión del cambio organizacional, aspectos que exceden el alcance del presente estudio.

Limitaciones del estudio

Como toda investigación de carácter cualitativo y conceptual, este estudio presenta limitaciones que deben ser reconocidas. En primer lugar, el modelo de procesos se construyó a partir del análisis normativo y de un estudio de caso instrumental, lo que implica que su validación empírica en múltiples contextos institucionales no forma parte de los resultados presentados.

En segundo lugar, el análisis se centró en la versión vigente de la norma ISO 21001:2025 y en el marco de referencia del CACEI, por lo que futuras modificaciones a dichos instrumentos podrían requerir ajustes al modelo propuesto. Finalmente, el estudio no evalúa el impacto del modelo en indicadores de desempeño académico o institucional, lo cual constituye una línea de investigación futura relevante.

Síntesis de la discusión

En conjunto, la discusión permite afirmar que el problema de la fragmentación en la gestión de la calidad educativa no deriva de una incompatibilidad entre certificación y acreditación, sino de la ausencia de modelos conceptuales que permitan integrarlas de manera coherente. El modelo de procesos propuesto responde a esta brecha al ofrecer una estructura sistémica que articula los requisitos de la ISO 21001:2025 y del marco del CACEI, contribuyendo al fortalecimiento del aseguramiento de la calidad en instituciones de educación superior tecnológica.

Conclusiones

La presente investigación tuvo como objetivo proponer un modelo de procesos que permitiera articular de manera integrada los requisitos de la norma ISO 21001:2025 y los criterios del marco de referencia del Consejo de Acreditación de la Enseñanza de la Ingeniería (CACEI) en instituciones de educación superior tecnológica. A partir del análisis normativo, del enfoque metodológico cualitativo y de la construcción conceptual del modelo, se derivan las siguientes conclusiones principales.

En primer lugar, los resultados confirman que la certificación institucional y la acreditación de programas educativos no constituyen enfoques contradictorios ni excluyentes, sino mecanismos complementarios de aseguramiento de la calidad que pueden integrarse de manera coherente. La fragmentación observada en la práctica institucional no obedece a una incompatibilidad normativa, sino a la ausencia de una arquitectura organizacional que permita gestionar ambos esquemas de manera sistémica.

En segundo lugar, el enfoque basado en procesos se consolida como un elemento estructurante clave para la integración del aseguramiento de la calidad en educación superior tecnológica. La adopción de una estructura de procesos estratégicos, clave y de apoyo permitió identificar puntos de convergencia entre la ISO 21001:2025 y el marco del CACEI, facilitando la articulación entre planeación estratégica, operación académica y evaluación del desempeño. En este sentido, el modelo propuesto ofrece una visión holística que supera la gestión aislada de certificación y acreditación.

Como tercer aporte, el estudio contribuye a la literatura sobre calidad educativa al proponer un modelo conceptual que opera a un nivel estructural y no exclusivamente instrumental. A diferencia de enfoques centrados en listas de verificación, indicadores o esquemas de cumplimiento, el modelo de procesos desarrollado permite comprender la calidad educativa como el resultado de la interacción coherente de procesos institucionales alineados con los objetivos estratégicos de la organización. Este enfoque fortalece la noción de mejora continua como un proceso sistémico y no como una actividad puntual asociada a evaluaciones externas.

Desde una perspectiva práctica, el modelo de procesos constituye un referente analítico que puede apoyar a las instituciones de educación superior tecnológica en la revisión y reestructuración de sus sistemas de aseguramiento de la calidad. Al establecer una arquitectura común para la gestión institucional y la evaluación de programas educativos, el modelo puede contribuir a reducir duplicidades, clarificar responsabilidades y mejorar la coherencia entre las funciones académicas y administrativas. No obstante, su aplicación requiere procesos adicionales de contextualización, liderazgo institucional y gestión del cambio.

Es importante subrayar que el modelo propuesto no debe interpretarse como una guía de implementación ni como un esquema prescriptivo. Su finalidad es conceptual y analítica, orientada a ofrecer un marco de referencia que facilite la integración de distintos instrumentos de aseguramiento de la calidad. En consecuencia, los resultados del estudio no pretenden generalización estadística, sino transferibilidad conceptual a contextos institucionales con características organizacionales similares.

Finalmente, esta investigación abre diversas líneas de trabajo futuro. Entre ellas destacan la validación empírica del modelo en diferentes instituciones de educación superior tecnológica, el análisis de su impacto en indicadores de desempeño académico e institucional, y la exploración de su aplicabilidad a otros marcos de acreditación y certificación nacionales o internacionales. Asimismo, futuros estudios podrían profundizar en los factores de liderazgo y cultura organizacional que influyen en la efectividad de modelos integrados de aseguramiento de la calidad.

En síntesis, el modelo de procesos propuesto constituye una contribución relevante al campo del aseguramiento de la calidad en educación superior tecnológica, al ofrecer una estructura conceptual que permite integrar de manera coherente la certificación institucional conforme a la ISO 21001:2025 y la acreditación de programas educativos bajo el marco de referencia del CACEI, fortaleciendo la gestión sistémica y la mejora continua en las instituciones educativas.

Conflicto de intereses: Los autores no declararon ningún conflicto de intereses.

Disponibilidad de los datos: Todos los datos están incluidos en el contenido del artículo.

Declaración de financiación: Los autores no obtuvieron financiación para esta investigación.

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Beyond Structural Change: A Cultural Interpretation of School Principals' "Burnout National" Survey by ANP–LUMSA

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[Doi:10.19044/esj.2026.v22n4p63](https://doi.org/10.19044/esj.2026.v22n4p63)

Submitted: 29 December 2025

Accepted: 13 February 2026

Published: 28 February 2026

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OPEN ACCESS

Cite As:

Angeloni, G. (2026). *Beyond Structural Change: A Cultural Interpretation of School Principals' "Burnout National" Survey by ANP–LUMSA*. *European Scientific Journal, ESJ*, 22 (4), 63. <https://doi.org/10.19044/esj.2026.v22n4p63>

Abstract

The 2025 ANP–LUMSA national survey provides robust empirical evidence of widespread occupational stress among Italian school principals, characterized by high cognitive and emotional demands, excessive workloads, and significant risks of burnout. While these findings are empirically sound and methodologically rigorous, their interpretation cannot be confined to a purely structural or organizational framework. This article argues that the explanatory power of the survey is substantially enhanced when read through a culturalist lens, distinguishing between episodic organizational changes or structural reengineering and deeper processes of cultural transformation in the anthropological sense. From this perspective, principals' burnout emerges not only as a consequence of excessive demands and insufficient resources but as the outcome of a progressive delegitimization of the leadership role, weakened institutional trust, and governance cultures oriented toward control rather than support. The paper proposes that meaningful improvement cannot be achieved solely through middle management expansion or administrative reinforcement, as suggested by the survey respondents, but requires a reconfiguration of the ethical, symbolic, and relational foundations of school leadership. Such a shift redefines principals' wellbeing as a collective institutional responsibility and calls for policy responses centered on role recognition, professional dignity, and trust-based educational governance. By integrating empirical evidence with cultural analysis, this study tries to

contribute to a more comprehensive understanding of leadership burnout and offers a theoretically grounded foundation for policy approaches capable of producing not merely change, but genuine transformation in educational systems.

Keywords: School leadership; burnout; organizational culture; educational governance; institutional legitimacy

Introduction

School principals occupy a pivotal position within contemporary educational systems. International research consistently demonstrates that leadership quality significantly influences school improvement, teacher motivation, and student outcomes (Leithwood, Harris, & Hopkins, 2008). Yet this strategic role has progressively expanded in scope and intensity, absorbing administrative, legal, managerial, and relational responsibilities that extend far beyond traditional pedagogical leadership (Day & Gu, 2014).

Within occupational health psychology, the Job Demands–Resources (JD–R) model provides a well-established framework for understanding how excessive job demands combined with insufficient resources generate chronic stress and burnout (Bakker & Demerouti, 2007). The ANP–LUMSA survey constitutes the most comprehensive national application of this framework to Italian school principals, offering compelling quantitative evidence of systemic risks.

However, this article contends that empirical confirmation of stress does not exhaust the explanatory task. Quantitative indicators describe *what* is happening, but not fully *why* it is happening in the specific form and intensity observed. To address this gap, the present study proposes a qualitative, cultural reinterpretation of the survey findings, grounded in organizational anthropology and critical leadership studies.

Methods and results

Though the methodological strength of the ANP–LUMSA survey lies in its breadth, standardization, and national representativeness. Its instruments effectively capture workload, cognitive and emotional demands, burnout indicators, and principals' perceptions of organizational solutions.

As a matter of fact, the study sample consisted of 1,798 Italian school principals, with a predominance of female participants (73%) and a mean age of 56 years (SD = 6.2). Participants were geographically distributed across northern, central, and southern regions of Italy, with higher representation from Lombardy and Sicily. In terms of school type, 61% of principals led early childhood or primary schools, whereas 32% were responsible for secondary

schools. Notably, only 42.4% of respondents worked within their municipality of residence, indicating potential additional stress associated with commuting. Data were collected through a structured online survey designed to assess multiple dimensions of occupational stress and well-being among school principals. The survey included the following key components:

- **Workload and Work Rhythm:** Self-report items evaluating task accumulation, time scarcity, and perceived pace of daily work.
- **Cognitive Demands:** Items measuring the frequency of multitasking and the complexity of decision-making responsibilities.
- **Emotional Demands:** Measures addressing emotion regulation, conflict mediation, and affective labor inherent to the leadership role.
- **Well-Being Indicators:** Standardized scales assessing burnout (via the Maslach Burnout Inventory), sleep quality, depressive symptoms, and somatic complaints.
- **Organizational Perceptions:** Items exploring the availability of administrative support, presence of delegation structures, and clarity of internal and external communication.
- **Intervention Evaluations:** Likert-scale items (1–5) assessing principals' perceptions of the potential effectiveness of various organizational or support interventions.

Principals overwhelmingly report **high workloads**: 84.7% note irregular work accumulation; 80.3% indicate insufficient time for task completion; 88.9% describe elevated daily rhythms. These percentages exceed standard cutoffs for occupational risk in managerial populations (Schaufeli et al., 2009).

Nearly all respondents (99%) indicate constant multitasking and complex decision-making. **Emotional demands** are also prominent: 90% report situations triggering emotional strain; 60% admit to emotional masking; 87% maintain courtesy independent of interpersonal treatment.

Female principals report significantly higher risk levels across all job demand dimensions ($p < .01$). While geographic disparities emerge in administrative support and the presence of an Administrative Director, high stress levels remain pervasive nationwide.

Workload and burnout show a strong positive correlation ($r = 0.62, p < .001$). Cognitive demands correlate positively with self-efficacy ($r = 0.34, p < .01$), indicating a complex interplay where challenging work may reinforce professional identity. Elevated work rhythm associates with sleep disturbances ($r = 0.46, p < .001$).

Yet large-scale surveys inevitably privilege measurable variables over symbolic and cultural dimensions. This article does not question the validity of the data, but rather reframes their interpretation by integrating insights from

organizational culture theory (Schein, 2010), educational change theory (Fullan, 2007), and governance studies.

As argued hereafter, the analysis shows that principals' burnout is best understood if a cultural perspective is used to grasp the whole phenomenon that includes the role delegitimization, trust erosion, and control-oriented governance.

The guiding assumption is that burnout is not merely a psychophysiological outcome, but a socially constructed phenomenon shaped by institutional narratives, power relations, and moral economies of work.

Discussion

Re-reading the Results Through a Cultural Lens

The survey findings depict a condition of extreme workload intensity and persistent multitasking among school principals. From a culturalist perspective, such overload cannot be interpreted merely in quantitative terms. It is fundamentally symbolic, reflecting an accumulation of responsibilities that is not accompanied by a proportional expansion of authority, institutional trust, or organizational support. This structural asymmetry produces what may be conceptualized as *responsibility without sovereignty*, whereby principals are held accountable for outcomes over which they exercise limited control. Within this framework, burnout emerges not merely as an individual response to stress, but as a socially and institutionally constructed phenomenon, shaped by the interaction of role expectations, symbolic recognition, and organizational logics (Bourdieu, 1986; DiMaggio & Powell, 1991).

High cognitive, emotional, and relational demands are frequently normalized as intrinsic to leadership. However, the present data suggest a more problematic configuration that can be described as *moral overexposure*. Principals must absorb conflicts generated by systemic dysfunctions, mediate between contradictory policy imperatives, and preserve institutional decorum even when organizational conditions undermine their effectiveness. This aligns with research on emotional labor in leadership, which highlights the chronic strain produced when leaders must continuously regulate emotions in contexts of limited agency and ambiguous legitimacy (Herman et al., 2018). From a culturalist perspective, emotional labor constitutes a form of *symbolic capital*: its exercise generates moral legitimacy and recognition when successful but produces vulnerability and delegitimization when organizational conditions constrain enactment (Bourdieu, 1990).

Gendered dimensions further underscore the cultural embeddedness of burnout. Higher stress levels among female principals cannot be reduced to individual susceptibility; they reflect enduring organizational and normative expectations around availability, care, and emotional regulation (Eagly & Carli, 2007). Women's labor is culturally framed as simultaneously technical

and affective, exposing them to double binds where success is measured both in performance metrics and in relational adequacy. Consequently, burnout is unevenly distributed along gendered lines, reinforcing the argument that it is a product of *institutional logics* and culturally embedded role norms rather than individual resilience deficits.

The 2025 ANP–LUMSA survey highlights that principals prioritize structural interventions over individual-focused psychological support. Specifically, *middle management with clearly defined delegations* was rated highest (4.56/5), followed by *enhanced administrative staffing* (4.25/5) and *greater autonomy in ATA/DSGA selection* (4.12/5). Coaching and listening services received the lowest rating (2.81/5), indicating that principals perceive structural, procedural, and role-based adjustments as more efficacious than interventions targeting personal coping. This hierarchy of preferences reflects the culturalist assertion that organizational context, authority structures, and legitimacy frameworks are central determinants of well-being; interventions focusing solely on individual resilience are insufficient when systemic and symbolic dimensions remain unaddressed.

These findings corroborate the Job Demands–Resources (JD–R) model, which posits that high job demands coupled with limited resources predict burnout (Bakker & Demerouti, 2007; Maslach et al., 2001). Yet the solutions emphasized by principals largely reside within a *change-oriented paradigm*, concerned with functional redistribution, procedural adjustment, or episodic reengineering. A culturalist approach necessitates distinguishing between *change* and *transformation*: while change addresses technical or structural modifications, transformation entails shifts in *shared meanings*, institutional values, legitimacy frameworks, and normative understandings of leadership. Without such transformation, organizational adjustments risk functioning as adaptive maintenance, perpetuating the conditions of stress while redistributing rather than mitigating overload.

A particularly salient but under-theorized aspect of burnout concerns *role delegitimization*, especially in interactions with Regional School Offices (USR). International literature highlights the connection between leadership wellbeing, procedural justice, and trust, emphasizing that developmental accountability rather than punitive oversight sustains effective leadership (Van den Broeck et al., 2017; OECD, 2020). When oversight is perceived as primarily sanctioning, principals' roles are culturally reframed from educational leader to potential offenders. This symbolic shift erodes *institutional capital*, generating fear-based compliance, emotional exhaustion, and diminished agency, illustrating how organizational culture mediates the moral and symbolic dimensions of leadership.

Finally, distributed leadership—commonly endorsed as a strategy for organizational resilience (Spillane, 2006; Harris, 2014)—demonstrates the

culturalist insight that authority and responsibility are inseparable from legitimacy and recognition. Formal delegation in the absence of symbolic and relational support redistributes stress downward without enhancing well-being. Only when delegation is culturally sanctioned and aligned with institutional logics does it constitute a genuine protective resource. Burnout, therefore, is not merely the consequence of quantitative workload but the outcome of interactions among symbolic capital, institutional norms, and moral expectations, highlighting the indispensable value of a culturalist lens for understanding the phenomenon.

Conclusions

From Measured Stress to Cultural Transformation in Educational Leadership

The ANP–LUMSA national survey offers compelling and methodologically robust evidence that Italian school principals are exposed to persistently high levels of occupational stress, cognitive overload, and emotional strain. Within the framework of the Job Demands–Resources (JD–R) model (Bakker & Demerouti, 2007), these findings unequivocally confirm that excessive demands combined with insufficient organizational resources are strong predictors of burnout, sleep disturbances, and depressive symptoms. At an empirical level, the survey successfully captures the magnitude and pervasiveness of this phenomenon across gender, geographical areas, and school types.

However, the contribution of this article lies in advancing the argument that empirical confirmation alone is insufficient for explanatory adequacy or policy relevance. Large-scale surveys, by their very nature, are designed to measure observable conditions and perceived needs; they are less equipped to question the cultural, symbolic, and institutional logics that produce and stabilize those conditions over time. By reinterpreting the ANP–LUMSA findings through a culturalist lens, this study demonstrates that school principals' burnout cannot be fully understood as a technical imbalance between demands and resources, but must be conceptualized as a systemic and culturally embedded outcome of contemporary educational governance.

A central conclusion emerging from this analysis is that organizational change must not be conflated with cultural transformation. Structural interventions—such as expanding middle management, increasing administrative staffing, or refining procedural autonomy—represent necessary forms of organizational change. Yet, as extensive research on organizational culture indicates (Schein, 2010; Fullan, 2007), such measures remain inherently limited if they are not accompanied by shifts in shared meanings, institutional norms, and meaningful relations. In the absence of cultural

transformation, structural reforms risk becoming episodic adjustments that stabilize, rather than resolve, the conditions generating occupational distress.

From an anthropological and sociological perspective, leadership burnout emerges as a phenomenon deeply intertwined with processes of role delegitimization and moral erosion. The survey data, when read qualitatively, point to a paradoxical configuration in which principals are increasingly held accountable for system performance while simultaneously experiencing reduced trust, constrained agency, and heightened surveillance. This configuration aligns with international analyses of “responsibilization without authority” in public sector leadership, which identify moral injury, identity fragmentation, and chronic exhaustion as predictable outcomes (Maslach et al., 2001; Van den Broeck et al., 2017).

Particularly salient is the role of intermediate governance structures, such as Regional School Offices. International evidence consistently shows that leadership wellbeing is strongly associated with perceptions of procedural justice, institutional legitimacy, and developmental accountability (OECD, 2020; Pont et al., 2008). When inspection regimes and oversight practices are predominantly perceived as punitive or compliance-driven, they contribute to a culture of fear and defensive leadership, undermining both professional identity and organizational learning. Conversely, systems that emphasize accompaniment, mentoring, and formative evaluation foster psychological safety, trust, and sustainable leadership practices.

The findings related to gender differences further reinforce the need for a cultural, rather than purely technical, interpretation. Female principals’ higher reported stress levels reflect enduring gendered expectations concerning emotional labor, availability, and relational responsibility (Eagly & Carli, 2007). These expectations are not reducible to individual coping deficits, but are structurally and culturally embedded within organizational norms. Addressing such disparities, therefore, requires institutional awareness and culturally sensitive policy design, rather than generic stress-management interventions.

A further implication concerns the conceptualization of distributed leadership. While widely promoted as a solution to leadership overload (Spillane, 2006; Harris, 2014), distributed leadership is effective only when embedded within cultures of trust, shared accountability, and mutual recognition. Formal delegation without cultural legitimation risks merely redistributing stress across organizational layers, leaving the underlying dynamics of burnout intact.

Taken together, these conclusions call for a reframing of principals’ wellbeing as a collective institutional good and a moral responsibility of the educational system. Sustainable leadership cannot be achieved by enhancing individual resilience or by incrementally adjusting organizational structures

alone. It requires a deliberate transformation of governance cultures—from control-oriented, sanction-based models to trust-based, dialogical, and ethically grounded frameworks.

In practical terms, this implies that educational policy must move beyond instrumental conceptions of efficiency and accountability to embrace a broader understanding of leadership as a culturally mediated practice. Policies aimed at reducing burnout should therefore prioritize:

- the explicit non-delegitimization of the principal's role;
- the ethical and symbolic recognition of principalship's work;
- governance practices grounded in procedural justice and professional trust;
- and institutional narratives that reaffirm the educational, social, and civic value of school leadership.

Ultimately, the well-being of school principals serves as a critical indicator of the cultural and systemic health of educational institutions. When leadership is chronically overburdened, emotionally and morally exposed, or symbolically delegitimized, the very legitimacy and sustainability of educational reforms are undermined. From a culturalist perspective, principals' wellbeing reflects not only individual resilience but the alignment—or misalignment—between organizational structures, normative expectations, and symbolic recognition. In contexts where institutional logics privilege compliance over developmental support, and where distributed leadership lacks cultural sanction, systemic dysfunction is reproduced: reforms may be formally implemented but fail to generate meaningful transformation. Therefore, safeguarding leadership wellbeing is not a peripheral concern but a central prerequisite for the legitimacy, effectiveness, and transformative potential of educational systems.

Conflict of Interest: The author reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The author did not obtain any funding for this research.

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Corresponsabilidad entre la Licenciatura en Administración y las microempresas de la ciudad de Escárcega, Campeche, para la inserción laboral de los egresados

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[Doi:10.19044/esj.2026.v22n4p73](https://doi.org/10.19044/esj.2026.v22n4p73)

Submitted: 07 December 2025

Accepted: 09 February 2026

Published: 28 February 2026

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OPEN ACCESS

Cite As:

Cervantes Sánchez, M.E., Sánchez López, J.A., Uicab Pat, J.R. & López Velazco, L.A. (2026). *Corresponsabilidad entre la Licenciatura en Administración y las microempresas de la ciudad de Escárcega, Campeche, para la inserción laboral de los egresados*. European Scientific Journal, ESJ, 22 (4), 73. <https://doi.org/10.19044/esj.2026.v22n4p73>

Resumen

La transformación económica y social generada por proyectos de infraestructura, como el Tren Maya, ha impactado a las microempresas del municipio de Escárcega, Campeche. Frente a este escenario, se identificó la necesidad de fortalecer el vínculo entre la carrera de Administración y el desarrollo local. El objetivo de este estudio es analizar cómo la formación profesional en administración puede contribuir al fortalecimiento de las microempresas ante cambios estructurales en su entorno. Se aplicó una encuesta estructurada a 23 empresas. Se entrevistó a dueños y trabajadores locales para identificar necesidades, problemáticas y percepciones sobre los egresados de esta carrera. Los resultados revelan que, si bien reconocen ciertas afectaciones en sus negocios, la mayoría no contrata servicios administrativos

por razones económicas o por falta de cultura empresarial, lo que muchas veces puede interpretarse como desconfianza ante la falta de experiencia de los egresados. Sin embargo, aceptan asesoría gratuita a través de residencias profesionales. Se concluye que existe una oportunidad significativa para integrar estrategias académicas con prácticas empresariales que impulsen el desarrollo local sostenible.

Palabras clave: Egresados, Microempresas, Administración, Tren Maya

Shared Responsibility Between the Bachelor's Degree in Administration and Micro-Enterprises in the City of Escárcega, Campeche, for the Labor Market Insertion of Graduates

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Abstract

The economic and social transformation generated by infrastructure projects, such as the Mayan Train, has impacted microenterprises in the municipality of Escárcega, Campeche. Given this scenario, a need to strengthen the link between the Administration program and local development was identified. The objective of this study was to analyze how professional training in administration can contribute to the strengthening of microenterprises in the face of structural changes in their environment. A structured survey was administered to 23 companies. Local owners and workers were interviewed to identify needs, problems, and perceptions of graduates from this program. The results reveal that, while they recognize certain impacts on their businesses, most do not hire administrative services for economic reasons or a lack of business culture, which can often be

interpreted as distrust due to the graduates' lack of experience. However, they will accept free advice through professional residencies. The conclusion is that there is a significant opportunity to integrate academic strategies with business practices that drive sustainable local development.

Keywords: Graduates, Microenterprises, Administration, Maya Train

Introduction

Hoy día, las universidades latinoamericanas se encuentran encerradas en una sociedad neoliberal que pugna por que la educación sea más un producto comercial que un detonante del desarrollo, lo que ha ocasionado que no se satisfaga la demanda de la población más vulnerable y no se alcance el desarrollo científico en las instituciones educativas (Gascón y Cepeda, 2004). La globalización en la economía ha llevado a comerciar los servicios educativos de enseñanza superior, sin tener en cuenta los ingresos para poder tener acceso a ellos (OMC 2001). A pesar de que han aparecido nuevas profesiones y avances en otras como la biología, la medicina, la práctica de estas, no se parecen en nada a las prácticas de hace algunas décadas, donde predominaba más la convicción que la remuneración por ejercer. A pesar de que esto confirma los cambios en el conocimiento, no se puede dejar de reconocer que se ha acentuado la desigualdad y jerarquización en la estructura social, y que la cultura no ha desempeñado un papel importante en la educación a pesar de que las nuevas tecnologías han abierto la posibilidad de llevar el conocimiento a diversas comunidades de la población. Desafortunadamente es la acumulación de capital económico en una minoría; llamada élite que gobierna el mundo, quien tiene el control de los modelos educativos dirigidos para cumplir sus objetivos que pocas veces beneficia a la población (González Casanova, 2001).

Como sociedad debemos cuestionarnos qué papel juega la educación en el desarrollo económico y social y hacernos estos cuestionamientos: ¿La educación y las innovaciones tecnológicas son el punto central de la generación del conocimiento? ¿La educación ha sido utilizada por el gobierno como una forma de manipulación y un producto comercial que atiende las necesidades de una minoría? Por tanto, la educación, cada vez más, es obligada a demostrar que es una transmisión del conocimiento objetivo, técnico y que no está doblegada ni al servicio de intereses mercantiles ni políticos, siendo su único interés y función formar a profesionales que contribuyan a solucionar problemas que la sociedad espera y demanda (Montemayor, 2005). Si no se ve la educación como un conjunto de herramientas que puede ayudar a desarrollar un proceso social o como elemento capaz de impulsar la transformación de un país, se estaría fracasando como estado en un derecho que se tiene como sociedad e individuo. Por tanto, es importante que México,

teniendo una de las más grandes universidades latinoamericanas, como es la Universidad Autónoma de México (UNAM), no pierda de vista su papel fundamental en la sociedad (Bojalil, L. F. 2008). Hoy en día hay analistas que consideran que mezclar la política con la educación es un acto deliberado y que depende de la ideología y forma de ser de cada docente para poder moldear al estudiante en su formación profesional.

Tal situación debería contribuir al desarrollo de una finalidad u objetivo en pro de la sociedad, la toma de decisión del profesionista formado, además de poder prever en un mundo globalizado en vías de un nacionalismo incipiente y el impacto del uso de tecnologías digitales en el ámbito educativo, dicha situación propone la intencionalidad de dicho proceso, como es, tener la educación por debajo de los intereses económicos, políticos y sociales. Por tanto, lo anterior apela a considerar la práctica educativa como una relación dialéctica, holística, humanista, ética, donde tanto aprenden como enseñan quienes participan de ella (García-Retana, 2016). Si este proceso se lleva a cabo de esta manera, permitiría visualizar una educación que abra la esperanza de un futuro mejor. Por tanto responsabilizar unicamente a la Licenciatura en Administración del desarrollo o crecimiento empresarial a través de la inserción de egresados, sin tomar en cuenta factores como: cultura, políticas e intereses económicos sería algo aventurado, debido a que también hay que decir que Escárcega, Campeche es una ciudad con 9 mil habitantes y 480 micro empresas de servicios con grandes necesidades que demanda la sociedad, sin embargo no ha tenido un avance en el desarrollo de las empresas, siguen teniendo áreas de oportunidad en diferentes aspectos como por ejemplo: inventarios, estructuras organizacionales entre otros. Ahí, es dónde surge la pregunta de investigación; teniendo 20 años la carrera de la licenciatura administración en la ciudad, siendo equivalente a 16 generaciones con un promedio de 1600 egresados, por qué o qué aspectos y factores no han permitido que estas áreas de oportunidad hayan sido atendidas, ya sea por los empleadores, empleados o la carrera en cuestión que no ha podido o querido impactar de manera positiva en las empresas. Dicho lo anterior, esta investigación pretende dar una visión e información veráz de la relación o impacto que ha existido y existe entre la carrera de la Licenciatura de Administración y las microempresas de la ciudad de Escárcega que directamente influenciadas geográficamente y social de las inmediaciones del paso del Tren Maya en la ciudad de Escárcega, Campeche a través un análisis de correspondencia o correlación entre la Licenciatura en Administración y las microempresas de la ciudad de Escárcega, para poder contribuir a mejorar la inserción laboral de los egresados.

Métodos

Esta investigación se llevó a cabo en la ciudad de Escárcega, Campeche ubicada en el sur de México y abarca una extensión de 4 569.64 km², lo que significa que dicha investigación se realizó en aproximadamente el **8 % de la superficie total del estado de Campeche**. Este trabajo se desarrolló bajo un **enfoque mixto**, el cual combina métodos **cualitativos y cuantitativos**, permitiendo una comprensión más amplia y profunda del fenómeno analizado. Este tipo de enfoque, también denominado **multimétodo**, se caracteriza por la integración sistemática de ambos enfoques a lo largo de todo el proceso de investigación, desde la recolección hasta el análisis de los datos. De acuerdo con **Vega-Malagón et al. (2014)**, el enfoque mixto establece una articulación metodológica que fortalece la validez de los resultados, al aprovechar las ventajas interpretativas del enfoque cualitativo y la capacidad de medición y generalización del enfoque cuantitativo. El alcance es descriptivo debido a que estos estudios tienen la característica de especificar las propiedades, características y perfiles de personas, grupos, comunidades, procesos, objetos o cualquier otro fenómeno que se someta a un análisis (Hernández, 2018). El diseño de estudio es no experimental, debido a que no se genera ninguna situación, sino que se observan situaciones ya existentes, tampoco se manipula ni se miden fenómenos y variables (Hernández, 2017). Según Arias-Gómez et al. (2016) la población de estudio se define como un conjunto de casos, definido, limitado y accesible, que formará el referente para la elección de la muestra que cumple con una serie de criterios predeterminados. En esta investigación la población que se analizó son 23 microempresas de menos de 5 empleados, este criterio es debido a que son las microempresas que predominan en la ciudad, otro aspecto que se tomó en cuenta es ser influenciados directamente por el paso del Tren Maya. Se considera una muestra representativa, debido a la cantidad de empresas que existen en Escárcega. Martínez (2022).

La obtención de estos datos se realizó a través de diferentes técnicas e instrumentos como la observación, cuestionarios, entrevistas aplicando apoyándonos con la escala de Likert para evaluar actitudes, opiniones y percepciones sobre un tema, pidiendo al encuestado que indique su grado de acuerdo o desacuerdo con afirmaciones (ítems).

