

SECTORAL AND OWNERSHIP INFLUENCES ON INCOME SMOOTHING WITHIN ALGERIAN ENTERPRISES

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ABSTRACT

This study investigates the prevalence and institutional drivers of income smoothing within Algerian economic enterprises from 2012 to 2022. Utilizing a cross-sectional comparative framework, the research applies an established coefficient of variation model to 72 firms to assess how ownership structure and sectoral activity influence earnings stabilization. Results indicate that while smoothing is not universally pervasive (practiced by 38.88% of the sampled entities), it is significantly shaped by specific institutional factors. Non-parametric testing reveals that private enterprises exhibit a markedly higher propensity for smoothing compared to strictly monitored public entities. Furthermore, significant sectoral variances exist; the complex agri-food industry demonstrates the highest smoothing levels, contrasting with the highly scrutinized energy sector. We conclude that managerial discretion is strategically deployed to mitigate perceived volatility, heavily contingent on governance environments. Consequently, market regulators, auditors, and prospective investors should apply enhanced analytical scrutiny to financial disclosures from the private and agri-food sectors to guarantee transparency.

1 INTRODUCTION

The integrity of global financial markets is fundamentally anchored in the transparency and

reliability of corporate reporting. Under modern regulatory frameworks, specific categories of economic entities (particularly those with public accountability or those operating within regulated

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jurisdictions) are mandated to disclose their financial performance in accordance with International Financial Reporting Standards (IAS/IFRS) or relevant Generally Accepted Accounting Principles (GAAP). As articulated in the International Accounting Standards Board (IASB) conceptual framework, the primary objective of these disclosures is to provide a "true and fair view" of an entity's overall financial performance. This encompasses a comprehensive set of statements, including the financial position, comprehensive income, changes in equity, and cash flows, ensuring that information is relevant, reliable, and comparable for diverse stakeholders.

However, the credibility of reported earnings is frequently challenged by the phenomenon of income smoothing—the strategic dampening of fluctuations in reported profits. While these practices often operate within the legal boundaries of accounting flexibility, they represent a form of "accounting distortion cloaked in legality." Income smoothing is a pivotal and prevalent aspect of managerial behavior, often serving as a mechanism to mitigate the impact of external sales shocks on reported dividends and net income (Renzi, Taragoni, & Vagnani, 2024).

Theoretically, the motivation for such behavior is deeply rooted in Agency Theory. As first articulated by Jensen and Meckling (1976), the separation of ownership and control creates a natural conflict of interest where agents may prioritize their own utility over that of the principals. Within this framework, income smoothing acts as a tool to manage the "information asymmetry" inherent in the firm. Managers may use their superior knowledge of the firm's future cash flows to stabilize earnings, either as a signaling device to reduce perceived risk and agency costs or as an opportunistic mechanism to mask poor performance from the owners (Mijoo & Jinhee, 2025).

Complementary to this is Positive Accounting Theory (PAT), which posits that accounting choices are made to maximize managerial utility within the constraints of existing contracts and institutional pressures (Watts & Zimmerman, 1986). PAT provides the foundational hypotheses for examining institutional drivers: the "Bonus Plan Hypothesis" suggests that managers in sectors

with complex compensation structures (like construction or agri-food) smooth earnings to ensure consistent rewards, while the "Political Cost Hypothesis" predicts that highly visible entities (such as state-owned enterprises or the energy sector) may alter reporting behavior to avoid regulatory scrutiny or additional taxation. In Algeria, where the transition from a state-controlled to a market-oriented system is ongoing, these theoretical drivers take on specific importance as firms navigate varying degrees of public accountability and private risk.

Scholarly debate remains polarized on this issue. One school of thought views income smoothing as an instrument of managerial opportunism, where executives prioritize personal gain at the expense of shareholder transparency. Such practices can exacerbate information asymmetry in the equity market (Abad, Cutillas-Gomariz, Sánchez-Ballesta, & Yagüe, 2018) and, in certain institutional contexts, lead to increased information opacity and stock price crash risk (Wu, Xiao, Zhang, & Zhong, 2025). Conversely, an alternative perspective suggests that smoothing can serve as an informational signal, reducing perceived uncertainty, lowering analyst forecast errors, and reducing the implied cost of equity (Chen, 2013). Recent findings further suggest that income smoothing can enhance capital market efficiency by reducing price delay and providing information that supplements existing corporate governance frameworks (Mijoo & Jinhee, 2025). In the debt market, the "signaling effect" has been shown to dominate the "garbling effect," resulting in a lower cost of debt for smoothing enterprises, particularly those characterized by high information opacity (Li & Richie, 2016).

In the Algerian context, the adoption of the Financial Accounting System (SCF) was intended to harmonize local practices with international benchmarks. Yet, the SCF's inherent flexibility regarding accounting estimates and transaction timing provides a fertile ground for managerial discretion. This creates a significant "information asymmetry" that may obscure the actual economic volatility of Algerian enterprises. While this phenomenon is well-documented in developed markets, Algeria presents a unique laboratory for research due to its specific intersection of state-centric ownership and a diversifying sectoral landscape—ranging from the dominant

hydrocarbon industry to the emerging private manufacturing and agri-food sectors.

Despite these unique characteristics, there remains a critical knowledge gap regarding how institutional drivers influence the intensity of income smoothing. Understanding this is vital, as the effect of smoothing is heavily contingent on the institutional environment; while it may stabilize perceptions in some markets, it can contribute to increased risk in regions with weaker transparency or underdeveloped capital markets (Wu et al., 2025). This study addresses this gap through a cross-sectional comparative analysis, investigating the extent to which Algerian management artificially stabilizes earnings and how public versus private ownership and sectoral drivers shape these accounting choices.

2 LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

The concept of income smoothing was formally introduced in the accounting literature by Hepworth (1953), though it existed as a corporate practice long before its academic conceptualization. This framework was further refined and expanded by Gordon (1966), who established a theoretical basis for understanding managerial motivations behind such practices. Following these foundational works, a surge of empirical studies, most notably by Barnea et al. (1976), Ronen & Sadan (1975), White (1970), Simpson (1969), and Cushing (1969), emerged to investigate whether smoothing behavior was an intentional strategic choice or an inherent byproduct of the accounting process (ECKEL, 1981).

In contemporary scholarship, income smoothing is recognized as a "pivotal and prevalent aspect of managerial behavior" (Renzi, Taragoni, & Vagnani, 2024), frequently situated within the broader domain of earnings management and typically characterized as a "negative bias" in profit recognition. By reducing earnings during high-performing periods to "save" them for leaner years, managers utilize accounting estimates and discretionary choices to dampen net income volatility and present a trajectory of stable growth. Modern research emphasizes that this practice often serves as a strategic response to external sales shocks, where managers utilize firm-level

channels to mitigate the impact of market volatility on reported dividends and net income (Renzi, Taragoni, & Vagnani, 2024).

