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# *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 century[1]. 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

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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***

***European Scientific Journal (ESJ) Natural/Life/Medical Sciences***

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# Cross-Border Equity Market Integration and Corporate Investment Efficiency: Evidence from China's Stock Connect

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## Abstract

This paper investigates a fundamental empirical question in international finance: when stock markets become more connected across borders, does that actually push companies to make better investment decisions? To examine this, China's Stock Connect program, encompassing the Shanghai-Hong Kong and Shenzhen-Hong Kong channels, is used as a real-world test case. These programs serve as a quasi-natural experiment to identify the causal effects of foreign investor participation. What makes this setup useful is that it allows foreign investors to trade shares in certain Chinese companies without changing how those companies are run internally, so any behavioral shifts can be traced back to market integration itself.

Drawing on data from Chinese publicly listed companies between 2010 and 2023, the study measures how far each firm's investment decisions stray from the optimal level. Through regression analysis controlling for individual company characteristics and broader yearly trends, the paper tracks what happens to firms once they join the program. The empirical analysis uses firm and year fixed effects models together with an event-study framework to examine how investment behavior evolves before and after firms gain access to cross-border investors.

The findings are fairly clear: companies that joined the cross-border trading program became noticeably better at allocating capital compared to those that didn't. The improvement unfolds gradually rather than immediately,

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suggesting firms need time to adjust to new investor dynamics. These findings hold up across different measures of investment efficiency and different sample configurations.

Overall, this study offers a firm-level perspective on the real effects of financial integration at the firm level. It shows that opening equity markets to a broader pool of international investors can meaningfully improve how companies deploy their resources.

**Keywords:** Equity market integration, investment efficiency, cross-border equity trading, firm-level investment behavior, capital allocation efficiency

## Introduction

Efficient investment lies at the core of whether financial markets ultimately generate real economic value. In theory, firms should allocate resources toward projects with positive net present value while avoiding investments that destroy value. In practice, however, corporate investment decisions are often affected by information asymmetry, financing constraints, and agency conflicts between managers and shareholders. These frictions can distort investment decisions and push firms away from optimal capital allocation. Prior research shows that limited access to external finance and informational problems may lead firms to either over-invest in unprofitable projects or under-invest in valuable opportunities (Almeida & Campello, 2007; Ascioglu et al., 2008). Such distortions are particularly pronounced in emerging markets, where financial systems are still developing, and investor participation remains uneven. As a result, inefficient capital allocation remains a persistent challenge for firms operating in these markets (Richardson, 2006).

Despite the importance of efficient capital allocation, it remains unclear whether financial market integration and expanded investor access can effectively improve corporate investment efficiency in emerging markets. Although financial liberalization policies aim to improve capital allocation and market efficiency, empirical evidence on whether these reforms translate into improved firm-level investment decisions remains inconclusive. This question is particularly relevant in the context of China's gradual capital market opening, where institutional reforms have selectively expanded access to foreign investors rather than fully liberalizing the capital account.

A central institutional development in this process is the introduction of the Shanghai-Hong Kong Stock Connect (2014) and Shenzhen-Hong Kong Stock Connect (2016) programs. These programs allow international investors to directly trade a subset of Chinese A-share firms while preserving existing domestic regulatory and corporate governance structures. Importantly, firm eligibility is determined by transparent exchange-level criteria such as market capitalization, liquidity, and index inclusion, creating a quasi-natural

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experimental setting. This institutional design provides a unique opportunity to identify the causal effects of expanded investor access on corporate investment behavior.

A growing body of literature suggests that financial market integration can help alleviate investment distortions by improving information transparency, strengthening investor monitoring, and reducing financing constraints. When a broader set of investors participates in financial markets, stock prices tend to incorporate more information about firm fundamentals, allowing markets to discipline corporate investment decisions more effectively (Bekaert et al., 2005). In the context of the Stock Connect programs, foreign investor participation has increased market liquidity, enhanced price informativeness, and improved firms' access to external capital. (Deng et al., 2025). At the same time, greater capital market openness may introduce new market dynamics, as institutional opening and global index inclusion can increase investor attention and liquidity, potentially influencing price formation and corporate behavior (Zhang & Ping, 2025).

Recent studies highlight that the economic consequences of financial liberalization depend on institutional design and market conditions. Some evidence suggests that capital market opening improves firm performance and investment behavior through stronger monitoring and improved information environments (Zhao et al., 2024; Jiang et al., 2025). However, other research finds that the real effects of equity market liberalization remain mixed, particularly in economies where financial opening occurs gradually rather than through full capital account liberalization (McLean et al., 2022). In addition, regulatory quality and enforcement capacity may influence how financial market signals translate into real investment decisions (Christensen et al., 2016).

Identifying the effects of financial market integration empirically is challenging because firms that gain access to international investors may differ systematically from those that do not. Institutional reforms that expand investor participation based on predetermined eligibility rules provide a useful quasi-natural experiment for examining these effects. The Stock Connect programs are particularly well suited for this purpose, as they expand investor access without directly altering firms' internal governance structures, allowing observed changes in corporate behavior to be more cleanly attributed to shifts in the external investor environment (Jiang et al., 2025).

Against this backdrop, this study investigates whether expanded investor access through cross-border equity market integration improves corporate investment efficiency. Specifically, the analysis exploits the staggered implementation of the Stock Connect programs as a quasi-natural experiment to examine how firm-level investment behavior changes following inclusion in the program. The population of this study consists of all non-

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financial A-share firms listed on the Shanghai and Shenzhen Stock Exchanges between 2010 and 2023. Using panel data for these firms, the analysis evaluates whether companies that gain access to international investors experience changes in investment efficiency relative to firms that do not participate in cross-border trading.

Investment efficiency is measured as the deviation between actual investment and predicted optimal investment, capturing both over-investment and under-investment. The empirical analysis employs firm and year fixed-effects models together with an event-study framework to examine how investment behavior evolves before and after firms gain access to international investors (Zhao et al., 2024). Additional robustness tests, including propensity score matching, are used to address potential selection bias.

By examining firm-level investment behavior under a quasi-natural experiment created by cross-border equity trading reforms, this study contributes to the literature on financial market integration by providing new evidence on how international investor participation influences corporate capital allocation efficiency in emerging markets. Compared with existing studies, this paper places the Stock Connect programs at the center of the empirical design, thereby offering more direct evidence on the causal impact of institutionalized investor access on firm behavior.

This study contributes to the literature in three ways. First, it provides firm-level evidence on how cross-border equity market integration affects corporate investment efficiency in an emerging market context, extending research that has largely focused on aggregate market outcomes.

Second, the study exploits China's cross-border equity trading reforms as a quasi-natural experiment and applies fixed effects models, event-study analysis, and propensity score matching to identify the causal effects of investor access on corporate investment behavior.

Third, the study links improvements in investment efficiency to firm-level productivity, showing that financial market integration can influence real economic outcomes through more efficient capital allocation.

## Literature review

*Financial market integration and investment efficiency*

A substantial body of research examines how financial market integration influences corporate investment decisions. In a frictionless environment, firms would simply invest in every project with a positive expected return. In reality, however, investment decisions are often shaped by information asymmetries, borrowing constraints, and conflicts between managers and shareholders. These frictions can lead firms to deviate from optimal investment levels, resulting in either over-investment in unproductive

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projects or under-investment in valuable opportunities (Richardson, 2006; Almeida & Campello, 2007).

Financial market integration has been proposed as a potential mechanism for alleviating these distortions. When firms gain access to a broader investor base, stock prices tend to incorporate more information about firm fundamentals, improving price informativeness and facilitating more efficient capital allocation. Empirical evidence from financial liberalization episodes suggests that integration shocks are often associated with lower financing costs, increased investment, and improved firm performance, particularly in emerging markets where financial segmentation is initially high (Bekaert et al., 2005).

In the Chinese context, recent institutional reforms such as the Shanghai-Hong Kong and Shenzhen-Hong Kong Stock Connect programs have significantly expanded investor participation and improved firms' access to external capital markets. These reforms have strengthened firms' financing capacity and facilitated greater integration with global capital markets (Jiang et al., 2025). At the same time, capital market liberalization can enhance information transparency, increase capital mobility, and strengthen external investor monitoring, which together may contribute to more efficient corporate resource allocation (Deng et al., 2025).

Despite these potential benefits, empirical evidence on the real effects of equity market integration remains mixed. Some studies find that financial liberalization improves firm-level investment efficiency, while others suggest that the effects depend heavily on institutional quality and regulatory enforcement. In markets where financial opening occurs gradually or where institutional protections remain weak, the benefits of integration may be less pronounced (McLean et al., 2022). More recent work also emphasizes that the effectiveness of financial integration depends on the design of the reform and the empirical strategies used to identify its effects (Christensen et al., 2016).

*Investor access, information environment, and monitoring*

A related stream of literature focuses on how investor access influences the information environment surrounding firms. Outside investors, particularly institutional investors, play an important role in generating and processing information through research activities, trading behavior, and direct monitoring of management. Their presence can improve corporate transparency and reduce information asymmetries between firms and capital providers (Ferreira & Matos, 2008; Chen et al., 2007).

Improved information environments can directly influence investment efficiency. When investors are better able to evaluate firm fundamentals, they can exert stronger pressure on managers to allocate resources more effectively and avoid inefficient investment decisions.

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Foreign investor participation is particularly relevant in emerging markets, where local information frictions are typically more severe. Prior research shows that foreign investors contribute to price discovery and facilitate information transmission across markets, strengthening the link between stock prices and firm fundamentals (Bae et al., 2012). Similarly, capital market opening policies can attract greater investor attention and increase market transparency, which in turn influences firms' valuation and corporate decision-making through enhanced monitoring and information flows (Zhang & Ping, 2025).

At the same time, changes in investor composition can influence corporate governance structures. Increased institutional ownership may strengthen oversight and reduce agency problems, suggesting that the effects of market integration can operate through governance channels as well as financing channels (Aggarwal et al., 2011; Bae & Goyal, 2010).

However, the literature also highlights potential trade-offs. Greater market visibility and investor scrutiny may increase pressure on managers to deliver strong short-term performance. As a result, managers may become reluctant to pursue long-term investment projects whose benefits materialize only in the future. Studies on managerial myopia suggest that increased market pressure can sometimes distort long-term investment incentives (Kraft et al., 2018).

*Liquidity, financing constraints, and investment behavior*

Stock liquidity represents another important channel linking financial markets to firms' real investment decisions. Higher liquidity reduces transaction costs and improves price efficiency, which can lower firms' cost of capital and facilitate external financing. Classic theoretical work shows that improvements in disclosure and liquidity can reduce the cost of capital and influence firms' investment decisions through improved financing conditions.

Consistent with this view, research on financing constraints demonstrates that firms' investment behavior is often strongly tied to external funding availability, particularly when internal funds are limited. More recent empirical studies further show that financial market innovations and capital market instruments can alleviate financing constraints and improve corporate investment efficiency by expanding financing channels and improving capital allocation mechanisms (Liu, 2025).

Nevertheless, the relationship between liquidity and investment efficiency is not entirely straightforward. While improved liquidity can facilitate external financing, it may also allow investors to exit more easily rather than actively monitor management. This dynamic may weaken corporate oversight and potentially increase agency problems.

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For this reason, governance mechanisms remain central in determining how liquidity affects corporate investment behavior. The impact of liquidity on investment efficiency often depends on the type of investors holding a firm's shares and whether those investors possess the incentives and time horizons necessary to engage in active monitoring (Attig et al., 2012).

*Heterogeneity in the effects of market integration*

Another consistent finding in the literature is that the benefits of financial market integration are not evenly distributed across firms. Firms facing tighter financing constraints, weaker governance structures, or operating in less developed financial markets often benefit more from expanded investor access and improved monitoring.

Ownership structure and institutional environments also play an important role. In settings where internal governance mechanisms are weak, external market discipline can partially substitute for internal controls, improving corporate investment decisions through stronger monitoring and improved price informativeness (Aggarwal et al., 2011; Chen et al., 2007).

Recent studies examining financial liberalization in China further suggest that the effects of capital market opening vary across firms depending on factors such as ownership structure, industry characteristics, and financing conditions. These differences highlight the heterogeneous ways in which firms respond to institutional reforms (Zhang et al., 2024).

In addition, investor horizons and ownership composition may influence whether financial integration promotes long-term investment or increases short-term pressures. Evidence suggests that increased investor attention can either improve capital allocation or intensify managerial short-termism depending on the trading behavior and investment horizons of participating investors (Kraft et al., 2018; Zhao et al., 2024).

## Research hypotheses

*Investor access and investment efficiency*

In imperfect capital markets, firms may deviate from optimal investment due to information asymmetry, agency conflicts, and financing constraints. Prior research shows that asymmetric information and limited external finance can distort corporate investment decisions, leading to either overinvestment or underinvestment relative to fundamentals (Almeida & Campello, 2007; Ascioglu et al., 2008; Richardson, 2006). When investor participation is limited, stock prices may not fully reflect firm fundamentals, and managerial decisions may face weaker external discipline.

Expanding investor access can improve price informativeness, increase external monitoring, and reduce financing frictions. Institutional and foreign investors play an important role in information production and

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corporate governance, enhancing transparency and strengthening oversight (Ferreira & Matos, 2008; Aggarwal et al., 2011). In emerging markets, foreign participation has been shown to facilitate information transmission and improve market efficiency (Bae et al., 2012). More recent evidence from China's cross-border trading programs shows that stock market liberalization can meaningfully influence firms' long-term investment behavior by reshaping investor composition, improving information transparency, and alleviating financing constraints (Zhao et al., 2024; Deng et al., 2025).

At the macro and firm levels, liberalization and broader market access are often associated with improved operating performance, expanded access to capital, and more efficient capital allocation (Moshirian et al., 2021). In addition, capital market liberalization can enhance firms' access to external financing and strengthen international investment activities, particularly through institutional reforms such as the Stock Connect programs (Jiang et al., 2025). Taken together, these mechanisms suggest that expanded investor participation should improve capital allocation efficiency at the firm level.

Hypothesis 1: Expanded investor access reduces firm-level investment inefficiency by improving information efficiency, strengthening external monitoring, and alleviating financing constraints.

*Dynamic effects and investment adjustment*

Corporate investment decisions do not typically adjust immediately following a structural change in market access. Firms often require time to adapt their governance practices, internal decision-making processes, and financing structures when new investors enter the market. As the information environment improves and investor monitoring intensifies, firms may gradually adjust their investment behavior toward more efficient capital allocation. Prior research on financial market reforms suggests that the real effects of liberalization often emerge progressively as firms adapt to improved financing conditions and enhanced market discipline (Bekaert et al., 2005). In addition, institutional reforms that expand investor participation can influence firms' strategic investment behavior over time as financial constraints are relaxed and external monitoring becomes stronger (Deng et al., 2025). From a theoretical perspective, these mechanisms imply that the impact of expanded investor access may not appear immediately but instead strengthen over time as firms adjust to the new market environment.

Hypothesis 2: The effect of expanded investor access on investment efficiency emerges gradually and strengthens over time as firms adjust to improved information environments and enhanced investor monitoring.

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*Firm characteristics and heterogeneous investment responses*

Firm-level characteristics can influence how companies respond to expanded investor participation. In corporate finance research, firms often differ in terms of size, profitability, growth opportunities, and governance structures, which can affect their investment behavior and access to external financing. Prior studies highlight that observable firm characteristics play an important role in shaping corporate investment decisions and financial constraints (Roberts & Whited, 2013).

When firms gain access to a broader investor base, improvements in monitoring, information transparency, and financing conditions may influence their investment decisions. However, these effects may vary depending on firm characteristics such as ownership structure, financial health, and governance quality. Firms with stronger governance structures or better access to external financing may already invest efficiently, while firms facing tighter financial constraints or weaker monitoring may benefit more from expanded investor participation. From this perspective, the relationship between investor access and investment efficiency should persist even after accounting for differences in firm characteristics.

Hypothesis 3: Expanded investor access improves corporate investment efficiency after controlling for firm-level characteristics, although the magnitude of the effect may vary across firms.

*Investment efficiency and capital allocation mechanisms*

Investment inefficiency cannot be observed directly and is typically inferred from deviations between actual and expected investment levels. Prior research shows that corporate investment decisions may deviate from optimal levels due to financing constraints, information asymmetries, and agency conflicts between managers and shareholders (Richardson, 2006; Almeida & Campello, 2007). These frictions can lead firms to either over-invest in unproductive projects or under-invest in valuable investment opportunities.

Expanded investor participation may help mitigate these distortions by improving the information environment, strengthening external monitoring, and easing financing constraints. As capital markets become more open and investors gain greater access to firms, stock prices can incorporate more firm-specific information, providing clearer signals that guide managerial investment decisions. Previous studies also suggest that improvements in the financial environment and capital market development can enhance corporate investment efficiency by improving capital allocation and reducing financing frictions (Liu, 2025). These mechanisms suggest that expanded investor access improves capital allocation by reducing deviations from optimal investment levels.

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Hypothesis 4: Expanded investor access reduces deviations from optimal investment by improving information efficiency and strengthening market-based discipline.

*Investment efficiency and productivity outcomes*

Improvements in capital allocation may generate broader real economic consequences. When firms allocate resources more efficiently, they are better positioned to invest in productive technologies, enhance operational efficiency, and improve long-term performance. Research on financial liberalization and integration shows that reforms can affect not only financial variables but also long-term corporate investment and innovation outcomes (Bekaert et al., 2005; Moshirian et al., 2021; Zhao et al., 2024). In addition, capital market liberalization can stimulate firms' strategic investments and technological transformation by reducing agency costs and easing financial constraints (Deng et al., 2025).

Rather than treating productivity as the primary treatment outcome, this study considers firm-level total factor productivity as a secondary consequence of improved capital allocation. If reductions in investment inefficiency are associated with higher productivity, this would suggest that expanded investor access influences real firm performance through more efficient resource allocation.

Hypothesis 5: Reductions in investment inefficiency are associated with higher firm-level productivity, indicating that improved capital allocation translates into real performance gains.

## Methods

*Sample selection*

The sample consists of all non-financial A-share firms listed on the Shanghai and Shenzhen Stock Exchanges over the period 2010-2023. Financial firms are excluded due to their distinct regulatory environments and investment behavior. Observations with missing key financial variables or abnormal accounting values are removed to ensure data quality.

Firm-year data are obtained from annual financial reports and market databases. Because different model specifications require different variables, the number of observations varies across regressions. The baseline investment inefficiency models include approximately 16,500-16,900 firm-year observations, while alternative specifications expand the sample to around 19,000 observations. Productivity regressions, which require additional inputs for total factor productivity estimation, include approximately 15,900-16,000 observations.

Treatment status is defined based on firms' eligibility for expanded investor participation under the Stock Connect program. Firms enter the

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treatment group in the year they become eligible, resulting in a staggered treatment structure. All continuous variables are winsorized at the 1st and 99th percentiles. The panel remains unbalanced to preserve available observations across specifications.

*Variables definition*

The primary dependent variable is firm-level investment inefficiency, defined as the deviation between actual and expected investment. Following Richardson (2006), inefficiency is proxied using residual-based measures derived from investment models. The detailed construction is described below.

Following Richardson (2006), expected investment is estimated as a function of firm fundamentals:

$$Investment_{it} = \alpha + \beta_1 Growth_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_2 Lev_{i,t-1} + \beta_3 Cash_{i,t-1} + \beta_4 Size_{i,t-1} + \beta_5 Return_{i,t-1} + \beta_6 Age_{i,t-1} + \beta_7 Investment_{i,t-1} + \varepsilon_{it}$$

where $Investment_{it}$ denotes firm investment, typically measured as capital expenditures scaled by total assets. The explanatory variables capture firm characteristics that determine optimal investment. Specifically, *Growth* represents firm growth opportunities measured by sales growth, *Lev* denotes financial leverage defined as total liabilities divided by total assets, and *Cash* captures internal liquidity measured as cash holdings scaled by total assets. *Size* is the natural logarithm of total assets, *Return* reflects past stock performance, *Age* measures firm maturity based on years since listing, and lagged *Investment* accounts for investment persistence. All explanatory variables are lagged by one period to mitigate simultaneity concerns.

Investment inefficiency is defined as the absolute value of the residual:

$$InefficientInvestment_{it} = |\varepsilon_{it}|$$

Higher values indicate greater deviations from optimal investment, reflecting both over-investment and under-investment.

To ensure robustness, alternative measures of investment inefficiency are constructed using established approaches, including a Tobin's Q-based model (Hayashi, 1982), a GMM-based specification, and residual-based measures following Biddle et al. (2009).

*Key variables*

The main explanatory variable is:

$$InvestorAccess_{it}$$

which equals one if firm $i$ is eligible for cross-border investor participation in year $t$ and thereafter, and zero otherwise. This variable captures structural changes in investor accessibility rather than short-term trading activity.

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Control variables include standard firm-level characteristics commonly used in corporate finance literature, such as firm size, leverage, profitability, growth opportunities, ownership structure, and governance attributes. All control variables are lagged by one period to mitigate potential endogeneity concerns. Detailed definitions and measurement procedures for all variables are provided in Table 1.

Firm fixed effects are included to control for unobserved, time-invariant heterogeneity across firms, while year fixed effects account for common macroeconomic shocks and time-specific factors affecting all firms.

**Table 1:** Definition and measurement of variables used in the analysis

| | | |
|---|---|---|
| Explained variables | InefficientInvestment | Absolute residual from the investment model following Richardson (2006), capturing deviations from optimal investment |
| | II_Biddle | Investment inefficiency measure based on the Biddle et al.(2009) model using residuals from expected investment |
| | II_Chen | Investment inefficiency measure based on Chen et al. (2007) model using residual-based estimation |
| Explanatory variables | InvestorAccess | Dummy variable equal to 1 if firm i is eligible for cross-border investor participation in year t and thereafter, and 0 otherwise |
| Control variables | Size | Natural logarithm of total assets for the year |
| | Lev | Total liabilities at the end of the year divided by total assets at the end of the year |
| | ROA | Return on assets, measured as net income divided by average total assets |
| | Growth | Operating income for the year / Operating income for the previous year - 1 |
| | Board | Natural logarithm of the number of board directors |
| | Indep | Independent directors divided by the number of directors |
| | Dual | Dummy variable equal to 1 if the Chairman and CEO positions are held by the same individual, and 0 otherwise |
| | Top1 | Number of shares held by the largest shareholder / Total number of shares |
| | BM | Book value / total market value |
| | SOE | Dummy variable taking the value of 1 if the company is a state-controlled enterprise, 0 otherwise. |
| | ListAge | ln (current year - year of listing + 1) |
| | Dturn | Current year average monthly stock turnover rate - Last year average monthly stock turnover rate |
| | INST | Institutional ownership, measured as the average proportion of shares held by institutional investors during the year |

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*Baseline two-way fixed effects model*

To test whether expanded investor access improves investment efficiency, the following two-way fixed effects difference-in-differences specification is estimated:

$$InefficientInvestment_{it} = \alpha + \beta InvestorAccess_{it} + \delta X_{it-1} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where $\mu_i$ denotes firm fixed effects and $\lambda_t$ denotes year fixed effects. The coefficient $\beta$ captures the within-firm change in investment inefficiency associated with expanded investor access. A negative and statistically significant estimate indicates that expanded investor access is associated with lower investment inefficiency. Standard errors are clustered at the firm level to account for serial correlation.

*Dynamic treatment effects and identification*

To examine the dynamic adjustment of investment efficiency following expanded investor access, this study employs an event-study specification that estimates treatment effects relative to the timing of firms' eligibility for cross-border investor participation:

$$InefficientInvestment_{it} = \alpha + \sum_{k \neq -1} \theta_k D_{i,t+k} + \delta X_{it-1} + \mu_i + \lambda_t + \varepsilon_{it}$$

Where $D_{i,t+k}$ are indicator variables capturing event time relative to treatment, with $k$ indexing the number of years before and after a firm becomes eligible for cross-border investor participation. The period immediately preceding treatment $k = -1$ is omitted and serves as the reference category. The event window spans three years before and three years after treatment (t-3 to t+3).

This specification allows the analysis to trace the evolution of investment efficiency both prior to and following the introduction of investor access. In particular, the coefficients on pre-treatment indicators provide a direct test of the parallel trends assumption by assessing whether treated and control firms exhibit similar investment behavior before treatment. The post-treatment coefficients capture the dynamic adjustment process, illustrating how the impact of expanded investor access unfolds over time.

*Selection bias and matching framework*

To address potential selection bias, propensity score matching is applied to construct a control group of firms with similar pre-treatment characteristics. Treatment probability is estimated using a logit model based on firm characteristics such as size, leverage, profitability, growth opportunities, and ownership structure.

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Matched samples are constructed using nearest neighbor, radius, and kernel matching methods. The baseline model is then re-estimated on the matched sample to verify robustness.

*Robustness and alternative specifications*

To ensure that results are not driven by a specific measurement approach, the analysis is repeated using alternative proxies for investment inefficiency. Consistent results across specifications strengthen the validity of the findings.

*Productivity outcome specification*

To evaluate whether improvements in capital allocation translate into real economic gains, firm productivity is modeled as:

$$TFP_{it} = \alpha + \beta InefficientInvestment_{it} = \alpha + \beta\ InvestorAccess_{it} + \delta X_{it-1} + \mu_i + \lambda_t + \varepsilon_{it}$$

The coefficient $\beta$ captures the relationship between investment inefficiency and productivity. A negative and statistically significant estimate indicates that reductions in investment inefficiency are associated with higher firm-level productivity.

Including both investment inefficiency and investor access allows the analysis to distinguish between the direct association of expanded investor participation and the indirect channel operating through improved capital allocation.

## Results

*Descriptive statistics*

Table 2 presents the descriptive statistics for the main variables used in the analysis. The results present the distribution of investment inefficiency, investor access, and firm-level control variables across the sample of non-financial A-share firms from 2010 to 2023. Overall, the statistics indicate substantial variation in firm characteristics, which provides suitable conditions for examining the relationship between cross-border investor participation and corporate investment efficiency.

**Table 2:** Descriptive statistics of key variables

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| InefficientInvestment | 29415 | .048 | .062 | 0 | .985 |
| Biddle | 31560 | .045 | .048 | 0 | .454 |
| Chen | 31560 | .044 | .047 | 0 | .453 |
| InvestorAccess | 33402 | .131 | .338 | 0 | 1 |
| POST | 33402 | .062 | .241 | 0 | 1 |
| Size | 28598 | 21.74 | 1.23 | 19.165 | 27.468 |
| Lev | 28598 | .444 | .205 | .027 | .991 |
| ROA | 28595 | .039 | .066 | -.517 | .245 |
| Growth | 28205 | .182 | .44 | -.75 | 5.587 |

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| | | | | | |
|---|---|---|---|---|---|
| BM | 28598 | .967 | .983 | .051 | 12.483 |
| SOE | 24684 | .455 | .498 | 0 | 1 |
| ListAge | 28598 | 1.916 | .855 | 0 | 3.332 |
| Dturn | 26481 | -.022 | .423 | -2.516 | 1.291 |
| INST | 28598 | .287 | .25 | 0 | .887 |
| Top1 | 25672 | .366 | .154 | .087 | .758 |
| Board | 28570 | 2.173 | .215 | 1.099 | 2.833 |
| Indep | 28570 | .34 | .101 | 0 | .6 |
| Dual | 28545 | .195 | .396 | 0 | 1 |

Note: t statistics in parentheses, * p < .1, ** p < .05, *** p < .01

*Baseline effects on investment efficiency*

The baseline fixed effects results show a statistically significant link between expanded investor access and investment inefficiency. Firms that are exposed to a broader group of investors have smaller deviations from their optimal investment levels compared to similar firms that do not have such access. The estimated coefficient on investor access is negative and economically meaningful, which points to better capital allocation at the firm level. These results support Hypothesis 1 and align with the idea that greater investor participation improves price informativeness and strengthens external monitoring. With better market signals available, managers seem less likely to overinvest or miss profitable investment opportunities when investor access expands.

Beyond statistical significance, the magnitude of the estimated coefficients is economically meaningful. In the baseline specification, the coefficient on InvestorAccess indicates a reduction in investment inefficiency of approximately 0.008-0.010 units following inclusion in the Stock Connect program. Given that the mean level of investment inefficiency in the sample is around 0.045-0.050, this effect corresponds to a reduction of roughly 16%-22% relative to the sample mean.

This magnitude suggests that expanded investor access leads to a substantial improvement in capital allocation efficiency rather than a marginal adjustment. The results imply that the presence of foreign investors enhances monitoring and information efficiency, thereby reducing both over-investment and under-investment behaviors. From an economic perspective, the effect size is consistent with the notion that financial market integration can meaningfully influence firm-level investment decisions in emerging markets.

**Table 3:** Baseline fixed effects estimates of the impact of investor access on investment inefficiency

| | (1) | (2) |
|---|---|---|
| | InefficientInvestment | InefficientInvestment |
| InvestorAccess | -0.00815** | -0.00777** |
| | (-2.43) | (-2.35) |
| Size | | 0.0260*** |
| | | (8.60) |

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| | | |
|---|---|---|
| Lev | | -0.00289 |
| | | (-0.25) |
| ROA | | 0.00847 |
| | | (0.57) |
| Growth | | 0.0310*** |
| | | (8.37) |
| BM | | -0.00536*** |
| | | (-5.09) |
| SOE | | -0.00477 |
| | | (-0.95) |
| ListAge | | -0.0157*** |
| | | (-3.25) |
| Dturn | | 0.00210 |
| | | (1.11) |
| INST | | 0.0124*** |
| | | (2.76) |
| Top1 | | 0.00523 |
| | | (0.33) |
| Board | | -0.0130* |
| | | (-1.91) |
| Indep | | -0.0242 |
| | | (-1.34) |
| Dual | | 0.00137 |
| | | (0.65) |
| _cons | 0.0594*** | -0.434*** |
| | (27.34) | (-6.94) |
| N | 16897 | 16589 |
| adj. $R^2$ | 0.140 | 0.241 |
| Firm Fixed Effect | Yes | Yes |
| Year Fixed Effect | Yes | Yes |

*Dynamic adjustment and identification validity*

To check whether the baseline results reflect real causal effects instead of pre-existing trends, the analysis looks at dynamic treatment effects. The event-study results show no statistically significant differences in investment inefficiency between treated and control firms before the treatment, which supports the parallel trends assumption.

After firms are exposed to expanded investor access, investment inefficiency decreases gradually rather than right away. This slow adjustment suggests that firms change their investment behavior over time as monitoring becomes stronger and information conditions improve. The fact that the effect persists also shows that these improvements are not just short-term. These dynamic patterns provide strong support for Hypothesis 2 and reinforce the credibility of the identification strategy.

The dynamic treatment estimates further illustrate how the economic impact of expanded investor access evolves over time. The coefficients in the

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pre-treatment periods are statistically insignificant and close to zero, supporting the parallel trends assumption and indicating no systematic differences between treated and control firms prior to inclusion.

Following treatment, the estimated coefficients become negative and increase in magnitude over time, suggesting that the improvement in investment efficiency is not immediate but gradually strengthens in the years after firms gain access to foreign investors. Economically, this pattern implies that the benefits of market integration materialize progressively, likely reflecting the time required for foreign investors to influence corporate governance, information environments, and managerial decision-making.

By the third year after treatment, the cumulative reduction in investment inefficiency represents a meaningful proportion of the sample mean, reinforcing the conclusion that Stock Connect participation leads to sustained and economically significant improvements in capital allocation.

**Table 4:** Dynamic treatment effects and parallel trends test of investor access on investment inefficiency

| | (1)<br>InefficientInvestment |
|---|---|
| Treat×Before3 | 0.0143 |
| | (0.51) |
| Treat×Before2 | 0.0150 |
| | (0.70) |
| Treat×Before1 | 0.00261 |
| | (0.47) |
| Treat×After1 | -0.000292** |
| | (-2.04) |
| Treat×After2 | -0.00745** |
| | (-2.29) |
| Treat×After3 | -0.0114** |
| | (-2.15) |
| Size | 0.0263*** |
| | (8.63) |
| Lev | -0.00283 |
| | (-0.25) |
| ROA | 0.00746 |
| | (0.50) |
| Growth | 0.0309*** |
| | (8.36) |
| BM | -0.00555*** |
| | (-5.20) |
| SOE | -0.00462 |
| | (-0.92) |
| ListAge | -0.0157*** |
| | (-3.24) |
| Dturn | 0.00198 |
| | (1.04) |
| INST | 0.0122*** |

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| | |
|---|---|
| | (2.70) |
| Top1 | 0.00619 |
| | (0.39) |
| Board | -0.0130* |
| | (-1.92) |
| Indep | -0.0249 |
| | (-1.38) |
| Dual | 0.00140 |
| | (0.66) |
| _cons | -0.440*** |
| | (-7.00) |
| N | 16589 |
| adj. $R^2$ | 0.242 |
| Firm Fixed Effect | Yes |
| Year Fixed Effect | Yes |

*Robustness to selection bias*

Even though the fixed effects model controls for differences that do not change over time, selection bias can still be an issue. To deal with this, propensity score matching is used to build a control group of firms that look similar to treated firms before they gain investor access. The results from the matched sample are very similar to the baseline findings.

The effect of investor access on investment inefficiency is still negative and statistically significant, which suggests that the baseline results are not simply driven by observable differences between treated and control firms. This consistency strengthens the causal interpretation and supports Hypothesis 3. It is also important to note that matching is used as a validation tool rather than the main estimation method, which further confirms the robustness of the baseline results.

**Table 5:** Propensity score matching estimates of the effect of investor access on investment inefficiency

| | (1) Radius matching | (2) Kernel matching | (3) Nearest neighbor matching |
|---|---|---|---|
| | InefficientInvestment | InefficientInvestment | InefficientInvestment |
| InvestorAccess | -0.00794** | -0.00774** | -0.00798** |
| | (-2.31) | (-2.30) | (-2.34) |
| Size | 0.0266*** | 0.0261*** | 0.0261*** |
| | (8.66) | (8.60) | (8.59) |
| Lev | -0.00446 | -0.00291 | -0.00287 |
| | (-0.39) | (-0.26) | (-0.25) |
| ROA | -0.00381 | 0.00849 | 0.00856 |
| | (-0.23) | (0.57) | (0.57) |
| Growth | 0.0311*** | 0.0310*** | 0.0310*** |
| | (8.32) | (8.37) | (8.36) |
| BM | -0.00560*** | -0.00537*** | -0.00541*** |
| | (-5.23) | (-5.10) | (-5.10) |

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| | | | |
|---|---|---|---|
| SOE | -0.00485 | -0.00475 | -0.00474 |
| | (-0.96) | (-0.95) | (-0.95) |
| ListAge | -0.0164*** | -0.0158*** | -0.0158*** |
| | (-3.36) | (-3.26) | (-3.27) |
| Dturn | 0.00206 | 0.00212 | 0.00212 |
| | (1.09) | (1.12) | (1.12) |
| INST | 0.0127*** | 0.0125*** | 0.0125*** |
| | (2.80) | (2.77) | (2.77) |
| Top1 | 0.00546 | 0.00511 | 0.00525 |
| | (0.34) | (0.32) | (0.33) |
| Board | -0.0128* | -0.0133* | -0.0131* |
| | (-1.86) | (-1.95) | (-1.92) |
| Indep | -0.0229 | -0.0253 | -0.0255 |
| | (-1.25) | (-1.39) | (-1.40) |
| Dual | 0.000885 | 0.00137 | 0.00136 |
| | (0.42) | (0.65) | (0.64) |
| _cons | -0.444*** | -0.433*** | -0.433*** |
| | (-7.03) | (-6.92) | (-6.92) |
| N | 16469 | 16556 | 16530 |
| adj. $R^2$ | 0.242 | 0.241 | 0.241 |
| Firm FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |

*Sensitivity to measurement choice*

Since investment inefficiency cannot be observed directly, the baseline model is re-estimated using multiple alternative proxies to ensure the findings are not driven by any single measurement choice. Across all specifications, the relationship between investor access and investment inefficiency remains consistent in both sign and statistical significance, and while coefficient sizes shift slightly, the core conclusions hold.

This robustness across different definitions of the dependent variable provides strong support for Hypothesis 4.

**Table 6:** Robustness checks using alternative measures of investment inefficiency

| | (1) | (2) | (1) | (2) |
|---|---|---|---|---|
| | II_TobinQ | II_GMM | II_Biddle | II_Chen |
| InvestorAccess | -0.00793*** | -0.00352*** | -0.000828** | -0.000360** |
| | (-2.99) | (-3.19) | (-2.35) | (-2.16) |
| Size | 0.0187*** | 0.0204*** | 0.00340** | 0.00398*** |
| | (7.45) | (8.94) | (2.54) | (3.00) |
| Lev | 0.00393 | 0.00516 | 0.0203*** | 0.0200*** |
| | (0.42) | (0.57) | (4.24) | (4.20) |
| ROA | 0.0328*** | 0.0162 | 0.0309*** | 0.0355*** |
| | (2.69) | (1.27) | (4.37) | (5.02) |
| Growth | 0.0304*** | 0.0260*** | 0.0105*** | 0.0102*** |
| | (8.36) | (7.79) | (7.03) | (6.93) |
| BM | -0.00368*** | -0.00379*** | -0.00249*** | -0.00247*** |
| | (-3.75) | (-3.42) | (-3.25) | (-3.30) |
| SOE | -0.00621 | -0.00544 | -0.000330 | -0.000575 |

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| | | | | |
|---|---|---|---|---|
| | (-1.32) | (-1.26) | (-0.12) | (-0.22) |
| ListAge | -0.0116*** | -0.0162*** | -0.00798*** | -0.00879*** |
| | (-2.88) | (-3.98) | (-2.77) | (-3.11) |
| Dturn | 0.000766 | 0.00138 | -0.00206** | -0.00170 |
| | (0.43) | (0.77) | (-1.97) | (-1.62) |
| INST | 0.00749* | 0.00586 | -0.00452 | -0.00451 |
| | (1.86) | (1.36) | (-1.45) | (-1.47) |
| Top1 | 0.00566 | 0.0199 | 0.0205** | 0.0191** |
| | (0.44) | (1.58) | (2.42) | (2.26) |
| Board | -0.0103* | -0.0105 | -0.00628 | -0.00683 |
| | (-1.69) | (-1.60) | (-1.41) | (-1.52) |
| Indep | -0.0224 | -0.0146 | -0.0163 | -0.0145 |
| | (-1.38) | (-0.80) | (-1.30) | (-1.16) |
| Dual | 0.00149 | 0.00277 | 0.00258* | 0.00262** |
| | (0.77) | (1.37) | (1.95) | (2.00) |
| _cons | -0.297*** | -0.316*** | 0.00131 | -0.00969 |
| | (-5.70) | (-6.40) | (0.04) | (-0.33) |
| N | 19010 | 18287 | 19373 | 19373 |
| adj. $R^2$ | 0.214 | 0.530 | 0.257 | 0.244 |
| Firm FE | Yes | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes | Yes |

*Decomposition of investment inefficiency*

To further examine the channels through which expanded investor access improves investment efficiency, this study decomposes total investment inefficiency into over-investment and under-investment.

The results in Table 7 show that the coefficient on InvestorAccess is negative and statistically significant in both specifications. Specifically, expanded investor access reduces over-investment by 0.0186 and under-investment by 0.00393.

From an economic perspective, the larger magnitude observed for over-investment suggests that the primary effect of cross-border investor participation operates through restraining excessive investment behavior. This is consistent with the idea that foreign investors enhance external monitoring and discipline managerial overinvestment in projects with negative net present value.

At the same time, the reduction in under-investment indicates that expanded investor access also alleviates financing constraints and improves firms' ability to undertake valuable investment opportunities. This effect is likely driven by improved stock liquidity, lower cost of capital, and enhanced information transparency.

These findings suggest that cross-border equity market integration improves capital allocation efficiency through two complementary channels: strengthening external monitoring to restrain over-investment and easing financing constraints to reduce under-investment..

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This decomposition provides deeper support for Hypothesis 1 by showing that the reduction in overall investment inefficiency is not driven by a single margin but reflects improvements in both dimensions of corporate investment behavior

**Table 7:** Decomposition of investment inefficiency into over-investment and under-investment

| | (1) Over_INV | (2) Under_INV |
|---|---|---|
| InvestorAccess | -0.0186** | -0.00393* |
| | (-2.11) | (-1.87) |
| Size | 0.0470*** | 0.0105*** |
| | (6.16) | (5.38) |
| Lev | 0.0376 | -0.0145** |
| | (1.23) | (-2.26) |
| ROA | 0.0784 | -0.00354 |
| | (1.60) | (-0.37) |
| Growth | 0.0490*** | 0.00463*** |
| | (6.41) | (3.31) |
| BM | -0.00819*** | -0.00237*** |
| | (-3.30) | (-2.58) |
| SOE | -0.0116 | -0.00378 |
| | (-0.81) | (-1.16) |
| ListAge | -0.0408*** | -0.00743** |
| | (-2.93) | (-2.43) |
| Dturn | 0.00714 | 0.000631 |
| | (1.08) | (0.51) |
| INST | 0.0225* | 0.00546 |
| | (1.76) | (1.57) |
| Top1 | 0.00436 | -0.00411 |
| | (0.11) | (-0.42) |
| Board | -0.0214 | -0.00315 |
| | (-1.09) | (-0.73) |
| Indep | -0.0141 | -0.0000863 |
| | (-0.24) | (-0.01) |
| Dual | 0.000723 | 0.000594 |
| | (0.11) | (0.39) |
| _cons | -0.831*** | -0.147*** |
| | (-5.10) | (-3.49) |
| N | 5778 | 10811 |
| adj. $R^2$ | 0.348 | 0.212 |
| Firm FE | Yes | Yes |
| Year FE | Yes | Yes |

*Financing channel and debt structure adjustment*

The results in Table 8 show that expanded investor access is associated with a statistically significant reduction in long-term borrowing. The negative coefficient on InvestorAccess suggests that firms rely less on long-term debt financing after gaining access to cross-border investors.

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From an economic perspective, this finding indicates that improved access to equity capital reduces firms' dependence on external debt financing. As investor participation increases, firms may face lower financing constraints and improved access to equity funding, reducing the need for long-term borrowing.

This evidence supports the financing channel by showing that cross-border investor access alters firms' capital structure and reduces reliance on debt financing.

**Table 8:** Effect of investor access on long-term debt financing

| | (1)<br>long-term_loan |
|---|---|
| InvestorAccess | -0.00948* |
| | (-1.81) |
| Size | 0.0284*** |
| | (6.75) |
| Lev | 0.126*** |
| | (11.62) |
| ROA | -0.0202 |
| | (-0.92) |
| Growth | -0.000940 |
| | (-0.55) |
| BM | 0.00236 |
| | (1.02) |
| SOE | -0.00392 |
| | (-0.58) |
| ListAge | -0.00116 |
| | (-0.25) |
| Dturn | -0.000209 |
| | (-0.17) |
| INST | -0.00327 |
| | (-0.81) |
| Top1 | 0.0597** |
| | (2.42) |
| Board | -0.00644 |
| | (-0.78) |
| Indep | 0.000558 |
| | (0.02) |
| Dual | -0.00459* |
| | (-1.81) |
| | (-6.65) |
| N | 21852 |
| adj. $R^2$ | 0.758 |
| Firm FE | Yes |
| Year FE | Yes |

*Financing channel and financing constraints*

Table 9 provides direct evidence on financing constraints. The results show that the coefficient on InvestorAccess is negative and highly significant

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when using both the KZ index and the SA index as proxies for financing constraints.

This indicates that firms experience a reduction in financing constraints after gaining access to cross-border investors. Economically, this suggests that expanded investor participation improves firms' ability to obtain external financing, lowers the cost of capital, and enhances financial flexibility.

The consistency across different measures strengthens the conclusion that financial market integration alleviates financing frictions, which in turn contributes to improved investment efficiency.

**Table 9:** Effect of investor access on financing constraints

| | (1)<br>KZ | (1)<br>SA |
|---|---|---|
| InvestorAccess | -0.0215*** | -0.0843*** |
| | (-9.75) | (10.46) |
| Size | 0.0108*** | -0.0395*** |
| | (8.30) | (-8.37) |
| Lev | 0.00360 | -0.0127 |
| | (1.07) | (-1.01) |
| ROA | -0.00223 | 0.00811 |
| | (-0.33) | (0.33) |
| Growth | 0.00229*** | -0.00848*** |
| | (4.06) | (-4.22) |
| BM | -0.00788*** | 0.0295*** |
| | (-12.43) | (12.70) |
| SOE | 0.00148 | -0.00628 |
| | (0.71) | (-0.83) |
| ListAge | 0.0152*** | -0.0452*** |
| | (9.17) | (-7.64) |
| Dturn | -0.000309 | 0.000222 |
| | (-0.81) | (0.16) |
| INST | -0.00351** | 0.0135** |
| | (-2.31) | (2.48) |
| Top1 | -0.0101* | 0.0306 |
| | (-1.77) | (1.46) |
| Board | 0.00799*** | -0.0304*** |
| | (3.07) | (-3.17) |
| Indep | 0.00437 | -0.0128 |
| | (0.64) | (-0.51) |
| Dual | 0.000550 | -0.00172 |
| | (0.76) | (-0.65) |
| _cons | 1.004*** | -2.606*** |
| | (36.06) | (-25.70) |
| N | 14718 | 14718 |
| adj. $R^2$ | 0.958 | 0.960 |
| Firm FE | Yes | Yes |
| Year FE | Yes | Yes |

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*Information environment and earnings management*

Table 10 examines the information and governance channel using discretionary accruals as proxies for earnings management. The results show that InvestorAccess is negatively and significantly associated with both accrual-based and real earnings management measures. This indicates that firms engage in less earnings manipulation after gaining access to cross-border investors. From an economic perspective, this suggests that foreign investor participation enhances information transparency and strengthens external monitoring. Improved transparency reduces information asymmetry between firms and investors, leading to more accurate pricing of firm fundamentals and better investment decisions.

**Table 10:** Effect of investor access on earnings management and information transparency

| | (1) | (2) |
|---|---|---|
| | AbsDA | AbsREM |
| InvestorAccess | -0.00397*** | -0.00329*** |
| | (-2.94) | (-2.75) |
| Size | 0.0304*** | 0.0311*** |
| | (6.09) | (6.41) |
| Lev | -0.0154 | -0.0127 |
| | (-0.89) | (-0.80) |
| ROA | 0.0174 | 0.000321 |
| | (0.76) | (0.01) |
| Growth | 0.0309*** | 0.0278*** |
| | (5.02) | (4.98) |
| BM | -0.00270* | -0.00317** |
| | (-1.88) | (-2.20) |
| SOE | -0.00904 | -0.0141** |
| | (-1.60) | (-2.16) |
| ListAge | -0.0154** | -0.0170*** |
| | (-2.52) | (-2.79) |
| Dturn | 0.00184 | 0.00185 |
| | (0.73) | (0.75) |
| INST | 0.0142*** | 0.0144*** |
| | (2.62) | (2.65) |
| Top1 | -0.00395 | -0.00536 |
| | (-0.14) | (-0.19) |
| Board | -0.0128 | -0.0121 |
| | (-1.51) | (-1.46) |
| Indep | -0.00648 | -0.0000511 |
| | (-0.25) | (-0.00) |
| Dual | -0.000489 | -0.00113 |
| | (-0.16) | (-0.36) |
| _cons | -0.536*** | -0.549*** |
| | (-5.07) | (-5.38) |
| N | 8419 | 8406 |
| adj. $R^2$ | 0.257 | 0.249 |
| Firm FE | Yes | Yes |
| Year FE | Yes | Yes |

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*Productivity effects of investment efficiency*

The results in Table 11 provide strong evidence that improvements in investment efficiency translate into real economic gains. The coefficient on InefficientInvestment is negative and highly significant across all specifications, indicating that firms with lower deviations from optimal investment exhibit higher levels of total factor productivity. Economically, this suggests that even modest reductions in investment inefficiency lead to meaningful improvements in firm performance.

In contrast, the direct effect of InvestorAccess on productivity is not consistently significant, implying that the benefits of cross-border investor participation operate primarily through improvements in capital allocation rather than through direct productivity effects.

These findings support Hypothesis 5 and confirm that financial market integration enhances firm performance indirectly by improving investment efficiency.

