

	<p>Science, Education and Innovations in the Context of Modern Problems</p> <p>Issue 11, Vol. 8, 2025</p>
	<p>Title of research article</p>
	<p>Exploring the Contribution of Small and Medium Enterprises to Non-Oil Exports in Algeria: A Regression Analysis Approach</p>
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<p>Issue web link</p>	<p>https://imcra-az.org/archive/385-science-education-and-innovations-in-the-context-of-modern-problems-issue-11-vol-8-2025.html</p>
<p>Keywords</p>	<p>Algeria, SMEs, non-oil exports, trade diversification, regression analysis, export performance, hydrocarbon dependency.</p>
<p>Abstract</p> <p>The Small and Medium Enterprises in Algeria and their contribution to the country's non-oil exports is the major focus of this study from 2000 to 2023 by means of descriptive trade analysis and a log-linear regression model. Data were based on official sources provided by the Central Bank of Algeria in order to calculate trade balance trends, analyze export composition, and evaluate the percentage of non-hydrocarbon exports before estimating the effect of SME growth on export performance. The results show that SMEs have a positive and statistically significant impact, with 47.5% being the share of explained variation of non-oil exports. However, export growth has remained more volatile than SME growth, showing the existence of structural constrictions and dependence on external market conditions. The findings stress that enhancing SME competitiveness and innovativeness and integrating them into global value chains through policy intervention is pertinent so that the diversification of exports away from hydrocarbon dependency is actually realized.</p>	
<p>Citation. Kaci Y., Boluesnam M. (2025). Exploring the Contribution of Small and Medium Enterprises to Non-Oil Exports in Algeria: A Regression Analysis Approach. <i>Science, Education and Innovations in the Context of Modern Problems</i>, 8(11), 744-757. https://doi.org/10.56352/sci/8.11.58</p>	
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<p>Received: 09.01.2025</p>	<p>Accepted: 22.03.2025</p>
<p>Published: 14.05.2025 (available online)</p>	

Introduction

Due to their importance in promoting innovation in the economy, creating jobs, and developing inclusive growth, small and medium-sized enterprises (SMEs) are today the nucleus of any country's economic development strategy. SMEs are a majority source of enterprises all over the world, and it is widely accepted that they represent significant engines of productivity and competitiveness, particularly in emerging and developing economies. They

ensure export diversification and, therefore, lower the exposure of economies to fluctuations in commodity prices—the challenge many countries face due to their resource dependency.

Over the last couple of decades, there has been growing interest among scholars and policy-makers on the relationship between SMEs and export growth. The sparse empirical evidence collected over the years from various parts of the world shows that SMEs can enhance their export performance significantly when accompanied by other factors such as adequate access to finance, trade facilitation measures, and incentives for innovation. Nevertheless, SMEs continue to be excluded from global trade mainly because of structural and institutional constraints ranging from regulatory burden, high transaction costs, and lack of knowledge of international markets.

For hydrocarbon-dependent economies like Algeria, exporting beyond oil and gas is not merely an aspirational objective but a necessity in the strategic sense. Hydrocarbons constitute a proportionately overwhelming share of the revenue earned from exports by Algeria, exposing the country to a heavy dependence on international fluctuations of energy prices. In 2009 and 2014–2015, periods of instability in the oil market highlighted the structural fragility of this dependency, usually leading to trade deficits and fiscal imbalances. Non-oil exports have become a priority of policy in that context, and SMEs are ostensibly the possible engines of such diversification.

Although Algeria has witnessed steady growth in the number of SMEs over the past two decades, it remains unclear whether this expansion has translated into substantial gains in non-hydrocarbon exports. While policy discourse consistently highlights SMEs as key actors in promoting export diversification, empirical research that quantifies their impact on non-oil export performance in the Algerian context is scarce. Most existing studies focus on broader SME economic contributions or rely on cross-country comparisons, leaving a gap in country-specific, regression-based analyses. The volatility observed in Algeria's non-oil export performance, contrasted with the relatively stable growth of SMEs, raises important questions about the strength and consistency of the relationship between the two, questions that this study addresses by applying a regression analysis approach to national time-series data covering the period 2000–2023.

Literature Review

Small and Medium Enterprises (SMEs) are widely acknowledged as engines of economic growth, job creation, and innovation across both developed and developing economies. Globally, they account for over 90% of firms, employ more than half of the global workforce, and contribute substantially to GDP (Morales Pedraza, 2021; Vulić, 2021; Koguashvili & Koridze, 2022). Their participation in international trade, although proportionally lower than that of large enterprises, has been increasingly recognized as a driver of export diversification and competitiveness (Savlovski & Robu, 2011; Lopez Gonzalez & Sorescu, 2019). For instance, WTO (2021) estimates that SMEs represent 33% of exports in developed countries but only 18% in developing ones, reflecting structural and institutional disparities.