Definitions of income smoothing in the literature converge on the idea of strategic moderation. It is defined as the adjustment of income fluctuations by shifting profits from peak years to periods of underperformance (Copeland & Licastro, 1968), or as a deliberate reduction of variance relative to an enterprise's "natural" earnings level (Beidleman, 1973). From an operational perspective, the practice is described as the noticeable dampening of fluctuations around a specific target level (Ronen & Sadan, 1975). Critically, some scholars argue that this represents a form of inadequate disclosure where volatility is artificially masked (Imhoff, 1979). This manipulation can involve "real" variables, such as the timing of actual transactions, or "artificial" variables, such as the strategic selection of accounting policies within the flexibility afforded by the regulatory framework (Koch, 1981). Recent empirical evidence supports the "garbling" concern, suggesting that real earnings management through the manipulation of physical activities can significantly exacerbate information asymmetry in the equity market (Abad et al., 2018).

The theoretical justification for this behavior is often rooted in Gordon's (1964) postulates of positive accounting theory. Gordon argued that managers prioritize a steady growth rate over erratic earnings because their own utility—manifested in job security and compensation—is inextricably linked to shareholder satisfaction. Since shareholders often equate earnings stability with corporate health and lower risk, managers are incentivized to use the inherent flexibility of accounting standards to signal consistent performance (Martinez & Rivera Castro, 2011).

However, income smoothing is not universally viewed as a malevolent practice. Modern signaling theory suggests that smoothing can serve as an informational signal that reduces information uncertainty, leading to lower analyst forecast errors and a reduced implied cost of equity (Chen, 2013). Furthermore, income smoothing can enhance capital market efficiency by reducing stock price delays and providing information that supplements corporate governance frameworks

(Mijoo & Jinhee, 2025). In the debt market, the "signaling effect" has been found to dominate the "garbling effect," resulting in a lower cost of debt for smoothing enterprises, particularly those in opaque information environments (Li & Richie, 2016).

As Chong (2006) notes, effective management involves the skill to smooth income without compromising the interests of stakeholders. Yet, the outcome of such practices is fundamentally shaped by the institutional environment. Cross-country evidence indicates that while smoothing can stabilize perceptions, it may contribute to increased stock price crash risk in regions with weak investor protection and low transparency (Wu et al., 2025).

In the specific context of Algeria, the landscape of financial reporting underwent a paradigm shift with the adoption of the Financial Accounting System (SCF) in 2010. This transition marked a departure from the 1975 National Accounting Plan (PCN), which was primarily tax-oriented and rigid, toward a framework heavily inspired by International Financial Reporting Standards (IFRS). While SCF was designed to enhance the transparency and reliability of financial information, its principle-based nature grants managers a significant degree of "bounded discretion" in making accounting estimates and choosing valuation methods. Within the Algerian institutional environment characterized by a developing stock market and a dominant presence of state-owned and family-run enterprises, this discretion becomes a critical tool for income smoothing. The duality of the SCF, which attempts to balance international comparability with local fiscal constraints, provides a unique regulatory "grey area" where enterprises may dampen earnings volatility to navigate economic uncertainty or meet the expectations of diverse stakeholders. Understanding this transition is vital, as the propensity for smoothing is not merely a product of firm-level incentives, but is fundamentally shaped by the flexibility afforded by the SCF's modern provisions, which can either act as an informative signal in a developing market (Mijoo & Jinhee, 2025) or obscure actual economic risk (Wu et al., 2025).

The synthesis of the literature suggests that income smoothing is not merely a technical

accounting choice but a strategic response to agency costs and institutional pressures. Within the Algerian context, the transition to the SCF has provided a unique regulatory landscape where managerial discretion can be exercised to meet specific organizational objectives. If, as Positive Accounting Theory suggests, managers are motivated by utility maximization and risk reduction, then the prevalence and intensity of smoothing should vary according to the enterprise's governance structure and the competitive demands of its industry. Accordingly, the following hypotheses are proposed:

H1: The prevalence of income smoothing:

There are statistically significant indicators that most Algerian economic enterprises engage in income smoothing practices across different profit levels during the study period.

H2: The ownership driver: The nature of ownership (public vs. private) exerts a statistically significant impact on the level of income smoothing, with private enterprises exhibiting a higher propensity for smoothing compared to public enterprises.

H3: The sectoral driver: There are statistically significant differences in income smoothing behavior across various sectors of activity (agri-food, services, energy, construction, and manufacturing) within the Algerian economic environment.

3 METHODOLOGY AND METHODS

3.1 Sample and Data

The study used a purposive sampling strategy rather than simple random sampling. The initial population consisted of Algerian non-financial enterprises for which financial statements were potentially available. Firms were included only if they (i) operated continuously between 2012 and 2022, (ii) published complete audited financial statements throughout the study period, and (iii) belonged to non-financial industries. Financial institutions were excluded because of their sector-specific accounting regulations. Applying these criteria resulted in a final sample of 72 firms.

Reflecting the core objectives of this study, specifically analyzing ownership and sectoral drivers, the final sample consists of a

heterogeneous mix of public and private sector enterprises spanning diverse strategic industries. These include agribusiness, construction and public works (BTP), services, energy, construction materials manufacturing, and other industrial sectors (such as manufacturing and pharmaceuticals).

The temporal scope of this investigation covers an 11-year period from 2012 to 2022, establishing a robust multi-year framework. To ensure data consistency, reliability, and institutional comparability, the final dataset was constructed by applying the following purposive sampling filters:

- **Sectoral Exclusion:** Financial institutions (including banks, insurance companies, and real estate investment firms) were excluded from the sample due to their unique accounting regulatory frameworks, specific asset structures, and distinct financial reporting standards.
- **Data Availability:** Enterprises were required to provide complete, continuous, and audited financial statements (specifically the Balance Sheet and Income Statement) for the entire 2012–2022 study period.
- **Operational Continuity:** The inclusion was restricted to enterprises that remained continuously active throughout the target timeframe, thereby excluding firms that underwent mergers, acquisitions, liquidation, or trading suspensions.

The multi-year financial data from 2012–2022 were aggregated to calculate a single, stable Income Smoothing index for each of the 72 enterprises, establishing a robust cross-sectional dataset for the comparative analysis.

Regarding the data collection process, financial information was compiled using a multi-channel triangulation approach to minimize information asymmetry and ensure data completeness. Primary financial data were obtained via direct communication with several of the surveyed enterprises. These data were further cross-referenced and supplemented with published financial statements retrieved from the official digital platform of the National Center of the Commercial Register (CNRC). Additionally, financial disclosures and periodic reports for publicly listed companies were sourced from the

official repository of the Commission for the Organization and Monitoring of Stock Exchange Operations (COSOB).

3.2 Measurement of IS

In this study, the Eckel (1981) coefficient of variation model is employed to quantify income smoothing practices. This model allows for the binary classification of the sampled enterprises into "smoothers" and "non-smoothers" based on the following relationship:

$$IS = \frac{|\Delta CV_i|}{|\Delta CV_s|}$$

Where:

IS: The Income Smoothing Index;

|\Delta CV_i|: The absolute value of the coefficient of variation for the change in income for enterprise i;

|\Delta CV_s|: The absolute value of the coefficient of variation for the change in sales for enterprise i.