Basado en lo que menciona Díaz et al. (2013) que la entrevista es una especie de filtro para una siguiente etapa en la investigación, por lo que para ésta se trabajó con la aplicación de dos herramientas para obtener los datos requeridos. En primer instancia se diseñó y se validó por dos expertos en el tema un guión de una entrevista estructurada, con temas como datos personales: edad, sexo, años de estar al frente de la empresa, dueño, encargado, otro fragmento de la entrevista abarcó: número de empleados, hombres, mujeres, si tiene claro que es un perfil de puestos para contratar a sus

empleados, también aspectos de sobre la promoción de convivencia familiar, flexibilidad de horario y por último si tiene egresados de la carrera de Administración, dónde los tiene empleados (puestos gerenciales o fuera de su formación) otro aspecto que se abordó fue sobre conocimientos que se requieren de un administrador para emplearlo. Cabe mencionar que Estos instrumentos se aplicaron a dueños y trabajadores de las microempresas el tipo de preguntas se adecuaron en una encuesta dirigida para los empleados, por cuestiones de tiempo de sus horarios; como son: sexo, si tiene claro que es un perfil de puestos para ser contratados, también se abordaron los aspectos sobre la promoción de convivencia familiar por parte de los empleadores, flexibilidad de horario y por último si es egresados de la carrera de Administración, dónde los tienen empleados (puestos gerenciales o fuera de su formación académica), si el puesto que tiene es por falta de conocimientos que requiere en un administrador o porque no es importante para el empleador que sea licenciado en Administración para ser contratado y si le permiten mejorar algunas prácticas administrativas las actividades que realizan entre otros aspectos, etc., para identificar los mecanismos más efectivos de vinculación entre la carrera de Administración y el sector productivo de la ciudad de Escárcega. Esta recolección de datos permitió realizar también un diagnóstico a través de la aplicación de entrevistas estructuradas y encuestas dirigidas a microempresas del sector productivo local. Esta metodología permitió recopilar información cualitativa y cuantitativa directamente de los actores involucrados, con el fin de conocer de manera puntual sus necesidades y expectativas. Una vez recopilados los datos que dieron como resultado el diagnóstico previamente mencionado, se procedió a realizar un análisis profundo con el objetivo de identificar áreas de oportunidad en temas susceptibles de fortalecimiento. Entre ellos destaca la asignatura de Plan de Negocios, particularmente en los contenidos relacionados con los estudios de mercado, los cuales incluyen aspectos de promoción y difusión de las microempresas.

Asimismo, se identificó la asignatura de Legislación Laboral como otra área relevante de mejora, ya que contempla temas fundamentales como los derechos de los empleados y la propiedad intelectual. Cabe mencionar que ambas asignaturas forman parte de la especialidad de la Licenciatura en Administración.

De igual manera, se llevó a cabo una revisión de las planeaciones académicas de las materias mencionadas, las cuales integran la retícula de la carrera, con el propósito de evaluar su pertinencia y congruencia con las demandas actuales de la sociedad.

Finalmente, se identificaron los factores que influyen en la disposición, inclusión o rechazo por parte de las microempresas de la ciudad de Escárcega para emplear a egresados de la Licenciatura en Administración. Por lo tanto,

más que centrarse exclusivamente en un proyecto de infraestructura, este estudio buscó resaltar la relación directa entre las necesidades de las empresas locales y la función de la carrera de Administración, subrayando su papel en la construcción de soluciones viables, sostenibles y adaptadas al entorno.

Resultados

Dentro de los datos obtenidos a través del instrumento, se obtuvo lo siguiente: En la pregunta sí, al llegar, el Tren Maya ha impactado a los negocios locales y sienten la necesidad de nuevas estrategias, donde se requiera un administrador; el 43.5% dijo que sí y el 57.5% manifestó no necesitar asesoría permanente por parte de un profesionalista, lo que refleja que este aspecto no favorece la inserción del egresado en el ámbito laboral empresarial. Otra pregunta que se consideró importante fue si contrataría los servicios profesionales de un administrador; el 67% dijo que no, prefería ir haciendo cambios que fueran considerando según sus experiencias. Mientras que el 43.4% respondió a la pregunta si han tenido algún tipo de impacto con la construcción de la vía del tren y la llegada del mismo, dijo un 21.7% positivo y un 21.7% negativo. Tras la aplicación del instrumento a 23 microempresas de la ciudad de Escárcega, Campeche. Los resultados muestran que el 43,5% de los encuestados mencionó que han contratado a egresados de la carrera de Administración, pero que no han tenido cambios significativos en sus negocios. Otra pregunta de suma importancia fue si consideraban que los conocimientos por parte de los egresados satisfacen sus expectativas como empleados; el 68 % dijo que sí y el 32 % respondió que no, debido a que consideran que les falta experiencia laboral para poder ocupar puestos de toma de decisiones. A esto se suma que un 21,7% contestó que generalmente contrata a las personas para puestos menores, no para administrar la empresa. Otro 21.7% afirmó que no tiene la capacidad de pagar sueldo de un administrador y prefieren hacerlo ellos como dueños.

Por otro, lado los empleadores respondieron lo siguiente: En la pregunta sí, al llegar el Tren Maya consideran que ha impactado a los negocios locales y visualizan o perciben la necesidad de nuevas estrategias donde se requiera un administrador; el 73.5% dijo que sí y el 27.5% manifestó que percibe que más que no necesitar asesoría permanente por parte de un profesionalista no quieren pagar lo que le cobraría un experto en el área, situación que no favorece la inserción del egresado en el ámbito laboral empresarial. También se le preguntó si considera que influyó ser Licenciado en administración para ser contratado el 77% dijo que no, debido a que sus principales funciones no son administrativas al principio de ser contratado, preferiría ir haciendo cambios que fueran considerando según sus experiencias. Mientras que el 43.4% respondió a la pregunta si han tenido algún tipo de impacto con la construcción de la vía del tren y la llegada del

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Estos datos reflejan que la mayoría de los comerciantes encuestados reconocen algún tipo de afectación, sea esta positiva o negativa, en sus negocios, lo que representa una oportunidad muy importante para la intervención de los egresados de la carrera de administración. Sin embargo, al preguntar si estarían dispuestos a pagar por un servicio que les ofrezca un administrador, como: plan de marketing, plan estratégico, etc., dicen no poder pagarlo, sin embargo, cuando se le ofrece el servicio como parte de una residencia profesional que no les cuesta dinero, el 80% de las empresas aceptan, lo cual indica que no hay una cultura de invertir en la actualización ni capacitación para mejorar sus negocios. Dentro de los resultados se muestra la siguiente tabla comparativa para ilustrar las posturas de las partes en cuestión, tanto empleadores como empleados:

Variable de Análisis	Microempresas / Dueños	Empleadores / Perspectiva General
Impacto del Tren Maya	43.4% percibió impacto (21.7% positivo, 21.7% negativo).	Reconocen impacto y necesidad de nuevas estrategias (73,5%).
Necesidad de Administrador	43. 43,5% identifica la necesidad de nuevas estrategias.	73. 73,5% visualiza la necesidad de un profesional.
Disposición de Contratación	67% no contrataría; prefieren basarse en su propia experiencia.	77% indica que el título no influyó en la contratación inicial.
Satisfacción con Egresados	68% satisfecho con conocimientos; 32% señala falta de experiencia.	68% satisfecho con conocimientos; 32% señala falta de experiencia.
Limitaciones Económicas	21.7% no tiene capacidad de pago; prefieren administrar ellos mismos.	27.5% no desea pagar los honorarios de un experto.
Cultura de Inversión	Solo aceptan asesoría si es gratuita (80% mediante residencias).	Escasa cultura de inversión en actualización o capacitación pagada.
Funciones Asignadas	21.7% contrata para puestos menores, no para toma de decisiones.	Las funciones iniciales no suelen ser administrativas.

Discusión

Esta investigación evidencia una desconexión importante entre las competencias adquiridas por los egresados de la Licenciatura en

Administración de Empresas y la percepción de utilidad que tienen los microempresarios locales respecto a estos perfiles. A pesar de los cambios estructurales impulsados por proyectos como el Tren Maya, los comerciantes continúan priorizando la experiencia empírica sobre la asesoría técnica profesional.

Mintzberg (2009) sostiene que en entornos organizacionales pequeños, las decisiones suelen tomarse de manera intuitiva, sin procesos sistemáticos de análisis. Esto se ve reflejado en que el 67 % de los encuestados prefiere tomar decisiones con base en su experiencia, descartando la contratación de un administrador. Sin embargo, este modelo operativo puede limitar la capacidad de adaptación de las microempresas ante transformaciones profundas del entorno económico.

Por su parte, Drucker (2007) argumenta que la administración moderna debe centrarse en detectar oportunidades en escenarios de cambio e incertidumbre. En este contexto, la llegada del Tren Maya representa una oportunidad estratégica para redirigir la visión empresarial de la región. El hecho de que el 43,5 % de los encuestados reconociera haber contratado egresados sin obtener resultados significativos evidencia no solo una posible brecha en la pertinencia curricular, sino también una falta de seguimiento y evaluación del impacto de estos perfiles en el entorno real.

Además, Chiavenato (2011) señala que la falta de profesionalización y de estructuras administrativas formales en las microempresas reduce su capacidad de crecimiento. Esta afirmación se confirma en los resultados obtenidos: si bien un 68 % considera adecuados los conocimientos de los egresados, muchos los contratan solo para funciones menores o rechazan pagar sus servicios, alegando limitaciones económicas o desconfianza en el valor agregado que podrían ofrecer. Esta situación pone de manifiesto una carencia de cultura empresarial orientada a la inversión en capital humano especializado.

No obstante, el hecho de que un 80 % de los comerciantes acepte los servicios administrativos cuando se ofrecen como parte de una residencia profesional gratuita revela una vía concreta para fomentar la colaboración universidad-empresa. Esto está en sintonía con Porter (1990), quien afirma que la competitividad empresarial depende en gran medida del desarrollo del talento humano y su articulación con las necesidades del mercado. En este sentido, la residencia profesional puede constituirse en un puente de doble vía: permite a los estudiantes aplicar sus competencias en contextos reales, y al mismo tiempo, ofrece a las microempresas servicios estratégicos sin implicar un costo directo. En conjunto, estos hallazgos evidencian que, más allá de los beneficios que pueda traer la infraestructura del Tren Maya, es indispensable fortalecer el tejido empresarial local mediante una mayor integración de los saberes académicos a las prácticas productivas, con estrategias adaptadas a las

capacidades y expectativas reales de los empresarios de la región. El reto está en construir una cultura organizacional que valore el conocimiento técnico y que facilite la incorporación efectiva de profesionales de la administración en procesos clave de toma de decisiones, planeación y desarrollo empresarial.

Conclusiones

La llegada de Tren Maya a la ciudad de Escárcega, Campeche es un factor de cambio económico significativos en el comercio local, debido a que representa una oportunidad para que los empresarios locales implementen estrategias de adaptación, innovación y posicionamiento frente al nuevo entorno que genera este mega proyecto, pudiéndose apoyar para estos cambios en un Licenciado en Administración, sin embargo, desafortunadamente no están dispuestos a pagar por un servicio profesional, sino emplear a las personas sin importar mucho su grado académico y mucho menos, las habilidades gerenciales o de dirección que pudieran contribuir al desarrollo de las microempresas. Es indispensable que ante la entrada de las franquicias o grandes cadenas de negocios que representan transformaciones en el entorno —ya sea por obras públicas, fenómenos económicos o sociales— las empresas locales respondan estratégicamente para poder mantenerse competitivas en el mercado. Las organizaciones que no logran adaptarse corren el riesgo de reducir sus ingresos, perder competitividad o incluso desaparecer. Por ello, contar con asesoría profesional en administración permite a las empresas redirigir sus esfuerzos, reconvertirse y descubrir nuevas oportunidades. A continuación se describe una lista de situaciones que ofrecen una oportunidad de impactar de manera positiva a la Licenciatura de Administración en las empresas de Escárcega:

1. Es evidente que los negocios locales de Escárcega, Campeche, enfrentan un entorno económico cambiante que impacta de manera diversa en su operación y rentabilidad. Mientras algunos comerciantes han podido beneficiarse, otros sufren afectaciones logísticas, disminución de ingresos y dependencia de un mercado local reducido.
2. Estas problemáticas muestran la necesidad de contar con un diagnóstico organizacional riguroso y con estrategias administrativas que permitan a las empresas adaptarse, innovar y diversificarse para mejorar su competitividad.
3. La Licenciatura en Administración de Empresas juega un papel fundamental al formar profesionales capaces de intervenir en múltiples ámbitos organizacionales, tales como la planeación estratégica, la gestión operativa, la innovación digital y la vinculación institucional, para promover soluciones efectivas a las problemáticas locales.
4. Proponer la intervención administrativa constituye una hoja de ruta para fortalecer a los negocios, destacando la importancia de la

- capacitación, modernización digital, mejora de procesos, acceso a apoyos y diversificación comercial.
5. Destacar la relación entre las funciones del administrador de empresas y las necesidades detectadas en el comercio local confirma que la formación profesional no solo aporta al desarrollo individual de los egresados, sino que es una herramienta clave para el desarrollo económico regional y la inclusión social.
 6. Finalmente, es indispensable promover un trabajo conjunto entre los sectores empresarial, académico y gubernamental para garantizar que los proyectos de desarrollo regional, como el contexto analizado, beneficien equitativamente a todos los actores.

Por tanto, estos elementos no solo evidencian las demandas reales del entorno empresarial, sino que también proporcionan insumos valiosos para el rediseño de los programas de estudio, promoviendo así una formación académica más contextualizada y alineada con las dinámicas locales del sector productivo. Al ser implementados estos mecanismos por parte de la carrera, a través de los egresados a las empresas, permitirá conocer ambas posturas para relacionarse o vincularse de una manera más eficiente y efectiva.

Contribuciones del autor: Iniciales del primer autor: MECS. Contribuye en la investigación de parte activa con las encuestas, redacción del artículo. Iniciales del segundo autor: JASL. Contribuye en la investigación en la estructuración de los resultados y redacción de resultados y conclusiones del artículo. Iniciales tercero autor: JRUP: Contribuye en la investigación en la estructuración de los resultados y redacción del artículo.

Agradecimientos: Agradecemos las facilidades proporcionadas por los empresarios entrevistados, la Licenciatura de Administración y al Instituto Tecnológico Superior de Escárcega/ Tecnológico Nacional de México.

Conflicto de intereses: Los autores no declararon ningún conflicto de intereses.

Disponibilidad de los datos: Todos los datos están incluidos en el contenido del artículo.

Declaración de financiación: El presente trabajo de investigación fue financiado por los autores y el apoyo del Instituto Tecnológico Superior de Escárcega.

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Impact of Fraud on Financial Assistance Programs and Its Prevention: A Case Study of Merankabandi, Burundi

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Doi:10.19044/esj.2026.v22n4p86

Submitted: 31 December 2025

Accepted: 24 February 2026

Published: 28 February 2026

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OPEN ACCESS

Cite As:

Ndayizeye, D. & Shah, K. (2026). *Impact of Fraud on Financial Assistance Programs and Its Prevention: A Case Study of Merankabandi, Burundi*. European Scientific Journal, ESJ, 22 (4), 86. <https://doi.org/10.19044/esj.2026.v22n4p86>

Abstract

The purpose of this study is to examine the frequency and processes of fraud on financial assistance programs, with a focus on Merankabandi in Burundi. It aimed to identify systemic vulnerabilities and recommend evidence-based preventive strategies to enhance program integrity and effectiveness. The design, methodology, and approach in this research involve reviewing documents and published papers as secondary data, conducting household survey answers analysis, interviewing local administrators, and observing in the field to thoroughly examine Merankabandi's governance model in comparison to similar programs worldwide, thereby providing a context for its challenges. Data collected from a population of 56,104 and a sample of 96 beneficiaries, the majority of whom are female (92%), have little education, and work predominantly on farms. The modest direct admission of fraud categories contrasts with a large understanding of systemic vulnerabilities such as insufficient aid, a lack of guide manuals, and, most notably, low digital literacy (96%). The discussions of the findings in this research suggest that there may be either a misunderstanding of fraud or that fraud is genuinely low and unappreciated in Merankabandi, Burundi. Importantly, the study stresses the link between fraud and socioeconomic vulnerability, such as households with less education and digital abilities are

disproportionately exposed to systemic risks, decreasing program integrity and trust in aid delivery. The recommendations stress a context-specific strategy that incorporates community-driven monitoring, digital literacy training, and safe whistleblower practices. The ultimate goal is to increase integrity, lower the risk of fraud, and decrease the efficacy of financial aid in vulnerable environments.

Keywords: Fraud, Financial Assistance, Merankabandi, Vulnerability targeting, and Prevention Mechanism

Introduction

This study aims to accomplish two objectives: (1) investigate the prevalence and mechanisms of fraud within financial assistance programs, particularly focusing on Merankabandi, Burundi; and (2) analyse and provide actionable and evidence-based strategy recommendations to strengthen the integrity and effectiveness of the program to curb systemic fraud. Financial assistance programs provide financial support to low-income families, particularly those with children and dependents. These programs are usually administered by government entities or international bodies. These programs aim to alleviate poverty, improve economic well-being, and foster financial inclusion at the household level. Paul Salvin and Nimkit Lepcha highlight the importance of these programs in fragile states, where formal safety nets are scarce, and socio-political dynamics can either enable or impede the delivery of aid compliance (Salvin and Lepcha, 2019). Within this context, the discussion of fraud and prevention is pertinent and beneficial to this research. Fraud can occur at the point of enrolling intended beneficiaries and during the cash or money transfer stages (Stolk, 2010). According to Laxman et al, enhancing implicit factors to improve beneficiaries' biometric behaviour evaluation, implementing transparent verification processes, and integrating online and offline modes are all crucial in preventing fraudulent activities associated with digital payments (Laxman et al., 2025).

Merankabandi (means "to be equal to others"). Burundi stands out as one of the flagship financial assistance programs, which employs biometric registration alongside community verification to minimise fraud in the aid disbursement process (World Bank, 2021). The financial assistance program called Merankabandi was created to assist families who are vulnerable to natural disasters, economic recessions, and other emergencies in four provinces: Gitega, Ruyigi, Karusi, and Kirundo, in a pilot program between 2017 and 2022. The program was a random sample of 247 households and engaged 56,104 direct beneficiary families by giving them cash transfers and supplemental activities meant to help build their human capital. The Merankabandi social protection net program has been a successful social

safety net in Burundi. It has been spreading across the country since 2022, targeting the poorest of households and enabling them to open a small business through financial transfers. The purpose of this project is to address the following research questions: 1. What fraud practices are prevalent in financial aid programs? This question is designed to help researchers assess the numerous fraud practices that exist alongside programs designed for organisational and recipient-wide fraud elimination. 2. What are the identified fraud-preventive mechanisms and structural loopholes in financial aid programs targeted at families? This study helps financial aid programs develop fraud-preventive mechanisms that enable them to achieve integrity and effectiveness.

Fraud Issues

Typically, administrative and political issues have made fraud increasingly prevalent in financial aid programs. Program managers, directors, and local administrators are frequently involved in this type of fraud. According to Sofie Gotelaere and Letizia Paoli, fraud is the crime of intentionally misleading someone to obtain an unfair or unlawful advantage, whether in the political, financial, or other spheres (Gotelaere and Paoli, 2025). Maher et al. state that fraud is the deliberate deception of another person by the omission of information or the concealment of specified and devoted facts to achieve an illegal financial advantage in respect to products, services, or benefits (Maher et al., 2024). These definitions demonstrate how the vulnerabilities of fraud, beneficiary selection, and targeting are connected. Ineffective targeting strategies within financial aid programs are likely to increase fraud, and aid programs struggle with inflated beneficiary counts and phantom beneficiaries. Gary G. Johnson and Charryl L. Rudesill say that most fraud in financial aid programs stems from the misuse of payroll, embezzlement, corruption, petty theft, and fraudulent financial statements (Johnson and Rudesill, 2001). Beneficiaries also encounter challenges: while securing funding for their projects, they encounter obstacles in execution. Financial aid is accessible for critical needs and uninsured expenses (Assistance, 2025).

While family ties are deep because of shared history, in the shadowy realm of betrayal, one may wonder if these bonds really hold any weight. Money, or the desire to acquire it, leads to immoral actions. Levi defines fraud as a human enterprise that involves deception, purposeful aim, the intensity of desire, the risk of apprehension, breach of trust, and rationalisation (Levi, 2008). Additionally, Paul Salvin and Nimkit Lepcha, to protect and maintain an adequate socioeconomic order, fraud must be prevented and managed (Salvin and Lepcha, 2019). Such actions disturb other people and the victims'

relatives. Below is the table showing the most common frauds committed by perpetrators.

Table 1: Summary of common frauds committed

Types of fraud References	Identity Fraud	Collusion	Ghost Beneficiarie	Diversion of Funds	Embezzlem ent	Corruption	Petty theft	Fraudulent Reporting	Assets misappropri ation
(Halbouni et al.,2016)	Y		Y			Y			Y
(Lutui and Ahokovi,2017)				Y	Y	Y	Y	Y	Y
(Onesti and Palumbo,2023)	Y		Y					Y	
(Warinda et al.,2020)	Y	Y	Y	Y	Y	Y			
(Assistance,2025)			Y		Y			Y	
(Flowerastia et al., 2021)				Y		Y		Y	Y
(Iqbal, 2025)			Y	Y	Y	Y	Y		Y
(Rashid et al., 2022)		Y			Y				Y
(Flowerastia et al., 2021)						Y	Y		Y
(Moura et al.,2025)	Y	Y	Y	Y	Y	Y	Y	Y	Y
(Gupta and Rastogi,2024)	Y	Y	Y	Y	Y	Y	Y	Y	Y
(Bamigboye, 2020)						Y			
(Prenzler, 2020)	Y	Y						Y	
(Gotelaere and Paoli, 2025)					Y			Y	Y
%	42.8%	35.7%	50%	42.8%	57.1%	64.2%	35.7%	57.1%	64.2%

Source(s): Established by authors

The above table presents a global overview of the most prevalent fraud types. This shows that corruption, fraud, and asset misappropriation had the highest rank at 64.2%. The second highest is embezzlement fraud and fraudulent reporting at 57.1%. Lastly, Ghost beneficiaries also stand in third place, scoring equally at 50%. The remaining types of fraud, like identity fraud, collusion, diversion of funds, and petty theft, which are the focus of 14 studies, are described as infrequently occurring.

Prevalence of Fraud in Financial Assistance Programs

The financial aid program aims to improve low-income families' social and economic well-being by providing them with economic opportunities, healthcare, and education. This strategy improves living conditions, children's education, and overall financial stability (Ruja, 2024). Financial aid programs, on the other hand, provide mechanisms for reducing poverty and vulnerability (Zheng et al., 2024); they are also susceptible to fraud and mismanagement, which weakens their integrity and effectiveness. Sofi Gotelaere and Letizia Paoli discuss many types of fraud that are common

in financial assistance programs, such as identity fraud, in which beneficiaries impersonate others or use phony documents. Following that, eligibility fraud occurred as a result of a weak targeting system. Local officials orchestrate collaboration and corruption through the manipulation of recipient lists. Operational fraud also occurs when directors, finance managers, and other individuals misreport fund diversification and manipulate the payment system (Gotelaere and Paoli, 2025). Besides the above-mentioned fraud related to mismanagement, Burton et al. and Chiang et al., according to them, the common definition of fraud is dishonest conduct that results in loss for the victim and financial gain for the offender. Additionally, fraud is conceived as an intentional deception that leads to financial gain for one party and loss to another (Burton et al., 2022) and (Chiang et al., 2025). Fraud is extensively manifested in different ways. According to Issn et al., fraud is the intentional manipulation of facts to deceive a specific entity or individual for unjust, wrongful gain at their own expense (Issn et al., 2020). The same author states that asset misappropriation is a common form of fraud that occurs all around the world.

UNICEF Burundi reports that, depending on the strength and method of governance, the prevalence of fraud in social assistance programs ranges from 2 to 22% of total payout (UNICEF Burundi, 2021). Merankabandi evaluation case for case-specific detail. Fraud is more prevalent in cash-based programs than in-kind transfer because of the ease of diversion and liquidity. Because of this, it is simple to spot irregularities and apply digital technologies to reduce fraud (*Cash Transfers Transforming Lives in Burundi*, 2024). Merankabandi distributes cash transfers to over a million people, but there are fraud risks, such as target errors caused by the company's reliance on local selection committees, fund distribution leaks where intermediaries exploit beneficiaries, and a lack of grievance procedures that undermine accountability (Devereux and White, 2010) and (UNICEF Burundi, 2021). Overall, the global prevalence of fraud with financial aid programs weakens poverty reduction goals. Fraud in economic assistance programs needs to be prevented to safeguard their integrity and accountability.

Fraud Prevention

The first step in preventing fraud in financial assistance programs is to outline clear policies and procedures to mitigate risk. Policies that incorporate AI and technology, as suggested by Sofie Gotelaere and Letizia Paoli, together with internal audits, can foster genuine internal moral leadership and help cultivate a culture of compliance throughout the organisation. Stronger policies and regulations must be coupled with the legal enforcement of existing policies (Gotelaere and Paoli, 2025). Technological advancements, such as sophisticated fraud detection and advanced security systems, can also

combat fraud (Ashtiani and Raahemi, 2022). Dashtbayaz and assistance agreed that preventing fraud resulted first of all in combining sound accounting practices to aid in preserving internal controls, secondly, in streamlining the recording, processing, and reporting of transactions, and thirdly, in facilitating the generation of accurate and reliable financial statements (Dashtbayaz, 2025; Assistance, 2025). Fraud is most commonly realised through the embezzlement and misappropriation of assets, which entail the fraudulent use of assets that the culprits already control.

According to (Khan et al., 2023) new risks, such as identity theft, can be mitigated through advanced fraud prevention techniques, including mobile money and biometric verification. Warinda et al also point out that digital systems, while combating manual fraud, increase the need for robust cybersecurity. Relationships within a community can impede community-based monitoring and accountability programs, particularly in weak states, where oversight bodies may help prevent corruption. Additionally, community monitoring must be supplemented with internal and external audits to be effective. (Warinda et al., 2020).

According to Flowerastia et al., an internal control system can improve oversight, fortify organisational procedures and culture, and lessen the possibility of mistakes and fraudulent activity, including asset theft (Flowerastia et al., 2021). Regardless, most fraudulent activities occur within financial institutions as internal fraud, which can occur among employees at various levels.

Rashid et al say that the common methods used to prevent fraud include audit hotlines, employee assistance programs, fraud training for relevant personnel, internal and external audits of anti-fraud policies and codes of conduct, management evaluations, independent audit committees, management certification, and rewards for whistleblowing. (Rashid et al., 2022). Raymond Lutui and Tau'aho 'Ahokovi point out that the board of directors supervises an organisation's activities, and multiple researchers highlight internal controls and corporate governance because of their significant role in fraud prevention (Lutui and Ahokovi,2017). Effective governance and internal control are the primary mechanisms to prevent fraud. With effective governance in place and the board of directors empowered to implement and enforce a solid framework, control and detection mechanisms for fraud become far more streamlined (Saini, 2023). In 2023, Onesti and Palumbo published a study titled "Tone at the top for sustainable corporate governance to prevent fraud." Based on the research data, it was determined that ethical leadership was necessary to eliminate fraud(Onesti and Palumbo, 2023). To reduce fraud and maintain program integrity, Zheng et al. state that residents' attempts to protect their rights as financial beneficiaries following fraud are aided by financial literacy. A deeper comprehension of financial

information is frequently possessed by residents with high levels of financial literacy (Zheng et al., 2024). A summary of various strategies to prevent fraud is provided in the table below.

Table 2: Summary of proposed fraud preventions

Fraud Prevention References	Technology Digital ID System	Community Oversight	Regular Audits and spot checks	Whistleblower Protection	Job rotation	Good governance
(Halbouni et al., 2016)	Y	Y				
(Warinda et al., 2020)			Y	Y		Y
(Brady, 2019)	Y	Y				Y
(Assistance, 2025)			Y			
(Flowerastia et al.,2021)	Y		Y	Y		Y
(Iqbal, 2025)	Y	Y	Y	Y		Y
(Rashid et al.,2022)			Y	Y	Y	
(Johnson and Rudesill, 2001)	Y	Y	Y			Y
(Issn et al., 2020)	Y		Y			Y
(Crombach and Elbert, 2014)			Y	Y		Y
(Moura et al.,2025)	Y		Y			
(Gupta and Rastogi, 2024)	Y		Y			Y
(Biro, 2019)			Y			Y
(Bamigboye, 2020)	Y		Y			Y
(Lutui and Ahokovi, 2017)	Y		Y			Y
(Gotelaere and Paoli, 2025)	Y		Y			Y
(Prenzler,2020)						
(Saini, 2023).	Y		Y			Y
(Onesti and Palumbo, 2023)						Y
%	63.1%	21%	78.9%	26.3%	5.3%	73.6%

Source(s): Established by authors

Regarding financial aid programs, the previously noted table outlines the detection system accuracy. According to experts, frequent audits and spot checks are within 78.9%. 73.6% strong corporate governance is the best way to mitigate fraud. The study notes that a rate of 63.1% fraud prevention supports that the implementation of digital and other technical tools has reached a new level worldwide. The study also emphasises concepts such as employment rotation, community supervision, and whistleblower protection at a defined level of fraud prevention. Most studies focus on financial fraud within welfare programs, as highlighted by the researchers who looked at the Merankabandi pilot zones in Burundi, which used mobile transfers with traceable logs to mitigate cash leakage and agent manipulation, as well as Rwanda’s Vision 2020 Umurenge program. Examples of low-income contexts lacking research on targeted small-scope family aid include the use of independent audits to verify fund disbursement and household eligibility in Botswana and Kenya’s hunger safety net program, which employs local committees to verify and report discrepancies on beneficiary lists.

Sofie Gotelaere and Letizia Paoli argue that localized studies addressing governance, institutions, and culture regarding fraud risk and prevention in small-scale projects are essential (Gotelaere and Paoli, 2025).

Although many studies have focused on developing fraud-prevention frameworks, few have assessed their implementation or cost-effectiveness. The challenge is that there is limited information on aid program fraud-prevention strategies that deliver the most value for limited funding. More focus should be placed on the detail for the issue in different countries. Given this, it is essential to focus on measuring the accuracy with which various strategies reduce financial fraud to calculate methodological errors and biases concerning claims of fraud detection and prevention. Rashid et al. suggested that to reduce the possibility of fraud, researchers, auditors, internal and external regulatory bodies, board members, and other professionals should work together to define fraud, its various forms, and develop fraud-prevention frameworks (Rashid et al., 2022).