In advanced economies, several studies provide insights into the export potential of SMEs. Batrancea (2022) finds that online and extra-EU trade significantly influence SME-driven growth in the European Union, while Petrunenko et al. (2022) demonstrate a strong correlation between SME turnover and GDP in Eastern Europe. Małacka (2017) emphasizes that EU-based SMEs benefit from state support, long-term cooperation opportunities, and product demand in foreign markets, factors that enhance their stability in international trade. In the UK, Gkypali, Love, and Roper (2021) identify both “learning-to-export” and “learning-by-exporting” effects, highlighting the role of innovation in building export capability. Similarly, Wilkinson and Brouthers (2006) show that targeted export promotion, such as trade shows and agent identification, can improve SME satisfaction with export performance.

In developing and emerging economies, research presents a more complex picture. Lê (2022) reports that Vietnamese SMEs benefit from sustained export participation, although the study does not distinguish between oil and non-oil exports. In China, Zhang and Xia (2014) highlight the dominant role of SMEs, 98% of industrial enterprises, in GDP and employment generation, while stressing their contribution to absorbing labor market entrants. In Nigeria, Oluremi and Maku (2024) find that SME trade, bank loans, and labor force participation positively affect economic growth, though patent applications show a negative relationship. In Jordan, Abuhatab (2023) observes that despite supportive policies, MSMEs have had an insignificant impact on GDP per capita growth, due to persistent structural barriers.

Some studies directly address SME contributions to non-oil exports. Qobuljon (2024) argues that SMEs enhance export diversity by targeting niche markets and integrating into global value chains, but require government support to overcome regulatory and financial constraints. Similar findings emerge in Egypt, where El-Said, Al-Said, and Zaki (2015) show that bank access boosts both the likelihood and diversification of SME exports. In Asia, Jinjarak, Mutuc, and Wignaraja (2016) find that financial access is critical for SME internationalization, while Duval and Utoktham (2014) identify customs efficiency, quality certification, and trade finance as key enablers for participation in production networks.

Beyond macro-level impacts, micro-level determinants are equally significant. Safari and Saleh (2020) apply a resource-based view to show that innovation, networks, and managerial readiness are central to export success. Revindo, Gan, and Hambali (2024) stress the importance of post-export support to sustain growth, while Khattak et al. (2011) and Stouraitis et al. (2017) reveal that internal managerial barriers, such as lack of export knowledge, are often more constraining than external factors. Juminawati et al. (2021) further highlight the role of SMEs in boosting regional economies by creating business opportunities and introducing innovative products.

From a methodological standpoint, regression-based analyses provide quantifiable evidence of SME impacts. Piratheesan (2019) shows that SMEs account for 62% of regional development in Sri Lanka, suggesting potential for export-led growth. Akighir and Joseph (2019) find that non-oil exports positively influence GDP in selected African countries, although the effect is statistically insignificant when SMEs are not isolated. Muthuraman (2020) conceptualizes SMEs as pivotal to integrating local industries into global supply chains, thus enhancing export potential.

Several reviews consolidate the current knowledge base. Calheiros-Lobo et al. (2023) identify gaps in longitudinal research, theory integration, and niche market strategies. WTO (2021) and Savlovski & Robu (2011) emphasize the need for better data collection and policy alignment to boost SME competitiveness. Together, these studies point to finance, innovation capacity, trade facilitation, and institutional support as recurring themes in SME export performance.

Despite this breadth of research, the literature on SMEs and non-oil exports remains fragmented, particularly in the Algerian or North African context. Most studies are either cross-country or sector-specific, limiting their direct applicability to Algeria. The present study addresses this gap by adopting a country-specific approach using official Algerian trade and SME data over a 21-year period. By combining descriptive trade analysis with regression techniques, it seeks to quantify SMEs' contribution to non-oil exports, offering both empirical evidence and policy-relevant insights.

Methods and Tools

This study adopts a quantitative research design to examine the contribution of Small and Medium-sized Enterprises (SMEs) to Algeria's non-oil exports over the period 2002–2023. The methodological process follows a sequential approach, beginning with descriptive trade analysis and culminating in econometric modeling to quantify the relationship between SMEs and non-oil export performance.

All statistical data were obtained from the official publications of the Central Bank of Algeria, ensuring both accuracy and national relevance. The analysis begins with an assessment of Algeria's trade balance dynamics. Exports and imports are reported annually to calculate the trade coverage ratio, defined as total exports to total imports, and this is an important indicator upon which the country can find the ability to finance imports with export revenues. This indicator gives some insight into structural imbalances of trade as well as the sustainability of external accounts.