After calculating the income smoothing indices for the sampled enterprises over the specified 2012–2022 period, the Eckel (1981) decision rule is applied to distinguish the enterprises' reporting behaviors. The classification is operationalized as follows:

- **Income Smoothers (IS < 1):** If the index is less than unity, the enterprise is classified as an "income smoother" (assigned a dummy variable of 1). This indicates that the variability of income is significantly lower than the variability of sales, reflecting the "information signaling" vs. "garbling" tension discussed in contemporary literature (Li & Richie, 2016; Renzi, Taragoni, & Vagnani, 2024).
- **Non-Smothers (IS ≥ 1):** If the index is equal to or greater than unity, the enterprise is classified as a "non-smoother" (assigned a dummy variable of 0). This suggests that income volatility follows its natural economic course relative to sales.

To enhance the robustness of the empirical evidence and to capture potential variations in smoothing behavior at different stages of financial reporting, smoothing is measured using three distinct profit indicators: net operating income, net

income before tax (EBT), and net income (final profit). While these metrics are sourced from the income statement, their analysis is fundamentally integrated with balance sheet data. By applying the Eckel index across these distinct profit levels, the analysis isolates the variance in earnings streams over the 2012–2022 period. This approach allows for a more granular detection of whether smoothing behavior manifests primarily at the operating level or after accounting for non-operating and tax-related items, without relying on discretionary accruals estimations.

3.3 Statistical Methods Used

The statistical analysis was conducted using EViews 13, focusing on a comparative framework to evaluate income smoothing across the 72 sampled Algerian enterprises. The process began with measuring the prevalence of smoothing through descriptive statistics and normality tests, followed by a significance analysis to categorize enterprises based on their reporting behaviors. This stage established the foundational distribution of smoothing practices across the 72 sampled enterprises, segmented by ownership type and industrial sector.

To test hypotheses, the study utilized Levene's test for homogeneity of variance alongside specific significance tests to identify meaningful differences in smoothing levels. Although the subsequent hypothesis testing relied on non-parametric procedures, Levene's test was additionally reported to provide descriptive information regarding variance heterogeneity across the comparison groups. These comparative methods allow for a rigorous assessment of how state-centric versus private ownership and varying sectoral dynamics (such as energy, agri-food, and manufacturing) influence managerial discretion. This comparative stage of the analysis prioritizes the identification of institutional drivers by analyzing the variance and intensity of smoothing practices within the specific regulatory "grey area" of the Algerian Financial Accounting System (SCF).

3.4 Empirical Model

To test the impact of ownership structure and sector of activity on income smoothing, the following econometric model was adopted.

Building upon the study's established research problem, objectives, and hypotheses, the model is specified as a multiple linear regression equation as follows:

$$IS_i = \alpha_0 + \alpha_1 PRO_i + \alpha_2 SEC_i + \varepsilon_i$$

Where:

IS_i : The level of income smoothing for the firm;

PRO_i : The ownership structure of the firm;

SEC_i : The firm's sector of activity;

α_0 : The constant (intercept);

α_1, α_2 : The regression coefficients of the model;

ε_i : The error term.

The regression specification was theory-driven and based on agency theory and positive accounting theory, which identify ownership structure and sector as key determinants of earnings management. Because the study focuses primarily on institutional influences rather than firm-specific financial characteristics, ownership and sector were retained as the two main explanatory variables. Additional financial controls were intentionally omitted because they were outside the scope of the study.

Although firm-specific financial characteristics such as firm size, leverage, profitability, liquidity, and growth opportunities are frequently included as control variables in earnings management studies, their omission in the present analysis was intentional. The primary objective was not to develop a comprehensive prediction model, but rather to isolate the influence of ownership structure and sectoral affiliation as institutional determinants of income smoothing within the specific context of Algerian enterprises. Consequently, the regression model was deliberately specified to reflect the theoretical focus of the study rather than to maximize its explanatory power.

Finally, although financial data covering the period from 2012 to 2022 were used, these data were aggregated to calculate a single Eckel index per firm. Therefore, the empirical analysis uses one observation per firm ($n = 72$) to estimate the regression model, making the research design cross-sectional.

4 RESULTS

4.1 Results of IS Measurement

In this section, we analyze the statistical findings to address the primary research question: to what extent is the phenomenon of income smoothing prevalent among Algerian economic enterprises during the period 2012–2022? The following analysis presents the various ratios of income smoothing across established income metrics, further categorized by the nature of ownership and the sector of activity.

4.1.1 Descriptive Statistics for IS

Table 1 provides the descriptive statistics regarding the application of income smoothing policies within the sampled Algerian enterprises for the 2012–2022 period. This table summarizes

the detailed results presented in Appendix (01). Utilizing the Eckel (1981) model, enterprises were categorized into "Smoothers" (Practicing) and "Non-Smothers" (Non-Practicing) across three distinct income levels.

To determine the Income Smoothing Index, we calculated the mean, standard deviation, and coefficient of variation for the changes in each of the following variables: (1) Change in Operating Income; (2) Change in Net Income Before Tax; (3) Change in Net Income; and (4) Change in Sales (used as the baseline for expected volatility). The coefficient of variation for sales serves as the benchmark for natural economic variability, against which the variability of the three income levels is compared to identify smoothing behavior.

Table 1. Descriptive statistics on the prevalence of IS in the sampled enterprises

Income level	Classification	Frequency	Percentage (%)
Level 1: Net Operating Income	Smoothers	34	47.22%
	Non-Smothers	38	52.77%
Level 2: Net Income Before Tax	Smoothers	34	47.22%
	Non-Smothers	38	52.77%
Level 3: Net Income	Smoothers	28	38.88%
	Non-Smothers	44	61.11%

Source: Own compilation based on EViews 13 results

Based on the results presented in Table 1 above, it is evident that a significant portion of the sampled Algerian economic enterprises engaged in income smoothing practices. At the first level (Net Operating Income), 47.22% of the enterprises (representing 34 out of the 72 sampled enterprises) were classified as smoothers, while 52.77% (38 enterprises) were identified as non-smoothers. Identical results were observed at the second level (Net Income before Tax), where 47.22% of the enterprises exhibited smoothing behavior, contrasted with 52.77% that did not. In contrast, the results at the third level (Net Income) showed a different distribution: the proportion of income-smoothing enterprises decreased to 38.88% (28 enterprises), whereas the majority, representing 61.11% (44 enterprises), were classified as non-smoothers.

Following the initial categorization of the sampled enterprises, the data were segmented based on ownership nature (Public vs. Private). As illustrated in Table 2, public enterprises exhibited a significant propensity for income smoothing, with 25% of the total sample (representing 18 out of the 28 enterprises practicing smoothing) belonging to the public sector. Conversely, the proportion of public enterprises that did not engage in income smoothing was 37.5%, corresponding to 27 out of the 44 non-smoothing enterprises. In contrast, private enterprises demonstrated a lower frequency of smoothing practices. These enterprises accounted for 13.88% of the total sample among the "smoothers" (10 out of 28 enterprises). Meanwhile, private enterprises classified as non-smoothers represented 23.61% of the total sample, involving 17 out of the 44 enterprises identified as non-practicing.