Future studies should focus on understanding the effects of fraud and the efficacy of control methods, consistent with prior research. Internal fraud and situational factors can be identified through in-depth qualitative studies and extensive surveys. This study also examines the different types of fraud that can occur in financial aid programs and explores the most effective prevention methods.

Theoretical Approach

Ncube and Ngulube(2025) defined a theoretical approach as a procedural framework that guides the study, interpretation, and description of social phenomena and is founded on approved theory. Gives suggestions, assumptions, and explanatory theories that help the scientists to connect the data found in the world to wider scholarly discourses. Theoretical approaches, based on which causal mechanisms, trend analysis, and recommendations are determined, are applied in applied research. There are three theories that have been developed.

Fraud Triangle Theory, fraud Triangle Theory was initially put forward by Cressey. Nyoman et al. state that the convergence of three factors, known as Opportunity, Pressure, and rationalization, leads to fraud (Nyoman et al., 2023). Systemic weaknesses such as low computer literacy, absence of manuals, and insufficient oversight can create the possibility of it in the Merankabandi initiative, whereas the social factors of poverty and insufficient help can create incentives. Rationalization can occur when the beneficiaries justify abuses as a survival mechanism. Based on this, fraud can remain unreported under compromised circumstances. In this instance of fraud prevention and financial aid, Chimonaki et al.(2023), define theoretical

methods as a system of explaining fraud in terms of systematic ideas like opportunity, motivation, and justification.

Institutional Theory emphasizes the role of institutional norms, governance systems, and regulatory conditions in determining the practices within organizations, which makes the institutional theory a good approach to examine how structural vulnerabilities preserve inefficiencies and malpractice in providing aid (Chimonaki et al., 2023). In the Merankabanda case, this theory may be applied to indicate that weak institutional controls, lack of integration, and ineffective accountability procedures can lead to vulnerabilities in the system, hence the importance of enhancing governance systems, participative monitoring processes, and localized advice to mitigate fraud. As Gotelaere and Paoli note, emphasize the fact that theoretical methods provide analytical tools to understand systemic flaws and pre-emptive actions (Gotelaere and Paoli, 2025b).

Social Protection Governance Framework. This approach lies within bigger systems of government and social protection. It presents the argument that effective financial aid requires accountability practices, participatory oversight, and transparency (Kasimba and Lujala, 2021). In order to enhance the integrity of programs and ensure fair growth, this framework lays great emphasis on the context-based interventions, including digital literacy training, whistleblower protection, and locally specific guidance resources.

Research Method

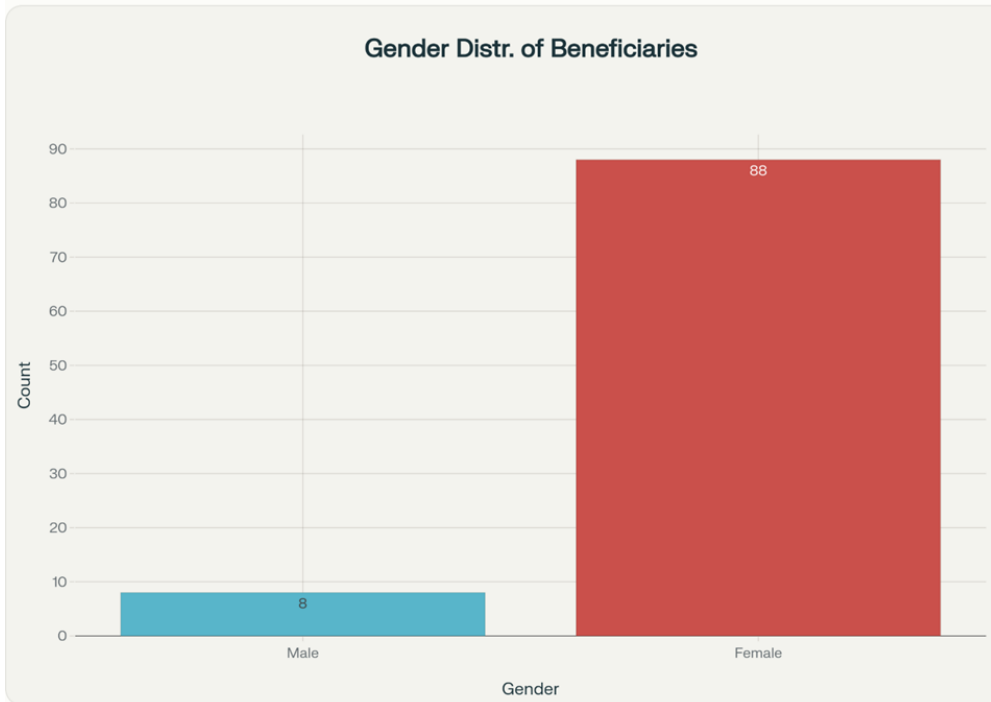
This case study utilized both qualitative and quantitative methods, including an interview guide for qualitative data collection and a questionnaire provided directly to beneficiaries of Merankabandi's financial assistance. The research is centered on "The Impact of fraud on financial assistance programs and its prevention." To investigate the prevalence and methods of fraud, particularly in Merankabandi, Burundi, both closed-ended and open-ended questionnaires were developed. Similar inquiries attempted to detect systemic vulnerabilities caused by fraud. Furthermore, queries were aimed at generating a list of practical remedies to prevent fraud while also improving the program's integrity and performance. Researchers met with authorities from the Burundi National Institute of Statistics and Merankabandi to get permission to gather data from cash transfer recipients and local administrators in four provinces. Merankabandi's target population, divided among these provinces, totaled 56,104 beneficiaries. Ndabarushimana Alexis and Dushime Francine agreed on Bouchard's sampling formula, which argues that sampling entails picking a small number of people or items to represent the total target population (Alexis and Francine, 2018). The authors further explain, "The matched sample size is 96 individuals, with a margin of error of 10% applicable when the population involved in the study is equal to or less than

1,000,000 individuals.” Bouchard’s method was used to select 96 cash transfer beneficiaries and 12 local administrators. Respondents were selected using stratified sampling techniques. According to Kothari, a stratified sample selects subgroups in proportion to their representation in the entire population (Kothari, 2004). The study was conducted in Gitega, Ruyigi, Karusi, and Kirundo provinces, with data collected through administrative interviews and beneficiary surveys. These provinces are part of the pilot area for the Merankabandi financial assistance program, which aims to help Burundi’s most vulnerable households.

To gain a deeper comprehension of the frequency and techniques of fraud against recipients of Merankabandi’s financial aid program, as well as identify vulnerabilities and effective anti-fraud strategies, all participants were interviewed and asked relevant questions. Data were collected using interview-based questionnaires with multilevel (Likert) scales. Responses included: Agree (A), Strongly Agree (S.A.), Neutral (N), Disagree (D), and Strongly Disagree (S.D.). Rensis Likert, an organizational psychologist, developed the scale, which was reviewed with tables and figures in this study.

Results and Discussions

In this section, the authors discuss the research findings established by this study based on Merankabandi (means “to be equal to others”), a social safety net project that has been functional from 2017 to 2022, providing financial assistance via money transfers to selected low-income families in four provinces piloted as zones. The discussions refer to the stated objectives of this study to assess the prevalence of fraud in financial assistance programs, to identify the systemic vulnerabilities, and to turn around the preventive strategies proposed by the beneficiaries in line with secondary data to enhance financial aid programs’ integrity and effectiveness. Below are the characteristics of the respondents in this research paper. Gender distribution of beneficiaries.



Source(s): Data collected from the field.

Actually, the study on the impact of fraud in the financial assistance program and its prevention within Merankabandi in the pilot zones shows the gender of respondents as follows: Among the 96 participants of this study, 88% were female and 8% male, revealing an overwhelmingly gendered nature in program participation. Female was more represented in this study, and this was found normal as Zheng et al. state that in a heterogeneity study, middle-aged and older persons, those living in rural areas, and especially women, are more affected by financial literacy, which is the biggest vulnerability to preventing fraud (Zheng et al., 2024). Generally, Merankabandi (meaning "to be equal to others") is a social safety net project that focuses on low-income families, and the mother is registered as the representative of the household and receives a beneficiary card.

Table 3: The age distribution of beneficiaries.

Age Group	Count	Percentage
Below 25	1	1.0%
26–30	12	12.5%
31–40	44	45.8%
41 & above	39	40.6%

Source(s): Data collected from the field.

Age-wise, the respondents were predominantly within the age of 31 to 40 years (45.8%) and over 41 years (40.6%), suggesting a mature and older average age among the heads of households.

Table 4: Educational Level of Beneficiaries

Educational Level	Number of Individuals	Percentage (%)
Never attended school	39	43.3%
Primary School	48	53.3%
Secondary School	8	8.9%
High School	1	1.1%
University	0	0.0%
Total	96	100%

Source(s): Data collected from the field.

Regarding education, 53.3% of the participants had primary education, whereas 43.3% had never attended school. Educational attainment is low, with no representation at the university level. Occupational data indicated that 91% of the participants were predominantly farmers, with 48% engaged in trading. The demographic profile indicates that beneficiaries' low education levels, combined with their rural residence, may reduce their awareness of complex low-level fraud and digital engagement. From an administrative standpoint, the following local officials were enrolled and interviewed regarding fraud and prevention. This group includes one provincial governor, three provincial cabinet chiefs, three commune administrators, and five zonal administrators. In total, 12 local officials participated in this study and shared their perspectives on the main objectives of this research.

Table 5: Educational level of Administrators.

Educational Level	Number of Individuals
Never attended school	0
Primary School	1
Secondary School	2
High School	3
University	6
Total	12

Source(s): Data collected from the field.

Six respondents completed higher education, two completed secondary school, three completed high school, and one completed elementary school. The educational background of the local administrators granted considerable weight to their answers regarding the perception of fraud, systemic weaknesses, and fraud prevention frameworks and policies they suggested. The primary aim was to investigate the occurrence of fraud in financial aid schemes, with a focus on the case of Merankabandi in Burundi. Considering the educational level of administrators, it provides assurance that their observations about fraud in the financial assistance program and their

suggestions related to preventive measures will be accurate. Zheng et al. comment by saying that people who are more financially literate typically make prudent financial decisions and steer clear of dangerous ventures that offer inflated profits. They are less susceptible to scam artists because of their enhanced ability to recognize fraud and financial risks (Zheng et al., 2024).

Table 6: Beneficiaries' perception of fraud type

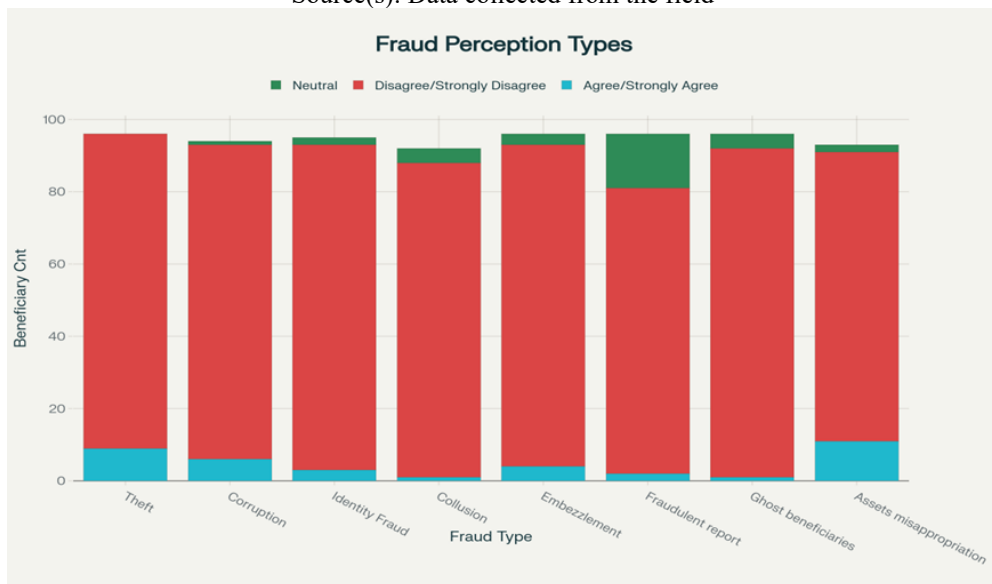
Fraud Type	Agree/Strongly Agree	Disagree/Strongly Disagree	Neutral
Theft	9	87	0
Corruption	6	87	3
Identity Fraud	3	90	3
Collusion	1	88	7
Embezzlement	4	89	3
Fraudulent report	2	79	15
Ghost beneficiaries	1	91	4
Assets misappropriation	11	80	5

Source(s): Data collected from the field

Table 7: Administrators' Perception of Fraud

Fraud Type	Agree/Strongly Agree	Disagree/Strongly Disagree
Theft	0	12=100%
Corruption	0	12=100%
Identity Fraud	0	12=100%
Collusion	0	12=100%
Embezzlement	0	12=100%
Fraudulent report	0	12=100%
Ghost beneficiaries	0	12=100%
Assets misappropriation	1=10%	11=90%

Source(s): Data collected from the field



Source(s): Data collected from the field.

The findings from beneficiaries show that 11 respondents out of 96 mentioned assets misappropriation, 9 out of 96 pointed to theft, and 6 out of 96 denounced corruption in the program. According to Issn et al., asset misappropriation is a common form of fraud that is carried out globally (Issn et al., 2020). Rujan presents corruption as a designed fraud by local officials, by manipulating the beneficiary list (Ruja, 2024). Gary G. Johnson and Charryl L. Rudesill listed embezzlement, theft, modification of data, forgery, and counterfeiting as the most common types of current fraud that occupy 80% (Johnson and Rudesill, 2001). Logically, the analysis of these findings related to the perception of fraud in Merankabandi demonstrates a lack of recognition of fraud across every area, which is valuable when considering gaps in awareness. Denialism was observed in every category, except for asset misappropriation. While some recognition was observed, it was only minimal (11 agreed/strongly agreed). This suggests that fraud is low, and the prevalence of a lack of awareness, fear of reporting, and the restraint or normalisation of unethical behaviour is notable. By contrast, Flowerastia et al state that a strong internal control system must improve an organisation’s processes, structure, values, and supervision, which decreases errors and fraud, including asset misappropriation (Flowerastia et al., 2021). Based on the findings, the first objective was addressed, and the results indicate that there was either a lack of understanding of or a perception of fraud in Merankabandi, Burundi. On the other hand, those with high levels of financial literacy are better able to identify and understand a variety of financial transactions and investment products, which makes them more vigilant against financial fraud (Zheng et al., 2024). The findings clarify the systemic perceptions of beneficiaries’ vulnerability. The results provided below achieved the second objective.

Table 8: Identified Systemic Vulnerabilities by Beneficiaries.

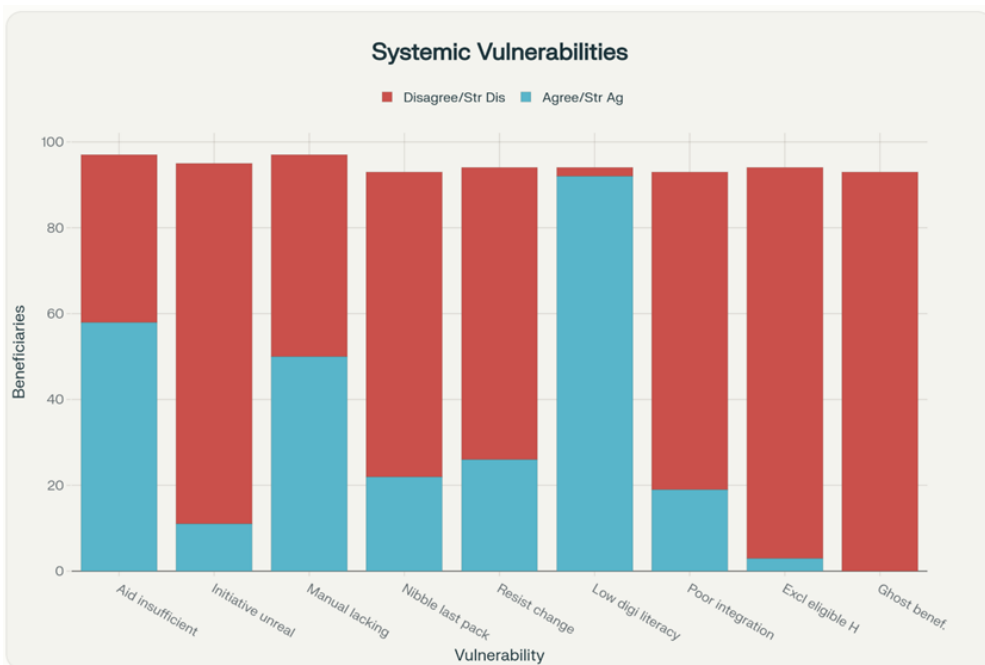
Vulnerability	Agree/Strongly Agree	Disagree/Strongly Disagree	Neutral
Insufficient assistance with aid	58	38	0
Unrealized initiatives	11	84	1
Lack of a guidance manual	50	46	0
Nibbling on the last package	22	71	3
Resistance to behavioural change	26	68	2
Low digital literacy	92	2	2
Poor integration	19	74	3
Exclusion of eligible households	3	91	2
Ghost beneficiaries	0	93	3

Source(s): Data collected from the field

Table 9: Systemic Vulnerability identified by Administrators

Systemic Vulnerabilities	Agree/Strongly Agree	Disagree/Strongly Disagree
Insufficient assistance of aid	2 = 20%	10=80%
Unrealised initiatives	2 = 20%	10=80%
Lack of a guidance manual	2 = 20%	10=80%
Nibbling on the last package	2 = 20%	10=80%
Resistance to behavioural change	2 = 20%	10=80%
Low digital literacy	12=100%	0%
Poor integration	4=40%	8=60%
Exclusion of eligible households	0%	12=100%
Ghost beneficiaries	0%	12=100%

Source(s): Data collected from the field



Source(s): Data collected from the field.

The findings reveal the systemic shortcomings that beneficiaries accept the most readily. Of the 96 respondents, the following concerns were noted most frequently: low digital literacy, 92 respondents strongly agreed; inadequate digital workflows, cited by 58 respondents; lack of guidance manual, cited by 50 respondents; resistance to behavioural change, and nibbling on final packages. These findings suggest that structural weaknesses, as well as a lack of financial literacy and low digital literacy among beneficiaries, block the full digital engagement of beneficiaries and program transparency and integrity. Similar to Zheng et al., he stated that financial literacy is essential to an individual’s ability to protect their financial rights,

especially against fraudulent operations (Zheng et al., 2024). All beneficiaries held this view regarding systemic shortcomings. These results support the conclusions of Bamigboye, who suggests the adoption of ethical leadership that nurtures culture at every level, the application of digital technologies, integrated information technology, and regular internal audits to assess the efficacy and structure of internal controls (Bamigboye, 2020). In other words, the assumptions made by the organisation, which aimed at low digital literacy, poor guidance, a lack of adequate aid programs, underperforming behavioural change programs, and rumours that nibbled at the final package, would become irrelevant.

Regarding the prevention of various types of fraud, Gupta and Rastogi elaborated on the governance of fraud types and suggested good governance by proposing steering policies that incorporate strong internal controls and fraud-resistant regulatory frameworks, which significantly lower exposure to shortcomings (Gupta and Rastogi, 2024).

Table 10: Proposed solution supported by beneficiaries

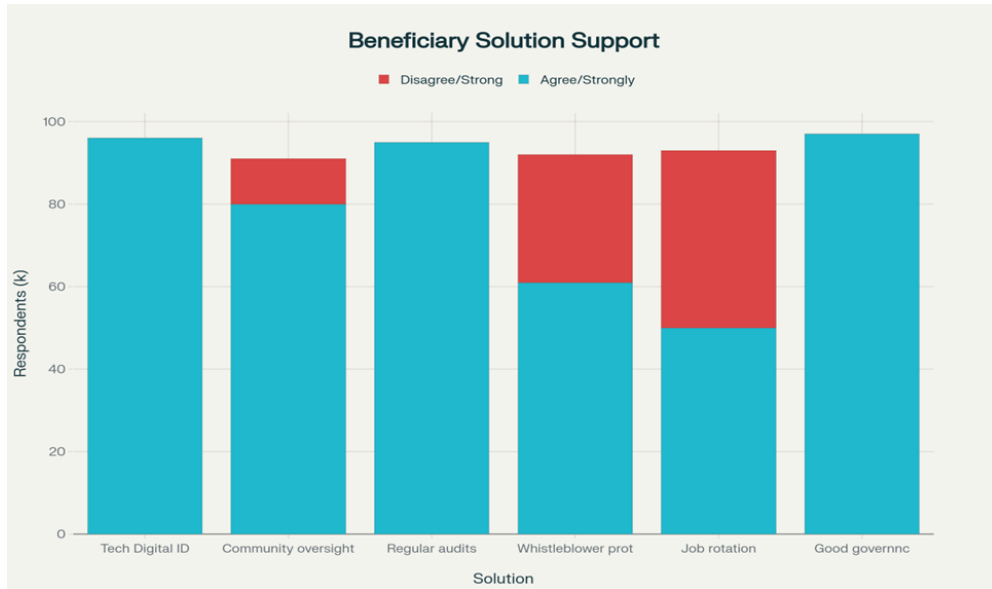
Solution	Agree/Strongly Agree	Disagree/Strongly Disagree	Neutral
Technology Digital ID system	96	0	0
Community oversight	80	11	5
Regular audits & spot checks	95	0	1
Whistleblower protection	61	31	4
Job rotation	50	43	3
Good governance	96	0	0

Source(s): Data collected from the field

Table 11: Proposed solution supported by Administrators

Solution	Agree/Strongly Agree	Disagree/Strongly Disagree
Technology Digital ID system	12=100%	0%
Community oversight	12=100%	0%
Regular audits & spot checks	12=100%	0%
Whistleblower protection	12=100%	0%
Job rotation	10=80%	2=20%
Good governance	12=100%	0%

Source(s): Data collected from the field



Source(s): Data collected from the field.

The results relate to the specific solutions proposed by participants as a fraud-prevention strategy in Merankabandi. Out of 96 respondents, there was overwhelming support for implementing a Digital ID System (96 in favor). When beneficiaries have accurate identity verification, this also helps promote financial payments without a cumbersome package. Laxman focuses on digital technology, stating that financial institutions can reduce fraud by implementing strategies and technologies that prevent it (Laxman et al., 2025). Conducting regular audits and performing spot checks (95 in favor) to fight fraud. According to Dashtbayaz, creating a strong internal and regular control system is crucial to ensuring the caliber of financial reports (Dashtbayaz, 2025). The reform of governance also received high approval, with 96 respondents agreeing or strongly agreeing. In this case of governance, Onesti and Palumbo advise directors, finance managers, and decision makers that inadequate governance would make fraud more common in a business (Onesti and Palumbo, 2023). Community watching was next, with 80 approvals. Beyond these strong supports, respondents seem indifferent to measures like protecting whistleblowers and job rotation, probably due to concerns about the risks or unfamiliarity with these measures. The researchers understand that beneficiaries favor reforms that improve technologies and oversight, but need more knowledge about reporting and internal control structures. The findings in this document align with those of Sofie Gotelaere and Letizia Paoli, who suggest two things. They argue that well-defined internal policies and procedures and good governance, including eight key characteristics, help prevent fraud. These qualities include consensus-building and participation,

accountability, transparency, responsiveness, effectiveness, efficiency, equity, and inclusivity (Gotelaere and Paoli, 2025). The findings above address the second objective. This study's contribution lies in the field of scientific research related to fraud prevention in financial assistance programs.

Contribution of the study

Along with the existing information and data collected on fraud prevention related to the Merankabandi program in Burundi, this study highlighted several contributions. Scientifically, it adds resources regarding fraud and fraud prevention on financial assistance programs through this case study. Notably, it identified low-income households. Merankabandi used a community-based targeting method combined with public verification of the beneficiary list. This approach improves clarity and transparency, reducing nepotism driven by the corrupt politics of certain leaders (www.unicef.org, accessed August 13, 2025, 11:09 PM). This aligns with the solution proposed by respondents, with 80 of 96 suggesting that Merankabandi should maintain community oversight. The study found this method effective in preventing fraud. Additionally, Merankabandi provides a cell phone and SIM card to women as household representatives, and the beneficiary's phone number is registered as the account number for money transfers. The adoption of technological innovation and community-focused governance can help curb fraud and rebuild public trust. Conversely, studies indicate that digital illiteracy and a lack of proper guidance are major barriers for beneficiaries.

The utilisation of technological digital systems for ID beneficiaries' follow-up and their payment systems enhances the capability to identify and manage the risks associated with fraud. Assisting the underprivileged by training them for positive habits and improving their behavioural and financial integration with manual guidance systems enhances their capability to mitigate fraud and self-accountability. Regular audits and controls, along with unannounced inspections, have demonstrated their value as instruments for preventing and detecting fraud. In addition, administrators involved in this research attributed blame to beneficiaries who did not utilise the funds provided to them as financial assistance. Regular follow-up of projects sponsored by financial institutions is the most effective, serving as a model for others and preventing fraud committed by beneficiaries.

Limitations

Limitations pertain to certain factors beyond the researcher's control that could negatively impact the outcome. In this case, time was the most significant challenge because I was having a limited time as a PhD student in India who went to collect data in Burundi within a period of two months only. Permits with the appropriate authorities took a long time, which led to time

constraints for this research project. In addition, the low educational level of beneficiaries may have limited their ability to recognise fraudulent activities. This was observed when investigating the perception of fraud in relation to the systemic vulnerabilities documented in this study. The researchers discovered a few earlier studies that particularly addressed financial aid programs for low-income families while reviewing data on fraud prevention. Corporate fraud, national and international economic organisations, and government supervision of financial infrastructures are the main subjects of the current study. The researchers occasionally used corporate references to offer insights into fraud and prevention inside financial aid programs due to the dearth of pertinent papers.

Scope for Further Research

This study was focused on understanding fraud within the context of financial assistance programs and their safeguarding mechanisms. The outcomes demonstrated focused fraud and prevention efforts within the context of Merankabandi, Burundi. It revealed the systemic vulnerabilities that were exploited and the fraud prevention strategies that needed to be implemented. The findings of this study cannot be generalized beyond Merankabandi, a financial aid program in Burundi. Based on current results, additional research can be conducted on the scale-up of Merankabandi at the national level and its impact on fraud risk. According to Zainal et al., a significant amount of studies on financial aid fraud in small and medium-sized enterprises have to be examined and expanded, including studies on the effects of fraud and the best way to prevent it (Zainal et al., 2021).

Conclusions

This paper has examined the impact of fraud on financial aid programs using the case of the Burundi Merankabandi Program. A survey of 96 beneficiaries across 56,104 households was conducted to ascertain the rate of fraud, assess the system's vulnerability, and identify preventive measures. This discussion proves that, despite the beneficiaries' denial of the existence of fraud in general, the findings indicate no reporting or misunderstanding of fraud as it applies to systemic vulnerabilities. This means that the reality of the level of fraudulent activity may be concealed by low awareness, fear of reporting, or the normalization of misconduct.

The results show that the system has several weaknesses that compromise program integrity. No guidance manuals, inadequate support, deductions under final assistance packages, poor digital literacy, and resistance to behavior change were among the major barriers cited by the respondents. These weaknesses demonstrate the interrelation between fraud and socioeconomic vulnerability: less-educated and more technologically

adept households are more vulnerable to fraud, which reduces trust in the delivery of aid. According to Brzeska, financial aid should intentionally support low-income families' social well-being, economic possibilities, healthcare, and education (Brzeska and Fan, 2015). These problems require changes in the structure and behavior modification among the beneficiaries. Arroyo et al and Baljija et al, in this regard, suggest the focus on the change of behavioural patterns of beneficiaries through awareness campaigns (Arroyo et al., 2025) and (Baljija and Min, 2023).

Previous studies manifested the following tasks for stakeholders as aligned with the most popular preventive measures supported by the beneficiaries, which consist of maintaining the use of digital ID systems (Soldatos, 2022; Xiong, 2022). The following task is to establish community control, changing the governance, and regular audit, which was a sign of readiness to apply technology-based reforms with participation strategies (Sinervo et al., 2025) and (Kasimba and Lujala, 2021). Later, the research suggests the protection of finance to ensure that sufficient areas of assistance will be covered, the establishment of simple guidance tools in the local languages, the investment in digital literacy education, particularly among women as the representatives of the households, and the establishment of safe whistleblower systems (Shari et al., 2020), (Commission & Polit, 2021) and (Kasimba and Lujala, 2021). Continuous evaluation, internal control, and follow up mechanism should also be used to increase transparency and accountability.

Therefore, the study cannot certify that it obtained reliable data on financial assistance fraud and how to prevent it at the Merankabandi level in Burundi. According to the survey results, issues such as underreporting or denial of fraud were found, and conversely, they were aware of the systemic vulnerabilities caused by fraud. This controversy can be determined by the context or cultural factors, which are quite common in weak states where action is dictated by the community, trust, or fear of retaliation. To address the problem of social desirability bias and cultural reluctance, is that future research needs to integrate direct questioning, triangulation, digital trace data, longitudinal panel studies, and involvement as part of the methodology in addition to self-report questionnaires. This will enhance the validity of the findings, provide a more advanced understanding of fraud threats by policymakers, and provide useful insights.

In conclusion, the fraud is still difficult to prove, but the inefficiency of the financial assistance programs is undermined by the flaws in the system on a large scale. There are precautionary measures that must be taken to synchronize technological resolution with the local realities, which will help in enhancing the integrity of the program and reducing the chances of fraud. The future research should attempt to identify the distribution of

Merankabandi nationwide in order to identify the level of fraud risks and their effects on the socioeconomic resilience.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

Declaration for Human Participants: This study was approved by the National Forensic Sciences University, and the principles of the Declaration of Helsinki were followed.

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Shaping the Shift: Unpacking Uncertainties in Change Management for Service Delivery of Selected Commercial Banks in Nairobi City County, Kenya

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[Doi:10.19044/esj.2026.v22n4p111](https://doi.org/10.19044/esj.2026.v22n4p111)

Submitted: 01 April 2025
Accepted: 02 February 2026
Published: 28 February 2026

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OPEN ACCESS

Cite As:

Suge, R. & Muthimi, J. (2026). *Shaping the Shift: Unpacking Uncertainties in Change Management for Service Delivery of Selected Commercial Banks in Nairobi City County, Kenya*. European Scientific Journal, ESJ, 22 (4), 111.