**Table 11:** Impact of investment inefficiency and investor access on firm-level productivity

| | (1) | (2) | (3) |
|---|---|---|---|
| | TFP_OP | TFP_LP | TFP_ACF |
| InefficientInvestment | -0.611*** | -0.722*** | -0.0682*** |
| | (-8.56) | (-11.37) | (-3.34) |
| InvestorAccess | 0.0335 | 0.0366 | 0.0264*** |
| | (1.37) | (1.43) | (3.64) |
| Size | 0.204*** | 0.510*** | 0.0360*** |
| | (10.18) | (26.26) | (6.72) |
| Lev | 0.289*** | 0.296*** | -0.111*** |
| | (4.50) | (4.99) | (-5.74) |
| ROA | 1.269*** | 1.221*** | 1.026*** |
| | (10.48) | (9.91) | (19.59) |
| Growth | 0.179*** | 0.175*** | 0.0199*** |
| | (16.26) | (17.60) | (5.76) |
| BM | -0.0181** | -0.0403*** | -0.0146*** |
| | (-1.98) | (-4.38) | (-4.89) |
| SOE | -0.0630 | -0.00828 | -0.0163 |
| | (-1.44) | (-0.21) | (-1.13) |
| ListAge | -0.0115 | 0.0423 | -0.00236 |
| | (-0.32) | (1.23) | (-0.21) |
| Dturn | 0.000776 | -0.00183 | 0.00194 |
| | (0.11) | (-0.25) | (0.75) |
| INST | 0.0268 | 0.0332 | 0.00213 |
| | (0.97) | (1.22) | (0.23) |
| Top1 | -0.153 | -0.102 | -0.0705** |
| | (-1.41) | (-1.06) | (-2.50) |
| Board | 0.00477 | 0.0439 | 0.00590 |
| | (0.08) | (0.75) | (0.37) |
| Indep | 0.108 | 0.121 | 0.0278 |
| | (0.77) | (0.89) | (0.63) |
| Dual | -0.00463 | -0.00187 | -0.00395 |

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| | | | |
|---|---|---|---|
| | (-0.27) | (-0.11) | (-0.78) |
| _cons | -0.815* | -3.463*** | -0.703*** |
| | (-1.88) | (-8.58) | (-6.28) |
| N | 16035 | 15915 | 15915 |
| adj. $R^2$ | 0.850 | 0.928 | 0.683 |
| Firm FE | Yes | Yes | Yes |
| Year FE | Yes | Yes | Yes |

## Discussion

This study examines the impact of cross-border equity market integration, proxied by the Stock Connect program, on corporate investment efficiency and its real economic consequences. The empirical results provide strong and consistent evidence that expanded investor access significantly improves firms' capital allocation efficiency. Baseline findings show that firms included in the program experience a statistically significant reduction in investment inefficiency, suggesting that cross-border investor participation enhances external monitoring and mitigates agency problems. This result is consistent with prior literature showing that institutional investors improve corporate governance and investment outcomes (Aggarwal et al., 2011; Ferreira and Matos, 2008).

The decomposition analysis further reveals that improvements in investment efficiency occur through reductions in both over-investment and under-investment. This suggests that foreign investors not only discipline managers and reduce inefficient expansion driven by agency conflicts, but also alleviate underinvestment associated with financial constraints. These results are consistent with the theoretical framework of Richardson (2006) and supported by empirical evidence linking governance quality to more efficient capital allocation (Biddle et al., 2009).

To better understand the underlying mechanisms, this study examines several channels. First, firms reduce their reliance on long-term debt following inclusion in the Stock Connect program, indicating improved access to equity financing and greater capital structure flexibility. This is consistent with the literature on financial liberalization, which argues that opening capital markets lowers financing costs and expands access to external capital (Bekaert et al., 2005; McLean et al., 2022).

Second, the financing constraints analysis based on the KZ and SA indices provides strong evidence that cross-border investor access significantly alleviates financing frictions. The negative and significant coefficients across both measures indicate that firms face fewer constraints after gaining access to international investors. This result aligns with recent studies on China's capital market liberalization, which show that programs such as Stock Connect improve firms' financing conditions and investment efficiency (Zhao et al., 2024; Liu, 2025). By broadening the investor base and

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improving market access, financial integration enhances firms' ability to fund value-enhancing projects.

Third, the information and governance channel is supported by evidence on discretionary accruals and real earnings management. Firms engage in significantly less earnings manipulation following inclusion in the Stock Connect program, indicating improved transparency and stronger external monitoring. This finding aligns with prior literature emphasizing that foreign investors enhance information environments and reduce information asymmetry in emerging markets (Bae et al., 2012; Christensen et al., 2016).

Importantly, this study also documents the real economic consequences of improved investment efficiency. Investment inefficiency is negatively associated with total factor productivity across multiple estimation methods, implying that better capital allocation leads to higher firm-level productivity. In contrast, the direct effect of investor access on productivity is not consistently significant, suggesting that the benefits of financial integration operate primarily through improvements in investment efficiency rather than direct productivity effects. This highlights capital allocation efficiency as a key channel through which financial market liberalization affects real economic performance.

Recent evidence further supports this mechanism, showing that Stock Connect promotes broader firm-level transformation, including digital upgrading and cross-border expansion (Deng et al., 2025; Jiang et al., 2025; Zhang et al., 2024).

Overall, this study contributes to the literature on financial market liberalization by providing comprehensive evidence on both the mechanisms and economic consequences of cross-border investor participation. By improving corporate governance, reducing financing constraints, and enhancing information transparency, the Stock Connect program promotes more efficient capital allocation and supports firm-level productivity growth in China's capital market. These findings are further complemented by recent research highlighting broader impacts of capital market opening, including its effects on asset pricing and market stability (Zhang and Ping, 2025).

## Conclusion

This study investigates the impact of cross-border equity market integration on corporate investment efficiency, using China's Stock Connect program as a quasi-natural experiment. The empirical findings provide robust evidence that expanded investor access significantly reduces investment inefficiency among listed firms. This result suggests that financial market liberalization enhances capital allocation efficiency by improving external monitoring and mitigating agency problems.

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Further analysis reveals that the improvement in investment efficiency operates through multiple channels. First, firms included in the Stock Connect program exhibit reduced reliance on long-term debt financing, indicating a shift toward more flexible capital structures. Second, both the KZ and SA indices show that financing constraints are significantly alleviated following investor access, suggesting that integration into global capital markets improves firms' ability to obtain external financing. Third, evidence from discretionary accruals and real earnings management indicates that firms engage in less earnings manipulation, highlighting improvements in information transparency and corporate governance. Taken together, these findings demonstrate that cross-border investor participation affects firm behavior through financing, governance, and information channels.

Importantly, this study also documents the real economic consequences of improved investment efficiency. The results show that reductions in investment inefficiency are associated with significant increases in total factor productivity across multiple estimation methods. In contrast, the direct effect of investor access on productivity is not consistently significant, indicating that the benefits of financial integration are primarily realized through improved capital allocation rather than direct productivity effects. This highlights the role of investment efficiency as a key transmission mechanism linking financial market liberalization to real economic performance.

From a broader perspective, the findings contribute to the literature on financial globalization and corporate finance by providing comprehensive evidence on both the mechanisms and outcomes of capital market opening. Consistent with prior and recent studies (Bekaert et al., 2005; McLean et al., 2022; Zhao et al., 2024; Deng et al., 2025), the results suggest that liberalization policies can generate meaningful improvements in firm behavior and economic efficiency in emerging markets.

The study also has important policy implications. For regulators, the results support the continued expansion of capital market opening initiatives, as such policies can enhance corporate governance, ease financing constraints, and improve resource allocation. For firms, greater exposure to international investors creates incentives to improve transparency and optimize investment decisions. For investors, the findings highlight the role of cross-border participation in shaping firm-level outcomes and market efficiency.

Despite these contributions, several limitations should be acknowledged. First, the analysis focuses on listed firms and may not fully capture the effects on smaller or unlisted enterprises. Second, while the identification strategy mitigates endogeneity concerns, unobserved factors may still influence the results. Third, the study primarily examines short- to

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medium-term effects, leaving long-term impacts of financial integration as an avenue for future research.

Future studies could extend this analysis by exploring heterogeneity across industries, ownership structures, and firm characteristics, as well as by examining additional channels such as innovation, digital transformation, and international expansion. As capital market liberalization continues to deepen, understanding its broader economic implications remains an important direction for further research.

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# Wastewater Treatment in Italy: From Cost Centre to Strategic Investment

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## Abstract

Urban wastewater treatment has traditionally been framed as a regulatory obligation and a cost centre required to comply with environmental standards and mitigate the impact of discharges on aquatic ecosystems. However, in the context of increasing water scarcity, climate-related risks, and the broader ecological transition, this perspective is evolving. Wastewater is increasingly recognised not merely as waste to be disposed of, but as a potential strategic resource capable of generating environmental, economic, and social value. This study examines whether and to what extent wastewater treatment can be reframed as a strategic investment rather than a purely defensive environmental cost. The analysis adopts a structured qualitative policy-analysis approach, combining documentary analysis of European and Italian regulatory frameworks with quantitative evidence derived from institutional indicators and secondary data from international organisations. In addition, illustrative evidence on water reuse, energy recovery, and nutrient recovery is used to assess the contribution of wastewater treatment to circular economy processes. The research addresses three main questions: (RQ1) whether investments in wastewater treatment generate economic and social returns; (RQ2) how wastewater treatment contributes to circular economy dynamics through resource recovery; and (RQ3) what economic and environmental costs may arise from delayed or insufficient intervention, including regulatory sanctions, environmental damage, and the loss of recoverable resources. The findings suggest that investments in wastewater treatment can generate significant socio-economic benefits, particularly when

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treatment infrastructures enable water reuse, energy recovery, and resource valorisation. The analysis also highlights that delayed investment may produce substantial economic and environmental costs, reinforcing the relevance of the "cost of inaction" perspective. Finally, the study underscores the importance of integrated governance frameworks and long-term planning strategies, with particular attention to Southern Italy, where infrastructural gaps continue to generate environmental pressures and economic inefficiencies.

**Keywords:** Wastewater treatment; Circular economy; Strategic investment; Water reuse; Italy

## 1. Introduction

Urban wastewater management represents a fundamental yet often invisible component of modern urban systems. As long as treatment infrastructures operate effectively, their role tends to remain unnoticed; however, when failures occur, the consequences rapidly become evident through environmental degradation, public health risks, deterioration in quality of life, and reputational damage for affected territories. Despite this strategic relevance, wastewater treatment has frequently been framed within a narrow regulatory perspective, primarily as a compliance-driven activity aimed at meeting environmental standards and avoiding legal sanctions.

Within this perspective, purification infrastructures have often been interpreted as a necessary cost rather than as a strategic investment. As a result, public expenditure in this sector has frequently been postponed or limited, particularly within short-term political and budgetary cycles. In the Italian context, this approach has contributed to the persistence of infrastructural gaps, fragmented governance arrangements, and repeated infringement procedures initiated by European institutions. A significant example is the 2018 ruling of the Court of Justice of the European Union, which imposed a lump-sum fine of €25 million on Italy, together with periodic penalties exceeding €30 million for each six-month delay in complying with obligations concerning wastewater treatment agglomerations already subject to a previous judgment (Court of Justice of the European Union, 2018). Subsequent rulings and sanctions suggest that the issue cannot be considered episodic, but rather reflects structural weaknesses in infrastructure development and management.

At the same time, the broader environmental and policy context has undergone significant transformation. Increasing water scarcity, more frequent drought episodes, and climate-related pressures have intensified competition among civil, agricultural, and industrial water uses. In response, the European Union has progressively strengthened its environmental policy framework, promoting circular economy models that emphasise pollution

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reduction, resource efficiency, and the recovery and reuse of water, materials, and energy.

Within this evolving context, wastewater treatment can no longer be interpreted solely as a downstream process aimed at complying with regulatory discharge limits. Instead, it can be increasingly understood as an enabling platform for circular economy practices. Treated wastewater may represent a reusable resource for agriculture or industry, sewage sludge can serve as a potential energy source, and nutrients recovered during treatment processes may be reintroduced into productive cycles as secondary raw materials. Consequently, the sector appears to be gradually shifting from a defensive paradigm – focused on minimising regulatory risk – towards a more proactive perspective in which environmental infrastructure contributes to economic value creation, territorial resilience, and long-term sustainability.

Building on these premises, this study investigates whether wastewater treatment can be reframed as a strategic investment rather than merely as a regulatory cost. In particular, the analysis focuses on the Italian context, where infrastructural deficits have historically contributed to persistent environmental pressures, economic inefficiencies, and territorial disparities, especially in Southern regions. The objective of the study is therefore to assess the potential environmental, economic, and governance implications associated with a more strategic interpretation of wastewater treatment investments.

While the regulatory and technical dimensions of wastewater treatment have been widely discussed, less attention has been devoted to its interpretation as a strategic investment at the intersection of environmental governance, circular economy, and territorial development. This study contributes to the existing literature by providing an integrated policy-oriented analysis that combines documentary evidence, quantitative institutional data, and selected academic contributions to examine wastewater treatment not only as an environmental obligation, but as a strategic infrastructure with broader socio-economic implications. In doing so, it aims to address a gap in the literature concerning the economic and governance dimensions of wastewater management within the framework of circular economy and sustainable territorial development.

## 2. Context

### 2.1. The European framework: from environmental compliance to circular transition

The European regulatory framework governing urban wastewater treatment has historically been shaped by Directive 91/271/EEC, which established the basic requirements for the collection and treatment of urban wastewater with the primary objective of protecting aquatic ecosystems and

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public health. For several decades, the directive has represented the cornerstone of European environmental policy in the water sector, focusing primarily on ensuring compliance with minimum treatment standards and reducing the environmental impacts of untreated or insufficiently treated discharges.

In recent years, however, the European policy trajectory has progressively evolved beyond a purely compliance-oriented approach. Wastewater management is increasingly integrated into broader strategies related to climate mitigation, resource efficiency, and circular economy principles. This evolution is reflected in the recast Directive (EU) 2024/3019, which introduces new provisions aimed at strengthening environmental performance, improving energy efficiency, and promoting resource recovery within wastewater treatment systems (European Parliament and Council of the European Union, 2024). In particular, the directive outlines a progressive pathway towards the energy neutrality of treatment plants and places greater emphasis on emerging pollutants, including micropollutants, alongside the introduction of extended producer responsibility mechanisms for specific industrial sectors.

These regulatory developments suggest a broader conceptual shift. Wastewater treatment plants are no longer viewed exclusively as infrastructures designed to mitigate environmental damage, but can increasingly be interpreted as technological platforms potentially contributing to resource recovery, energy production, and emission reduction within integrated environmental systems.

A further key component of the European regulatory framework is Regulation (EU) 2020/741 on minimum requirements for water reuse. The regulation establishes harmonised standards for the safe reuse of treated wastewater in agricultural irrigation, defining technical requirements, risk management procedures, and responsibilities for operators and authorities (European Parliament and Council of the European Union, 2020). This regulatory initiative forms part of a wider European strategy aimed at promoting more sustainable and integrated water resource management, particularly in regions exposed to structural water scarcity.

Within this evolving policy context, water reuse can no longer be considered merely a marginal practice. In territories characterised by persistent water stress, the underutilisation of treated wastewater may lead to significant environmental, economic, and territorial inefficiencies over the long term.

### 2.2. Necessary investments and “cost of inaction” risk

An often underestimated dimension of wastewater policy concerns the economic scale of the investments required to achieve and maintain regulatory

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compliance. According to estimates frequently cited by the European Commission and based on OECD analyses, additional investments amounting to several hundred billion euros may be required across Europe between 2020 and 2030 to support the full implementation and long-term sustainability of wastewater treatment systems (European Commission, 2020).

At first glance, these figures may appear to reinforce the perception of wastewater infrastructure as an excessively costly sector. However, the economic debate increasingly emphasises an alternative perspective: the cost of inaction. Delayed investments in wastewater infrastructure not only perpetuate environmental risks but may also generate substantial financial penalties and long-term inefficiencies.

The Italian case provides a particularly illustrative example. In 2018, the Court of Justice of the European Union imposed a lump-sum fine of €25 million on Italy, together with periodic penalties exceeding €30 million for each six-month period of delay in complying with obligations concerning wastewater treatment agglomerations already subject to a previous judgment (Case C-251/17) (Court of Justice of the European Union, 2018). Subsequent rulings and ongoing infringement procedures suggest that non-compliance remains a persistent structural issue.

Available institutional evidence indicates that these compliance gaps remain geographically concentrated, particularly in several regions of Southern Italy. This infrastructural deficit not only generates environmental pressures and financial sanctions, but may also contribute to broader territorial disparities, reinforcing structural differences in development, investment capacity, and environmental quality (Ministry of the Environment and Energy Security, n.d.).

## 3. Methodology

The study adopts a structured qualitative policy-analysis approach, supported by selected quantitative evidence, with the aim of examining whether wastewater treatment can be interpreted not only as a compliance-driven environmental service, but also as a strategic investment capable of generating environmental, economic, and social value. The analytical framework is informed by a cost-of-inaction perspective, which allows for a conceptual evaluation of both the potential benefits of investment and the economic and environmental implications associated with delayed or insufficient intervention.

The methodological design integrates three complementary analytical components. First, a documentary and regulatory analysis of the European institutional framework governing urban wastewater management was conducted. This includes European directives and regulations, reports of the European Commission, sectoral evaluation documents, and rulings of the

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Court of Justice of the European Union. These sources were selected to reconstruct the evolution of wastewater governance and to identify key policy orientations related to environmental protection, circular economy transition, and resource recovery.

Second, the study incorporates quantitative evidence derived from comparable international and institutional sources. This includes OECD estimates concerning the scale of investments required to support wastewater treatment systems, as well as cost–benefit indications of water and sanitation investments reported in institutional and academic literature. These data are not used for direct empirical testing, but rather to support and contextualise the analytical interpretation of the economic and social implications associated with wastewater infrastructure.

Third, a targeted literature review was conducted using the Scopus database in order to support the academic positioning of the study. The search was performed using the query TITLE-ABS-KEY (wastewater AND ("circular economy" OR "water reuse" OR "resource recovery" OR "wastewater treatment")), limited to the period 2023–2026 and restricted to peer-reviewed articles and reviews in English. The search was further filtered by subject area (Business, Management and Accounting) to focus on governance, strategic management, and economic evaluation perspectives. The initial query returned 24 documents; following a screening process based on thematic relevance and alignment with the research focus, four contributions were selected to complement the analysis. While limited in scope, this targeted review provides a focused overview of recent academic contributions relevant to the research questions.

The analytical process follows a structured sequence: (i) identification and selection of sources, (ii) categorisation of evidence according to the three analytical dimensions (economic returns, circular economy contribution, and cost of inaction), and (iii) synthesis and interpretation of findings in relation to the research questions. The integration of documentary evidence, institutional data, and selected academic contributions enables a multi-dimensional interpretation of wastewater treatment within a policy-oriented framework.

The analysis is guided by three research questions: (RQ1) whether investments in wastewater treatment may generate economic and social returns; (RQ2) to what extent wastewater treatment can contribute to circular economy processes through the recovery of water, energy, and nutrients; and (RQ3) what economic, environmental, and institutional implications may arise from delayed or insufficient investments in wastewater infrastructure.

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# 4. Results

## 4.1. Economic benefits of wastewater treatment investments

The first analytical finding concerns the economic value associated with investments in wastewater treatment. Although purification infrastructure is often framed primarily as a regulatory cost, the analysis suggests that the associated benefits extend beyond the direct financial dimension. In this context, the notion of "return" should be interpreted in a broader socio-economic sense, encompassing health-related improvements, productivity gains, environmental benefits, and long-term territorial resilience.

Existing evidence on water and sanitation investments highlights significant benefit–cost relationships. In particular, widely cited estimates indicate that the global benefit–cost ratio for sanitation investments may reach approximately 5.5 dollars for every dollar invested, when reductions in disease incidence, productivity gains, and wider social benefits are taken into account (Hutton & Varughese, 2013). These figures should not be interpreted as precise predictive values, but rather as indicative of the magnitude of the externalities associated with water infrastructure. In this perspective, the underinvestment in wastewater treatment systems may generate indirect costs that re-emerge in the form of environmental degradation, public health risks, and economic losses.

The evidence summarised in Table 1 supports this interpretation by highlighting a set of indicative economic dimensions associated with the water sector. Rather than representing precise and directly comparable estimates, these values provide an aggregated overview of the potential scale of economic and social impacts linked to wastewater-related investments.

At the macroeconomic level, the water sector appears to play a relevant role in national economies. Recent sectoral reports for Italy indicate that the extended water supply chain contributes to the activation of economic value and employment effects, both directly and indirectly (The European House – Ambrosetti et al., 2025).

Overall, the analysis suggests that investments in wastewater infrastructure may contribute not only to environmental protection but also to economic activity, technological development, and employment generation, thereby reinforcing the strategic relevance of the sector within sustainable development policies.

**Table 1:** Items and estimated values

| Item | Estimated value |
|---|---|
| Health benefits and productivity (WHO) | €5.5 benefit for every €1 invested |
| Net benefits of water investments in Italy (to 2050) | ≈ €3.1 billion |
| Added value of the water service | €16.5 billion per year |
| Employment generated | >150,000 employees |

Source: Author's elaboration based on institutional and secondary data

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### 4.2. Wastewater treatment and circular economy potential

The second analytical finding concerns the role of wastewater treatment within circular economy strategies. Modern treatment plants can increasingly be interpreted not as linear infrastructures based on the traditional collect–treat–discharge model, but as platforms enabling resource recovery and circular resource flows.

Recent academic contributions suggest that wastewater treatment systems may contribute to circular economy dynamics through the recovery of water, energy, and nutrients (Smol et al., 2025; Bhambhani et al., 2025). In particular, treated wastewater can represent a relevant alternative water resource in regions exposed to increasing water scarcity.

Despite this potential, water reuse remains relatively limited in Europe. European Commission estimates indicate that a substantial share of treated wastewater could be reused for irrigation or industrial purposes, particularly in regions experiencing structural water stress (European Commission, n.d.). In the Italian context, sectoral analyses point to a significant gap between the potential availability of reclaimed water and its actual use (Legambiente, 2023). International benchmarks further suggest that higher reuse levels are technically feasible. For example, in Israel approximately 90% of treated wastewater is reused, particularly in agricultural irrigation systems (U.S. Environmental Protection Agency, 2023).

Beyond water reuse, wastewater treatment plants also offer opportunities for energy recovery and resource valorisation. The wastewater sector is energy intensive: the European Commission estimates that wastewater treatment accounts for approximately 0.8% of total energy consumption in the European Union (European Commission, 2019). However, this also implies a relevant potential for energy recovery through processes such as anaerobic digestion and biogas production. The recast Directive (EU) 2024/3019 further reinforces this orientation by introducing progressive targets for energy neutrality and improved environmental performance in wastewater treatment plants (European Parliament and Council of the European Union, 2024).

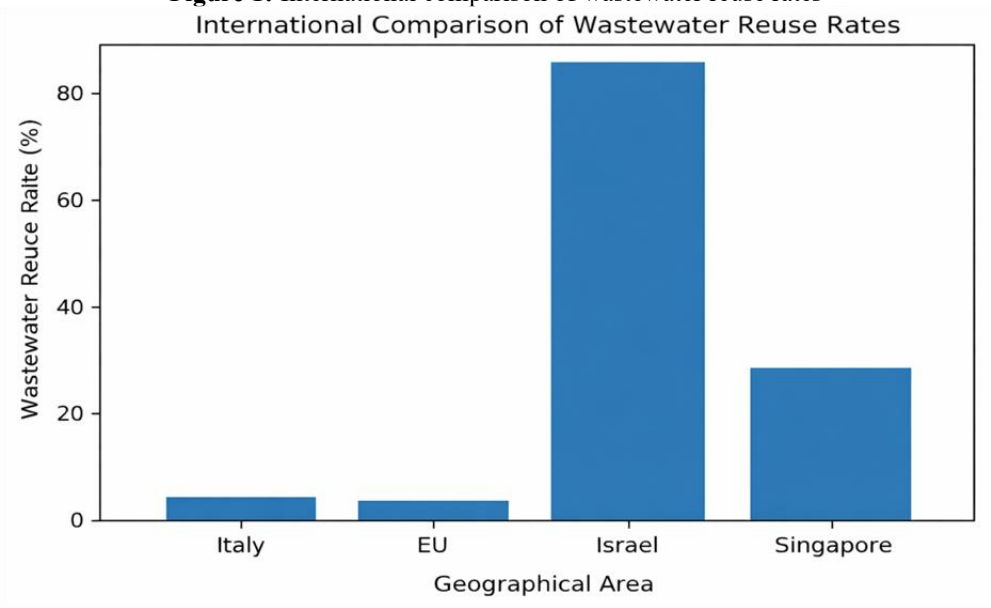
A third circular economy pathway concerns nutrient recovery. Phosphorus contained in wastewater represents a potentially valuable secondary raw material. Existing estimates suggest that the recovery of nutrients from human waste streams could contribute to covering a significant share of global phosphorus demand, highlighting the potential strategic relevance of wastewater systems for future resource security (Mihelcic et al., 2011).

The evidence summarised in Table 2 highlights the existence of a gap between the current utilisation of wastewater-derived resources and their estimated potential. Rather than providing precise quantitative measurements,

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these data offer an indicative overview of underexploited opportunities in water reuse, energy recovery, and nutrient valorisation. Overall, the analysis suggests that these dimensions remain only partially developed, despite their potential contribution to water security, energy efficiency, and agricultural sustainability.

**Figure 1:** International comparison of wastewater reuse rates




Source: Author's elaboration based on institutional data

Figure 1 provides a comparative overview of wastewater reuse rates across selected geographical contexts, highlighting significant differences between European countries and international benchmarks. In particular, the figure shows that wastewater reuse in Italy and the European Union remains relatively limited, especially when compared to countries such as Israel and Singapore, where reuse practices are more extensively developed. Rather than representing strictly comparable values across identical regulatory and infrastructural conditions, the data illustrated in the figure should be interpreted as indicative of different levels of policy prioritisation, technological adoption, and governance effectiveness in wastewater reuse. In this sense, the comparison highlights the existence of a substantial gap between current practices in Europe and the levels achieved in contexts where reuse has been strategically integrated into water management systems.

Overall, the figure suggests the presence of significant unrealised potential associated with the expansion of wastewater reuse, particularly in countries characterised by increasing water stress and infrastructural constraints.

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**Table 2:** Estimated potential

| Scope | Current situation | Estimated potential |
|---|---|---|
| Wastewater reuse (Italy) | ≈ 4% | ≈ 23–45% of irrigation demand |
| Wastewater reuse (EU) | ≈ 2.4% | ≈ 15–20% of treated volumes |
| Energy production from sludge (Italy) | Limited | ≈ 2 TWh per year |
| Phosphorus recovery (global) | Marginal | ≈ 22% of global demand |

Source: Author's elaboration based on institutional and secondary data

The values reported in Table 2 provide an indicative overview of the gap between current utilisation levels and the estimated potential of wastewater-related resources. These figures are derived from a combination of institutional reports and secondary sources and are not intended as directly comparable or predictive estimates.

Rather, they serve to illustrate the magnitude of underexploited opportunities associated with wastewater reuse, energy recovery, and nutrient valorisation. The comparison between current conditions and estimated potential suggests that wastewater systems remain only partially utilised as strategic assets within circular economy frameworks.

### 4.3. The economic and environmental costs of non-intervention

The third analytical finding concerns the economic and environmental implications associated with delayed or insufficient investment in wastewater infrastructure. If investments in this sector are associated with potential socio-economic benefits, the absence or postponement of such investments may generate corresponding economic and environmental costs.

In the Italian case, these costs are partly observable through financial sanctions imposed by European institutions. The ruling of the Court of Justice of the European Union in Case C-251/17 imposed a lump-sum fine together with periodic penalties for non-compliance with wastewater treatment obligations (Court of Justice of the European Union, 2018). Subsequent rulings and ongoing infringement procedures suggest that non-compliance remains a persistent structural issue. In practical terms, insufficient investment in infrastructure may translate into recurrent financial penalties, which represent a redistributive cost rather than a productive allocation of resources.

However, the cost of non-intervention extends beyond direct sanctions. Environmental and health impacts generate broader external costs that are more difficult to quantify but remain highly relevant. For instance, European studies on reactive nitrogen pollution estimate total damages ranging from tens to hundreds of billions of euros annually across the European Union (Sutton et al., 2011). While wastewater treatment represents only one component of the broader nitrogen cycle, inadequate treatment may contribute to eutrophication, biodiversity loss, and increased water purification costs.

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A further dimension concerns the loss of recoverable resources. Each cubic metre of treated wastewater that is not reused, each unit of nutrients that is not recovered, and each potential unit of energy that is not generated from sludge can be interpreted as a missed opportunity for resource valorisation. This situation may entail a double economic implication: the foregone value of recoverable resources and the continued reliance on alternative and often more costly supply systems.

The data summarised in Table 3 provides an indicative overview of the order of magnitude of the direct and indirect costs associated with delayed intervention. Rather than representing precise or fully comparable estimates, these values highlight how non-investment may generate recurrent financial burdens and broader environmental externalities, rather than actual savings.

**Table 3:** Cost magnitudes

| Cost item | Order of magnitude |
|---|---|
| EU fines already paid by Italy | > €200 million |
| Ongoing six-monthly penalties | > €30 million per six-month period |
| Reactive nitrogen damage in the EU | €70–320 billion per year |
| Non-compliant Italian agglomerations | > 900 |

Source: Author's elaboration based on institutional and secondary data

## 5. Implications and conclusions

Recognizing wastewater treatment as a productive investment rather than merely as a regulatory obligation carries relevant implications for public policy design and infrastructure planning. The findings of this study suggest that wastewater management should not be interpreted solely through the lens of environmental compliance, but can be understood as a strategic component of sustainable development policies. In this perspective, purification infrastructure assumes a structural role within water governance systems, contributing to environmental protection, economic development, and resource security.

One of the main implications concerns the scale and planning of investments. The magnitude of the infrastructural adjustments required suggests that episodic or reactive policy interventions are unlikely to be sufficient. Policies based on short-term responses or fragmented decision-making may not effectively address existing infrastructural gaps or ensure stable service standards over time. Instead, long-term planning frameworks appear necessary, supported by transparent prioritisation criteria and analytical tools such as cost–benefit analysis. These evaluations should incorporate not only construction and operational costs, but also broader environmental, health, and economic implications, including water quality improvements, reduced public health risks, and resource recovery potential.

Beyond financial resources, the effectiveness of wastewater investments is closely related to governance quality and managerial capacity.

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Fragmentation of service management, which still characterises several areas of the Italian territory, is often associated with lower investment capacity, operational inefficiencies, and uneven service quality. The transformation of wastewater treatment plants into circular economy platforms may therefore require more integrated governance structures, stronger coordination mechanisms, and regulatory frameworks capable of incentivising efficiency, innovation, and performance monitoring.

These considerations are particularly relevant from a territorial perspective. In several regions of Southern Italy, infrastructural deficits in wastewater treatment remain more pronounced. In such contexts, the cost of non-intervention may manifest through multiple channels, including European infringement procedures, environmental degradation, reduced tourism attractiveness, and constraints on agricultural development. From this perspective, investments in wastewater infrastructure can be interpreted as structural interventions potentially capable of mitigating the link between infrastructural deficiencies, economic penalties, and territorial disparities.

This study contributes to the literature by providing an integrated policy-oriented assessment of wastewater treatment as a strategic infrastructure, combining documentary analysis, institutional evidence, and selected academic contributions.

The findings allow a direct response to the research questions. With respect to RQ1, the analysis suggests that investments in wastewater treatment may generate economic and social returns, particularly when indirect effects such as health improvements, productivity gains, and environmental protection are considered. Regarding RQ2, the findings indicate that wastewater treatment can contribute to circular economy processes through water reuse, energy recovery, and nutrient recycling. With respect to RQ3, the analysis highlights that delayed or insufficient investments may generate economic and environmental implications, including financial sanctions, environmental degradation, and the loss of recoverable resources.

Taken together, these findings support the interpretation of wastewater treatment as a strategic infrastructure sector within sustainable development policies. In the context of increasing water scarcity and growing environmental pressures, treating wastewater solely as a waste management issue appears economically limiting and potentially short-sighted from a policy perspective.

At the same time, the study presents certain limitations. The analysis relies primarily on secondary data and institutional sources and does not include econometric modelling or primary empirical data collection. Future research could extend these findings through quantitative analyses of wastewater investment performance, more extensive literature reviews, or comparative case studies across different European regions.

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# Análisis de la integración contable de la responsabilidad social y su influencia en sistemas contables

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**Resumen**

El constante cambio de los mercados globales y las demandas de los grupos de interés han posicionado la integración de la responsabilidad social como un elemento fundamental en la contabilidad moderna. Esta investigación examina los mecanismos de incorporación de la responsabilidad social empresarial en los procesos contables y evalúa su impacto en la transformación de los sistemas de información financiera. Este estudio emplea una metodología de enfoque mixto (cualitativo-cuantitativo), utilizando un cuestionario validado aplicado a 33 profesionales contables del municipio de Escárcega, Campeche. El análisis de datos integra técnicas estadísticas (Rho de Spearman, α de Cronbach) con métodos cualitativos de interpretación. Los resultados demuestran una correlación positiva y significativa ($\rho = 0.607$, $p < .001$) entre la integración contable de la RSE y el desempeño organizacional positivo, evidenciando mejoras sustanciales en la calidad de la información financiera, la elaboración de reportes corporativos integrales y una toma de decisiones más estratégica. No obstante, el estudio identifica desafíos significativos en la armonización normativa y la disponibilidad de personal capacitado. Se concluye que la integración efectiva de la responsabilidad social en los sistemas contables requiere actualizaciones regulatorias y el

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desarrollo de competencias profesionales especializadas, constituyéndose en un factor clave para la gestión empresarial contemporánea.

**Palabras clave:** Contabilidad social; integración contable; responsabilidad social empresarial; sistemas contables; reportes de sostenibilidad

# Analysis of the Accounting Integration of Social Responsibility and its Influence on Accounting Systems

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**Abstract**

The constant change in global markets and stakeholder demands has positioned the integration of social responsibility as a fundamental element in modern accounting. This research examines the mechanisms for incorporating Corporate Social Responsibility into accounting processes and evaluates its impact on the transformation of financial information systems. The study employs a mixed-methods approach (qualitative-quantitative), using a validated questionnaire administered to 33 accounting professionals in the municipality of Escárcega, Campeche. Data analysis integrates statistical techniques (Spearman's Rho, Cronbach's α) with qualitative interpretation methods. The results demonstrate a positive and significant correlation ($\rho = 0.607$, $p < .001$) between the accounting integration of CSR and positive organizational performance, showing substantial improvements in the quality of financial information, the preparation of comprehensive corporate reports, and more strategic decision-making. However, the study identifies significant challenges in regulatory harmonization and the availability of trained personnel. It is concluded that the effective integration of social responsibility into accounting systems requires both regulatory updates and the development of specialized professional competencies, establishing itself as a key factor for contemporary business management.

**Keywords:** Social accounting; accounting integration; corporate social responsibility; accounting systems; sustainability reporting

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## Introduction

En el contexto actual de globalización y creciente conciencia social y ambiental, las organizaciones enfrentan presiones sin precedentes para operar de manera sostenible y socialmente responsable. Las empresas, incluyendo inversionistas, consumidores, reguladores y la comunidad en general demandan cada vez más no solo rentabilidad económica, sino también transparencia y compromiso con el bienestar social y la preservación del medio ambiente.

La contabilidad, como disciplina fundamental de la gestión empresarial, no ha permanecido ajena a esta evolución. Ha transitado de un enfoque tradicional centrado exclusivamente en la información financiera cuantitativa a la necesidad de incorporar y reflejar el impacto social y ambiental de las actividades empresariales. Este cambio de paradigma sitúa a la integración contable de la Responsabilidad Social Empresarial (RSE) como un elemento crucial en la transformación de los sistemas de información empresarial.

Esta investigación busca analizar cómo la integración de criterios de RSE en los sistemas y procesos contables influye en la calidad de la información financiera, en la elaboración de reportes corporativos y, en última instancia, en la toma de decisiones estratégicas. Al explorar esta relación, el estudio aporta evidencia sobre los beneficios concretos que esta integración genera para las organizaciones, al mismo tiempo que identifica los desafíos pendientes para su implementación generalizada.

El análisis de la integración de la responsabilidad social en los sistemas contables se sustenta en contribuciones fundacionales que establecieron los cimientos teóricos para su posterior desarrollo.

Entre estas, destacan los planteamientos de Owen y Adams (1996), quienes, en su obra *Accounting and Accountability: Changes and Challenges in Corporate Social and Environmental Reporting* , definieron un marco conceptual que articula la contabilidad con la rendición de cuentas de carácter social.

Estos autores presentan en su trabajo tres enfoques teóricos centrales que explican la interrelación entre ambos campos, primero en la Teoría de los *Stakeholders*, abordada en sus inicios en Freeman (1984) que postula que la rendición de cuentas debe extenderse más allá de los accionistas tradicionales para incluir a todos los grupos de interés afectados por las actividades de la organización; la Teoría de la Legitimidad, que aborda cómo la información social y ambiental cumple una función estratégica al permitir a las empresas legitimar sus operaciones ante la sociedad; y la Teoría de la Economía Política, que sitúa a la contabilidad dentro de un contexto estructural más amplio vinculándola con las dinámicas de poder y los sistemas socioeconómicos en los que se desenvuelven las organizaciones.

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Esta trilogía teórica no solo delimitó el campo de estudio, sino que proporcionó las bases conceptuales para comprender cómo la responsabilidad social comenzaba a integrarse en los sistemas de información contable tradicionales, sentando un precedente fundamental para el desarrollo de investigaciones posteriores en el ámbito de la contabilidad social y ambiental.

La integración de la responsabilidad social en los sistemas contables contemporáneos encuentra uno de sus fundamentos teóricos más sólidos en el marco conceptual de la Contabilidad Ambiental de Gestión propuesto en Schaltegger, Hahn y Burritt (2006), donde estos autores establecen que dicha contabilidad debe entenderse como un sistema integral que abarca tanto la dimensión monetaria como la física de la gestión ambiental corporativa, superando así los enfoques tradicionales limitados a lo financiero.

En su propuesta distinguen dos dimensiones complementarias: la Contabilidad Ambiental de Gestión Monetaria, que aborda los impactos ambientales expresados en unidades monetarias, como costos ambientales, presupuestos e inversiones; y la Contabilidad Ambiental de Gestión Física, orientada a medir y gestionar los impactos ecológicos en unidades físicas, como flujos de materiales, energía y emisiones. Esta integración dual representa un avance significativo en la evolución de los sistemas contables tradicionales.

La relevancia de este marco conceptual radica en su capacidad para responder a la necesidad actual de que las organizaciones no solo rindan cuentas de sus resultados económicos, sino también de su desempeño socioambiental. Mediante indicadores de ecoeficiencia y sistemas de información integrados, las empresas pueden atender de manera más integral las demandas de distintos grupos de interés.

De este modo, el trabajo de Schaltegger et al. (2006) sienta las bases teóricas para comprender cómo la responsabilidad social puede incorporarse de manera sistemática y medible en la estructura contable. Esta perspectiva facilita la transparencia organizacional, la toma de decisiones sostenibles y una rendición de cuentas integral que responde a los desafíos del desarrollo sostenible en el contexto empresarial actual.

La vinculación conceptual entre la Responsabilidad Social Empresarial y la Contabilidad encuentra un sólido antecedente teórico en García y Rodríguez (2000) al fundamentar los elementos de una teoría general contable, argumentan explícitamente que "la empresa no solo utiliza sus propios recursos, sino energías sociales de la comunidad", por lo que es responsable de su impacto sobre éstas. Esta perspectiva justifica plenamente el rol ampliado de la contabilidad más allá de lo puramente económico.

Los autores establecen que "precisamente el balance social es un instrumento de gestión, de control de la responsabilidad social y de la responsabilidad pública", lo que lo posiciona como una herramienta contable

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fundamental. Esta visión se consolida en sus leyes propuestas, donde se explicita que "las personas humanas y las organizaciones de personas humanas, como no actúan exclusivamente para obtener ganancias, necesitan que la contabilidad les provea de informes que midan el cumplimiento de objetivos de distinto tipo y no solamente económicos".

Para operacionalizar este enfoque, García y Rodríguez (2000) introducen los conceptos clave de "costo social", entendido como "aquello que signifique un perjuicio o daño para la mayor parte del contexto humano", y su contraparte, el "beneficio social". Esta conceptualización permite medir de manera integral el impacto empresarial que trasciende lo financiero.

La obra reconoce que la acción empresarial afecta a múltiples grupos de interés, desde propietarios y empleados hasta consumidores y proveedores, así como al contexto ambiental global. Esta comprensión multidimensional "necesita que la contabilidad les provea de informes que midan el cumplimiento de objetivos de distinto tipo", estableciendo así las bases para entender la contabilidad como una disciplina con una dimensión social inherente, esencial para la gestión de la responsabilidad social corporativa.

La integración de la responsabilidad social en los sistemas contables encuentra un antecedente normativo fundamental en el marco establecido por la Global Reporting Initiative (GRI), donde, en sus Guías G3, se define el reporte de sostenibilidad como "la práctica de medir, divulgar y ser responsable ante grupos de interés internos y externos por el desempeño organizacional hacia el objetivo del desarrollo sostenible" (Global Reporting Initiative, 2006, p. 4). Este marco no solo conceptualiza la rendición de cuentas socioambiental, sino que también establece criterios específicos que influyen positivamente en la arquitectura de los sistemas contables tradicionales.

Es relevante el principio que exige que "un reporte de sostenibilidad debería proporcionar una representación equilibrada y razonable del desempeño en sostenibilidad de una organización, incluyendo tanto contribuciones positivas como negativas" (GRI, 2006, p. 4). Este requerimiento trasciende el enfoque contable convencional al ampliar sustancialmente el concepto de materialidad e incorporar dimensiones sociales y ambientales que anteriormente quedaban fuera de los sistemas de información financiera. La exigencia de equilibrio y razonabilidad introduce, además, estándares de calidad y transparencia que elevan el rigor de los procesos de medición, registro y divulgación contable.

El marco del GRI influye en los sistemas contables mediante su estructura estandarizada de indicadores económicos, ambientales y sociales, que permite sistematizar información no financiera dentro de formatos comparables y consistentes. Al vincular explícitamente los resultados reportados con los "compromisos, estrategia y enfoque de gestión de la

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organización" (GRI, 2006, p. 4), esta normativa promueve la integración de la responsabilidad social en el gobierno corporativo y los procesos de toma de decisiones, transformando así los sistemas de registro histórico en herramientas estratégicas de gestión sostenible.

Este antecedente normativo demuestra que la responsabilidad social no opera como un apéndice voluntario de la contabilidad tradicional, sino como un factor que redefine su alcance, rigor y función estratégica, sentando las bases para los sistemas de contabilidad integrada que caracterizan a las organizaciones contemporáneas comprometidas con el desarrollo sostenible.

El estudio de la contabilidad y reportes de sostenibilidad ha evolucionado desde enfoques centrados en el desempeño ambiental hacia perspectivas integradas que incorporan dimensiones sociales, económicas y de gobernanza (ESG). En este contexto, resulta fundamental comprender cómo las organizaciones internalizan procesos de gestión de la sostenibilidad y los vinculan con sus sistemas de información y comunicación. Schaltegger et al. (2006) en una obra original sobre el tema, destacan que:

Si la sostenibilidad corporativa se considera como el resultado de los intentos de la gerencia para abordar los desafíos de la sostenibilidad, tiene sentido discutir la contabilidad y los reportes de sostenibilidad en función de los desafíos incrustados en el triángulo de sostenibilidad... El término reporte de sostenibilidad generalmente se utiliza para referirse a la publicación de informes externos... Sin embargo, un efecto principal del reporte de sostenibilidad es la participación de la gerencia y los empleados en el establecimiento de metas de sostenibilidad para la corporación, la recopilación de datos, y la creación y comunicación de información sobre sostenibilidad (p. 12).

Esta afirmación subraya que la elaboración de reportes de sostenibilidad no es únicamente un ejercicio de comunicación externa, sino también un proceso interno de gestión que moviliza recursos humanos y técnicos, define objetivos y estructura sistemas de información. Así, el reporte se configura como un mecanismo que retroalimenta la estrategia corporativa y facilita la integración de criterios de sostenibilidad en la toma de decisiones.

Amigo (2016) ofrece un marco teórico clave al definir la responsabilidad social empresarial (RSE) como una actitud directiva orientada a un cambio cultural, sustentada en la preocupación por los impactos sociales y ambientales de la organización. Esta concepción implica que la RSE no es un elemento obligatorio, sino un compromiso estratégico que debe reflejarse en las decisiones y, por extensión, en los sistemas de información que las respaldan, en particular en los sistemas contables.

Este punto de vista es fundamental para los antecedentes de la presente investigación, ya que establece que la integración de la RSE en los sistemas contables no es solo una cuestión técnica o normativa, sino también un proceso

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de adaptación cultural y metodológica. Los sistemas contables, en este sentido, deben evolucionar para capturar, medir y reportar no solo el desempeño económico, sino también los impactos y compromisos sociales y ambientales derivados de la RSE.

Así, el análisis de cómo la RSE influye en los sistemas contables se sitúa en la intersección entre el compromiso gerencial con la sostenibilidad y la capacidad de los sistemas de información para traducir dicho compromiso en datos, controles y reportes confiables. Esta relación constituye el núcleo de la investigación, que busca comprender cómo los sistemas contables se están reconfigurando para internalizar la responsabilidad social como parte integral de la gestión organizacional.

A pesar de la creciente relevancia de la sostenibilidad y la RSE, persiste una brecha significativa entre las prácticas de responsabilidad social y su integración efectiva en los sistemas contables tradicionales. Esta desconexión se manifiesta en el enfoque limitado de la contabilidad convencional, que se concentra en la medición de transacciones económicas y financieras, lo que impone serias limitaciones para capturar, valorar y registrar el valor generado o destruido en las dimensiones social y ambiental. Como resultado, se obtiene una imagen incompleta del desempeño real de la organización que no satisface las demandas actuales de transparencia e integralidad.

A ello se suma la falta de armonización normativa, que impide la estandarización de criterios para integrar y reportar los aspectos de RSE, generando inconsistencias en los reportes, dificultando la comparabilidad entre organizaciones y afectando la credibilidad de la información. Asimismo, existe un déficit de capacidades profesionales, ya que la integración contable de la RSE requiere competencias especializadas que combinen el conocimiento técnico-contable con la comprensión de los impactos sociales y ambientales, un perfil aún escaso en el mercado laboral.

Adicionalmente, los mecanismos tradicionales de verificación y auditoría no están suficientemente desarrollados para validar la autenticidad y precisión de los datos socioambientales, lo que representa un riesgo para la confiabilidad de los reportes integrales. En conjunto, estos factores impiden que los esfuerzos en RSE realizados por las organizaciones se vean reflejados de manera estructurada y confiable en sus sistemas de información, limitando la toma de decisiones estratégicas, una rendición de cuentas transparente y la correcta valoración de su contribución real al desarrollo sostenible.

La creciente importancia de la sostenibilidad a nivel global hace necesario demostrar cómo las prácticas de responsabilidad social pueden integrarse efectivamente en la gestión empresarial. Este proyecto busca evidenciar que incorporar estos criterios en los sistemas contables no solo responde a demandas sociales, sino que genera beneficios concretos para las

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organizaciones. Su realización es relevante porque proporciona a las empresas un marco para cuantificar el impacto de sus acciones sociales y ambientales, facilitando una gestión más transparente y eficiente. El estudio beneficiará a las organizaciones al mostrar cómo esta integración contribuye a una mejor toma de decisiones y puede influir positivamente en sus resultados financieros. Además, aportará una vinculación concreta entre responsabilidad social y desempeño económico, ofreciendo una herramienta sólida para que las empresas comprueben el valor estratégico de operar de manera sostenible y socialmente responsable en el mercado actual.

***Responsabilidad social empresarial (RSE)***

El autor Machado, M. (2004) menciona lo siguiente: "Se insta a las empresas a tener una participación más activa no solo en su ámbito interno sino en relación con la comunidad primaria, la comunidad local y la sociedad en su conjunto".

Este concepto va más allá de solo generar utilidades. Se trata de cómo las empresas pueden contribuir activamente al bienestar de las comunidades donde operan. La RSE no es filantropía, es una estrategia que crea valor compartido entre el negocio y su entorno. Cuando una empresa adopta la RSE, mejora su reputación y genera mayor lealtad entre su comunidad. Las empresas no solo ganan dinero, sino que también apoyan a la gente y al entorno donde trabajan.

Navarro (2024) señala que: "La responsabilidad social se funda en la afirmación de que las organizaciones —en la medida en la que actúan libre y voluntariamente y están integradas por la suma de diferentes personas que viven en una sociedad con una determinada conciencia— también tienen ética y, por tanto, pueden construir su carácter mediante la adopción de hábitos (buenos o malos). Sus reglamentos internos y pautas de conducta ayudan a sus trabajadores a tomas decisiones morales. Son, por tanto, responsables o deberían aspirar a serlo. Las empresas y organizaciones, en cuanto entidades libres, deben ser capaces de 'responder'."