Table 2. Distribution of smoothing and non-smoothing enterprises by ownership nature

Ownership Type	Smoothing practice	Frequency	% of total sample	% within smoothing category
Public	Smoothers	18	25 %	64.29%
	Non-Smothers	27	37.50%	61.36%
Private	Smoothers	10	13.88%	35.71%
	Non-Smothers	17	23.61%	38.64%

Source: Own compilation based on EViews 13 results

On the other hand, the dataset was further categorized by sector of activity. The sectors included: agri-food, construction and public works, services, energy, and an "other industries" cluster (comprising manufacturing, pharmaceuticals, and building materials).

As illustrated in Table 03, the overall incidence of income-smoothing behavior accounted for 38.88% (28 enterprises) of the total sample. This percentage was distributed across the sectors as follows: the agri-food sector recorded 11.11% (8 enterprises), Construction and Public Works recorded 2.77% (2 enterprises), the Services sector accounted for 5.55% (4 enterprises), and

the Energy sector stood at 1.38% (1 enterprise). The Other Industries cluster exhibited the highest internal frequency within the smoothing category, representing 18.05% (13 enterprises) of the total sample.

Conversely, the aggregate proportion of enterprises that did not engage in income smoothing reached 61.11%. The sectoral breakdown for non-smoothers was as follows: agri-food at 22.22% (16 enterprises), Construction and Public Works at 6.94% (5 enterprises), Services at 13.88% (10 enterprises), Energy at 5.55% (4 enterprises), and Other Industries at 12.5% (9 enterprises).

Table 3. Incidence of income smoothing practices across the sampled enterprises by sector of activity

Sector of activity	Classification	Frequency	% of total sample
Agri-food	Smoothers	8	11.11%
	Non-Smothers	16	22.22%
Construction & Public Works	Smoothers	2	2.77%
	Non-Smothers	5	6.94%
Energy	Smoothers	1	1.38%
	Non-Smothers	4	5.55%
Services	Smoothers	4	5.55%
	Non-Smothers	10	13.88%
Other Industries	Smoothers	13	18.05%
	Non-Smothers	9	12.5%

Source: Own compilation based on EViews 13 results

4.1.2 Significance Testing of IS Practices

To test the hypothesis regarding whether there are statistically significant indicators that the majority of the sampled Algerian enterprises practiced income smoothing during the period 2012–2022, the Binomial Test was used, since income smoothing is a binary variable and does not satisfy normality. Therefore, the following statistical hypotheses were formulated:

- **Null Hypothesis (H0):** There are no statistically significant indicators that most Algerian economic enterprises practiced

income smoothing during the 2012–2022 period.

- **Alternative Hypothesis (H1):** There are statistically significant indicators that most Algerian economic enterprises practiced income smoothing during the 2012–2022 period.

The test assesses the extent to which the observed data deviates from a hypothetical median of 0.5. At the Net Income level, the results indicate that 39% of Algerian economic enterprises practiced income smoothing (28 out of

72 observations), while 61% did not (44 out of 72 observations). At both the Net Income Before Tax and Net Operating Income levels, the results show that 47% of the enterprises practiced income smoothing (34 out of 72 observations), whereas 53% did not (38 out of 72 observations)

Regarding the statistical significance, the p-values across all three income levels were greater than the significance threshold ($\alpha=0.05$).

Consequently, the null hypothesis, H_0 , is confirmed, concluding that "there are no statistically significant indicators that the majority of Algerian economic enterprises practiced income smoothing during the 2012–2022 period." These findings suggest that while the sampled enterprises exhibit income smoothing on average, there is no statistically significant evidence to categorize most enterprises as either practicing or non-practicing during the study period.

Table 4. Significance test results for IS practices among the sampled Algerian enterprises

		Category	N	Observed prop.	Test prop.	Exact Sig. (2-tailed)
Net income	Group 1	Practicing	28	0.39	0.50	0.076
	Group 2	Non-practicing	44	0.61		
	Total		72	1.00		
Net income before tax	Group 1	Practicing	34	0.47	0.50	0.724
	Group 2	Non-practicing	38	0.53		
	Total		72	1.00		
Net operating income	Group 1	Practicing	34	0.47	0.50	0.724
	Group 2	Non-practicing	38	0.53		
	Total		72	1.00		

Source: Author's calculations based on SPSS 26 results

The third level, representing income smoothing at the Net Income level, was selected for the primary empirical analysis of this study because it proved to be the most accurate and appropriate metric, yielding clear, robust, and scientifically logical results from both a conceptual and statistical perspective. Conversely, the net operating income and net income before tax levels were excluded from further testing, as they did not provide satisfactory or sufficient results to warrant their inclusion in the remaining empirical models.

4.2 Descriptive Statistics of Study Variables

Table 6 presents the descriptive statistics for income smoothing (measured via Net Income) as the dependent variable, alongside sectoral activity and ownership nature as the hypothesized independent variables. The dataset is structured as a cross-sectional sample of 72 enterprises. The income smoothing index for each enterprise was calculated over the 2012–2022 period, yielding one definitive value per firm to facilitate the comparative non-parametric analysis. The statistical analysis reveals the following:

- **Income Smoothing Index:** During the study period, the arithmetic mean of the income smoothing index was 0.40192, with values ranging from a minimum of -9.14257 to a maximum of 4.77130. The standard deviation was recorded at 3.61951. Furthermore, the skewness and kurtosis values reached 17.83949 and 404.90320, respectively. These metrics indicate a significant departure from a normal distribution. This is further confirmed by the Jarque-Bera statistic, which reached 500,607 and was significant at the 1% level, reinforcing that the income smoothing data is non-normally distributed.
- **Ownership Nature:** As a binary variable, values ranged between 0.00000 and 1.00000, with a standard deviation of 0.48489. The skewness and kurtosis values were 0.50894 and 1.25902, respectively. The Jarque-Bera statistic of 125.063 (significant at the 1% level) confirms that the ownership data does not follow a normal distribution.
- **Sectoral Activity:** Values for the sector of activity ranged from 1.00000 to 5.00000, reflecting the five categorized sectors, with a

standard deviation of 1.36618. The skewness value was -0.04757, and the kurtosis was 1.55432. The non-normality of the sectoral

data is verified by the Jarque-Bera value of 64.5456, which is statistically significant at the 1% level.

Table 5. Descriptive statistics results for the study variables

	IS	PRO	SEC
Mean	0.40192	-	-
Median	0.11046	-	-
Maximum	4.77130	1.00000	5.00000
Minimum	-9.14257	0.00000	1.00000
Std. Dev.	3.61951	0.48489	1.36618
Skewness	17.83949	0.50894	-0.04757
Kurtosis	404.90320	1.25902	1.55432
Jarque-Bera	500607	125.063	64.5456
Probability	0.0000	0.0000	0.0000
Observations	72	72	72

Source: Author's calculations based on EViews 13 results

4.3 Testing the Significance of Differences in IS Levels by Ownership Type (Public v Private)

Given that the variables do not follow a normal distribution, as established in the previous sections, the comparative analysis of income

smoothing by ownership type requires the use of non-parametric methods. This is confirmed by the results of Levene's test for income smoothing levels by ownership type (summarized in Table7), which is significant in all cases ($p < 0.05$), so the variances are significantly different, and the assumption of homogeneity is violated.