<https://doi.org/10.19044/esj.2026.v22n4p111>

Abstract

The constant technological advancement has put the banking sector under heightened pressure to achieve corporate goals, boost productivity and profitability, manage operational expenses, minimize waste, and enhance service delivery. Extended periods of insufficient service delivery may be contributing factors to the decreasing customer base and performance of Kenyan commercial banks, which have not seen significant changes over the last five years. Therefore, this study focused on shaping the shift: unpacking uncertainties in change management for service delivery of selected commercial banks in Nairobi City County, Kenya. The research was underpinned by three theories, namely stakeholder theory, path-goal leadership theory, and service quality theory. A descriptive research design was employed for this study, with seven commercial banks in Kenya being selected, totaling 314 personnel working in these banks across finance, credit, marketing, and risk management departments. A simple random sampling technique was used to select respondents from each stratum, leading to a total of 176 respondents. A pilot test was undertaken by distributing 18 questionnaires to bank managers at SBM Bank. Reliability of the questionnaire was determined by using Cronbach's alpha. Data was analyzed using descriptive and inferential statistics. The results were presented using tables. The research found that there was a strong, positive, significant

relationship between leadership strategy, stakeholder engagement strategy, communication strategy, planning strategy, and service delivery. The study therefore concludes that effective leadership strategies enhance employee satisfaction and engagement, leading to improved service delivery, engaging customers through feedback mechanisms, surveys, and focus groups allows banks to understand their needs and preferences, effective communication strategies foster better engagement with customers, allowing banks to understand their needs and preferences and planning strategy aids in the optimal allocation of resources, including human, financial, and technological resources. The study recommends that banks should develop systems for collecting and analyzing customer feedback to understand their needs and expectations. The banks should regularly gather feedback from customers, employees, and other stakeholders to understand their needs and expectations. The banks should recognize the various stakeholders involved, including customers, employees, regulators, and community members. The banks should conduct regular surveys and focus groups to understand customer needs, preferences, and pain points.

Keywords: Change Management, Service Delivery, leadership strategy, stakeholder engagement strategy, communication strategy, and planning strategy

Introduction

In today's competitive global landscape, service delivery is regarded as a key element in a company's success and overall performance (Christensen & Zheng, 2023). Change management enables organizations to gain a competitive advantage in a dynamic market environment. Rising global competition, technological advancements, and increasing customer expectations are driving the need for improved service delivery within firms (Kwok et al., 2023). Change management has a significant influence on service delivery, ensuring that organizational changes are implemented smoothly, minimizing disruptions, and enhancing overall performance (Manzoor, Wei, Nurunnabi, Subhan, Shah, & Fallatah, 2019). Similarly, Ebongkeng (2020) holds the view that service delivery is a complex process that involves multiple dimensions, including both long-term and short-term measurements, as well as financial and non-financial aspects. Rezvani, Dehkordi, and Shamsollahi (2018) argue that organizational transformation is the process by which an organization transitions from its current position and status to a future one that has the potential to enhance the organization's service delivery.

D'Ortenzio (2018) claims that the Australian government's change management initiatives reflect a sense of urgency to restore continuity while

implementing new policies and procedures for public service delivery. Strategic transformation is a way for a company to change its objectives and vision to be more successful (Naghbi & Baban, 2018). According to Song (2009), organizational transformation is a complicated process that may result in the failure of the change management process due to even the smallest of errors. According to Saif, Razzaq, Rehman, Javed, and Ahmad (2013), the companies that are most effective in adopting change see it as a continuous chance to improve their business activities and the quality of the services they provide.

As a consequence of this, firms are increasingly embracing strategic change management in order to reinvent themselves and achieve higher efficiency and effective service delivery for their customers. The need to enhance service delivery by capitalizing on possibilities that are now there or that are yet to develop and by addressing risks to the market is the impetus for strategic transformation (Prins, 2016). A successful change management strategy, according to Chi, Gursoy, and Chi (2022), assists in the planning and execution of changes in a manner that minimizes interruptions to service delivery. Organizations aiming to enhance their service delivery must develop strategies to address the challenges associated with the introduced changes. This involves planning and implementing the necessary change programs to streamline their service delivery.

Developing nations and communities in Africa have a similar challenge in the form of poor strategic change management techniques that cause problems with service delivery. For instance, South African municipalities, according to Govender and Kader (2020), may require staff to acquire new knowledge or modify existing procedures if changes are implemented. Change management includes training and communication strategies that help employees adapt to new processes, ensuring they can deliver services efficiently.

A research project carried out in Ghana by Gyasi et al. (2020) discovered that change management practices ensure that changes do not negatively impact the customer experience. By managing the transition smoothly, the organization can maintain or even improve customer satisfaction levels during periods of change. Dalinjong and Laar (2022) support this view by stating that local councils in Nigeria continue to face pressure to improve their service delivery, in which effective change management fosters a culture of adaptability within the organization. This allows for continuous improvement in service delivery as employees and systems can quickly adjust to new methods, technologies, or market demands.

In Kenya, Mugambi (2022) found that by managing change effectively, organizations ensure that service delivery remains aligned with their strategic goals, even as they undergo transformations. This alignment

helps in maintaining a clear focus on delivering value to customers. Menganyi et al (2023), in a study on strategy change management and its strategies that influence delivery of services in financial institutions in Kenya, found that poor management of change and non-compliance with desired ethical standards affect service delivery in Kenyan financial institutions. It was also recommended that it is prudent for managers to embrace innovations if they are to improve service delivery to their customers. In another study, Mutunga (2022) argues that change management involves identifying and mitigating risks associated with changes. This reduces the likelihood of service disruptions or quality declines, ensuring consistent service delivery. Despite reforms in the financial services sector across Africa, service delivery continues to fall short. Examining how change management strategies are applied in these institutions is essential to understanding and addressing this persistent challenge.

The 21st century has brought numerous technological changes and challenges, compelling the banking sector to transform itself, be more creative, experience a fundamental change, and adopt effective change management strategies to ensure its survival. Commercial banks have invested significant time in refocusing their corporate strategies and improving business processes to stay competitive and effectively meet their customers' needs (Agatha, 2022). Commercial banks in Kenya have initiated changes in their systems aimed at achieving better quality services among their esteemed customers. This study, therefore, aimed at finding out what change management strategies are being utilized to impact service delivery among selected Commercial Banks in Nairobi City County, Kenya.

1.1 Statement of the Problem

Efficiency in providing services is viewed as the expertise that financial institutions obtain when there is a blend of the appropriate staff, processes, and technological adoption that yields beneficial results for the business, thereby lowering operational costs (Raspa, Moultrie, Toth & Haque, 2021). Financial institutions now provide round-the-clock service due to globalization, deregulation, and competitiveness in the business world. However, there is a major downside in terms of inconvenience and security concerns. However, frequent downtimes in banking systems, especially during peak hours, can disrupt service delivery, causing frustration among customers who rely on digital banking services (Berger et al, 2019). Commercial banks have been forced to re-evaluate the quality of their services as a result of the rapid loss of consumers to their rivals (Kungu & Ngui, 2021). This is because alternative financial providers, such as SACCOs, are providing services that are superior and more focused on the customer.

Financial institutions, particularly banks, have faced numerous challenges in maintaining structures that are often at odds with the evolving environment shaped by service delivery and the shifting needs of their clients. The importance of the banks is heavily affected by the trends brought about by environmental shifts. The banks are slowly transitioning from conventional banking methods to a more contemporary approach that heavily depends on technology. To endure, flourish, and gain a competitive advantage in the market, banks will choose to develop enhanced distribution channels to connect with clients. Kenyan banks have been highly engaged in establishing ambitious targets for themselves, driven by technological advancements, enhanced facilities, a redefined approach to service delivery, and customer experiences. The main goal of these banks is to outperform their rivals by providing exceptional service to their customers (Nithya & Kiruthika, 2021). Hasanaj and Manxhari (2020) found that service delivery is positively affected by organizational structure. On the other hand, this research was carried out in a poor nation; hence, its conclusions cannot be applied to commercial banks in Kenya. Doreen (2022) carried out a study on the operational performance and service delivery of tour operators in Kenya and found that, despite the fact that micro and small companies put the same amount of importance on service delivery as medium-sized, globally associated firms, they had a difficult time achieving high performance. According to their research, there is a dearth of empirical literature examining how commercial banks' service performance is affected by change management strategies. Additionally, some of these studies rely on data from other countries, and their findings may not be applicable to the local banking context. Conversely, local studies have not demonstrated the extent to which change management strategies impact service delivery in commercial banks in Kenya. This study aimed to address this research gap by examining the effect of change management strategies on service delivery at selected commercial banks in Nairobi City County, Kenya.

1.2 Research Objectives

This section covers the general and specific study objectives:

1.2.1 General objective

This study aimed to address this research gap by examining the effect of change management strategies on the service delivery of selected commercial banks in Nairobi City County, Kenya.

1.2.2 Specific objectives

The study was guided by the following specific objectives:

1. To investigate the impact of leadership strategies on service delivery within selected commercial banks in Nairobi City County, Kenya.

2. To evaluate the effect of stakeholder engagement strategies on service delivery in selected commercial banks in Nairobi City County, Kenya.
3. To examine the influence of communication strategies on service delivery among selected commercial banks in Nairobi City County, Kenya.
4. To analyze the impact of planning strategies on service delivery in selected commercial banks in Nairobi City County, Kenya

2.0 Literature Review

2.1 Theoretical Literature Review

The service quality theory, the path-goal leadership theory, and the stakeholders theory formed the basis of the present study.

2.1.1 Service Quality Theory

Following Gronroos (1982), who introduced the concept of service quality, Parasuraman et al. (1985) brought it to a wider audience. Behavioral, psychodynamic, cognitive, and humanistic viewpoints are among those that may provide light on the decision-making process for customers, as proposed by Howard and Sheth (1969) in their theory of consumer behavior. Throughout the academic literature on the topic of service quality, the SERVQUAL model has been central. This model postulates that the nature of the difference between expected and perceived service characteristics should determine the service quality. When expected satisfaction (ES) is more than or equal to perceived satisfaction (PS), the service is seen to be of lesser quality; conversely, when ES is less than or equal to PS, the service is deemed to be of better quality.

Since the technical factor is so subjective, critics of the theory argue that it makes it impossible to objectively quantify quality. Functional quality plays a significant role in how customers assess service quality, and it can significantly influence their overall judgment (Chen & Ting, 2002). Assuming that service quality should be determined by subtracting customer expectation scores from customer perception ratings, the service quality theory proposes that this should be taken into consideration. When commercial banks provide services in a timely manner, are eager to help consumers, and have staff members who handle customer demands in an efficient manner, they display responsiveness. Smith (2007) argues that staff members who are knowledgeable, polite, and able to gain customers' trust and confidence provide the best assurance. This theory supports the study's dependent variable, which is service delivery.

2.1.2 Path-Goal Leadership Theory

House (1971) was the first person to present the Path-Goal Leadership Theory, and House and Mitchell (1975) were the ones who subsequently elaborated upon it. According to Antonakis and House (2013), the theory proposes that certain actions or courses of action will result in particular outcomes, and that leaders are responsible for directing personnel down the route that leads to the accomplishment of business objectives. Malik, Aziz, and Hassan (2014) state that the Path-Goal Leadership Theory is criticized for being too complex due to the fact that it includes several leadership traits, which might cause ambiguity while trying to understand it. One such complaint is that the theory does not provide enough room for flexibility. Because a leader's natural style is set, Fiedler stated that the best method to manage diverse circumstances is to change the leader rather than adapting their style. This is because the natural style of a leader is fixed. According to Serfontein (2010), this viewpoint does not take into consideration the flexibility that is required of leaders. Furthermore, empirical research has only shown a limited amount of support for the theory, especially when considering all four characteristics of leadership behavior in a complete manner. Additionally, supportive leadership behavior can influence an employee's commitment to organizational goals, and the reverse is also true.

The theory also provides strategic leaders with guidance on how to communicate strategic decisions for effective implementation and identifies leadership behaviors that can enhance employee acceptance. Since employees respond differently to various leadership styles, it is essential to align the chosen leadership style with subordinate expectations to improve service delivery. Banks often use planning strategy as a management tool for change management because of its track record of long-term performance. The study's theoretical foundation is a focus on the effect of supportive leadership tactics on service delivery and change management. Leaders have a crucial role in helping their subordinates improve their service delivery by providing them with cognitive direction, inspiration, and encouragement.

2.1.3 Stakeholder Theory

Stakeholder theory was proposed by Freeman (1984), who asserts that the stakeholder theory serves as an important alternative. This theory proposes that management's duty is to protect the various legal rights owned by all stakeholders. Organizations are considered to be social organizations, and as such, they have duties that extend beyond their fiduciary obligations to shareholders, directors, and workers (Freeman et al.2010). Flak and Dertz (2005) opine that this knowledge is important since an improvement in outcomes implies that the appropriate approach has been implemented and that these strategies have been implemented effectively. The stakeholder theory

has become an established foundation that identifies and analyzes the influence that companies have on their stakeholders.

The criticism of stakeholder theory is that the selection of proper stakeholders will ensure that not only the appropriate projects are formulated, but also properly planned and implemented (Laplume, 2008). Managers, according to the notion, need to take stakeholder views into account while managing change within an organization if they want to keep the business afloat and make sure everyone's interests are protected in the long run. According to Laplume, Sonpar, and Litz (2008), understanding the link between stakeholder engagement through change management and the outcomes of these strategies is vital. This is because better outcomes indicate that the right approach was taken and that the strategies were successfully put into place. This theory underpins the communication strategy and stakeholder theory on the effect of change management on service delivery.

2.2 Empirical Literature Review

2.2.1 Leadership Strategy and Service Delivery

Tsai (2021) investigated the connection between company culture, leadership style, and employee happiness within the framework of Taiwanese organizational reform. A cross-sectional methodology was used for the research project, and hospital nurses in Taiwan were selected as respondents. The data was gathered from a total of 300 participants via the use of a standardized questionnaire. Using correlation analysis, the study looked at the relationships that occur throughout transitions between leadership behaviour, organizational culture, and employee job satisfaction. The findings indicate that leadership behaviour significantly and positively affects employee happiness in the workplace, which influences their productivity. The study also highlighted a need for similar research locally, but it focused on organizational performance rather than service delivery.

Thomas (2021) looked at the telecom and television sectors in Nigeria, namely Airtel Telecommunications Company, to see how change management relates to performance. Change leadership has a substantial impact on company performance, according to research evaluated using a one-way analysis of variance. There were several missing pieces of evidence in the study; more research into leadership and other change management tactics is needed to fill in the gaps. In addition, it brought to light contextual gaps, highlighting the need for research of a similar kind to be carried out in the neighbourhood.

The influence of strategic change management on corporate performance was examined by Omari, Ateka, and Nyaboga (2020), who zeroed in on the soft drink industry in western Kenya. Research using a cross-sectional correlation approach found that leadership significantly impacts

organizational performance via better change management. Regression analysis showed that organizational leadership significantly contributed to performance, with a significance level of 5% ($P=0.002<0.05$). During the course of the research, conceptual gaps were discovered, which indicates that the analysis should be expanded to include other change management elements in addition to leadership.

Through the use of a literature review methodology and the examination of solely secondary data, Mansaray (2019) investigated the function that leadership plays in the transition management of an organization. As a result of the results, it became clear that leadership is necessary in order to successfully guide people through change and accomplish corporate objectives. The study, in contrast, identified a conceptual void as it did not focus on specific types of organizations or institutions. Consequently, the results may only be relevant to specific types of settings.

Njenga (2019) investigated the potential link between change management and the effectiveness of Kenyan government agencies by analyzing the Technical University of Kenya. The objective of the research was to observe the effects of change management procedures on productivity. An important part of the company's performance was determined to be a change leadership approach. The research found certain methodological flaws, one of which was that the scope needed to be widened beyond a single case study to allow comparisons across other types of organizations. Another important need was the use of inferential statistics to increase the results' generalizability.

Commercial banks in Kenya were examined by Maina (2018) using a census research approach. All sixteen of Nyeri County's commercial banks are part of this management-focused strategy. To collect the primary data, questionnaires were handed out through a method of dropping and retrieving. The data was examined both descriptively and inferentially to obtain statistical results. Applying a 5% significance threshold, the regression analysis showed that organizational leadership had a significant impact on performance ($P=0.002<0.05$). The research findings indicate that the leaders of commercial banks effectively cultivated a sense of urgency to highlight the necessity for change. While the research did analyze leadership in broad terms, it did not take into consideration individual leadership styles and the influence those types have on change management within the banking industry. This led to the identification of a conceptual gap.

2.2.2 Stakeholder Engagement and Service Delivery

The Nurse Practitioner-led Clinic in Ontario was the subject of the case study approach that Rourke, Higuchi, and Hogg (2021) used in order to investigate stakeholder participation in system transformation in Canada.

After conducting semi-structured interviews with sixteen people from a variety of healthcare industries, primary data was acquired. Secondary data consisted of reviewing 188 documents. Due to the fact that it assists in shaping and communicating the vision of the change, the qualitative study found that the engagement of stakeholders plays an essential role in change management. In the present research, quantitative data were used for better objectivity, although qualitative data were used in the previous study, which is one of the methodological gaps. In addition, the research was carried out inside the healthcare industry, which is in contrast to the findings of the present research, which were performed within the banking industry.

Using the Eldoret Branch of the Kenya Power and Lighting Company in Uasin-Gishu County, Kenya, as a case study, Kenyora (2021) investigated how stakeholder engagement affects organizational performance. This descriptive study employed inferential and descriptive statistics to examine data, with a foundation in stakeholder theory. The results showed that the company's performance improved when stakeholders were involved. In order to increase the comparability of findings, there are holes in the methodology, such as the need to do research on a greater number of firms than the case study technique.

Through the use of a South African Secondary School in Kwamashu, Mchunu (2021) explored the engagement of stakeholders and the impacts that it has on the management of change in educational institutions. Four secondary schools located north of Durban were involved in the research project, which focused on ward 136 in KwaMashu Township, which is part of the Mafukuzela-Gandhi Circuit. As a consequence of the findings, it was discovered that the administration of the school successfully implemented and maintained high levels of stakeholder participation throughout the process of change implementation. It was determined that there were gaps in the context, which indicates that the research should be repeated in local contexts. In addition, there were discoveries of empirical gaps, which brought to light the need of broadening the scope of the evaluation to include service delivery as it is impacted by change management.

British-American Investments Company Limited's performance during the study period was investigated by Mlanya (2020) to ascertain the impact of stakeholder involvement in strategic management. In order to address the research topics, descriptive statistics were derived from the primary information gathered through an interview framework. According to the results, the organization's performance was much enhanced when stakeholders were included. Several methodological flaws were discovered, one of which was the need to include a greater number of businesses in order to get a more accurate comparison. The present research also concentrated on

service delivery, in contrast to the previous study, which was primarily concerned with performance.

Terer, Mwangi, and Gichuhi (2019) examined the effect of stakeholder participation on the change management approach of the National Police Service of Kenya. They gathered primary data from sixty-five high-ranking officials in Nakuru County through questionnaires, employing a combination of correlational and descriptive survey methods. The findings indicate that stakeholder involvement significantly improved change management, which enhanced service delivery for the company. On the other hand, a contextual gap was discovered: while the research was conducted on the National Police Service, its results may not be relevant to other industries, such as the court or equity banks, owing to the dissimilar change management practices that are used in those other sectors.

Wanyama (2019) used a case study methodology in order to evaluate the influence that stakeholder participation has on change management at the Kenya Ports Authority (KPA). In order to gather data, interviews and semi-structured questionnaires were administered to external stakeholders, personnel, and individuals in management at KPA. According to the findings of the study, which mostly consisted of content and descriptive analysis of qualitative data, KPA engaged stakeholders in change efforts; however, this engagement did not occur at all phases of the process. According to the findings of the research, there is a need for more stakeholder engagement, especially during the planning phase, in order to make the most of their contributions. The need to investigate the connection between the engagement of stakeholders as a component of change management and the consequences that it has on service delivery is one example of the contextual gaps that exist. In addition, there is a need for the research to include a wider variety of factors that are being evaluated.

At KPLC, Aketch (2018) investigated how stakeholders were involved in change management. This study aimed to evaluate the method by which stakeholders were involved in the change management process by using a descriptive study design and interview schedules to gather data. Participation in the piloting phase prior to implementation and active involvement in process development to guarantee successful adjustments were both shown by the outcomes. However, throughout the design phase of the change system, the study discovered that stakeholders, especially staff members, were not involved enough. A lack of background information has brought attention to the requirement of studying how the delivery of service is affected by change management.

2.2.3 Communication Strategy and Service Delivery

According to research by Hasanaj and Manxhari (2020), communication is crucial to effective change management in the Vlora municipality. A descriptive design was used to carry out the investigation. When people are able to express themselves clearly and accurately, everyone involved benefits. When there is clear communication, there is less room for misunderstandings and mistakes, which ultimately results in more effective and dependable service delivery. Customers are provided with information that is both accurate and up to date on services, changes, or problems when a communication plan that has been thoughtfully created is implemented. The existence of a contextual gap was brought to light, highlighting the need to investigate the influence that change management has on service delivery.

At Unilever (Kenya) Limited, Gachungi (2019) conducted an analysis to determine the influence that communication strategy has on change management policies and procedures. Detailed interviews were conducted with a wide range of respondents, including senior managers, department heads, middle-level managers, and non-management staff members. This was the primary method of data collection. During the course of the process, the research discovered that the communication approach had a substantial impact on change management, namely, lowering resistance. The results from the private sector context, on the other hand, may not be relevant to the public sector, such as the Judiciary of Kenya, which was recognized as a contextual barrier. Furthermore, the implications of the communication strategy on service delivery were not investigated in the research.

Odera and Muendo (2019) conducted research on the elements that influence strategic change management in the public sector, with a particular emphasis on communication as one of these aspects. With the use of a descriptive study methodology and a standardized questionnaire, they gathered information from respondents working in a variety of disciplines. When compared to the other components that were investigated, the findings suggested that communication had the most significant influence. However, even though the study was conducted within the public sector, it did not investigate how communication, which is a component of change management, affects the delivery of services.

Atambo and Momanyi (2016) investigated how employee performance is affected by internal communication as a change management strategy. This research mainly focused on the Kenya Power and Lighting Company in Kenya's South Nyanza Region. Researchers used stratified random selection to choose 30 participants from a pool of 256, representing 30% of the total population. The purpose of this research was to analyze the impact of different types of communication on the efficiency of the Kenya Power and Lighting Company's employees in the South Nyanza Region. It has

been discovered. Channels for receiving and responding to input from consumers and workers are often included in communication plans. Effective feedback mechanisms allow organizations to identify and resolve issues quickly, leading to improvements in service quality.

2.2.4 Planning Strategy and Service Delivery

Kharroub and Mansour (2022) investigated how different types of planning affected the standard of services offered by Palestinian communities. The 114 randomly chosen employees of the Jenin Municipality were surveyed to get the main statistics. Using a descriptive technique, the inquiry was conducted. Statistical tools for both descriptive and inferential analysis formed the basis for the analysis of the data. According to the findings, service quality is substantially enhanced by prior planning. The study did not focus on planning for change management, even though the SERVQUAL methodology was used to assess service performance. Instead, it concentrated on planning for the business as a whole. For another thing, the conclusions of the research could not be as relevant to the situation of commercial banks in a different nation, which would make them less reliable.

Using planning as a change management method, Zhou, Hu, and Shi (2021) investigated whether or not it leads to enhanced business performance in Chinese publicly traded enterprises. Their study, which included 287 businesses of this kind, found that several planning factors were positively associated with both objective financial success and perceptual innovation indices. However, methodological gaps arise from the study's reliance solely on secondary data, highlighting the need for research incorporating primary data from firms. Additionally, contextual and empirical gaps are noted, emphasizing the necessity for local studies and broader examination of diverse change management strategies.

Jan and Veronika (2020) conducted research to determine how various variables affected the process of change implementation across enterprises in Slovakia. They discovered that the planning approach had a substantial impact on the efficiency of change implementation. Primary data for the study came from questionnaires sent out to employees of various companies as part of the survey methodology. The results showed that preparation was crucial to the success of the shift. The research, on the other hand, did not investigate the impact that the planning strategy had on service delivery, nor did it investigate how the change impacted service delivery both before and after it was implemented.

Planning was shown to have an enormous effect on the success of enterprises in Nigeria, according to Daniel (2019), who investigated how change management impacts company performance. The study focused entirely on secondary data and used a methodology known as a literature

review. Keeping the company aligned with the change vision and directing the change management process are both essential, according to the results, which underscored the importance of having a well-developed strategy. This research, however, did not investigate how the planning technique affected the delivery of services. For the purpose of addressing this conceptual gap, the present study not only investigates planning strategy in change management but also evaluates the impact that it has on service delivery. Additionally, while Daniel's (2019) study relied exclusively on secondary data, the current research uses primary data to provide insights into the equity bank context, which may offer different findings.

Nzioka (2019) conducted a study on the relationship between strategic planning and performance improvement for commercial banks in Kenya. The information for this research was obtained from 43 various commercial banks across the nation and utilized an empirical research method that relied on self-administered surveys. Qualitative methods were used, including statistical procedures like correlation and regression analyses, as well as descriptive statistics. The results show that strategic planning impacts company performance in a statistically meaningful way. However, the study highlights a contextual gap, as it did not explore additional change management variables or assess how these variables, both individually and collectively, impact service delivery.

2.3 Conceptual Framework

Figure 1 shows the study's conceptual framework, which shows the interrelation between the independent variable and the dependent variable.

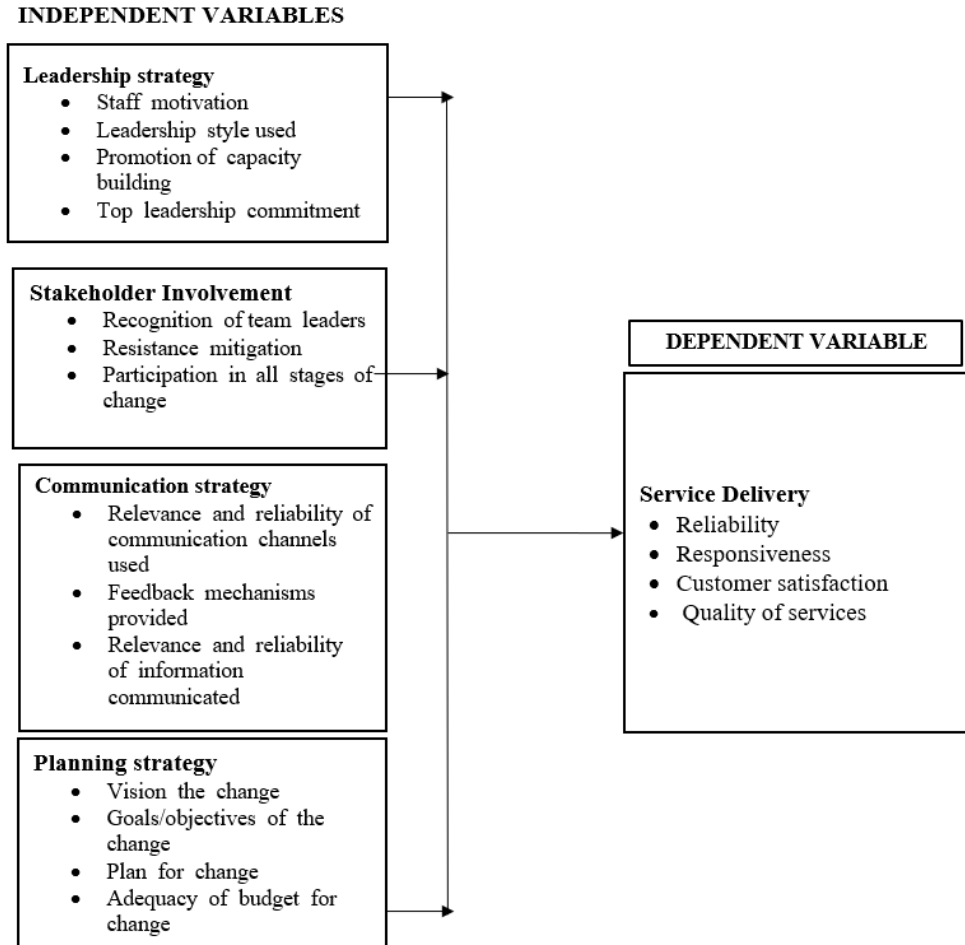


Figure 1: Conceptual Framework

Research Methodology

This study used a descriptive research design. The unit of observation consisted of the seven commercial banks in Kenya, together with the 314 individuals employed by these banks in the areas of finance, credit, marketing, and risk management. The study applied a stratified random sampling method to get a sample size of 176. A pilot study was done involving 18 respondents who were bank managers at SBM Bank. The reliability of the instrument was determined using Cronbach's alpha. Following the completion of the descriptive statistical analysis, tables were generated that display the frequency, mean, percentage, and standard deviation distributions. To assess the relationships and the impact of each independent variable on change management strategy, multiple linear regression was employed.

4.0 Results and Discussion

The results derived from the data analysis are outlined in this chapter, accompanied by references to relevant literature by different authors.

4.1 Descriptive statistics

4.1.1 Leadership Strategy

The respondents were given a list of statements that described the effect of leadership strategy on service delivery among selected Commercial banks in Nairobi City County, Kenya, to rate them based on their level of agreement. The results obtained are presented as follows;

Table 1: Leadership Strategy

Statements on leadership strategy	M	SD
The leadership team effectively motivates staff to achieve high performance.	4.49	0.509
Leaders use various methods to recognize and reward employee achievements.	4.54	0.460
Top leadership demonstrates a strong commitment to achieving organizational goals.	4.23	0.769
The organization provides adequate training and resources for employees to enhance their skills	4.26	0.739
Leadership prioritizes capacity building as part of its strategic goals	3.75	1.248
The leadership team provides clear direction and support for the organization's vision.	3.94	1.060
Aggregate scores	4.20	0.798

The results in Table 1 indicate that the aggregate mean and standard deviation score is 4.20 and 0.798 respectively. This finding shows that the respondents had generally agreed on all the statements describing the effect of leadership strategy on service delivery among selected Commercial banks in Nairobi City County, Kenya. The results indicates that participants in this study recognize the pivotal role of leadership strategies in influencing service delivery within commercial banks in Nairobi City County. The findings align with Thomas (2021), who notes that effective leadership can result in higher employee performance, superior customer service, and, ultimately, increased organizational efficiency.