Plaza Úbeda et al. (2012) mencionan que: "La gestión de los grupos de interés se caracteriza por la incorporación de las demandas de estos grupos a las decisiones empresariales […] pretende, tanto la consecución de los objetivos empresariales, como la adopción de una posición responsable por parte de las empresas" (p. 19). Esta definición integra de manera notable las dimensiones estratégica y ética de la RSE. Por un lado, la vincula directamente con la eficacia empresarial ("consecución de objetivos"), lo que refleja una perspectiva instrumental; por otro, enfatiza la "posición responsable" como un compromiso normativo con los grupos de interés. Esto sugiere que la RSE no es un mero añadido, sino un componente central de la gestión empresarial, mediado por la acción directiva y la interacción con las partes interesadas.

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### *Ética empresarial y RSE*

Sobre la ética empresarial el autor Cancino del Castillo & Morales Parragué (2008) menciona que son "Principios morales que guían las decisiones y acciones de una empresa, integrando valores como transparencia, equidad y respeto hacia stakeholders internos y externos."

Y por su parte Duarte (2015) señala: "Marco normativo que regula el comportamiento corporativo, vinculando la RSE con la integridad en prácticas comerciales y laborales" o Triple impacto (económico, social, ambiental).

Asimismo, el autor Barcellos (2011) señala que el "Modelo de gestión que evalúa el desempeño empresarial mediante tres dimensiones interdependientes: rentabilidad (económica), bienestar comunitario (social) y preservación de ecosistemas (ambiental)."

En cambio, el autor Viteri & Jácome (2013) menciona que es un "Enfoque holístico que exige a las empresas medir su éxito no solo por utilidades, sino por su contribución al desarrollo sostenible."

### *Dimensiones de la RSE*

Para comprender el concepto de Responsabilidad Social Empresarial (RSE) que fundamenta este análisis, se acude a dos aportes seminales. Por un lado, Carroll (2016) la define a través de un modelo de cuatro responsabilidades interdependientes (económica, legal, ética y filantrópica), destacando su naturaleza integrada y medible.

Por otro lado, Crane, Matten & Spence (2008) la delinean mediante seis características centrales, entre las que resaltan su orientación a múltiples partes interesadas y, de manera crucial para este estudio, su necesaria integración en las operaciones centrales del negocio, trascendiendo el enfoque filantrópico. La conjunción de estos modelos proporciona una base sólida para analizar cómo la RSE, entendida como un compromiso multidimensional e integrado, puede y debe influir en los sistemas de información contable.

De la Cuesta y Valor (2003) organizan la RSE en tres dimensiones interdependientes: económica, sociocultural y medioambiental, cada una asociada a la creación de valor para grupos específicos de interés y que requieren un equilibrio entre sí. Este marco resulta particularmente útil para analizar la integración de la RSE en los sistemas contables, ya que estos son los instrumentos idóneos para medir, valorar y reportar el desempeño de la empresa en cada una de esas tres áreas de impacto, así como el valor global creado para su pluralidad de las partes interesadas.

Maignan y Ferrell (2004) definen la RSE desde un marco de marketing integral, señalando que abarca: "(a) diferentes tipos de iniciativas de responsabilidad social (por ejemplo, prácticas ambientales, apoyo a organizaciones benéficas, gestión ética); (b) diversos grupos de interés; y (c) las dimensiones normativas, gerenciales e instrumentales de la RSE" (p. 3).

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***Dimension economica***

En trabajos como el de Pérez y Ritacca (2022) se menciona que la contabilidad social y ambiental adopta un enfoque multidisciplinario que integra dimensiones económicas, sociales y ambientales, señalando que "los reportes de sostenibilidad con metodología GRI […] contemplan indicadores en tres dimensiones –económicas, sociales y ambientales–" (p. 14). Esta integración tripartita refleja la evolución de la contabilidad más allá del enfoque financiero tradicional, posicionando a la información económica como un componente esencial junto con lo social y ambiental para evaluar la sostenibilidad y la responsabilidad social organizacional.

García y Sierra (2000) explicaron que "la auditoría social no debe limitarse a una mera rendición de cuentas sobre aspectos éticos o filantrópicos; debe integrar de manera crítica la dimensión económica, evaluando cómo las prácticas empresariales afectan la distribución de la riqueza, la estabilidad laboral y el impacto fiscal, sin perder de vista que lo económico es indisociable de lo social y lo ambiental" (p. 87).

Esta perspectiva resulta especialmente relevante hoy, cuando los informes de sostenibilidad y RSE tienden a separar artificialmente lo económico de lo social y ambiental, ignorando que la propia contabilidad y la auditoría pueden ser herramientas de legitimación que ocultan contradicciones entre el discurso corporativo y la realidad socioeconómica.

Moneva y Llena (1996), en su análisis pionero sobre la información social en empresas españolas, concluyen que: "No se ha podido constatar empíricamente una relación directa entre la rentabilidad obtenida por la compañía y la información de base social comunicada. Esta circunstancia puede suponer una señal de ausencia de interés por la gerencia de la empresa, independientemente de su situación económico-financiera" (p. 397).

Esta conclusión revela un hallazgo fundamental para comprender la integración contable de la RSE en sus etapas iniciales: la dimensión económica (rentabilidad) no actuaba como motor para la transparencia social corporativa. Esto sugiere que, en aquel contexto, la voluntad de integrar la RSE en los sistemas de información respondía más a presiones externas (legales, sociales o sectoriales) que, a una lógica interna de rentabilidad, evidenciando la desconexión entre el desempeño financiero y la rendición de cuentas social en la práctica contable empresarial de la época.

***Contabilidad tradicional***

La autora García Casella, C. L. (2005) también menciona que "La Contabilidad es una disciplina que se ocupa de la descripción cuantitativa y de la proyección de la circulación de ingresos y de los agregados de riqueza a través de un método basado en el siguiente conjunto de supuestos...".

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La contabilidad tradicional, anclada en un paradigma burocrático y procedimental, se caracterizaba por un enfoque vertical y jerárquico de la responsabilidad, donde la rendición de cuentas se entendía principalmente como un mecanismo de control interno y cumplimiento de normas preestablecidas. Como se señala en este modelo, "la imposición de la responsabilidad de los superiores a los subordinados era una constante" (Toledo, 2009, p. 82), reflejando una lógica de supervisión formal más que de transparencia sustantiva hacia actores externos. Este enfoque, centrado en el registro de transacciones financieras y el cumplimiento legal, dejaba fuera la medición y comunicación de impactos sociales y ambientales, limitando la capacidad de la contabilidad para responder a las demandas de contabilidad integral que exigen los modelos de Responsabilidad Social Empresarial.

Zufiaurre (2021, p. 12) dice lo siguiente: "En cuanto a la exposición de la información de tipo financiera, son las normas contables de presentación, emitidas por la Federación Argentina de Consejos Profesionales de Ciencias Económicas (FACPCE) las que reglamentan ese aspecto... La RT Nº8 constituye la norma general de presentación de los estados contables para todo tipo de entes, utilizable obligatoriamente para todas las entidades que utilicen normas contables argentinas; en su CAPÍTULO II determina que los estados contables a presentar por las mismas son los siguientes: Estado de situación patrimonial o balance general, Estado de resultados, Estado de evolución del patrimonio neto, Estado de flujo de efectivo, Información complementaria".

Esta referencia evidencia el carácter normativo y procedimental de la contabilidad tradicional, la cual se estructura en torno a la emisión de estados financieros estandarizados y de naturaleza histórica y cuantitativa. En el contexto analizado, incluso en entidades de propiedad estatal con evidente impacto social, la transparencia se reduce a la divulgación de información financiera regulada, lo que revela la persistencia de un paradigma contable centrado en lo económico-financiero y en el cumplimiento formal. Este enfoque contrasta con las demandas contemporáneas de una rendición de cuentas integral, que exige la integración de dimensiones sociales, ambientales y de gobernanza en los sistemas de información contable, tal como propone la responsabilidad social empresarial (RSE).

### *Funcion contable desde la RSE*

Esta definición, citada por Larrinaga (2017), constituye el núcleo de la función contable en el marco de la RSE. Establece que el rol de la contabilidad trasciende la mera medición financiera para asumir una función de comunicación y rendición de cuentas sobre los impactos sociales y ambientales. Esto reorienta la práctica contable desde una función técnica-económica hacia una función ético-social, alineada con los principios de la RSE de responder ante un espectro más amplio de las partes interesadas.

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La función contable, por tanto, se convierte en el instrumento clave para operacionalizar, medir y reportar el compromiso social y ambiental de la empresa, cumpliendo así con su responsabilidad extendida.

"Gray, Owen y Adams (1996) la definen como el proceso de comunicar los efectos sociales y medioambientales de la actividad económica de las organizaciones a determinados grupos de interés en la sociedad y a la sociedad en su conjunto. Como tal, implica extender la responsabilidad de las organizaciones (particularmente empresas) más allá del papel tradicional de proporcionar estados financieros a los propietarios del capital (particularmente a los accionistas). Tal extensión se basa en la presuposición de que las empresas tienen responsabilidades más amplias que hacer dinero para los accionistas" (p. 26).

Garcés, Plaza y Plaza (2022) mencionan que: "La contabilidad social es definida como la 'encargada de identificar, valorar y revelar información concerniente al grado de responsabilidad social de las organizaciones empresariales'. Se constituye entonces en una herramienta para la toma de decisiones no solamente en lo financiero, sino también en lo social, que es utilizada en la planificación estratégica de la gestión organizacional."

***Influencia de la RSE en los sistemas contables***

En Bebbington et al. (2021), se sostiene que la contabilidad de sostenibilidad amplía los sistemas contables tradicionales al incorporar prácticas de medición, control y rendición de cuentas sobre impactos ambientales, sociales y económicos, lo que obliga a revisar principios contables convencionales como la externalización de costos y los criterios de rentabilidad (pp. 29, 51, 52, 67).

Gray, Adams y Owen (2014) explican que:

En términos generales, la contabilidad social es, como mínimo, un complemento al mundo creado por la contabilidad convencional o, más típicamente, ofrece la perspectiva de una visión significativamente diferente (y por lo tanto desafiante) del mundo. La investigación en contabilidad social aborda este desafío buscando impugnar la propiedad de las cuatro características de la contabilidad convencional. [...] La contabilidad social trata de alguna combinación de: contabilizar cosas diferentes (es decir, no solo contabilizar eventos económicos), contabilizar en diferentes medios (es decir, no solo en términos estrictamente financieros); rendir cuentas a diferentes individuos o grupos (es decir, no solo a los proveedores de financiación); y, contabilizar con diferentes propósitos (es decir, para una variedad de fines y no solo para permitir la toma de decisiones cuyo éxito se juzgaría en términos financieros o incluso solo de flujo de caja) (pp. 26–27).

Moneva, J. M. (2005) señala: "En este marco la información financiera ha demostrado importantes carencias para representar la gestión socialmente

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responsable de las organizaciones. Incluso se ha revelado como una maquinaria para acciones opuestas a lo que considera la RSC […] Los principios de la información financiera precisan de nuevos enfoques que se aproximen a los principios básicos que orientan la RSC. La transparencia y la materialidad se contemplan de una forma diferente en los marcos conceptuales de la contabilidad/información financiera, lo que produce una distorsión entre las demandas de los grupos de interés y la información producida por las organizaciones."

"Las empresas se han visto en la obligación de tener que ofrecer, además de sus datos económicos, reflejados en las Cuentas Anuales, otros documentos en los que se recoja la información acerca de temas tanto medioambientales como sociales ahora demandada. Para presentar esta información, se debería disponer de un modelo que fuera utilizado por todas las empresas, ya que no sólo permitiría mostrar datos referentes a la actuación frente a temas de responsabilidad social y/o medioambiental, sino que también facilitaría la comparación de estos datos ofrecidos por empresas diferentes" (Server Izquierdo & Villalonga Grañana, 2005, p. 145).

"La RSC modifica el proceso de toma de decisiones al añadir a los criterios de eficiencia económica la consideración del impacto ambiental y social de las operaciones de la empresa" (Accinelli Gamba & de la Fuente García, 2013, p. 10).

Duque Orozco et al. (2013) señalan que "algunas empresas han elaborado informes que incluyeron de una forma u otra, los aspectos sociales y medioambientales en los cuales tiene impacto su compañía" (p. 5).

El presente estudio tiene como propósito fundamental analizar de manera exhaustiva y sistemática la naturaleza, el alcance y las implicaciones de la influencia positiva que genera la integración contable de la responsabilidad social como un elemento estructural dentro de los sistemas de información contable de las organizaciones contemporáneas. Este análisis se orienta a dilucidar no solo los mecanismos a través de los cuales dicha integración modifica y optimiza la arquitectura funcional de los sistemas contables, sino también a examinar su incidencia correlacional en la evolución y mejora de los indicadores clave que reflejan el desempeño financiero organizacional, con la finalidad de establecer un cuerpo de evidencia empírica que sustente su valor estratégico.

## Métodos

La presente investigación se desarrolló bajo un enfoque metodológico mixto (cualitativo-cuantitativo), transversal, no experimental y correlacional, con el propósito de analizar la influencia de la integración contable de la responsabilidad social empresarial (RSE) en los sistemas contables de las organizaciones del municipio de Escárcega, Campeche. El estudio se realizó

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entre agosto y diciembre de 2025, siguiendo un cronograma secuencial. Según Hernández et al. (2014), la investigación no experimental se encuentra más cerca de las variables formuladas hipotéticamente como "reales" y, en consecuencia, tiene mayor validez externa (posibilidad de generalizar los resultados a otros individuos y situaciones comunes). Para el desarrollo de este estudio se utilizó el método de estudio correlacional, que, de acuerdo con Hernández et al. (2010) tiene como finalidad conocer la relación o grado de asociación que exista entre dos o más conceptos, categorías o variables en un contexto particular.

Para Anaya (2024), en el ámbito de la investigación cualitativa, se sugiere iniciar el primer acercamiento formal a la sistematización de la información del proceso investigativo con una descripción o reconstrucción mediante una narrativa simple que dé cuenta de los hechos observados o de la información obtenida en relación con un tema o problemática. Aguirre y Jaramillo (2015) denominan esta parte de reconstrucción inicial como "descripción interpretativa", un proceso más complejo que implica pasar de la simple investigación descriptiva a la investigación interpretativa. En este caso se propone que se realice solo la descripción a manera de reconstrucción de hechos, sin que se le agreguen interpretaciones, toda vez que estas pueden incorporarse en estudios posteriores a mayor profundidad; en resultados se realiza una breve reconstrucción de observación del fenómeno y se complementa con la parte cuantitativa. Hernández, Fernández y Baptista (2010) en su obra Metodología de la Investigación, sostienen que todo trabajo de investigación se sustenta en dos enfoques principales: el enfoque cuantitativo y el enfoque cualitativo, los cuales de manera conjunta forman un tercer enfoque: El enfoque mixto.

Durante el mes de agosto se llevó a cabo la revisión y consolidación del marco teórico. En septiembre se diseñó y validó el instrumento de recolección de datos, un cuestionario estructurado con escala Likert; además, se realizó una operacionalización que incluía 3 dimensiones por variable y se inició su aplicación. En octubre se completó la aplicación del cuestionario y se inició el procesamiento estadístico de los datos. En noviembre se realizaron el análisis estadístico completo, la redacción de resultados, la discusión, la elaboración de conclusiones y la revisión final del documento, entregándose el proyecto el 03 de diciembre.

Campeche cuenta con 2,780 contadores a nivel estatal (Datos México, 2025). La muestra final fue de contadores públicos en ejercicio activo en Escárcega, Campeche, y seleccionada mediante muestreo no probabilístico por conveniencia; estuvo conformada por 33 profesionales. Para el análisis de datos se utilizó el software Jamovi (versión 2.6), y se evaluó la confiabilidad del instrumento mediante el alfa de Cronbach (0.867) y el ω de McDonald (0.870). Dado que los datos no cumplieron el supuesto de normalidad (prueba

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de Shapiro-Wilk), se empleó el coeficiente Rho de Spearman para el análisis de correlación que posteriormente se informa en el apartado de resultados.

### *Caracterización de la muestra*

La muestra estuvo compuesta por 33 contadores públicos en ejercicio activo en el municipio de Escárcega, Campeche. A continuación, se presentan las características descriptivas de los participantes, véase Tabla 1, 2 y 3; Figura 1 y 2.

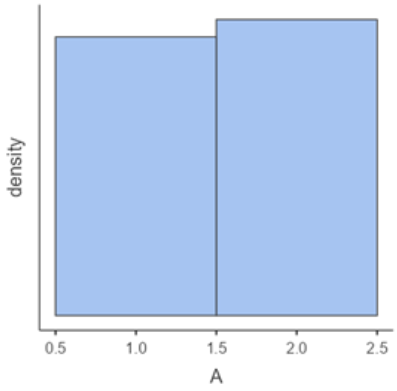
**Tabla 1:** Estadísticas descriptivas del género de los participantes (N=33)

**Descriptivas**

| | **A** |
|---|---|
| **N** | **33** |
| **Perdidos** | **0** |
| **Media** | **1.52** |
| **Mediana** | **2** |
| **Moda** | **2.00** |
| **Desviación estándar** | **0.508** |
| **Mínimo** | **1** |
| **Máximo** | **2** |

**Nota:** Elaboración propia con datos del cuestionario y procesamiento en Jamovi, n = 33.

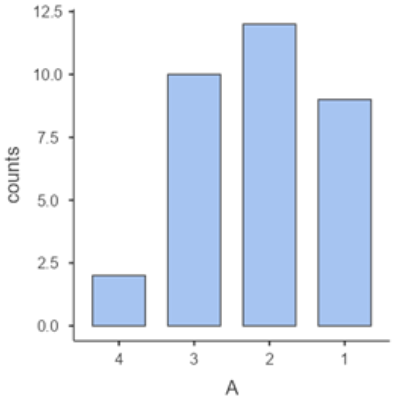
**Figura 1:** Distribución del género de los participantes




**Nota:** El gráfico muestra una ligera predominancia de participantes del sexo femenino (51.5%) sobre el masculino (48.5%). A= Sexo donde 1a barra más alta corresponde a 1 = Masculino, 2 = Femenino. Elaboración propia con datos del cuestionario y procesamiento en Jamovi, n = 33.

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**Figura 2:** Distribución por rangos de edad




**Nota:** La mayoría de los participantes se concentra en el rango de 31 a 45 años (45.5%), seguido del grupo de 18 a 30 años (30.3%). Elaboración propia con datos del cuestionario y procesamiento en Jamovi, n = 33.

**Tabla 2**: Estadísticas descriptivas de años de experiencia profesional (N=33)

**Descriptivas**

| | A |
|---|---|
| **N** | **33** |
| **Perdidos** | **0** |
| **Media** | **3.30** |
| **Mediana** | **4** |
| **Moda** | **4.00** |
| **Desviación estándar** | **1.26** |
| **Mínimo** | **1** |
| **Máximo** | **5** |

**Nota:** La moda y mediana en 4 indican que el perfil típico del participante tiene entre 6 y 10 años de experiencia profesional. Elaboración propia con datos del cuestionario y procesamiento en Jamovi, n = 33.

**Tabla 3:** Distribución del sector laboral de los participantes

**Frequencias de A**

| A | Frecuencias | % del Total | % Acumulado |
|---|---|---|---|
| **1** | **4** | **12.1%** | **12.1%** |
| **2** | **10** | **30.3%** | **42.4%** |
| **3** | **2** | **6.1%** | **48.5%** |
| **4** | **17** | **51.5%** | **100.0%** |

**Nota:** La mayoría de los encuestados (51.5%) se desempeñan en el sector público, lo que refleja una fuerte participación de instituciones gubernamentales en la muestra. Elaboración propia con datos del cuestionario y procesamiento en Jamovi.

## *Análisis de fiabilidad*

Inicialmente se evaluó la consistencia interna del cuestionario mediante los coeficientes alfa de Cronbach y ω de McDonald. Los resultados, presentados en la Tabla 4, indican una confiabilidad excelente.

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**Tabla 4:** Estadísticas de fiabilidad de la escala

| Estadísticas de Fiabilidad de Escala | | |
|---|---|---|
| | **alfa de Cronbach** | **ω de McDonald** |
| **Escala** | **0.867** | **0.870** |

Elaboración propia con datos del cuestionario y procesamiento en Jamovi.

## Resultados

Tras la validación del cuestionario, se procedió a aplicarlo a la muestra de 33 profesionales contables. A continuación, se presentan los resultados de algunas preguntas clave sobre la percepción y la práctica de la integración de la Responsabilidad Social Empresarial (RSE) en los sistemas contables. Cada pregunta se acompaña de su gráfico de frecuencia correspondiente para facilitar la interpretación de las tendencias identificadas.

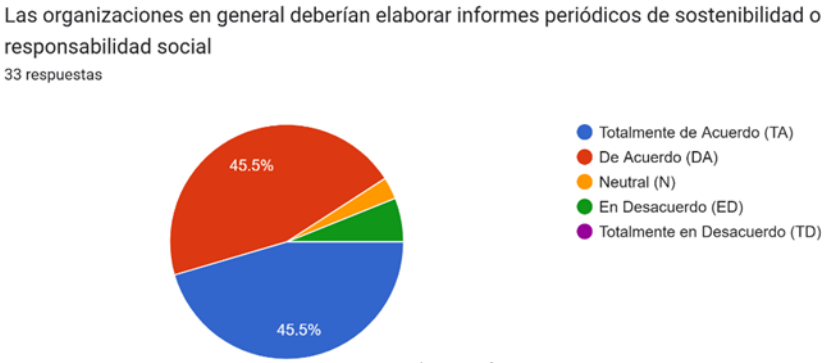



**Figura 3**

El 91% de los contadores encuestados apoya la elaboración de informes periódicos de sostenibilidad, lo que refleja un amplio consenso sobre la importancia de integrar la RSE en la información corporativa.

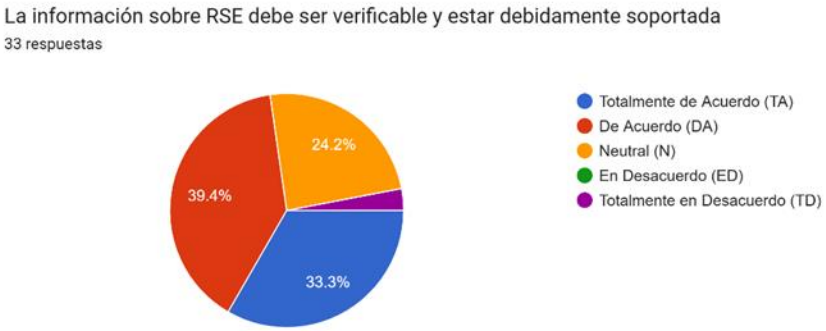



**Figura 4**

El 63.6% de los encuestados (24.2% + 39.4%) considera que la información sobre RSE debe ser verificable y estar debidamente soportada, destacando la importancia de la confiabilidad y el rigor en la información socioambiental reportada.

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**Figura 5**

El 75.8% de los contadores encuestados (33.3% + 42.4%) está de acuerdo con la necesidad de manuales que definan cómo registrar operaciones de RSE, lo que evidencia una demanda clara de estandarización y procedimientos claros para integrar la responsabilidad social en los sistemas contables.

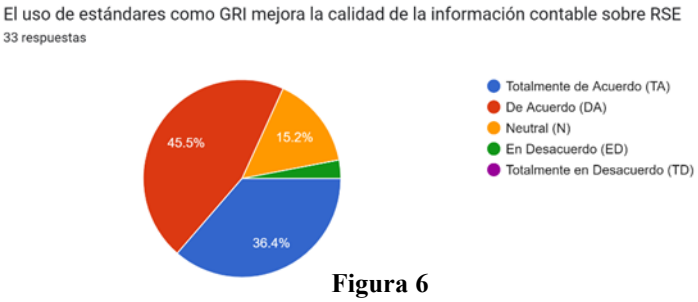



**Figura 6**

El 81.9% de los contadores encuestados (45.5% + 36.4%) considera que el uso de estándares como GRI mejora la calidad de la información contable sobre RSE, lo que refleja una valoración positiva de los marcos normativos para garantizar transparencia y comparabilidad en los reportes socioambientales.

## *Análisis de normalidad*

Para determinar la distribución de los datos y seleccionar las pruebas estadísticas adecuadas, se aplicó la prueba de normalidad de Shapiro-Wilk. Los resultados se presentan en la Tabla 5.

**Tabla 5:** Pruebas de normalidad (Shapiro-Wilk)

| **Pruebas de normalidad** | | | |
|---|---|---|---|
| Shapiro-Wilk | | | |
| **Estadístico** | | **gl** | **Sig.** |
| VAR1 | .831 | 33 | .000 |
| VAR2 | .851 | 33 | .000 |

Nota: Elaboración propia con datos del cuestionario y procesamiento en Jamovi, n = 33.

Dado que el valor p fue menor a 0.05 en ambas variables, se rechazó el supuesto de normalidad, por lo que se optó por utilizar pruebas no paramétricas para el análisis posterior.

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### *Análisis de correlación*

Para examinar la relación entre la integración contable de la RSE(Variable A) y el desempeño positivo de la organización (Variable B), se calculó el coeficiente de correlación Rho de Spearman. Los resultados se muestran en la Tabla 6.

**Tabla 6:** Matriz de correlaciones (Rho de Spearman)

Matriz de Correlaciones

| | | A | | B |
|---|---|---|---|---|
| A | Rho de Spearman | — | | |
| | gl | — | | |
| | valor p | — | | |
| | N | — | | |
| B | Rho de Spearman | 0.607 | *** | — |
| | gl | 31 | | — |
| | valor p | < .001 | | — |
| | N | 33 | | — |

*Nota.* * p < .05, ** p < .01, *** p < .001

Elaboración propia con datos de la encuesta.

El análisis reveló una correlación positiva, moderada-alta y estadísticamente significativa entre ambas variables (Rho = 0.607, p < .001), lo que sugiere que a mayor integración de prácticas de RSE en los sistemas contables, mayor es el nivel de desempeño organizacional reportado.

## Discusión

Los resultados obtenidos confirman que existe una relación positiva y significativa entre la integración contable de la RSE y el desempeño organizacional percibido. Este hallazgo es coherente con lo señalado por Gray, Adams y Owen , quienes sostienen que “la contabilidad social es, como mínimo, un complemento al mundo creado por la contabilidad convencional o, más típicamente, ofrece la perspectiva de una visión significativamente diferente (y por lo tanto desafiante) del mundo” (Gray, Adams y Owen, 2014, pp. 26–27). Además, el alto porcentaje de profesionales que aboga por informes periódicos, información verificable, manuales específicos y el uso de estándares como GRI refleja una madurez creciente en la percepción de la contabilidad social como una herramienta estratégica y no solo como un requisito formal.

Estos hallazgos sugieren que, en el contexto de Escárcega, los contadores públicos reconocen el valor de integrar la RSE en los sistemas contables, pero también identifican la necesidad de mayor estructuración, normatividad y capacitación para implementar estas prácticas de manera efectiva. El estudio presenta como limitación el tamaño muestral y el diseño transversal, por lo que se recomienda para futuras investigaciones ampliar la

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muestra e incorporar metodologías longitudinales que permitan evaluar la evolución de esta integración en el tiempo.

## Conclusiones

El presente estudio permitió analizar la influencia de la integración contable de la Responsabilidad Social Empresarial (RSE) en los sistemas contables desde la perspectiva de los profesionales contables de Escárcega, Campeche. Lo más relevante de este trabajo fue identificar y cuantificar la relación positiva entre la incorporación de prácticas de RSE en los procesos contables y el desempeño organizacional percibido, aportando evidencia empírica en un contexto local que suele estar poco representado en la literatura especializada.

Sin embargo, la investigación enfrentó limitaciones significativas durante la aplicación de la encuesta. La principal dificultad fue la accesibilidad y disposición de los contadores públicos para participar; algunos no pudieron responder debido a factores como la carga laboral, la desconfianza hacia encuestas académicas o la falta de interés en el tema de RSE. Esto afectó el tamaño de la muestra final y, aunque se logró un número suficiente para el análisis estadístico (N=33), limitó la generalización de los resultados a toda la población profesional del municipio. Otra complicación fue la imposibilidad de aplicar un muestreo probabilístico, lo que condujo al uso de un muestreo por conveniencia.

A pesar de estas limitaciones, la investigación aporta una perspectiva valiosa al documentar la percepción y prácticas reales de los contadores en ejercicio, mostrando un claro consenso hacia la necesidad de estandarizar, verificar y reportar la información socioambiental. Se concluye que, en el contexto estudiado, la integración contable de la RSE es vista como un factor positivo que mejora la calidad de los sistemas de información y apoya la toma de decisiones estratégicas, pero su implementación efectiva aún requiere mayor normatividad, capacitación y voluntad organizacional.

**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.

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**Declaración de participantes:** Este estudio ha sido aprobado por el Instituto Tecnológico Superior de Escárcega, contando con participaciones voluntarias e informadas de los participantes del mismo, se siguieron los principios de la Declaración de Helsinki.

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# Strategic Supply Chain Participation and SME Demand Expectations under Environmental Turbulence: Evidence from Italian SMEs

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## Abstract

Small and medium-sized enterprises (SMEs) represent a cornerstone of the Italian industrial system, particularly within strategic supply chains (SSC) that are increasingly regarded as critical to resilience and competitiveness. However, existing literature suggests that the benefits of supply chain integration may not be unequivocal, especially under conditions of heightened market turbulence.

This study investigates whether participation in strategic supply chains influences SMEs' short-term demand expectations in uncertain economic environments. Adopting a contingency-based perspective, the analysis is based on a structured survey of 183 SMEs operating in Lombardy, one of Europe's most industrialised regions. The empirical strategy combines descriptive analysis, non-parametric testing (Mann–Whitney U), and ordered logistic regression to assess differences in demand expectations between SSC-affiliated and non-affiliated firms.

The results show that SMEs embedded in strategic supply chains report significantly more negative short-term demand expectations compared to independent firms, despite exhibiting stronger structural characteristics. This finding challenges the conventional assumption that supply chain participation stabilises firm outlook during periods of turbulence and suggests that embeddedness may increase exposure to systemic risks.

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The study contributes to the literature by providing empirical evidence supporting a contingency-based interpretation of supply chain participation. It also offers managerial and policy implications by highlighting the importance of adaptive and flexible supply chain governance in turbulent environments.

**Keywords:** Instability, strategic supply chain, manufacturing, Lombardy, SME

## Introduction

Over the past decade, firms have increasingly operated within environments characterised by systemic instability and recurrent disruptions. The COVID-19 pandemic, global supply chain bottlenecks, geopolitical tensions, energy price volatility, and accelerated technological change have intensified what organisational scholars define as environmental turbulence—an external context marked by rapid, unpredictable, and interdependent change (Emery & Trist, 1965; Lengnick-Hall & Beck, 2003). This condition is particularly relevant in Europe, where small and medium-sized enterprises (SMEs), representing approximately 99% of firms, constitute the backbone of industrial systems but remain structurally exposed to external shocks.

Within this context, participation in strategic supply chains (SSCs) has traditionally been associated with enhanced SME performance through improved coordination, knowledge transfer, and access to resources (Hult et al., 2007; Johanson & Vahlne, 2009). However, recent literature has challenged this view, suggesting that under conditions of heightened turbulence, tightly coordinated supply chain structures may generate rigidity, dependency, and increased exposure to cascading disruptions (Durst et al., 2022; Karmaker et al., 2023). These contrasting perspectives indicate that the effects of supply chain participation are not universal but contingent upon environmental conditions and governance characteristics.

Despite this growing debate, limited empirical evidence exists on how supply chain embeddedness influences SMEs' forward-looking expectations under turbulent conditions. In particular, the relationship between SSC participation and firms' short-term demand expectations remains underexplored, especially within highly industrialised regional contexts.

This study addresses this gap by investigating whether participation in strategic supply chains is associated with systematically different demand expectations among SMEs operating under environmental turbulence. Adopting a contingency-based perspective, the paper examines how embeddedness within structured supply chains shapes firms' perceptions of future domestic demand.

Empirically, the study is based on a structured survey administered to SMEs in Lombardy, one of Europe's most industrialised regions. The final

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sample includes 183 firms. The analysis combines descriptive profiling, non-parametric tests (Mann–Whitney U), and ordered logistic regression to assess whether SSC participation is associated with statistically significant differences in short-term demand expectations, while controlling for sectoral and structural characteristics.

The results show that SMEs embedded in strategic supply chains report significantly more negative demand expectations compared to non-affiliated firms, despite being structurally larger and more resource-endowed. This finding challenges the conventional assumption that supply chain participation stabilises firm outlook during periods of turbulence and suggests that embeddedness may increase exposure to systemic risks.

The study contributes to the literature in three ways. First, it provides empirical evidence supporting a contingency-based interpretation of supply chain participation. Second, it advances understanding of SME resilience by linking network embeddedness to expectation formation under uncertainty. Third, it offers managerial and policy implications by highlighting the importance of adaptive and flexible supply chain governance in turbulent environments.

Overall, the findings suggest that the benefits of strategic supply chain participation depend not only on coordination and resource access but also on the adaptive capacity of the network in contexts characterised by persistent instability.

Building on this framework, the study addresses the following research questions:

- RQ1. Under which conditions does participation in a strategic supply chain generate competitive advantages for SMEs?
- RQ2. How does strategic supply chain participation influence SMEs' short-term demand expectations under environmental turbulence?
- RQ3. To what extent are the effects of supply chain participation contingent upon sectoral characteristics and structural firm attributes?

By addressing these questions, the paper advances a contingency-based understanding of supply chain participation, highlighting that its effects are conditional rather than universal.

## Methods

This study adopts a non-parametric statistical analysis aimed at examining whether and how participation in strategic supply chains (SSCs) is associated with SMEs' expectations regarding future demand under conditions of environmental turbulence. Rather than presuming that SSC embeddedness systematically enhances firm performance, the analysis is grounded in a contingency framework that considers the joint influence of external turbulence, supply chain governance structures, and firm-level perceptions.

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The methodology applied addresses the conditional nature of SSC benefits by integrating structural association tests, non-parametric comparison, and ordered regression modelling. It allows us to distinguish between simple group differences and structural effects, thereby clarifying whether supply chain embeddedness is associated with systematically different outlooks under turbulent environmental conditions.

The empirical focus is the Lombardy region in Northern Italy (one of Europe's most industrialized territories and a major manufacturing cluster) characterized by a dense network of small and medium-sized enterprises and by regional policies explicitly promoting strategic value chains and collaborative industrial ecosystems. Simultaneously, the region has been significantly exposed to recent systemic shocks—including the COVID-19 pandemic, energy price volatility, and geopolitical instability—making it a suitable setting for investigating SME expectations in turbulent environments.

Empirical data were gathered through a structured survey administered to SMEs operating in Lombardy. The questionnaire collected information on firm characteristics (industry sector, size class, turnover), participation in at least one strategic supply chain, and expectations concerning short-term domestic demand.

More specifically, the survey instrument consisted of a structured questionnaire including three main sections. The first section collected firm-level structural information, including industry sector, number of employees, and turnover class. The second section assessed firms' participation in strategic supply chains through a direct binary question asking whether the firm was affiliated with at least one formally structured supply chain. The third section focused on expectations regarding short-term domestic demand, asking respondents to evaluate expected market trends for the first half of 2025 using an ordinal scale ranging from "very negative" to "positive." All questions were closed-ended to ensure comparability across responses and to allow for statistical analysis. The questionnaire was administered to firm representatives with managerial or ownership roles, ensuring informed responses regarding strategic positioning and market expectations.

The initial dataset comprised 241 responses. After excluding incomplete or internally inconsistent questionnaires, 183 valid observations were retained for analysis. To be included in the final sample, respondents were required to provide unambiguous information regarding:

- participation in at least one strategic supply chain;
- expected demand trends in the Italian market for the first half of 2025.

The resulting dataset allows for a comparative analysis between SMEs embedded in SSCs and those operating independently, enabling the assessment of differences in forward-looking demand expectations under conditions of heightened uncertainty. The main sector is the metal-mechanical

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sector, accounting for 47% of the whole. Along with machinery (3%) and mechanical production (6%) it confirms the high specialization of the Lombardy region. The sample vary substantially in size and turnover (Table 1).

**Table 1:** Sample distribution – turnover and workforce number

| turnover | % | employees | % |
|---|---|---|---|
| < 500.000€ | 12% | 1-5 | 16% |
| > 500.000€, < 1Mil€ | 11% | 6-9 | 14% |
| >1Mil, < 2Mil€ | 18% | 10-15 | 24% |
| > 2Mil, < 5Mil€ | 30% | 16-19 | 10% |
| > 5Mil, < 10Mil€ | 14% | 20-49 | 27% |
| > 10Mil, < 20Mil€ | 9% | 50-99 | 7% |
| > 20Mil, < 50Mil€ | 4% | 100-249 | 2% |
| > 50Mil€ | 1% | | |

Participation in a strategic supply chain (SSC) is operationalized as a binary variable indicating whether the firm reports affiliation with at least one formally structured supply chain in key industrial sectors, including automotive, metallurgy, agri-food, design, and system housing. Firms declaring at least one such affiliation are coded as SSC-affiliated (=1), whereas firms reporting no participation are classified as non-affiliated (=0). This dichotomous specification allows for a clear comparison between embedded and independent SMEs while avoiding assumptions regarding the intensity or quality of supply chain involvement.

Environmental turbulence is not measured as a firm-specific construct within the survey instrument. Instead, it is treated as a contextual macro-level condition characterizing the period under analysis. The study is situated in a post-pandemic and geopolitically unstable phase marked by energy price volatility, supply disruptions, and broader macroeconomic uncertainty. Accordingly, turbulence is conceptualized as an exogenous environmental backdrop influencing firms' expectations rather than as a directly observed firm-level variable. This approach is consistent with the study's theoretical positioning, which focuses on how SMEs form forward-looking demand expectations within widely acknowledged turbulent conditions.

The primary dependent variable captures firms' expectations regarding domestic demand (Italian market) for the first half of 2025. Respondents evaluated expected demand trends using an ordinal scale, subsequently transformed into a numeric expectation index to facilitate comparative analysis:

- +1 = positive
- 0 = stable
- −1 = negative
- −2 = very negative

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This index reflects both the direction and intensity of expected demand dynamics. Although ordinal in origin, the scale is treated as a quasi-interval indicator for descriptive and comparative purposes, enabling the assessment of differences between SSC-affiliated and non-affiliated firms.

To contextualize potential differences in expectations, the analysis incorporates key structural characteristics, including sector of activity, firm size (number of employees), and revenue class. These variables are used to explore whether SSC participation is systematically associated with specific firm profiles and to assess whether observed differences in demand expectations may reflect underlying structural heterogeneity rather than supply chain embeddedness per se (see Table 2).

The empirical strategy combines descriptive profiling, non-parametric comparison, and multivariate modelling to examine the association between strategic supply chain (SSC) participation and SMEs' short-term demand expectations.

The first stage explores whether SSC affiliation is systematically related to firm structural characteristics. The distribution of firms across sectors, size classes (employees), and revenue categories is analysed to detect potential selection patterns into SSCs. Associations between SSC participation and categorical structural variables are tested using Pearson's chi-squared tests of independence. When expected cell frequencies fall below recommended thresholds, Fisher's exact test is employed to ensure robustness. This step assesses whether SSC affiliation is randomly distributed or concentrated among particular SME profiles, thereby clarifying whether subsequent differences in expectations may reflect underlying structural heterogeneity.

The second stage evaluates differences in short-term domestic demand expectations between SSC-affiliated and non-affiliated SMEs. Given the ordinal nature of the demand expectation index and preliminary normality tests (Shapiro–Wilk) indicating deviation from normal distribution, group differences are assessed using the Mann–Whitney U test. Descriptive statistics (mean, median, standard deviation) are reported to capture central tendency and dispersion. Effect sizes (rank-biserial correlation) are also calculated to evaluate the magnitude—not only the statistical significance—of differences between groups.

A third stage aims at further assessing whether SSC participation independently predicts demand expectations after controlling for structural factors; an ordered logistic regression model is estimated. The ordinal demand expectation index serves as the dependent variable, while SSC affiliation is the key explanatory variable. Control variables include:

- Industry sector (categorical),
- Firm size (employees class),
- Revenue class.

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The ordered logit specification is appropriate given the ordinal structure of the dependent variable and allows estimation of the probability of more positive demand expectations conditional on SSC participation and firm characteristics. Model diagnostics include:

- Test of proportional odds assumption,
- Pseudo $R^2$,
- Robust standard errors.

This multivariate approach enables a more rigorous evaluation of whether SSC participation remains associated with differences in expectations once structural characteristics are accounted for.

## Results

The empirical analysis examines whether participation in strategic supply chains (SSCs) is structurally patterned and whether it is associated with systematically different demand expectations under turbulent conditions. Out of 183 valid observations, 129 SMEs (70.5%) report affiliation with at least one strategic supply chain, while 52 firms (28.4%) operate outside SSC structures (table 2). This distribution suggests that SSC participation is widespread but not universal within the regional SME population.

Sectoral composition reveals significant variation in SSC affiliation rates. Manufacturing-intensive industries—such as metal-mechanical, mechanical production, and textile—display the highest shares of SSC-affiliated firms (79%, 82%, and 89%, respectively), reflecting historically structured production systems and vertically coordinated supply relationships in Lombardy.

Conversely, service-oriented activities show a predominance of non-affiliated firms (66.7%), consistent with more fragmented value chains and less formalised inter-firm coordination mechanisms.

**Table 2:** sample distribution in SSC by size, revenues, and sector

| N. EMPLOYEES | No | Yes | REVENUE CLASS | No | Yes |
|---|---|---|---|---|---|
| 1 - 5 | 18.5% | 81.5% | < 500.000€ | 23.8% | 76.2% |
| 6 - 10 | 20.8% | 79.2% | 500.000€-1Mil€ | 36.8% | 63.2% |
| 11 - 15 | 29.3% | 70.7% | 1Mil-2Mil€ | 12.5% | 87.5% |
| 16-19 | 38.9% | 61.1% | 2Mil-5Mil€ | 35.2% | 64.8% |
| 20-49 | 40.8% | 59.2% | 5Mil-10Mil€ | 44.0% | 56.0% |
| 50-99 | 13.3% | 86.7% | 10Mil-20Mil€ | 27.8% | 72.2% |
| 100-249 | 25.0% | 75.0% | 20Mil-50Mil€ | 14.3% | 85.7% |
| sector | No | Yes | >50Mil€ | 0.0% | 100.0% |
| *metalmechanical* | 20.9% | 79.1% | | | |
| *services* | 66.7% | 33.3% | | | |
| *plastic and rubber* | 38.5% | 61.5% | | | |

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| | | | |
|---|---|---|---|
| *mechanical production* | 18.2% | 81.8% | |
| *textile* | 11.1% | 88.9% | |
| *Construction/Stone* | 44.4% | 55.6% | |

A Pearson chi-squared test confirms a statistically significant association between sector and SSC affiliation ($p = 0.0001$). This result indicates that SSC participation is not randomly distributed but structurally embedded within specific industrial configurations. The finding aligns with governance-based perspectives suggesting that supply chain organisation varies systematically across sectors depending on technological complexity, asset specificity, and coordination requirements (Gereffi et al., 2005; Musso & Risso, 2006).

**Table 3:** Bivariate analysis

| **Bivariate analysis** | **Mann- Whitney U test** | **Chi-squared test** |
|---|---|---|
| **Objects under comparison** | **Demand vs SSC** | **Sector vs SSC** |
| P value | 0.0282 | 0.0001 |

A clear structural gradient also emerges with respect to firm size and turnover. Larger SMEs and those positioned in higher revenue brackets are more likely to be SSC-affiliated (table 3). Notably:

- 86.7% of firms with 50–99 employees report SSC participation;
- 100% of firms with turnover above €50 million are embedded in SSCs;

The proportion of non-affiliated firms increases substantially in lower turnover categories (< €1 million). This pattern suggests that SSC participation is associated with organisational scale, resource availability, and relational maturity. Entry into structured supply chains appears to require managerial capabilities and absorptive capacity more commonly found in medium-sized or higher-performing SMEs. These findings address RQ1 by indicating that SSC participation is conditioned by structural characteristics rather than uniformly accessible across the SME population.

**Table 4:** Means and Standard deviation of the groups

| **Group** | **SSC affiliated** | **Not SSC affiliated** |
|---|---|---|
| **N.** | 129 | 52 |
| **Mean Demand Index** | -0.46 | -0,13 |
| **Std. Deviation** | 0.94 | 0,74 |

The core empirical question concerns whether SSC affiliation is associated with different short-term demand expectations under turbulent macroeconomic conditions.

Table 4 reports group-level statistics for the demand expectation index. SSC-affiliated firms ($N = 129$) display a mean value of –0.46 ($SD = 0.94$), whereas non-affiliated firms ($N = 52$) show a mean of –0.13 ($SD = 0.74$).

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Two elements deserve attention:

- Difference in *central tendency*: although the median value is neutral (0) for both groups, the mean difference suggests that SSC-affiliated SMEs report systematically more negative expectations regarding short-term domestic demand.
- Difference in *dispersion*: the higher standard deviation among SSC-affiliated firms (0.94 vs. 0.74) indicates greater variability in expectations within this group. This suggests that SSC-embedded SMEs are not uniformly pessimistic, but rather display a wider distribution of outlooks, potentially reflecting heterogeneous exposure to sector-specific shocks or supply chain dynamics.

Overall, while both groups operate in a context characterised by uncertainty, SSC-affiliated SMEs appear on average more cautious or pessimistic. The Mann–Whitney U test confirms that the distributional difference between the two groups is statistically significant ($p = 0.0282$). Given the ordinal origin of the index and its non-normal distribution, this non-parametric test provides robust evidence that SSC participation is associated with systematically different demand expectations. This result directly addresses RQ2: under turbulent conditions, SMEs embedded in strategic supply chains exhibit significantly less optimistic short-term demand expectations compared to independent firms. The finding challenges the conventional assumption that supply chain integration necessarily stabilises expectations during crises. While SSC participation may provide coordination benefits in stable environments, it may also entail heightened exposure to upstream and downstream shocks, stricter contractual commitments, and reduced strategic discretion.

At the same time, the interpretation should remain cautious. The observed difference does not imply causality but indicates a statistically meaningful association between embeddedness and expectations.

The interpretation of demand expectations must be contextualised within sectoral dynamics. Industries characterised by strong SSC integration—such as mechanical and metal-mechanical production—are also those more exposed to input cost volatility, export dependence, and energy price shocks. In contrast, sectors with lower SSC integration—particularly service-oriented activities—may face fewer supply-side rigidities and retain greater strategic flexibility. These patterns support RQ3 by suggesting that the benefits or constraints of SSC participation are contingent upon both sectoral exposure and governance structure. The impact of embeddedness is therefore not uniform but mediated by the configuration of the supply chain and the nature of industry-specific shocks.

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Taken together, the empirical evidence supports a contingency-based interpretation of SSC participation:

- *Structural selectivity*: SSC affiliation is concentrated among larger, higher-revenue, and manufacturing-oriented SMEs.
- *Expectation divergence under turbulence*: SSC-affiliated firms report significantly more negative short-term demand expectations than non-affiliated SMEs.
- *Heterogeneity within SSC group*: Greater dispersion of expectations among embedded firms suggests differentiated exposure to supply chain dynamics.
- *Conditional benefits*: SSC participation appears advantageous in structured and stable contexts but may entail constraints under turbulent conditions unless governance structures allow flexibility and adaptive reconfiguration.

Overall, the findings reinforce the theoretical argument that the effects of supply chain embeddedness are not universal but contingent upon environmental conditions and sectoral characteristics.

**Discussion**

The empirical findings provide nuanced evidence regarding the relationship between strategic supply chain (SSC) participation and SME outlook under turbulent environmental conditions. Contrary to the dominant assumption that network embeddedness systematically enhances resilience, the results suggest that SSC-affiliated SMEs report significantly more pessimistic short-term demand expectations compared to non-affiliated firms, despite exhibiting stronger structural characteristics (larger size, higher revenue classes, and concentration in manufacturing sectors).

This pattern should not be interpreted as evidence that SSC participation undermines performance. Rather, it indicates that embeddedness may alter firms' exposure and sensitivity to systemic shocks. SMEs operating within structured supply chains are more deeply integrated into coordinated production systems, often characterised by higher asset specificity, contractual commitments, and dependence on key partners. Under turbulent macroeconomic conditions, such interdependencies may amplify perceived vulnerability to upstream and downstream disruptions. This interpretation is consistent with recent research highlighting the risks associated with hierarchical or tightly coupled supply chain governance structures, particularly in periods of systemic instability (Durst et al., 2022; Karmaker et al., 2023).

In contrast, non-affiliated SMEs display comparatively less negative demand expectations. This finding does not imply superior competitive

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positioning but may reflect greater strategic discretion and operational flexibility. Independent firms may retain higher autonomy in reallocating resources, adjusting market focus, or diversifying client portfolios without navigating formalised coordination mechanisms. In turbulent environments, such flexibility may influence expectations even in the absence of scale advantages.