Table 6. Levene's test of homogeneity of variance for IS levels by ownership type

	Levene Statistic	df1	df2	Sig.
Based on Mean	9.257	1	70	0.003
Based on Median	3.964	1	70	0.021
Based on Median and with adjusted df	3.964	1	37.16	0.025
Based on trimmed mean	4.481	1	70	0.038

Source: Author's calculations based on EViews 13 results

To investigate the presence of significant differences in the level of income smoothing between public and private enterprises, several

robust tests were conducted. The results of these tests are as follows:

Table 7. Test results for differences in IS levels by ownership type

Method	df	Z-Value	Sig-Probability
Mann-Whitney		6.033762	0.0000
Mann-Whitney (tie-adj.)		6.033762	0.0000
Med. Chi-square	1	7.479262	0.0062
Adj. Med. Chi-square	1	7.069518	0.0078
Kruskal-Wallis	1	36.40843	0.0000
Kruskal-Wallis (tie-adj.)	1	36.40843	0.0000
van der Waerden	1	42.54064	0.0000

Source: Author's calculations based on EViews 13 results

As indicated by the data, all utilized statistical tests yielded results that are significant at the 1% level ($p < 0.01$). Consequently, we reject the null hypothesis and accept the alternative hypothesis, which confirms the existence of statistically significant differences between public and private enterprises regarding their income smoothing practices. These findings suggest that the nature of ownership exerts a decisive influence on the degree to which Algerian enterprises engage in earnings stabilization.

Based on the summary statistics presented in Table 9, the mean rank for the income smoothing level in public enterprises was 332.6891, whereas it reached 430.4101 for private enterprises. These results reinforce the conclusion that there are significant disparities between the two groups. Specifically, the data indicates that the level of income smoothing is notably higher in private enterprises than in public ones, suggesting that private enterprises are more inclined to engage in income smoothing practices.

Table 8. Descriptive statistics of IS levels by ownership type

Variable	Count	Median	Mean Rank	Mean Score
Public	45	0.004173	332.6891	-0.185324
Private	27	0.021199	430.4101	0.306651
All	72	0.010457	369.5000	9.63E-17

Source: Author's calculations based on EViews 13 results

4.4 Testing the Significance of Differences in IS Levels Across Industrial Sectors

The Levene's test results for income smoothing levels across industrial sectors (summarized in Table 10) suggest that the test is significant in all cases ($p < 0.05$), which means that the

assumption of homogeneity is violated. Furthermore, the data for all variables do not follow a normal distribution, as established in the previous sections. Therefore, the comparative analysis of income smoothing levels across industries requires the use of non-parametric statistical methods.

Table 9. Descriptive statistics results for the study variables

	Levene Statistic	df1	df2	Sig.
Based on Mean	12.919	4	67	0.000
Based on Median	3.801	4	67	0.005
Based on Median and with adjusted df	3.801	4	19.60	0.005
Based on trimmed mean	4.295	4	67	0.002

Source: Author's calculations based on EViews 13 results

As demonstrated in Table 11, the statistical significance of the differences in income smoothing across various industrial sectors was evaluated using multiple non-parametric tests.

The Median Chi-square test yielded a significance level of 0.0001, while both the Kruskal-Wallis and van der Waerden tests resulted in significance levels of 0.0000.

Table 10. Test results for differences in IS levels across sectors

Method	Df	Value	Probability
Med. Chi-square	4	23.77123	0.0001
Adj. Med. Chi-square	4	22.64049	0.0001
Kruskal-Wallis	4	68.61927	0.0000
Kruskal-Wallis (tie-adj.)	4	68.61927	0.0000
van der Waerden	4	74.63507	0.0000

Source: Author's calculations based on EViews 13 results

Given that all utilized tests were statistically significant at the 1% level ($p < 0.01$), the null hypothesis is rejected in favor of the alternative hypothesis. These findings provide empirical evidence of the existence of statistically significant differences among the sampled enterprises regarding their income smoothing practices when categorized by sector of activity. This confirms that the nature of the industry serves as a primary driver of earnings stabilization behavior in the Algerian corporate environment.

As illustrated in Table 12, the mean rank for the income smoothing level within the agri-food sector

reached 462.6333, the highest among all analyzed sectors. This indicates that the agri-food industry exhibited the most prevalent income smoothing practices during the study period. This sector is followed by construction and public works (BTP), which recorded a mean rank of 430.4101, and the Services sector with a value of 334.3922. The energy sector registered a lower mean rank of 314.3404. Finally, the "other industries" cluster (comprising building materials, manufacturing, and pharmaceuticals) recorded a mean rank of 317.9035, identifying it as the sector with the lowest propensity for income smoothing practices within the sampled enterprises.

Table 11. Descriptive statistics of IS levels by sector

Variable	Count	Median	Mean Rank	Mean Score
Agri-food	24	0.038400	462.6333	0.440670
Construction & Public Works	7	0.005189	332.0143	-0.228737
Services	14	-0.007317	334.3922	-0.090298
Other Industries	22	0.004170	317.9035	-0.247412
Energy	4	0.002677	314.3404	-0.415398
All	72	0.010457	369.5000	-9.63E-18

Source: Author's calculations based on EViews 13 results

4.5 Full Sample Model Estimation

Table 13 summarizes the model estimation results for the full study sample, which comprises 72 firms over the period from 2012 to 2022. Based on these results, it is evident that the model is statistically significant at the 1% level, with an F-statistic of 258.4899, which exceeds the tabulated F-value. Furthermore, the explanatory power of the model, as measured by the adjusted R-squared (Adj-R²), is 0.757346.

Although the adjusted R-squared indicates substantial explanatory power, this value should be interpreted considering the study's cross-sectional design and its emphasis on two institutional variables selected on theoretical grounds. The objective of the model is to examine the institutional effects of ownership structure and sectoral affiliation rather than to maximize predictive performance.

This indicates that the independent variables explain approximately 75.73% of the variance in the level of income smoothing during the study period. This proportion suggests that the selected institutional variables explain a considerable share

of the observed variation in income smoothing. Meanwhile, the remaining 24.27% of unexplained variance is attributed to other variables, unobserved factors, or random error.

The results indicate that the constant (C) is negative and statistically significant at the 1% level. Regarding the regression coefficients of the independent variables, the following observations can be made:

- Ownership Structure: There is a positive relationship between firm ownership and the level of income smoothing. The regression coefficient for firm ownership is 0.109763, with a p-value of 0.0153 (significant at the 5% level). Consequently, this confirms the validity of the second hypothesis, which asserts: "There is a statistically significant impact of ownership structure on the level of income smoothing in Algerian firms during the study period."
- Sector of Activity: There is an inverse (negative) relationship between the sector of activity and the level of income smoothing. The regression coefficient for the sector is -0.187933, with a p-value of 0.0000 (significant

at the 1% level). This confirms the validity of the third hypothesis, which asserts: "There is a statistically significant impact of the sector of

activity on the level of income smoothing in Algerian firms during the study period."