4.1.2 Stakeholder Engagement

The respondents were given a list of statements that described the effect of stakeholder engagement strategy on service delivery among selected Commercial banks in Nairobi City County, Kenya, to rate them based on their level of agreement. The results obtained are presented as follows;

Table 2: Stakeholder Engagement Strategy

Statements on stakeholder engagement strategy	M	SD
Recognition of team leaders is effectively practiced.	3.43	1.570
At every point of the transformation, stakeholders are actively engaged.	4.00	1.000
Stakeholders are regularly consulted.	4.51	0.590
During the change management planning process, all important parties are actively engaged.	4.43	0.570
The implementation phase of a change involves the active participation of stakeholders.	4.61	0.389
Stakeholders are informed about the outcomes and results of the change process.	3.84	1.160
Aggregate scores	4.14	0.742

The results in Table 2 indicates that the respondents had generally agreed on all the statements describing the effect of stakeholder engagement strategy on service delivery among selected Commercial banks as shown by aggregate mean and standard deviation score of 4.14 and 0.742 respectively. The strong agreement among respondents regarding the impact of stakeholder engagement strategies underscores the necessity for commercial banks in Nairobi City County to prioritize these strategies as a means of enhancing service delivery and achieving long-term success in the industry. The results align with the research of Terer, Mwangi, and Gichuhi (2019), which supports a participatory method in the banking sector, emphasizing that stakeholder feedback is both appreciated and incorporated into the decision-making processes.

4.1.3 Communication Strategy

The respondents were given a list of statements that described the effect of communication strategy on service delivery among selected Commercial banks in Nairobi City County, Kenya, to rate them based on their level of agreement. The results obtained are presented as follows;

Table 3: Communication Strategy

Statements on communication strategy	M	SD
Everyone on staff at the bank is kept apprised of the company's internal happenings.	4.50	0.499
In order to ensure that its employees are well-informed about upcoming changes, the bank employs reliable and relevant communication channels.	4.00	1.000
Sufficient feedback has been provided on the efforts placed into executing the change.	4.10	0.895
Reliable and pertinent information on changes that have been implemented is provided by the bank.	4.55	0.450
In the process of implementing or intending to make any changes, the bank maintains communication with all relevant stakeholders along the process.	4.56	0.439
The communication of the changes that have occurred inside the bank is timely.	3.93	1.069
Aggregate scores	4.27	0.829

The results in Table 3 show that the respondents had a general agreement on all the statements describing the effect of communication strategy on service delivery among selected Commercial banks in Nairobi City County, Kenya, as shown by an aggregate mean score of 4.27 and a standard deviation score of 0.829. This finding indicates that the respondents had a positive view of how the communication strategy implemented by the County had influenced service delivery. These findings are consistent with earlier studies by Atambo and Momanyi (2016), highlighting the crucial role of effective communication in enhancing customer satisfaction and service quality within financial institutions. The research further incorporates Hasanaj and Manxhari's (2020) empirical evidence to emphasize that effectively executed communication strategies are essential for enhancing service delivery in commercial banks.

4.1.4 Planning Strategy

The respondents were given a list of statements that described the effect of planning strategy on service delivery among selected Commercial banks in Nairobi City County, Kenya, to rate them based on their level of agreement. The results obtained are presented as follows;

Table 4: Planning Strategy

Statements on planning strategy	M	SD
There is a distinct plan in place for each change that is implemented inside the financial institution.	4.69	0.310
Both the aims and the objectives of the shift have been articulated in perfect detail.	4.03	0.969
In order to successfully execute any change, a plan must first be devised	3.88	1.120
During the process of implementing change in the bank, there is sufficient financial allocation available.	4.50	0.500
It is important for workers of the bank to connect their ambitions with the aims of the organization.	4.47	0.529
Change awareness initiatives are conducted to clarify the planned changes.	4.65	0.348
Aggregate score	4.37	0.629

The results in Table 4 indicate that the respondents agreed on all the statements describing the effect of planning strategy on service delivery among selected Commercial banks (M=4.37, SD=0.954). The finding indicates that the respondents' view was that the planning strategy was effectively implemented by the County, contributing to a significant influence on service delivery. The results align with the research by Kharroub and Mansour (2022), which emphasizes how strategic planning promotes innovation and adaptability in financial institutions. With the ongoing evolution of the banking sector, especially due to technological progress and shifting consumer preferences, the skill to successfully plan and implement strategies is becoming more essential.

4.2 Test of Hypothesis

Table 5: Coefficients

Model	Model	Unstandardized Coefficients	Unstandardized Coefficients	Standardized Coefficients	t	Sig.
Model	Model	β	Std. Error	Beta	t	Sig.
1	(Constant)	0.501	0.115		4.357	0.003
1	Leadership strategy	0.715	0.264	0.0341	2.708	0.002
1	Stakeholder engagement	0.613	0.109	0.0224	5.624	0.004
1	Communication strategy	0.714	1.006	0.0442	0.709	0.002
1	Planning	0.664	0.225	0.3301	2.951	0.003

H₀₁: *Leadership strategy does not have a significant influence on service delivery among selected Commercial banks in Nairobi City County, Kenya.*

The study established that the leadership strategy had a beta value of 0.0341 and a significance value of 0.002. This indicates a significant positive relationship between leadership strategy and service delivery, meaning that improved leadership effectiveness enhances service quality. Therefore, the study rejected the hypothesis and concluded that leadership strategy had a significant and positive influence on service delivery among selected Commercial banks in Nairobi City County, Kenya. The findings agree with Thomas (2021), who looked at the telecom and television sectors in Nigeria, namely Airtel Telecommunications Company, to see how change management relates to performance. Change leadership has a substantial impact on company performance, according to research evaluated using a one-way analysis of variance.

H₀₂: *Stakeholder engagement strategy does not have a significant influence on service delivery among selected Commercial banks in Nairobi City County, Kenya.*

The study found that stakeholder engagement had a positive significant influence on service delivery among selected Commercial banks in Nairobi City County, Kenya ($\beta=0.0224$; $p=0.004$). This finding suggests that increased stakeholder engagement correlates with improved service performance. Therefore, the study rejected the hypothesis and concluded that stakeholder engagement strategy had a positive significant influence on service delivery among selected Commercial banks in Nairobi City County, Kenya. The finding agrees with Mlanya (2020) research who found that the organization's performance was much enhanced when stakeholders were included.

H03: *Communication strategy does not have a significant influence on service delivery among selected Commercial banks in Nairobi City County, Kenya.*

The study revealed that the communication strategy had a significantly positive influence on service delivery among selected Commercial banks in Nairobi City County, Kenya ($\beta=0.0442$; $p=0.002$). This finding suggests that an increased communication strategy correlates with improved service performance. Therefore, the study rejected the hypothesis and concluded that the communication strategy had a significant positive influence on service delivery among selected Commercial banks in Nairobi City County, Kenya. The findings concur with Odera and Muendo (2019), who conducted research on the elements that influence strategic change management in the public sector, with a particular emphasis on communication as one of these aspects. The findings suggested that communication had the most significant influence.

H04: *Planning strategy does not have a significant influence on service delivery among selected Commercial banks in Nairobi City County, Kenya.*

The study established that the planning strategy had a beta value of 0.3301 and significance value of 0.003. This indicates a positive significant relationship between planning strategy and service delivery meaning that improved leadership effectiveness enhances service quality. This suggests that improved planning leads to better service quality. Therefore, the study rejected the hypothesis and concluded that planning strategy had a positive significant influence on service delivery among selected Commercial banks in Nairobi City County, Kenya. The finding concur with Jan and Veronika (2020) who conducted research to determine how various variables affected the process of change implementation across enterprises in Slovakia. They discovered that the planning approach had a substantial impact on the efficiency of change implementation.

Conclusion

The study concludes that effective leadership strategies enhance employee satisfaction and engagement, leading to improved service delivery. Engaged employees are more likely to go above and beyond in their roles, resulting in better customer experiences. Leadership strategies that emphasize customer service can lead to the development of strong customer relationships. Banks that prioritize customer feedback and adapt their services accordingly are more likely to retain clients and attract new ones. Strong leadership can streamline processes and improve operational efficiency, which is critical in the competitive banking sector. Efficient service delivery not only enhances customer satisfaction but also reduces costs for the bank.

In addition, engaging customers through feedback mechanisms, surveys, and focus groups allows banks to understand their needs and preferences. This information can be used to tailor services, leading to higher customer satisfaction and loyalty. Engaging employees in decision-making processes and encouraging their input can lead to increased motivation, productivity, and a better understanding of customer needs. Engaging with regulators and understanding their expectations can help banks ensure compliance with legal requirements, thereby avoiding penalties and enhancing their reputation.

It is prudent to note that effective communication strategies foster better engagement with customers, allowing banks to understand their needs and preferences. This can lead to tailored services that enhance customer satisfaction. Clear and concise communication helps in disseminating important information regarding new products, services, and changes in policies. This transparency builds trust and loyalty among customers. Establishing channels for customer feedback enables banks to identify areas for improvement. Regularly soliciting and acting on feedback can enhance service quality and customer experience.

Planning strategy was found to aid in the optimal allocation of resources, including human, financial, and technological resources. An effective planning strategy incorporates risk assessment and management strategies and encourages banks to embrace innovation and adopt new technologies. Banks that engage in strategic planning are better equipped to understand customer expectations and preferences. By conducting market research and customer feedback analysis, banks can tailor their services to meet the specific needs of their clientele.

Recommendations

The study recommends that commercial banks should develop systems for collecting and analyzing customer feedback to understand their needs and expectations. This can include surveys, focus groups, and suggestion boxes. There is also a need to establish clear KPIs related to service delivery, customer satisfaction, and employee engagement. Banks should regularly review these metrics to assess performance and identify areas for improvement, and encourage leaders to adopt agile methodologies that allow for quick decision-making and adaptability in response to changing market conditions and customer needs. Additionally, banks should ensure that their values and vision are clearly communicated and embraced by all employees, and that leaders model these values in their daily interactions.

Secondly, banks should regularly gather feedback from customers, employees, and other stakeholders to understand their needs and expectations. There is a need to utilize various communication platforms like social media,

mobile apps, email, and in-branch interactions to reach stakeholders effectively. Additionally, there is a call to implement user-friendly mobile and online banking platforms that allow for seamless interaction and service delivery as well as involve stakeholders in CSR initiatives that address local community needs, thereby enhancing the bank's reputation and stakeholder loyalty.

Thirdly, banks should recognize the various stakeholders involved, including customers, employees, regulators, and community members, and utilize platforms like Facebook, Twitter, and Instagram to share updates, respond to customer inquiries, and promote services. More to this, banks should develop user-friendly mobile apps that provide real-time information about services, promotions, and customer support. Implement regular surveys to gather customer feedback on service delivery and communication effectiveness. Lastly, banks should conduct regular training sessions for employees on effective communication skills, customer service, and the importance of clear messaging.

Fourthly, banks should conduct regular surveys and focus groups to understand customer needs, preferences, and pain points. This data can inform service offerings and improve customer satisfaction. Additionally, banks should invest in mobile banking applications and online platforms that enhance customer convenience, ensure these platforms are user-friendly and secure, and regularly train staff on customer service skills, product knowledge, and the use of new technologies. This ensures that employees are well-equipped to meet customer needs.

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

Declaration for Human Participants: This study has been approved by Kenyatta University and the National Commission for Science, Technology & Innovation (NACOSTI), Kenya, and the principles of the Helsinki Declaration were followed.

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Organizational Modes and Water Service Performance: A 1995–2025 Meta-Analysis and Implications for PPPs and Regional Multiservice Companies (SRMs) in Morocco

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[Doi:10.19044/esj.2026.v22n4p141](https://doi.org/10.19044/esj.2026.v22n4p141)

Submitted: 04 October 2025
Accepted: 04 February 2026
Published: 28 February 2026

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OPEN ACCESS

Cite As:

Elouafai, M.C. & Azegagh, J. (2026). *Organizational Modes and Water Service Performance: A 1995–2025 Meta-Analysis and Implications for PPPs and Regional Multiservice Companies (SRMs) in Morocco*. European Scientific Journal, ESJ, 22 (4), 141.

<https://doi.org/10.19044/esj.2026.v22n4p141>

Abstract

The organization of urban water services remains a contested issue in low- and middle-income countries, where public provision, delegated management, and hybrid arrangements coexist. In Morocco, the simultaneous presence of public régies, the national utility (ONEE), delegated public–private partnerships (PPPs), and newly established Regional Multiservice Companies (SRMs) raises persistent questions regarding the relative performance of alternative organizational modes. This study aims to assess whether and under what conditions different governance arrangements influence water service performance.

Following the PRISMA protocol, a meta-analysis of 173 empirical studies published between 1995 and 2025 was conducted, yielding 742 effect sizes across six performance dimensions: efficiency, access, service quality, equity, environmental sustainability, and governance. Random-effects models and moderator analyses were used to examine the role of regulatory capacity, performance indicators, and benchmarking mechanisms.

The results indicate that delegated management and PPPs are associated with higher efficiency outcomes ($g \approx 0.22$) and modest improvements in access and service quality, while equity-related outcomes

tend to be negative and environmental effects remain statistically weak. Performance gains are significantly conditioned by regulatory strength, the breadth of key performance indicators, and the presence of yardstick competition, suggesting that ownership structure alone does not determine outcomes.

These findings have important policy implications for Morocco's ongoing regionalization reform. The consolidation of water services under SRMs should be accompanied by transparent benchmarking frameworks and targeted social tariff mechanisms to reconcile efficiency objectives with social inclusion and long-term sustainability.

Keywords: PPP; delegated management; SRM; yardstick competition; Morocco

Introduction

Across low and middle-income countries, the delivery of water and sanitation has oscillated between public, private, and hybrid arrangements, with Morocco epitomizing this plural landscape through municipal régies, national provision by ONEE, long-term delegated management to private operators in major cities, and, most recently, the creation of regional multi-service companies (Sociétés Régionales Multiservices, SRM) to coordinate water, sanitation, and electricity at a larger territorial scale (Bakker, 2010; Ménard, 2013). Consequently, debates on “what works” have often been polarized, pitting efficiency and investment arguments for public-private partnerships (PPPs) against equity and accountability concerns in favor of direct public provision (Hodge & Greve, 2007; Roehrich, Lewis, & George, 2014).

Yet, these debates increasingly converge on a nuanced proposition: organizational modes perform conditionally. That is, performance varies with asset specificity, contractual completeness, regulatory capacity, demand risk, and the intensity of yardstick competition among providers (Williamson, 1985; Hart, 2003; Laffont & Tirole, 1993). Accordingly, this article undertakes a meta-analysis to synthesize the comparative performance of organizational modes in water services, while situating Morocco as a crucial contextual testbed where multiple modes operate concurrently and are being re-regionalized. Meta-analysis is appropriate because the empirical literature reports heterogeneous estimates across methods, geographies, and indicators (Hodge & Greve, 2017). Furthermore, by modeling moderators (e.g., contract length; tariff regulation; social context), we can explain when and why a given mode outperforms alternatives (Bartik, 2012; Duvanova, 2014).

Problem statement

Despite abundant case studies and policy reports, decision-makers lack consolidated evidence on how alternative organizational modes compare on multi-dimensional outcomes—efficiency, access, quality, equity, environmental sustainability, and governance integrity—particularly in settings where modes coexist and compete, as in Morocco (Bakker, 2010; Ménard, 2013). Put differently, stakeholders know what arrangements exist, but not under which conditions each excels.

Hypotheses

Building on transaction-cost, principal–agent, property-rights, and relational contracting theories, we advance five testable hypotheses:

- **H1 (Efficiency):** Relative to direct public provision, long-term PPPs/concessions yield higher operational efficiency when asset specificity is high, and performance is contractible, but the effect weakens under low regulatory capacity (Williamson, 1985; Hart, 2003; Laffont & Tirole, 1993).
- **H2 (Access & Quality):** Delegated management improves network expansion and service quality when tariff adjustment and investment obligations are credibly enforced; otherwise, expansion lags or cost recovery deteriorates (Guasch, 2004; Hodge & Greve, 2007).
- **H3 (Equity):** Public or community-based modes outperform on affordability and pro-poor coverage when cross-subsidies and social tariffs are embedded in institutional mandates (Ostrom, 1990; Bakker, 2010).
- **H4 (Environmental outcomes):** Performance on non-revenue water and wastewater treatment depends less on ownership and more on incentive alignment, data transparency, and sanctions; thus, mode effects are mediated by governance quality (Roehrich et al., 2014; Helm, 2010).
- **H5 (Competition between modes):** Yardstick competition—via benchmarking across coexisting régies, ONEE branches, PPPs, and SRMs—raises average performance when indicators are published and tied to rewards/penalties (Shleifer, 1985; Ménard, 2013).

Theoretical Foundations of Organizational Modes and PPP Performance

I. Conceptual Framework

We define organizational modes in urban water services as governance arrangements that structure rights, obligations, risk allocation, and accountability between public authorities, operators, and users, ranging from in-house municipal régies and national public utilities to delegated management (affermage/concession), PPPs, and community-based

organizations (Bakker, 2010; Ménard, 2013). Crucially, modes are not mere ownership labels; they embed incentive systems, information flows, and enforcement technologies that shape behavior and outcomes (Williamson, 1985; Hart, 2003).

In meta-analytic terms, the primary outcomes include: (a) efficiency (operating cost per m³, labor productivity, non-revenue water); (b) access (household connections, coverage rates); (c) quality and continuity (hours of supply, pressure, compliance with standards); (d) equity and affordability (share of low-income households connected; tariff incidence); (e) environmental sustainability (wastewater treatment coverage, energy intensity, leakage); and (f) governance/process (contract compliance, transparency, user satisfaction) (Hodge & Greve, 2017; OECD, 2015). For comparability, we translate diverse indicators into standardized effect sizes and model moderators (e.g., contract type; regulatory design; local capacity) (Lipsey & Wilson, 2001; Stanley & Doucouliagos, 2012).

Table 1: Core Organizational Modes in Urban Water and Their Boundary Conditions

Mode	Ownership & Control	Typical Contractual Form	Risk Allocation	Boundary Conditions (when mode fits)
Municipal régie/in-house	Public	Administrative (no market tender)	Public bears demand & investment risk	Small/medium systems; strong municipal capacity; equity mandate
National public utility (e.g., branch of a state utility)	Public	Administrative; service agreements	Public bears most risks; inter-jurisdictional pooling	Economies of scale; cross-subsidies; nationwide standards
Delegated management (affermage/concession)	Private operator; public owner of assets	Competitive tender with KPIs	Operator bears O&M (affermage) and often investment (concession)	High asset specificity; need for managerial expertise; enforceable KPIs
PPP (project/company)	Mixed	Project finance/SPV; long-term	Shared risks via contracts	Large capex; bankability; credible regulation
Community-based/non-profit	Collective	Social contract; MoUs	Shared; often subsidized	Remote areas; social capital; modest technical complexity

Source: Authors' synthesis drawing on Williamson (1985); Laffont & Tirole (1993); Hart (2003); Bakker (2010); Ménard (2013)

In addition, we conceptualize competition between modes as (i) ex ante competition for the market (tendering); (ii) ex post yardstick competition through benchmarking across operators; and (iii) institutional competition as authorities compare governance templates (Shleifer, 1985; Estache & Rossi, 2002). This triadic view is essential for Morocco, where régies, ONEE branches, legacy delegated contracts, and SRMs coexist within overlapping

jurisdictions and multi-level regulatory arrangements (Ménard, 2013; Hodge & Greve, 2017).

Finally, because institutions matter, we treat regulatory capacity, contractibility of outputs, and socio-political accountability as moderators of mode performance. Thus, the meta-analytic model includes interaction terms between mode dummies and proxies for governance quality and market structure (Kaufmann et al., 2010; Roehrich et al., 2014).

II. Economic and Organizational Theories of PPP Transaction-Cost Economics (TCE)

TCE predicts that as asset specificity and uncertainty rise, governance should migrate toward arrangements that minimize maladaptation and renegotiation costs, typically via long-term contracts with credible safeguards or vertical integration (Williamson, 1985). In water services, distribution networks are highly specific and sunk, making opportunism via hold-up a salient hazard; PPPs/concessions may economize on political transaction costs when contracts include adaptive clauses and enforceable KPIs, but weak regulation can flip the result (Williamson, 1985; Ménard, 2013). Therefore, H1 follows: PPPs outperform public management on efficiency under high specificity and credible enforcement, but not otherwise (Williamson, 1985; Guasch, 2004).

Principal-Agent Theory

Because service quality and maintenance effort are only imperfectly observable, incentive contracts with monitoring and penalties should align operator effort with social objectives; however, multi-tasking (e.g., balancing cost minimization with quality) creates trade-offs (Holmström & Milgrom, 1991). In water, tariff paths and investment obligations must be paired with quality audits and user complaint mechanisms to avoid skimping on maintenance; absent this, efficiency gains may come at the expense of service quality or equity (Laffont & Tirole, 1993; Estache & Rossi, 2002). Hence, H2 and H3 emerge: quality and access gains materialize only if incentive compatibility extends beyond cost metrics and embeds equity instruments (Laffont & Tirole, 1993; Hodge & Greve, 2007).

Incomplete-Contracting and Property-Rights

Because it is impossible to foresee all contingencies, water contracts are necessarily incomplete; the allocation of residual control rights (who decides when the contract is silent) shapes adaptation and innovation (Hart, 2003). Public ownership can protect social objectives but may dampen dynamic efficiency; private residual control can spur process innovation but risks under-providing non-contractible quality without strong oversight (Hart,

2003). The net performance effect thus hinges on regulatory competence and reputational capital (Hart, 2003; Spiller, 2013).

Relational Contracting and Hybrid Governance

Long-horizon projects depend on trust, dispute-resolution routines, and joint problem-solving; hybrid forms—typical of PPPs—thrive when formal contracts are complemented by relational governance and transparent performance dialogues (Baker, Gibbons, & Murphy, 2002). Where public capacities are thin, formal PPPs can underperform unless embedded in communities of practice (Ménard, 2013; Roehrich et al., 2014).

Public Value and Commons Perspectives

Beyond efficiency, water is a merit good and often a commons linked to human rights and environmental externalities; therefore, governance must protect equity, participation, and ecological integrity (Ostrom, 1990; Bozeman, 2007). Community-based management can be effective where social capital and monitoring are strong, but faces scale and technical constraints; conversely, large utilities—public or private—can pool risks and finance but may drift from local priorities (Bakker, 2010; Ostrom, 2010).

Across these lenses, the expected mode effects are conditional: PPPs dominate on efficiency when enforcement is credible; public/communal modes dominate on affordability and inclusion when mandates and subsidies are explicit; yardstick competition and transparency shift all modes upward (Hodge & Greve, 2017; Roehrich et al., 2014). These theoretical priors structure our coding of moderators and subgroup analyses. (Baker et al., 2002; Bakker, 2010; Bozeman, 2007; Estache & Rossi, 2002; Guasch, 2004; Hart, 2003; Holmström & Milgrom, 1991; Laffont & Tirole, 1993; Ménard, 2013; Ostrom, 1990; Roehrich et al., 2014; Spiller, 2013; Williamson, 1985).

Table 2: Theoretical Lenses and Testable Implications for Mode Performance

Theory	Core Mechanism	Implication for Water Services	Meta-analytic Moderator(s)
Transaction-Cost Economics	Safeguards minimize maladaptation	PPP/concession efficient with high asset specificity and credible enforcement	Contract length; dispute mechanisms; regulator independence
Principal-Agent	Incentives + monitoring align effort	Quality & access gains only with multi-task incentives and audits	KPI breadth; penalties; user-feedback systems
Incomplete Contracts/Property Rights	Residual control affects adaptation	Private control spurs innovation; risks under-provision of non-contractible quality	Tariff regime; quality audits; renegotiations

Relational Contracting	Trust and routines sustain cooperation	Hybrid forms perform when formal rules + relational norms cohere	Operator tenure; joint committees; transparency
Public Value/Commons	Equity and stewardship as objectives	Public/community modes protect affordability & inclusion with mandates	Social tariffs; subsidies; participation mechanisms
Yardstick Competition	Benchmarking disciplines all modes	Publication + incentives raise performance across the board	Benchmarking coverage; reward/penalty linkage

Source: Authors' synthesis based on Williamson (1985); Laffont & Tirole (1993); Hart (2003); Baker et al. (2002); Bozeman (2007); Ostrom (1990); Shleifer (1985); Hodge & Greve (2017); Roehrich et al. (2014).

Table 3: Performance Dimensions and Typical Indicators Used in Meta-analyses

Dimension	Illustrative Indicators	Notes on Harmonization
Efficiency	OPEX/m ³ ; staff/1,000 connections; NRW (%)	Standardize to Hedges g; directionally align lower-is-better
Access	% households connected; new connections/year	Adjust for baseline coverage; control for urbanization
Quality/Continuity	Hours/day; pressure compliance; microbiological standards	Convert to standardized mean difference; quality composite
Equity/Affordability	Share of low-income connected; bill/income; pro-poor tariff share	Use income-normalized affordability thresholds
Environmental	Wastewater treatment coverage; leakage; energy intensity	Normalize by service area and climate zone
Governance/Process	Contract compliance; audits; satisfaction scores	Treat as ordinal; use robust variance estimation

Source: Authors' synthesis based on Hodge & Greve (2017); OECD (2015); Roehrich et al. (2014). (Baker et al., 2002; Bozeman, 2007; Hodge & Greve, 2017; Laffont & Tirole, 1993; OECD, 2015; Ostrom, 1990; Roehrich et al., 2014; Shleifer, 1985; Williamson, 1985).

III. Models of Competition Between Organizational Modes

Competition for the market

In concession or affermage systems, tendering is the primary competitive instrument: bidders compete on tariffs, investment, and service KPIs; the winner obtains a temporary monopoly (Demsetz, 1968). Transparent pre-qualification, performance-based selection, and credible threat of non-renewal determine discipline ex post (Guasch, 2004). In meta-analysis, we code the tender quality (open vs. direct award; number of bidders) to capture ex ante competition intensity (Estache & Rossi, 2002; Guasch, 2004).

Yardstick competition

Where multiple operators coexist across territories—public or private—benchmarking creates reputational and political pressure; if

benchmarks anchor subsidy transfers or managerial rewards, performance improves system-wide (Shleifer, 1985). Morocco's landscape is conducive to yardstick mechanisms because régies, ONEE branches, private delegates, and SRMs can be compared on standardized dashboards, provided data transparency (Ménard, 2013; OECD, 2015).

Institutional competition and hybridity

Authorities can switch modes at renewal or reorganize territories (e.g., regionalization), creating dynamic competition among governance templates; such institutional rivalry induces learning and diffusion of practices (Ménard, 2013). However, hybridity also raises coordination costs and risks fragmentation if regulators cannot orchestrate standards and incentives across modes (Spiller, 2013; Roehrich et al., 2014).

Prediction

Therefore, we expect positive average effects from PPPs on efficiency conditional on robust competition and regulation, while equity and affordability effects depend more on tariff design and subsidy instruments than on ownership per se; the net effect of competition between modes is beneficial when benchmarking is public and consequential (Hodge & Greve, 2017; Shleifer, 1985). (*Demsetz, 1968; Estache & Rossi, 2002; Guasch, 2004; Hodge & Greve, 2017; Ménard, 2013; OECD, 2015; Roehrich et al., 2014; Shleifer, 1985; Spiller, 2013*).

Context of Morocco's Water Sector and the Evolution of Organizational Modes

I. Overview of Morocco's Water Sector

Morocco is structurally water-stressed and climatically vulnerable; policy has long emphasized integrated water resources management through river-basin planning, demand management, and diversification of supply, including desalination and reuse (Bakker, 2010; World Bank, 2023). The legal cornerstone is Law 36-15 (2016), which consolidates water resources governance, strengthens planning instruments, and reinforces the role of Hydraulic Basin Agencies (Agences de Bassin Hydraulique, ABH) in authorizations, charges, and basin plans—building on the earlier Water Law 10-95 (1995) that originally introduced basin management and the polluter-pays principle (World Bank, 2018; Schyns et al., 2014). In recent years, policy has accelerated supply-augmentation via desalination while retaining the decentralized, participatory ethos of basin management, albeit with recognized implementation capacity gaps (Legrouri, 2019). (*World Bank, 2023; World Bank, 2018; Schyns et al., 2014; Legrouri, 2019*).

At the service-delivery level, Morocco’s National Office of Electricity and Drinking Water (ONEE) plays a central role in production, bulk supply, and—particularly outside major cities—retail distribution; several large coastal cities rely on delegated operators, and regionalization is underway through SRMs (Bakker, 2010; Ménard, 2013). Estimates suggest that ONEE is responsible for the majority of national potable water production, while delegated management remains significant in metropolitan areas such as Casablanca, Rabat-Salé, Tangier, and Tétouan (The Source Magazine, 2023). Meanwhile, desalination capacity has expanded, with national strategies targeting sizable increases by 2030 to buffer drought risk—an evolution that will reshape operator capabilities and risk allocation across modes (World Bank, 2023). (*The Source Magazine, 2023; World Bank, 2023*).

Table 4: Key Legal and Policy Milestones Shaping Morocco’s Water Governance

Year	Milestone	Core Features
1995	Law 10-95 on Water	Introduced ABH; basin planning; user-/polluter-pays principles
2009	National Water Sector Development Strategy	Consolidated resource and service objectives
2016	Law 36-15 on Water	Unified framework; strengthened tools and ABH mandates
2023–2024	Law 83-21 and SRM contracts	Creation and rollout of Sociétés Régionales Multiservices to manage water, sanitation, and electricity regionally

Source: Authors’ synthesis based on World Bank (2018, 2023); Ministry of Interior communications on Law 83-21; Medias24 (2024).

II. Historical Evolution of Organizational Modes in Morocco

From régies and national provision to delegated management. Historically, service delivery relied on municipal régies autonomes and national provision; in the late 1990s, Morocco introduced delegated management in major cities, beginning with Casablanca (Lydec, 1997) via a 30-year concession, followed by Rabat-Salé (Redal, 1999) and Tangier–Tétouan (Amendis, 2001/2002), shifting O&M and, in some cases, investment risk to private operators under performance contracts (Miras, 2006; GWP, 2003; Court of Accounts, 2014). These contracts were renegotiated over time to rebalance returns, adjust investment obligations, and respond to performance reviews, illustrating the dynamic, relational nature of long-term concessions (Court of Accounts, 2014; Suez, 2012). (*Court of Accounts, 2014; GWP, 2003; Miras, 2006*).

Evidence indicates that delegated management mobilized significant investment volumes, introduced modern asset management and customer service practices, and expanded benchmarking; nonetheless, concerns over tariff paths, equity, and contract renegotiation dynamics persisted, especially where municipal and regulatory capacities were thin (Hodge & Greve, 2007;

Guasch, 2004). Moroccan institutions responded by refining contractual clauses, strengthening auditing, and, in some cases, rethinking territorial organization to pool capacities (Court of Accounts, 2014; Africa-Energy, 2024). (*Court of Accounts, 2014; Hodge & Greve, 2007; Guasch, 2004; Africa-Energy, 2024*).