Sectoral patterns further contextualise these results. SSC participation is concentrated in manufacturing-intensive industries—such as mechanical and metal-mechanical production—that are structurally exposed to global cost volatility, export fluctuations, and input-price shocks. The more pessimistic outlook of SSC-affiliated firms may therefore reflect sector-specific exposure rather than network membership per se. This reinforces a contingency perspective: the effects of SSC participation depend on the interaction between industry characteristics, governance structures, and environmental turbulence.

Overall, the findings support the argument that SSC benefits are conditional rather than universal. In stable environments, structured coordination may enhance efficiency, knowledge flows, and competitiveness. However, in periods of heightened turbulence, the advantages of embeddedness depend critically on the adaptive capacity of the supply chain. Where coordination mechanisms are rigid, centralised, or slow to reconfigure, SSC membership may constrain responsiveness. Conversely, supply chains characterised by flexible contracting, distributed decision-making, digital coordination, and shared risk management are more likely to sustain SME resilience.

The results therefore contribute to the broader debate on network governance and resilience by suggesting that supply chains themselves must develop dynamic capabilities to support member firms in turbulent contexts.

## Conclusion

This study examined whether participation in strategic supply chains is associated with differences in SMEs' short-term demand expectations under conditions of environmental turbulence. The empirical analysis, based on non-parametric tests and ordered logistic regression, provides consistent evidence of a statistically significant association between SSC participation and more negative demand expectations. Specifically, the Mann–Whitney U test indicates that SSC-affiliated firms report significantly lower expectation levels compared to non-affiliated SMEs. This result is further supported by the multivariate analysis, which confirms that the association remains robust after controlling for sector, firm size, and revenue class.

These findings suggest that supply chain embeddedness does not necessarily stabilise firm outlook under turbulent conditions. Instead, SSC participation appears to be associated with greater exposure to systemic risks

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and heightened sensitivity to external shocks, particularly in manufacturing-intensive sectors.

The findings offer several implications for SME managers and supply chain leaders. For SME managers, the results highlight that supply chain participation should not be viewed solely as a stability-enhancing strategy. In turbulent environments, embeddedness may increase exposure to systemic shocks. Managers should therefore assess not only the benefits of coordination and scale but also the flexibility of governance mechanisms within the supply chain. For supply chain coordinators and lead firms, the study underscores the importance of adaptive governance. Mechanisms such as flexible contracting, transparent information sharing, digital coordination tools, and shared risk management practices may mitigate the constraints associated with rigid hierarchical structures. For policymakers, the findings suggest that industrial policies promoting strategic value chains should also incorporate measures that enhance flexibility and inclusiveness, ensuring that network integration strengthens rather than constrains SME resilience.

Although this exploratory work gives interesting insights, several limitations must be acknowledged. First, the study relies on self-reported expectations rather than objective performance indicators. While expectations are relevant for strategic decision-making, they may be influenced by subjective perceptions or behavioural biases. Second, environmental turbulence is treated as a contextual macro-level condition rather than measured at the firm level. Future research could incorporate direct measures of perceived turbulence or objective indicators of volatility. Third, the cross-sectional nature of the survey limits causal inference. The analysis identifies associations but does not establish whether SSC participation causes differences in expectations. Fourth, the empirical setting is limited to Lombardy. Although the region represents a major European manufacturing hub, caution is required when generalising results to other institutional or industrial contexts. Future research could employ longitudinal designs, incorporate performance outcomes, and extend the analysis to other regional or national settings.

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# Factores asociados a la cultura emprendedora en estudiantes de pregrado de la Universidad Juárez Autónoma de Tabasco

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## Resumen

En México el emprendimiento representa una alternativa relevante para los jóvenes universitarios, debido a su potencial para generar valor económico y social, así como para fortalecer la autonomía profesional. Sin embargo, la limitada consolidación de una cultura emprendedora es un desafío en la educación superior. El presente estudio tuvo como propósito analizar las actitudes, percepciones y competencias relacionadas con la cultura emprendedora en estudiantes de pregrado de la División Académica Multidisciplinaria de los Ríos de la Universidad Juárez Autónoma de Tabasco, institución pública en el sureste de México. Se utilizó un enfoque cuantitativo de alcance descriptivo, mediante la aplicación de un cuestionario estructurado a una muestra representativa de estudiantes pertenecientes a seis programas educativos. El instrumento permitió evaluar dimensiones vinculadas con la creatividad, la autoconfianza, el apoyo familiar, la tolerancia al fracaso y la motivación emprendedora. Los resultados indican que la mayoría de los entrevistados se concentra en un nivel medio de cultura emprendedora, mientras que una proporción menor alcanza niveles altos . Asimismo, se observa que, aunque predomina la intención de emprender, esta no siempre se traduce en acciones concretas, principalmente debido a la falta de recursos económicos, el temor al fracaso y dificultades en la identificación de oportunidades. Los hallazgos evidencian la existencia de un potencial

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emprendedor en los estudiantes de la DAMR-UJAT, que requiere ser fortalecido mediante estrategias institucionales orientadas no solo al desarrollo de habilidades técnicas, sino también al empoderamiento personal y al acompañamiento formativo. Lo anterior permitiría favorecer la transición de las intenciones emprendedoras hacia proyectos viables con impacto social y económico en la región.

**Palabras clave:** Cultura emprendedora universitaria; estudiantes de licenciatura; formación emprendedora; emprendimiento juvenil; factores sociodemográficos

# Evaluation of Entrepreneurial Culture in University Students of the Juárez Autonomous University of Tabasco

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**Abstract**

In Mexico, entrepreneurship represents an area of opportunity for young people due to its potential to generate economic and social value. The lack of an entrepreneurial culture among college students represents an obstacle to their personal growth and autonomy. The objective of this research was to evaluate attitudes and perceptions toward entrepreneurship among undergraduate students at the Multidisciplinary Academic Division of Los Ríos (DAMR) of the Juárez Autonomous University of Tabasco (UJAT), a public institution in southeastern Mexico. A structured questionnaire was administered to a representative sample across six academic programs to assess variables related to entrepreneurial culture, such as creativity, self-confidence, family support, tolerance for failure, and entrepreneurial motivation. It was found that a minority (10%) of students scored high on the entrepreneurial culture assessment, while 49% scored at a medium level and 40% at a low level. Another finding is that, although the intention to start a business is prevalent among the surveyed students, this is not reflected in entrepreneurial actions. This is due to a lack of financial resources, fear of failure, and a lack of creativity, all of which limit entrepreneurial projects. It is concluded that there is entrepreneurial potential among students at the DAMR, UJAT, for which institutional support is necessary to strengthen it through university programs that promote not only technical skills but also

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personal empowerment. This will enable the transformation of young people's intentions into viable projects with social and economic impact for the region.

**Keywords:** University entrepreneurial culture; undergraduate students; entrepreneurial education; youth entrepreneurship; sociodemographic factors

## Introduction

El emprendimiento representa un área de oportunidad para los jóvenes universitarios. La actividad de emprender se reconoce tanto por sus beneficios para los emprendedores en cuanto a su crecimiento personal y autonomía como para la sociedad en su conjunto al impulsar el crecimiento y desarrollo económico de un país o región. A través del emprendimiento los estudiantes universitarios pueden materializar sus ideas en iniciativas que estimula la innovación y aportar a la solución de problemáticas en su entorno que generen valor económico y social. Cuando las universidades promueven este tipo de proyectos, se crean las condiciones favorables para autoempleo y la diversificación de la economía regional. No obstante sus beneficios el emprendimiento no suele ser una una prioridad para los estudiantes universitarios (Mora Pacheco *et al*., 2019).

En este contexto las instituciones de educación superior tienen un rol preponderante en el desarrollo de competencias, actitudes y valores que promuevan la iniciativa emprendedora en sus estudiantes.

A pesar del reconocimiento del emprendimiento como un factor clave para el desarrollo económico y social, se observa una limitada participación de los estudiantes universitarios en actividades emprendedoras, particularmente en contextos regionales con oportunidades emergentes. En el ámbito universitario, esta situación se manifiesta en una escasa materialización de ideas de negocio acompañado de escasa integración de competencias emprendedoras en la trayectoria formativa de los estudiantes.

Asímismo la evidencia empírica sugiere que la sola existencia de programas académicos no garantiza el desarrollo efectivo de una cultura emprendedora. Por lo que resulta necesario examinar las percepciones, actitudes y motivaciones de los estudiantes universitarios, al tratarse de factores individuales que influyen directamente en el desarrollo de la cultura emprendedora.

Desde una perspectiva teórica el emprendimiento ha sido analizado por diversos autores quienes buscan explicar el comportamiento y las motivaciones de quienes emprenden. Con base en la teoría de McClelland (1961) retomada por Pulgarín y Cardona (2011) se sostiene que los emprendedores suelen presentar alta necesidad de logro, lo cual los impulsa a asumir riesgos aunque enfrenten contextos adversos. De acuerdo con lo anterior emprender no solo requiere la habilidad para desarrollar ideas

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innovadoras sino también es importante la capacidad de concretarlas en proyectos.

La cultura emprendedora se relaciona con la innovación, lo que conlleva a crear o transformar un producto o servicio en algo más atractivo y con mayores ventajas competitivas. Pese a ello, la cultura emprendedora no sólo se basa en crear o innovar, sino también en planificar y gestionar proyectos con el fin de alcanzar objetivos tanto en el ámbito profesional como en la vida cotidiana de las personas (Bianchi *et al.*, 2011). En conjunto, estas características constituyen factores relacionados al desarrollo de la cultura emprendedora en estudiantes universitarios.

Para Alemany *et al*. (2011) el espíritu emprendedor comprende dos tipos de capacidades: genéricas y específicas. Las capacidades genéricas son aplicables a la sociedad en su conjunto o a un colectivo como el estudiantil que se aborda en esta investigación. Por su parte las específicas se orientan al crecimiento profesional como empresario y se fundamentan en las habilidades generales.

Se espera que lo resultados de esta investigación contribuyan a ampliar el conocimiento sobre la cultura emprendedora en una institución pública de educación superior como lo es la UJAT con divisiones académicas ubicadas en regiones con dinámicas socioeconómicas emergentes. Asímismo, permitirá contrastar los enfoques teóricos clásicos y contemporáneos del emprendimiento con la realidad de los estudiantes.

La División Académica Multidisciplinaria de los Ríos (DAMR) es uno de los 12 campus académicos que integran la Universidad Juárez Autónoma de Tabasco (UJAT), una universidad pública situada en el sureste de México, donde se imparten programas educativos de pregrado y posgrado; por lo que este estudio aporta evidencia empírica en un contexto poco documentado.

Desde una perspectiva social, el estudio resulta pertinente debido a las condiciones de desarrollo del municipio de Tenosique, Tabasco, México, el cual se encuentra en una etapa de transformación económica derivada de proyectos de infraestructura y turismo asociados al Tren Maya, así como proyectos con enfoque social y ambiental tales como Jóvenes Construyendo el Futuro y Sembrando Vida . En este escenario, la ausencia de una cultura emprendedora sólida entre los jóvenes universitarios podría limitar su participación en los beneficios económicos locales y propiciar la dependencia de inversionistas externos, con posibles efectos de desplazamiento productivo y pérdida de oportunidades para el desarrollo endógeno.

La participación de los jóvenes universitarios en actividades orientadas al emprendedurismo puede constituirse en un mecanismo efectivo de movilidad social especialmente en regiones como lo es la Región de los Ríos, Tabasco donde se localiza la institución objeto de estudio y en la cual la oferta de empleos para profesionistas es limitada.

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En el estado de Tabasco, si bien existen antecedentes que indican un interés inicial de los jóvenes por emprender, como lo señala el Instituto Mexicano de la Juventud (INJUDET), persiste una falta de información sistematizada y actualizada sobre la actividad emprendedora juvenil, especialmente a nivel universitario. De igual manera, la ausencia de datos específicos por parte del Instituto Nacional de Estadística, Geografía e Informática (INEGI) evidencia una brecha en la comprensión del fenómeno, lo que dificulta el diseño de políticas públicas y estrategias educativas basadas en evidencias.

En el caso particular de la División Académica Multidisciplinaria de los Ríos se ha identificado una baja participación de estudiantes en el desarrollo de iniciativas emprendedoras, a pesar de encontrarse en un entorno territorial con potencial económico derivado de proyectos turísticos y de infraestructura impulsados por el gobierno federal y estatal. Esto implica el riesgo de que los beneficios derivados del desarrollo regional sean aprovechados principalmente por actores externos, lo que limita la participación de los jóvenes universitarios como agentes activos de cambio y desarrollo local.

En este contexto, el problema central de la investigación se vincula con la limitada comprensión de los factores relacionados a la cultura emprendedora en estudiantes universitarios de instituciones públicas mexicanas. Lo anterior debido a que existe una limitada comprensión de los factores que limitan la efectividad de las estrategias de fomento al emprendimiento y a las capacidades emprendedoras en programas de pegrado en la universidades públicas como lo es la UJAT.

Por lo anterior, resulta pertinente analizar los factores tanto a nivel individual como social e institucional con incidencia en la cultura emprendedora de los estudiantes universitarios de la institución objeto de estudio, con el propósito de generar evidencia empirica que contribuya al diseño de acciones que favorezcan la formación integral de la comunidad estudiantil de la DAMR, UJAT.

Desde una perspectiva práctica, se espera que los resultados de esta investigación aporten información relevante para la toma de decisiones institucionales en programas educativos de nivel superior, al identificar los principales factores asociados a la cultura emprendedora estudiantil en la DAMR, UJAT. Estos hallazgos podrán servir como base para el diseño, fortalecimiento, o reorientación de las acciones que esta institución realiza para fomentar el emprendimiento. De igual forma será posible fortalecer el vínculo entre la universidad y el entorno socioeconómico de la Región Ríos, Tabasco, promoviendo una formación integral que favorezca la autonomía profesional de los estudiantes de pregrado de la DAMR, UJAT.

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En este contexto el estudio se orienta a responder la siguiente pregunta de investigación¿Cuáles son los factores asociados a la cultura emprendedora en los estudiantes universitarios de pregrado en la División Académica Multidisciplinaria de los Ríos de la Universidad Juárez Autónoma de Tabasco, México?

## Objetivos

General

Analizar los factores asociados a la cultura emprendedora en estudiantes universitarios de pregrado de la Universidad Juárez Autónoma de Tabasco, considerando variables individuales, sociales e institucionales.

Objetivos específicos

Describir el nivel de cultura emprendedora de los estudiantes universitarios de la División Académica Multidisciplinaria de los Ríos de la UJAT.

Identificar las principales dimensiones y subdimensiones que conforman la cultura emprendedora de los estudiantes universitarios.

Analizar la relación entre variables sociodemográficas (género, edad, programa educativo, experiencia laboral y estado civil) y la cultura emprendedora.

Comparar el nivel de cultura emprendedora entre los distintos programas educativos de la DAMR-UJAT.

Identificar fortalezas y áreas de oportunidad en la cultura emprendedora de los estudiantes universitarios, con el fin de aportar elementos para el fortalecimiento de la formación emprendedora en la institución.

## Marco Teórico

*Emprendimiento y cultura emprendedora: conceptualización y evolución.* El emprendimiento es una fuerza que impulsa el crecimiento económico y ha sido objeto de diversos análisis que reflejan su naturaleza multifacética alrededor del mundo. El emprendimiento promueve la innovación necesaria para aprovechar nuevas oportunidades, aumentar la productividad, crear empleo y abordar desafíos sociales. Por ello, gobiernos, organizaciones e instituciones consideran el espíritu empresarial como una parte clave de la solución para problemas como la pobreza, la desigualdad y el cambio climático (Silva *et al*, 2021).

De acuerdo con la psicología organizacional, el emprendimiento es un proceso donde intervienen la identificación, evaluación y explotación de oportunidades para desarrollar nuevos productos, servicios o procesos (Jerónimo y Neves, 2024). A partir de este enfoque, Vera *et al*., (2024) consideran el emprendimiento como la intersección entre oportunidades

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empresariales e individuales con características que les permiten reconocer y aprovechar dichas oportunidades. En este punto de vista se destacan las dimensiones cognitiva y motivacional del emprendimiento, tales como las características individuales del emprendedor, tomados como base de este análisis en universitarios.

La cultura emprendedora, por su parte, representa un constructo más amplio que implica más que el acto individualista de iniciar un negocio. El concepto de cultura emprendedora según Genoveva (2019), abarca un conjunto de valores y habilidades que complementan a las personas para manejar con éxito los cambios en su entorno. Esta definición reconoce que el contexto social y cultural en que se desarrollan afecta el comportamiento de los emprendedores.

*Cultura emprendedora en el contexto universitario.* En el contexto universitario, la cultura emprendedora adquiere características particulares. Para Vera *et al*. (2024) la cultura emprendedora se refiere a las actitudes, percepciones y competencias que los estudiantes desarrollan hacia la creación de empresas y la innovación, influenciadas por factores individuales y por el ecosistema institucional. Esta definición reconoce las características individuales de los estudiantes como son la creatividad, autoconfianza y motivación, así como el rol que ejercen las instituciones educativas como facilitadores o inhibidores del acto de emprender.

El modelo de gestión del conocimiento de la universidad emprendedora, acuñado por Henry Etzkowitz, describe a instituciones de educación superior que no sólo generen y transmitan el conocimiento , sino que también promuevan su comercialización y la creación de empresas derivadas, como las spin-offs (Saoula *et al*., 2023). Sin embargo, en el contexto latinoamericano este modelo enfrenta desafíos particulares relacionados con escasez de recursos, políticas y marcos legales restrictivos, así como culturas institucionales orientadas a la formación profesional más que a la innovación y emprendimiento (Trivedi, 2016; Chavez *et al*., 2025).

De acuerdo con Vera *et al*. (2024) las investigaciones orientadas a comprender la cultura emprendedora universitaria han sido abordadas desde dos perspectivas. La primera se enfoca en las actitudes, percepciones y competencias que los estudiantes desarrollan hacia el emprendimiento, mientras que la segunda comprede la parte institucional, como la infraestructura de apoyo, la oferta curricular y las políticas que incentivan la innovación y la creación de empresas. En Latinoamérica la cultura emprendedora en universidades públicas presenta características distintivas (Costin *et al*., 2021).

En el contexto específico de universidades públicas mexicanas, Neri (2024) señala que, aunque las políticas públicas han promovido la educación emprendedora, los resultados en creación de nuevas empresas son limitados.

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Estos resultados evidencian la desconexión entre la formación académica y las necesidades del mercado, la escasez de recursos para financiar proyectos emprendedores y la persistencia de una cultura institucional que privilegia el empleo formal sobre el autoempleo.

La cultura emprendedora universitaria también está influenciada por factores sociodemográficos y contextuales. De acuerdo con D´Armas *et al*. (2024), el perfil emprendedor de estudiantes universitarios en países en desarrollo está influenciado por variables como el género, la edad, la educación, la ocupación de los padres y la exposición previa a modelos emprendedores de familiares o conocidos que influyen significativamente en sus actitudes y competencias emprendedoras. Estos hallazgos subrayan la importancia de considerar el contexto sociocultural específico al analizar la cultura emprendedora en poblaciones estudiantiles particulares.

Saavedra *et al*. (2025) analizaron los factores que influyen en la intención de emprender en estudiantes universitarios mexicanos; encontraron que el atractivo profesional del emprendimiento, el control percibido y las habilidades empresariales son predictores significativos de la intención emprendedora. Sin embargo, también señalan que existe una brecha entre las actitudes favorables y la acción concreta, relacionadas con barreras como la falta de recursos económicos, el temor al fracaso y la insuficiente preparación práctica.

*Teorías del comportamiento emprendedor.* Se han enunciado diferentes teorías sobre el comportamiento emprendedor, entre ellas se encuentra la Teoría de Comportamiento Planificado (TCP) de Icek Ajzen desarrollada en 1991, la Teoría de Motivación al logro de McClelland, que proporcionan marcos explicativos del comportamiento emprendedor y la Teoría de la Autoeficacia de Albert Bandura, que enfatiza el rol de las creencias de competencia personal (Jerónimo y Neves, 2024).

La Teoría del Comportamiento Planificado explica la intención emprendedora en estudiantes universitarios; postula que el comportamiento humano está determinado por la intención de realizarlo y que dicha intención, a su vez, está influenciada por tres factores principales: 1) la actitud hacia el comportamiento, que refleja la evaluación favorable o desfavorable que el individuo hace de la conducta; 2) las normas subjetivas, que representan la percepción de la presión social para realizar o no la conducta; y 3) el control conductual percibido, que se refiere a la percepción de facilidad o dificultad para ejecutar el comportamiento (Ajzen, 1991; Ajzen 2002).

En el contexto del emprendimiento universitario, autores como Vera *et al*. (2024), Choque-Yarasca *et al*. (2025), D´Armas *et al*. (2024) entre otros han aplicado la TCP. La evidencia empírica ha resultado ser consistente con la propuesto por Ajzen (1991; 2002) de que las creencias sobre las consecuencias del comportamiento (actitud) y sobre la capacidad personal

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para ejecutarlo (control percibido) son determinantes centrales de la intención en emprender. Sin embargo, la TCP presenta limitaciones en la capacidad predictiva en cuanto a la intención, ya que la brecha entre intención y comportamiento efectivo es un desafío especialmente en el contexto universitario donde muchos estudiantes expresan su deseo de emprender pero pocos lo materializan (Sheeran y Webb, 2016; Salati Marcondes de Moraes *et al*., 2018; Lei *et al*., 2023).

Otra corriente que ha sido utilizada para comprender el comportamiento emprendededor es la Teoría de la Motivación al Logro de David McClelland (1961), donde propone que los individuos están motivados por tres necesidades psicológicas básicas: la necesidad de logro, la necesidad de poder y la necesidad de afiliación. En el contexto del emprendimiento la necesidad de logro es particularmente relevante puesto que los individuos con alta necesidad de logro tienden a preferir situaciones donde pueden asumir responsabilidades personales por los resultados, establecer metas moderadamente desafiantes, buscar retroalimentación sobre su desempeño y mostrar persistencia ante las dificultades. Estas características son congruentes con el perfil del emprendedor, quien debe identificar oportunidades, asumir riesgos calculados, establecer objetivos empresariales y perseverar ante los obstáculos inherentes a la creación de nuevas empresas.

Investigaciones como la de Reyes-Cruz *et al*. (2019) y Mónico *et al*. (2024), identifican la motivación al logro como un factor psicológico significativo que impulsa la actividad emprendedora; estos autores indican que estudiantes con mayor motivación al logro muestran actitudes más favorables hacia el emprendimiento y mayor disposición a asumir riesgos empresariales. Sus hallazgos confirman que las motivaciones emprendedoras son determinantes clave para emprender y que la preparación académica modera esta relación.

No obstante algunos críticos señalan que la necesidad de logro está relacionada con lo establecido culturalmente , cuya relevancia y manifestación pueden variar según el contexto sociocultural en que se desenvuelve el emprendedor (Triandis, 2001). En culturas colectivistas, la necesidad de afiliación y el apoyo social pueden ser tan o más importantes que la necesidad de logro individual para explicar el emprendimiento (Hofstede, 2001). Además, la teoría de McClelland se centra en motivaciones intrínsecas, pero la evidencia muestra que motivaciones extrínsecas (necesidad económica, falta de alternativas laborales) también impulsan el emprendimiento, especialmente en contextos de países en desarrollo (Acs, 2006).

Por otra parte, la Teoría Social Cognitiva de Bandura ha demostrado su eficacia como predictor de la intención y el comportamiento emprendedor (Bandura, 1997; Zhao, 2005). De acuerdo con la Teoría Social Cognitiva Chen *et al*., (1998) plantean que la autoconfianza en el ámbito del emprendimiento

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se expresa a través de la autoeficacia emprendedora, la cual hace referencia a la valoración que hace un individuo sobre su capacidad para realizar con éxito las tareas que implica la creación y gestión de una empresa.

Con base en lo anterior, Mlotshwa *et al*., (2025) analizaron en estudiantes africanos la relación entre la autoeficacia, la motivación emprendedora y el comportamiento emprendedor. Los hallazgos de su investigación indican que una mayor percepción de autoeficacia se asocia con niveles más altos de motivación y persistencia, lo que favorece la puesta en marcha sus proyectos, incluso cuando existen factores externos que los limitan. Esto coincide con la propuesta de la Teoría Social Cognitiva de Bandura (1997) en donde se sostiene que las creencias sobre la propia eficacia personal influyen en el esfuerzo invertido, la selección de actividades y como perserveran aunque enfrenten situaciones difíciles.

A su vez Salati Marcondes de Moraes *et al.,* (2018) estudiaron las características emprendedoras y del entorno de los estudiantes para analizar sus efectos sobre la intención emprendedora en una universidad de Brazil. Sus resultados revelan que en la medida en que se desarrollen las competencias emprendedoras se incrementa la intención de emprender. Esto a su vez mejora la percepción de capacidad personal de los estudiantes con lo que se consigue reforzar sus disposición a emprender.

De igual manera, Elnadi y Gheith (2021) analizan el ecosistema emprendedor, la autoeficacia emprendedora y la intención emprendedora en educación superior en Arabia Saudita; encontraron que la autoeficacia media la relación entre el ecosistema emprendedor y la intención emprendedora. Este hallazgo indica que un ecosistema favorable (con recursos, apoyo institucional, modelos de rol) no influyen directamente en la intención, sino que lo hacen fortaleciendo la autoeficacia de los estudiantes: cuando perciben que el entorno les proporciona recursos y apoyo, se sienten más capaces de emprender.

A su vez, Saoula *et al*. (2023) investigan si la autoeficacia, la motivación y el apoyo familiar mejoran la intención emprendedora, con el rol mediador de la educación. Sus resultados confirman que la autoeficacia tiene un efecto positivo y significativo sobre la intención emprendedora y que la educación media parcialmente esta relación. Esto sugiere que la educación contribuye a la intención no solo proporcionando conocimientos técnicos, sino también fortaleciendo la autoeficacia de los estudiantes a través de experiencias de dominio (proyectos exitosos), aprendizaje vicario (observación de modelos emprendedores) y persuasión verbal como la retroalimentación positiva de instructores y mentores.

Costin *et al*. (2021) analizan el efecto de la educación emprendedora como impulso o ancla de la confianza, aptitud y autoeficacia emprendedoras de los estudiantes. Sus hallazgos revelan que la efectividad de la educación

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emprendedora en el desarrollo de la autoeficacia depende de factores como el diseño pedagógico, la calidad de los instructores y la alineación entre las expectativas de los estudiantes y el contenido del programa. Cuando la educación emprendedora está mal diseñada o genera expectativas irrealistas, puede tener efectos contraproducentes, disminuyendo la autoeficacia de los estudiantes.

La autoconfianza también está relacionada con la tolerancia al fracaso. Estudiantes con alta autoeficacia tienden a percibir el fracaso como una oportunidad de aprendizaje más que como una amenaza a su autoestima, lo que les permite asumir riesgos calculados y persistir ante las dificultades. Por el contrario, estudiantes con baja autoeficacia pueden desarrollar miedo al fracaso, evitando situaciones desafiantes y limitando su potencial emprendedor (Shepherd, 2003; Cacciotti y Hayton, 2015).

El análisis de la actitud emprendedora revela convergencias entre diferentes teorías como la Teoría del Comportamiento Planificado de Ajzen, la Teoría de la Motivación al Logro de McClelland y la Teoría de Bandura. Sin embargo se encontraron algunos vacíos metodológicos y contextuales que limitan la comprensión del fenómeno en universidades públicas latinoamericanas. Este marco sustenta la investigación sobre cultura emprendedora en la Universidad Juárez Autónoma de Tabasco, proporcionando las bases conceptuales para comprender cómo las competencias individuales, los factores psicológicos y el apoyo social configuran el potencial emprendedor de los estudiantes universitarios.

## Métodos

La investigación se desarrolló bajo un enfoque cuantitativo, con un diseño no experimental y descriptivo; su propósito fue caracterizar de manera sistemática las percepciones, actitudes y motivaciones de los estudiantes universitarios en relación con la cultura emprendedora. Este enfoque resulta pertinente cuando se busca describir fenómenos sociales a partir de la medición objetiva de variables previamente definidas, sin manipularlas deliberadamente.

El proceso de investigación, comenzó con una revisión documental sistemática, para sustentar teóricamente las variables analizadas y contextualizar el fenómeno del emprendimiento juvenil en la DAMR, UJAT. Para tal fin se recurrió a consultas en base de datos especializadas utilizando las siguientes palabras clave jóvenes, intención emprendedora, emprendimiento, cultura emprendedora en México y Tabasco así como beneficios del emprendimiento. Esta revisión permitió identificar enfoques teóricos, dimensiones recurrentes y variables empíricamente validadas en estudios previos, las cuales sirvieron de base para la selección y justificación de las dimensiones del instrumento de medición.

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*Población y muestra*. La población objetivo estuvo conformada por estudiantes inscritos en la División Académica Multidisciplinaria de los Ríos (DAMR) de la Universidad Juárez Autónoma de Tabasco (UJAT), durante el ciclo escolar febrero–junio de 2025, con un total de 474 estudiantes distribuidos en seis programas educativos de nivel licenciatura.

El tamaño de la muestra se determinó mediante la fórmula para poblaciones finitas, considerando un nivel de confianza del 95 %, un margen de error del 10 % y una proporción poblacional estimada de 0.5, criterio recomendado cuando no se dispone de información previa sobre la variabilidad del fenómeno estudiado, ya que maximiza el tamaño muestral requerido. Con base en estos parámetros, se estimó un tamaño de muestra mínimo de 87 estudiantes.

Si bien el tamaño de la muestra puede considerarse moderado, se optó por un muestreo probabilístico estratificado, lo cual fortalece la representatividad interna del estudio. Cada uno de los seis programas educativos (Licenciatura en Administración, Licenciatura en Derecho, Ingeniería en Acuicultura, Licenciatura en Informática Administrativa, Licenciatura en Enfermería e Ingeniería en Alimentos) constituyó un estrato independiente. La asignación de la muestra por estrato se realizó de manera proporcional al tamaño de cada programa, garantizando así una representación equitativa de las distintas áreas académicas.

Posteriormente, dentro de cada estrato se aplicó un procedimiento de selección aleatoria simple, asegurando que todos los estudiantes tuvieran la misma probabilidad de ser seleccionados. Este diseño muestral permite describir adecuadamente la población estudiantil de la DAMR; no obstante, los resultados se interpretan con cautela en términos de generalización externa, limitándose al contexto institucional analizado.

*Instrumento de recolección de datos*. La recolección de datos se realizó mediante un cuestionario estructurado, adaptado a partir de los instrumentos propuestos por García *et al*. (2017) y Osorio, Settles y Shen (2017), ampliamente utilizados en estudios sobre cultura e intención emprendedora en contextos universitarios. Con el el propósito de asegurar su pertiencia para el contexto de la DAMR, UJAT el instrumento se adaptó para ajustar los ítemas a las características socioculturales y académicas de los estudiantes.

El cuestionario se conforma de 40 ítems, organizados en dos dimensiones principales: Cultura Emprendedora y Jóvenes Emprendedores, las cuaes se sustentan en enfoques teóricos actuales del emprendimiento, entre las que destacan la Teoría de la Intención Emprendedora (Ajzen, 1991) y los modelos de competencias emprendedoras. Debido a que estos enfoques postulan que variables como las actitudes, las percepciones, la creatividad, la experiencia laboral y las motivaciones personales interactúan en la configuración del comportamiento emprendedor. Diversas investigaciones

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previas reconocen estas dimensiones como elementos centrales en la formación de la intención y la acción emprendedora, motivo por el cual fueron consideradas en este estudio.

Estas dimensiones se fundamentan en enfoques teóricos contemporáneos del emprendimiento, como la Teoría de la Intención Emprendedora (Ajzen, 1991) y los modelos de competencias emprendedoras. los cuales plantean que las actitudes, percepciones, creatividad, experiencia laboral y motivaciones personales influyen en el comportamiento emprendedor.

Las variables consideradas como actividad laboral, espíritu emprendedor y creatividad emprendedor, fueron seleccionadas a partir de la revisión de la literatura especializada que las identifica como elementos fundamentales de la cultura emprendedora en jóvenes universitarios. En este marco, la experiencia laboral constribuye al desarrollo de habilidades prácticas y la identificación de oportunidades; el espíritu emprendedor se vincula con la motivación, la autonomía y la orientación al logro; en tanto que la creatividad emprendedora cumple un papel central en los procesos de innovación y generación de valor.

La medición de las variables se realizó a través de una escala tipo Likert de cinco categorías de respuesta, que mide la frecuencia de conductas o percepciones, lo que permitió identificar distintos niveles en las actitudes de los estudiantes hacia el emprendimiento.

*Validez y fiabilidad del instrumento*. Para evaluar la pertinencia, claridad y coherencia de cada ítem con respecto a las dimensiones teóricas propuestas, se realizó una revisión de seis especialistas en el área de emprendimiento y educación superior. A partir de sus observaciones se ajutó la redacción de los reactivos que así lo requirieron con el objeto de ajustar la redacción de algunos reactivos y fortalecer su alineación conceptual.

Como un procedimiento complementario, se aplicó una prueba piloto a diez estudiantes de características similares a la población objetivo, lo que permitió detectar posibles ambigüedades, así como mejorar la comprensión de los reactivos y verificar la adecuación del tiempo de aplicación del cuestionario. El análisis de fiabilidad, realizado mediante el coeficiente Alfa de Cronbach, obteniéndose un valor de 0.87, lo que refleja consistencia interna del cuestionaro y de la confiabilidad de los constructos que se evaluan.

*Análisis de datos*. El análisis de los datos se realizó mediante estadística descriptiva, utilizando el software Microsoft Excel. Para la interpretación de los resultados, las puntuaciones obtenidas en la escala Likert fueron transformadas en baremos, lo que permitió clasificar el nivel de cultura emprendedora de los estudiantes en tres categorías: bajo, medio y alto.

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**Tabla 1:** Escala de cultura de emprendimiento

| ***Nivel*** | ***Intervalo*** |
|---|---|
| Bajo | 30 - 63 |
| Medio | 64 - 102 |
| Alto | 103 - 145 |

Finalmente, se garantizó el cumplimiento de los principios éticos de la investigación, mediante la obtención del consentimiento informado de los participantes y el resguardo de la confidencialidad y anonimato de la información recolectada.

## Resultados

El propósito de esta investigación es evaluar la cultura emprendedora entre los jóvenes universitarios que cursan su estudios de pregrado en la División Académica Multidisciplinaria de los Ríos de la Universidad Juárez Autónoma de Tabasco, ubicada en el municipio de Tenosique, Tabasco, México. El objetivo fue comprender cómo los estudiantes universitarios de esta institución educativa perciben el emprendimiento y qué actitudes manifiestan al respecto, puesto que dichos factores inciden directamente en la intención de emprender.

*Caracterización de la muestra.* La muestra se integró por 87 estudiantes distribuidos en seis programas educativos: Licenciatur en Enfermería (n=32, 36.8 %), Licenciatura en Administración (n=24, 27.6 %), Licenciatura en Informática Administrativa (n=20, 23.0 %), Licenciatura en Derecho (n=6, 6.9 %), Ingeniería en Alimentos (n=4, 4.6 %) e Ingeniería en Acuicultura (n=1, 1.1 %).

En cuanto al sexo, el 69.0 % (n=60) fueron mujeres y el 31.0 % (n=27) hombres. Respecto al grupo de edad, el 67.8 % (n=59) se encontraba en el rango de 18-20 años, el 19.5 % (n=17) entre 21-24 años y el 12.6 % (n=11) tenía 25 años o más. El estado civil predominante fue soltero/a con 92.0 % (n=80), seguido por unión libre 4.6 % (n=4) y casado/a 3.4 % (n=3). Respecto a la experiencia laboral, el 69.0 % (n=60) reportó haber realizado alguna actividad laboral, mientras que el 31.0 % (n=27) no cuenta con experiencia laboral previa.

*Análisis descriptivo de la cultura emprendedora.* Los 87 estudiantes encuestados presentaron un puntaje promedio de 97.26 ± 15.77 puntos en la escala de cultura emprendedora, con un rango de 68 a 140 puntos, como se muestra en la Tabla 2. La distribución por niveles mostró que el 67.82 % (n=59) se ubicó en el nivel medio (64-102 puntos) y el 32.18 % (n=28) alcanzó el nivel alto en el rango de 103-145 puntos. Ningún estudiante se ubicó en el nivel bajo. Estos resultados indican que los estudiantes de la DAMR-

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UJAT poseen una cultura emprendedora favorable, con actitudes, percepciones y competencias positivas hacia el emprendimiento.

**Tabla 2:** Estadísticas descriptivas por dimensión

| Dimensión | N | Media | DE | Mín | Máx |
|---|---|---|---|---|---|
| Cultura Emprendedora | 87 | 24.19 | 5.27 | 13 | 38 |
| Jóvenes Emprendedores | 87 | 73.07 | 11.67 | 52 | 105 |
| Puntaje Total | 87 | **97.26** | **15.77** | **68** | **140** |

El puntaje promedio de 97.26 puntos indica un nivel medio-alto de cultura emprendedora. La desviación estándar de 15.77 puntos sugiere una dispersión moderada, lo que evidencia cierta homogeneidad en las percepciones y actitudes emprendedoras de los estudiantes. La dimensión Jóvenes Emprendedores (que incluye poder interior, relacional y exterior) presenta un puntaje superior con una Media de 73.07 en comparación con Cultura Emprendedora (Media=24.19), lo que sugiere que los estudiantes de la DAMR-UJAT poseen mayores competencias personales y de apoyo social que conocimientos y habilidades específicas de emprendimiento (Tabla 3).

**Tabla 3:** Distribución por nivel de cultura emprendedora

| Nivel | Intervalo | Frecuencia | Porcentaje | Interpretación |
|---|---|---|---|---|
| Bajo | 30-63 | 0 | 0% | Ningún estudiante se ubica en nivel bajo |
| Medio | 64-102 | 59 | 67.82% | Más de dos tercios presenta nivel medio |
| Alto | 103-145 | 28 | 32.18% | Uno de cada tres alcanza nivel alto |
| **TOTAL** | | 87 | 100% | Predomina el nivel medio de cultura emprendedora |

Es relevante resaltar que la ausencia de estudiantes en nivel bajo es un indicador que las políticas institucionales tienen un impacrto positivo en cuanto al fomento al emprendimiento. El 67.82 % en nivel medio sugiere que la mayoría de estudiantes ha desarrollado competencias emprendedoras

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básicas, las cuales son susceptibles de mejora. El 32.18 % con un nivel alto evidencia que aproximadamente un tercio de los estudiantes encuestados se destaca por sus actitudes, conocimientos y habilidades emprendedoras lo cual resulta beneficioso para el desarrollo del emprendimiento en esta institución.

*Análisis descriptivo por subdimensiones.* Se llevó a cabo un análisis descriptivo por subdimensiones, como se observa en la Tabla 4. Las subdimensiones que obtuvieron puntajes más altos fueron *Tolerancia al fracaso* (Media = 21.87) y *Apoyo familiar* (Media = 15.70), lo que sugiere que los estudiantes destacan por su capacidad de resiliencia y cuentan con un entorno familiar favorable para el emprendimiento. En contraste, la subdimensión *Búsqueda de oportunidades* (Media = 1.75) presenta el puntaje más bajo, lo que sugiere una oportunidad de mejora que requiere atención a nivel institucional. La *Creatividad* (Media = 15.99) y la *Autoestima* (Media = 14.78) muestran un nivel favorable, lo que constituye una base sólida para el desarrollo emprendedor en esta institución educativa.

**Tabla 4:** Estadísticas descriptivas por subdimensión

| Subdimensión | N | Media | DE | Interpretación |
|---|---|---|---|---|
| Cultura Emprendedora: Creatividad | 87 | 15.99 | 3.45 | Nivel medio-alto |
| Cultura Emprendedora: Habilidades Negociación | 87 | 6.45 | 2.12 | Nivel medio |
| Cultura Emprendedor: Búsqueda Oportunidades | 87 | 1.75 | 1.55 | Nivel bajo |
| Jóvenes Emprededores: Autoestima | 87 | 14.78 | 2.95 | Nivel medio-alto |
| Jóvenes Emprendedores: Autoconfianza | 87 | 7.53 | 2.07 | Nivel medio-alto |
| Jóvenes Emprededores: Apoyo Financiero | 87 | 13.18 | 4.14 | Nivel medio |
| JóvenesEmpredendores: Apoyo Familiar | 87 | 15.70 | 3.49 | Nivel medio-alto |
| JóvenesEmprededores: Tolerancia al Fracaso | 87 | 21.87 | 4.27 | Nivel alto |

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*Análisis comparativo por variables sociodemográficas. Diferencias por género.* En cuanto al comparativo de Cultura Emprendedora por género se observa una diferencia mínima de 1.17 puntos a favor de los hombres (M = 98.07) en comparación con las mujeres (M = 96.90), indicado en la Tabla 5. Esta diferencia es prácticamente inexistente, lo que sugiere que el género no es un factor determinante en la cultura emprendedora de los estudiantes de la DAMR-UJAT. En términos de distribución por niveles, el 31.67 % de las mujeres alcanzó el nivel alto versus el 33.33 % de los hombres, diferencia que tampoco es sustancial. Ambos grupos se concentran predominantemente en el nivel medio (68.33 % mujeres vs 66.67 % hombres).

**Tabla 5:** Comparación de cultura emprendedora por género

| Género | N | % | Media | DE | Nivel predominante |
|---|---|---|---|---|---|
| Femenino | 60 | 69.0 % | 96.90 | 16.06 | Medio (68.3 %) |
| Masculino | 27 | 31.0 % | 98.07 | 15.28 | Medio (66.7 %) |
| Diferencia | | | +1.17 | | |

Este hallazgo contrasta con estudios previos que reportan brechas de género en intención emprendedora (Maheshwari *et al*., 2023), donde los hombres suelen mostrar mayor propensión al emprendimiento. La ausencia de diferencias significativas en este estudio podría reflejar avances en la equidad de género en la institución educativa objeto de estudio, así como el impacto de políticas institucionales inclusivas que promueven el emprendimiento sin distinción de género.

*Diferencias por programa educativo.* El análisis por programa educativo reveló diferencias importantes. Los estudiantes de la Lienciatura en Administración presentaron los puntajes más altos (Media = 102.21), seguidos por estudiantes de la Licenciatura en Enfermería (Media = 99.12). En contraste, con los encuestados de Ingeniería en Alimentos se encontró el puntaje más bajo (Media = 82.00), con una diferencia de 20.21 puntos respecto a la Licenciatura en Administración, mostrado en la Tabla 6.

Estas variaciones pueden explicarse por diferencias en el diseño de la curricula y la formación disciplinar entre los diferentes programas educativos. En el programa de la Licenciatura en Administración el currículo incluye asignaturas específicas de emprendimiento, gestión de proyectos, innovación y desarrollo de negocios, lo que favorece el desarrollo de competencias emprendedoras desde la formación académica. En cuanto a la Licenciatura Enfermería aunque es una carrera del área de la salud, se ha incorporado en su

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curricula contenidos de gestión de servicios de salud y emprendimiento en salud comunitaria, lo que explica sus buenos indicadores.

En lo que respecta a Ingeniería en Informática Administrativa, a pesar de ser una carrera con alto potencial emprendedor (desarrollo de software, startups tecnológicas), el puntaje medio sugiere que el currículo podría no estar enfatizando suficientemente las competencias emprendedoras.

Por su parte la Licenciatura en Derecho, el puntaje relativamente bajo podría reflejar una orientación curricular con un enfoque más tradicional, enfocada en el ejercicio profesional público o dependiente más que en el emprendimiento legal. Y, en lo que respecta a Ingeniería en Alimentos, el puntaje más bajo sugiere una formación predominantemente técnica con escasa integración de contenidos emprendedores.

**Tabla 6:** Cultura emprendedora por programa educativo

| Programa | N | % | Media | DE | Nivel predominante |
|---|---|---|---|---|---|
| **Administración** | 24 | 27.6 % | **102.21** | 14.62 | Medio (62.5 %) |
| **Enfermería** | 32 | 36.8 % | **99.12** | 17.58 | Medio (65.6 %) |
| Acuicultura | 1 | 1.1 % | 98.00 | - | Medio |
| Informática | 20 | 23.0 % | 93.40 | 13.45 | Medio (65.0 %) |
| Derecho | 6 | 6.9 % | 90.50 | 15.02 | Medio (83.3 %) |
| **Alimentos** | 4 | 4.6 % | **82.00** | 6.27 | Medio (100 %) |

Los resultados revelan que es necesario transversalizar la formación emprendedora en todos los programas educativos de la DAMR-UJAT, particularmente en aquellos con puntajes inferiores al promedio institucional (97.26). Además, los programas con orientación técnica y de ciencias de la salud también pueden beneficiarse de competencias emprendedoras aplicadas a sus contextos específicos.

*Diferencias por grupo de edad.* En cuanto a la diferencias por grupos de edad no se observó una tendencia creciente con la edad. Los estudiantes de más 25 años presentaron el puntaje más alto (Media = 98.18), seguidos por el grupo de 18-20 años (Media = 97.71), mientras que el grupo de 21-24 años mostró el puntaje más bajo (Media = 95.12). Las diferencias son mínimas (rango de 3.06 puntos) por lo que no sugieren una relación lineal entre edad y cultura emprendedora (Tabla 7).

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**Tabla 7:** Comparación de Cultura Emprendedora por grupo de edad

| Grupo de Edad | N | % | Media | DE | Nivel predominante |
|---|---|---|---|---|---|
| 25+ años | 11 | 12.6% | 98.18 | 14.23 | Medio (63.6%) |
| 18-20 años | 59 | 67.8% | 97.71 | 16.17 | Medio (67.8%) |
| 21-24 años | 17 | 19.5% | 95.12 | 16.00 | Medio (70.6%) |

Este hallazgo contrasta con la hipótesis de que la madurez y la acumulación de experiencias de vida fortalecen la cultura emprendedora. Una posible causa es el efecto de cohorte: los estudiantes más jóvenes (18-20 años) podrían haber estado expuestos a políticas institucionales recientes de fomento al emprendimiento que los grupos de mayor edad no experimentaron. Otra causa posible es que los estudiantes de más de 25 años que deciden cursar estudios universitarios podrían tener mayor claridad en sus objetivos profesionales y emprendedores. Sin embargo, en este estudio el grupo de más de 25 es pequeño (n = 11), lo que limita la generalización de resultados.

*Diferencias por experiencia laboral.* En lo referente a las diferencias por experiencia laboral se encontró que los estudiantes con experiencia laboral presentaron puntajes superiores (Media = 98.85) en comparación con aquellos sin experiencia (Media = 93.74), con una diferencia de 5.11 puntos (Tabla 8). Si bien esta diferencia no es muy amplia, es consistente con la teoría del aprendizaje experiencial de Kolb (1984), que sostiene que la práctica fortalece las competencias y actitudes. De acuerdo con este autor la experiencia laboral, aunque no sea específicamente emprendedora, contribuye al desarrollo de habilidades de gestión del tiempo y responsabilidad, capacidad de resolución de problemas reales, tolerancia a la frustración y el fracaso, así como al desarrollo de redes de contacto profesionales las cuales son relevantes para el emprendimiento.

**Tabla 8:** Comparación de Cultura Emprendedora por experiencia laboral

| Experiencia Laboral | N | % | Media | DE | Nivel predominante |
|---|---|---|---|---|---|
| **Sí tiene experiencia** | 60 | 69.0 % | **98.85** | 16.92 | Medio (63.3 %) |
| **No tiene experiencia** | 27 | 31.0 % | **93.74** | 12.40 | Medio (77.8 %) |
| Diferencia | | | **+5.11** | | |

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En términos de distribución por niveles, el 36.67 % de estudiantes con experiencia laboral alcanzó el nivel alto de cultura emprendedora; en contraste, sólo el 22.22 % de estudiantes sin experiencia. Esto sugiere que la experiencia laboral facilita el tránsito hacia niveles superiores de cultura emprendedora. Lo anterior sugiere una implicación práctica, que las instituciones educativas deben promover experiencias laborales y prácticas profesionales desde los primeros semestres, incluyendo pasantías, proyectos con empresas, voluntariado en organizaciones y participación en incubadoras de negocios con la intención de apoyar la cultura emprendedora.

*Diferencias por estado civil.* En cuanto a las diferencias por estado civil, los estudiantes casados presentaron el puntaje más alto (M = 105.33), con una diferencia de 8.18 puntos respecto a los solteros (M = 97.15) como se muestra en la Tabla 9. Sin embargo, dado el tamaño reducido de la muestra de estudiantes casados (n = 3), este hallazgo debe interpretarse con cautela y no puede generalizarse. Una posible explicación es que los estudiantes casados enfrentan mayores responsabilidades económicas y familiares, lo que podría motivarlos a desarrollar competencias emprendedoras como estrategia de generación de ingresos adicionales o autonomía laboral.