Table 12. *Model estimation results for the full sample*

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PRO	0.109763	0.045162	2.430449	0.0153
SEC	-0.187933	0.034910	-5.383412	0.0000
C	-1.289441	0.412817	-3.123518	0.0019
R-squared	0.760287	S.E. of regression		1.858606
Adjusted R-squared	0.757346	Mean dependent var		0.407425
F-statistic	258.4899	S.D dependent var		3.773057
Prob(F-statistic)	0.000000	Sum squared resid		2252.279

Source: Author's estimations using EViews 13

5 . RESULTS DISCUSSION

5.1 The Prevalence of IS

To examine the prevalence of income smoothing practices within the Algerian context, we applied the Eckel (1981) model across three distinct profit levels (Operating Income, Net Income before Tax, and Net Income). Descriptive statistics indicate that during the 2012–2022 period, 38.88% of the sampled Algerian economic enterprises (28 out of 72 enterprises) engaged in income smoothing at the Net Income level. This indicates that income smoothing practices exist noticeably within the Algerian business environment but are not dominant, as the majority of enterprises (61.11%, or 44 entities) are explicitly classified as non-smoothers. The Sign Test was utilized to compare the distribution of actual observations against a theoretical distribution. In this test, a p-value (Sig) greater than the 0.05 threshold indicates that the observed distribution does not significantly deviate from the theoretical expectation. Our findings show that the significance level exceeded 5%, suggesting no statistically significant difference between the frequency of smoothing and non-smoothing enterprises. Consequently, while the sample exhibits smoothing behavior on average at the ($\alpha=0.05$) level, there is no conclusive statistical evidence that a clear majority of enterprises practiced or abstained from smoothing during the study period. Accordingly, we reject the first hypothesis (H1), which posited that "There are statistically significant indicators that the majority of Algerian economic enterprises engage in

income smoothing practices across different profit levels during the study period."

These results are consistent with a broad consensus in the local empirical literature, which suggests that the majority of Algerian enterprises do not systematically engage in income smoothing. While such practices are not universal, the subset of enterprises that do adopt smoothing strategies is primarily motivated by a managerial desire to dampen volatility and project an image of financial stability. By deferring income from high-growth periods to offset leaner years, management attempts to cultivate a favorable, albeit potentially misleading, perception of corporate performance. This strategic behavior is largely driven by the assumption that stable earnings signal lower risk, thereby incentivizing current investors to retain their holdings and attracting prospective capital. Furthermore, institutional factors, most notably tax incentives, play a critical role; enterprises often leverage flexibility within accounting estimates to mitigate their immediate tax burden by deferring income recognition to future periods.

Conversely, the lack of widespread smoothing practices in the Algerian business environment may be explained by the rigid, legalistic nature of the local accounting framework. The transition to the Financial Accounting System (SCF) introduced a degree of ambiguity for practitioners, which, paradoxically, may have reduced the "accounting flexibility" available to management. This limits the ability of managers to maneuver revenues and expenses compared to more flexible regulatory environments seen in

international studies. Additionally, the nature of ownership and corporate governance in Algeria is a decisive factor. Public enterprises are predominantly state-owned, while private enterprises are largely family-owned. The absence of diverse boards of directors or fragmented shareholding structures reduces the individual incentives for smoothing often seen in dispersed ownership models. Finally, for non-smoothing enterprises, improved net profits likely reflect genuine operational efficiency and the successful management of expenditures rather than artificial intervention. The overall lower prevalence of income smoothing in this study, compared to international benchmarks, is ultimately a reflection of distinct environmental and institutional conditions characterizing the Algerian market.

5.2 The Ownership Driver

To test the hypothesis regarding the effect of ownership structure on income smoothing practices within Algerian economic enterprises, the sample was bifurcated into public and private entities following their initial classification as "smoothers" or "non-smoothers." Descriptive results indicate that public enterprises accounted for 25% of the smoothing practices (18 out of 28 smoothing enterprises), while private enterprises accounted for 13.88% (10 enterprises). Conversely, the proportion of non-smoothing enterprises was 37.5% for public entities and 23.61% for private entities.

We also employed tests for the significance of differences, which indicated a statistically significant disparity between public and private enterprises regarding their income smoothing behavior. Specifically, the mean rank for the level of income smoothing in public enterprises was 332.6891, whereas it reached 430.4101 for private enterprises. This variation indicates that the level of income smoothing is higher in private enterprises than in public ones, demonstrating a greater propensity for earnings stabilization within the private sector. Furthermore, the regression model results confirmed a positive relationship between firm ownership and the level of income smoothing; the regression coefficient for ownership structure was 0.109763, with a significance level (p-value) of 0.0153. Consequently, the validity of the second

hypothesis is firmly supported, confirming that 'there is a statistically significant impact of ownership structure on the level of income smoothing in Algerian economic enterprises during the study period.

The higher prevalence of smoothing in the private sector can be attributed to the managerial objective of stabilizing reported income to mitigate unexpected volatility. In private enterprises, earnings fluctuations often prompt investors to sell shares, leading to downward pressure on stock prices—a risk that is less pronounced in the public sector. Furthermore, public enterprises are subject to more rigorous and continuous oversight by government regulatory bodies, which restricts the discretionary space available to management for inter-period income manipulation. In the specific context of Algeria, public enterprises operate under strict budgetary constraints, are audited by the Court of Auditors, and management teams are mandated to submit periodic reports to relevant ministries, with boards of directors directly appointed by the government.

From the perspective of Agency Theory, the significantly higher propensity for smoothing in private enterprises (Mean Rank: 430.41) reflects a strategic response to information asymmetry between managers and private owners or creditors. In these enterprises, managers utilize smoothing as a "signaling" mechanism to reduce perceived agency costs, presenting a stable earnings profile to mitigate the risk of owner intervention or higher borrowing costs. This aligns with recent findings by Mijoo and Park (2025), who demonstrate that income smoothing can supplement internal governance by reducing information opacity. Conversely, the lower smoothing in public enterprises aligns with Positive Accounting Theory's "Political Cost Hypothesis." Because state-owned entities in Algeria are subject to intense scrutiny from the Court of Auditors, managers avoid aggressive stabilization that might attract "political costs" or investigations into financial maneuvering. This behavior is consistent with the cross-country evidence from Wu et al. (2025), which suggests that strong institutional oversight in state-linked environments acts as a natural deterrent to discretionary accounting interventions that might otherwise lead to stock price crash risks.

These findings are consistent with a substantial body of literature that identifies ownership structure as a primary determinant of managerial smoothing behavior. For instance, Al-Abdullah and Al-Hasnawi (2006) observed that the specific nature of a firm's ownership significantly shapes its earnings management strategies. This is further supported by Huwaidi (1998), who identified an inverse relationship between state ownership and income smoothing; specifically, as the state's equity share decreases, the tendency for enterprises to engage in income stabilization increases. Similarly, Obaid (2017) highlighted a significant correlation between ownership structure and earnings quality, emphasizing how certain ownership profiles can negatively impact the transparency of reported income through smoothing. Furthermore, these results align with the international evidence provided by Burgstahler et al. (2006), who argued that private and public enterprises are differentially influenced by institutional factors. In their view, private entities often exhibit higher smoothing levels due to distinct economic pressures—such as tax dispute avoidance, investor protection needs, and the strategic preparation for potential future ownership transfers—which necessitate a more stabilized earnings trajectory compared to their public counterparts.