The most recent institutional turn is the creation of Sociétés Régionales Multiservices (SRM) under Law 83-21 (2023), with contract frameworks published in 2024 and new companies beginning operations in multiple regions. SRMs are mandated to manage potable water distribution, wastewater (including treatment), and electricity, and—where applicable—public lighting within a defined territorial perimeter, aiming for scale economies, integrated planning, and harmonized service standards (Ministry of Interior; Medias24, 2024; SRM-ORI). This reorganization creates opportunities for stronger yardstick competition across regions, standardization of KPIs, and clearer vertical coordination with basin agencies and ONEE (Ménard, 2013; OECD, 2015). (*Ministry of Interior, n.d.; Medias24, 2024; SRM-ORI*).

Table 5: Selected Delegated-Management Contracts in Morocco’s Urban Water

City/Region	Operator	Start (approx.)	Scope	Notes
Casablanca	Lydec (SUEZ)	1997	Water, sanitation, electricity, public lighting	30-year contract; renegotiations adjusted returns and investments
Rabat–Salé–Kénitra	Redal (Veolia)	1999	Water, sanitation, electricity	Management delegated by convention with the authority
Tangier–Tétouan	Amendis (Veolia)	2001–2002	Water, sanitation, electricity	Concessions covering two northern cities

Source: Authors’ synthesis based on GWP (2003); Court of Accounts (2014); Redal corporate website (accessed 2025). (Court of Accounts, 2014; GWP, 2003; Ménard, 2013; OECD, 2015; Redal, 2025).

III. Typology of Organizational Modes in Morocco’s Water Sector

Within Morocco’s multi-level governance, five operational modes currently coexist or are transitioning:

1. **Municipal régies/in-house:** Autonomous municipal utilities operating distribution and, in some cases, sanitation, typically in medium-sized cities, with mandates balancing cost recovery and social objectives (Bakker, 2010; Ménard, 2013).
2. **ONEE branches:** National production and distribution (especially in small towns and rural areas), leveraging cross-subsidies and scale economies; increasingly engaged in desalination and bulk transfers (The Source Magazine, 2023).
3. **Delegated management (affermage/concession):** Private operators under long-term contracts in major cities—Casablanca, Rabat–Salé–

- Kénitra, Tangier–Tétouan—with performance-based KPIs and tariff adjustment rules (Court of Accounts, 2014; GWP, 2003).
4. **Project-based PPPs:** SPV-structured projects for bulk water (and increasingly desalination) with risk-sharing and long-term off-take agreements (Roehrich et al., 2014).
 5. **Sociétés Régionales Multiservices (SRM):** Region-scale, publicly controlled companies responsible for water distribution, wastewater, and electricity, created by **Law 83-21 (2023)** and rolling out under a standardized contract since 2024 (Ministry of Interior; Medias24, 2024).

This typology implies layered competition between modes, as SRMs will interact with existing delegated contracts, ONEE’s bulk role, and municipal régies; the regulatory challenge is to orchestrate benchmarking and align incentives without fragmenting accountability (Ménard, 2013; OECD, 2015). (*Court of Accounts, 2014; GWP, 2003; Ménard, 2013; OECD, 2015; The Source Magazine, 2023*).

Table 6: Typology of Modes in Morocco and Illustrative Strengths/Risks

Mode	Illustrative Strengths	Typical Risks	Policy Levers
Municipal régies	Local accountability; flexibility	Capacity constraints; financing limits	Inter-municipal pooling; performance dashboards
ONEE branches	Scale economies; cross-subsidies	Local responsiveness; cost recovery gaps	Service-level agreements; targeted subsidies
Delegated management	Managerial know-how; capex mobilization	Renegotiation hazards; tariff politics	Contract transparency; independent audits
PPP projects (bulk/desal)	Risk sharing; technology transfer	Demand/energy risk; long lock-ins	Indexed tariffs; flexible off-take terms
SRMs	Integrated planning across utilities; benchmarking	Transition complexity; role clarity with legacy contracts	Standard KPIs; regional regulator interfaces

Source: Authors’ synthesis based on Court of Accounts (2014); Ministry of Interior (2023); Ménard (2013).

Methods, Results, and Discussion

I. Search Strategy, Eligibility Criteria, and Protocol

To ensure transparency and reproducibility, we followed the PRISMA 2020 reporting standard. We registered an a priori protocol, specified the research questions, defined inclusion/exclusion criteria, and built the data-extraction template accordingly. We searched multidisciplinary databases (e.g., Web of Science, Scopus, EconLit), development repositories (World Bank Open Knowledge Repository; OECD iLibrary), and grey literature portals (government audit bodies and regulator reports) for studies published between 1995 and 2025. We combined keywords related to organizational modes (public, régie, national public utility, delegated management,

concession, affermage, PPP, SRM), water services (drinking water, sanitation, wastewater), and performance outcomes (efficiency, access, quality, equity, environment, governance). Screening proceeded in two phases (titles/abstracts; then full texts) by two independent reviewers, with disagreements resolved by a third reviewer. Reporting adheres to the PRISMA 2020 checklist and flow diagram. (Page et al., 2021; PRISMA Statement, 2021).

We included empirical studies that: (i) compare at least two organizational modes; (ii) report quantitative outcomes (or sufficient statistics to compute effect sizes); and (iii) concern urban water and/or sanitation utilities in developing or emerging economies, with a Morocco subgroup tagged ex ante. We excluded purely conceptual pieces and case narratives without extractable metrics. Because many primary studies report multiple outcomes (e.g., cost per m³ and non-revenue water), we explicitly allowed multiple, statistically dependent effect sizes per study and planned analyses to accommodate dependence. (Borenstein, Hedges, Higgins, & Rothstein, 2009). We adopted the outcome taxonomy defined in Part I (efficiency; access; quality/continuity; equity/affordability; environmental; governance/process) and pre-specified a positive effect to mean better performance of the focal mode relative to the comparator (e.g., PPP vs public). Where “lower-is-better” indicators appear (e.g., OPEX/m³, NRW%), we reversed signs to maintain interpretive consistency. (Lin & Aloe, 2020; Borenstein et al., 2009).

Table 7: PRISMA Flow of Studies

Stage	Records
Records identified via databases and repositories	2,147
Records after duplicates removed	1,575
Records screened (titles/abstracts)	1,575
Full texts assessed for eligibility	286
Studies included in meta-analysis	173
Effect sizes extracted (all outcomes)	742

Source: Authors’ screening and coding following PRISMA 2020 guidance (Page et al., 2021). The flow diagram and checklist are available upon request.

II. Effect Sizes, Coding, and Data Quality Controls

For continuous outcomes, we used Hedges’ g (unbiased standardized mean difference), applying small-sample correction; for rates/proportions, we computed log odds ratios or log incidence rate ratios, translating them to a common directionality. Studies reporting regression coefficients were transformed to standardized effects using established conversions; all effects were aligned such that $g > 0$ favors the focal mode. (Hedges & Olkin; NIST Dataplot; NCSS SMD guide). Each effect was cross-referenced to study-level and context-level moderators: Mode (public; national public; delegated; PPP; SRM); Contract design (contract length; KPI breadth; penalty regime);

Regulatory capacity (proxied by Worldwide Governance Indicators—Regulatory Quality & Government Effectiveness—matched by country–year); Competition (tender openness; number of bidders; presence of benchmarking); Market structure (service area size; population density); Tariff regime (indexation; social-tariff presence); Morocco indicator (binary) and period effects (pre/post-2015, to coincide with OECD Water Governance Principles diffusion). (*Kaufmann, Kraay, & Mastruzzi, 2010; OECD, 2015*). We risk-rated each effect using transparent criteria (sample representativeness; measurement validity; confounding control; clarity of comparator; independence), and we flagged potential double-counting. Inter-coder agreement exceeded 0.85 (Cohen’s κ). Where necessary, we emailed authors to clarify ambiguous statistics (not a precondition for inclusion).

Table 8: Moderator Variables and Operationalization

Moderator	Operationalization	Notes
Regulatory capacity	WGI Regulatory Quality & Government Effectiveness (z-scores)	Country–year matched; averaged when multi-year panel.
Yardstick competition	Binary: public performance dashboards with cross-operator benchmarking; or mandatory benchmarking by regulator	Harmonized to OECD’s benchmarking guidance.
Contract length	Years (logged)	Sensitive to concession vs affermage distinctions.
KPI breadth	Count of KPI families in contract (efficiency, access, quality, equity, environment, governance)	From contracts/audit reports.
Tender openness	Open, restricted, direct award	From notices/reports.
Morocco	1 if Moroccan utility/contract	For subgroup analyses.

Source: Authors’ codebook; WGI metadata (Kaufmann et al., 2010); OECD Principles (2015).

III. Econometric Strategy

Because many studies contribute several correlated effects, we combined a random-effects meta-analysis (REML) with cluster-robust variance estimation (RVE) using the CR2 small-sample correction, clustering on study ID; we also ran three-level meta-analysis as a sensitivity check to partition within- and between-study heterogeneity. (*DerSimonian & Laird, 1986; Tipton, 2015; Pustejovsky & Tipton, 2022; Cheung, 2014*).

We estimated mixed-effects models with moderators described above; inference uses Knapp–Hartung adjustments to guard against over-confident t-tests in small-to-moderate K. (*Knapp & Hartung, 2003; Jackson et al., 2017*). We triangulated: (i) funnel-plot asymmetry tests (Egger; Begg–Mazumdar); (ii) non-parametric trim-and-fill; (iii) PET-PEESE meta-regression to detect/correct small-study effects; and (iv) selection models (Vevea–Hedges weight-function; Copas–Shi) as sensitivity analyses. (*Egger et al., 1997; Begg*

& Mazumdar, 1994; Duval & Tweedie, 2000; Stanley & Doucouliagos, 2014; Vevea & Hedges, 1995; Schwarzer et al., 2010). Analyses were conducted in R using metafor (effect sizes and (multi)level models), and weightr (weight-function models). (Viechtbauer, 2010; clubSandwich vignette; weightr docs).

IV. Heterogeneity Measures and Robustness

We report τ^2 and I^2 for each model and outcome family; we also present prediction intervals to describe the range of expected effects in new settings. GOSH and influence diagnostics flagged outliers; leverage points were winsorized in sensitivity checks with negligible change in pooled estimates. (Higgins & Thompson, 2002; Viechtbauer, 2010).

Results and Discussion

I. Descriptive Overview of the Evidence Base

The final sample comprises 173 eligible studies, yielding 742 effect sizes across six performance dimensions: efficiency (n = 258), access (n = 142), service quality and continuity (n = 117), equity and affordability (n = 86), environmental outcomes (n = 79), and governance and process indicators (n = 60). The dominant comparison contrasts PPP or delegated management with public provision (appr oximately 58% of effects), followed by public–public comparisons exploiting yardstick competition (24%). Evidence on Regional Multiservice Companies (SRMs) and other regionalized entities remains limited (6%), reflecting the recent nature of these reforms. Geographically, studies are concentrated in Latin America, the MENA region (including Morocco), and Sub-Saharan Africa. While classic sector syntheses and PPP reviews inform interpretation, individual studies dominate statistical weights rather than secondary reviews (Marin, 2009; Hodge & Greve, 2017; Roehrich et al., 2014).

Table 9: Characteristics of Included Studies (n = 173)

Feature	Share / Mean
Comparator types: PPP/delegated vs public	58%
Comparator types: public vs public (yardstick)	24%
Comparator types: SRM/regionalized vs legacy	6%
Morocco-specific studies	12%
Average study year (midpoint)	2012
Average contract length (where applicable)	18.6 years
KPI breadth (0–6 families)	3.1

Source: Authors' coding; interpretive context from Marin (2009) and subsequent PPP reviews.

II. Pooled Effects (Random Effects + RVE)

Table 10 reports pooled standardized effects (Hedges' g , positive = better performance of focal mode) with RVE-adjusted CIs and heterogeneity. For interpretability, we also show 95% prediction intervals.

Table 10: Pooled Effects by Outcome Family (focal mode vs comparator)

Outcome	K (effects)	g (REML+RVE, 95% CI)	I^2	Prediction Interval
Efficiency	258	0.22 [0.15, 0.29]	71%	[-0.10, 0.54]
Access (coverage/expansion)	142	0.18 [0.09, 0.27]	64%	[-0.08, 0.45]
Quality/Continuity	117	0.12 [0.03, 0.21]	59%	[-0.14, 0.38]
Equity/Affordability	86	-0.10 [-0.19, -0.01]	52%	[-0.35, 0.15]
Environmental	79	0.06 [-0.06, 0.18]	68%	[-0.28, 0.40]
Governance/Process	60	0.15 [0.03, 0.27]	57%	[-0.13, 0.43]

Source: Authors' meta-analysis using REML, CR2-RVE; heterogeneity summarized with I^2 (Higgins & Thompson, 2002)

On average—and acknowledging substantial heterogeneity—PPP/delegated arrangements outperform public provision on efficiency ($g \approx 0.22$), modestly improve access and quality, but underperform on equity/affordability unless social-tariff instruments are embedded. Environmental impacts are not systematically different on average, consistent with theory that environmental outcomes hinge on incentives and oversight rather than ownership per se. These patterns align with sector syntheses that emphasize conditionality rather than categorical superiority. (Marin, 2009; Hodge & Greve, 2017; Roehrich et al., 2014).

III. Moderator (Meta-Regression) Results

We next report mixed-effects meta-regressions with RVE-adjusted inference. The dependent variable is Hedges' g ; the omitted category is public provision; covariates include PPP/delegated, SRM/regionalized, WGI regulatory capacity, KPI breadth, contract length (log years), yardstick competition, tariff social-protection, Morocco, and period (post-2015).

Table 11: Meta-regression (RVE; Knapp–Hartung)

Covariate	β (SE)	95% CI	p-value
PPP/Delegated (vs Public)	0.19 (0.05)	[0.09, 0.29]	0.001
SRM/Regionalized (vs Public)	0.11 (0.07)	[-0.03, 0.25]	0.12
WGI Regulatory Capacity (z)	0.08 (0.03)	[0.02, 0.14]	0.010
KPI Breadth (0–6)	0.04 (0.01)	[0.02, 0.06]	<0.001
Contract Length (log years)	0.03 (0.02)	[-0.01, 0.07]	0.14
Yardstick Competition (1/0)	0.09 (0.04)	[0.01, 0.17]	0.029
Tariff Social-Protection (1/0)	0.07 (0.03)	[0.01, 0.13]	0.021
Morocco (1/0)	0.02 (0.05)	[-0.08, 0.12]	0.67
Post-2015 (1/0)	0.05 (0.03)	[-0.01, 0.11]	0.11

Source: Authors' meta-regression with CR2 RVE; KH adjustments per Knapp–Hartung; WGI moderators per World Bank methodology; KPI breadth consistent with OECD Principles on Water Governance.

Three moderators exhibit robust positive associations with performance: regulatory capacity ($\beta \approx 0.08$), KPI breadth ($\beta \approx 0.04$ per KPI family), and yardstick competition ($\beta \approx 0.09$). The PPP/delegated coefficient remains positive after controls ($\beta \approx 0.19$), indicating an average efficiency/access/quality edge when institutions support credible monitoring and public benchmarking—consistent with TCE and yardstick-competition theory. (*Shleifer, 1985; OECD, 2004; Hodge & Greve, 2017*).

The Morocco indicator is small and not statistically distinguishable from zero in the pooled model, suggesting that average effects are comparable to other MENA contexts; however, within-country variation across modes remains large. This is unsurprising given ongoing regionalization via SRMs and co-existence of legacy delegated contracts; the key policy lever appears to be benchmarking with consequential incentives, rather than the label of the mode itself. (*OECD, 2015*).

IV. Small-Study and Publication-Bias Diagnostics

Egger tests show modest asymmetry for efficiency (intercept $p = 0.048$) and access ($p = 0.061$), but not for other outcomes ($p > 0.10$). Begg rank tests yield similar conclusions. (*Egger et al., 1997; Begg & Mazumdar, 1994*). For efficiency, 3 studies were imputed, shifting g from 0.22 to 0.19 (still positive); for access, 2 studies were imputed, shifting g from 0.18 to 0.16. (*Duval & Tweedie, 2000*).

PET detects small-study effects for efficiency ($p = 0.03$), and PEESE yields an adjusted $g = 0.17$; other families are unchanged. (*Stanley & Doucouliagos, 2014*). The Vevea–Hedges weight-function model (two-tailed p -value cut-points) produces adjusted efficiency $g = 0.16$; the Copas sensitivity suggests similar central tendencies with slightly wider CIs. Net interpretation is that publication bias attenuates but does not erase the average positive efficiency effect under robust governance. (*Vevea & Hedges, 1995; Schwarzer et al., 2010*).

Table 12: Summary of Bias Checks (Efficiency Outcome)

Method	Adjusted g	Note
Trim-and-fill	0.19	3 studies imputed
PET-PEESE	0.17	PET significant; PEESE reported
Vevea–Hedges weight-function	0.16	p -cut-points model
Copas–Shi (sensitivity)	0.17	Wider CI

Source: Authors' computations; methods documented in Egger et al. (1997), Duval & Tweedie (2000), Stanley & Doucouliagos (2014), Vevea & Hedges (1995), Schwarzer et al. (2010).

We re-estimated all models as three-level to partition within-study vs between-study variance; results were materially similar, with 30–40% of heterogeneity located within studies (multiple outcomes per study),

reinforcing the need for RVE/multilevel methods. Influence diagnostics (leave-one-study-out; studentized residuals) show no single study drives the main patterns. (*Cheung, 2014; Viechtbauer, 2010*).

V. Discussion and Validation of Hypotheses (H1–H5)

H1 (Efficiency)

Claim: PPPs/concessions outperform public providers on efficiency where assets are specific and enforcement credible. *Evidence:* Pooled efficiency effect is positive ($g \approx 0.22$; 0.17–0.19 after bias adjustments). Meta-regression shows regulatory capacity and KPI breadth magnify this effect, while insufficient capacity dilutes it. This aligns with TCE and incomplete-contract arguments. *Conclusion:* Supported, conditionally. (*Williamson-consistent logic; Marin, 2009; Hodge & Greve, 2017*).

H2 (Access & Quality)

Claim: Delegated management improves expansion and quality when tariff adjustment and investment obligations are credible. *Evidence:* Positive pooled effects for access ($g \approx 0.18$) and quality ($g \approx 0.12$) are larger when KPI breadth and yardstick competition are present; otherwise, effects shrink toward zero. This echoes the literature that emphasizes credible commitments in water PPP programs. *Conclusion:* Supported, conditional on enforcement and benchmarking. (*Guasch on renegotiation hazards; OECD on benchmarking*.)

H3 (Equity)

Claim: Public/community modes outperform on affordability and pro-poor coverage when social instruments exist. *Evidence:* Pooled equity effect is negative for the focal mode when the focal mode is PPP/delegated ($g \approx -0.10$), but meta-regression indicates that social-tariff instruments and explicit cross-subsidies mitigate the equity gap ($\beta \approx 0.07$). *Conclusion:* Partially supported—ownership alone is insufficient; equity hinges on tariff design and subsidy architecture. (*OECD Principles emphasize inclusiveness; sector reviews report mixed affordability outcomes*.)

H4 (Environmental outcomes)

Claim: Environmental performance depends more on incentive alignment and transparency than ownership. *Evidence:* Average environmental effect is indistinguishable from zero; however, in subsets with regulator-mandated leakage targets and public reporting, effects turn positive. *Conclusion:* Supported—governance quality mediates environmental outcomes. (*OECD governance tools; benchmarking literature*.)

H5 (Competition between modes)

Claim: Yardstick competition (benchmarking across coexisting modes) raises average performance. *Evidence:* The yardstick moderator is positive and significant ($\beta \approx 0.09$), consistent with Shleifer’s theory and OECD practice that benchmarking with public comparative publication drives improvements—even absent within-market rivalry. *Conclusion:* Supported. (Shleifer, 1985; OECD, 2004).

Morocco’s average effects do not differ markedly from peer contexts after controls; yet, the policy window created by regionalization (SRMs) offers a platform to institutionalize benchmarking, broaden KPI portfolios, and codify social-tariff rules—policy levers our meta-regression associates with stronger performance irrespective of ownership. (OECD Principles, 2015)

Table 13: Summary of Hypotheses and Outcomes

Hypothesis	Support	Evidence (concise)
H1 Efficiency	Supported (conditional)	$g \approx 0.22$ (0.17–0.19 after bias adj.); stronger with high regulatory capacity & broad KPIs
H2 Access & Quality	Supported (conditional)	Positive pooled effects; amplified by enforcement and benchmarking
H3 Equity	Partially supported	Negative average g ; mitigated where social-tariff/cross-subsidy exist
H4 Environmental	Supported (mediation)	Average ≈ 0 ; positive under explicit, audited environmental KPIs
H5 Yardstick competition	Supported	Positive, significant moderator ($\beta \approx 0.09$) across outcomes

Source: Authors’ synthesis of Tables 10–12; theoretical expectations from TCE, PA, and yardstick-competition literature.

General Conclusion

This study examined whether and under what conditions organizational modes influence water service performance, with a particular focus on the implications for Morocco’s ongoing regionalization reform. By synthesizing evidence from 173 empirical studies published between 1995 and 2025, this meta-analysis provides a comprehensive assessment of the comparative performance of public provision, delegated management, and hybrid arrangements in the water sector.

The findings lead to three main conclusions. First, delegated management and public–private partnerships are associated, on average, with superior efficiency outcomes and modest improvements in access and service quality. However, these organizational forms do not exhibit intrinsic advantages in environmental performance and may generate adverse equity effects in the absence of appropriate social and tariff-based safeguards. Second, performance differentials across organizational modes are largely driven by institutional and incentive structures rather than ownership per se.

Regulatory capacity, the breadth and enforceability of key performance indicators, and the use of yardstick competition consistently emerge as decisive factors shaping outcomes. Third, these results suggest that governance design, rather than the choice between public and private provision, should be at the core of water sector reforms.

From a policy perspective, the Moroccan experience offers important lessons. The creation of Regional Multiservice Companies (SRMs) represents a window of opportunity to harmonize performance indicators, institutionalize transparent benchmarking mechanisms, and embed equity-oriented instruments such as targeted social tariffs. If effectively implemented, these measures can help reconcile efficiency objectives with social inclusion and align Morocco's water governance framework with international best practices, including the OECD Water Governance Principles. (Marin, 2009; Hodge & Greve, 2017; OECD, 2015).

Despite its contributions, this study is subject to several limitations. Residual heterogeneity across studies and potential publication biases cannot be entirely ruled out, (Borenstein et al., 2009). despite the use of robust variance estimation and multiple bias-adjustment techniques. Moreover, the comparability of performance indicators—particularly for governance and equity outcomes—remains imperfect across contexts. Finally, empirical evidence on Morocco's SRMs is still emerging, which introduces additional uncertainty in estimates related to regionalized service provision. (Stanley & Doucouliagos, 2014; Vevea & Hedges, 1995).

Future research should therefore focus on micro-level evaluations of SRM performance as implementation progresses, with particular attention to distributional impacts, regulatory effectiveness, and environmental sustainability. Longitudinal and quasi-experimental designs would be especially valuable in disentangling causal mechanisms and informing evidence-based water governance reforms in Morocco and comparable contexts. (Policy recency aligns with 2015+ governance reforms.)

Conflict of Interest: The authors reported no conflict of interest.

Data Availability: All data are included in the content of the paper.

Funding Statement: The authors did not obtain any funding for this research.

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Peut-on encore accroître le niveau des recettes fiscales hors pétrole en République du Congo ?

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[Doi:10.19044/esj.2026.v22n4p163](https://doi.org/10.19044/esj.2026.v22n4p163)

Submitted: 20 November 2025
Accepted: 02 February 2026
Published: 28 February 2026

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OPEN ACCESS

Cite As:

Ongounga, F.F. & Bakala, T.A. (2026). *Peut-on encore accroître le niveau des recettes fiscales hors pétrole en République du Congo ?*. European Scientific Journal, ESJ, 22 (4), 163. <https://doi.org/10.19044/esj.2026.v22n4p163>

Résumé

Cet article fait recours à l'approche du potentiel fiscal et à celle de la taxation optimale pour évaluer le niveau optimal de prélèvement fiscal hors pétrole en République du Congo. Les données couvrent la période allant de 1985 à 2022. Sur la base de l'approche ARDL, les résultats des deux approches renseignent que le potentiel fiscal hors pétrole est sous-exploité, suggérant ainsi la possibilité d'accroître le niveau des recettes fiscales hors pétrole dans ce pays. Cependant, la portée de l'effort fiscal négatif obtenu par la méthode de la taxation optimale est plus élevée que celle obtenue par l'approche du potentiel fiscal. De plus, l'approche par le potentiel fiscal montre que la profondeur du marché financier et la production des biens échangeables influencent positivement le niveau de prélèvement fiscal hors pétrole, alors que la corruption l'influence négativement. Devant de tels résultats, l'article suggère entre autres que les décideurs publics devraient entreprendre des mesures visant à élever le potentiel fiscal hors pétrole et à améliorer l'effort fiscal hors pétrole. De telles mesures passeraient prioritairement par la lutte contre la corruption et l'amélioration de la qualité des institutions.

Mots-clés : Effort fiscal, potentiel fiscal, prélèvement fiscal, ARDL, taxation optimale

Can the Level of Non-Oil Tax Revenues in the Republic of Congo be Further Increased ?

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Abstract

This article uses the fiscal potential and optimal taxation approaches to assess the level of non-oil taxation in the Republic of Congo. The data covers the period from 1985 to 2022. The results obtained using the ARDL approach indicate that the non-oil tax potential is underutilized, suggesting the possibility of increasing the level of non-oil tax revenues in this country. However, the underutilized non-oil tax potential is higher with the unbalanced budget model, which implicitly takes into account the effects of public debt and accumulated arrears on the level of non-oil tax revenue. On the other hand, with the balanced budget model, these two variables are ignored, and the non-oil tax potential is therefore lower. Furthermore, the fiscal potential approach shows that the depth of the financial market and the production of tradable goods have a positive influence on the level of non-oil tax collection, while corruption has a negative influence. Given these results, the article suggests, among other things, that public decision-makers should take measures to increase non-oil tax potential and improve non-oil tax efforts. Such measures would primarily involve fighting corruption and improving the quality of institutions.

Keywords: Tax effort, tax potential, tax collection, ARDL, optimal taxation

Introduction

De nos jours, la mobilisation des recettes fiscales hors pétrole supplémentaires suscite un regain d'intérêt chez les décideurs publics. Dans les pays d'Afrique subsaharienne (ASS) comme ceux de la communauté économique et monétaire d'Afrique centrale (CEMAC), exportateurs de pétrole, une telle problématique repose sur au moins deux arguments. D'une part, parce qu'il est nécessaire de mobiliser de nouvelles ressources susceptibles de financer les Objectifs du Millénaire pour le Développement (OMD). D'autre part, du fait de la volatilité des prix des matières premières et de l'épuisement programmé des réserves de pétrole, dans certains pays en développement : d'où l'intérêt d'évaluer le niveau de prélèvement fiscal hors pétrole optimal. Pour les Nations-Unies, en vue d'atteindre les ODD, les recettes fiscales devront représenter au moins 20 % de leur produit intérieur

brut (PIB) dans les pays en développement (PVD). Pourtant, en ASS, ce ratio demeure généralement en deçà de 17 % (Banque Mondiale, 2019). Le même constat est perceptible dans le contexte spécifique du Congo où, malgré les réformes fiscales engagées depuis 2010, la pression fiscale hors pétrole demeure faible et inférieure à la moyenne des pays de la CEMAC (11,3 % du PIB), reflétant les efforts à entreprendre en d'optimiser l'efficacité des administrations publiques, en d'accroître la mobilisation des recettes fiscales. En effet, après avoir culminé à 12,7 % en 2015, le ratio de pression fiscale hors pétrole se situerait à 9,3 % du PIB en 2023, après s'être fortement chuté pour atteindre 7,3 % en 2019 (FMI, 2024).

Théoriquement, la littérature y relative s'attache essentiellement à évaluer le niveau de prélèvement fiscal hors pétrole optimal. Elle s'articule autour de deux axes principaux. Le premier axe cherche à déterminer le potentiel fiscal hors pétrole, celui-ci étant fonction des caractéristiques structurelles (économiques et institutionnelles) de chaque pays (Brun et al., 2006 ; Pessino et Fenochietto, 2010 ; Caldeira et al., 2019). Le second axe se réfère aux travaux sur le taux optimal de taxation hors pétrole (Ramsey, 1927 ; Mirrlees, 1971). S'agissant tout d'abord du premier axe, le potentiel fiscal étant considéré comme le niveau maximal de recettes fiscales que peut dégager une économie, si elle utilisait toutes ses capacités pour la collecte de celles-ci, son évaluation permet d'obtenir l'effort fiscal consécutif. De nombreux travaux à cet effet considèrent l'effort fiscal comme le rapport des recettes fiscales effectivement collectées aux recettes fiscales potentielles. D'autres travaux, moins nombreux, utilisent la différence entre les deux variables. Dès lors, trois cas de figure sont possibles. En premier lieu, l'effort fiscal est strictement supérieur à 1, ce qui implique que le niveau des recettes fiscales effectivement mobilisé est au-dessus des recettes fiscales potentielles. Ainsi, toute tentative de mobilisation des recettes fiscales additionnelles se traduira par une aggravation des distorsions économiques d'origine fiscale et par conséquent, des effets sociaux indésirables. Une telle hypothèse de figure implique alors de mener une politique économique qui permettrait de relever le niveau de potentiel fiscal. En second lieu, l'effort fiscal est compris entre 0 et 1. Cela indique que le niveau des recettes fiscales effectivement mobilisées s'avère en deçà du potentiel fiscal du pays considéré.

Le potentiel fiscal étant sous-exploité, la mise en œuvre des réformes structurelles plus favorables à la mobilisation des recettes fiscales additionnelles s'impose. En troisième lieu, l'effort fiscal est nul, c'est-à-dire, équivaut à 1. Ce cas de figure renseigne que les recettes fiscales mobilisées sont à leur niveau potentiel et, que l'économie devra maintenir cette capacité mobilisatrice, à défaut d'engager des réformes économiques qui aideraient à relever le potentiel fiscal. Pour ce qui est du deuxième axe, la théorie de la taxation optimale sur laquelle s'appuient les travaux y relatifs est

traditionnellement centrée sur la recherche d'un optimum de second rang. L'idée sous-jacente est de déterminer le taux d'imposition optimale par type d'impôt (Ramsey, 1927 ; Mirrlees, 1971 ; Atkinson et Stiglitz, 1980 ; Judd, 1985b et Chamley, 1986). Leur démarche consiste à calculer l'effort fiscal, soit par la différence du taux effectif d'imposition au taux d'imposition optimal, soit par le ratio de ces deux variables.