The second step is to break Algeria's structure of exports into hydrocarbon and non-hydrocarbon components. This way, the annual share of non-oil exports in total exports will be calculated, thus allowing an evaluation of the extent of diversification on exports and reduction of dependence on hydrocarbon revenues. The trend of non-oil exports from 2002 to 2023 is explored in detail, with specific attention being paid to the effects from the fluctuations of the oil market and economic policy reforms.

On the econometric phase, the study uses a log-linear regression model to analyze the impact of SMEs on non-oil exports. The dependent variable is the natural logarithm of non-oil exports (in billion USD), while the independent variable is the natural logarithm of the number of SMEs. This functional form is selected to stabilize the variance, provide elasticity interpretations, and describe proportionality relations. The model is estimated using the Ordinary Least Squares (OLS) method with the validation of models being tested through normal diagnostic statistics like R-square, adjusted R-square, t-tests, p-values, etc.

Data processing, visualization, and statistical estimations were performed using Microsoft Excel and SPSS software. Both of these applications enable time series management, regression computations, and the generation of graphical outputs for aiding the interpretation of the empirical results.

Trade Dynamics and the SME Contribution to Non-Hydrocarbon Exports in Algeria (2000–2023)

Here are three closely interlinked areas of analysis being presented. First is an analysis of the trade balances of Algeria from 2000 up to 2023, highlighting major fluctuations and the relevant economic factors behind them. The second area is focusing on non-hydrocarbon export performance in the same period with an assessment of their importance in national economic diversification. An empirical assessment of SME contributions to the development and expansion of these exports from 2002 to 2023 is the third subject matter being discussed. All these analyses give a wholesome view of Algeria's trade, diversification initiatives, and SMEs' strategic involvement in the country's export-formation landscape.

1. The Algerian Trade Balance: Trends and Developments (2000–2023)

As far as Section One is concerned, it will focus much on the analysis of changes in Algeria's trade balances over the period of study, looking at important trends, transformations, and determinants. This will also study the changes in global energy prices, the changes in import-export volumes, and impact trade policies on how they affect the balance of payments. That path eventually renders an account of how structured these elements are. Therefore, that would illuminate the defining characteristics of Algeria's external trade as well as its sensitivity to outside economic shocks at some earlier stage.

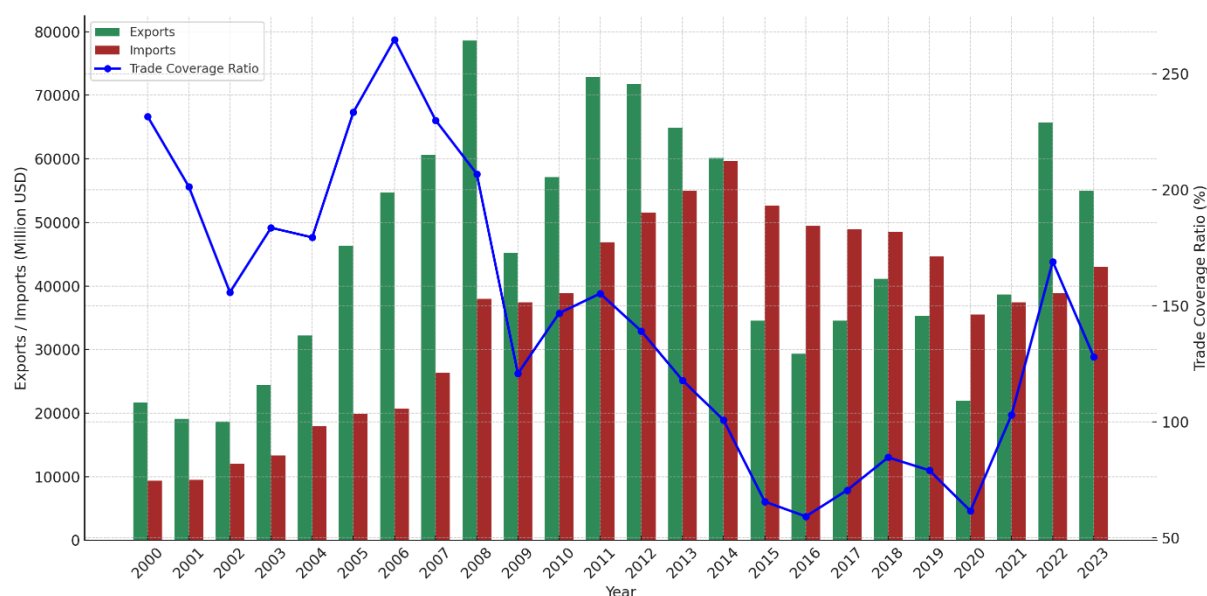
Table 01. Algeria's Balance of Trade Trends (2000–2023)