**Tabla 9:** Comparación de Cultura Emprendedora por estado civil

| Estado Civil | N | % | Media | DE | Nivel predominante |
|---|---|---|---|---|---|
| Casado/a | 3 | 3.4 % | 105.33 | 22.03 | Alto (66.7 %) |
| Soltero/a | 80 | 92.0 % | 97.15 | 15.92 | Medio (67.5 %) |
| Unión libre | 4 | 4.6 % | 93.50 | 6.40 | Medio (100 %) |

Al analizar el efecto del estado civil en la cultura emprendedora se encontró que el género no es un factor determinante al no observar diferencias significativas entre hombres y mujeres, lo que sugiere equidad de género en el desarrollo de la cultura emprendedora en la DAMR-UJAT. Sin embargo, se encontró que el programa educativo tiene influencia significativa: los programas educativos de Administración y Enfermería destacan con los mejores indicadores, mientras que Ingeniería en Alimentos y las licenciaturas en Derecho e Informática presentaron áreas de oportunidad. La diferencia de 20 puntos entre el programa educativo con mayor y menor puntaje evidencia la necesidad de transversalizar la formación emprendedora.

De igual manera, la experiencia laboral contribuye positivamente a la cultura emprendedora, ya que los estudiantes con experiencia laboral presentan puntajes de 5.11 superiores y mayor proporción en nivel alto,

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confirmando el valor del aprendizaje experiencial. Sin embargo, variables como la edad no muestran una relación lineal, ya que por el contrario a lo esperado, no se observó una tendencia creciente clara con la edad, lo que sugiere que otros factores (currículo, motivación personal, experiencias específicas) tienen mayor peso que el número de años.

**Discusión**

El presente estudio encontró que el 67.82 % de los estudiantes de la DAMR-UJAT poseen un nivel predominantemente medio de cultura emprendedora (97.26 ± 15.77), mientras que el 32.18 % alcanzó un nivel alto. Este hallazgo es parcialmente consistente con investigaciones previas en contextos universitarios mexicanos que reportan niveles moderados de intención y actitudes emprendedoras (García *et al*., 2017; Osorio *et al*., 2017).

El hecho de que ningún estudiante se ubique en el nivel bajo es un indicador altamente positivo que sugiere que las iniciativas institucionales de fomento al emprendimiento están generando un impacto favorable en la percepción y actitudes de los estudiantes. No obstante, el predominio del nivel medio (67.82 %) y la proporción relativamente menor en nivel alto (32.18 %) indican que, si bien la institución ha sentado bases sólidas, aún existe un amplio margen para llevar a los estudiantes hacia niveles de excelencia emprendedora.

Con relación a la influencia de las variables sociodemográficas se encontró que el análisis por programa educativo reveló diferencias sustanciales, con la Licenciatura en Administración presentando los puntajes más altos (M=102.21) e Ingeniería en Alimentos los más bajos (M=82.00). Esta variación de 20.21 puntos es la más significativa encontrada en el estudio y puede explicarse por múltiples factores. Un primer factor son las diferencias curriculares de los programas, como la orientación empresarial en la Licenciatura en Administración que integran naturalmente contenidos de emprendimiento, gestión de proyectos, innovación y desarrollo de negocios en su malla curricular. En contraste, programas técnicos como Ingeniería enAlimentos e Ingeniería enAcuicultura y de ciencias sociales (Licenciatura en Derecho) mantienen currículos con un enfoque tradicional con escasa integración de competencias emprendedoras. Este hallazgo coincide con Maheshwari *et al*. (2023), quienes encontraron que la formación disciplinar influye significativamente en las competencias emprendedoras.

Tambien es relevante mencionar que cada disciplina posee una cultura profesional que influye en las aspiraciones de sus estudiantes. La Licenciatura en Administración promueve explícitamente el emprendimiento como salida profesional, mientras que la Licenciatura en Derecho se orienta hacia un ejercicio profesional dependiente (litigio, judicatura, función pública).

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Otro factor es el perfil de ingreso, es posible que estudiantes con mayor orientación emprendedora seleccionen carreras afines a los negocios, generando un efecto de autoselección que explica parcialmente las diferencias observadas.

Además, los programas con mayor cultura emprendedora suelen contar con docentes emprendedores y alumnos exitosos que funcionan como modelos de rol e inspiración para los estudiantes. Por lo que es necesario transversalizar la formación emprendedora en todos los programas educativos, no solo en aquellos con orientación empresarial. Las carreras técnicas y de salud también pueden beneficiarse de competencias emprendedoras aplicadas a sus contextos específicos (bioemprendimiento, tecnología médica, consultoría especializada entre otros).

En cuanto los estudiantes con experiencia laboral estos mostraron puntajes puntos superiores, confirmando la teoría del aprendizaje experiencial de Kolb (1984). Aunque esta diferencia no es muy amplia (5.11 puntos), es consistente con investigaciones que demuestran que la práctica, incluso laboral no emprendedora, fortalece competencias transferibles al emprendimiento. Jaimes Millán *et al*. (2017) reportaron hallazgos similares en estudiantes mexicanos, donde la experiencia práctica era el predictor más fuerte de intención emprendedora. La experiencia laboral desarrolla competencias técnicas, socioemocionales y emprendedoras.

Por ello las instituciones educativas deberían promover experiencias laborales y prácticas profesionales desde los primeros semestres, incluyendo, proyectos integradores con emporesas, participación en incubadoras de negocios, voluntariado en organizaciones sociales, además de actividades que desarrollen competencias de emprendimiento en los diferentes programas educativos (hackatones, competencias de pitch).

La ausencia de diferencias significativas por sexo (diferencia 1.17 puntos) es un hallazgo relevante que contrasta con estudios que reportan brechas de género en intención emprendedora (Maheshwari *et al*., 2023; Brush *et al*., 2019). Las posibles explicaciones son avances en equidad de género: la UJAT ha avanzado significativamente en la promoción de la igualdad de género, lo que se refleja en oportunidades equitativas para el desarrollo emprendedor.

La DAMR-UJAT implementa políticas de fomento al emprendimiento sin sesgos de género, donde se promueve la participación equitativa de mujeres y hombres. Este hallazgo es alentador y sugiere que las políticas institucionales están logrando crear un entorno inclusivo que no discrimina por género en el desarrollo de competencias emprendedoras.

Otro factor es el cambio generacional, se ha encontrado que las nuevas generaciones han sido socializadas en contextos más igualitarios, lo que

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reduce las barreras culturales tradicionales que limitaban la participación femenina en el emprendimiento.

En lo que respecta a la edad se encontró una relación no lineal, contrario a la hipótesis de que la madurez fortalece la cultura emprendedora, no se observó una tendencia creciente clara con la edad. El grupo de 21-24 años presentó incluso puntajes inferiores al grupo más joven (18-20 años).

En este sentido los estudiantes de menor edad podrían haber estado más expuestos a estrategias institucionales de la UJAT orientadas al fomento al emprendimiento implementadas recién que los grupos de mayor edad no experimentaron. Otra cuestión a considerar es que los estudiantes de más de 25 años que deciden estudiar en la universidad pueden tener mayor claridad en sus objetivos profesionales y aspiraciones emprendendoras lo se refleja en puntajes ligeramente superiores.

El análisis por subdimensiones permitió identificar fortalezas relevantes que constituyen una base favorable para el emprendimiento universitario, como la alta tolerancia al fracaso, el respaldo del entorno familiar y niveles adecuados de creatividad. Estos elementos sugieren que los estudiantes de la DAMR, UJAT cuentan con recursos personales y sociales con potencial para facilitar el desarrollo de iniciativas emprendedoras. No obstante, los resultados evidenciaron imitaciones para emprender en cuanto a la búsqueda de oportunidades y el acceso a los apoyo financieros de instituciones públicas y privadas.

Asimismo, los resultados confirman lo propuesto por Kolb (1984) en cuanto a la relevancia de la formación disciplinar y de la experiencia laboral como factores asociados a mayores niveles de cultura emprendedora. Al mismo tiempo, la ausencia de diferencias significativas por sexo sugiere avances en términos de equidad de género, lo que indica que el entorno educativo de la DAMR, UJAT desempeña un papel relevante en en el fomento al emprendimiento en esta universidad.

En este sentido, los hallazgos del estudio ponen de manifiesto que, aunque los estudiantes de la DAMR, UJAT presentan disposiciones favorables hacia el emprendimiento, existe una brecha que separa la intención de la acción emprendedora. Esta situación subraya la necesidad de fortalecer el papel de la institución como agente facilitador, a través de programas formativos que incluyan el acompañamiento y acceso a recursos de los estudiantes de esta institución para que estos pueden desarrollar propuestas de empredimiento que se conviertan en proyectos viables. que permitan convertir las propuestas emprendedoras de los estudiantes A partir de estos elementos, el siguiente apartado presenta las principales conclusiones derivadas del presente estudio.

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## Conclusiones

Con base en la evaluación de la cultura emprendedora de los estudiantes de la DAMR, UJAT se concluye que estos presentan un nivel medio de cultura emprendedora que se caracteriza por actitudes y disposiciones favorables hacia el emprendimiento, sin embargo, no se traducen en acciones concretas de emprendimiento.

Si bien los estudiantes entrevistados de la DAMR, UJAT poseen fortalezas personales y sociales tales como: tolerancia al fracaso, apoyo familiar y creatividad que benefician el emprendimiento, persisten factores derivados de su formación profesional y de carácter institucional particularmente aquellos relacionados con la identificación de oportunidades y el acceso a recursos que impiden la transformación de dichas capacidades en proyectos viables de emprendimiento.

Como parte del análisis de las variables sociodemográficas se encontró que el programa educativo constituye uno de los factores con mayor incidencia, al evidenciar diferencias entre disciplinas lo que revela que la formación disciplinar influye en el desarrollo de las competencias emprendedoras. Los estudiantes de la Licenciatura en Administración y de Enfermería obtuvieron los puntajes más altos, mientras que aquellos pertenecientes a programas con orientación técnica o jurídica presentaron niveles inferiores de cultura emprendedora. Esta variación sugiere que la formación disciplinar influye de manera

Por ello se recomienda para la DAMR, UJAT integrar contenidos y experiencias de emprendimiento de forma transversal en todos los programas educativos, particularmente en aquellos donde materias asociadas al emprendimiento no forman parte central del currículo.

Asimismo, el hecho de que los estudiantes tengan algún tipo de experiencia en el mercado laboral favorece un puntaje más alto lo que confirma que la práctica laboral, incluso no emprendedora, fortalece habilidades transferibles que se asocian a un mayor nivel de cultura emprendedora. Esta situación confirma la relevancia del aprendizaje experiencial en el fortalecimiento de habilidades, actitudes y percepciones vinculadas con el emprendimiento en la DAMR; UJAT. En contraste, variables como la edad no mostraron una relación lineal con la cultura emprendedora, lo que sugiere que aspectos como la motivación personal, la exposición a entornos formativos favorables y la calidad de la experiencia académica tienen mayor peso que la edad. En cuanto al género, la ausencia de diferencias significativas constituye un hallazgo relevante, pues manifiesta que las políticas y programas implementados en cuanto equidad de género en la UJAT favorece el desarrollo de las competencias emprendedoras.

El análisis por subdimensiones permitió identificar fortalezas en los estudiantes de la DAMR, UJAT que representan una base favorable para el

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emprendimiento universitario. Se destacan la tolerancia al fracaso, el apoyo del entorno familiar y niveles adecuados de creatividad. No obstante, también se identificaron áreas de oportunidad especialmente en la búsqueda de oportunidades y en el acceso a apoyo financiero, que obstaculizan los proyectos emprendedores. Por ello se recomienda reforzar los programas institucionales de la UJAT de emprendimiento para reforzar la orientación, incubación de proyectos y búsqueda de fuentes de financiamiento con el fin de las ideas y motivaciones de los estudiantes de pregrado se conviertan en emprendimientos con impacto social y económico para la región.

También se recomienda para fortalecer las competencias emprendedoras incluir en los programas de las asignaturas de la UJAT experiencias prácticas mediante proyectos que solucionen problemáticas reales del entorno, mentorías con emprendedores y participación en incubadoras universitarias al igual que estancias y prácticas profesionales. Otra mejora propuesta a los programas formativos de la UJAT es promover acciones diferenciadas por programa educativo, adaptando los contenidos y enfoques del emprendimiento a las particularidades de cada disciplina, con el fin de elevar el nivel de cultura emprendedora en los estudiantes de la DAMR, UJAT.

Finalmente, aunque el estudio presenta ciertas limitaciones relacionadas con su diseño transversal, el alcance institucional y la ausencia de algunas variables contextuales, los resultados constituyen una referencia relevante para el desarrollo de investigaciones posteriores considerando que se aporta evidencia empírica en la Regiós Ríos, Tabasco, una región poco documentada en investigaciones de este tipo. En este sentido se plantean como futuras líneas de investigación estudios longitudinales que permitan analizar la evolución de la cultura emprendedora a lo largo de la trayectoria universitaria de los estudiantes. Asimismo, resultaría pertinente comparar la cultura emprendedora entre diferentes instituciones de nivel superior presentes en la región con enfoques metodológicos mixtos que permitan profundizar en las experiencias, motivaciones y barreras al emprendimiento percibidas por los estudiantes.

Lo anterior para una comprensión integral del emprendimiento universitario lo que facilitaría el diseño de estrategias educativas con mayor pertinencia para la formación de los estudiantes.

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# Public Procurement–Intangible Investment Nexus: Insights into Endogenous Growth in Côte d'Ivoire

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## Abstract

Public procurement is increasingly recognized as a catalyst for economic growth, yet empirical research has largely focused on physical infrastructure investments. Far less attention has been paid to service-oriented public procurement, despite its potential to enhance knowledge accumulation, organizational capacity, and productivity. This study examines the growth effects of public service procurement in Côte d'Ivoire using an autoregressive distributed lag-error correction model (ARDL-ECM) applied to annual data from 1993 to 2024. Drawing on data from the General Directorate of Public Procurement (DGMP), the World Development Indicators (WDI), and the Central Bank of West African States (BCEAO), the analysis controls for private investment, public debt, industrial value added, trade openness, and inflation. The results indicate that public service procurement is a significant driver of long-run economic growth: a 10% increase in service procurement expenditure raises real GDP per capita by approximately 0.41%, despite the relatively small share of procurement in GDP. Short-run dynamics also reveal a positive immediate effect (0.34%), followed by gradual adjustment toward the long-run equilibrium. In contrast, gross fixed capital formation exhibits a

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negative long-run impact, pointing to structural inefficiencies in private investment, while industrial value-added supports growth and excessive debt accumulation constrains sustainability. These findings are consistent with endogenous growth theories emphasizing the role of intangible investments and extend the public finance literature beyond infrastructure-centric perspectives. Policy implications suggest that reorienting public procurement toward knowledge-intensive services could strengthen institutional capacity, foster innovation, and support sustainable growth in Côte d'Ivoire.

**Keywords:** Public Procurement, Endogenous Growth, ARDL-ECM

## 1. Introduction

Economic growth in Sub-Saharan Africa remains uneven, despite decades of reforms, investments, and globalization (Ajakaiye & Ncube, 2010; IMF, 2022). Côte d'Ivoire presents a particularly striking case: after experiencing deep crises in the 1980s-1990s, the country has, since the early 2010s, re-emerged as one of Africa's fastest-growing economies (IMF, 2022). Yet, sustaining growth requires not only material infrastructure but also institutional and organizational investments that foster efficiency (North, 1990; Acemoglu & Robinson, 2012). A neglected but increasingly critical policy instrument is public procurement of services, which involves state expenditures on consultancy, training, research, and technical assistance (OECD, 2019; UNCTAD, 2020). The literature on public investment and growth is rich. Classical economists (Smith, 1776; Ricardo, 1817) emphasized capital accumulation, while Keynesian models highlighted public spending as a stabilizer of demand (Keynes, 1936). In the 1980s, Aschauer (1989) and Munnell (1992) linked infrastructure spending to productivity gains, inspiring extensive work on public capital. More recently, endogenous growth theorists (Romer, 1986, 1990; Lucas, 1988; Barro, 1990) argued that knowledge, innovation, and human capital - often facilitated by service expenditures - drive long-term growth.

However, most empirical studies - both global and African - focus overwhelmingly on physical works procurement (roads, bridges, energy), while services procurement remains underexplored (OECD, 2019; Ndikumana, 2012; Ajakaiye & Ncube, 2010). Yet, in countries like Côte d'Ivoire, where governance reforms, institutional modernization, and digitalization are underway (IMF, 2022), service procurement may play a decisive role in efficiency and competitiveness.

This paper addresses this lacuna by testing the hypothesis that public procurement of services has a significant positive effect on economic growth in Côte d'Ivoire, controlling for investment, debt, trade openness, industrial value added, and inflation. Specifically, we will:

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1. Test whether service procurement drives both short-run and long-run growth.
2. Identify the main macroeconomic determinants of economic growth and quantify their contribution within the ARDL short-run and long-run dynamics.

Thus, the study bridges theoretical perspectives on intangible investment with empirical evidence, aiming to reframe policy debates around procurement in West Africa.

## 2. Literature Review

### 2.1. Theoretical Foundations

The relationship between public expenditure and economic growth has long been the subject of debate in economic theory. Classical economists such as Smith (1776) and Ricardo (1817) emphasized the productive role of certain types of public spending. Smith highlighted the necessity of investments that enhance productivity, while Ricardo argued for the importance of capital accumulation and the efficient allocation of resources. Later, the neoclassical growth model developed by Solow (1956) formalized the idea of diminishing returns to capital and introduced technological progress as an exogenous driver of long-term growth. Within this framework, the state's role was relatively limited, with emphasis placed on capital accumulation and savings. In contrast, Keynes (1936) viewed public spending as a critical instrument for stabilizing demand during economic downturns. Building on this idea, Musgrave (1959) conceptualized public finance as fulfilling three core functions: allocation of resources, redistribution of income, and stabilization of the economy. These contributions emphasized that government expenditure, when well-targeted, could play a vital role in addressing both cyclical and structural challenges.

The emergence of endogenous growth theory in the 1980s and 1990s marked a decisive shift. Pioneered by Romer (1986, 1990), Lucas (1988), and Barro (1990), these models stressed that long-run growth is sustained not merely through capital accumulation, but through knowledge spillovers, innovation, and human capital formation. In this perspective, public spending on research, training, and institutional capacity-often delivered through service procurement-generates positive externalities that avoid the diminishing returns associated with physical capital. Service procurement thus finds a theoretical anchor in the endogenous growth literature, which recognizes the strategic role of intangible investments in shaping productivity trajectories.

Parallel to these developments, institutional economics highlighted the importance of governance. North (1990) argued that institutions are the "rules of the game" underpinning economic performance, while Acemoglu and

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Robinson (2012) demonstrated empirically that inclusive institutions are decisive in explaining cross-country growth divergences. Public procurement of services, by reinforcing institutional frameworks, improving transparency, and building technical capacity, can therefore be seen as a mechanism through which institutional quality is enhanced.

Other theoretical perspectives have also contributed to understanding public spending. Public choice theory, advanced by Buchanan (1967), underscored risks of inefficiencies due to rent-seeking and misallocation of resources. Similarly, structuralist perspectives such as Hirschman (1958) and Lewis (1954) emphasized the particular constraints of developing economies, where capital misallocation and dualistic structures hinder growth. These views underscore that the growth effects of procurement are context-dependent, shaped by institutional quality and governance.

## 2.2. Contrasting Empirical Evidence

Empirical studies on public spending and growth have historically concentrated on infrastructure. Aschauer (1989) provided seminal evidence that public capital investment was a major determinant of U.S. productivity, a finding that spurred widespread international investigation. Munnell (1992) reinforced this link, while Calderón and Servén (2004) demonstrated, across a large panel of countries, that infrastructure enhances both growth and equity by lowering transaction costs and expanding access to markets. In Africa, Ndikumana (2012) and Ajakaiye and Ncube (2010) documented similar infrastructure-driven effects, highlighting the contribution of physical capital formation to growth and poverty reduction.

However, the dominance of infrastructure in empirical analysis has left public service procurement largely underexplored. While multilateral institutions such as the OECD (2019) and UNCTAD (2020) increasingly emphasize the centrality of services in global value chains, innovation, and competitiveness, few econometric studies have directly measured the contribution of service-oriented procurement in African contexts. This creates a methodological imbalance: infrastructure, with its visible outputs, attracts more empirical scrutiny, whereas intangible services, despite their potential for capacity building, remain statistically neglected.

Some evidence also challenges conventional assumptions about investment. While gross fixed capital formation is typically associated with growth, Pritchett (2000) argued that in many developing countries, inefficiencies, rent-seeking, and poor governance mean that investment does not automatically translate into productivity gains.

The empirical literature thus presents significant gaps. First, there is a clear lack of systematic analysis of service procurement in Sub-Saharan Africa. Existing studies tend to aggregate all forms of public spending,

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masking the distinct effects of immaterial expenditures. Second, most models remain skewed toward infrastructure, thereby overlooking investments in institutional capacity, training, and consultancy that may have equally transformative, if less visible, effects. Third, the productivity of private investment in fragile economies remains insufficiently interrogated, with studies rarely distinguishing between efficient and inefficient capital accumulation.

Filling these gaps is not merely of academic interest; it has profound policy relevance. For countries like Côte d'Ivoire, where procurement represents a substantial share of public expenditure, understanding the distinct contribution of services is essential to designing efficient and sustainable growth strategies. Moreover, as the global economy increasingly relies on services, knowledge, and innovation, African economies cannot afford to ignore the role of immaterial investments in their development trajectories. Addressing these evidence gaps contributes to a more nuanced understanding of growth dynamics and provides policymakers with the tools to reorient procurement strategies toward long-term institutional strengthening and competitiveness.

## 3. Methodology

This study adopts an autoregressive distributed lag (ARDL) - error correction model (ECM) framework to examine the contribution of public service procurement to economic growth in Côte d'Ivoire. The ARDL-ECM is particularly suitable for small samples and for variables that exhibit a mixture of stationarity orders, I (0) and I (1), allowing the simultaneous estimation of short-run dynamics and long-run equilibrium relationships. The model is grounded in the error correction representation of Davidson, Hendry, Srba and Yates (1978) and the bounds testing framework of Pesaran, Shin and Smith (2001), later DHSY and PSS respectively.

### 3.1. Standard General Form

The general $ARDL(p, q_1, q_2, \ldots, q_k)$ model is written as:

$$y_t = c_0 + \sum_{i=1}^{p} \phi_i y_{t-i} + \sum_{j=1}^{k} \sum_{i=0}^{q_j} \beta_{ji} x_{j,t-i} + \varepsilon_t \quad (1)$$

Its unrestricted ECM reparametrisation (the bounds testing equation) is:

$$\Delta y_t = c_0 + \sum_{i=1}^{p-1} \phi^*_i \Delta y_{t-i} + \sum_{j=1}^{k} \sum_{i=0}^{q_j-1} \beta^*_{ji} \Delta x_{j,t-i} + \delta_0 y_{t-1} + \sum_{j=1}^{k} \delta_j x_{j,t-1} + \varepsilon_t \quad (2)$$

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where $H_0: \delta_0 = \delta_1 = \cdots = \delta k = 0$ is tested using the PSS bounds F-statistic. The long-run level relationship, conditional on cointegration, is:

$$y_t = \theta_0 + \sum_{j=1}^{k} \theta_j x_{jt} + u_t \quad (3)$$

where $\hat{\theta} j = -\hat{\delta} j / \hat{\delta}_0$ are the long-run coefficients recovered from the level terms of Equation (2). The error correction term is defined as:

$$ECT_t = y_t - \hat{\theta}_0 - \sum_{j=1}^{k} \hat{\theta}_j x_{jt} \quad (4)$$

The restricted DHSY–PSS short-run ECM is:

$$\Delta y_t = c_0 + \sum_{i=1}^{p-1} \phi^*{}_i \Delta y_{t-i} + \sum_{j=1}^{k} \sum_{i=0}^{q_j-1} \gamma_{ji} \Delta x_{j,t-i} + \lambda \cdot ECT_{t-1} + \varepsilon_t \quad (5)$$

where $\lambda < 0$ is the speed-of-adjustment coefficient.

### 3.2 Application to the Present Study

The empirical analysis relies on annual data covering the period 1993 to 2024. Data on public service procurement were obtained from the General Directorate of Public Procurement (DGMP), macroeconomic aggregates from the Central Bank of West African States (BCEAO), and complementary variables - GDP per capita, gross fixed capital formation, trade openness, and industrial value added - from the World Bank's World Development Indicators (WDI). The dependent variable $y_t$ is real GDP per capita ($ln\ GDPCAP_t$) and the regressors are public service procurement ($ln\ MPA_t$), gross fixed capital formation ($ln\ GFCF_t$), public debt ($ln\ DEBT_t$), industrial value added ($ln\ INDUSVAL_t$), trade openness ($ln\ TRADE_t$), and inflation ($INFL_t$). Applying Equation (3), the long-run level equation estimated under Case 2 (restricted constant, no trend) is:

$$ln\ GDPCAP_t = \theta_0 + \theta_1 ln\ MPA_t + \theta_2 ln\ GFCF_t + \theta_3 ln\ DEBT_t + \theta_4 ln\ INDUSVAL_t + \theta_5 ln\ TRADE_t + \theta_6 INFL_t + u_t \quad (6)$$

where $\theta_1$ through $\theta_6$ are the long-run elasticities reported in Table 3. The error correction term $ECT_{t-1}$ is the lagged residual from Equation (6), measuring the deviation of $ln\ GDPCAP$ from its long-run equilibrium. Applying Equation (5), the short-run ECM estimated in the present study is:

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$$\Delta ln\, GDPCAP_t = c_0 + \sum_{i=1}^{p-1} \phi^*{}_i \Delta ln\, GDPCAP_{t-i} + \sum_{i=0}^{q_1-1} \delta_{1i} \Delta ln\, MPA_{t-i} + \sum_{i=0}^{q_2-1} \delta_{2i} \Delta ln\, GFCF_{t-i} + \sum_{i=0}^{q_3-1} \delta_{3i} \Delta ln\, DEBT_{t-i} + \sum_{i=0}^{q_4-1} \delta_{4i} \Delta ln\, INDUSVAL_{t-i} + \sum_{i=0}^{q_5-1} \delta_{5i} \Delta ln\, TRADE_{t-i} + \sum_{i=0}^{q_6-1} \delta_{6i} \Delta INFL_{t-i} + \lambda \cdot ECT_{t-1} + \varepsilon_t \quad (7)$$

where $\lambda$ is the speed-of-adjustment coefficient.

The estimation procedure follows several methodological steps. Initially, the time-series properties of the variables were examined through standard unit root tests, including the Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests, to verify the order of integration. This was followed by bounds testing approach to cointegration to determine whether a long-run equilibrium relationship exists among the variables. Once cointegration was established, the appropriate lag length for the ARDL specification was selected based on the Akaike Information Criterion (AIC), ensuring that the model adequately captured dynamic interactions while avoiding over-parameterization.

The long-run coefficients were then estimated to assess the enduring impact of procurement and other covariates on economic growth. To capture short-run dynamics, the model was reparametrized into an ECM form, where the coefficient of the error correction term indicates the speed of adjustment from short-run disequilibria to long-run equilibrium. A negative and significant error correction coefficient provides evidence of convergence toward equilibrium, thereby validating the model's consistency.

To ensure the robustness of the results, a battery of diagnostic tests was conducted. Serial correlation was assessed using the Breusch-Godfrey LM test, while heteroskedasticity was examined through the White test. The Jarque-Bera statistic was employed to test for normality of residuals. Stability of the estimated parameters was evaluated using cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) tests, while the Ramsey RESET test was applied to detect possible specification errors. Collectively, these procedures (see in appendix) confirm whether the model is statistically valid and whether its estimates can be meaningfully interpreted.

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A further methodological consideration concerns the potential for reverse causality. In a single-country time-series context, procurement budgets may be partly endogenous to GDP performance: periods of strong growth generate higher fiscal revenues and, in turn, larger procurement allocations, which could introduce simultaneity bias into the estimates. The ARDL-ECM framework partially addresses this concern through its distributed lag structure, which allows the effect of procurement to unfold over multiple periods rather than imposing instantaneous causation, and through the inclusion of the lagged error-correction term, which captures adjustment dynamics rather than contemporaneous feedback. Nevertheless, the ARDL approach does not constitute a formal instrument-based identification strategy, and that the possibility of residual endogeneity cannot be entirely ruled out. This limitation should be interpreted as a boundary condition on causal inference: the estimated coefficients are best understood as conditional associations that are strongly consistent with the causal mechanisms proposed by endogenous growth theory, while a definitive causal claim would require an instrumental variable or natural experiment design that is beyond the scope of the present single-country time-series data.

The analytical plan thus combines descriptive and inferential techniques. First, descriptive statistics and correlation analysis provided an overview of the data and initial insights into relationships among variables. Second, the ARDL-ECM framework was implemented to quantify both long-run and short-run effects of service procurement on GDP per capita. Third, diagnostic and stability tests ensured that the results were not driven by model misspecification or statistical anomalies. Finally, the findings were interpreted in light of theoretical expectations from endogenous growth and institutional economics, thereby linking empirical evidence to broader debates on the role of immaterial public expenditures in economic development.

## 4. Results and Discussions

The empirical analysis begins with an examination of the descriptive statistics, which provide an overview of the behavior of the variables during the study period. The data reveal that real GDP per capita in Côte d'Ivoire has followed a positive trajectory since the early 2010s, reflecting the recovery from political instability and the implementation of macroeconomic reforms. Public service procurement, the core explanatory variable of this study, shows a steady upward trend, particularly after the introduction of procurement reforms in the mid-2000s. The distribution of this variable indicates both a gradual increase in the volume of service contracts and a diversification of their nature, reflecting the government's growing reliance on intangible investments such as consultancy, training, and information technology.

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**Table 1:** Descriptive Statistics

| | GDPCAP | MPA | GFCF | DEBT | INDUSVAL | INFL | TRADE |
|---|---|---|---|---|---|---|---|
| Average | 1742.506 | 8.11E+10 | 18.22733 | 8486294. | 18.19992 | 3.646476 | 56.57547 |
| Median | 1678.223 | 5.04E+10 | 18.11672 | 6157080. | 17.87438 | 2.505791 | 54.81546 |
| Maximum | 2390.747 | 2.44E+11 | 24.48247 | 30409800 | 23.04454 | 26.08157 | 76.20234 |
| Minimum | 1420.174 | 1.52E+09 | 9.345464 | 2605400. | 13.71596 | -1.106863 | 41.94263 |
| Std-Dev | 280.9263 | 7.53E+10 | 3.974664 | 6725050. | 3.026854 | 4.889761 | 8.122497 |
| Jarque-Bera | 3.137938 | 3.782098 | 1.449068 | 51.46186 | 2.531602 | 273.1431 | 1.097595 |
| Probability | 0.208260 | 0.150913 | 0.484550 | 0.000000 | 0.282013 | 0.000000 | 0.577644 |
| Observations | 32 | 32 | 32 | 32 | 32 | 32 | 32 |

Source: Author's calculations based on the data

The correlation analysis confirms the existence of meaningful relationships among the variables. Public service procurement is positively correlated with real GDP per capita, consistent with theoretical expectations from endogenous growth models. By contrast, gross fixed capital formation exhibits a negative correlation with growth, which is counterintuitive but consistent with arguments in the literature that stress the inefficiency of capital accumulation in fragile institutional contexts (Pritchett, 2000). Industrial value added, trade openness, and public service procurement all display positive associations with growth, while debt and inflation reveal negative correlations. These initial results underscore the importance of disaggregating different types of investment in order to understand their heterogeneous contributions to economic performance.

**Table 2:** Correlation Matrix

| Correlation Probability | GDPCAP | MPA | GFCF | DEBT | INDUSVAL | TRADE | INFL |
|---|---|---|---|---|---|---|---|
| GDPCAP | 1.000000 | | | | | | |
| MPA | 0.831255 | 1.000000 | | | | | |
| | (0.0000) | | | | | | |
| GFCF | 0.725330 | 0.820101 | 1.000000 | | | | |
| | (0.0000) | (0.0000) | | | | | |
| DEBT | 0.776956 | 0.621921 | 0.418447 | 1.000000 | | | |
| | (0.0000) | (0.0001) | (0.0172) | | | | |
| INDUSVAL | 0.630847 | 0.683510 | 0.361666 | 0.489668 | 1.000000 | | |
| | (0.0001) | (0.0000) | (0.0420) | (0.0044) | | | |
| TRADE | -0.654395 | -0.525206 | -0.540570 | -0.226961 | -0.207283 | 1.000000 | |
| | (0.0000) | (0.0020) | (0.0014) | (0.2116) | (0.2550) | | |
| INFL | -0.109229 | -0.196409 | -0.419462 | 0.158783 | 0.177792 | 0.482373 | 1.000000 |
| | (0.5518) | (0.2813) | (0.0169) | (0.3854) | (0.3303) | (0.0052) | |

Source: Author's calculations based on the data

The long-run ARDL estimates provide more precise evidence of the impact of public service procurement on growth. The results indicate that a ten percent (10%) increase in service procurement expenditure is associated with a 0.41 percent increase in real GDP per capita, a statistically significant

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effect that validates the hypothesis of the study. This finding strongly supports the predictions of endogenous growth theory, which emphasizes the productivity-enhancing role of intangible investments. In contrast, gross fixed capital formation has a significant negative coefficient in the long run, confirming the suspicion that inefficiencies, misallocation, and rent-seeking behavior undermine the effectiveness of private investment in Côte d'Ivoire. Industrial value added emerges as a positive and robust determinant of growth, reinforcing the view that structural transformation through manufacturing and industry remains central to long-term development. Trade openness also contributes positively, suggesting that integration into international markets fosters competitiveness and growth, whereas the stock of public debt exerts a negative effect, underlining concerns about fiscal sustainability. Inflation, while having only a mild negative coefficient, nonetheless highlights the importance of macroeconomic stability in sustaining long-run growth.

**Table 3:** Long-Run Coefficients

| Levels Equation<br>Case 2: Restricted Constant and No Trend | | | | |
|---|---|---|---|---|
| **Variables** | **Coefficient** | **Std. Error** | **t-Statistic** | **Prob.** |
| LMPA | 0.0410 | 0.0096 | 4.2377 | 0.0012 |
| LGFCF | -0.0572 | 0.0456 | -1.2559 | 0.2331 |
| LDEBT | -0.0803 | 0.0225 | -3.5603 | 0.0039 |
| LINDUSVAL | 0.6274 | 0.0554 | 11.3082 | 0.0000 |
| INFL | -0.0065 | 0.0011 | -5.7250 | 0.0001 |
| LTRADE | 0.1161 | 0.0166 | 6.9992 | 0.0000 |
| C | 0.0300 | 0.0033 | 9.0242 | 0.0000 |

$$EC = LGDP - (0.0411 * LMPA - 0.0573 * LGFCF - 0.0803 * LDEBT + 0.6275 * LINDUSVAL - 0.0066 * INFL + 0.1162 * LTRADE + 0.0301)$$

*Source: Author's calculations based on the data*

Turning to short-run dynamics, the error correction model provides valuable insights into the adjustment process. Public service procurement exerts an immediate and statistically significant effect, with a ten percent increase in procurement leading to a 0.34 percent rise in real GDP per capita in the short term. This short-run elasticity demonstrates that service procurement has both immediate stimulative effects on economic activity and longer-term benefits through capacity building and institutional strengthening. The error correction term is negative and significant, with a magnitude of approximately –0.52, indicating that more than half of short-run disequilibria are corrected within a single year. This coefficient provides strong evidence of convergence toward long-run equilibrium, suggesting that the growth process in Côte d'Ivoire is responsive to procurement-driven shocks but ultimately reverts to a stable path.

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**Table 4:** Short-Run ECM Dynamics

| ECM Regression<br>Case 2: Restricted Constant and No Trend | | | | |
|---|---|---|---|---|
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| D(LGDPCAP(-1)) | 0.1699 | 0.0432 | 3.9310 | 0.0020 |
| D(LMPA) | 0.0340 | 0.0020 | 16.993 | 0.0000 |
| D(LMPA(-1)) | -0.0335 | 0.0024 | -13.895 | 0.0000 |
| D(LGFCF) | 0.1023 | 0.0152 | 6.7262 | 0.0000 |
| D(LGFCF(-1)) | -0.1201 | 0.0137 | -8.7256 | 0.0000 |
| D(LDEBT) | -0.0434 | 0.0053 | -8.1569 | 0.0000 |
| D(LDEBT(-1)) | 0.0234 | 0.0055 | 4.2495 | 0.0011 |
| D(LINDUSVAL) | 0.4771 | 0.0213 | 22.3999 | 0.0000 |
| D(LINDUSVAL(-1)) | -0.1908 | 0.0167 | -11.3790 | 0.0000 |
| **CointEq(-1)*** | **-1.0680** | **0.0464** | **-23.0136** | **0.0000** |
| R-squared | 0.9889 | Mean dependent var | | 0.0001 |
| Adjusted R-squared | 0.9836 | S.D. dependent var | | 0.0445 |
| S.E. of regression | 0.0056 | Akaike info criterion | | -7.2336 |
| Sum squared resid | 0.0006 | Schwarz criterion | | -6.7621 |
| Log likelihood | 114.8877 | Hannan-Quinn criter. | | -7.0859 |
| Durbin-Watson stat | 1.8388 | | | |

*Source: Author's calculations based on the data*

Robustness and stability tests (see appendix) further reinforce the validity of the results. The Breusch-Godfrey test reveals no evidence of serial correlation, while the White test confirms the absence of heteroskedasticity. The residuals follow a normal distribution, as shown by the Jarque–Bera statistic. Importantly, the CUSUM and CUSUMSQ tests demonstrate that the estimated parameters remain stable throughout the sample period, validating the reliability of the model. Finally, the Ramsey RESET test indicates that the model is correctly specified, with no significant omitted variables or functional form misspecification.

Taken together, these results demonstrate the central role of public service procurement in fostering both short-run and long-run economic growth in Côte d'Ivoire. The findings align with theoretical expectations from endogenous growth theory, which emphasize the role of knowledge, innovation, and institutional capacity in sustaining development. They also resonate with institutional economics, insofar as service procurement strengthens governance structures and administrative efficiency. At the same time, the negative impact of private investment highlights persistent structural challenges, suggesting that the efficiency of gross fixed capital formation remains limited by weak governance, inadequate project selection, and rent-seeking behaviors. The positive role of industrial value added and trade openness underscores the importance of structural transformation and global integration, while the negative contribution of debt accumulation signals the risks associated with unsustainable fiscal practices.

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When compared to existing literature, the results highlight both points of convergence and departure. On the one hand, the positive effects of industrial value added and trade openness confirm the conclusions of Calderón and Servén (2004) and Ndikumana (2012) on the significance of structural transformation and market integration. On the other hand, the negative effect of gross fixed capital formation contrasts sharply with earlier findings (Aschauer, 1989; Munnell, 1992), but aligns with Pritchett (2000), who warned against assuming automatic growth dividends from investment in contexts of weak governance. Most importantly, the positive role of service procurement represents a novel contribution to the literature, extending endogenous growth models (Romer, 1986; Barro, 1990) and empirical work on public spending by providing evidence from an African economy that immaterial expenditures can be as crucial as infrastructure in sustaining growth.

Overall, the results demonstrate that while traditional infrastructure-oriented investment remains important, the underexplored domain of service procurement holds significant promise for long-run development in Côte d'Ivoire. The findings therefore contribute to rebalancing the research agenda, highlighting the necessity of incorporating immaterial public expenditures into both theoretical frameworks and empirical analyses of growth.

## Conclusion

This article has examined the role of public service procurement in Côte d'Ivoire's economic growth over the period 1993–2024, applying an ARDL-ECM framework to capture both short-run dynamics and long-run relationships. The findings show that service procurement exerts a consistent positive impact on growth, with effects manifesting immediately and persisting over time. In contrast, gross fixed capital formation is negatively associated with growth, highlighting inefficiencies in private investment, while industrial value added and trade openness emerge as supportive drivers of economic performance. Debt accumulation, however, continues to undermine sustainability. These results extend the literature beyond the traditional emphasis on infrastructure investment (Aschauer, 1989; Calderón & Servén, 2004) by providing evidence that immaterial expenditures such as training, consultancy, and institutional support contribute meaningfully to growth. They also confirm theoretical insights from endogenous growth models (Romer, 1986; Lucas, 1988; Barro, 1990) and institutional economics (North, 1990; Acemoglu & Robinson, 2012), which highlight the productivity-enhancing role of intangible capital and strong governance.

The policy implications are clear. Côte d'Ivoire must reorient procurement policy to give greater weight to service-oriented expenditures, which not only stimulate demand in the short run but also build institutional

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capacity and innovation over the long run. At the same time, improving the efficiency of private investment and ensuring prudent debt management are critical for sustaining growth. These reforms would allow procurement policy to serve as a lever not just for immediate economic activity, but for structural transformation and long-term competitiveness.

The findings of this study are bounded by its single-country design: the estimated relationships reflect the specific institutional, fiscal, and structural conditions of Côte d'Ivoire and cannot be assumed to generalize without further empirical validation. Future research should therefore disaggregate service procurement into specific categories and extend the analysis to other WAEMU economies to test the robustness of these findings. By focusing on the often-overlooked role of services, this article underscores the need to rethink procurement strategies as central to the development agenda in Africa.

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## Appendix

**Appendix 1.** List of the variables and the expected signs in the model

| Variables | Mesure | Description | Sign | Data Sources |
|---|---|---|---|---|
| **INFL** | Inflation (%) | General level of the price according to the CPI | ( - ) | WDI (2024) |
| **MPA** | Public Procurement on Services | Contracts concluded between the public administration (the State) and private companies or service providers, aimed at delivering an intangible service for the benefit of the administration. (In billions of CFA francs). | (+) | DGMP (2024) |
| **DEBT** | Debt | Measures the country's outstanding debt stock (in billions of CFA francs). | ( - ) | BCEAO (2024) |
| **GDPCAP** | GDP per Capita | Economic growth (in constant dollars). | | WDI (2024) |
| **TRADE** | Trade Openess | Sum of imports and exports of goods and services divided by twice the GDP (% of GDP). | (+) | WDI (2024) |
| **GFCF** | Graoss Fixed Capital Formation | Level of private investment (% of GDP). | (+) | WDI (2024) |
| **INDUSVAL** | Industry Value Added (%) | Corresponds to the net contribution of the industrial sector to national wealth. | (+) | WDI (2024) |

**Appendix 2.** VIF test on the variables

| Variable | Coefficient Variance | Uncentered VIF | Centered VIF |
|---|---|---|---|
| LMPA | 0.000255 | 2468.367 | 6.068538 |
| LGFCF | 0.007313 | 978.0169 | 6.318273 |
| LDEBT | 0.000303 | 1210.756 | 1.568294 |
| LINDUSVAL | 0.003610 | 484.7590 | 1.581012 |
| INFL | 5.47E-06 | 3.201272 | 2.033764 |
| LTRADE | 0.005587 | 1454.672 | 1.755129 |
| C | 0.261522 | 4196.789 | NA |

*Source: Author's calculations based on the data*

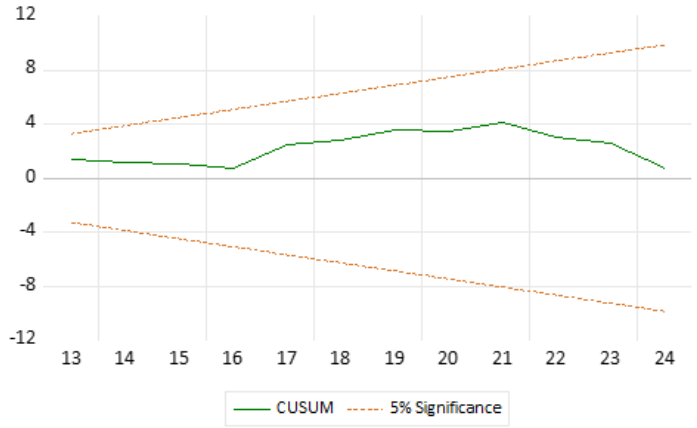
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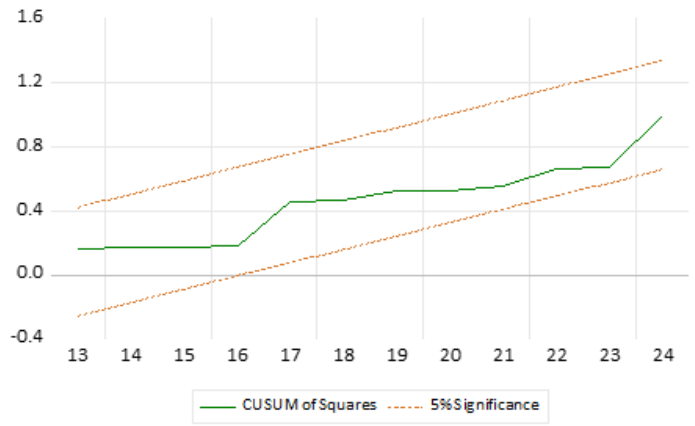
**Appendix 3.** Pesaran Cointegration Bounds test

| Test Statistic | Valeur | Signif. | I(0) | I(1) |
|---|---|---|---|---|
| | | | Asymptotic : n=1000 | |
| $F-Statistic$ | 41.81278 | 10% | 1.99 | 2.94 |
| $k$ | 6 | 5% | 2.27 | 3.28 |
| | | 2.5% | 2.55 | 3.61 |
| | | 1% | 2.88 | 3.99 |
| *Actual Sample Size* | 29 | | Finite Sample : n=35 | |
| | | 10% | 2.254 | 3.388 |
| | | 5% | 2.685 | 3.96 |
| | | 1% | 3.713 | 5.326 |
| | | | Finite Sample : n=30 | |
| | | 10% | 2.334 | 3.515 |
| | | 5% | 2.794 | 4.148 |
| | | 1% | 3.976 | 5.691 |

*Source: Author's calculations based on the data Test Conduit sous Eviews*

**Appendix 4:** CUSUM and CUSUMQ test on the Model



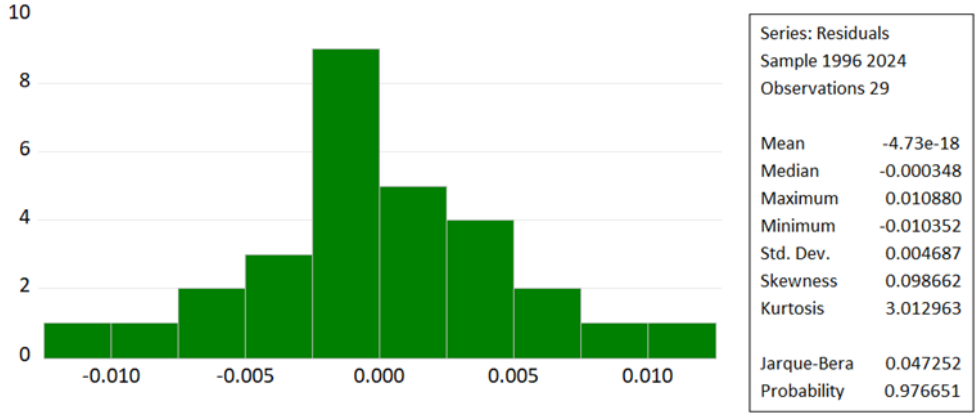
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**Appendix 5:** Error Autocorrelation Test on the Model

| Autocorrelation | Partial Correlation | | AC | PAC | Q-Stat | Prob* |
|---|---|---|---|---|---|---|
| | | 1 | -0.007 | -0.007 | 0.0015 | 0.969 |
| | | 2 | 0.156 | 0.156 | 0.8097 | 0.667 |
| | | 3 | -0.273 | -0.278 | 3.3864 | 0.336 |
| | | 4 | 0.213 | 0.219 | 5.0155 | 0.286 |
| | | 5 | -0.334 | -0.322 | 9.1947 | 0.102 |
| | | 6 | -0.052 | -0.144 | 9.3019 | 0.157 |
| | | 7 | -0.130 | 0.097 | 9.9904 | 0.189 |
| | | 8 | 0.238 | 0.053 | 12.408 | 0.134 |
| | | 9 | 0.098 | 0.212 | 12.841 | 0.170 |
| | | 10 | 0.036 | -0.125 | 12.904 | 0.229 |
| | | 11 | 0.085 | 0.139 | 13.266 | 0.276 |
| | | 12 | -0.199 | -0.363 | 15.360 | 0.222 |

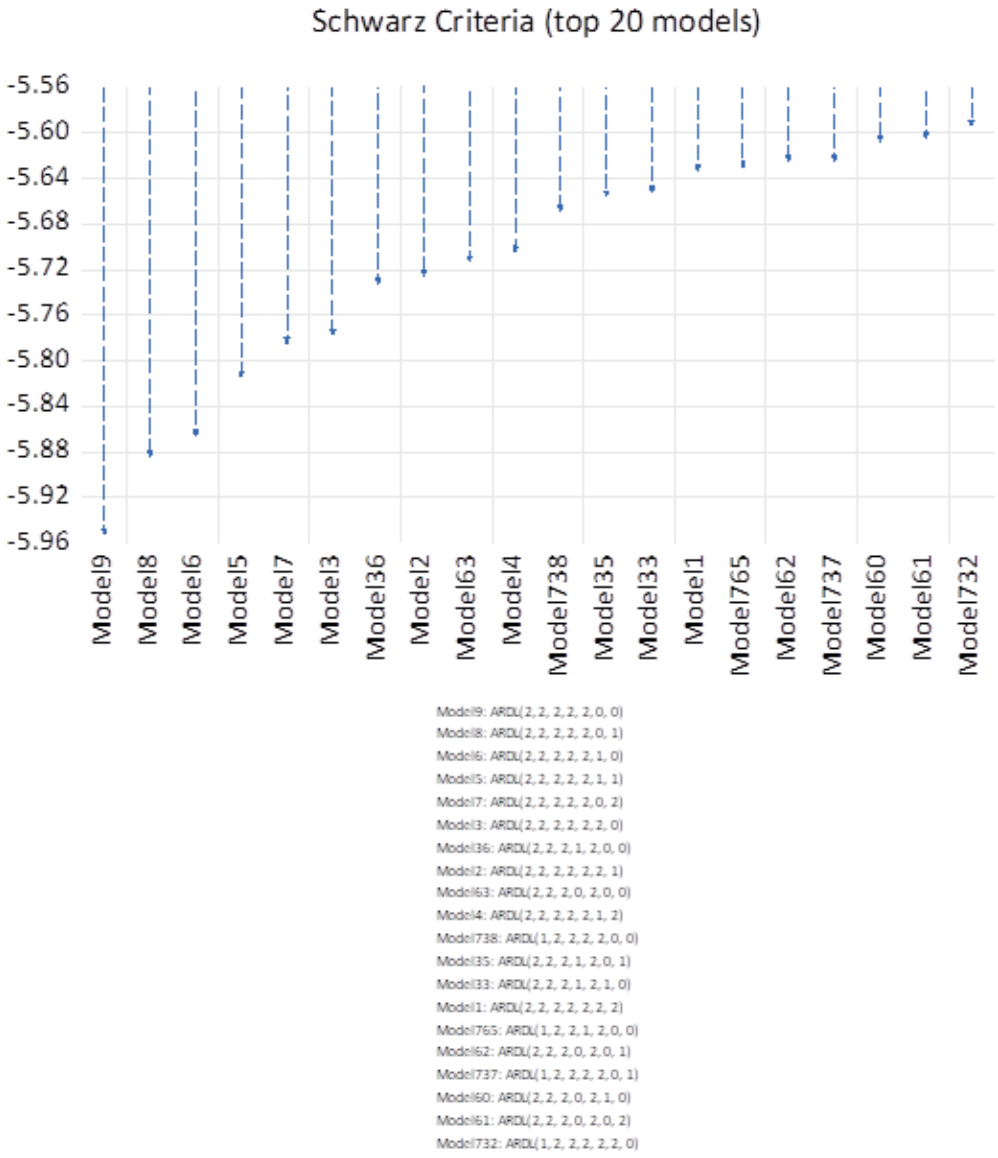
| Autocorrelation | Partial Correlation | | AC | PAC | Q-Stat | Prob* |
|---|---|---|---|---|---|---|
| | | 1 | -0.089 | -0.089 | 0.2534 | 0.615 |
| | | 2 | -0.122 | -0.131 | 0.7478 | 0.688 |
| | | 3 | 0.055 | 0.032 | 0.8532 | 0.837 |
| | | 4 | 0.142 | 0.138 | 1.5746 | 0.813 |
| | | 5 | -0.082 | -0.046 | 1.8295 | 0.872 |
| | | 6 | -0.080 | -0.066 | 2.0793 | 0.912 |
| | | 7 | 0.271 | 0.242 | 5.0774 | 0.651 |
| | | 8 | 0.099 | 0.130 | 5.4961 | 0.703 |
| | | 9 | -0.079 | 0.013 | 5.7778 | 0.762 |
| | | 10 | -0.121 | -0.129 | 6.4748 | 0.774 |
| | | 11 | 0.085 | -0.028 | 6.8324 | 0.812 |
| | | 12 | 0.099 | 0.103 | 7.3550 | 0.833 |

**Appendix 6:** Normality test on the Model



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**Appendix 7:** Best Model Choice



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**Appendix 8:** Validity Test of the model

**a. Ramsey Test**

| | Value | df | Probability |
|---|---|---|---|
| T-statistic | 0.9988559879 | 11 | 0.33933039721 |
| F-statistic | 0.9977132845 | (1, 11) | 0.33933039721 |
| Likelihood ratio | 2.5178031771 | 1 | 0.11256730559 |

**b. Breusch-Godfrey Serial Correlation LM Test**

| | | | |
|---|---|---|---|
| F-statistic | 0.2804002053 | Prob. F(2,10) | 0.761229877 |
| Obs*R-squared | 1.5399601618 | Prob. Chi-Square(2) | 0.463022291 |

**c. Heteroskedasticity Test**

| | | | |
|---|---|---|---|
| F-statistic | 0.55737908 | Prob. F(16,12) | 0.8635306 |
| Obs*R-squared | 12.3636623 | Prob. Chi-Square(16) | 0.7185896 |
| Scaled explained SS | 2.13068571 | Prob. Chi-Square(16) | 0.9999839 |

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# Applying the Food Choice Process Model to Ultra-Processed Food Consumption: The Role of Dietary Globalization and Quality Perceptions

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## Abstract

This study examines the determinants of ultra-processed food (UPF) consumption frequency among young adults within the Food Choice Process Model (FCPM), integrating macro-level (dietary globalization) and micro-level (perceptions of food quality, environmental awareness, and media exposure) influences. Data were collected in 2025 from a sample of 310 young adults to understand consumer dietary behavior. Ordinal logistic regression analysis was employed to test the hypothesized predictors of UPF consumption frequency.