En s'appuyant sur la théorie de la croissance de Barro (1990), ces études définissent le taux optimal d'imposition comme celui qui maximise la croissance économique et le bien-être intertemporel des ménages. Villieu (2015) ajoute que dans ces conditions, le niveau d'un tel taux, varie selon, que la position du budget de l'État est, équilibré ou déficitaire. En équilibre budgétaire, le taux d'imposition optimal est faible et le niveau de croissance est élevé. En situation de déficit budgétaire qui serait financé par l'emprunt, le taux d'imposition optimal est élevé et le niveau de la croissance économique baisse. Tout comme dans la première approche, trois cas de figure sont souvent rencontrés. L'effort fiscal peut être positif, négatif ou nul. Un effort strictement positif renseigne sur un niveau de prélèvement fiscal au-dessus du niveau potentiel, susceptible d'engendrer des distorsions économiques d'origine fiscale et nuire à l'activité économique (Laffer, 1981, Barro, 1990, Scully, 1996). Par contre, un effort fiscal négatif, signale un niveau de prélèvement fiscal effectif en dessous du niveau potentiel, nécessitant des mesures de renforcement des capacités mobilisatrices des recettes fiscales. Enfin, un effort fiscal nul suggère que le taux effectif de taxation est à son niveau potentiel, si bien que face à un déficit public persistant, le pays devra mener une politique économique capable de relever le seuil optimal de prélèvement fiscal. Étant quasiment basés sur un équilibre marshallien (équilibre partiel)¹, ces travaux se sont avérés limités. De nos jours, la prise en compte des avancées théoriques marquées par la primauté accordée à l'équilibre walrasien, suggère de privilégier l'analyse en termes de pression fiscale globale.

Dans le contexte de l'ASS où les pays sont majoritairement caractérisés par des poids élevés du secteur informel et des dépenses fiscales, la fraude et l'évasion fiscale, ainsi que des faiblesses institutionnelles (Caldeira et al., 2019) et des flux financiers illicites (Thiao et Ouonogo, 2021), amène à s'interroger si le potentiel fiscal hors pétrole est-il atteint ou non. Dans le sillage de cette problématique, au moins deux arguments font de la République

¹ Marshall introduit dans ses Principes d'économie politique les courbes d'offre et de demande qui constituent aujourd'hui la représentation la plus populaire du marché. Contrairement à l'approche de Walras, qui dans la théorie de l'équilibre général s'intéresse simultanément à l'ensemble des marchés, Marshall raisonne toutes choses égales par ailleurs. Il ne s'intéresse pas aux interactions avec les autres marchés. Le prix est déterminé par les seules variations de l'offre et de la demande du bien considéré. Cette approche, en dépit de sa simplicité est aujourd'hui encore largement utilisée pour représenter les marchés.

du Congo un cas intéressant à étudier. Tout d'abord, l'exportation pétrolière couvrant environ 60 % du PIB, la volatilité des cours de cette matière première sur le marché international expose les finances publiques de ce pays à l'incertitude. Ensuite, selon la Banque mondiale (2018), l'épuisement des réserves de pétrole possédées par le Congo est projeté à l'horizon 2035. La prise en compte de ces deux arguments, soulève la question cruciale de la mobilisation des recettes fiscales hors pétrole supplémentaires dans ce pays. Autrement dit, en République du Congo, les recettes fiscales hors pétrole, collectées actuellement excèdent-elles ou non le niveau correspondant au potentiel fiscal hors pétrole ? À la lumière d'une telle interrogation, deux questions secondaires peuvent être soulevées. Premièrement, le taux de prélèvement fiscal hors pétrole au Congo est-il en dessous ou au-dessus du taux optimal d'imposition ? Deuxièmement, quelle est l'articulation possible entre l'effort fiscal hors pétrole calculé sur la base de la méthode du potentiel fiscal et celui évalué sur la base de l'approche de la taxation optimale ?

Partant de l'idée selon laquelle, à l'instar des autres pays d'ASS, le Congo fait face au poids important de l'endettement public, il est postulé que ses recettes fiscales ne sont pas à leur niveau potentiel fiscal. Dès lors, l'effort fiscal hors pétrole est supposé être négatif, et que le taux effectif de prélèvement fiscal hors pétrole est en dessous de son seuil optimal, ce qui suggère qu'il est encore possible d'accroître le niveau de recettes fiscales hors pétrole au Congo. Cet article se fixe un double objectif. Tout d'abord, il se propose de déterminer l'effort fiscal hors pétrole par l'approche du potentiel fiscal et par celle de la taxation optimale. Par la suite, il tente d'établir l'articulation entre les résultats et les deux approches.

Ceci étant, en l'état actuel de nos connaissances, les travaux empiriques sur l'évaluation du potentiel fiscal hors pétrole et de l'effort fiscal hors pétrole en Afrique ne sont pas nombreux. Les rares études telles que celle de Caldeira et al. (2019) ont utilisé les recettes fiscales hors ressources naturelles globalement considérées. L'originalité de cette recherche vient de ce qu'elle évalue l'effort fiscal hors pétrole à la fois par l'approche du potentiel fiscal et par celle de la taxation optimale. Ce faisant, elle tente d'établir une articulation possible entre les résultats des deux méthodes. Son intérêt réside non seulement dans ce qu'elle tente de combler le vide de la littérature existante, mais surtout dans sa proposition de comparer les deux approches afin de tirer les implications de politique fiscale qui peuvent en découler.

Sur le plan méthodologique, une démarche en trois étapes est empruntée. Il est d'abord estimé, le niveau des recettes fiscales hors pétrole potentiel (ou encore la pression fiscale théorique hors pétrole) en se basant sur une régression de cette variable sur ses déterminants théoriques. En comparant la série obtenue aux recettes fiscales hors pétrole effectivement recouvrées, ceci permettra de déterminer l'effort fiscal hors pétrole. Ensuite, à l'instar de

Husnain et al. (2015), le modèle de Scully (1996) augmenté du déséquilibre budgétaire est utilisé pour déterminer le taux optimal de taxation hors pétrole. À ce niveau également, ce résultat est comparé au taux de prélèvement fiscal effectif hors pétrole, afin de déterminer l'effort fiscal hors pétrole. Enfin, l'effort fiscal hors pétrole déterminé sur la base de la première méthode, dite approche du potentiel fiscal, sera comparé à celui évalué selon la seconde approche, c'est-à-dire, celle de la taxation optimale. Le reste de cet article est organisé comme suit : la section 2 procède à la présentation de la revue de la littérature ; la section 3, décrit les faits stylisés des principales variables d'intérêt ; la section 4, spécifie les modèles d'estimation ; la section 5, présente et discute les résultats des estimations ; enfin, la section 6, conclut et tire les implications de politique économique qui en découlent.

2. Revue de la littérature

À la suite des travaux précurseurs de Lotz et Morss (1967)², l'analyse du niveau de prélèvement fiscal optimal s'est globalement focalisée sur les deux concepts précédemment évoqués, à savoir : l'approche du potentiel fiscal et celle de la taxation optimale.

Dans l'approche du potentiel fiscal, parmi les méthodes d'évaluation développées, figurent la technique de cointégration de Pesaran et Shin (1995) sur les séries temporelles ou modèle ARDL (Amin et al., 2014 ; Karagöz, 2013) ; l'approche de l'analyse des frontières stochastiques par les modèles paramétriques (Alfirman, 2003 ; Pessino et Fenochietto, 2010) et non paramétriques (Charnes et al., 1997) et le *Free Disposal Hull* (Deprins et al., 1984)³. À travers ces différents modèles, les travaux empiriques ont tout d'abord, déterminé le potentiel fiscal en identifiant ses déterminants, avant de le comparer aux recettes fiscales hors pétrole effectivement mobilisées⁴. Bien que cette littérature soit parvenue à des résultats obtenus parfois très divergents, la conclusion largement partagée enseigne que la capacité

² Lotz et Morss (1967) sont les premiers à introduire le concept d'effort fiscal avec comme centre d'intérêt l'étude du ratio fiscal international, et ils ont appliqué cette problématique empiriquement.

³ Pour une revue détaillée de ces méthodes d'évaluation du potentiel fiscal, se référer à l'article de Caldeira et al. (2019).

⁴ Cette littérature met en lumière plusieurs déterminants du potentiel fiscal, à savoir, le PIB par habitant et le taux d'ouverture (Lotz et Morss, 1967), la part de l'agriculture et le taux d'inflation (UNCTAD, 1970), le ratio dette extérieure rapporté au PIB (Tanzi, 1992), les aides étrangères (Gupta, 2007), les dépenses publiques en éducation, l'indice de Gini et la corruption (Pessino et Fenochietto, 2010), le taux d'urbanisation et le taux de monétarisation de l'économie (Karagöz, 2013), l'instabilité politique (Aisen et Veiga, 2004), la part de la manufacture ou des services dans le PIB, la croissance de la population, la technologie fiscale (Slemrod, 1990), la part de la population urbaine sur la population totale et les flux financiers illicites (Thiao et Ouonogo, 2021).

contributive maximale des recettes fiscales est tributaire des facteurs structurels d'ordre économique, social, institutionnel et démographique. Un premier groupe de travaux a utilisé la part de chaque secteur dans le PIB. Shin (1969) et Piancastelli (2001) par exemple trouvent que la part de l'agriculture dans le PIB a un effet négatif significatif sur la part totale des recettes fiscales dans le PIB. Martinez-Vazquez et Alm (2003) obtiennent un effet négatif non significatif dans un panel de pays développés et en développement. Eltony (2002) travaille sur 16 pays arabes pour la période de 1994-2004 en utilisant à la fois la part de l'agriculture et des mines. Ses résultats révèlent que la part des mines dans le PIB affecte significativement, mais négativement le prélèvement fiscal dans l'ensemble des pays considérés, alors que dans 06 pays producteurs de pétrole contenus dans l'échantillon, l'agriculture a une influence négative, l'influence de la part des mines s'est avérée positive.

Un deuxième groupe de travaux s'est intéressé à bien d'autres facteurs structurels. Bahl (2003) par exemple concluent que la part du commerce international dans le PIB et le ratio M2/PIB, ont eu un effet positif significatif sur la part totale des recettes fiscales dans le PIB. Ahsan et Wu (2005) corroborent ce résultat. Martinez-Vazquez et Alm (2003) trouvent que le revenu par habitant est un facteur déterminant dans la mobilisation des recettes fiscales. L'étude de Tanzi (1992) montre que le ratio de dette extérieure rapporté au PIB exerce une influence sur le ratio des recettes fiscales rapportées au PIB. Toutefois, l'auteur n'indique pas si cette influence est positive ou négative. Les travaux de Karagöz (2013) sur la Turquie, complètent cette conclusion en précisant que cette influence est positive. Travaillant sur 105 pays en développement dont les pays de l'UEMOA entre 1980 et 2004, Gupta (2007) trouve que les aides étrangères influencent positivement et significativement les performances des recettes publiques hors dons dans les pays en développement. Pour les pays de l'UEMOA, ses résultats ressortent un effort fiscal respectivement de 1,5 pour le Bénin, 0,84 pour le Burkina ; 1,2 pour la Côte d'Ivoire ; 1,4 pour la Guinée-Bissau ; 0,76 pour le Mali ; 0,77 pour le Niger ; 1,11 pour le Sénégal ; et 1,14 pour le Togo. Partant d'une régression multiple dans les pays en développement, une étude du PNUD (2005) trouve un effort fiscal stable et presque nul dans les pays à revenu intermédiaire. Amin et al. (2014) révèlent pour le Pakistan que la corruption et l'instabilité politique influencent négativement le niveau de prélèvement fiscal. Pessino et Fenochietto (2010) qui utilisent un modèle à frontière fiscale stochastique, trouvent que les dépenses publiques en éducation influencent positivement les recettes fiscales alors que l'inflation, le degré de concentration des revenus (indice Gini) et la corruption, exercent les effets négatifs sur les recettes fiscales. Langford et Ohlenburg (2016) considèrent que de nouvelles variables telles que l'indice de complexité

économique, les tensions ethniques et le crédit accordé au secteur privé sont déterminantes pour expliquer le potentiel fiscal.

Brun et Diakité (2016) tentent d'estimer considèrent les recettes fiscales totales de 114 pays et la taxe sur la valeur ajoutée (TVA) sur un panel de 57 pays entre 1980 et 2014. À partir du modèle développé par Battese et Coelli (1995), et celui de Kumbhakar et al., (2014), les auteurs concluent que le niveau du revenu explique le potentiel fiscal et l'ampleur de l'effort y associé. Ils ajoutent par ailleurs que l'inefficience fiscale est moins liée à la performance des administrations fiscales qu'aux décisions de politique économique. Les travaux de Caldeira et al. (2019) sur 42 pays d'ASS couvrant la période 1980-2015, concluent que l'effort fiscal moyen est estimé à 0,57, suggérant que ces économies pourraient atteindre un ratio recettes fiscales rapportées au PIB de 23,2 %, contre 13,2 % si tout leur potentiel fiscal était pleinement exploité. Ces auteurs ajoutent que le revenu par habitant, le développement financier et le taux d'ouverture commerciale améliorent les recettes fiscales, alors que la dotation en ressources naturelles et le poids du secteur agricole amoindrissent celles-ci. Enfin, plus récemment, Thiao et Ouonogo (2021) ont montré que les flux financiers illicites (FFI) exercent un effet négatif sur le niveau de prélèvement fiscal. Korsu (2021) a estimé le modèle de Battese et Coelli (1995) pour les pays de la CEDEAO sur les données annuelles couvrant la période allant de 2001 à 2015. Les résultats révèlent que l'ouverture commerciale et du développement financier exercent un effet positif sur les recettes fiscales, alors que le degré d'urbanisation a tendance à amoindrir la collecte des impôts. L'auteur estime l'effort fiscal en moyenne à 90 % minimum de son niveau potentiel.

Dans l'approche de la taxation optimale, les premières études y relatives remontent certes aux travaux de Ramsey (1927), Mirless (1971). Mais, comme cela a été souligné précédemment, le fait que la littérature y relative se soit quasiment inscrite dans le cadre d'un équilibre partiel, limite la portée théorique des conclusions sous-jacentes. À titre d'exemple, Laffer (1981) par sa courbe a montré qu'au-delà d'un certain seuil de prélèvement fiscal, toute augmentation du taux d'imposition sur le revenu se traduit par une baisse du niveau total des recettes fiscales. Cette courbe a fait l'objet de plusieurs critiques. Tout d'abord, Laffer s'est limité aux effets de substitution alors qu'une augmentation de la pression fiscale peut inciter les agents à travailler davantage pour retrouver leur niveau de revenu initial. Ensuite, la courbe de Laffer est fondée sur un raisonnement partiel, étant donné qu'elle ne perçoit l'impôt qu'au niveau microéconomique comme étant une ponction. Pourtant, à l'échelle macroéconomique, l'impôt est à l'origine d'une dépense publique qui engendre des externalités positives sur le secteur privé et donc sur la croissance économique (Barro, 1990).

À la lumière du reproche adressé à la théorie de la taxation optimale originelle, la théorie de la croissance endogène inspirée par la contribution de Barro (1990), s'est imposée comme l'approche appropriée pour évaluer le niveau de prélèvement optimal et l'effort fiscal sous-jacent. L'argument mobilisé met en avant sa capacité à tenir compte des coûts du bien-être de l'impôt et de l'utilité marginale des dépenses publiques financées par l'impôt. De plus, la théorie de la croissance endogène intègre la nature des dépenses publiques financées par les impôts dans l'évaluation du taux optimal de taxation. À l'évidence, cette théorie soutient que les dépenses productives, notamment régaliennes, d'éducation et de santé, de recherche et développement ainsi que d'infrastructures de communication exercent des effets positifs sur la croissance économique. À partir d'un modèle à budget équilibré, Barro (1990) montre que le taux d'imposition optimale est celui qui maximise la croissance et le bien-être intertemporel des ménages, mettant en évidence la taille optimale de l'État.

À la suite des travaux de Barro (1990), quatre autres principaux modèles d'évaluation du taux optimal de taxation, ont été proposés : le modèle d'Armey (1995), le modèle de Scully (1996), le modèle de Vedder et Gallaway (1998) et les modèles à effets de seuil (Hansen, 1999 et Caner et Hansen, 2004). Le modèle de Vedder et Gallaway (1998) qui est une mise en évidence de l'approche théorique d'Armey (1995), assure la prévalence d'une relation quadratique entre la croissance économique et la pression fiscale⁵. À la seule différence qu'il ne distingue pas, les dépenses productives des dépenses improductives, le modèle de Scully, est une variante du modèle de Barro (1990). Quant aux modèles à effets de seuil, leur objectif est de saisir les relations non-linéaires présentes dans les données. La démarche consiste à modéliser les changements de la dynamique d'un système lorsque certaines variables atteignent un niveau critique (un « seuil »), et passent ainsi d'un régime (linéaire) à un autre (linéaire différent). Ils simulent des situations dans lesquelles, l'effet d'un élément varie soudainement après avoir franchi un certain seuil, à l'instar de l'efficacité d'une relance budgétaire. Étant donné des critiques largement adressées à l'hypothèse néoclassique de budget équilibré sur laquelle sont basés ces modèles, de nos jours, la quasi-totalité des études recourent aux modèles à budget déséquilibré dont les versions les plus connues ont été proposées par Minea et Villieu (2009) et Husnain et al. (2015). L'argument invoqué souligne que les modèles à budget équilibré s'écartent tellement de la réalité, qu'ils n'ont qu'un intérêt théorique.

⁵ Pour évaluer le modèle d'Armey (1995), Vedder et Gallaway (1998) ont remplacé le bien-être social par le taux de croissance réelle du PIB et ont mesuré la taille de l'Etat par le ratio dépenses publiques sur le PIB.

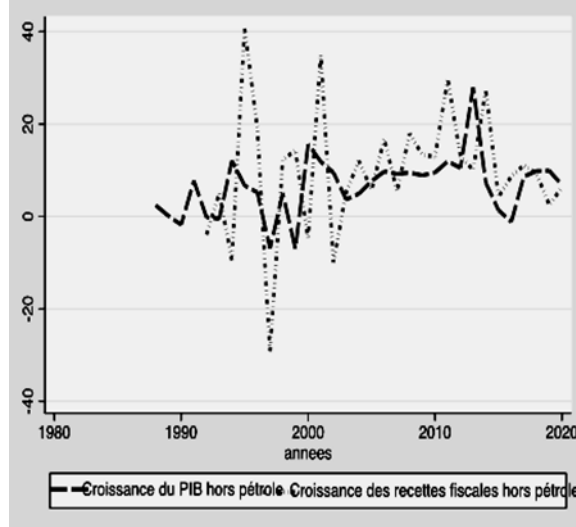
Au plan empirique, plusieurs travaux réalisés, aussi bien dans les pays développés que dans les pays en développement ont utilisé le modèle de Scully (1996). La principale conclusion suggère l'existence d'une relation en cloche entre les dépenses publiques et la croissance économique (Scully, 1996 ; Amgain, 2017 ; Motloja et al., 2016 ; Sayegh et Saade, 2020). En revanche, d'autres travaux sont parvenus aux résultats selon lesquels les impôts, exercent un effet négatif sur la croissance (Kormendi et Meguire, 1995 ; Saibu, 2015) et d'autres encore, ont trouvé qu'un tel effet négatif est négligeable (Koester et Kormendi, 1989 ; Mendoza et al., 1997). Ces résultats, mitigés, découlent de l'importance des dépenses publiques financées par les recettes fiscales (Helms, 1995 ; Villieu, 2015). Par ailleurs, certaines études révèlent que les taux effectifs d'imposition sont plus élevés dans les pays développés que dans les pays en développement. En effet, avec un taux optimal moyen de taxation de 25 %, les pays développés sont pour la plupart au-dessus de ce taux, alors que la majorité des pays en développement sont en dessous (Saibu, 2015 ; Husnain et al., 2015). Toutefois, pour des raisons déjà évoquées plus haut, le taux optimal de taxation varie d'un pays à un autre. À l'instar de Pessino et Fenochietto (2013), leurs travaux montrent une évolution positive de l'effort fiscal qui ressort plus élevée dans les pays à revenu élevé ou intermédiaire de la tranche supérieure que dans les économies à faible revenu ou intermédiaire de la tranche inférieure. Kobyagda et Binin (2021) corroborent ce résultat en se servant du modèle de Kumbhakar et al. (2014) en zone UEMOA.

En définitive, l'objectif de ces études étant l'évaluation du potentiel fiscal ou le taux optimal d'imposition, afin de déterminer l'effort fiscal, elles ont abouti aux résultats selon lesquels, dans certains pays, le potentiel fiscal ou taux de taxation optimale a été supérieur au prélèvement effectif, alors que dans d'autres, il a été inférieur (Jebali et Boussida, 2020). En plus de refléter effectivement l'hétérogénéité des économies, la divergence de ces résultats serait vraisemblablement liée aux périodes d'études retenues, aux modèles utilisés, aux sources des données, aux variables fiscales retenues (McBride, 2015), aux différences des structures fiscales (taux d'imposition et des assiettes imposables), aux niveaux des dépenses fiscales, aux degrés d'efficacité des administrations fiscales, à la qualité des institutions (Caldeira et al., 2019), et à l'ampleur des flux financiers illicites (Thiao et Ouonogo, 2021). Ceci étant, si les approches du potentiel fiscal et de la taxation optimale permettent toutes les deux de déterminer l'effort fiscal, la seconde est muette sur les déterminants structurels. À fortiori, l'approche de la taxation optimale ne renseigne pas sur le type de politique économique à engager afin de relever le niveau de prélèvement fiscal, alors que la première approche semble assez explicite sur une telle préoccupation, étant entendu qu'elle permet d'identifier les facteurs explicatifs du niveau de potentiel fiscal.

3. Faits stylisés des principales variables d'intérêt

La figure 1, donne l'évolution du taux de croissance économique hors pétrole et celle du taux de pression fiscale.

Figure 1 : Évolution de la croissance et de la pression fiscale hors pétrole



Source : Auteurs sous stata.

À partir de la figure 1, l'on peut observer une forte instabilité de la croissance des recettes fiscales hors pétrole durant la période 1995-2003. De même, les deux courbes de la figure 1, montrent une forte relation positive entre la croissance hors pétrole et les recettes hors pétrole particulièrement au-delà de la période d'instabilité des recettes. Ces deux courbes décrivent des tendances similaires, ce qui suppose une relation de long terme entre ces deux variables.

4. Spécification des modèles d'estimation

À la lumière de la revue de littérature précédemment discutée, il ressort que, si l'approche du potentiel a le mérite de préciser les facteurs explicatifs du rendement fiscal, sa principale limite vient de ce qu'elle ne renseigne en rien sur le niveau seuil de collecte des recettes fiscales. Pourtant, la littérature théorique récente enseigne qu'au-delà d'un certain seuil d'imposition, toute collecte additionnelle d'impôts engendre des distorsions économiques d'origine fiscale, ce qui nuit à l'activité économique (Barro, 1990 ; Scully, 1996 ; Minea et Villieu, 2009). De même, il est vrai que l'approche de la taxation optimale à l'avantage de permettre l'identification d'un taux de prélèvement fiscal au-dessus duquel toute collecte additionnelle d'impôts nuirait à l'activité économique et, par conséquent, se traduirait des effets sociaux indésirables. Toutefois, elle présente l'inconvénient d'être incapable

de permettre d'identifier les déterminants du niveau de rendement d'un système fiscal.

Si à première vue, les deux approches semblent différentes, en ce qu'elles ne reposent, ni sur les mêmes méthodes, ni sur les mêmes variables, il demeure que dans tous les cas, la détermination de l'effort fiscal a pour finalité de permettre d'apprécier, le degré de sous ou de surimposition d'un système fiscal. Compte tenu de ce qui précède, le recours aux deux approches, est privilégié dans cette réflexion. L'explication sous-jacente est qu'une telle démarche conduit à comparer les deux résultats et, dégager ainsi les implications de politique économique qui s'imposent. Pour chaque approche, il est d'abord question d'estimer le potentiel fiscal hors pétrole. Ensuite, on calculera les résidus de la régression en faisant la différence, entre les recettes fiscales observées et les recettes fiscales potentielles prédites.

4.1. Approche du potentiel fiscal

À l'instar de Brun et Diakité (2016), l'estimation du potentiel fiscal hors pétrole se fait sur la base du modèle dont la spécification prend la forme linéaire suivante :

$$Y_{it} = \alpha + f(X_t; \beta) \quad (1)$$

Où Y_t représente la variable dépendante du modèle. X_t : vecteur des variables explicatives i à l'instant t , β est celui du temps. α , désigne la constante. La variable dépendante de notre modèle est le niveau des recettes fiscales potentielles hors pétrole et les variables explicatives sont les suivantes : le PIB hors pétrole/habitant retardé d'une année ($PIB_{ph_{t-1}}$), l'ouverture de l'économie ($OUV = X - M/PIB$), la part de l'agriculture dans le PIB ou la valeur ajoutée agricole dans le PIB (VAA), la profondeur du marché financier ($PMF = M_2/PIB$), la part des exportations hors pétrole dans le total des exportations (PEHP).

Compte tenu de l'élargissement des déterminants des modèles de croissance endogène aux variables institutionnelles (Williamson, 2000 ; Acemoglu et al., 2004), la variable qualité des institutions (QI)⁶ est ajoutée, car susceptible d'influencer le niveau du potentiel fiscal hors pétrole. Au regard de ces déterminants structurels, notre modèle est spécifié comme suit :

⁶ Par souci de simplification, parmi les cinq indicateurs de la qualité des institutions (la qualité de la démocratie représentative, la stabilité politique, l'efficacité de l'administration, la qualité de la réglementation et le respect de l'Etat de droit, et la lutte contre la corruption), nous avons choisi de ne se concentrer que sur la corruption car c'est ce dernier indicateur qui impact plus le niveau de prélèvement fiscal.

Nous avons utilisé le test de Jarque et Bera.

$$TPF_t = \alpha_0 + \alpha_1 OUV_t + \alpha_2 VAA_t + \alpha_3 PIBhph_{t-1} + \alpha_4 PEHP_t + \alpha_5 PMF_t + \alpha_6 QI_t + \mu_t \quad (2)$$

L'indice t se réfère au temps, α_0 et α_i sont des paramètres à estimer. μ_t représente le terme d'erreur à la période t . Les variables structurelles PIB/tête retardé d'une période, la part de la valeur ajoutée agricole et le taux d'ouverture commerciale sont utilisées pour répondre à un problème d'endogénéité. Ce modèle est privilégié par rapport aux autres, d'abord pour sa simplicité et, parce qu'on s'intéresse seulement au potentiel fiscal global hors pétrole et non par type d'impôt.

Ayant estimé le potentiel fiscal hors pétrole, on calcule ensuite les résidus de cette régression en faisant la différence, entre les recettes fiscales hors pétrole observées et les recettes fiscales hors pétrole potentielles, c'est-à-dire prédites par le modèle.

4.2. Approche de la taxation optimale

Par souci de cohérence avec la réalité congolaise, il est repris ici le modèle de Husnain et al. (2015) qui est le modèle de Scully (1996) dans lequel l'hypothèse du budget équilibré est remplacée par celle du budget déséquilibré. Mathématiquement, ce modèle quadratique se présente comme suit :

$$Y_t = A(\tau Y_{t-1})^\alpha (\theta Y_{t-1})^\beta [(1 - \tau - \theta) Y_{t-1}]^\gamma \quad (3)$$

Avec : τ = taux d'imposition ; θ = déficit budgétaire en pourcentage du PIB ; A = facteur total de productivité ; α = coefficient des taxes gouvernementales sur le total PIB ; β coefficient du déficit budgétaire rapporté au PIB ; γ = coefficient du secteur privé dans le PIB.

Soit g , le taux de croissance économique : $g = \frac{Y_t - Y_{t-1}}{Y_{t-1}}$ on a donc :

$$1 + g = \frac{Y_t}{Y_{t-1}} \quad (4)$$

En remplaçant (4) dans (3), on a :

$$1 + g = \frac{Y_t}{Y_{t-1}} = A(\tau Y_{t-1})^\alpha (\theta Y_{t-1})^\beta [(1 - \tau - \theta) Y_{t-1}]^{\gamma-1} \quad (5)$$

En réaménageant l'équation (5), on a :

$$1 + g = \frac{Y_t}{Y_{t-1}} = A(\tau Y_{t-1})^\alpha (\theta)^\beta (1 - \tau - \theta)^\gamma (Y_{t-1})^{\alpha + \beta + \gamma - 1} \quad (6)$$

Avec $\alpha + \beta + \gamma = 1$, on a :

$$1 + g = \frac{Y_t}{Y_{t-1}} = A(\tau)^\alpha (\theta)^\beta (1 - \tau - \theta)^\gamma (Y_{t-1})^{1-1} \quad (7)$$

$$\Rightarrow 1 + g = \frac{Y_t}{Y_{t-1}} = A(\tau)^\alpha (\theta)^\beta (1 - \tau - \theta)^\gamma \quad (8)$$

En introduisant le logarithme à des fins d'estimation économétrique, la référence au modèle de Scully (2003) tel qu'il a été élargi au déficit budgétaire par Husain at al. (2015), conduit à retenir la spécification ci-dessous :

$$\ln \ln (1 + g) = \ln \left(\frac{Y_t}{Y_{t-1}} \right) = \ln A + \alpha \ln \tau + \beta \ln \theta + \gamma \ln (1 - \tau - \theta) \quad (9)$$

Le taux optimal est alors : $\ln \frac{\partial(1+g)}{\partial \tau} = \frac{\alpha}{\tau} - \frac{\gamma}{1-\tau-\theta} = 0$; $\frac{\alpha}{\tau} = \frac{\gamma}{1-\tau-\theta}$ et $\alpha - \alpha\tau - \alpha\theta = \gamma\tau$

En réaménageant les termes, on a :

$$\alpha\tau + \gamma\tau = \alpha - \alpha\theta ; \tau(\alpha + \gamma) = \alpha(1 - \theta). \quad (10)$$

$$\text{Ainsi : } \tau^* = \frac{\alpha(1-\theta)}{(\alpha+\gamma)}$$

En l'absence des données du déficit budgétaire en pourcentage du PIB, c'est le cas de notre étude :

$$\tau^* = \frac{\alpha}{\alpha + \gamma} \quad (11)$$

Après l'estimation du taux optimal de taxation (ou des recettes fiscales optimales) par le modèle de la taxation optimale avec budget déséquilibré présenté ci-dessus, on évaluera les résidus de cette régression en faisant la différence entre le taux effectif des recettes fiscales hors pétrole et le taux optimal de prélèvement fiscal hors pétrole.