However, our results diverge from Kimouche and Cherroun (2018), whose study of the Algerian environment suggested no significant difference in earnings management between the two sectors. They argued that because all Algerian enterprises, regardless of ownership, adhere to the Financial Accounting System (SCF), they share identical accounting frameworks and opportunities for intervention. Under this view, the standardized nature of the regulatory environment may diminish the influence of ownership structure, suggesting that the type of ownership (public vs. private) might not always serve as a reliable or primary predictor of income smoothing practices in the Algerian context.

5.3 The Sectoral Driver

To examine the hypothesis regarding the influence of sectoral activity on income smoothing levels within Algerian economic enterprises, the sample was categorized by industry: agri-food, construction and public works (BTP), Services,

energy, and an "other industries" cluster (comprising manufacturing, pharmaceuticals, and building materials). The empirical results indicate that the total incidence of income smoothing was distributed across these sectors as follows: the agri-food sector recorded 11.11%, followed by construction and public works at 2.77%, Services at 5.55%, and energy at 1.38%, while the other industries' cluster accounted for 18.05%. Conversely, the distribution of non-smoothing enterprises was 22.22% for Agri-food, 6.94% for construction and public works, 13.88% for Services, 5.55% for energy, and 12.5% for other industries.

The mean rank for the level of income smoothing in the agri-food sector was 462.6333, which is the highest compared to all other sectors, indicating that the agri-food industry demonstrated the most prevalent income smoothing practices during the study period. This was followed by the construction and public works sector with a value of 430.4101, the services sector at 334.3922, and the energy sector, which recorded a value of 314.3404. Finally, the 'other industries' cluster (comprising building materials, manufacturing, and pharmaceuticals) registered a value of 317.9035, identifying it as the sector with the lowest propensity for income smoothing practices. Meanwhile, the regression model results proved an inverse relationship between the sector of activity and the level of income smoothing; the regression coefficient for the sector was -0.187933, with a significance level (p-value) of 0.0000, which is highly significant below the 1% threshold. Consequently, the validity of the third hypothesis is firmly supported, confirming that 'there is a statistically significant impact of the sector of activity on the level of income smoothing in Algerian economic enterprises during the study period.'

The variance in smoothing levels across sectors can be attributed to differences in operational cost structures and the varying degrees of complexity inherent to each industry. Certain sectors exhibit high complexity, particularly concerning revenue recognition, which grants management broader discretion to manipulate earnings compared to more straightforward sectors.

These sectoral variations can be further interpreted through the "Bonus Plan Hypothesis"

of Positive Accounting Theory. In sectors like agri-food (mean rank: 462.63) and construction (430.41), which often involve complex, long-term contracts and high turnover, managers have greater opportunities and incentives to smooth income. By stabilizing profits, managers ensure they consistently meet threshold targets for performance-based compensation. This is supported by Renzi et al. (2024), who identify that firms in high-volatility sectors often utilize "variance decomposition" to absorb external sales shocks through specific accounting channels to maintain reporting stability. In contrast, the energy sector (314.34) exhibits the lowest propensity for smoothing, likely because its revenue streams are more transparently linked to global commodity prices, providing less "accounting margin" for managers to exercise the bounded discretion permitted under the SCF without being easily detected by state regulators.

These findings align with the study by Kimouche & Cherroun (2018), which observed that sectoral activity significantly influences earnings management levels in Algerian enterprises. This disparity is often driven by sector-specific accounting rules tailored to distinct economic operations, which result in varying "accounting margins" available to managers across different industries. However, this perspective is not universally supported in literature. Some evidence suggests that the relationship between sectoral activity and earnings management may be statistically insignificant due to a relatively homogeneous competitive landscape and a general scarcity of economic resources characteristic of the Algerian business environment. For instance, Huwaidi (1998) found no discernible impact of sectoral activity on income smoothing behavior, suggesting that institutional or environmental factors may overshadow sectoral differences in this specific context.

From a historical perspective, the influence of industry on smoothing was pioneered by Albrecht and Richardson (1990) and Belkaoui and Picur (1984). While their sectoral classifications (categorized as Core, Peripheral, and Central) differ from the standard Algerian classification, their findings confirmed that smoothing levels vary significantly by activity. Specifically, they noted that peripheral sectors, often characterized by

private ownership, exhibit a higher tendency to smooth income compared to state-owned central sectors.

6 CONCLUSIONS

This study provides a comprehensive cross-sectional assessment of income smoothing practices within the Algerian business environment from 2012 to 2022. By employing the Eckel (1981) index, the research highlights the nuanced interplay between institutional frameworks, ownership structures, and sectoral characteristics in shaping corporate financial reporting behavior.

The findings confirm that in the Algerian context, accounting choices are not merely technical but are strategically driven by the managerial incentives predicted by Positive Accounting Theory and the signaling needs identified by Agency Theory. The empirical evidence suggests that income smoothing is present but not pervasive in the Algerian context. This departure from international trends is likely a byproduct of the rigid, legalistic nature of the Algerian Financial Accounting System (SCF) and a corporate governance model dominated by state and family ownership, which lacks the dispersed shareholding incentives that typically drive earnings stabilization.

However, the study confirms that income smoothing is significantly influenced by specific drivers. Private enterprises demonstrate a significantly higher propensity for smoothing than public enterprises. This reflects a strategic effort to mitigate perceived volatility for investors and avoid the downward pressure on valuation that often accompanies earnings fluctuations in the private sector. Through the lens of Agency Theory, this serves as a signaling mechanism to reduce information asymmetry. Conversely, public enterprises are constrained by the rigorous oversight of the Court of Auditors and direct ministerial supervision, aligning with the Political Cost Hypothesis of Positive Accounting Theory, where high institutional visibility acts as a deterrent to discretionary interventions.

The findings contribute to the growing body of literature on emerging markets by demonstrating that the "accounting margin" for earnings management is not uniform but is contingent upon

the institutional environment. For regulators and auditors in Algeria, these results underscore the need for enhanced scrutiny within the private and agri-food sectors to ensure financial transparency. Furthermore, for investors and stakeholders, the study highlights that while SCF provides a standardized framework, the quality of reported earnings remains susceptible to managerial discretion depending on an enterprise's ownership and industry.

Significant variance exists across industries, with the agri-food sector emerging as the most prone to smoothing. This suggests that sector-specific cost structures and complexities in revenue recognition provide managers with varying degrees of "accounting flexibility" to intervene in reported results, often driven by the Bonus Plan Hypothesis as managers seek to maintain consistent performance rewards.