The results indicate that dietary globalization is positively and significantly associated with UPF consumption, suggesting that greater exposure to international dietary patterns increases the likelihood of consuming UPFs. In contrast, negative perceptions of international food quality are significantly and negatively associated with consumption frequency, indicating that unfavorable quality evaluations can act as a deterrent. Environmental awareness and exposure to internet and social media content do not emerge as statistically significant predictors, implying that, in this context, broader structural influences and individual evaluative judgments may play a more prominent role than sustainability concerns or digital media exposure.

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Overall, UPF consumption among young adults appears to be primarily shaped by globalization-related dietary exposure and perceptions of food quality, rather than by environmental or media-related factors. These findings provide empirical insight into the structural and cognitive drivers of contemporary dietary behavior and offer implications for public health strategies aimed at reducing UPF consumption.

**Keywords:** Ultra-processed food, dietary globalization, environmental awareness, food quality, food choice process model

## Introduction

Consumer food trends play a pivotal role, as consumers are the final actors in the food system. Food systems are complex, encompassing "the related resources, inputs, production, transport, processing and manufacturing industries, retailing, and consumption of food, as well as its impacts on the environment, health, and society" (von Braun et al., 2021, p. 7). Similarly, the FAO (2018) defines food systems as the totality of actors and value-adding activities involved in producing, processing, distributing, consuming, and disposing of food, all within broader economic, social, and environmental contexts. Global food systems are shaped by strong macro-level pressures, such as population growth projected to reach 9.7 billion by 2050 (UNDP, 2022), conflicts, unexpected events, and long-term challenges, including climate change (Galanakis, 2021). These pressures highlight the need for sustainable and resilient food systems. Food systems innovation is paying attention, among other things, to changing the metrics used to measure progress, placing more emphasis on sustainable increases in dietary quality and total factor productivity rather than focusing solely on increasing yields.

Simultaneously, food consumption patterns are undergoing significant transformations. Key phenomena include shifts toward healthier and more sustainable diets, such as reduced red meat and sugar intake (Van Zanten et al., 2019; Willett et al., 2019); food enrichment with bioactive compounds; the increased popularity of novel products (Galanakis et al., 2020); the personalization of food choices (Mathers, 2019); and the influence of cultural diversity on culinary innovation (Enriquez & Achila-Godinez, 2021). This transformation has fueled a rising demand for time-saving convenience foods (Luga & Mehmeti, 2024), while simultaneously shifting industry priorities toward sustainability, emphasizing not only production yields, but also improvements in dietary quality and overall total factor productivity.

The main nutritional challenge of contemporary agri-food systems is access to healthy diets. Global data indicate widespread deficiencies: an estimated 3-3.5 billion people suffer from inadequate intake of iron or vitamin A, surpassing the number of undernourished individuals (Gómez et al., 2013).

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Unlike the 20th century, when the primary concern was hunger eradication, today diet related health problems arise from excessive carbohydrate consumption and insufficient intake of essential micronutrients, dietary fiber, and bioactive compounds (Bai et al., 2021; FAO et al., 2020). Marketing campaigns promoting highly processed, convenient, and shelf-life foods reduce consumer sensitivity to nutritional quality (Barrett, 2021), while supermarket shelves frequently emphasize UPF at the expense of fresh and minimally processed foods characteristic of traditional diets (Leite et al., 2022).

This study aims to examine how dietary globalization, environmental sensitivity, perceptions of food quality, and the influence of online social media content affect the consumption of UPF among young adults. By integrating macro-level drivers (globalization, social media) with micro-level determinants (personal perceptions, environmental values), the study expects to identify the combined influence of structural, social, and individual factors on UPF consumption, providing a holistic understanding of contemporary dietary behavior.

*Theoretical Framework: Food Choice Process Model (FCPM)*

The FCPM (Furst et al., 1996) conceptualizes food consumption as a dynamic process shaped by multiple interacting factors, including personal, social, cultural, and environmental influences. According to the model, individuals' food choices are not only guided by personal preferences but also by life course experiences, social relationships, and contextual constraints, such as the availability and accessibility of food. The FCPM incorporates five main categories of influences on food choice: ideals, personal factors, sources, social frameworks, and the food context (Furst et al., 1996). These influences interact reciprocally, reinforcing, competing with, and shaping one another. While the boundaries between these influences are often blurred, the central themes of each remain distinguishable. Each influence affects the food choice process to the extent that it is salient for a specific eating event.

In the context of this study, dietary globalization represents the influence of international and globalized food availability on ideals and social frameworks, increasing exposure to UPFs. Environmental awareness reflects personal values that can constrain or guide choices toward more sustainable options. Perceptions of food quality influence the evaluation of available options, shaping both the selection process and the prioritization of health and nutrition. Finally, social media and online influencers act as sources and contextual drivers, shaping ideals and social norms around food consumption. Together, these factors interact dynamically within individual, social, and environmental contexts, influencing young consumers' decisions regarding UPF consumption.

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*Dietary Globalization*

Globalization functions as a platform for cultural exchange, enabling individuals within a society to share their traditions, values, and practices, thereby fostering mutual recognition and understanding across communities. Alongside a high degree of urbanization, these phenomena have influenced many aspects of life, including diet and eating patterns. Increasing attention has been directed toward the impact of globalization on eating practices, both in terms of physical and psychosocial health and the sustainability of food systems (Sproesser et al., 2019).

These changes are often described as the "colonization of the kitchen" or "McDonaldization," referring to the widespread influence of fast-food culture (Hawkes, 2006). Despite the positive aspects of globalization, its negative consequences should also be acknowledged, such as the "supermarket revolution," which has largely displaced traditional and culturally rooted diets (Mergenthaler et al., 2009). A simple look at supermarket shelves reveals that UPFs have become the cornerstone of a "globalized diet," with consumption increasing across all regions regardless of income level (Baker et al., 2020).

According to Monteiro et al. (2019), UPFs are ready-to-eat or ready-to-heat products formulated by combining food substances, primarily commodity ingredients with "cosmetic" additives, and subjected to multiple industrial processes. This category encompasses a wide spectrum of products, which can make consumer understanding and orientation more challenging. Developments in the retail sector have further contributed to the rising consumption of UPFs, particularly in low- and middle-income settings (Baker et al., 2020). As a result, dietary patterns worldwide are becoming increasingly dominated by processed foods and are losing diversity.

Within the FCPM, dietary globalization aligns with the social and cultural domains. Exposure to international foods and globalized diets increases both the availability and desirability of UPFs, thereby shaping consumption patterns among young consumers. This provides support for H1, which proposes:

Hypothesis 1: Dietary globalization increases the likelihood of UPF consumption among young adults.

*Environmental Awareness*

Environmental awareness plays a key role in shaping consumer behavior, including that of young people (Lim, 2017). According to Liu et al. (2020), environmental awareness refers to an individual's understanding of environmental issues, serving as a worldview through which environmental information is interpreted and beliefs are formed. Awareness and engagement

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in environmental initiatives often depend on the willingness of both industries and individual consumers to adopt sustainable practices (Lim, 2022).

Environmental awareness has often been treated in a limited way, frequently conceptualized as a one-dimensional construct (Al Amin et al., 2023). From this perspective, the diversity of consumer behaviors related to environmental awareness tends to be overlooked (Lim et al., 2023). In contrast, environmental concern is a broader concept that encompasses the emotions and feelings individuals have toward the environment, which subsequently translate into consumer responses (Kennedy & Givens, 2019). These emotional triggers can motivate attitudes and behaviors toward environmentally friendly products and practices (Pong & Tam, 2023).

Several studies indicate a significant lack of public awareness regarding the environmental impact of dietary choices (Boermans et al., 2024). Through their food choices, consumers play a crucial role in influencing environmental outcomes (Burlingame & Dernini, 2012). However, factors such as price, convenience, sensory attributes, and health concerns are still identified as the primary drivers of food choices (Allès et al., 2017). Despite growing awareness of environmental issues, research suggests that consumers often do not prioritize environmental concerns to the same extent (Lehikoinen & Salonen, 2019).

Consumers are increasingly exposed to concepts related to environmental sustainability in the context of food and dietary choices. According to Burlingame & Dernini (2012), sustainable diets are those with low environmental impacts that contribute to food and nutrition security and support a healthy life for present and future generations. These diets are protective of biodiversity and ecosystems, culturally acceptable, accessible, economically fair and affordable, nutritionally adequate, safe, and healthy, while optimizing natural and human resources. The complexity of this definition highlights the importance of how consumers interpret sustainability in relation to their eating patterns.

Consumer understanding of sustainability in food has been examined primarily in the context of local and organic foods (Feldmann & Ulrich, 2015; Hartmann & Michael, 2017) or green products. However, the understanding of sustainability in the context of highly processed foods remains underexplored. In this regard, environmental awareness can be situated within the dimension of personal values and ethical considerations. Young consumers who are more environmentally conscious may intentionally avoid UPFs due to their perceived ecological impacts, supporting the following hypothesis:

Hypothesis 2: Environmental awareness has a negative effect on UPF consumption

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*Perception of Food Quality*

Consumer concern about the quality of food products extends across every stage of the production chain. This has fueled growing demand for safe and high-quality food, particularly as rapid economic development and changes in the food supply chain have intensified interest in food quality. Over the past decade, research in food quality has increasingly adopted a consumer-centered perspective, emphasizing consumer perceptions, preferences, and decision-making processes (Grunert, 2005).

Previous studies have employed a range of theoretical approaches, including the means end perspective, expectancy value models, information economics frameworks, and satisfaction/dissatisfaction approaches. According to Grunert (2005), quality is an abstract and multidimensional concept structured around four interconnected pillars: health, hedonic characteristics, convenience, and the production process.

Consumers who strongly associate quality with food safety, linking it to organoleptic characteristics, health protection, origin of production, and ethical standards, tend to perceive a product as safe only if they also consider it to be of high quality (Van Rijswijk & Frewer, 2008). Identifying the determinants that shape food quality perceptions, as well as the consumer segments influenced by them, is essential for strategic market positioning and product differentiation. Mascarello et al. (2015) highlight that consumers evaluate food quality not only through hedonic satisfaction and the preservation of culinary traditions, but also through attributes related to production methods and geographical origin, which remain key drivers of perceived quality.

The demand for UPFs continues to grow (Brief, 2025), driven by rapid urbanization, changing lifestyles, and aggressive food marketing strategies. Consumer perceptions of UPFs are often associated with high levels of undesirable ingredients and poor nutritional profiles. Some consumers perceive these products as meal replacements, while others view them as snacks, such as packaged sweets and processed meat products. Their popularity is further reinforced by convenience and perceived value for money (Baker et al., 2020).

While some consumers are attracted to UPFs due to their affordability and accessibility, others avoid them because of concerns about nutritional quality and long-term health risks. Perceptions of these products fluctuate across varying levels of trust and acceptance, influenced by advertising strategies, labeling information, and expert recommendations (Ilieva et al., 2025).

Within this framework, perceived food quality relates to the personal and sensory domains of the model. Consumers' beliefs about the nutritional value and healthiness of food guide their selection processes, supporting

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Hypothesis 3, which proposes a negative relationship between perceived food quality and UPF consumption.

Hypothesis 3: A lower perception of food quality is associated with lower consumption of UPFs.

*Influence of Internet and Social Media*

The rise of digital technologies has transformed the way individuals interact, enabling them not only to sustain existing relationships but also to shape social influence and establish new connections (Ellison et al., 2007). Social networking platforms can be understood as online environments that facilitate large-scale content sharing, allow users to build personal networks by adding contacts, and make these connections visible within the digital community (Vural et al., 2010).

Technological innovation has intensified the speed, transparency, and reach of food-related information, reshaping how consumers evaluate and select products. Through video-based content, individuals can directly observe food production processes, which may either reinforce trust or generate skepticism toward specific brands or food categories. YouTube, as one of the most dominant video-sharing platforms, with billions of daily views (Radonjic et al., 2020), exemplifies how digital media amplifies exposure to food-related content on a global scale.

Beyond passive exposure, social media actively shapes consumer perceptions, attitudes, and behavioral intentions (Sebastián & Batalla, 2024). Moreover, evidence from Ding et al. (2022) indicates that live streaming of restaurant kitchens within online food delivery services increases perceived transparency and food safety assurance, thereby enhancing perceived well-being benefits.

A key and growing influence on the formation of social norms and eating behavior is social media, where the visual presentation of food plays a central role. Platforms such as Facebook and Instagram are saturated with images of food, particularly highly processed items, which subtly convey what is typical or desirable to eat (Barre et al., 2016; Holmberg et al., 2016). Many of these posts also depict social contexts, such as dining with friends or eating out, further reinforcing norms about what, how, and with whom people eat (Qutteina et al., 2019).

Within the FCPM, these dynamics can be interpreted as part of the broader social and informational environment influencing food decisions. Digital platforms function as contextual and social frameworks that shape beliefs, perceived risks, and trust formation, ultimately affecting food preferences and consumption patterns, particularly among digitally engaged cohorts such as young adults. The influence of the Internet and social media integrates the contextual and social network dimensions of the model. Visual

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and interactive content on social media can normalize or promote certain eating behaviors, thereby supporting Hypothesis 4.

Hypothesis 4: Social media, through visual content, positively influences the consumption of UPFs.

By applying the FCPM, this study captures both macro-level influences, such as dietary globalization and social media exposure, and micro-level determinants, including personal perceptions of food quality and environmental values, on young adults' food consumption. The conceptual framework (Figure 1) illustrates how these study-specific factors are embedded within the broader FCPM. Each factor is positioned within the model's components ideals/social influences, personal values, resources, and social context, demonstrating its role in shaping food choices. Arrows from these factors toward UPF consumption highlight the hypothesized relationships (H1-H4), showing how structural, social, and individual influences converge to determine young consumers' decisions regarding UPF consumption.

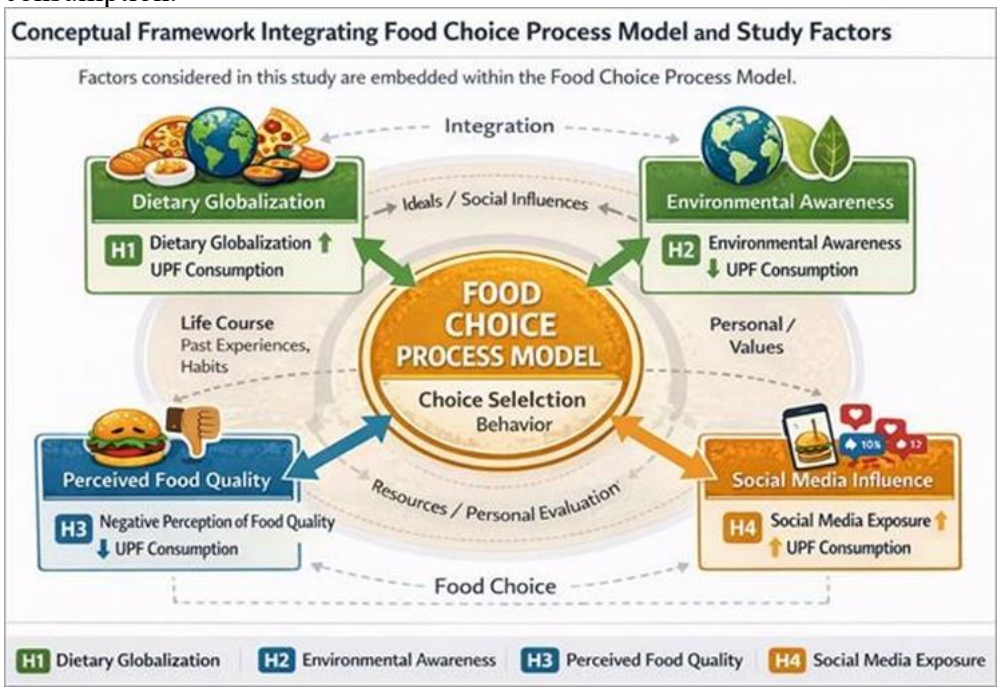



**Figure 1:** Conceptual Framework of the study

## Methods

*Data Collection and Sample Characteristics*

Data were collected in 2025 from students at the Agricultural University of Tirana, Albania, to investigate young adults' behaviors and attitudes toward food consumption. The study followed standard ethical

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principles for research. Participation was voluntary, informed consent was obtained from all respondents prior to completing the structured questionnaire, participants were informed about the purpose of the research and their right to withdraw at any time, and all responses were collected anonymously and treated confidentially.

A structured, self-administered questionnaire with closed-ended items was used, covering three main areas: demographic characteristics (gender, age, and total family income), general food consumption patterns, and attitudinal constructs measured on a five-point Likert scale (1 = strongly disagree; 5 = strongly agree), including globalization of diet, environmental awareness, and the influence of internet and social media on food choices. The questionnaire was pretested on 5% of the sample to ensure clarity and reliability (Connelly, 2008).

Attitudinal constructs measured with multiple items (globalization of diet, environmental awareness, and influence of social media) were combined by averaging responses to create composite scores, providing a summary measure of each construct. Internal consistency of these multi-item scales was assessed using Cronbach's alpha, with all values exceeding 0.70 (Nunnally, 1981), indicating acceptable reliability. Single-item indicators were used for variables adequately captured by one measure, such as perceived quality of international food. This approach ensured that all variables included in the ordinal logistic regression (OLR) were reliably and appropriately operationalized for analysis.

A total of 310 valid responses were collected. The final sample included 116 males (37.4%) and 194 females (62.5%). Participants' ages ranged from 18 to 25 years, with a mean of 20.6 (SD = 1.67). Average total family income was 150,860.9 Albanian Lek (ALL) (SD = 51,503.2), ranging from 80,000 to 300,000 ALL. Most respondents reported changes in their diet over the previous five years (80.1%). The most frequently reported proportion of imported food in total dietary intake was 40-50% (51%), and 58.9% of participants perceived a decline in the quality of international food.

**Table 1:** Key demographic variables

| | **Mean** | **Median** | **Std. Dev** | **Min** | **Max** |
|---|---|---|---|---|---|
| Age | 20.6 | 20 | 1.67 | 18 | 25 |
| Total family income | 150,860.9 | 150,000 | 51503.2 | 80,000 | 300,000 |

This study employed a quantitative research design to examine factors influencing the frequency of UPF consumption among young adults. The OLR model was estimated using SPSS. The dependent variable was the frequency of UPF consumption, categorized as daily, 2-3 times per week, once per month, or never. Independent variables included globalization of diet, environmental awareness, perceived quality of international food, and

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exposure to internet/social media, with gender included as a control variable. Multi-item scales were incorporated as composite scores, and single-item variables were included as measured. Proportional odds were assessed using the test of parallel lines, and details are presented in the results section.

**Table 2:** Variables included in the OLR model

| | Variable Name | Measurement | Scale | Hypothesis |
|---|---|---|---|---|
| DV | Frequency of UPF consumption | 1 = Daily; 2 = 2–3 times/week; 3 = Once/month; 4 = Never | Ordinal | - |
| IV | Globalization of diet | Perceived increase in international food consumption in young adults' diet | Likert scale (1-5) | H1 ✓ |
| IV | Environmental awareness | Level of environmental concern related to food consumption | Likert scale (1-5) | H2 x |
| IV | Perceived quality of international food | 0 = No (no decline), 1 = Yes (perceived decline) | Binary / Dummy | H3 ✓ |
| IV | Influence of social media | Impact of online visual content on food choices | Likert scale (1-5) | H4 x |
| CON | Gender | 0 = Female, 1 = Male | Binary / Dummy | Control |

**Note:** *DV- dependent variable; IV-independent variable; CON-control variable; Odds ratios reported in the regression are interpreted as average effects across UPF consumption categories due to partial violation of the proportional odds assumption; Multi-item constructs were averaged; internal consistency confirmed with Cronbach's alpha > 0.70; Single-item indicators used as coded above; ✓- hypothesis supported, x- hypothesis not supported*

## Results

### *Model Fit*

The overall ordinal logistic regression model was statistically significant, indicating that the predictors collectively improved model fit compared to the null model ($\chi^2 = 39.991$, df = 5, $p < 0.001$). Goodness-of-fit tests suggested that the model adequately described the data, and the Nagelkerke pseudo $R^2$ indicated moderate explanatory power. The proportional odds assumption was assessed using the test of parallel lines, which indicated a violation. Despite this, OLR was retained for interpretability, and estimated odds ratios are interpreted as average effects across outcome categories, with results considered cautiously due to partial non-proportionality (Agresti, 2010; Long & Freese, 2014).

### *Hypothesis Testing*

Parameter estimates indicated that dietary globalization was positively associated with UPF consumption frequency (B = 0.561, p = 0.043, 95% CI: 0.018 - 1.104), fully supporting the hypothesis that exposure to international

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dietary patterns increases the likelihood of UPF consumption. In contrast, negative perceptions of international food quality were significantly and negatively associated with consumption frequency (B = -1.675, $p < 0.001$, 95% CI: -2.267 to -1.083), supporting the hypothesis that unfavorable quality perceptions reduce UPF intake. Environmental awareness (B = -0.053, p = 0.850) and exposure to the internet and social media (B = 0.184, p = 0.450) did not emerge as statistically significant predictors of UPFs consumption frequency. Gender was also not statistically significant (B = -0.259, p = 0.260), but was retained in the model to control for potential gender-related differences. Detailed information on variable coding, scales, and reference categories is provided in Table 2.

Overall, these findings indicate that UPF consumption frequency among young adults is primarily shaped by exposure to globalized dietary patterns and evaluative perceptions of food quality, whereas environmental concerns and social media exposure do not appear to exert a significant influence within this sample.

## Discussion

Eating patterns and consumer behaviors versus dietary habits are widely accepted to combine internal consumer factors such as personal preferences that, under the influence of factors such as time, affordability, food market competitiveness, cultural norms, and business influence through marketing, influence various decisions.

This study applied the FCPM to examine how macro-level and micro-level influences shape UPF consumption among young adults in Albania. By integrating dietary globalization, environmental awareness, perceived food quality, and social media influence into the model, the study provides empirical insight into how structural and perceptual determinants interact in a transitional food environment.

### *Dietary Globalization as a Structural Driver of UPF Consumption*

The findings confirm Hypothesis 1, demonstrating that dietary globalization significantly increases the likelihood of UPF consumption. This result aligns closely with the social and cultural spheres of the FCPM, where ideals and social frameworks shape food-related norms and availability structures. Exposure to international food products, imported brands, and standardized retail systems appears to normalize UPF consumption among young adults.

These findings resonate with the concept of “McDonaldization” introduced by George Ritzer, which describes the global diffusion of efficiency-driven, standardized food systems. The “globalizer” school attributes the decisive weight to the pressure of Globalization/Americanization

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/McDonaldization, which pushes towards the cultural homogenization of cultures (Ram, 2025). In emerging economies such as Albania, globalization does not merely expand food variety; it restructures dietary aspirations, convenience expectations, and symbolic meanings associated with modern consumption. UPF becomes embedded in everyday routines not necessarily because they are preferred nutritionally, but because they represent accessibility, modernity, and time efficiency. This conclusion is consistent with the fact that food is also an area where young people create their identity and from where they derive their identity and group affiliation (Priya, 2017). The influence of peers and businesses is as influential as that of cultural elements that come from family eating habits, creating a tension of forces in the formation of eating habits (Leibowitz et al., 2012). Within the FCPM framework, globalization operates at the macro-structural level but penetrates the "food context" domain, influencing availability, affordability, and habitual exposure. The positive association observed in this study suggests that structural exposure outweighs personal resistance mechanisms among young consumers.

*Perceived Food Quality as a Protective Factor*

Hypothesis 3 was also supported. A negative perception of international food quality significantly reduced UPF consumption. This finding highlights the importance of evaluative cognitive processes in food choice decisions. When young consumers perceive imported or highly processed foods as nutritionally inferior or less trustworthy, they are less likely to consume them frequently. This supports the multidimensional conceptualization of quality proposed by Grunert (2004), who emphasizes health, sensory characteristics, convenience, and production processes as interconnected pillars of perceived quality (Grunert et al., 2004). In this study, quality perception appears to function as a filtering mechanism within the personal domain of the FCPM, counterbalancing structural globalization pressures. Interestingly, more than half of the respondents reported a perceived decline in the quality of international food. This may reflect skepticism toward industrial processing, additives, and standardized production methods. It also suggests that awareness of nutritional concerns may be more influential than broader environmental narratives in shaping actual consumption behavior. The magnitude of the coefficient (B = -1.675) indicates that perceived quality is a stronger predictor than globalization in this model. This reinforces the idea that cognitive evaluation and risk perception play a critical moderating role in food decision-making among young adults (da Cunha, 2025)

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*The Non-Significant Role of Environmental Awareness*

Contrary to Hypothesis 2, environmental awareness did not significantly predict UPF consumption. Although respondents expressed environmental concern, this did not translate into measurable differences in consumption frequency. This finding reflects the well-documented attitude-behavior gap in sustainable consumption research. While environmental awareness is increasing globally, behavioral change often remains constrained by convenience, price sensitivity, and habitual patterns. Price sensitivity often outweighs environmental concerns and thus consumer attitudes toward food consumption (Yue, 2020). Within the FCPM, environmental awareness falls under personal values, yet the model also acknowledges that values influence behavior only when salient within a specific eating event. For young adults, food decisions may be driven more by convenience and taste than by ecological considerations. Furthermore, environmental sustainability in the context of UPS may not be cognitively linked in consumers' minds. Habitual behaviors, lack of knowledge, and cognitive dissonance, which reflects conflicting values and purchasing behavior, contribute to unsustainable consumption (Bosone, 2022). Many sustainability discussions emphasize local or organic foods, while the environmental impact of industrial processing receives less visible attention in everyday purchasing contexts. Thus, environmental awareness alone may be insufficient to counteract structural dietary globalization, particularly in settings where economic and convenience constraints are strong.

*Social Media Influence*

Hypothesis 4 was not supported, as exposure to social media did not significantly influence UPF consumption frequency. This result is noteworthy given the widespread assumption that digital platforms shape eating norms among young people. From the perspective of the FCPM, social media functions as both a source of information and a social framework that shapes ideals and perceived norms. However, the absence of statistical significance suggests that mere exposure to food related content may not directly translate into measurable consumption frequency. Several interpretations are possible in this case. Social media influence may operate indirectly, shaping attitudes rather than frequency. The effect may be moderated by individual traits such as susceptibility to peer norms. Exposure may include both healthy and unhealthy food content, neutralizing net effects. While visual platforms such as Instagram and YouTube intensify food visibility, this visibility alone may not override structural determinants such as availability or entrenched habits. In this sample, globalization and quality perception exerted stronger explanatory power than digital exposure.

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*Theoretical Implications*

By embedding globalization, environmental values, quality perception, and digital influence into the FCPM, this study demonstrates the model's flexibility in capturing contemporary food system transformations. The findings reinforce the multi-level nature of food choice: Macro-level drivers (globalization) significantly increase UPF consumption. Micro-level evaluative processes (quality perception) significantly reduce it. Value-based orientations (environmental awareness) and digital exposure (social media) did not show direct effects. These results suggest that structural availability and cognitive evaluation are more decisive than normative or value-based factors in this context. The violation of the proportional odds assumption also indicates that predictors may influence different consumption levels differently. For example, globalization may primarily increase frequent consumption, whereas quality perceptions may mainly differentiate between moderate and low consumers. Future research could explore partial proportional odds models to capture these nuanced effects.

*Practical Implications*

The findings carry important implications for public health and policy in transitional food systems: Regulatory interventions addressing the availability and marketing of UPF may be more effective than awareness campaigns alone. Quality-focused communication strategies highlighting nutritional risks and ingredient transparency could reduce consumption more effectively than generalized sustainability messaging. Universities and educational institutions could integrate food literacy programs that strengthen critical evaluation of processed food claims. Since environmental awareness alone did not predict behavior, policymakers should consider bridging the gap between sustainability narratives and concrete dietary consequences.

*Limitations and Future Research*

Several limitations of this study should be acknowledged. First, the cross-sectional design prevents causal inferences, limiting our ability to determine the directionality of the observed associations. Second, the sample was drawn from a single university, which may reduce the external validity and limit the generalizability of the findings to other populations or regions. Third, dietary intake and consumption frequency were self-reported, which could introduce reporting biases such as social desirability or recall errors, potentially affecting the accuracy of the data.

Future research could address these limitations by employing longitudinal designs to examine behavioral changes over time, investigating mediating or moderating mechanisms between social media exposure and consumption patterns, comparing findings across urban and rural populations,

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and exploring potential interactions between environmental awareness and perceived food quality.

## Conclusions

This study demonstrates that UPF consumption among young adults in Albania is primarily shaped by structural exposure to globalized dietary patterns and by individual evaluations of food quality. While environmental awareness and social media exposure are conceptually relevant within the FCPM, they did not exert significant direct effects in this sample. The findings highlight the dominance of globalization-driven availability and cognitive quality assessments over value-based sustainability concerns in determining UPF consumption behavior.

However, these conclusions should be interpreted with caution. The study is based on a sample of students from a single university and relies on cross-sectional self-reported data, which may limit the generalizability of the findings and preclude causal inferences. Therefore, while the results provide useful insights into the relative importance of different determinants within this specific context, further research across more diverse populations and using longitudinal or experimental designs is needed to confirm the observed relationships.

Understanding this hierarchy of influences remains important for informing the design of nutritional interventions in rapidly globalizing food environments.

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# La survie des filières africaines sur les marchés d'exportation: une analyse de durée au niveau produit-pays

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**Résumé**

Cette étude analyse les facteurs qui déterminent la survie des filières africaines sur les marchés d'exportation. Elle s'appuie sur les données COMTRADE (classification HS6) concernant 16 pays africains pour la période 2000-2019, soit un échantillon de 5 652 épisodes d'exportation au niveau produit-pays. L'analyse utilise l'estimateur non paramétrique de Kaplan-Meier ainsi que le modèle semi-paramétrique à risques proportionnels de Cox. Les résultats descriptifs montrent que la probabilité de survie à dix ans n'est que de 47,4 %, avec une mortalité particulièrement élevée dès la première année. Les estimations du modèle de Cox indiquent que la taille relative des exportations (SIZEREL) et la valeur totale exportée (TOTALVALUE) sont associées à un risque accru de sortie (coefficients positifs significatifs), tandis que le degré de concentration des marchés (HHIN) réduit ce risque (coefficient négatif, mais marginalement significatif). Ces résultats soulignent la vulnérabilité des grandes filières africaines, souvent liées à des produits primaires, et l'intérêt potentiel d'une spécialisation sélective. Ils invitent à mettre en place des politiques favorisant la diversification qualitative et la consolidation des relations commerciales.

**Mots clés :** Survie, exportation, Afrique, analyse de durée, modèle de Cox

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# Survival of African Products in Export Markets: A Duration Analysis at the Product-Country Level

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**Abstract**

This article analyzes the determinants of the survival of African commodity chains in export markets. It draws on COMTRADE data (HS6 classification) covering 16 African countries for the period 2000–2019, comprising a sample of 5,652 export observations at the product-country level. The analysis uses the non-parametric Kaplan-Meier estimator as well as the semi-parametric Cox proportional hazards model. The descriptive results show that the ten-year survival probability is only 47.4%, with a particularly high mortality rate from the first year onwards. Estimates from the Cox model indicate that the relative size of exports (SIZEREL) and total export value (TOTALVALUE) are associated with an increased risk of exit (significant positive coefficients), whilst the degree of market concentration (HHIN) reduces this risk (negative coefficient, but marginally significant). These results highlight the vulnerability of major African sectors, often linked to primary products, and the potential benefits of selective specialisation. They suggest the need to implement policies that promote qualitative diversification and the consolidation of trade relations.

**Keywords:** Survival, export, Africa, duration analysis, Cox model

## Introduction

L'Afrique se compose essentiellement de petites économies ouvertes, dont le développement et la prospérité dépendent largement de leur capacité à s'intégrer aux marchés mondiaux. Dans cette perspective, l'accroissement du nombre d'entreprises exportatrices et la diversification substantielle de la gamme des produits exportés constituent les piliers de la transformation structurelle du continent. Toutefois, si l'entrée sur le marché international est une première étape, la pérennité des relations commerciales représente une condition nécessaire au succès à long terme (Friedlander et Pickle, 1968 ; Steers, 1975). L'engagement durable dans l'exportation est en effet perçu comme un catalyseur de performance, poussant les filières à améliorer la qualité de leurs produits, à monter en gamme et à diversifier leur offre, générant ainsi des externalités positives pour l'ensemble de l'économie.

Malgré cet impératif, la réalité empirique révèle une fragilité structurelle des exportations africaines. Seuls 18 % des nouveaux exportateurs

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du continent survivent au-delà de leur troisième année d'activité, soit un déficit de 4 points de pourcentage par rapport aux autres pays en développement (22 %) (CUA/OCDE, 2019). Ce phénomène est particulièrement marqué dans des pays comme le Malawi, le Sénégal ou la Tanzanie, où moins de 20 % des relations commerciales franchissent le cap de la première année (Cadot et al., 2013). Bien qu'elle s'améliore sensiblement à partir de la quatrième année, cette faible survie témoigne d'une sélection rigoureuse par le marché : dans un environnement de concurrence intense et de coûts d'accès élevés, les entreprises les moins productives sont prématurément éliminées.

Cette courte durée de vie des relations commerciales africaines risque de décourager les entreprises potentiellement compétitives de s'engager à l'international (Ruhl et Willis, 2017). Si la littérature existante souligne que la probabilité de survie augmente généralement avec la taille de l'entreprise (Backman et Karlsson, 2020) et son intensité technologique (Deng et al., 2014), peu d'études ont analysé la dynamique des filières africaines sur le long terme.

Ceux-ci nous amènent à nous interroger sur les déterminants spécifiques de la survie à l'exportation des filières africaines. Quelles sont les implications de la performance post-entrée sur la structure du marché et la pérennité de ces filières ?

L'objectif général de cette recherche est d'analyser les facteurs qui conditionnent la réussite ou l'échec des exportateurs africains sur les marchés étrangers entre 2000 et 2019. Plus spécifiquement, nous examinerons l'influence des caractéristiques propres aux filières et l'effet de la performance post-entrée sur la structure du marché.

Nos hypothèses pour cette étude sont les suivantes : (i) Certains facteurs endogènes et propres aux filières déterminent de manière significative leur survie sur les marchés d'exportation ; (ii) La performance post-entrée des entreprises a un effet positif sur l'environnement technologique et la structure du marché, ce qui favorise leur maintien durable à l'international.

Pour tester ces hypothèses, cette étude utilise des méthodes non paramétriques (estimateur de Kaplan-Meier) et semi-paramétriques (modèle à risques proportionnels de Cox), des outils issus de l'organisation industrielle et des sciences de la santé, mais dont l'application au commerce international est novatrice. L'originalité de ce travail repose sur son focus spécifique aux filières africaines, sur l'utilisation d'une approche méthodologique robuste et sur la couverture d'une période charnière pour les enjeux commerciaux mondiaux.

Le reste de l'article est organisé comme suit : la première partie présente une revue de la littérature, la deuxième détaille la méthodologie et les données, la troisième discute les résultats et la quatrième porte sur la conclusion.

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## Revue de la littérature

Plusieurs auteurs ont expliqué comment certains facteurs affectent la survie des filières sur les marchés étrangers. Cette section synthétise les principaux travaux de recherche ayant exploré les variables critiques influençant le maintien des flux commerciaux sur les marchés internationaux. Nous structurons cet aperçu en distinguant les fondements théoriques des validations empiriques qui ont jalonné l'étude de cette thématique.

### *Revue de la littérature théorique*

Les études existantes (notamment celles de Bernard et Jensen, 1997, 2001, et de Roberts et Tybout, 1997) montrent de manière constante que les entreprises qui parviennent à s'imposer durablement sur les marchés d'exportation se distinguent nettement des autres : elles sont plus grandes, rémunèrent mieux leurs salariés, affichent une productivité nettement supérieure et ont davantage de chances d'appartenir à une structure multisites (filière) ou d'être affiliées à une entreprise multinationale que les unités qui échouent à l'exportation. La taille des entreprises peut être interprétée comme un indicateur synthétique de plusieurs mécanismes sous-jacents. Les grandes entreprises ont par définition déjà accumulé du succès dans le passé (expérience acquise), mais leur taille leur permet également de bénéficier de coûts moyens plus réduits grâce aux économies d'échelle. La taille constitue par ailleurs souvent une approximation raisonnable de la capacité d'expérimentation et d'adaptation sur les marchés internationaux. Il est par ailleurs largement admis dans la littérature que la probabilité de survie des entreprises augmente avec leur taille, toutes choses égales par ailleurs (Bartelsman et al., 2005).

Il existe des travaux qui se concentrent sur l'âge de l'entrepreneur et le succès de l'entreprise (Backman et Karlsson, 2020). La littérature dans ce domaine suggère que les entreprises créées par des entrepreneurs plus âgés ont davantage de chances de survivre (Cressy et Storey, 1995 ; Wagner et Sternberg, 2004 ; Mueller, 2006), car elles disposent généralement d'un capital humain plus important et d'une situation financière plus solide. La détérioration de la situation financière des entreprises a accru le risque de sortie des exportations pendant la crise de 2007-2009, mais n'a pas eu d'effet significatif au début des années 90 (Gorg et Spaliara, 2018). Ils ont également examiné que les entreprises des secteurs fortement tributaires des financements extérieurs sont plus exposées aux risques de sortie du marché lors d'une crise.

Il a également été constaté que la facilitation des échanges générait des avantages commerciaux supplémentaires. En outre, la facilitation des échanges contribue à accroître la pérennité des entreprises existantes. Fugazza et Molina (2011) ont suggéré que des coûts d'exportation élevés augmentaient

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systématiquement la probabilité d'échec à l'exportation. La Banque mondiale (2012) a également suggéré que la faible longévité des entreprises africaines sur les marchés d'exportation s'expliquait en grande partie par des coûts commerciaux relativement élevés sur le continent.

Par ailleurs, la destination a un effet sur la survie des entreprises exportatrices. Il a été constaté qu'en moyenne, 78 % des exportateurs vers un pays donné sont de nouveaux exportateurs. Parmi ces nouveaux exportateurs, 60 % en moyenne cessent de servir le même pays l'année suivante (Hiroyuki et al., 2019). Ces taux sont plus élevés lorsque le pays de destination est un marché avec lequel les entreprises sont peu familières. Avoir une expérience préalable du produit, de la destination d'exportation et des réseaux d'entreprises similaires a un impact positif sur les chances de survie à l'exportation (Sterbat et al., 2015). Certains chercheurs ont expliqué comment les relations au sein des réseaux affectent les entrées et les sorties à l'étranger. Les relations peuvent par exemple changer et se rompre (Khan et Lew, 2018), et la dynamique des réseaux peut poser problème aux entreprises (Sarasvathy et al., 2014). De plus, des liens solides peuvent dissuader les départs en raison des coûts de commutation élevés (Yayla et al., 2018).

***Revue de la littérature empirique***

Les études empiriques sur l'analyse des entrées et sorties excessives sur les marchés d'exportation, en particulier celles qui se concentrent sur la survie des entreprises africaines, montrent que la taille des entreprises est un facteur important de la survie des filières. Pour la Côte d'Ivoire, par exemple, Klapper et Richmond (2011) montrent que la probabilité de survie augmente de façon monotone avec la taille de l'entreprise. Par ailleurs, en Corée, Jung et al. (2018) ont également constaté que la taille de l'entreprise et la croissance de l'industrie pouvaient réduire la probabilité de sortie. En effet, une croissance plus élevée du PIB augmente la probabilité de survie des entreprises, mais cet impact est large et aucune taille d'entreprise n'est affectée de manière disproportionnée. En Finlande, Ilmakunnas et Nurmi (2010) ont constaté que les usines grandes, jeunes, hautement productives et en forte intensité capitalistique avaient davantage de chances de survivre sur les marchés d'exportation. Des résultats similaires ont été rapportés pour l'Espagne par Pérez et al. (2007).

Jung et al. (2018) se sont penchés sur la question de savoir si les investissements en R&D pouvaient affecter la probabilité de survie d'une entreprise pendant une période de récession. À l'aide des données de 588 PME coréennes pour la période 2008-2014, ils ont constaté que l'effet de l'investissement en R&D n'était pas le même pour toutes les entreprises. Les investissements en R&D sont un mauvais choix pour assurer la survie des entreprises innovantes et capables de produire des propriétés intellectuelles

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pendant les périodes de récession. Les entreprises des secteurs à forte intensité de R&D ou de haute technologie ont donc de meilleures perspectives de survie que les entreprises des autres secteurs (Yvonne et al., 2010). De ce point de vue, mener des activités de R&D pourrait être positivement lié à l'avantage concurrentiel et à la survie de l'entreprise (Perez et al., 2004). En raison de ces effets contradictoires et des résultats empiriques, la survie des entreprises dans les industries à forte intensité de R&D n'est pas claire a priori.

Ortiz-Villajos et Sotoca (2018) ont étudié l'influence de l'innovation sur la probabilité de survie des entreprises britanniques. Ils ont constaté que les innovations importantes, en particulier les nouveaux processus non brevetés et nationaux, avaient un effet positif sur la probabilité de survie de l'entreprise. Le nombre de demandes de brevet semble augmenter la probabilité de survie des entreprises manufacturières, mais pas de celles du secteur des services. En Chine, Zhang et al. (2018) ont montré que les grandes entreprises anciennes à forte intensité technologique ont tendance à avoir un taux de sortie plus faible. Ils suggèrent que l'innovation pourrait augmenter le taux de survie des entreprises chinoises de haute technologie. Cependant, d'autres études sur la Chine ont démontré que l'innovation pouvait nuire à la survie des exportateurs (Deng et al., 2014). Cet effet négatif est plus marqué pour les entreprises dont la rentabilité est faible et les créances en souffrance élevées, ainsi que pour celles qui ne sont pas détenues par des étrangers. Ils ont également trouvé une relation positive entre l'innovation et la survie chez les exportateurs très rentables.

Toraganli et Yazgan (2016) suggèrent que l'appréciation du taux de change réel diminue la probabilité de survie à l'exportation dans les industries manufacturières. Ils ont également constaté que les entreprises à forte productivité avaient une probabilité de survie plus élevée que les entreprises à faible productivité à la suite d'une appréciation du taux de change. Leurs résultats indiquent que l'effet négatif d'une appréciation de 1 % de la monnaie nationale sur la probabilité de survie d'une entreprise donnée varie de 4,5 à 9 %, ce qui prouve la vulnérabilité des pays en développement aux fluctuations des taux de change. En outre, Klapper et Richmond (2011) ont constaté que les épisodes de réforme commerciale et fiscale avaient augmenté la probabilité de sortie des entreprises, mais que la réévaluation du taux de change et les réformes en faveur du secteur privé n'avaient pas sensiblement réduit cette probabilité.