Years	Exports Billion USD	Imports Billion USD	Balance of Trade Billion USD	Trade Coverage Ratio
2000	21.65	9.35	12.3	231.55
2001	19.09	9.48	9.61	201.37
2002	18.71	12.01	6.70	155.84
2003	24.46	13.32	11.14	183.64

2004	32.22	17.95	14.27	179.49
2005	46.33	19.85	26.48	233.40
2006	54.74	20.68	34.06	264.70
2007	60.59	26.35	34.24	229.94
2008	78.58	37.99	40.59	206.85
2009	45.18	37.40	7.78	120.81
2010	57.09	38.88	18.20	146.81
2011	72.88	46.92	25.96	155.32
2012	71.73	51.56	20.16	139.10
2013	64.86	54.98	9.87	117.96
2014	60.12	59.67	0.45	100.76
2015	34.56	52.64	-18.083	65.65
2016	29.30	49.43	-20.12	59.28
2017	34.56	48.98	-14.41	70.57
2018	41.14	48.57	-7.42	84.71
2019	35.32	44.63	-9.30	79.14
2020	21.93	35.54	-13.61	61.69
2021	38.63	37.46	1.17	103.12
2022	65.71	38.86	26.84	169.07
2023	54.98	42.96	12.01	127.97

Source: Statistics of the Bank of Algeria 2000–2023

Figure 01. Evolution of Algeria's Balance of Trade, 2000–2023



Source: Statistics of the Bank of Algeria 2000–2023

Between 2000 and 2008, Algeria had a favorable trade surplus during those years, enjoying the high trade coverage ratios of exports against imports. Exports were higher than imports every year, with coverage exceeding 175% and going all the way to an overwhelming 264.7% in 2006. High demand from international markets and substantial oil prices were the predominant factors for Algeria's performance, which is mainly

dominated in export structure by hydrocarbons. Meanwhile, imports have been growing but the earnings from exports were large enough to protect the external accounts.

In 2009 with the global financial crisis: a more volatile phase for Algeria was beginning. In that year, stark declines in exports diminished trade coverage to 120.81% while the surplus itself, which amounted to an insignificant 7.78 billion USD, was brought closer to the red zone. Although exports were recovering until about 2012, volatility was at play. Come 2014, the almost-balanced trade account was only 0.45 billion USD in surplus, with a coverage ratio of 100.76%, indicating vulnerability to oil market external shocks.

Between 2015 and 2020, Algeria faced persistent trade deficits, coinciding with the oil price collapse of 2014–2015. The trade coverage ratio fell significantly, hitting a low of 59.28% in 2016. Throughout this period, imports consistently exceeded exports, despite government efforts to control import volumes. The largest deficit occurred in 2016 at -20.12 billion USD, highlighting the structural dependence on hydrocarbon revenues and the limited diversification of exports.

The period from 2021 to 2023 brought a noticeable recovery. In 2021, the country recorded a slight surplus of USD 1.17 billion, with a coverage ratio slightly over 100%. This recovery continued intensively into 2022, with exports reaching USD 65.71 billion and coverage attaining 169.07%, buoyed by recovering energy prices and stronger export volumes. In 2023, the performance moderated, with exports at USD 54.98 billion and a coverage ratio of 127.97%, while the trade surplus was very healthy at USD 12.01 billion.

Overall, Algeria's trade performance over these two decades shows a clear dependence on hydrocarbons, with export revenues and trade balances closely linked to global oil and gas prices. Coverage ratios have been volatile, reflecting exposure to external shocks. The deficits of 2015–2020 stress the risks of this dependence and the urgency to diversify exports. The resilience shown in the recovery from 2021 onward is, however, conditional on the existence of favorable circumstances; continued and stable performance will need some structural reform to enhance and diversify the export base.

2. Non-Hydrocarbon Exports in Algeria: An Overview (2000–2023)

The current section will focus on the trends of Algeria's export of non-hydrocarbon products within the time frame 2000 to 2023; growth patterns, sectoral composition, and contributions to the national economy are highlighted. It brings to focus government interventions to promote export diversification, the competition from the global market, and structural barriers to competitiveness. The main purpose of the discussion is to examine the above-mentioned elements and present a discussion on the progress and challenges in reducing Algeria's reliance on hydrocarbon revenues.