Several limitations should be acknowledged. First, the regression includes only ownership structure and sectoral affiliation as explanatory variables. Other determinants identified in the earnings management literature, such as firm size, leverage, profitability, growth opportunities, audit quality, board characteristics, ownership concentration, and corporate governance mechanisms, were not included and may partially explain income smoothing behavior. Second, the study focuses exclusively on Algerian non-financial firms, limiting the generalizability of the findings. Third, the Eckel index identifies smoothing behavior but does not distinguish between informative and opportunistic earnings management. Future research should incorporate additional governance and financial variables and compare alternative earnings management measures.

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Appendix: Profile of sample enterprises by ownership and sector

No	Enterprise name	Period	Net income	Ownership type	sector
1	CCLS de Skikda	2013-2020	0.33196819	Public	Agri-food
2	SPA Asmidal	2012-2021	3.81507088	Public	Energy
3	SPA Cosider	2012-2022	11.42773586	Public	Construction and Public Works
4	SPA Red Med	2012-2022	1.62498980	Public	Services
5	SPA Sider El Hadjar	2012-2022	0.21546715	Public	Manufacturing
6	EPE Cycma Spa Guelma	2012-2022	0.01003461	Public	Manufacturing
7	Société des ciments Hadjar Soud	2012-2022	0.45109524	Public	Building Materials Production
8	Raffinerie de Skikda	2013-2019	42.33544595	Public	Energy
9	Ceram Divindus El-Milia	2012-2019	1.56767061	Public	Building Materials Production
10	SPA SociétéTassili	2012-2022	2.88867852	Public	Services
11	SPA Mostavi Mostaganem	2012-2022	4.10523464	Private	Agri-food
12	Groupe Sonatrach	2012-2022	0.67593428	Public	Energy
13	SPA Tannerie de Jijel	2012-2019	2.07471243	Public	Manufacturing
14	SARL Les Moulins Amor Benamor	2012-2022	0.16765323	Private	Agri-food
15	CIC Les Moulins Meroura	2012-2022	1.53005777	Public	Agri-food
16	Entreprise Laiterie Sahllait	2012-2022	3.42787509	Private	Agri-food
17	SPA Laiterie Soummam	2012-2022	31.40511368	Private	Agri-food
18	SARL Laiterie Haroun	2012-2022	0.01144773	Private	Agri-food
19	SPA Société des ciments de Sour el Ghazlane	2012-2022	1.72686265	Public	Building Materials Production
20	EPE Jijel Liège Etanchéité SPA	2012-2022	0.41513370	Public	Manufacturing
21	Groupe Getex	2013-2019	0.96157299	Public	Manufacturing
22	Entreprise Portuaire de Jijel	2012-2022	1.37344231	Public	Services
23	EntreprisePortuaire de Skikda	2012-2022	2.58357073	Public	Services
24	EntreprisePortuaire de Mostaganem	2012-2022	0.68947810	Public	Services
25	CCLS de Guelma	2013-2021	0.87609343	Public	Agri-food
26	Enamarbeur- Unité Guelma	2014-2022	0.10473914	Public	Building Materials Production
27	Biopharm SPA	2012-2022	0.85353595	Public	Pharmaceutical
28	EPE de travaux de Terrassements	2012-2022	3.93947290	Public	Construction and Public Works
29	Saidal SPA	2012-2022	1.04809351	Public	Pharmaceutical
30	EL Aurassi	2012-2022	0.96768653	Public	Services
31	NCA-Rouiba	2012-2019	0.50019026	Private	Agri-food
32	SNC Frères Boukabou	2012-2022	2.58827737	Private	Agri-food
33	SARL Bordjiba	2012-2022	0.44891247	Private	Building Materials Production
34	Société Algérienne de production de l'électricité	2013-2020	2.35977700	Public	Energy
35	Group GPT	2012-2022	1.94677314	Public	Energy
36	SPA des ciments de Tebessa	2012-2021	4.77600389	Public	Building Materials Production

No	Enterprise name	Period	Net income	Ownership type	sector
37	EPE-ETRS Souk Ahras	2012-2021	3.85040294	Public	Construction and Public Works
38	SPA Ferme Samai Mohamed	2014-2022	0.47080258	Private	Agri-food
39	CIC Moulins Sidi Rghiss	2012-2020	2.44012224	Public	Agri-food
40	SPA Africaver	2012-2022	0.04954606	Public	Manufacturing
41	SPA Bayat Catering	2012-2022	1.23016647	Private	Services
42	EntreprisePortuaireBejaia	2012-2022	0.51509765	Public	Services
43	SPA SNGCB	2012-2019	1.98230258	Public	Construction and Public Works
44	SPA Cevital Bejaia	2012-2022	0.17415146	Private	Agri-food
45	SPA Inerga	2012-2019	2.66412110	Public	Construction and Public Works
46	SARL Sodagri Matériels Agricoles Mostaganem	2012-2020	2.10646216	Private	Agri-food
47	EPE Altro SPA	2012-2022	0.83034403	Public	Construction and Public Works
48	SPA Hyproc Shipping	2012-2022	1.83230115	Public	Services
49	Groupe Smide El-Harrouch	2012-2019	0.70833877	Public	Agri-food
50	SPA Laiterie Arib	2012-2022	5.23985787	Private	Agri-food
51	SONARIC	2012-2022	0.64397661	Public	Manufacturing
52	Groupe ERIAD Sétif Unité Msila	2012-2019	1.21196358	Public	Agri-food
53	SARL Conserverie Alimentaire Amor Benamor	2012-2022	3.33502895	Private	Agri-food
54	SCS Skikda Containers services	2012-2022	1.36727812	Public	Services
55	SNC Ayachi Said	2012-2022	2.45204512	Private	Building Materials Production
56	UPCF Consolide	2012-2018	1.07436893	Private	Agri-food
57	SARL Gamma Meubles	2012-2022	0.27535867	Private	Manufacturing
58	SARL Esselsabils Des Eaux Minerales Bouglez	2012-2022	0.43285627	Private	Agri-food
59	SPA Guedila Des Eaux Minerales	2012-2022	7.10409090	Private	Agri-food
60	Complexe Avicole Lzs Hauts Plateaux Setif	2012-2022	2.63431283	Public	Agri-food
61	EntreprisePortuaire de Annaba	2012-2022	90.77700079	Public	Services
62	SARL Moulins Ezibane	2012-2022	7.89390306	Private	Agri-food
63	Laiterie de Edough Annaba	2012-2022	8.80274695	Private	Agri-food
64	EURL Boudakhana Travaux routiers	2012-2022	0.28456272	Private	Construction and Public Works
65	Entreprise des Ciments et derives de Chelef	2012-2022	2.57032316	Private	Building Materials Production
66	SPA Entreprise des Boutilles à Gaz	2012-2022	1.30538419	Public	Manufacturing
67	EURL Thevest Pharm	2012-2022	0.35184903	Private	Pharmaceutical
68	EPE SPA Somatel	2012-2022	1.30015981	Private	Services
69	Entreprise Portuaire de Alger	2012-2021	2.97625220	Public	Services
70	Entreprise Portuaire de Tenes	2012-2022	0.42671346	Public	Services
71	SPA Union Pharmaceutique	2012-2022	0.79973363	Private	Pharmaceutical
72	SARL HUPP Pharma	2012-2021	1.70225998	Private	Pharmaceutical