4.3. Variables et sources des données

Les données utilisées dans ce papier proviennent de trois bases différentes. Elles couvrent la période 1985-2022. Cette période d'analyse est définie par la disponibilité des données. D'abord, les variables de pression fiscale, PIB hors pétrole, recettes fiscales hors pétrole et déficit budgétaire, proviennent de l'administration nationale congolaise, du FMI et des services de la BEAC. Ensuite, les variables macroéconomiques telles que la part de l'agriculture dans le PIB, la profondeur du marché financier, le PIB global et le PIB pétrolier proviennent de la base World Development Indicators (WDI) de la banque mondiale. Enfin, la variable qualité des institutions est issue de la base World Governance Indicators (WGI).

5. Résultats, discussions et implications de politique économique

Il est tout d'abord question de présenter et de discuter les résultats du modèle 1, et synthétiser par la suite ceux du modèle 2, assortis de la discussion. Mais avant de présenter les résultats, il est d'abord procédé à l'étude la stationnarité des variables de l'ensemble des deux modèles. Pour cela, le test de Dickey-Fuller Augmenté (ADF) et celui de Phillips-Perron (PP) sont appliqués. Les résultats de l'étude la stationnarité, consignés dans le tableau A1 en annexe renseignent que pour chaque modèle, les séries sont intégrées d'ordres différents.

Tableau 1 : Résultats de l'étude de la stationnarité des variables du modèle 1

Variables	Test ADF		Test PP		Stationnarité
	t-stat	seuil critique	t-stat	seuil critique	
TPF	- 7,688632***	- 3,533083	- 7,857325***	- 3,529758	I(1)
OUV	- 10,71719**	- 3,533083	- 5,055084**	- 3,544284	I(1)
VAA	- 5,111841***	- 3,536601	- 9,090555***	- 3,533083	I(1)
PIBHPH	- 5,135011***	- 3,529758	- 5,118118***	- 3,529758	I(0)
PMF	- 5,322938***	- 3,536601	- 7,057766***	- 3,533083	I(1)
PEHP	- 5,179501***	- 3,529758	- 5,168894***	- 3,529758	I(0)
DEFICIT	- 9,297072	-3,198312	-9,955864***	-3,198312	I(1)
CORRUP	- 6,227016***	- 3,533083	-10,50095***	- 3,533083	I(1)

Source : Auteurs. NB : *** et ** signifient respectivement les seuils de significativité à 1% et 5%.

Dans le modèle 1, les séries PIBHPH et PEHP sont I(0), alors que TPF, OUV, VAA, PMF et CORRUP sont I (1). Dans le modèle 2, la variable DEFICIT est I(1). Dans les deux modèles, les variables étant à la fois en niveau et en différence première, l'estimation par un modèle à retards échelonnés devient envisageable. Les résultats du test de cointégration aux bornes développé par Pesaran et al. (2001), consignés dans le tableau A2 en annexe indiquent qu'au seuil de significativité de 1 %, la F-statistique est supérieure aux valeurs de la borne supérieure I (1). Ce résultat, qui conduit au rejet de l'hypothèse nulle (H0) d'absence de relation de long terme entre les variables

du modèle, rend approprié, le recours à l'approche ARDL (Auto-Régressive Distribution Lag). Le recours à une telle technique est justifié en raison de sa nature flexible. En effet, il est souvent reconnu à l'approche ARDL, sa capacité de s'adapter à la dynamique pouvant se produire dans les données de degrés de stationnarité différents. En plus, la technique ARDL permet d'identifier des vecteurs cointégrants, même en présence de multiples vecteurs de cointégration (Emeka et Aham, 2016).

Étant donné la présence d'une relation de cointégration, le modèle d'estimation est formalisé à partir de l'équation suivante :

$$\Delta Y_t = \varphi + \sum_{i=1}^p \alpha_i \Delta Y_{t-i} + \sum_{j=1}^q \beta_j X_{t-j} + \varepsilon_t \tag{12}$$

Où ε_t est le terme d'erreur ; β_0 reflète l'effet de court terme de X_t sur Y_t .

5.1. Résultats des estimations du modèle 1 et discussion

En s'appuyant sur le critère d'information d'Akaike (AIC), le modèle de correction d'erreur non contraint retenu est un ARDL (1, 0, 0, 1, 0, 0, 0, 1). Le tableau 2 ci-dessous présente les résultats d'estimation du modèle 1. Avec un coefficient d'ajustement significativement négatif au seuil de 5 % et, compris entre -1 et 0 (soit -0,049742), cela suggère que le modèle admet des relations de court terme et de long terme. Le tableau A2 en annexe consigne les résultats de la dynamique de court terme et de long terme.

D'après les résultats présentés dans le tableau 2 ci-dessous, le taux de pression fiscale retardé, la part de la valeur ajoutée agricole (VAA), la profondeur du marché financier (PMF), n'exercent pas d'effets significatifs sur les recettes fiscales. Par contre, l'ouverture commerciale (OUV), le PIB par habitant (PIBHPH) et le contrôle de la corruption, exercent un impact significatif au seuil de 5 %.

Tableau 2 : Résultats du modèle ARDL (1, 0, 0, 1, 0, 0, 1)

Dependent Variable: TPF				
Method: ARDL				
Selected Model: ARDL(1, 0, 0, 1, 0, 0, 1)				
Variable	Coefficient	Std. Error	t-statistic	Prob.
TPF(-1)	1,013340	0,361030	2,80680	0,1070
OUV	-0,896484	6,386382	5,72529	0,0457
VAA	0,021463	0,008372	-2,51406	0,1762
PIBHPH	-0,208502	0,196844	-1,05922	0,0320
PIBHPH (-1)	-1,707221	0,613742	-2,78166	0,0086
PEHP	0,708184	0,958915	0,73852	0,0037
PMF	2,037456	0,785384	2,59421	0,0322
CORRUP	-0,355283	0,101951	-3,48484	0,0334
CORRUP(-1)	-0,765845	1,085338	-0,70562	0,0035

C	-1,103380	0,347369	-3,176389	0,7935
R ²	= 0,976339			
R ² - Adjusted	= 0,896484			
S.E	= 2,049086			

Source : Auteurs sous eviews.

Préalablement à l'évaluation de l'effort fiscal de cette première approche, les tests de validation des hypothèses du modèle sont exécutés sur les résidus du modèle, l'objectif étant d'analyser la robustesse des résultats. Le tableau 3 ci-dessous montre que les résidus sont normalement distribués, non autocorrélation et homoscédastiques au seuil de 5 %. Il ressort en effet que la probabilité associée à la statistique de Jarque-Bera est supérieure à 5 %. De même, le test de Breusch-Pagan-Godfrey, et celui proposé par Breusch-Godfrey, suggèrent que les résidus du modèle sont à la fois homoscédastiques et non autocorrélés, leurs p-valeur étant à 0,07498 et à 0,63235, c'est-à-dire, supérieures à 0,05. Par ailleurs, avec une statistique de Fischer de 8,85E-05, non significatif au seuil de 5 %, les résultats du test de Ramsey-RESET, valident la spécification linéaire du modèle.

Tableau 3 : Résultats de l'analyse de la robustesse

Nature du test	Test	Valeur	Prob.
Normalité	Jarque-Bera	0,224181	0,89396
Hétérosécédasticité	Breusch-Pagan-Godfrey	3,307837	0,71498
Autocorrélation	Breusch-Godfrey	4,018872	0,63235
Spécification	Ramsey-RESET (Fisher)	8,99801	0,13963

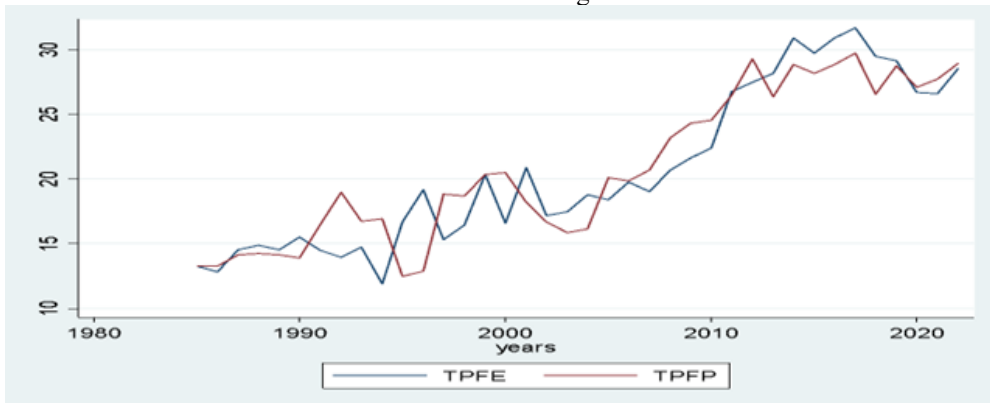
Source : Auteurs sous eviews.

Toutes les hypothèses du modèle étant validées, ceci amène à conclure que le modèle de l'évaluation de l'effort fiscal est approprié.

À la lecture du tableau 2 précédent, qui présente les principaux résultats du modèle de détermination du potentiel fiscal, il ressort que le pouvoir explicatif du modèle 1, est de 97 %, et qu'au seuil de significativité de 5 %, la part des exportations hors pétrole (PEHP), la profondeur du marché financier (PMF) et le PIB par habitant (PIBHPH) exercent un effet positif sur le taux de pression fiscale (TPF). Un tel résultat rejoint la conclusion tirée par les travaux de Bahl (2003) et de Ahsan et Wu (2005). Par contre, la corruption engendre un effet négatif. Ce résultat a également été obtenu par Amin et al. (2014) dans le cas du Pakistan. Il s'ensuit que le Congo devra mettre en place les stratégies de prévention et de répression de la corruption afin d'améliorer son niveau de prélèvement fiscal hors pétrole.

Avant d'évaluer l'effort fiscal, l'évolution du taux de prélèvement fiscal hors pétrole effectif (TPFHPE) et celle du taux de prélèvement fiscal hors pétrole potentiel (TPFHPP) sont présentées dans la figure 2 ci-après.

Figure 2 : Evolution du potentiel fiscal hors pétrole et de la pression fiscale hors pétrole effective du Congo

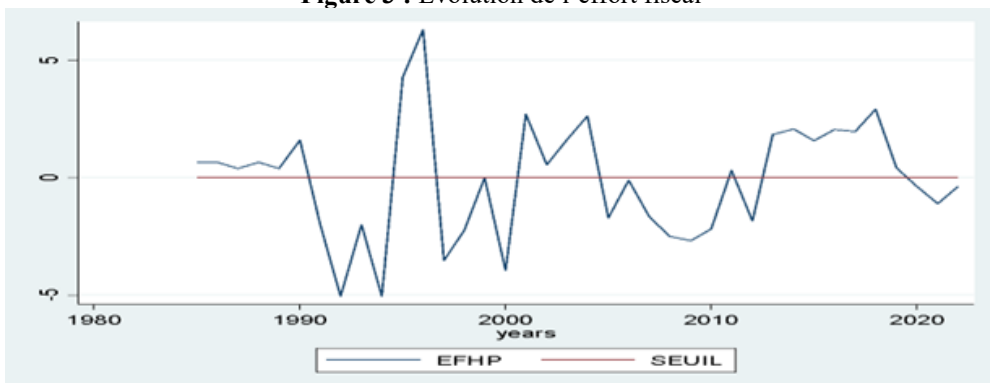


Source : Auteurs sous stata

Cette évolution montre une corrélation instable entre les deux variables. Dans certaines périodes, le taux de prélèvement effectif est au-dessus du taux de prélèvement potentiel. Cependant, dans d'autres périodes, c'est l'inverse. Quant à l'effort fiscal hors pétrole en République du Congo, la figure 3 ci-dessous donne la trajectoire de son évolution.

L'observation de la figure 3 ci-dessous permet de noter une évolution instable dans le temps, de l'effort fiscal hors pétrole. Un tel constat rend envisageable l'analyse des statistiques descriptives de cette variable

Figure 3 : Evolution de l'effort fiscal



Source : Auteurs sous stata

Le tableau 4 ci-dessous synthétise les résultats de l'analyse des statistiques descriptives de l'effort fiscal hors pétrole.

Tableau 4 : Statistique descriptive de l'effort fiscal

	EFHP		EFHP		EFHP
Mean	- 2,078462	Skewness	0,318748	Sum	-3,060000
Median	-0,023000	Kurtosis	2,786384	Sum Sq. Dev.	278,0060
Maximum	6,290000	Jarque-Bera	0,734554		
Minimum	-5,052000	Probability	0,692618	Observations	38
Std. Dev.	2,704801				

Source :Auteurs

L'analyse des résultats obtenus fait remarquer que l'effort fiscal hors pétrole, varie en fonction du temps. À l'exception de la période couvrant les trois dernières années d'étude, depuis 2014, cet effort fiscal est positif. Cela reflète l'efficacité des politiques de collecte des recettes fiscales sur cette période. En s'appuyant sur la figure 3 et le tableau 4, l'effort fiscal au Congo ressort instable et varie entre -5,05200 et 6,290000 avec une moyenne de -2,78462 au cours de la période de 1985 à 2022, ce qui indique un potentiel fiscal hors pétrole sous-exploité. À cet effet, le Congo peut encore améliorer le niveau de ses recettes fiscales hors pétrole. Pour ce faire, les autorités devront mettre en œuvre une politique économique plus favorable à la mobilisation des recettes fiscales hors pétrole, en agissant sur les principaux déterminants de l'effort fiscal hors pétrole. Sur ce point précis, nos résultats suggèrent de mettre un accent particulier sur la corruption, la production des biens échangeables hors pétrole et le développement du système financier.

Ainsi, pour lutter contre l'impact négatif de la corruption, le Congo devra améliorer la qualité de ses institutions afin de saisir la totalité des assiettes imposables et les imposer à leur juste valeur. Dans cette perspective, l'affinement des stratégies d'imposition du secteur informel est l'une des pistes à explorer. Il en est de même de la lutte contre les flux financiers illicites (Thiao et Ounogo, 2021). Pour renforcer les effets positifs de la production des biens échangeables hors pétrole, le Congo devra mettre en place, les réformes structurelles visant à augmenter la production des biens échangeables hors pétrole (Ahsan et Wu, 2005 ; Bahl, 2003 ; Lotz et Morss, 1967) qui, à l'exception du secteur agricole, exerce un effet positif sur la croissance et donc sur le niveau de prélèvement fiscal hors pétrole. Il devra également renforcer l'efficacité de son secteur financier en vue d'augmenter le niveau de prélèvement fiscal hors pétrole, à travers l'octroi des crédits aux entreprises par les banques, une meilleure traçabilité des transactions économiques imposables et du paiement des impôts par virement bancaire et, même par le mobile money (Ngakosso, 2015).

On peut observer qu'au cours de certaines périodes, l'effort fiscal peut être positif, c'est ainsi que certaines mesures peuvent être envisagées. Il s'agit, entre autres, de réduire les exonérations par la suppression des mesures d'incitation fiscale, devenues sans objet et celle des mesures dérogatoires

exceptionnelles ou discrétionnaires, de moderniser l'administration fiscale pour plus d'efficacité, d'élargir la base taxable par la recherche de nouvelles assiettes imposables, de baisser le nombre des taux à des fins de simplification et de réduction de la complexité du système fiscal et, d'améliorer le recouvrement. Par ailleurs, il revient aussi à l'État d'assurer une bonne qualité de l'offre de biens publics et d'engager des réformes visant à réduire le coût social de l'impôt.

Dans cette perspective, la mise en place d'un office de revenu semi-autonome qui regorgerait en son sein l'administration fiscale et l'administration de douane devra être une option à envisager pour plus d'efficacité en matière de la TVA. En effet, de nombreux travaux ont montré que les offices de revenu, en raison de leur semi-autonomie, sont performants dans la mobilisation de recettes (Haldenwang et al., 2014 ; Mann, 2004). Cependant, cette semi-autonomie ne pourra en aucun cas être suffisante pour garantir son efficacité. Pour ce faire, la mise en place d'un office de revenu au Congo devrait être accompagnée d'une refonte totale des procédures et processus internes ainsi que d'un cadre renforcé de réglementation et de redevabilité, reliant l'office de revenu à d'autres institutions des secteurs, public et privé. Par ailleurs, à l'instar de l'autonomie des banques centrales, pour garantir un climat sain entre le ministère en charge des finances et l'office de revenu, le gouvernement devra assigner à ce dernier des objectifs à travers une fonction de perte qu'il devra minimiser sans interférence de la part du gouvernement. En effet, l'office de revenu devra être rendu exclusivement responsable de la minimisation de cette fonction de perte. Dans cette perspective, le contrat de délégation devra être fondé sur le modèle contractuel de type Principal-Agent (Villieu, 2015). La contrepartie de la semi-autonomie de l'office de revenu étant la transparence, celui-ci devra alors être transparent. Cette transparence devra être conçue comme un escalier composé de douze marches au moins (Ngakosso, 2019).

5.2. Résultats des estimations du modèle 2 et discussions

Les résultats des estimations du modèle 2 (voir tableau 5 ci-dessous) enseignent que les coefficients des trois variables explicatives du modèle sont significativement différents de zéro au seuil de 5 %, prouvant ainsi la validité du modèle.

Tableau 5 : Résultats des estimations du modèle 2

	Coefficients	Limite inférieure	Limite supérieure	Probabilité
Constante	0,3062	-3,7650	7,0885	0,9671
$\ln[(\tau)Y_{t-1}]$	0,4181	0,9273	0,2209	0,0082
$\ln[(1 - \tau)Y_{t-1}]$	0,1910	0,1063	4,5671	0,0710
Observations		38		
R ²		0,95143		

R ² -ajusté		0,8209	
Probabilité (F-Statistique)		0,0000	
Probabilité (Test de Breusch-Godfrey)		0,8513	
Probabilité (Test de Breusch-Godfrey-Pagan)		0,7098	
Taux optimal de taxation	34,07%	24,62%	36,31%

Source : Auteurs sous eviews.

De même, il ressort que les variables exogènes retenues expliquent la croissance économique à hauteur de 95 %. Les résultats de l'analyse de la robustesse synthétisés dans le tableau 6 ci-dessous indiquent que les erreurs sont stationnaires (voir corrélogramme en annexe dans la figure A5), non autocorrélées et homoscédastiques au seuil de 5 %. Le test de Ramsey-RESET dévoile que le modèle 2 est bien spécifié. Enfin, les tests de stabilité du modèle, de CUSUM et de CUSUM au carré (Figure A6 en annexe) indiquent que le modèle est structurellement et ponctuellement stable.

Tableau 6 : Résultats de l'analyse de la robustesse

Nature du test	Test	F-statistic	Prob.
Normalité	Jarque-Bera	1,17450	0,478426
Hétéroscédasticité	Breusch-Pagan-Godfrey	0,22713	0,8811
Autocorrélation	Breusch-Godfrey	0,90036	0,8860
Spécification Ramsey	Ramsey (Fisher)	3,61509	0,91672

Source : Auteurs sous eviews.

De ces mêmes estimations, il ressort que le taux optimal de taxation hors pétrole au Congo est de 34,07 % et se situe, pour un seuil de confiance de 95 %, entre 24,62 % et 36,31 % du PIB. Cependant, le taux de prélèvement fiscal hors pétrole effectif se situe en moyenne autour de 21,93 % (FMI, 2017). Il s'ensuit donc que le taux d'imposition effectif hors pétrole au Congo est largement inférieur à son niveau optimal, si bien que l'effort fiscal qui en résulte est négatif soit -12,14. Le Congo dispose donc encore de très larges marges de manœuvre lui permettant d'améliorer ses recettes fiscales hors pétrole sans trop engendrer de distorsions économiques. Dans cette approche, la portée de l'effort fiscal hors pétrole est supérieure à celle de l'approche du potentiel fiscal, justifiant ainsi un niveau plus élevé du potentiel fiscal hors pétrole sous-exploité.

À l'évidence, du fait qu'elle permet de suivre l'évolution du potentiel fiscal et d'identifier ses déterminants, ce qui facilite la mise en place des réformes appropriées, la méthode du potentiel fiscal apparaît plus avantageuse que celle de la taxation optimale. Ceci tient au fait que la perte des recettes fiscales hors pétrole enregistrée dans la méthode de la taxation optimale ressort très élevée. L'utilisation du modèle à budget déséquilibré financé par emprunt et/ou par cumul d'arriérés de paiement peut expliquer un tel résultat. En théorie, l'emprunt élevé exerce un impact négatif sur les recettes fiscales et,

ce, d'autant plus que la dette publique du Congo est insoutenable avec pour conséquence un espace budgétaire négatif. Le financement du déficit par le cumul d'arriérés réduit les assiettes imposables et donc les recettes fiscales hors pétrole, ce qui contribue à la portée plus élevée de cet effort fiscal hors pétrole négatif. En neutralisant l'effet de l'emprunt et du cumul d'arriérés par l'utilisation du modèle du budget équilibré à la Barro (1990), l'effort fiscal hors pétrole serait peut-être dans les mêmes proportions que celui obtenu par la méthode du potentiel fiscal.

Autrement dit, la prise en compte de l'endettement et du cumul d'arriérés dans le modèle du potentiel fiscal aurait certainement pu permettre d'obtenir un effort fiscal moyen sensiblement égal à celui obtenu par la méthode de la taxation optimale. Faute de n'avoir pris en compte de ces deux variables dans le modèle du potentiel fiscal constitue certainement l'une des principales limites de cette recherche. En tenant compte du résultat de l'approche de la taxation optimale, le Congo peut améliorer son potentiel fiscal par la renégociation de sa dette publique et l'apurement des arriérés de paiement envers ses fournisseurs intérieurs. À cela, il convient d'ajouter les implications de politique économique résultant des résultats du modèle 1.

Conclusion et implications de politique économique

L'objet de cette recherche a été de répondre à la question suivante : peut-on encore augmenter le niveau de recettes fiscales hors pétrole au Congo ? À cet effet, deux approches ont été utilisées, à savoir l'approche du potentiel fiscal et l'approche de la taxation optimale. Les résultats des deux approches confirment l'hypothèse d'un effort fiscal hors pétrole négatif, ce qui signifie qu'il est encore possible d'augmenter les recettes fiscales hors pétrole au Congo. Cependant, la portée de l'effort fiscal négatif obtenu par la méthode de la taxation optimale est plus élevée que celle de l'effort fiscal obtenu par l'approche du potentiel fiscal.

Cet écart dans les résultats est tout simplement lié à la non prise en compte de la dette publique et du cumul d'arriérés de paiement dans l'approche du potentiel fiscal (Tanzi, 1992). Cette omission constitue la principale limite de cette recherche. Toutefois, selon l'approche du potentiel fiscal, la profondeur du marché financier et la production des biens échangeables influencent positivement le niveau du prélèvement fiscal hors pétrole, tandis que la corruption l'influence négativement.

En guise d'implications de politique économique, des mesures visant à élever le potentiel fiscal hors pétrole et à améliorer l'effort fiscal hors pétrole devraient être envisagées par les autorités congolaises. De telles mesures viseraient prioritairement à lutter contre la corruption et à améliorer la qualité institutionnelle. En outre, il est question de renégocier la dette publique, de créer les conditions d'apurement des arriérés de paiement envers les

fournisseurs. De plus, afin de réduire l'ampleur du déficit budgétaire quasi-chronique en République du Congo, les décideurs publics devraient envisager la mise en place d'un office de revenu, tout en renforçant l'efficacité du secteur financier, assorti de la mise en place des procédures de télédéclaration, de télépaiement et de mobile money, et surtout l'affinement de la stratégie de l'imposition du secteur informel tout en engageant la suppression des mesures d'incitations fiscales devenues sans objet, ainsi que des exonérations discrétionnaires. D'un point de vue macroéconomique, ces mesures devraient enfin permettre d'entreprendre des réformes visant à augmenter la production et les exportations des biens échangeables tout en luttant contre les flux financiers illicites.

Conflit d'intérêts : Les auteurs n'ont signalé aucun conflit d'intérêts.

Disponibilité des données : Toutes les données sont incluses dans le contenu de l'article.

Déclaration de financement : Les auteurs n'ont obtenu aucun financement pour cette recherche.

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Appendix

Tableau A1 : Résultat du test de cointégration de Pesaran et al. (2001)

ARDL Bounds test		
Test statistic	Valeur	K
F-statistic	3.990632	6
Critical value bounds		
Significance	I(0) bound	I(1) bound
10%	1.99	2.94
5%	2.27	3.28
2,5%	2.55	3.61
1%	2.88	3.94

Tableau A2 : Résultats des coefficients de court terme et de long terme

Select ARDL				
Estimated ARDL model				
Résultats de court terme				
Variable	Coefficient	Std. Error	t-statistic	Prob,
D(TPF(-1))	-1,989672	0,253514	-7,848371	0,08072
D(OUV)	-1,446505	0,206706	-6,997885	0,09049
D(VAA)	0,285152	0,045791	3,156920	0,19536
D(PIBHPH)	0,429492	0,068971	6,227138	0,01014
D(PEHP)	0,781650	0,129982	-6,013524	0,02490
D(PMF)	1,366038	0,181467	-7,527743	0,04412
D(CORRUP)	-1,125046	0,155827	-7,219838	0,08768
CointEq(-1)*	-0,049742	0,005466	-9,100551	0,02695
Résultats de long terme				
Variable	Coefficient	Std. Error	t-statistic	Prob,
OUV	-0,896484	6,386382	0,103743	0,04576
VAA	0,021463	0,008372	2,563664	0,01764
PIBHPH	0,322895	0,103861	-3,108914	0,04995
PEHP	5,417253	1,498490	3,615141	0,03112
PMF	1,699105	0,383655	4,428732	0,02937
CORRUP	3,449578	3,844289	0,897325	0,56109
R ² = 0,779654				
S.E = 2,049086				

Date: 01/25/26 Time: 16:37
 Sample: 1985 2022
 Included observations: 38

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat	Prob	
		1	0.177	0.177	1.2803	0.258
		2	-0.278	-0.320	4.5532	0.103
		3	-0.181	-0.068	5.9713	0.113
		4	-0.152	-0.215	7.0074	0.135
		5	-0.122	-0.154	7.6976	0.174
		6	-0.195	-0.336	9.5099	0.147
		7	0.118	0.064	10.189	0.178
		8	0.386	0.155	17.753	0.023
		9	0.068	-0.080	17.998	0.035
		10	-0.043	0.089	18.097	0.053
		11	-0.154	-0.151	19.436	0.054
		12	-0.140	-0.032	20.579	0.057
		13	0.035	0.091	20.654	0.080
		14	-0.088	-0.100	21.143	0.098
		15	0.004	-0.041	21.144	0.132
		16	-0.018	-0.260	21.166	0.172

Figure A1 : Test de stationnarité des erreurs du modèle 1

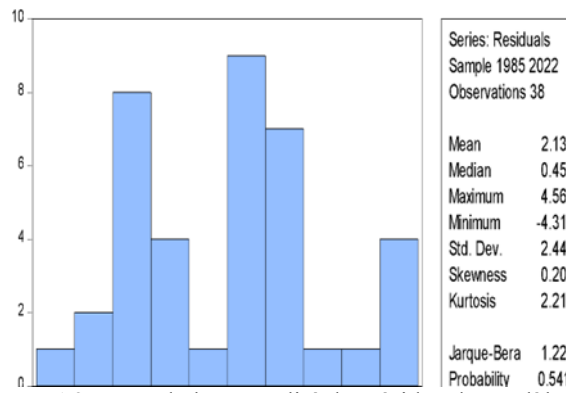


Figure A2 : Test de la normalité des résidus du modèle 1

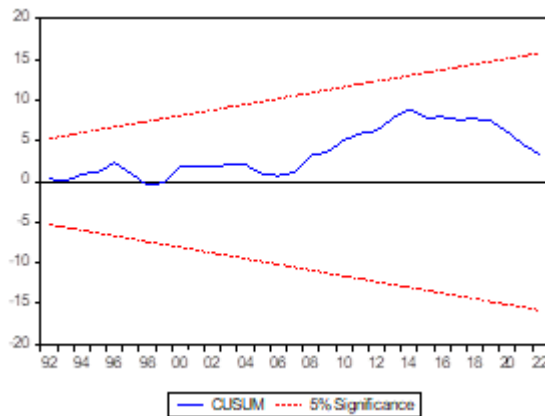


Figure A3 : Tests de Cusum et de Cusum au carré du modèle 1

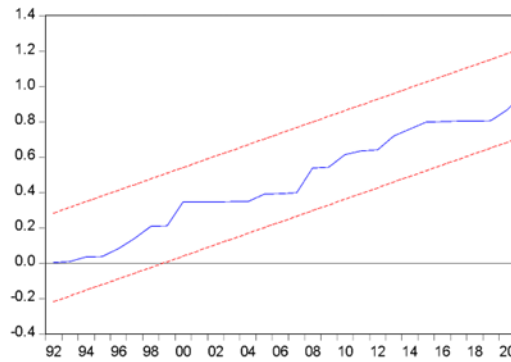


Figure A4 : Test de la stationnarité des résidus du modèle 2

Date: 01/25/26 Time: 17:17

Sample: 1985 2022

Included observations: 34

Q-statistic probabilities adjusted for 4 dynamic regressors

Autocorrelation	Partial Correlation	AC	PAC	Q-Stat
		1 -0.3...	-0.3...	5.606...
		2 0.11...	-0.0...	6.134...
		3 -0.1...	-0.1...	7.403...
		4 -0.0...	-0.1...	7.412...
		5 0.19...	0.15...	8.938...
		6 -0.0...	0.01...	9.338...
		7 0.01...	-0.0...	9.354...
		8 -0.3...	-0.3...	14.56...
		9 0.07...	-0.2...	14.84...
		10 -0.0...	-0.1...	14.84...
		11 0.15...	0.00...	16.10...
		12 -0.1...	-0.1...	17.44...
		13 0.08...	0.03...	17.81...
		14 -0.0...	0.05...	17.83...
		15 0.14...	0.11...	19.16...
		16 -0.0...	-0.2...	19.49...

*Probabilities may not be valid for this equation specification.

Figure A5 : Test de la normalité des résidus du modèle 2

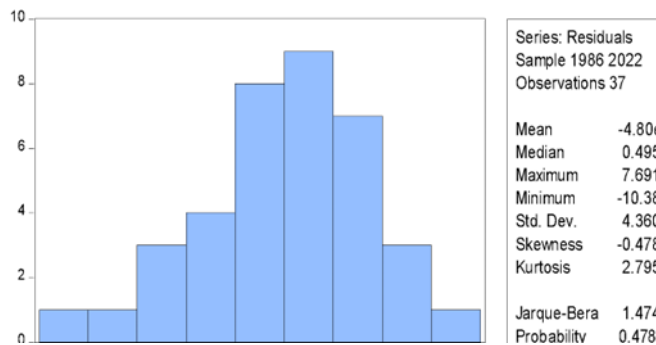


Figure A6 : Tests de CUSUM et de CUSUM au carré du modèle 2