L'étude de Martuscelli et Varela (2018) sur la Géorgie, menée à l'aide du modèle de survie discret, suggère que les entreprises les plus aptes et les plus productives ont davantage de chances de survivre. D'autre part, les stratégies de diversification des entreprises sont importantes pour leurs perspectives de survie. D'autre part, les accords de libre-échange contribuent à accroître la survie des exportations.

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Baumohl et al. (2020) ont analysé les déterminants de la survie dans quatre nouveaux États membres de l'Union européenne (République tchèque, Hongrie, Pologne et Slovaquie). Ils ont utilisé le modèle des risques proportionnels de Cox à partir de données d'entreprise recueillies entre 2006 et 2015. Ils montrent que les entreprises dont les propriétaires sont étrangers et dont les rendements sur les actifs sont plus élevés ont de meilleures chances de survie. Lagares et al. (2018) ont également utilisé ce modèle pour analyser les facteurs déterminant la survie des entreprises aquacoles espagnoles. Leurs principales conclusions révèlent l'effet positif de la rentabilité économique et de la solvabilité à long terme sur la survie des entreprises, ainsi que l'effet négatif de l'âge des entreprises. Ils ont toutefois constaté que l'investissement dans les activités de R&D et l'internalisation des entreprises n'avaient pas contribué de manière significative au modèle, indiquant ainsi qu'ils ne constituaient pas des facteurs cruciaux pour la survie des entreprises.

Ortiz-Villajos et Sotoca (2018) ont montré, à l'aide du modèle de durée, que les variables de contrôle telles que la taille de l'entreprise, sa dimension internationale et l'âge du chef d'entreprise à l'entrée semblaient être les plus influentes sur la survie de l'entreprise. En ce qui concerne les indicateurs spécifiques aux entreprises, les indicateurs de la structure de propriété et de la performance financière globale sont les facteurs économiques les plus importants associés à une probabilité accrue de survie des entreprises sur les marchés émergents européens (Baumohl et al., 2019). Ces derniers ont également utilisé le modèle des risques proportionnels de Cox sur un ensemble de données important entre 2006 et 2015.

Enfin, l'analyse des déterminants de la survie des entreprises sur les marchés d'exportation a fait l'objet d'une abondante littérature. Il a été constaté que les caractéristiques des entreprises, telles que la taille, l'âge, l'innovation et la destination, sont importantes pour la survie des filières.

**Approche méthodologique**

L'analyse de la survie a été appliquée à un large éventail de domaines des sciences sociales. On peut citer, à titre d'exemple, la diversité des champs d'application de ces analyses : du taux d'échec des nouvelles entreprises canadiennes (Baldwin et al., 2000) à la survie des flux d'exportation en Géorgie (Martuscelli et Varela, 2018), en passant par la persistance des grèves (Greene, 1993), la durée du chômage (Kiefer, 1988), le roulement des firmes (Caves, 1998), la pérennité des nouvelles unités de production (Audretsch et Mahmood, 1995) ou encore la cyclicité des activités économiques (Abderrezak, 1997). Plus généralement, l'analyse de la durée permet de modéliser le temps de l'événement et prend en compte l'évolution du risque de sortie et de ses déterminants au fil du temps (Perez et al., 2004).

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*Le choix d'une analyse à l'échelle du couple pays-produit repose sur l'idée que la pérennité d'une filière se matérialise avant tout par la persistance de ses flux transactionnels. En effet, la disparition d'un produit du marché international marque de facto la sortie de l'entreprise ou de la filière concernée (Rauch et Watson, 2003). Le produit, en tant que vecteur de l'image de marque et de l'avantage comparatif, constitue ainsi le reflet de l'existence même de l'organisation sur la scène mondiale (Albornoz et al., 2012).*

***Présentation du modèle***

L'objet central de cette analyse est la durée de survie, définie comme l'intervalle de temps entre l'entrée sur le marché d'exportation (état initial) et la cessation des flux transactionnels (événement final d'intérêt). Conformément aux travaux de Kiefer (1988) et de Besedeš et Prusa (2006), nous mesurons le temps de latence précédant la sortie du marché.

L'unité d'observation retenue est l'épisode d'exportation, dont la durée est exprimée en années. Soit T une variable aléatoire non négative représentant la durée de vie d'une relation commerciale, les observations correspondent à une suite d'intervalles de temps notés $t_1$, $t_2$, …, t_n. Une spécificité de ces données réside dans la présence de censure à droite : certaines activités d'exportation se poursuivent au-delà de la période d'étude (2019) ou cessent après la dernière mesure disponible. Des outils statistiques capables de traiter cette information incomplète sans biaiser les résultats sont donc nécessaires (Cox, 1972 ; Cadot et al., 2013).

Dans une première phase, nous utilisons l'estimateur de Kaplan-Meier, un estimateur non paramétrique, pour caractériser la distribution des durées de vie des filières. Cet estimateur est privilégié pour sa capacité à intégrer l'ensemble des informations disponibles, qu'elles soient censurées ou non.

Pour isoler les déterminants de cette survie, nous utilisons ensuite le modèle de régression à risques proportionnels de Cox (1972). Ce modèle est devenu la référence théorique et pratique pour analyser l'influence de variables explicatives sur la durée de vie en présence de censure.

L'avantage majeur de cette spécification est qu'elle ne nécessite aucune hypothèse préalable sur la forme fonctionnelle de la distribution des durées. Nous utilisons ce cadre pour estimer l'influence des facteurs exogènes (taille de l'entreprise, innovation, caractéristiques du marché) sur l'intensité de sortie des filières exportatrices africaines, ce qui nous permet de tester la robustesse de nos hypothèses de recherche.

**Spécification du modèle**

L'analyse de la pérennité des filières africaines repose sur l'étude de la distribution des temps de survie. Chaque épisode d'exportation est assimilé à la réalisation t d'une variable aléatoire positive T. La distribution de T peut

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être caractérisée par trois fonctions fondamentales interdépendantes (Kiefer, 1988) :

Les fonctions de survie et de risque

La probabilité qu'un épisode d'exportation se poursuive au-delà d'un temps t est définie par la fonction de survie S(t):

$$S(t) = P(T \geq t) = \int_0^t f(x)dx = 1 - F(t) \quad \textbf{(1)}$$

où f(x) est la fonction de densité et F(t) la fonction de répartition.

Pour comprendre la probabilité qu'un épisode se termine à l'instant t, sachant qu'il a persisté jusqu'à ce point, nous utilisons le taux de risque instantané **h(t)**:

$$\textbf{h(t)}= \frac{f(t)}{S(t)} = \frac{f(t)}{1-F(t)} = \frac{-d\ lnS(t)}{dt} \quad \textbf{(2)}$$

Ce taux permet d'identifier la dépendance à l'égard de la durée. Une pente positive ($\frac{dh(t)}{dt} > 0$) indique qu'une relation commerciale prolongée accroît le risque de sortie, tandis qu'une pente négative suggère un effet d'apprentissage ou une consolidation de la filière avec le temps.

Certains auteurs rapportent la fonction de risque intégrée qui n'a pas une interprétation évidente.

En particulier, elle n'est pas une probabilité. Elle est définie comme :

$$H(t) = \int_0^t h(x)dx \quad \textbf{(3)}$$

Étant donné que $S(t) = e^{-H(t)}$, on peut montrer que la fonction de risque intégrée est inversement liée au log de la fonction de survie : $H(t) = -\ln S(t)$.

Approche non paramétrique : Estimateur de Kaplan-Meier

Pour caractériser la survie sans hypothèse fonctionnelle préalable, nous mobilisons l'estimateur de Kaplan-Meier (1958). À chaque instant $t_i$ où une sortie est observée, la probabilité de survie est estimée par :

$$\textbf{S(t)} = \pi_{t_i \leq t}^{t} \left(\frac{n_i - d_i}{n_i}\right) = \pi_{t_i \leq t}^{t} \left(1 - \frac{d_i}{n_i}\right) = \pi_{t_i \leq t}^{t} (1 - h_i) \quad \textbf{(4)}$$

$h_i = \frac{d_i}{n_i}$ : représente le taux de risque ou le rapport du nombre de sorties au nombre d'exportateurs à risque au temps $t_i$.

Où $d_i$ est le nombre de sorties au temps $t_i$ et $d_i$le nombre de produits encore « à risque ». Cette méthode est particulièrement adaptée pour traiter les censures à droite, fréquentes dans nos données (ex: exportations encore actives à la fin de l'observation en 2019).

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Modélisation semi-paramétrique : Le modèle de Cox

Afin d'estimer l'influence des facteurs exogènes sur la longévité des filières, nous utilisons le modèle à risques proportionnels de Cox (1972). Sa spécification repose sur l'hypothèse que les covariables agissent de manière multiplicative sur le risque :

$$\mathbf{h\,(t, X)= h_0(t)\ exp\ (\sum\ \beta_i X_i)} \quad \mathbf{(5)}$$

Ici, $h_o$ $(t)$ représente le risque de base (lorsque toutes les covariables X sont nulles) et exp$(\beta)$ exprime le rapport de risques (hazard ratio). Un coefficient $(\beta)$ indique que la variable augmente le risque de sortie (réduit la survie).

Traitement de la censure

L'analyse intègre deux types de contraintes temporelles :

- la censure à droite : cas des épisodes n'ayant pas connu de sortie avant la fin de la période d'étude (2019) ;
- la censure à gauche : cas des relations déjà actives avant l'an 2000.

Conformément à Allison (1997), ces situations sont traitées avec prudence pour éviter le biais de durée, en privilégiant l'analyse des « nouveaux » épisodes dont le début est précisément identifié.

Dans la présente étude, nous adoptons une double approche méthodologique. D'une part, nous procédons à une analyse de la fonction de survie à l'aide de l'estimateur non paramétrique de Kaplan-Meier (KM). D'autre part, nous utilisons le modèle à risques proportionnels de Cox pour identifier et estimer l'effet des variables explicatives sur la survie des filières africaines sur les marchés d'exportation.

**Données et analyse descriptive**

Les données COMTRADE utilisées concernent près de 5 652 produits ou observations répartis entre 16 pays africains (voir l'annexe). L'analyse porte sur la période allant de 2000 à 2019. Les variables explicatives principales sont les suivantes : SIZEREL (taille relative = valeur exportée de la filière / valeur moyenne des exportations du même produit-pays sur la période), TOTALVALUE (valeur totale cumulée des exportations sur la durée de l'épisode (en dollars US)), HHIN (indice de Herfindahl-Hirschman au niveau du produit sur les marchés d'exportation (source UNCTADstat)), STARTSEQ (année de début de l'épisode (variable de contrôle temporelle)), ENDSEQ (année de fin de l'épisode (si sortie observée)).

L'unité d'analyse retenue est l'épisode d'exportation au niveau produit-pays (code HS6 – pays partenaire). Chaque observation correspond à une relation commerciale spécifique initiée après 2000 et potentiellement censurée en 2019.

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Les statistiques descriptives présentées dans le tableau 1 fournissent un premier aperçu quantitatif de la structure et de la dynamique des flux d'exportation des filières africaines entre 2000 et 2019. Elles révèlent plusieurs caractéristiques structurelles qui s'inscrivent dans la continuité des enseignements tirés de la revue de littérature et préfigurent les résultats des analyses de survie.

La durée moyenne et médiane d'exportation (DURATION = 10 ans) semble relativement élevée au premier abord. Cependant, cette valeur doit être interprétée avec prudence, car les données sont fortement censurées à droite et la distribution est très asymétrique. Comme le soulignent plusieurs travaux cités (Cadot et al., 2013 ; CUA/OCDE, 2019 ; Brenton et al., Banque mondiale, 2012), la majorité des relations commerciales africaines sont de très courte durée : une proportion importante n'excède pas une année, et la survie au-delà de trois ans reste faible (18 % selon la CUA/OCDE, 2019). La moyenne de 10 ans reflète donc principalement la longévité de quelques flux durables (souvent liés à des produits de base ou à des relations historiques), tandis que la médiane, plus robuste face aux valeurs extrêmes, coïncide ici avec la moyenne en raison de la forte censure à droite. Ce résultat confirme indirectement la dichotomie classique entre une minorité de relations exportatrices pérennes et une majorité d'épisodes très brefs, caractéristique des économies africaines qui se heurtent à des coûts d'entrée relativement faibles, mais à des coûts de maintien élevés (Fugazza et Molina, 2011 ; Banque mondiale, 2012).

La variable STARTSEQ (année de début d'exportation) montre que 4 837 produits sur 5 652 (soit environ 85,5 %) ont commencé à être exportés au début de la période (en 2000 ou peu après). Cela traduit une entrée massive au début des années 2000, période marquée par la croissance des prix des matières premières et l'amélioration relative des conditions d'accès aux marchés pour plusieurs pays africains. Ce profil temporel est cohérent avec les analyses de la dynamique d'entrée-sortie dans les pays en développement, qui montrent que les hausses de prix ou les opportunités ponctuelles génèrent de nombreuses entrées expérimentales de faible intensité (Rauch et Watson, 2003 ; Cadot et al., 2013).

À l'inverse, ENDSEQ indique que seuls 493 produits (moins de 9 %) étaient encore actifs à la fin de la période (en 2019). Ce fort taux d'attrition cumulée sur 19 ans corrobore les constats de la littérature sur la courte durée de vie des relations commerciales en Afrique : la plupart des flux initiés disparaissent progressivement, souvent après une ou quelques années seulement (Cadot et al., 2013 ; Hiroyuki et al., 2019). Ce phénomène de « churn » élevé (entrée massive suivie d'une sortie massive) est typique des environnements caractérisés par une forte incertitude de la demande, des

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coûts fixes post-entrée non négligeables et une faible capacité d'adaptation (Fugazza et Molina, 2011).

La valeur totale des exportations (TOTALVALUE = 289 millions de dollars en moyenne par épisode) et la taille relative (SIZEREL = 5 659) témoignent de la prédominance des grandes filières au sein de l'échantillon. Il reflète la structure duale des exportations africaines, dans laquelle une minorité de grandes structures (souvent liées aux matières premières ou aux filières extractives) génère l'essentiel des volumes, tandis que les petites et moyennes entreprises restent marginales dans le domaine de l'exportation. Ce constat rejoint les travaux théoriques et empiriques qui soulignent que les exportateurs durables sont généralement plus grands, plus productifs et mieux dotés en capitaux (Bernard et Jensen, 1997, 2001 ; Roberts et Tybout, 1997 ; Klapper et Richmond, 2011). Cependant, il préfigure également un résultat contre-intuitif ultérieur : dans le contexte africain, cette taille relative semble accroître le risque de sortie, probablement en raison de la vulnérabilité aux chocs de prix et à la volatilité des marchés de produits de base (Toraganli et Yazgan, 2016 ; Nicita et Rollo, 2015).

Le faible nombre moyen de produits exportés (COUNTOFHS6 ≈ 541 885 unités, mais valeur moyenne par épisode très élevée) combiné à un indice de concentration HHIN moyen de 0,345 confirme la faible diversification des exportations africaines, tant en termes de gamme de produits que de destinations. Cette spécialisation étroite sur un petit nombre de produits, concentrés géographiquement ou sectoriellement, est un trait structurel bien documenté (Nicita et Rollo, 2015 ; CUA/OCDE, 2019). Elle rend les filières particulièrement sensibles aux chocs idiosyncratiques (prix, demande spécifique à un marché) et limite les effets d'apprentissage et de résilience procurés par une diversification maîtrisée (Martuscelli et Varela, 2018). Paradoxalement, une concentration élevée peut aussi constituer un facteur protecteur une fois la relation établie, grâce à des effets de réseau et à des coûts de sortie élevés (Sterbat et al., 2015 ; Yayla et al., 2018), comme le confirmera l'estimation Cox.

**Tableau 1 :** Noms, Définitions et valeurs moyennes des variables

| Variation | Définition | Moyenne |
|---|---|---|
| DURATION | Durée de l'épisode en année | 10 |
| STARTSEQ | Année de début d'exportation | 2005,2 |
| ENDSEQ | Année de fin d'exportation (si sortie) | 2012,8 |
| TOTALVALUE | Valeur totale exportée (USD) | 289 361 087,30 |
| SIZEREL | Taille relative | 5 659,07 |
| COUNTOFHS6 | Nombre de produits exportés | 541 884,70 |
| HHIN | Indice de concentration | 0,345 |

*Source :* Auteur, à partir des données sur les produits exportés de *Comtrade*, et *UNCTADstat* pour HHIN, sur la période 2000-2019.

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## Résultats d'estimations

### *Analyse non paramétrique des fonctions de survie : l'estimateur de Kaplan-Meier*

Les estimations non paramétriques de la fonction de survie obtenues à l'aide de l'estimateur de Kaplan-Meier (voir le tableau 2) dressent un portrait alarmant de la fragilité des filières africaines sur les marchés d'exportation. La probabilité de survie chute rapidement : 94,7 % à la fin de la première année (soit un risque de sortie immédiate de 5,3 %), puis 89,5 % à deux ans, 84,2 % à trois ans et seulement 47,4 % à dix ans. La durée médiane de survie est de 10 ans, ce qui signifie que la moitié des filières disparaissent avant cette échéance. Ces chiffres confirment une mortalité précoce massive et une sélection rigoureuse par le marché, en accord avec les constats empiriques et théoriques de la revue de littérature.

La très forte probabilité de sortie dès la première année (5,3 %, cumulée à une proportion « très élevée » de filières n'exportant qu'une seule année) correspond parfaitement aux travaux antérieurs sur l'Afrique. Cadot et al. (2013) ont documenté le fait que moins de 20 % des relations commerciales dans des pays comme le Malawi, le Sénégal ou la Tanzanie franchissent le cap de la première année, ce qui est inférieur à la moyenne des pays en développement. Le rapport CUA/OCDE (2019) indique que seuls 18 % des nouveaux exportateurs africains survivent au-delà de trois ans (contre 22 % pour les autres pays en développement). La Banque mondiale (2012) souligne que les exportations subsahariennes affichent les durées moyennes les plus courtes (environ deux ans en moyenne non pondérée), avec des taux de survie à un an souvent autour de 33 à 40 % pour l'Afrique subsaharienne, bien inférieurs à ceux des États-Unis (70 %) ou d'autres régions.

Cette mortalité initiale élevée s'explique par les mécanismes théoriques évoqués dans la revue : (i) des coûts d'accès élevés au marché international (Fugazza et Molina, 2011 ; Banque mondiale, 2012), qui rendent l'entrée expérimentale peu coûteuse, mais le maintien prohibitif ; (ii) l'absence d'expérience préalable avec le produit ou la destination (Sterbat et al., 2015) ; (iii) une sélection rigoureuse par la concurrence intense, où les filières les moins productives ou les moins adaptées sont rapidement éliminées (Rauch et Watson, 2003 ; implicite dans la littérature sur les coûts fixes et les coûts irrécupérables). L'article cite explicitement le fait que de nombreuses exportations ponctuelles répondent à une demande non sollicitée, ce qui rejoint l'idée d'« expérimentation » à petite échelle décrite par Cadot et al. (2013) : les exportateurs africains testent souvent les marchés à faible volume, ce qui conduit à un taux d'échec précoce élevé.

La probabilité de survie à dix ans n'est que de 47,4 % (risque cumulé de sortie de 52,6 %), ce qui met en évidence la persistance de la fragilité structurelle des exportations africaines, malgré une amélioration après les

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premières années. Ce résultat est cohérent avec les analyses régionales, qui montrent que les exportations subsahariennes survivent en moyenne moins longtemps que celles d'autres régions en développement (Brenton et al., 2010 ; Fugazza et Molina, 2011), en raison de la concentration sur des produits primaires non transformés (Nicita et Rollo, 2015), de coûts commerciaux élevés et de chocs externes (volatilité des prix, Toraganli et Yazgan, 2016).

**Tableau 2 :** Résultats d'estimations de la durée de survie (Kaplan-Meier)

| Durée | Probabilité de survie | Probabilité de sortie | LIC | LSC |
|---|---|---|---|---|
| 1 | 0,947 | 0,053 | 0,946 | 0,949 |
| 2 | 0,895 | 0,105 | 0,893 | 0,897 |
| 3 | 0,842 | 0,158 | 0,84 | 0,844 |
| 4 | 0,789 | 0,211 | 0,787 | 0,792 |
| 5 | 0,737 | 0,263 | 0,734 | 0,739 |
| 6 | 0,684 | 0,316 | 0,681 | 0,687 |
| 7 | 0,632 | 0,368 | 0,629 | 0,634 |
| 8 | 0,579 | 0,421 | 0,576 | 0,582 |
| 9 | 0,526 | 0,474 | 0,523 | 0,529 |
| 10 | 0,474 | 0,526 | 0,471 | 0,477 |
| 11 | 0,421 | 0,579 | 0,418 | 0,424 |
| 12 | 0,368 | 0,632 | 0,365 | 0,371 |
| 13 | 0,316 | 0,684 | 0,313 | 0,319 |
| 14 | 0,263 | 0,737 | 0,26 | 0,266 |
| 15 | 0,21 | 0,79 | 0,208 | 0,213 |
| 16 | 0,158 | 0,842 | 0,156 | 0,16 |
| 17 | 0,105 | 0,895 | 0,103 | 0,107 |
| 18 | 0,053 | 0,947 | 0,0513 | 0,054 |
| 19 | 0 | 1 | | |

*Source :* Auteur, à partir des données sur les produits exportés de *Comtrade*, et *UNCTADstat* pour HHIN, sur la période 2000-2019.

*Notes :* Les deux colonnes de droite indiquent respectivement les limites inférieures (LIC) et supérieures (LSC) de l'intervalle de confiance à 95 % entourant chaque probabilité de survie estimée. La première colonne présente la durée des exportations exprimée en années. La deuxième colonne affiche les estimations obtenues par l'estimateur de Kaplan-Meier (KM).

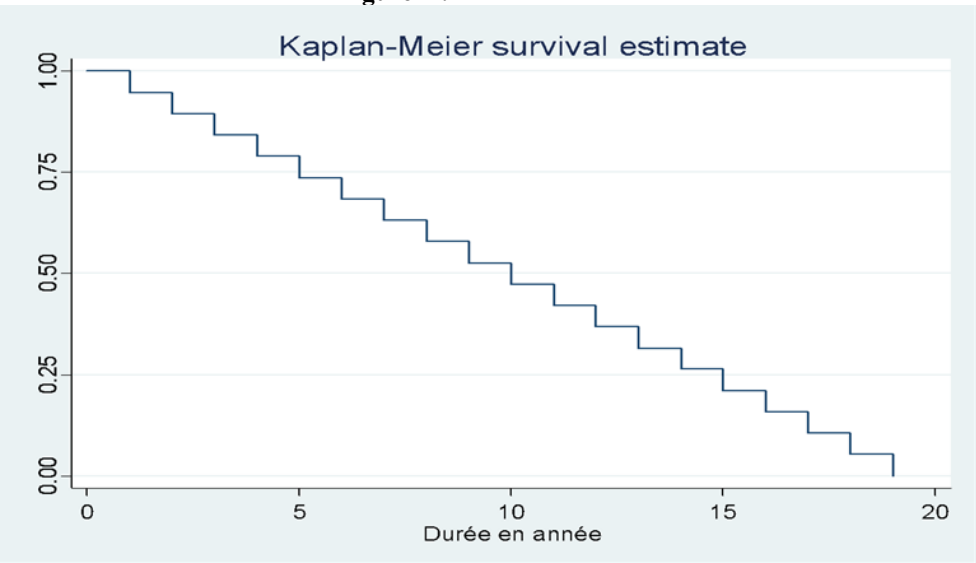
La figure 1 illustre la forte fragilité des exportations africaines entre 2000 et 2019. La courbe de survie estimée par la méthode de Kaplan-Meier montre une décroissance rapide et continue dès la première année, avec une perte d'environ 5,3 % des relations commerciales dès la fin de la première année, puis un effritement régulier qui conduit à une probabilité de survie de seulement 47,4 % au bout de dix ans. Cette allure décroissante, sans palier marqué après les premières années, reflète le phénomène bien documenté du « churn » élevé des exportateurs africains : entrées relativement faciles, mais sorties massives et précoces, liées à des coûts de maintien élevés, à une faible résilience face aux chocs et à une spécialisation souvent concentrée sur des produits primaires volatils. La forme globale de la courbe confirme ainsi que

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la sélection par le marché international opère très tôt et de façon particulièrement sévère sur le continent, soulignant l'urgence de mettre en place des politiques favorisant non seulement l'entrée, mais surtout la consolidation et la montée en gamme des flux existants.

Ces résultats non paramétriques fournissent ainsi une base descriptive robuste permettant d'aller vers l'analyse semi-paramétrique (Cox), qui identifie les déterminants spécifiques du risque.

**Figure 1 :** Fonction de survie




*Source :* Auteur, à partir des données sur les produits exportés de *Comtrade,* sur la période 2000-2019.

**Analyse semi-paramétrique : le modèle de régression à risques proportionnels de Cox**

Les estimations du modèle à risques proportionnels de Cox (voir le tableau 3) révèlent des effets contrastés, parfois contre-intuitifs, des déterminants sur le risque de sortie des filières africaines des marchés d'exportation.

Le coefficient positif et significatif de SIZEREL (taille relative de la filière, $\beta = 2{,}23$ ; $p < 0{,}026$) indique que les filières les plus importantes (souvent multi-établissements ou de grande envergure) présentent un risque accru d'échec à l'exportation. Ce constat contredit frontalement les résultats de la littérature dominante. Bernard et Jensen (1997, 2001), Roberts et Tybout (1997), Bartelsman et al. (2005), ainsi que de nombreuses études empiriques (Klapper et Richmond, 2011 pour la Côte d'Ivoire ; Jung et al., 2018 pour la Corée ; Ilmakunnas et Nurmi, 2010 pour la Finlande ; Pérez et al., 2007 pour l'Espagne) soulignent systématiquement que la taille augmente la probabilité de survie grâce aux économies d'échelle (Baten, 2013), à une meilleure

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coordination (Simon, 1945), à la capacité d'absorption des pertes (Williamson, 1975, 1985) et à une productivité supérieure. Dans le contexte africain, cet effet inverse s'explique par plusieurs mécanismes mis en lumière dans la revue de littérature. Les grandes filières, souvent spécialisées dans des produits primaires à forte valeur unitaire (matières premières), sont particulièrement vulnérables aux chocs de prix mondiaux et aux fluctuations de la demande (Toraganli et Yazgan, 2016). Elles supportent également des coûts fixes élevés pour maintenir leur présence sur les marchés internationaux (Fugazza et Molina, 2011 ; Banque mondiale, 2012), ce qui rend leur sortie plus probable lorsque les marges se compriment. De plus, l'appartenance à des structures multisites peut favoriser une réallocation interne des ressources vers des destinations plus rentables, accélérant ainsi l'abandon de certains flux africains.

De façon similaire, la valeur totale des exportations sur la durée (TOTALVALUE) affiche un coefficient positif et significatif ($\beta = 2{,}23$ ; $p < 0{,}026$), suggérant que les produits à fort volume ou à haute valeur augmentent le risque de cessation. Ce résultat est conforme à la logique des lois de l'offre et de la demande évoquée dans l'article : une augmentation du prix incite initialement à accroître l'offre, mais réduit la demande, entraînant une diminution progressive des volumes exportés et un risque accru de disparition du produit sur les marchés extérieurs. Il en résulte que les filières africaines, souvent dépendantes de produits de base non transformés (Nicita et Rollo, 2015), subissent une volatilité accrue sur les marchés mondiaux, contrairement aux économies plus diversifiées, dont la taille protège contre les chocs.

À l'inverse, l'indice HHI (concentration des marchés d'exportation au niveau du produit) présente un coefficient négatif ($\beta = -0{,}017$ ; $p < 0{,}077$), indiquant une réduction significative du risque de sortie lorsque la concentration est élevée. Ce résultat est cohérent avec les travaux sur les réseaux et la spécialisation stratégique. Sterbat et al. (2015) montrent en effet que l'expérience préalable avec le produit et la destination, ainsi que des réseaux solides d'entreprises similaires, améliorent les chances de survie. Khan et Lew (2018), Sarasvathy et al. (2014) et Yayla et al. (2018) soulignent également que des liens solides dissuadent de sortir en raison des coûts de commutation élevés. Une forte concentration permet ainsi d'obtenir des effets d'apprentissage cumulés, de développer des relations durables avec les acheteurs et d'accroître la résilience, ce qui est particulièrement pertinent dans un continent où les filières restent peu diversifiées (moyenne COUNTOFHS6 élevée, mais HHIN moyen à 0,345).Pour STARTSEQ, ce résultat n'est pas significatif ($p = 0{,}798$), ce qui ne permet pas de conclure à un effet protecteur robuste de l'introduction de nouveaux produits.

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**Tableau 3 :** Influence de certains déterminants sur le risque : régression à risques proportionnels de Cox

| Variables | Hazard Ratio | Coefficient | Erreur-type | p-value |
|---|---|---|---|---|
| SIZEREL | 1,248 | 0,222 | 0,098 | <0,05 |
| HHIN | 0,983 | -0,017 | 0,009 | 0,077 |
| TOTALVALUE | 1,152 | 0,141 | 0,064 | <0,05 |
| STARTSEQ | 0,974 | -0,026 | 0,102 | 0,798 |
| ENDSEQ | 1,105 | 0,1 | 0,136 | 0,461 |

*Source :* Auteur, à partir des données sur les produits exportés de Comtrade, et UNCTADstat pour HHIN, sur la période 2000-2019.
*Notes :* Modèle Cox estimé avec censure à droite. Tests de Schoenfeld (global p=0.312 ; par variable tous >0.10) ne rejettent pas l'hypothèse de proportionnalité.

## Conclusion

Cette étude a examiné les déterminants de la survie des filières africaines sur les marchés d'exportation, à l'aide d'une analyse de durée appliquée aux données COMTRADE (classification SH-6) pour 16 pays africains, sur la période 2000-2019. L'approche combinant l'estimateur non paramétrique de Kaplan-Meier et le modèle semi-paramétrique à risques proportionnels de Cox a permis de caractériser la distribution des durées d'exportation et d'isoler l'effet de plusieurs variables clés.

Les résultats non paramétriques confirment la grande fragilité des exportations africaines : près de 47,4 % des filières cessent leurs activités avant dix ans de présence continue et la moitié des relations commerciales disparaissent avant la durée médiane estimée à dix ans. Surtout, une proportion substantielle des flux n'excède pas une seule année, ce qui est cohérent avec la littérature sur les coûts d'entrée relativement faibles, mais les coûts de maintien élevés, dans les économies africaines.

L'estimation de Cox révèle des effets contrastés et partiellement contre-intuitifs. Contrairement à ce que suggère la littérature internationale dominante, la taille relative des filières (SIZEREL) et la valeur totale des exportations (TOTALVALUE) augmentent significativement le risque de sortie. Ce résultat s'explique vraisemblablement par la forte dépendance des grandes structures africaines aux produits primaires dont les prix sont volatils, ainsi que par les importants coûts fixes de maintien sur les marchés internationaux. À l'inverse, un degré élevé de concentration des marchés d'exportation (HHIN) réduit sensiblement le risque de retrait, ce qui suggère que la spécialisation et les relations étroites avec les acheteurs entraînent des coûts de commutation élevés et favorisent la pérennité.

Ces résultats montrent que la faible survie des exportations africaines ne s'explique pas uniquement par un déficit de productivité ou d'expérience, mais également par la structure même des spécialisations actuelles (concentration sur des produits primaires à forte volatilité) et par des

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mécanismes de sélection post-entrée particulièrement sévères. Ils mettent en évidence l'importance stratégique de la concentration sélective et de l'innovation produit comme leviers de durabilité plutôt que de la taille brute. Sur le plan des politiques publiques, ces résultats plaident en faveur d'une action ciblée visant à : (i) accompagner la montée en gamme et la diversification qualitative des exportations ; (ii) renforcer les relations durables avec les marchés prioritaires afin de consolider les effets de réseau et de réduire les coûts de sortie ; (iii) atténuer la vulnérabilité des grandes filières aux chocs de prix mondiaux par des mécanismes de stabilisation ou une transformation locale accrue. Des investigations complémentaires seraient nécessaires pour préciser l'effet de la destination des exportations, de la proximité géographique des unités de production et des accords commerciaux préférentiels sur la survie des flux.

Cette étude apporte une contribution empirique spécifique au contexte africain et confirme que la pérennisation des relations commerciales est un enjeu central pour la transformation structurelle et la résilience des économies du continent.

**Conflit d'intérêts :** L'auteure n'a signalé aucun conflit d'intérêt.

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

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## Annexe

**Liste des pays:** Afrique du Sud, Bénin, Botswana, Comores, Cote d'Ivoire, Égypte, Gambie, Madagascar, Maroc, Maurice, Namibie, Sao Tome et Prince, Sénégal, Tunisie, Zambie et Zimbabwe.

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# L'Ambivalence des Technologies Numériques entre Vecteur d'Épanouissement et Source de Technostress au Travail

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**Résumé**

L'essor des technologies de l'information et de la communication a profondément modifié le rapport des individus au travail. Alors que certains les perçoivent comme des facilitateurs qui allègent la charge de travail et favorisent l'épanouissement, d'autres les considèrent comme une source de stress et d'épuisement professionnel. Cet article vise à étudier la perception de l'influence des technologies numériques professionnelles sur le bien-être et le stress des individus au sein des administrations de l'enseignement supérieur public au Maroc. Cet environnement organisationnel, caractérisé par la mise en place de nouvelles réformes dont la transformation numérique est le principal levier, sera au centre de notre étude. L'analyse repose sur une enquête qualitative conduite au sein des services administratifs de l'université publique. L'objectif est d'appréhender la manière dont les technologies numériques sont perçues et d'identifier leurs incidences directes sur le bien-être au travail et /ou le stress. Les résultats mettent en évidence l'ambivalence inhérente à ces technologies, qui apparaissent à la fois comme des vecteurs d'émancipation et d'amélioration des conditions de travail, et comme des sources potentielles de malaise et de stress organisationnel. S'appuyant sur le modèle JD-R (Job Demands-Resources), cet article souligne l'importance de ressources telles qu'un environnement de travail sain, des relations

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interpersonnelles de qualité et la reconnaissance des efforts lors de l'introduction de ces technologies, afin de réduire les effets négatifs sur le bien-être au travail, tels que le manque de formation, le conflit entre vie privée et vie professionnelle et l'incertitude technologique, qui exacerbent le sentiment de malaise des individus dans leur environnement professionnel.

**Mots-clés :** Technologies numériques, bien-être au travail, technostress, modèle Exigences-Ressources, université publique

# The Dual Nature of Digital Technologies: Both a Means of Fulfilment and a Source of Technostress in the Workplace

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**Abstract**

The rise of information and communication technologies has profoundly altered the way people relate to their work. Whilst some view these technologies as facilitators that lighten the workload and promote personal fulfilment, others regard them as a source of stress and burnout. This article aims to examine perceptions of the influence of digital technologies in the workplace on the well-being and stress levels of individuals within public higher education administrations in Morocco. This organisational environment, characterised by the implementation of new reforms in which digital transformation is the main driver, will be the focus of our study. The analysis is based on a qualitative survey conducted within the administrative departments of a public university. The aim is to understand how digital technologies are perceived and to identify their direct impact on well-being at work and/or stress. The results highlight the ambivalence inherent in these technologies, which appear both as vehicles for empowerment and improved working conditions, and as potential sources of discomfort and organisational stress. Drawing on the JD-R (Job Demands-Resources) model, this article emphasises the importance of resources such as a healthy working environment, high-quality interpersonal relationships and recognition of efforts when introducing these technologies, in order to reduce negative effects on well-being at work such as a lack of training, work-life conflict and

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technological uncertainty—which exacerbate individuals' sense of unease in their professional environment.

**Keywords:** New technologies, Well-being at work, Technostress, the JD-R model, Public University

## Introduction

Depuis la crise du coronavirus, la transition vers le travail numérique a connu une accélération sans précédent, témoignant d'un déploiement massif de solutions technologiques, allant des outils collaboratifs traditionnels tels que les intranets et les réseaux sociaux d'entreprise aux technologies émergentes basées sur l'intelligence artificielle, telles que les chatbots et l'analyse des sentiments (Dery et al., 2017).

Après plusieurs investigations sur la littérature existante sur ce sujet,nous avons remarqué qu'il existe un gap théorique et empirique en matière d'études scientifiques portant sur la perception des employés par rapport aux technologies professionnelles et leur influence sur la satisfaction au travail.D'où l'idée de notre projet qui vise à dévoiler les nuances amoncelées sur ce thème.En effet,l'essor exponentiel des technologies de l'information et de la communication communément appelées les technologies d'information et de communication (TIC) ou technologies d'information (TI) et puis technologies numériques (TN) a radicalement transformé la relation de l'individu à son activité professionnelle. Cette présence se manifeste par une perception ambivalente : d'un côté, le numérique est perçu comme un levier d'émancipation et un facilitateur rendant les tâches moins pénibles ; de l'autre, il est vécu comme une contrainte génératrice de technostress, de frustration et d'une surcharge cognitive additionnelle.Le but de notre étude est de mettre en lumière les bienfaits et les obstacles de l'utilisation des technologies numériques et surtout de déceler les sources de stress et les ressources suscitant le sentiment de bien-être au travail dans le contexte des établissements de l'enseignement supérieur public au Maroc. De ce fait, nous avons choisi le secteur de l'enseignement supérieur marqué par la mouvance, la dynamique et un essor considérable en termes de digitalisation et numérisation des services administratifs.Afin d'explorer le terrain de notre étude, nous avons décidé de mener notre étude qualitative moyennant un guide d'entretien semi-directif auprès de personnel administratif dans plusieurs établissements à accès réguliers et ouverts appartenant à plus de dix universités marocaines publiques.En rappelant la notion de «paradoxe pratique de la technologie» citée par les scientifiques afin d'étudier les mécanismes opposés qui sous-tendent la relation entre les technologies et le bien-être des employés. Nous nous appuyons sur le modèle des exigences et des ressources professionnelles (JD-R) pour établir un lien entre la littérature

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sur les paradoxes et le bien-être des employés. Le modèle JD-R décrit comment les conditions de travail perçues (ressources et exigences professionnelles) influencent les sentiments d'épuisement professionnel et d'engagement au travail (Bakker & Demerouti et al., 2007). L'épuisement professionnel est un syndrome de stress caractérisé par des niveaux élevés et persistants d'épuisement ; l'épuisement est la qualité centrale de l'épuisement professionnel et l'une de ses dimensions fondamentales (Bakker et al., 2014 ; Mäkikangas et al., 2014 ; Maslach et al., 2001). À l'inverse, l'engagement au travail est un état d'esprit positif et épanouissant lié au travail, caractérisé par une « vigueur » ou une énergie envers son travail. La vigueur est l'une des dimensions fondamentales de l'engagement au travail (Bakker et al., 2014 ; Mäkikangas et al., 2014). Les résultats mettent en exergue le caractère ambivalent des technologies numériques : si elles contribuent au bien-être, elles deviennent des vecteurs de stress dès lors que les exigences professionnelles surpassent largement les ressources disponibles. À l'issue de notre étude nous avons pu dégager trois configurations possibles résultant des dynamiques entre les exigences et les ressources.Cette étude explore la manière dont les acteurs appréhendent les transformations de l'organisation et intègrent les outils technologiques à leurs pratiques. L'enjeu est de caractériser la dualité de ces technologies perçues comme ressources ou contraintes afin d'en dégager les interactions éventuelles qui en découlent pour en prévoir les mesures nécessaires.

## Soubassements théoriques

### *La perception des technologies numériques et ses répercussions sur le bien-être au travail*

Dans le champ de la psychologie du travail, l'étude de l'analyse de la relation des individus au travail repose sur deux paradigmes à la fois opposés et complémentaires offrant ensemble une lecture holistique de la réalité du travail. D'une part, l'approche pathogénique se consacre à l'étude des phénomènes de souffrance au travail, tels que le stress, le burnout ou l'épuisement professionnel. D'autre part, l'approche salutogénique déplace le regard vers les dynamiques de santé positive, en explorant les concepts de bien-être au travail (BET) et de qualité de vie au travail (QVT). Cette double lecture permet d'appréhender l'expérience humaine dans l'organisation dans toute sa complexité, entre gestion des vulnérabilités et optimisation des ressources. Nous ouvrirons notre analyse par l'étude de l'approche salutogénique.

Dans la mesure où les technologies numériques ont tendance à bouleverser les rapports des individus aux autres, aux temps et à l'espace de travail, nous étudions leur influence sur le bien-être professionnel, étant donné les transformations importantes engendrées par la mise en place de ces

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technologies dans les organisations privées ou publiques. Il s'agit de mettre en évidence comment les technologies peuvent contribuer au bien-être des collaborateurs. On peut identifier plusieurs variables technologiques qui contribuent positivement au ressenti des fonctionnaires à l'égard de leur environnement technologique de travail. L'usage des technologies numériques offre au collaborateur la possibilité d'accroître son efficacité grâce à un accès instantané à l'information. Cette optimisation est de nature à réduire la pression temporelle, sous réserve d'une répartition équitable de ce gain de productivité entre l'organisation et le salarié.

En outre,les technologies d'information se distinguent par leur capacité à abolir les frontières spatio-temporelles du travail. Pour les fonctions à forte intensité numérique, telles que les cadres, l'accès continu à l'information favorise une flexibilité accrue. Cette mutation, qui s'exprime par le caractère asynchrone et délocalisé des tâches, rend le travail « ubiquitaire » (Besseyré des Horts et Isaac, 2006). Bien que cette liberté puisse dériver vers une forme d'assujettissement, elle permet initialement une meilleure conciliation entre la vie professionnelle et la sphère privée. Cette autonomie reste toutefois l'apanage des métiers qui ne nécessitent pas d'effectuer les tâches uniquement sur le lieu de travail. comme le soulignent les travaux de Klein et Long (2013) ainsi que ceux du GRePS-Apec (2011). Les TIC permettent également l'automatisation, le partage de fichiers et une meilleure collaboration, ce qui rend le travail moins pénible et rapide, minimisant les tâches répétitives et augmentant le contrôle sur le travail et favorisant par la suite la satisfaction professionnelle des utilisateurs. (Hoeven, Zoonen, Fonner, 2016). Il est à ajouter que l'usage professionnel de ces technologies ne constitue pas seulement une modalité technique, mais génère des ressources précieuses pour l'employé : l'efficacité communicationnelle et l'accessibilité selon plusieurs recherches récentes (Cavazotte et al., 2014 ; Mazmanian et al., 2013).

D'une part, l'efficacité de la communication se traduit par un contrôle accru sur les flux d'informations. En réduisant les délais et en fluidifiant les échanges, les TIC minimisent les ruptures de communication, offrant ainsi à l'individu une meilleure maîtrise de son environnement de travail (Rennecker & Godwin, 2005).

D'autre part, l'accessibilité, soit la disponibilité constante pour répondre aux besoins d'autrui, est perçue comme un levier de valorisation personnelle. Loin d'être une simple contrainte, le fait d'être disponible renforce le sentiment de compétence, de flexibilité et de responsabilité. En étant présent pour ses collaborateurs, l'employé consolide son sentiment de contrôle et affirme son rôle de travailleur compétent et fiable au sein de l'organisation. Dans le même sens une étude menée par Chesley (2010) a montré qu'une utilisation plus fréquente des technologies de communication

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augmentait le sentiment d'efficacité au travail, une augmentation de la satisfaction au travail (Diaz et al., 2012),et de l'engagement au travail (TenBrummelhuis, Bakker, Hetland, & Keulemans,2 012*).*

Nonobstant les apports positifs du numérique sur les conditions de travail, la littérature scientifique met en évidence une baisse de la satisfaction chez les utilisateurs confrontés à une informatisation croissante. Cette dégradation est étroitement liée à l'apparition du technostress, un concept que nous allons détailler afin d'en comprendre les mécanismes.

***La perception des technologies numériques et ses répercussions sur le stress au travail***

Parmi les effets pervers des technologies, on cite le technostress qui ne cesse de susciter l'intérêt des chercheurs et des praticiens de nos jours en raison de la profusion des technologies numériques surtout dans le milieu professionnel. En effet, sous le prisme de l'approche pathogénique, si les technologies numériques visent initialement à simplifier et rationaliser les gestes professionnels, elles engendrent paradoxalement une intensification du travail. Cette dynamique se traduit par une accélération des cadences et une répétition accrue des efforts, augmentant ainsi la densité et la pénibilité des tâches (P-Y Gomez.R. Chevalet,2011). Le caractère ambivalent des technologies présente un « darkside » qui inclut le technostress au même titre que la surcharge informationnelle, l'addiction à la technologie ou l'anxiété technologique (H. Pirkkalainen et M. Salo, 2016). (Fuhrer Chantal, 2021).

Les précédentes recherches sur les technostresseurs ont porté sur plusieurs dimensions, leurs causes et/ou leurs conséquences *(*R. Ayyagari et al., 2011 ; T.S. Ragu-Nathan et al., 2008). M. Tarafdar et al. (2007) proposent cinq dimensions de technostresseurs, toutes liées à la technologie : la surcharge, l'invasion, la complexité, l'insécurité et l'incertitude. Une extension proposée par T.S. Ragu-Nathan et al. (2008) inclut les dimensions organisationnelles plus marquées. Ces derniers introduisent en effet l'idée de créateurs de technostress et d'inhibiteurs de technostress. Les créateurs de technostress sont les facteurs qui créent le stress engendré par l'utilisation des TIC. Les inhibiteurs de technostress sont les mécanismes organisationnels qui réduisent les effets du stress généré par l'utilisation des TIC (Furher Chantal 2021). Malgré l'adoption croissante des technologies de communication et des pratiques de travail flexibles, certaines organisations et des communautés plus larges (par exemple l'Allemagne et les syndicats en France) ont mis en place des politiques visant à limiter l'accès des employés à leurs e-mails en dehors des heures de travail en raison de leurs effets néfastes sur leur bien-être (Anderson, Griswold et McIntyre, 2014 ; Vasagar, 2013). L'objectif de notre étude est d'étudier les conséquences des technologies numériques sur les agents administratifs, car nous privilégions les réflexions portant sur les

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mécanismes permettant d'atténuer leurs effets non désirés.

Le stress numérique peut être intensifié par plusieurs facteurs aggravants. Par exemple, la surconsommation d'informations provenant de différentes plateformes technologiques, comme les emails, les messages instantanés et bien plus encore, contribue à intensifier cette réaction. Le fait d'être toujours accessible et disponible via la technologie peut également engendrer des attentes accrues de la part des dirigeants à l'égard de leurs collaborateurs. Le sentiment de connexion incessante, en plus de générer de la techno-invasion, a également été identifié comme une des principales raisons du stress numérique. La différence entre l'usage désiré de l'ordinateur comme principal instrument de communication et son application réelle a également un impact sur le stress numérique. Prenez en compte le flot quotidien de courriels qui s'accumule dans nos boîtes d'expédition, sans mentionner la mauvaise qualité du langage employé dans certains messages (qui comportent parfois un contenu incertain ou perturbant).En outre, le stress numérique pourrait se manifester davantage chez ceux qui privilégient les conversations verbales plutôt que les courriels, mais qui doivent néanmoins utiliser les échanges en ligne. Pour finir, l'incohérence entre la demande des dirigeants et la réelle capacité des employés, ainsi que les interruptions régulières pendant les heures de travail, constituent également des facteurs aggravants.

Le travail dématérialisé se définit par une accélération des cadences, une gestion constante de l'imprévu et une fragmentation des tâches liée à de multiples interruptions (Datchary & Licoppe, 2007). En outre, la littérature souligne qu'elle impose simultanément des contraintes structurelles majeures, principalement l'imprévisibilité et les interruptions répétées (Cavazotte et al., 2014 ; Perlow, 2012 ; Rennecker & Godwin, 2005). La facilité et la rapidité d'envoi des messages permettent aux collaborateurs de formuler des requêtes de manière itérative.Ce phénomène de « demandes instables » (Thomas et al., 2006) signifie que l'employé est exposé à un flux de travail fluctuant, sans que l'émetteur n'ait conscience de la charge actuelle du destinataire. En somme, l'imprévisibilité générée par les TIC transforme l'environnement de travail en un espace de réaction continue, où la gestion des tâches imprévues devient une exigence aussi lourde que le travail de fond lui-même. Cette configuration, marquée par l'urgence, l'immédiateté et la nécessité de s'adapter en permanence à des outils numériques toujours plus complexes (Bobillier Chaumon et al., 2018), favorise une intensification et un débordement de l'activité professionnelle. Comme le soulignent Gollac et Volkoff (2007), cette culture de l'urgence réduit les marges de manœuvre des salariés, rendant ainsi les contraintes du travail plus difficiles à éviter ou à compenser. Les sujets voient alors leurs capacités d'action et de réaction fortement limitées et leur autonomie réduite (au niveau de l'anticipation, de l'imagination, de l'innovation personnelle). Dans de telles conditions, l'épanouissement et le

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bien-être de l'individu peuvent être compromis. L'étude menée par Kunda (1992) avait déjà montré que ceux dont les tâches sont surveillées par l'ordinateur présentent plus de symptômes de stress que ceux dont les activités ne sont pas supervisées (J.Medzo-M'engonea, Bobillier-Chaumon, M. Préauc, 2018).