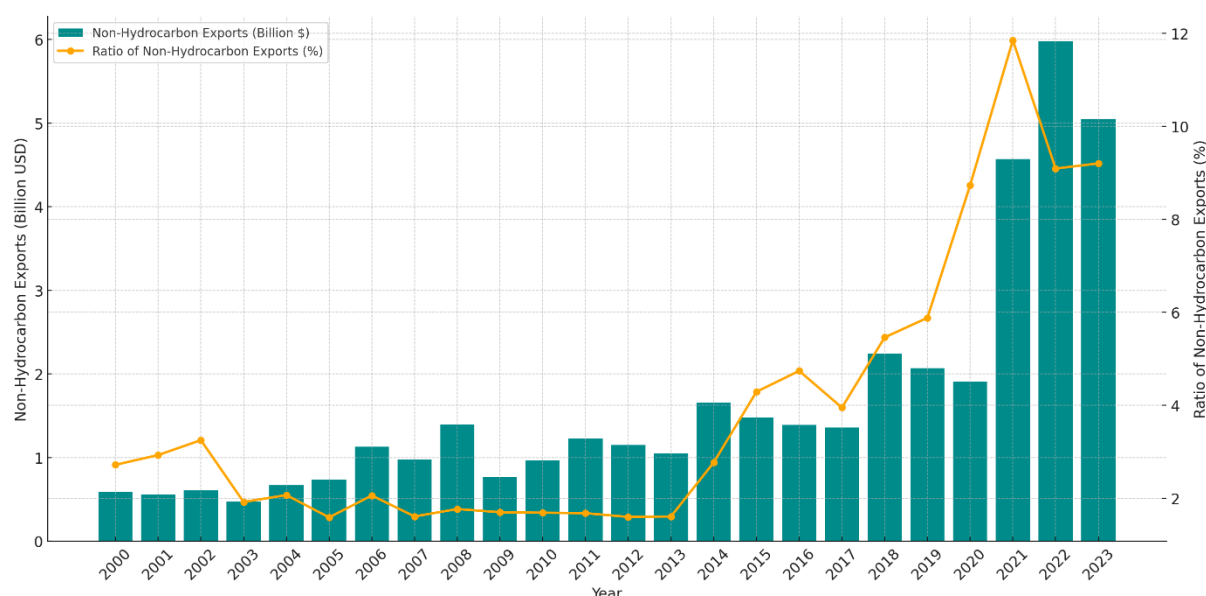
Table 02. Non- Hydrocarbon Exports in Algeria During the period 2000-2023

Year	Non-Hydrocarbon Exports Billion USD	Ratio of Non-Hydrocarbon Exports
2000	0.59	2.72
2001	0.56	2.93
2002	0.61	3.25
2003	0.472	1.92
2004	0.67	2.07
2005	0.74	1.59
2006	1.13	2.06
2007	0.98	1.61
2008	1.395	1.77

2009	0.771	1.70
2010	0.969	1.69
2011	1.227	1.68
2012	1.153	1.60
2013	1.05	1.61
2014	1.66	2.77
2015	1.48	4.29
2016	1.39	4.74
2017	1.36	3.95
2018	2.24	5.46
2019	2.07	5.88
2020	1.91	8.73
2021	4.57	11.85
2022	5.98	9.09
2023	5.05	9.20

Source: Statistics of the Bank of Algeria 2000–2023

Figure 02. Non-Hydrocarbon Exports Values and Ratios 2000-2023



Source: Statistics of the Bank of Algeria 2000–2023

From 2000 to 2008, Algeria's non-hydrocarbon exports remained relatively low in value, ranging from 0.472 to 1.395 billion USD. The ratio of non-hydrocarbon exports to total exports was also modest, fluctuating mostly between 1.59% and 3.25%. This period reflects a highly resource-dependent export structure, where hydrocarbons dominated, and non-hydrocarbon sectors contributed only marginally to external trade. Slight improvements in export value were seen in 2006 and 2008, but the overall share of these exports remained limited.

Between 2009 and 2014, non-hydrocarbon exports experienced small variations in value, staying below 2 billion USD annually, with the ratio hovering close to 1.6–1.7% except for a notable rise to 2.77% in 2014. The lack of strong growth during this period suggests limited diversification efforts and the persistence of structural constraints in expanding non-hydrocarbon export markets.

From 2015 to 2020, the sector showed more promising dynamics. While export values still ranged between 1.39 and 2.24 billion USD, the ratio to total exports increased markedly, rising from 4.29% in 2015 to 8.73% in 2020. This shift was less the result of a large surge in non-hydrocarbon exports and more a reflection of declining hydrocarbon export revenues due to lower global oil prices, which made the non-hydrocarbon share relatively larger.

The period from 2021 to 2023 marked a significant impetus in non-hydrocarbon exports, with the values exceeding 4 billion USD in 2021 and recording a peak of around 6 billion USD in 2022. The ratio also recorded unprecedented levels, peaking at 11.85% in 2021 before easing to around 9% in 2023. The increase is suspected to mirror targeted measures for diversification along with improved competitiveness in specific sectors of export and good international market conditions.

Generally speaking, the data reveal a long-term upward trend in both the absolute values and share of non-hydrocarbon exports in Algeria's trade structure. However, growth has been bumpy, with substantial strides being made only recently. While this advancement is a welcome turn of events, further efforts are needed to sustain growth in high-value non-hydrocarbon industries, achieve better access for exports, and wean the country away from its heavy reliance on hydrocarbons.

3. Assessing the Impact of Small and Medium Enterprises on Non-Hydrocarbon Exports in Algeria (2002-2023)

This part focuses on the contributions made by small and medium-sized enterprises (SMEs) to the enhancement of Algeria's non-hydrocarbon export performance during the years from 2002 to 2023. SMEs are instrumental in product diversification, innovation, and the attainment of niche international markets. This section will also investigate the favorable or unfriendly institutional and policy frameworks concerning SMEs. This analysis pinpoints both potential and limitations on SMEs for export growth while articulating their strategic importance for sustainable economic diversification.

Table 03. Non-Hydrocarbon Exports and Number of SMEs in Algeria, 2002-2023

Year	Non-Hydrocarbon Exports Billion USD	Number of SMEs
2002	0.61	261853
2003	0.472	288577
2004	0.67	312959
2005	0.74	342788
2006	1.13	376767
2007	0.98	410959
2008	1.395	519526
2009	0.771	570838
2010	0.969	616072
2011	1.227	659336
2012	1.153	711836
2013	1.05	748481
2014	1.66	820738
2015	1.48	896811
2016	1.39	1014075
2017	1.36	1060289
2018	2.24	1093170

2019	2.07	1171945
2020	1.91	1209491
2021	4.57	1267220
2022	5.98	1300115
2023	5.05	1320664

Source: Statistics of the Bank of Algeria 2002-2023

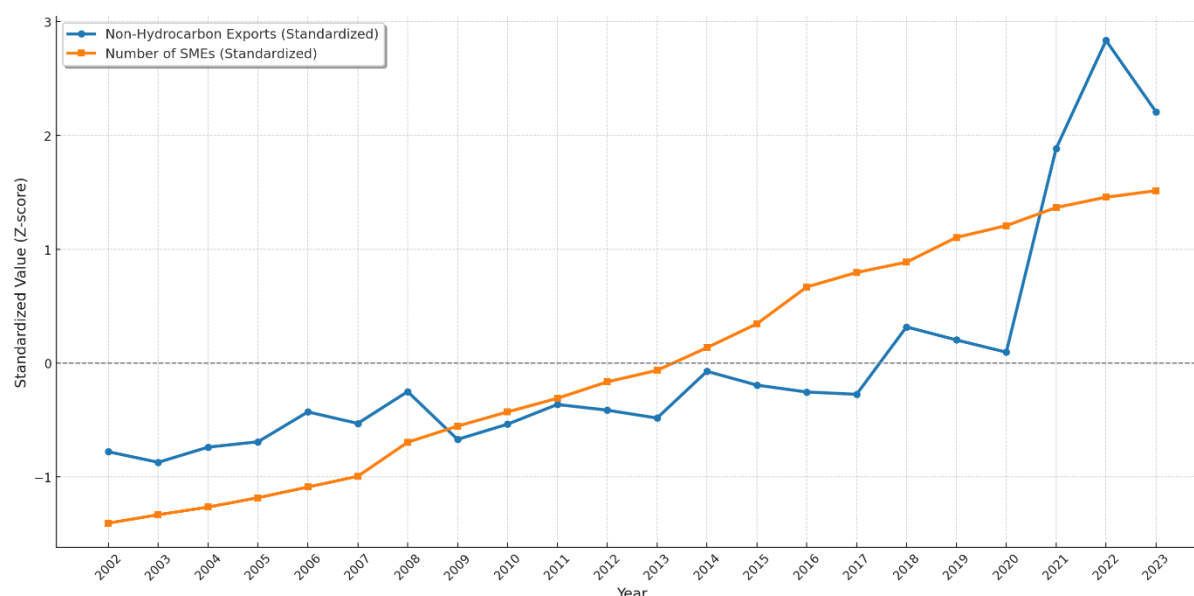
Between 2002 and 2023, Algeria witnessed a steady and significant growth in small and medium enterprises (SMEs), indicating the important role played by this sector within the national economy. The estimated number of SMEs was around 261,853 in 2002, growing steadily until overtaking one million in 2016 and further expanding to 1,320,664 by 2023. The annual growth rates fluctuated: upsurges were recorded in some years, including 2008 at 26.4% and sustained expansions from 2014-2019 which coincided with government programs aimed at the promotion of entrepreneurship and industrial diversification. Even during periods of economic slowdown, the SME sector maintained positive growth, indicating resilience and an expanding entrepreneurial base. This upward trend underscores the sector's potential as a key driver of non-hydrocarbon economic activity and export development in Algeria.