***Le modèle Exigences-Ressources***

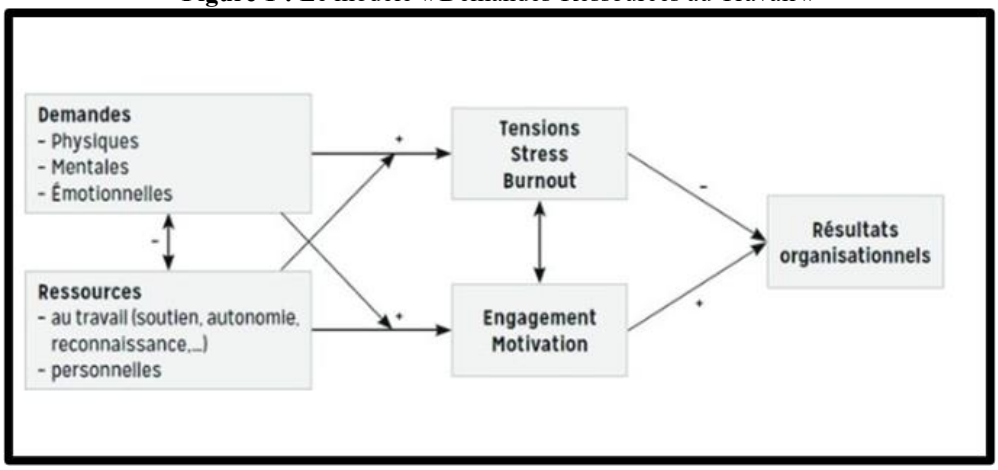
Nous avons choisi le modèle JD-R (job demands resources) (figure 1) qui vise à conceptualiser à la fois le bien-être au travail et le stress. Puisant ses racines dans le modèle de (1979) et dans la théorie de la conservation des ressources (Hobfoll,1989), le modèle JD-R est « axé sur une vision dynamique des situations de stress au travail» (Ben Aissa, Sassi, 2018). Les exigences désignent des éléments organisationnels,physiques,sociaux ou psychologiques d'une fonction qui requiert un effort physique, émotionnel ou cognitif, ce qui entraîne des dépenses physiques ou psychologiques (Demerouti et al., 2001 ; Bakker et al., 2007). Le modèle général de la recherche comprend deux ensembles, les exigences et les ressources ; les exigences sont décrites par (la surcharge du travail due à la technologie,la disparition entre la vie professionnelle et personnelle, l'immédiateté et la pression de la réponse, du contrôle et de la perte de pouvoir) ainsi que les ressources sont décrites par (le support des collègues, le support de la hiérarchie et le développement des compétences). Le modèle stipule que dans le cas où les exigences sont élevées et les ressources faibles on arrive à un état de stress professionnel. Seules des ressources professionnelles élevées (et non de faibles exigences) contribuent au bien-être au travail. Par conséquent, en augmentant les ressources, on prévient l'épuisement professionnel et on favorise le bien-être au travail. Ce constat a fait l'objet de plusieurs validations empiriques. Notamment, l'étude menée par Metboua et Balhadj (2024) sur la gestion préventive du stress et le bien-être au travail démontre que, pour une majorité de cadres, la disponibilité des ressources est un facteur déterminant dans la perception et l'évaluation des stresseurs. Autrement dit, ils ont mis en évidence l'influence des ressources qu'ils possèdent sur la façon par laquelle ils perçoivent les situations stressantes. À cet effet, plusieurs salariés ont souligné l'importance des ressources personnelles et environnementales sur leurs perceptions des évènements stressants.

Pour ce qui est des sources de stress, elles composent le facteur nommé « exigences du travail » (c'est-à-dire ce que nous devons accomplir au travail). Les travaux de nombreux autres chercheurs dans le domaine du stress et du bien-être au travail indiquent que les exigences du travail peuvent être contrebalancées par des ressources occupationnelles telles que l'autonomie, la possibilité de développer ses compétences et un travail qui procure du plaisir et qui est riche de sens. Le déséquilibre perçu entre les exigences et les

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ressources génère un état de stress. Il est à noter que certaines ressources possèdent, selon la culture et le contexte de travail, plus de potentiel pour atténuer les effets des exigences du travail (Hobfoll et al., 2018).

**Figure 1 :** Le modèle « Demandes-Ressources au Travail »




Source: traduit et adapté par Bakker et Demerouti, 2007

## Méthodes

### *Choix du type d'entretien*

Pour ce travail, nous avons eu recours à une approche de nature qualitative inscrite dans une perspective exploratoire. En effet, le recours à la triangulation des méthodes de collecte et d'analyse des données est particulièrement recommandé quand on s'intéresse à un champ de recherche relativement nouveau (Beail et Williams, 2014) ; la perception de l'utilisation des technologies numériques et de son impact sur le stress et le bien-être au travail est très peu investigée et les méthodes qualitatives en premier sont mieux adaptées pour appréhender la complexité de notre sujet.

### Choix du type d'entretien

Nous avons choisi de réaliser des entretiens individuels, car ils facilitent une compréhension approfondie du phénomène étudié tel qu'il est perçu, permettent de saisir l'implicite et de décoder les origines (HADDAR, 2010). Dans leur format semi-directif, les entretiens individuels offrent une souplesse qui, grâce à la liberté accordée au participant, aide à mieux cerner sa logique. La structuration du guide favorise en même temps des approches d'analyse comparative et cumulative entre les participants et s'adapte mieux à certaines exigences de terrain (GAVARD-PERRET et al. 2012).

En sciences de gestion, le recours à la méthode d'entretien est considéré par Romelaer (2005) comme la méthode qualitative la plus utilisée. Nous avons eu recours à des entretiens individuels semi-directifs menés face à face et à distance à l'aide des outils d'organisation des réunions en ligne

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(Google Meet et Microsoft Teams) auprès de 16 membres du personnel administratif. L'entretien individuel est recommandé lorsque le but de la recherche est de comprendre et d'explorer des processus individuels complexes ou d'identifier des différences individuelles (Gavard-Perret et al., 2008). Ceci correspond parfaitement à notre cadre de recherche étant donné que l'objectif de cette phase qualitative est d'explorer l'éventail de perception de l'utilisation des technologies numériques.Ainsi, afin d'étudier la relation entre les technologies numériques et ses effets sur le stress et le bien-être au travail, nous avons structuré les questions de notre guide d'entretien autour de 5 thèmes : (1) typologie et taxonomie des technologies numériques (2) les bienfaits des technologies et l'ampleur de l'utilisation (3) les obstacles de l'utilisation des technologies numériques.(4) le bien-être au travail, ses composants et la liaison avec l'utilisation des technologies numériques. (5) le stress lié à l'utilisation des technologies numériques.Les catégories inhérentes au codage du corpus ont été constituées a priori (codage déductive) (Miles et Huberman,2003), sur la base de la littérature précédente et enrichies au fil des entretiens (codage inductive).

***La population de l'étude***

La population étudiée est constituée par des administratifs de l'enseignement supérieur.Cependant, cette population est en réalité très large et ne peut être interrogée dans sa totalité. Nous avons choisi la méthode d'échantillonnage par critères (Miles et Huberman 2003). L'étude s'est déroulée en période de six mois de février 2025 jusqu'à juillet 2025 .De ce fait nous avons interrogé le personnel administratif appartenant à des services différents (scolarité, informatique, ressources humaines, finance, direction) ayant une formation initiale au minimum de BAC+5 équivalente aux (Ingénieurs /administrateurs 2e grade / Docteurs) et une ancienneté de plus de deux ans dans le dernier poste occupé conformément aux critères d'inclusion de l'étude.Selon Evrard et al. (2009*),*il est recommandé de construire un échantillon sur des critères qui traduisent la diversité des cas par rapport au phénomène étudié.

L'échantillonnage de nature qualitative est régi par deux principaux enjeux : celui de la diversification et celui de la saturation. Nous avons donc prêté attention à diversifier au maximum les réalités professionnelles approximées au travers des entretiens, en termes d'établissements, de profils professionnels ou d'ancienneté,de façon à «contraster» notre échantillon (Miles & Huberman, 1991).

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**Tableau 1:** Les caractéristiques socioprofessionnelles des répondants

| code | Fonction | Genre | Age | Spécialité du diplôme | Etablissement | Ancienneté dans le poste | Type d'entretien |
|---|---|---|---|---|---|---|---|
| 1 | Chargée de communication | F | **29 ans** | Marketing et action commerciale | ENSA Tanger/UAE | 6 ans | Face à face |
| 2 | Chef de service recherche et coopération | F | **33 ans** | Ingénierie des données et des connaissances | FMP Tanger/UAE | 9 ans | Face à face |
| 3 | Chargée de gestion Apogée | F | **40 ans** | Ingénierie en système de production | FST Tanger /UAE | 12 ans | Face à face |
| 4 | Responsable DSI au ministère | F | **36 ans** | Ingénieure d'état en informatique | Ministère de l'enseignement supérieur | 11 ans | A distance |
| 5 | Directeur Adjoint Chargé des Affaires Pédagogiques | M | **46 ans** | Physique fondamentale et appliqué | ENSA-EL Jadida/UCD | 2 ans | A distance |
| 6 | Directeur Adjoint | M | **42 ans** | Mécanique des matériaux | ENSA Beni Mellal/UMS | 2 ans | A distance |
| 7 | Cadre administratif | F | **39 ans** | Droit des affaires | FSJES Rabat Agdal/UMV | 15 ans | Face à face |
| 8 | Responsable de service informatique | M | **38 ans** | Informatique | ENSA Oujda/UMA | 15 ans | A distance |
| 9 | Chef de service informatique | F | **37 ans** | Ingénieur en génie informatique | ENCG Oujda /UMA | 15 ans | A distance |
| 10 | Cadre administratif | F | **38 ans** | Doctorat en informatique et Big Data | ENSA Agadir/UIZ | 16 ans | A distance |
| 11 | Responsable RH | F | **32 ans** | Management des RH | FSJES Marrakech/UCA | 7 ans | A distance |
| 12 | Chef de service informatique | F | **39 ans** | Système d'information | ENSA Kénitra /UIT | 2 ans | Face à face |
| 13 | Chef de service recherche et coopération | H | **48 ans** | Doctorat en économie et gestion | EST Oujda/UMA | 15 ans | A distance |
| 14 | Cadre en finance et comptabilité | H | **28 ans** | Gestion financière et comptable | FST Mohammedia/UH2 | 5 ans | A distance |
| 15 | Cadre en informatique | F | **31 ans** | Informatique et analyse des données | Ecole supérieure et technique Tétouan/UAE | 2 ans | Face à face |
| 16 | Chef de service informatique | H | **37 ans** | Informatique | ENSA Tanger | 7 ans | Face à face |

Source : Les auteurs

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**Recueil des données**

Les entretiens semi-directifs menés auprès des 16 administratifs ont une durée moyenne de 50 minutes. Ainsi, nous avons interviewé 6 hommes et 10 femmes dont la moyenne d'âge est de 37,06 ans. Deux administratifs supplémentaires n'ont pas répondu à notre entretien étant pris par des circonstances personnelles. De manière générale, les administratifs ont développé longuement leur point de vue sur les thèmes sollicités et ont fait part de leur intérêt pour cette étude avec une motivation importante à évoquer leurs perceptions.Ces 16 administratifs appartiennent à différents établissements à accès ouverts et réguliers. Après la retranscription de ces entretiens, nous avons veillé, dans un premier temps,à nous assurer que nous avons bien atteint le seuil de saturation sémantique (Evrard et al., 2009).

**Analyse des données**

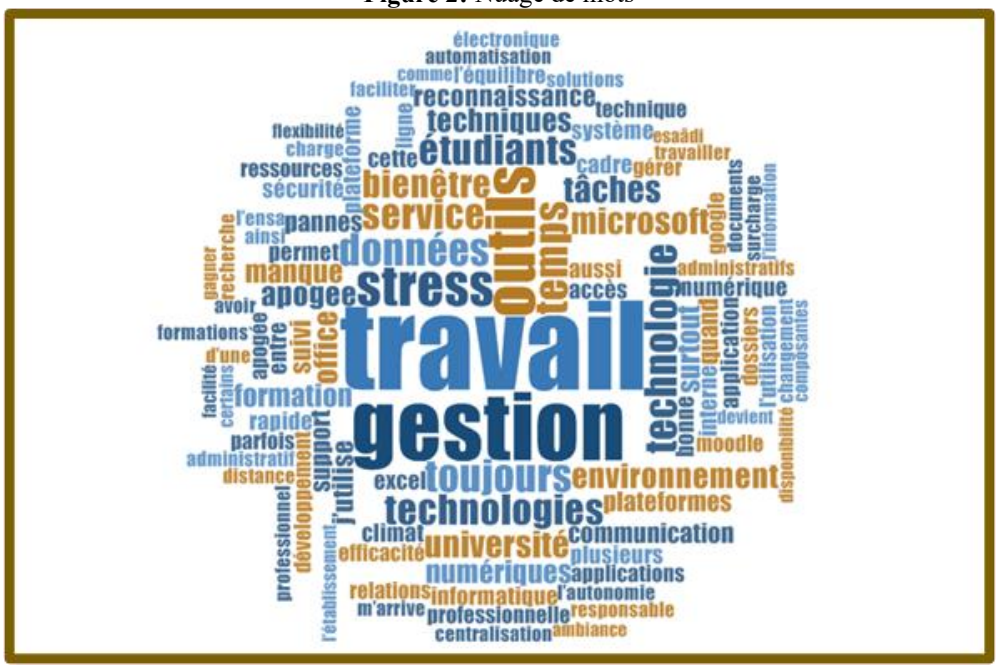
Lors du processus de transcription, nous nous sommes attachés à retranscrire les propos des personnes interviewées à l'aide de la retranscription Ubiqus. Cette étape préalable à la phase d'analyse, nous a permis de nous imprégner du contenu des entretiens tout en supprimant les répétitions et les erreurs de langage en gardant juste les propos réécrits. L'analyse de corpus a été conduite à l'aide du logiciel Nvivo 12 afin de réaliser un codage thématique (Fallery et Rodhain, 2007). Ainsi, par le biais d'une interface ergonomique, Nvivo permet l'importation de l'organisation et la gestion des données recueillies dans le cadre de l'enquête.Le logiciel facilite également la systématisation de la démarche mise en place pour l'analyse, ce qui constitue un atout considérable lorsque les données sont volumineuses.L'utilisation de Nvivo a permis un codage en deux étapes (Fallery et Rodhain,2007).

Une première étape de codage libre et manuel conduit à décontextualiser le corpus en stockant et réorganisant les informations grâce à la création de catégories (nœuds) initiales. Une seconde étape de recontextualisation s'est ensuite traduite par le regroupement des différents nœuds en catégories plus vastes et hiérarchisées pour obtenir in fine « un tout intelligible et porteur de sens » (Fallery et Rodhain, 2007, p. 11).Nous avons procédé à une analyse de contenu thématique des verbatim. Cette analyse permet de déterminer l'occurrence des thèmes dans une transcription d'entretien (*Roussel et Wacheux, 2005*) afin de découper cet ensemble d'informations en catégories et sous-catégories pour faire émerger les aspects communs de ces entretiens.

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## Analyse lexicale

**Figure 2:** Nuage de mots




Source: tableau exporté de Nvivo12

Nous avons réalisé l'analyse lexicale à partir de l'option nuage de mots, laquelle offre une visualisation synthétique des termes clés et permet d'identifier les nœuds thématiques dominants. Les couleurs utilisées dans le nuage de mots possèdent également une valeur interprétative, tout comme leur importance ainsi que leur fréquence d'occurrence dans le corpus. La couleur marron clair regroupe les technologies utilisées (Microsoft, Moodle, plateforme).La taille des termes affichés, qui n'est pas arbitraire. En effet, la dimension des mots reflète directement leur importance ainsi que leur fréquence d'occurrence dans le corpus.Les occurrences récurrentes des termes **travail**, **stress**, **toujours** et **bien-être** renforcent la cohérence et l'alignement du corpus avec l'objectif de notre étude.

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**Tableau 2:** La fréquence de mots

| Mot | Nombre | Pourcentage pondéré (%) |
|---|---|---|
| travail | 50 | 1,72 |
| gestion | 37 | 1,27 |
| stress | 24 | 0,83 |
| outils | 23 | 0,79 |
| technologie | 18 | 0,62 |
| temps | 16 | 0,55 |
| toujours | 15 | 0,52 |
| bienêtre | 12 | 0,41 |
| étudiants | 12 | 0,41 |
| manque | 11 | 0,38 |
| université | 11 | 0,38 |
| bien | 10 | 0,34 |
| formation | 10 | 0,34 |
| service | 10 | 0,34 |
| technologies | 10 | 0,34 |
| tâches | 10 | 0,34 |
| système | 9 | 0,31 |
| être | 9 | 0,31 |
| microsoft | 8 | 0,28 |
| numériques | 8 | 0,28 |
| office | 8 | 0,28 |
| techniques | 8 | 0,28 |
| communication | 7 | 0,24 |
| données | 7 | 0,24 |

Source : tableau exporté de Nvivo12

Nous avons procédé ainsi à une requête de fréquence de mots qui nous a permis de répertorier les mots les plus fréquents dans nos sources, les résultats ont été visualisés sous forme de nuage de mots « figure 1». Travail représente le mot central de notre recherche, gestion, stress, bien-être, numérique, Université ont été parmi les mots utilisés à plusieurs reprises par nos répondants. Cela nous permet déjà d'avoir une idée sur les thèmes discutés par nos répondants.Il est à souligner que la taille du mot et son emplacement traduisent proportionnellement son importance et sa fréquence.

## Résultats et discussions

Tout d'abord, les résultats montrent que les établissements de l'enseignement supérieur pour gérer leurs affaires administratives et estudiantines utilisent une panoplie des technologies numériques hétérogène décentralisée et disparates divisées en cinq grandes catégories ce qui augmente le risque des erreurs et baisse la fiabilité des données et des états de sorties et provoque même le stress dû à la réalisation des tâches parcellisées et

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interrompu dans le temps tous ces éléments cumulés nous amènent à exhorter les décideurs à envisager d'harmoniser le système d'information desdits établissements ; nous avons jugé utile de classer ces technologies professionnelles selon la taxonomie proposée par Bobillier Chaumon 2018 en y rajoutant une nouvelle classe dégagée du contexte de l'étude après les entretiens réalisés. On distingue cinq typologies des technologies numériques utilisées dans le cadre professionnel ; les technologies de transmission et de partage de l'information, les technologies à caractère collaboratif, les technologies de gestion administrative, les technologies de formation et d'apprentissage et les technologies de développement et de contrôle de parc informatique ; cette dernière est le résultat du contexte de notre étude.

**L'ampleur de l'utilisation des technologies numériques**

La totalité des interviewés estiment qu'ils utilisent les technologies numériques quotidiennement. Certaines technologies sont requises périodiquement comme les applications de gestion des concours ou de préinscription/inscription qui ne sont utilisées que pendant des périodes de début ou de fin d'année.

**La dualité des technologies numériques**

Les technologies numériques présentent plusieurs avantages pour nos interlocuteurs : accessibilité des données en temps réel, gain de temps, facilité d'utilisation, automatisation suivie et traçabilité, ubiquité, fiabilité des données, optimisation, centralisation et aide à la prise de décision. Parmi les obstacles les plus cités, on trouve le manque de formation et de compétences numériques, résistance au changement et manque de suivi et d'accompagnement des projets numériques et le risque de sécurité des données et de cyberattaque, l'obsolescence des technologies, interruption d'Internet et fragilité des infrastructures matérielles, le cloisonnement des solutions numériques qui sont des éléments particulièrement saillants. Une bonne ambiance au travail, la reconnaissance de travail et la valorisation des efforts, le soutien du supérieur et l'équilibre vie privée/vie professionnelle, l'opportunité de développement de formation et d'apprentissage sont les premiers composants de bien-être au travail chez les administratifs hormis le manque de formation et d'accompagnement, l'insécurité et l'évolution rapide des technologies qui sont les premières sources de stress qui dérangent notre population.

Dans ce qui suit nous allons détailler les thèmes les plus pertinents des entretiens.À l'aide du modèle Exigences-Ressources nous avons divisé les propos en deux parties à savoir les sources de bien-être ou (**les ressources**) et les sources de stress (**exigences**).

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**Les sources de bien-être au travail (les ressources)**
**un climat de travail sain**

Avoir un bon climat de travail est le premier composant de bien-être au travail exprimé fréquemment par nos répondants. Ce qui met en exergue l'importance de l'environnement de travail dans les organisations quelles que soient les conditions physiques de travail. Contrairement au secteur privé, les organisations publiques qui disposent de peu de moyens pour récompenser les conduites exemplaires doivent prendre en considération le climat de travail afin qu'il soit ambiant et propice au travail et en même temps, il va jouer le rôle d'effet de compensation du manque d'avantages tangibles comme l'augmentation de salaire et la promotion fluide dans la carrière dont bénéficient les employés du secteur privé. Cependant, au fil de l'analyse, il s'est avéré que les fonctionnaires font une confusion entre l'atmosphère de travail et de bonnes relations avec les collègues. Certaines réponses font référence aux relations sociales avec les collègues et les supérieures en répondant à la question : pour vous, que représente le bien-être au travail ? Quelles sont les dimensions qui vous touchent le plus et augmentent votre sentiment de bien-être au travail ?

**Verbatim**

« *Le bien-être au travail pour moi concerne surtout les relations sociales en milieu de travail, quand ces relations sont basées sur le respect et la bonne humeur, aussi la charge de travail et le support organisationnel* » **Interview 11**

**«** *Avoir la disponibilité des conditions de travail favorable un bon environnement (connexion, outils matériels)* **» Interview 4**

**«** *Pour moi, le bien-être au travail se traduit par l'existence d'un environnement professionnel favorable à l'apprentissage continu, à l'innovation et à la créativité. Il repose sur la mise en œuvre de projets innovants et stimulants, permettant à chacun de s'impliquer pleinement et de contribuer efficacement à l'atteinte des objectifs du service***. » Interview 16**

Pour nos interlocuteurs, un bon climat de travail fait référence à la fois à des relations horizontales et verticales positives, à des conditions propices et aux ressources matérielles qui sont accessibles. Chaque employé perçoit un environnement de travail favorable à sa manière. La notion de climat de travail n'est pas entièrement définie, elle est enveloppée d'ambiguïtés. Ce qui nous amène à affirmer que le bien-être est une notion subjective et relative à chacun, dont la définition peut varier selon les ressentis individuels et la perception que chacun attribue aux concepts qu'il connaît.

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**Le soutien des collègues**

Les propos des répondants mettent en exergue l'importance capitale du soutien entre pairs. Qu'il soit exprimé explicitement ou implicitement, ce soutien mutuel est perçu comme le principal facteur de l'amélioration de l'environnement social professionnel.Il joue, par extension, un rôle de modérateur essentiel en inhibant le stress généré par l'usage des technologies numériques

**Verbatim**

« *Il s'agit également d'évoluer au sein d'une équipe dynamique, motivée et solidaire, capable de relever les défis et de proposer des solutions adaptées aux différentes problématiques informatiques rencontrées.* »**Interview 16**

« *Le bien-être au travail pour moi c'est des relations positives avec collègues et managers (climat de confiance, entraide*) » **Interview 9**

**La quête de reconnaissance au travail et la valorisation des efforts**

L'acuité de besoin de reconnaissance au travail ne cesse d'augmenter pour notre échantillon ; dans un contexte marqué par le flou des repères individuels et collectifs, le rapport positif que chacun entretient avec soi est de plus en plus fragilisé et intersubjectivement vulnérable et par conséquent, il est toujours en quête de confirmation par le regard et le jugement gratifiant de l'autre (Renault, 2000 ; Ricœur, 2004).

La reconnaissance et la valorisation des efforts déployés sont essentiellement saisies à travers le ressenti restitué par les différents interviewés. Cela signifie que les fonctionnaires en échange des risques qu'ils prennent, de l'intelligence qu'ils mettent en œuvre, ils attendent essentiellement au minimum une reconnaissance comme rétribution. Même un simple « Merci » fait la différence en termes d'émotions et de sentiment positif.

**Verbatim**

*« Les dimensions qui me touchent le plus dans le bien-être au travail :La reconnaissance et la valorisation des efforts »* **Interview 10**
*« La reconnaissance un simple merci ou feedback constructif booste la motivation »***Interview 9**

Ces propos traduisent l'importance de la reconnaissance et la valorisation des efforts accomplis par le staff administratif.

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**La conciliation vie privée et vie professionnelle**

Dans un contexte où les frontières entre les sphères privée et professionnelle tendent à s'estomper, notamment en raison des avancées technologiques et du télétravail (Frimousse & Peretti, 2024), l'équilibre entre les deux vies est devenu un enjeu majeur. Pour plus de 80 % de nos répondants, considérent le bien-être au travail est synonyme du bien-être en famille ; il s'agit de se sentir capable d'assurer un équilibre harmonieux entre la vie professionnelle et la vie privée et de ne pas avoir la sensation que le travail envahisse la sphère personnelle. Il s'agit de trouver un point d'équilibre entre les responsabilités professionnelles et les autres aspects de la vie, tels que l'éducation des enfants, les tâches ménagères, les loisirs et le développement personnel.Cet équilibre n'est pas un état figé, mais plutôt un processus dynamique qui exige une adaptation constante surtout avec la propagation des technologies numériques qui sont accessibles n'importe où. La réponse aux emails chez eux et le travail à distance sont les premières sources d'agacement de nos répondants surtout après la pandémie COVID-19.

Certains administratifs arrivants ont cloisonné ces deux univers de manière hermétique comme indiquent les réponses ci-dessous.

**Verbatim**

*« Le bien-être au travail c'est avoir une ambiance et un climat positive,La reconnaissance et la valorisation des efforts,L'équilibre vie privée vie personnelle »* ***Interview 1***

*« Le bien-être au travail pour moi c'est un état d'équilibre ou un employé se sent épanoui, en bonne santé (physique et mentale), et motivé dans son environnement professionnel.Bien-être physique, Bien-être mental et émotionnel, bien-être social, Bien-être professionnel (épanouissement), équilibre vie professionnelle-vie privée »* ***Interview 5***

*« Equilibre entre environnement non toxique, autonomie, reconnaissance, motivation, avoir une vision stratégique globale et cadrée, et surtout équilibre vie pro/perso »****Interview 15***

**Le soutien du supérieur**

Le soutien du supérieur est perçu par les répondants comme élément clé qui compose les dimensions de leur bien-être au travail.

« *Le bien-être au travail c'est travailler avec une bonne équipe entourée de gens bien, on n'a pas besoin des gens compétents, le métier ça s'apprend et sous la direction d'un bon chef ; c'est une personne qui vous pousse à l'avant il valorise les efforts que vous faites, croyez-moi c'est la formule magique pour réussir à travailler dans un climat sain* » ***l'interviewé 3***

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« *L'écoute managériale, la clarté des objectifs, et un bon climat d'équipe renforcent mon implication et mon sentiment d'utilité dans le service financier*» ***Interviewé 14***.

Pour l'interlocuteur 14, l'écoute managériale représente une forme de soutien implicite essentielle de la part du supérieur hiérarchique. Cette observation souligne que le soutien ne se limite pas aux dimensions matérielles ou concrètes ; il revêt une dimension immatérielle fondamentale incluant l'écoute active, la communication de proximité et le soutien émotionnel. Dans cette perspective, l'appui du supérieur (N+1) devient le garant d'un environnement de travail sain et apaisé. Cette dynamique est particulièrement prégnante dans le secteur public. Le management public se caractérise par une relation moins souple entre la hiérarchie et les subordonnées, où l'autorité et le contrôle absolu sont limités par un cadre réglementaire strict. Dès lors, pour compenser les marges de manœuvre réduites en matière de motivation extrinsèque (primes dérisoires, la lenteur de l'avancement hiérarchique, absence de gestion de carrière), le manager public doit mobiliser des leviers alternatifs. Le soutien par l'écoute, la résolution proactive des problèmes opérationnels, la garantie des moyens matériels, la flexibilité organisationnelle et l'équité organisationnelle deviennent alors des substituts stratégiques pour améliorer durablement les conditions de travail et apaiser les tensions éventuelles avec les subordonnées.

**Autonomie et responsabilisation**

L'autonomie représente également le principal aspect positif de l'utilisation des technologies d'information pour la majorité des fonctionnaires.

**Verbatim**

« *…**l'autonomie** et la flexibilité dans l'organisation*. » ***Interview 1***
« *La reconnaissance et le sens donné au travail, **l'autonomie** et la confiance* » ***Interview5***
« *Les dimensions qui me touchent le plus dans le bien-être au travail :La reconnaissance et la valorisation des efforts,Un climat de travail collaboratif et respectueux,**L'autonomie** dans l'organisation du travail,Une communication claire avec la hiérarchie,Un environnement calme et bien équipé »* ***Interview 10***

Le fait que l'autonomie est favorable à la satisfaction professionnelle, notamment puisque l'ensemble des répondants ayant associé leur BET à l'autonomie affirment avoir cette satisfaction.

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**Les sources de technostress (les exigences)**

**Manque de formations à la carte et absence des compétences numériques**

Selon les résultats de notre étude, la majorité des fonctionnaires estiment que la première source de stress est principalement le manque de formations personnalisées et ciblées conjointement avec l'instauration des nouvelles technologies numériques. Cela incite les individus à trouver d'autres alternatives, que ce soit en se lançant dans des expériences d'autoformation, ce qui engendre une perte de temps et d'énergie, soit en s'adressant à un expert (collègue ou autre) de manière informelle. En gros, la mise en place des projets numériques requiert une politique de formation adéquate aux besoins spéciaux de ces projets numériques surtout que certaines technologies mises en place nécessitent des compétences numériques et techniques avancées. Comme souligné par le répondant ci-dessous.

**Verbatim**

| |
|---|
| ***Interview 11****« Quand nous sommes mal ou peu formés par rapport à une certaine technologie, cela peut causer du stress.En général la technologie et l'outil informatique sont faits pour alléger la lourdeur des tâches quotidiennes, afin de mieux gagner en temps et en efficacité, et rendre le service public plus accessible et plus transparent que jamais.Cependant, au moment où nous nous affolons sur l'idée de l'administration « numérique » sans pour autant se doter des moyens (Formations, outils adaptés, plates-formes bien pensées…),le numérique devient à ce moment une source de stress supplémentaire ».* |
| ***Interview 10*** *« Il est essentiel de développer des solutions technologiques marocaines, spécifiquement adaptées aux besoins des universités marocaines, en particulier pour des systèmes comme Apogée.Par ailleurs et lors du développement d'autres applications, il est crucial de collaborer avec des experts maitrisant parfaitement les tâches pour garantir leur efficacité.Une maintenance annuelle doit également être prévue, avec un système de collecte des retours des utilisateurs, afin d'améliorer les fonctionnalités et d'optimiser les performances des outils. Cette approche permettrait de réduire le stress lié à l'utilisation des technologies informatiques d'une année à l'autre. »* |

***L'interviewé n°10*** a mis l'accent aussi sur un concept audacieux tel que le retour des utilisateurs, « …avec un système de collecte des retours des utilisateurs afin d'améliorer les fonctionnalités et optimiser les performances des outils ». En effet, pour l'amélioration des expériences des utilisateurs et la satisfaction de ces derniers, il est primordial de concocter les avis et les suggestions de l'utilisateur final. De surcroît, les pionniers des entreprises opérant dans l'IT (information technology) comme le géant Google exigent.

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Un système d'amélioration continue en proposant des rémunérations aux utilisateurs qui détectent les failles pendant l'expérience d'utilisation (user experience). C'est un outil stratégique pour l'amélioration des pratiques pour identifier les points de frustration afin de repérer les points qui ne sont pas adaptés aux besoins et apprendre à anticiper les attentes prévues. Ce qui nous pousse à conclure que la réussite des technologies numériques est davantage humaine que technique et plutôt « soft » que « hard ».

**Verbatim**

*Certaines technologies accentuent ce stress lorsqu'elles sont peu intuitives, trop complexes ou en cas de manque de formation ou de support technique. Un conseil clé pour le développement du service financier serait de renforcer la digitalisation tout en accompagnant le changement, en investissant dans des outils simples, interconnectés et en assurant une formation continue du personnel pour réduire le stress technologique et améliorer l'efficacité*. **Interviewé 14.**

**Instabilité et vulnérabilité des technologies**

La plupart des répondants citent l'instabilité de l'infrastructure matérielle, caractérisée par des pannes Internet et des défaillances récurrentes, ainsi que la fragilité des équipements matériels comme source de stress technologique.Quelques réponses ont même évoqué le risque de cyberattaque et la perte des données personnelles. Ce sentiment de stress s'accentue surtout au cours des périodes critiques de surcharge de travail et de préparation aux examens, délibérations, préparation aux concours et aux diplômes.Voici quelques citations des interviewés.

**Verbatim**

**Interview 1** « *…problème de risque de cyberattaque et de sécurité des données, problème de connectivité et des ressources matérielles …* »
**Interview 5** « *les inconvénients des technologies qui me cause la perturbation sont principalement Sécurité, confidentialité, sauvegarde pannes et bugs, complexité des outils. Pour éviter le stress lié à la technologie il est nécessaire d'avoir des équipements plus sécurisé et développés* »
**Interview 14** « *il m'arrive de ressentir du stress, notamment lorsqu'un système est lent, instable ou lors des périodes de forte charge (ex. clôtures budgétaires*) ».
«*… La peur de bugs techniques imprévisible, la surcharge d'informations ou la difficulté à décrocher ou à consolider. Oui, il m'arrive d'être stressée, surtout lors de pannes, de perte de données ou quand il faut jongler entre plusieurs plateformes en même temps*. »***Interview 15***

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**Evolution rapide des technologies**

L'évolution rapide des technologies numériques et le caractère incertain de ce domaine en pleine essor constitue une source de stress non négligeable pour nos interlocuteurs. Pas mal d'eux ont exprimé qu'ils n'arrivent pas à contrôler et à se familiariser avec une technologie qu'ils se trouvent face à manipuler une nouvelle technologie plus sophistiqué et qui nécessite un énorme effort d'autoformation.

**Verbatim**

**Interview 9** « *Le stress lié à la technologie correspond à Trop d'outils à apprendre en même temps Toujours connecté (emails,messages,notifications).Ainsi que lapeur de ne pas suivre les nouvelles technologies* ».

**Surcharge de travail**

La surcharge de travail est comptée parmi les source de technostress perturbant notre population.Le stress est amplifié par la multiplicité des plateformes numériques qui doivent être gérées par le même utilisateur en s'authentifiant avec un compte institutionnel administré par les universités plutôt que par l'établissement. Cette dépendance à l'université pose beaucoup de problèmes au niveau opérationnel en introduisant les facteurs de rigidité dans un environnement exigeant de la flexibilité et l'agilité étant donné que parmi les objectifs de la mise en place de l'administration numérique est de faciliter le travail pour les utilisateurs et améliorer la qualité de service public pour le citoyen. Dans les mêmes conditions les objectifs attendus ne seront pas escomptés et on s'attendrait à des effets pervers. En l'occurrence le stress, l'épuisement professionnel voir même la réticence au changement.

**Verbatim**

**Interview 3** « *Ces Technologies numériques, je les vois comme une charge de plus, chaque jour je devrais ouvrir plusieurs plateformes G-admin, Apogée, Moodle j'aurai bien travaillé si j'avais un seul outil numérique pas autant. Travailler en même temps avec plusieurs applications à la fois c'est une tâche stressante surtout en période post examens ou les étudiants qui réclament les professeurs attendent leur PV de délibérations …* »

***Interview 5*** « *Le stress lié à la technologie c'est la pression psychologique et émotionnelle ressentie par les employés en raison de l'utilisation intensive complexe ou dysfonctionnelle des outils technologiques dans leur environnement professionnel s'il y a des vérifications dans un fichier contenant trop d'informations (surcharge informationnelle)* »

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**Envahissement de la vie personnelle**

Pour de nombreux fonctionnaires, ce qui les agace le plus en utilisant ces technologies, c'est leur intrusion dans la vie privée. (Réponses aux courriels, travail à distance, réactions aux alertes des plateformes internes développées...).

Nos résultats mettent en avant que le bien-être au travail dépend de plusieurs facteurs que seulement s'ils sont cumulés peuvent satisfaire les utilisateurs. Ceci dit que si on trouve un seul élément qui est assuré dans l'organisation on peut pas conclure que les utilisateurs seront automatiquement satisfaits .la satisfaction dépend de l'interaction entre trois éléments (*Bandura,2012*) ; les facteurs interpersonnels (il s'agit de tout ce qu'un individu a vécu sur les plans biologique, affectif et cognitif). Le comportement de l'individu et les forces de l'environnement.la question de satisfaction professionnelle est donc plus subtile et complexe à la hauteur de la complexité humaine (*Edgar Morin 2008*) .il s'agit de l'accumulation de plusieurs facteurs avec l'absence d'un facteur inhibiteur qui pourrait empêcher l'état de bien-être au travail. Ce dernier peut être l'envahissement des technologies dans la sphère privée ou la surcharge informationnelle et communicationnelle ou l'absence de formations adaptées aux besoins réels.

**Discussions**

Nos résultats nous éclairent d'abord sur les technologies utilisées quotidiennement et périodiquement par les cadres administratifs, d'après les retranscriptions des réponses, chaque administratif utilise des technologies différentes et diversifiées qui dépendent de la nature de poste occupé, des tâches exercées et de son propre profil. Certaines technologies ont été répétées plusieurs fois comme le logiciel Apogée qui constitue un référent pour l'enseignement supérieur public, les outils comme Microsoft office Google drive, Dropbox, la messagerie électronique ont été largement abordée en raison de leur utilisation transversale les autres applications ou technologies sont utilisées selon la nature de poste occupé.les responsables ressources humaines sont plutôt familiarisé avec les plateformes RH qui permettent de gérer surtout le volet administratif (les attestations de travail et de salaire, les demandes de congé, les autorisations, les ordres de mission..) tandis que les responsables de recherche et de coopération sont plutôt habitués à manipuler les sites et les technologies qui couvrent leurs propres tâches commeI-thenticate pour détecter les plagiats, e-ressources pour la gestion des articles scientifiques, e-coopération pour la gestion des étudiants internationaux. Les responsables de scolarité sont submergés par les outils et les technologies de gestion des demandes des attestations de scolarité, l'importation et l'exportation de notes, la génération des PV de délibération de jury, la modélisation des nouvelles accréditations, la préparation des diplômes, la

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gestion des plannings des emplois du temps, la gestion des mobilités internationaux et plusieurs autres tâches quotidiennes et saisonniers. Quant aux responsables informatiques, ils sont eux les concepteurs et les créateurs des technologies. Leurs rapports avec l'utilisation des technologies se distinguent nettement de ceux des autres profils. En effet, les informaticiens privilégient les technologies de développement et de codage qui servent à créer les nouvelles applications qui seront exploitées par les utilisateurs finaux. Les entretiens réalisés révèlent que les informaticiens utilisent différentes technologies comme JAVA, Dotnet,PHP,CSharp ,Odoo,OpenERP, VScode,CMS. Ajoutons à cela les technologies qui surveillent et contrôle le parc informatique telles que Librnms et solarwind. Les financiers utilisent les applications de gestion des marchés publics.Ainsi, notre étude fournit des éclairages simultanément sur les composantes de bien-être au travail représentées selon le modèle par les ressources et le stress au travail représenté par les exigences. Les exigences issues de notre modèle sont le manque de formations à la carte et l'absence des compétences numériques, instabilité et vulnérabilité des technologies, rapidité de l'évolution des technologies, surcharge de travail et l'envahissement de la vie personnelle. En parallèle les ressources sont un climat de travail sain, le soutien des collègues, la reconnaissance, la conciliation entre la vie privée et la vie professionnelle, le soutien du supérieur et l'autonomie.

Ces discussions ont été souvent illustrées par des situations de travail propres aux interlocuteurs, mettant en évidence leurs ressentis positifs comme négatifs vis-à-vis des technologies dans leur travail.Conformément au modèle Exigences-Ressources, chaque situation professionnelle se définit par une interaction entre les contraintes imposées et les ressources disponibles.

Pour préserver le bien-être, il est essentiel que les ressources surpassent les exigences afin d'en atténuer les effets négatifs.Les résultats de notre analyse qualitative permettent de mettre en évidence plusieurs configurations issues de l'articulation entre les exigences du travail et les ressources mobilisables par les salariés. Conformément au Job Demands–Resources Model (Demerouti, Bakker, 2011), ces configurations reflètent l'équilibre ou le déséquilibre entre les contraintes imposées par la situation de travail et les moyens permettant d'y faire face. Trois configurations principales se dégagent selon l'analyse des résultats de notre étude : positive, stressante et équilibrée.

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**Tableau 5 :** Synthèse des interactions exigences-ressources

| | **Tableau de configurations Synthèse des interactions exigences ressources et configurations des situations de bien-être et de stress** | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Climat de travail sain** | + | | | + | | | + | | | + | | + | | + | | + |
| **Bonne relations avec les collègues** | | + | + | | + | | | + | + | | | + | | + | | + |
| **Reconnaissance** | + | + | | | + | | | | + | + | | | | + | | |
| **Conciliation vie privée et professionnelle** | + | | | | + | + | | | | + | | | | + | | + |
| **Soutien du supérieur** | | + | + | | | | | + | + | + | + | | + | | | + |
| **Autonomie** | + | | | | + | | | | | | | | | | | |
| **Répondants** | **R 1** | **R 2** | **R 3** | **R 4** | **R 5** | **R 6** | **R 7** | **R 8** | **R 9** | **R 10** | **R 11** | **R 12** | **R 13** | **R 14** | **R 15** | **R 16** |
| **Manque de formation** | | | | | | + | | + | + | + | | + | + | + | | + |
| **Instabilité et vulnérabilité** | + | + | | | | + | + | | + | + | | | + | | + | + |
| **Evolution rapide des technologies** | + | | | | | | | | | | | | | + | | |
| **Surcharge de travail** | | | + | | + | | | | + | | + | | | | | + |
| **Envahissement de la vie privé** | + | + | | + | | | | | | | | | | | | |
| **Configurations Exigences/Ressources** | **positive** | **positive** | **positive** | **Equilibré** | **positive** | **stressante** | **Equilibré** | **positive** | **Equilibré** | **positive** | **Equilibré** | **positive** | **stressante** | **positive** | **Stressante** | **positive** |

Source : les auteurs

## La configuration positive:vers un environnement de travail capacitant

Cette configuration apparaît lorsque le niveau d'exigences est faible tandis que les ressources disponibles sont nombreuses. Les ressources qu'elles soient organisationnelles, sociales ou personnelles jouent ici un rôle d'amortisseurs face aux contraintes potentielles. Selon Hobfoll (1989), l'abondance de ressources permet non seulement de prévenir la perte de ressources futures, mais également de favoriser des dynamiques de gain. Dans cette perspective, l'interaction favorable entre exigences limitées et ressources abondantes conduit à une issue globalement positive, favorisant le bien-être,

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la motivation et l'engagement dans le travail. Les interlocuteurs qui ont cité leurs propres ressources résultant de leurs contextes de travail telles que l'ambiance de travail, bonnes relations avec les collègues, la reconnaissance, le soutien du supérieur, l'équilibre vie privée vie professionnelle mais en parallèle ils ont évoqué quelques exigences telles que le manque de formation, vulnérabilité des technologies, l'envahissement de la vie privée .C'est le cas des répondants **R1 R2 R3 R5 R8 R10 R12 R14.** Les effets du stress numérique sont alors atténués, ce qui peut mener à l'augmentation de satisfaction.

**La configuration stressante:vers la dégradation**

La configuration stressante est caractérisée par un excès d'exigences par rapport aux ressources disponibles. Ce déséquilibre s'inscrit dans le processus d'épuisement énergétique décrit par le modèle JD-R, dans lequel des exigences trop élevées sollicitent durablement les capacités individuelles, augmentant ainsi la probabilité de surcharge, de fatigue psychologique et de stress. L'insuffisance de ressources empêche alors les individus de compenser ou de réguler la pression perçue. Cette configuration concerne les répondants qui évoquent un nombre d'exigences supérieur à leurs ressources ; c'est le cas des répondants **R6, R13** et **R15**.

**La configuration équilibrée:la dynamique de maîtrise**

Cette configuration se présente lorsque les exigences et les ressources sont relativement équivalentes. Ce scénario est caractéristique d'une situation de stabilité : les ressources disponibles suffisent à répondre aux contraintes, sans toutefois générer un surplus susceptible d'améliorer le bien-être. Il s'agit d'un état neutre dans lequel les effets négatifs potentiels des exigences sont contrebalancés par les ressources, mais sans activer les mécanismes de gain de ressources. Cette configuration est illustrée par les répondants **R4, R7, R11, R9.**

**Conclusion**

Cet article présente les résultats d'une étude qualitative s'intéressant à l'étude de la perception des technologies numériques par le personnel administratif des établissements de l'enseignement supérieur public.Plusieurs résultats importants émergent de cette étude. Dans un premier temps, il ressort de façon assez intéressante et nouvelle que l'utilisation de technologies numériques professionnelles engendre conjointement une augmentation du bien-être et du stress technologique. Cette situation de découplage entre stress et bien-être s'explique par le fait que les technologies transforment profondément les frontières, le contenu et l'intensité du travail.

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Dans un second temps, l'analyse des entretiens a permis de mettre en exergue plusieurs dyades exigences-ressources émergeant des mutations des situations de travail induites par la transition numérique. En s'inscrivant dans le cadre théorique du modèle JD-R (Job Demands-Resources) (Demerouti et al., 2001 ; Schaufeli et Bakker, 2004), ces résultats illustrent la nature profondément ambivalente des outils technologiques : s'ils agissent comme des leviers d'efficience, vecteurs de satisfaction et de bien-être,ils constituent simultanément des facteurs d'intensification du travail, générateurs de stress. Les données recueillies convergent ainsi vers une reconnaissance de cette dualité intrinsèque. Si les contraintes liées à la numérisation sont jugées manifestes par les répondants, une large majorité d'entre eux estime néanmoins que ces dispositifs ont favorisé, dans leur globalité, le bien-être au travail (BET).

Ce constat révèle un paradoxe d'attachement : malgré l'alourdissement de la charge de travail et l'omniprésence technologique, l'idée de s'en passer semble désormais inenvisageable. L'intégration des technologies numériques dans les administrations de l'enseignement supérieur n'a pas conduit à une rupture de l'équilibre entre exigences et ressources ; elle semble, à l'inverse, l'avoir consolidé. Pour les fonctionnaires, ces outils ont agi comme des ressources complémentaires facilitant les tâches quotidiennes. Le soutien social perçu des collègues et des supérieures, un bon climat de travail et la préservation de l'équilibre perso/pro ont opéré comme des régulateurs efficaces, limitant l'émergence du technostress malgré la persistance de certains risques de maladies professionnelles.L'adoption de nouvelles technologies génère un stress organisationnel important lorsqu'elle s'effectue sans accompagnement. Ce phénomène est accentué par l'absence de formations personnalisées, un déficit de compétences numériques internes et une infrastructure fragile. L'obsolescence rapide des outils, couplée à leur vulnérabilité sécuritaire, place les utilisateurs dans une situation d'insécurité constante.

En dernier lieu, ces travaux aboutissent à une modélisation exigences-ressources (JD-R) adaptée spécifiquement à l'appropriation des technologies numériques au sein des administrations de l'enseignement supérieur marocain. Cette étude apporte ainsi une contribution significative à la littérature portant sur l'interaction entre systèmes d'information et comportement organisationnel. Elle permet notamment de raffiner la compréhension de l'influence technologique sur l'individu en situation de travail dans un contexte institutionnel spécifique. Toutefois, à l'instar de toute démarche qualitative, cette recherche comporte des limites intrinsèques qui constituent autant de perspectives heuristiques. La principale limite réside dans la spécificité contextuelle des résultats, ces derniers étant circonscrits au cadre de l'administration publique marocaine et au périmètre de l'échantillon interrogé,

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ce qui invite à une prudence quant à leur généralisation à d'autres contextes organisationnelles.

Les conclusions que nous obtenons ne peuvent pas être généralisées. Il serait intéressant de renouveler ce type d'études dans des contextes professionnels différents afin de réduire la contingence éventuelle de ces résultats, tant en termes de variétés d'organisations que de secteurs d'activité. Cette recherche met par ailleurs en évidence des relations possibles entre différents concepts (exigences, ressources, stress, bien-être). Sans pouvoir étudier quantitativement l'existence, l'intensité et la causalité de ces relations. Une étude quantitative pourrait donc venir compléter et corroborer ces résultats encourageants.

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