Temporal Analysis Using Normalized Trends

Figure 03 presents the standardized values of non-hydrocarbon exports and the number of SMEs in Algeria over the period 2002-2023. Standardization allows for a direct comparison between the two variables, highlighting their relative changes and potential correlations over time. This visual representation facilitates the identification of parallel trends, divergences, and periods of accelerated growth, offering a clearer understanding of the relationship between SME expansion and export performance.

Figure 03. standardized value of Non-Hydrocarbon Exports and SMEs Number in Algeria During 2002-2023

Source: Created by the authors using Python (Matplotlib), based on normalized data from 2002-2023.



From 2002 to 2008, both non-hydrocarbon exports and the number of SMEs were generally below their historical averages when standardized. The number of SMEs showed a consistent upward climb, reflecting gradual

expansion of the sector. In contrast, exports fluctuated more sharply, with noticeable dips in 2003 and again in 2009, illustrating the vulnerability of export performance to external market conditions.

Between 2009 and 2015, SME growth continued steadily, surpassing the historical mean and maintaining a stable positive trend. Non-hydrocarbon exports, however, experienced mixed performance, recovering somewhat after 2009 but remaining relatively close to their long-term average. This period indicates that, while the SME base was expanding, it did not always translate into proportional gains in export performance.

SMEs have historically crossed their average from 2016 to 2023, signifying the support for the sector on a policy and investment basis. The non-hydrocarbon exports had tremendous growth during 2021 and 2022, far exceeding their long-term averages. This export performance indicates some exceptional export performance due to potential reasons of dynamic international demand, improved trade facilitation, or through targeted diversification policies. However, such export growth was, in fact, not only far more volatile than the growth of SMEs, which stresses the fact that growth in SMEs does not automatically translate into corresponding consistent growth in exports.

From a comparison perspective, the analysis indicates that SME growth is smooth and stable, while non-hydrocarbon export growth is said to have a high level of volatility and high sensitivity to external factors. During periods of time, both series developed in the same general upward direction, but short-term movements did not always align, thereby indicating the breadth of external market forces that act beyond the narrow definition of SME growth.

Regression Analysis

A regression analysis was carried out using logarithmic transformation for the SME variable to assess the relationship between SMEs and Algeria's non-hydrocarbon exports. The statistical analysis here tries to explain to which extent the variations in SME numbers caused changes in performance on exports in the study period. The results, summarized in the following table, provide key indicators offering insights into the strength and significance of the relationship.

Table 04. Regression Results

Statistical Test	Result
R square	0,475
R square Adjusted	0,44
Constant	-23,936
Log (Number of SMEs) Coefficient	1,9137
P value	0,00038

Source: Prepared by the authors based on SPSS output.

The logarithmic regression model suggests a positive and statistically significant relationship between the number of SMEs and non-hydrocarbon exports in Algeria from 2002 to 2023. The R-squared value of 0.475 means that about 47.5% of the variation in non-hydrocarbon exports is explained by the logarithm of the number of SMEs. The positive coefficient (1.9137) indicates that as the number of SMEs increases, exports also increase — but the logarithmic nature means the growth rate of exports slows as SME numbers get very large. This supports the idea that while expanding the SME sector boosts export performance, the marginal impact decreases at higher SME counts.

Results and Discussion

The evolution of Algeria's trade balance from 2000 to 2023 reflects both the opportunities and structural vulnerabilities identified in the literature on SME and export development.

From 2000 to 2008, Algeria's trade surpluses were large and sustained, with trade coverage ratios above 175% and a peak of 264.7% in 2006. This period mirrors the hydrocarbon dependency pattern highlighted by Akighir and Joseph (2019), where non-oil exports contribute only marginally to overall trade performance despite their potential economic benefits. Non-hydrocarbon exports remained low in value and share, indicating limited integration of SMEs into international markets, consistent with Christensen's (1991) observation that structural constraints hinder SME internationalization in resource-dependent economies.

The period from 2009 to 2014 was characterized by volatility following the global financial crisis, with export revenues diminishing severely in 2009 and the trade balance nearly reaching equilibrium by 2014. This trend corroborates Khattak et al.'s (2011) and Stouraitis et al.'s (2017) findings that SMEs in developing economies are especially vulnerable to external shocks, often owing to limited export readiness and internal capacity constraints. Although SMEs gradually emerged during this phase, the development of non-hydrocarbon exports remained quite modest, indicating the need for stronger institutional support, as emphasized by Lopez Gonzalez and Sorescu (2019) and Duval and Utoktham (2014).

Between 2015 and 2020, the freefall of oil prices saw persistent trade deficits with trade coverage ratios falling to as low as 59.28% in 2016. In line with Qobuljon's (2024) argument, targeted government support is essential for enabling SMEs to offset hydrocarbon revenue losses via export diversification. The aforementioned Hoivicky impacts since he cites mixed accounts in terms of SMEs and oil prices. Although SME numbers increased substantially during this period, the limited rise in non-hydrocarbon exports suggests that SME expansion alone is insufficient without complementary measures such as access to finance (Jinjarak, Mutuc, & Wignaraja, 2016; El-Said, Al-Said, & Zaki, 2015) and improved trade facilitation.

The 2021–2023 period illustrates the potential for SMEs to contribute to export diversification when external conditions and policy align. Non-hydrocarbon exports rose sharply in 2021 and 2022, reaching unprecedented levels both in value and as a share of total exports. This mirrors the “learning-by-exporting” effect described by Gkypali, Love, and Roper (2021), where sustained participation in export markets can enhance SME capabilities and competitiveness. It also resonates with the findings of Revindo, Gan, and Hambali (2024) that government assistance, combined with firm-level characteristics such as scale and experience, boosts export intensity.

The standardized (Z-score) comparison of SME numbers and non-hydrocarbon exports underscores the stability of SME growth versus the volatility of export performance, an asymmetry that aligns with Safari and Saleh's (2020) resource-based view, which stresses that capabilities, innovation, and market linkages mediate the SME–export relationship.

The econometric results further confirm the literature's position on SMEs as important drivers of export diversification. The positive and statistically significant coefficient in the log-linear regression supports Petrunenko et al. (2022) and Piratheesan (2019), who found that SME expansion correlates with broader economic growth and export potential. However, the diminishing marginal returns implied by the logarithmic model suggest that policy focus should shift from purely increasing SME numbers to enhancing their productivity, market access, and export readiness.

Overall, the findings reinforce the consensus in the literature that SMEs can make a substantial contribution to non-oil export growth in developing economies. However, as the Algerian case shows, this contribution is contingent upon enabling conditions such as financial access, trade facilitation, innovation capacity, and policy alignment, factors consistently emphasized across empirical studies in both African and Asian contexts.

Conclusion

The present study set out to examine the contribution of Small and Medium-sized Enterprises (SMEs) to Algeria's non-oil exports over the period 2000–2023, using a combination of descriptive trade analysis and econometric modeling. The results provide empirical evidence of a positive and statistically significant relationship between SME development and non-hydrocarbon export performance, confirming much of the theoretical and empirical literature that positions SMEs as key agents of export diversification and economic resilience. The analysis further reveals that while SME growth in Algeria has been steady and sustained, its translation into export gains has been less consistent, with significant surges occurring only when favorable external market conditions and supportive policies coincided.

With these findings, the case made by Qobuljon (2024), Revindo, Gan, and Hambali (2024), and Safari and Saleh (2020) that export growth spearheaded by SME is not automatic; rather, it is contingent upon such factors as access to finance, trade facilitation, innovation capacity, and institutional support becomes more convincing. The fluctuations of Algeria's non-oil exports relative to the constant growth of SMEs indicate that internal and international barriers continue to restrict the achievement of this sector's complete export range. Hence, policy measures need to extend beyond the increasing number of SMEs to focusing on building their competitiveness, promoting sectoral specialization, and integrating them into global value chains.

This particular study brings to bear not only its merits but several limitations as well. First, it relied on aggregate national data that fails to account for performance variations across industries, regions, or by firm size within the SME sector. Second, it based its analysis on the presence or absence of the correlation between SMEs and export values, failing to capture qualitative aspects such as innovation levels, market diversification, or technological sophistication. Thirdly, this study has not fully controlled for macroeconomic variables such as exchange rates, trade policy changes, or global demand shocks that might simultaneously affect SME growth and export performance. These caveats mean the estimated relationship must be interpreted more as indicative than definitive and warrants deeper investigation.

Future research could address these limitations by incorporating firm-level or sector-specific data to capture heterogeneity in SME export performance. Employing panel data methods could allow for a more nuanced understanding of how SME characteristics, such as size, age, ownership structure, and innovation capacity, interact with export outcomes over time. Moreover, comparative studies with other hydrocarbon-dependent economies could help contextualize Algeria's experience within broader structural and policy frameworks. Finally, future work could integrate macroeconomic and institutional variables into the regression framework to assess how the enabling environment mediates the SME–export nexus.

In conclusion, the Algerian case illustrates both the potential and the challenges of leveraging SMEs for export diversification. While SMEs can play a transformative role in reducing hydrocarbon dependency, realizing this potential requires a targeted policy mix that addresses structural bottlenecks, fosters competitive capabilities, and sustains market access in an increasingly volatile global trade environment.

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