

The Impact of Logistic Processes on the Internationalization of SMEs: A Case Study of Algerian SMEs

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Summary: Logistics encompasses a comprehensive range of processes and services designed to deliver products to consumers. When consumers are situated beyond the geographical confines of a country, it involves international logistic services, signifying the company's engagement in economic activities at the global level. This study endeavors to assess the influence of logistic operations on the internationalization of small and medium-sized enterprises (SMEs) in Algeria. The methodology involved a survey conducted among 108 Algerian SMEs actively engaged in international activities. Data analysis was carried out utilizing the SPSS 26 program. The findings affirm that logistic services wield a positive and noteworthy impact on the internationalization endeavors of Algerian SMEs.

Keywords: Logistics; supply chain; internationalization; Algerian SMEs.

Jel Classification Codes : R41; M11; F23; L25.

I- Introduction :

In a world characterized by increasing interconnectedness and unprecedented global competition, the internationalization of small and medium-sized enterprises (SMEs) holds undeniable strategic importance (Hakou, 2023). Indeed, facing the rapid evolution of global markets and the advent of new technologies, Algerian SMEs find themselves in a context of unprecedented opportunities and challenges for their expansion on an international scale (Harbaji, 2023).

The global economy is now marked by incessant cross-border exchanges, and Algeria, as an emerging market, provides a conducive ground for studying this dynamic. Despite the economic and geopolitical constraints the country may face, Algerian SMEs show a growing interest in international markets (Mami, 2022), seeking to diversify their sources of income and seize new business opportunities (Rahmani, 2017).

According to the data from the Organization for Economic Cooperation and Development (OECD), SMEs represent over 90% of businesses in many countries and play a crucial role in job creation and stimulating economic growth (OCDE).

In this context, this study aims to explore the impact of logistical processes on the internationalization of Algerian SMEs. By closely analyzing the logistical practices adopted by these companies during their expansion abroad, we will seek to understand how these processes influence their ability to conquer new markets and thrive in a competitive international environment.

Through this research, we aspire to shed light on the determining logistical factors in the internationalization process of businesses, emphasizing the crucial importance of these processes for Algerian SMEs. We will particularly examine the significance of logistical services in the entry

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of Algerian SMEs into global markets. This analysis is of paramount importance, especially as the Algerian government pays special attention to promoting the internationalization of SMEs to diversify the national economy and reduce dependence on hydrocarbons. Thus, we formulate the following research question:

To what extent do logistical services contribute to the internationalization of Algerian SMEs?

I. LITERATURE REVIEW

I.1. Previous Studies:

- Logistical challenges in the process of internationalization of companies in the wine industry

Logistical challenges in the internationalization process of companies in the wine industry This is a study conducted by Helena Štimac, Anita Freimann, and Josip Glavaš from the Faculty of Economics in Osijek, Croatia. The authors participated in the 21st International Scientific Conference titled "Business Logistics in Modern Management," held from October 7 to 8, 2021, in Osijek, Croatia. The study addressed the challenges of international trade and the roles of international logistics in the wine sector in Croatia. It also demonstrated how logistics plays a role in the internationalization of businesses by connecting the logistical challenges and issues of the internationalization of the wine sector. The researchers employed correlation and comparative methods to draw conclusions and examine the relationship between the logistics efficiency index and the global competitiveness index. They concluded that there is a positive correlation between the development of logistical infrastructure and the overall competitiveness of the economy.

- Risk Management in International Supply Chain: Case of a Company - SARL Serina Hcan Ben Ali

This study was conducted by two PhD students from the Mouloud Mammeri University of Tizi Ouzou and was published in the "Marketing and Business Research Review," Volume 2, Number 1, in 2022. The main question examined in the study focused on the means and methods of supply chain management that help reduce risks associated with the delivery of products according to the initial customer orders. Initially, the researchers presented the theoretical framework of supply chain risk management. Subsequently, a qualitative study was conducted with executives and managers of SARL HCEN BEN ALI through an interview guide. The company's leaders invested in acquiring technical means to reduce the risks of errors and maintain effective communication with customers and various stakeholders in the supply chain. Outsourcing transportation activities was also considered to address deficits in material resources.

- Supply chain flexibility and SMEs internationalization: a conceptual framework

This research was conducted by Sylvia Mercedes Novillo Villegas and Hans-Dietrich Haasis from the University of Bremen in Germany, published in the book "Digitalization in Supply Chain Management and Logistics," edited by Wolfgang Kersten, Thorsten Blecker, and Christian M. Ringle in October 2017 at Epubli. The article aims to analyze the relationship between logistic capabilities and supply chain flexibility (SCF) within the context of the internationalization strategy of small and medium-sized enterprises (SMEs). In the first part of the article, theoretical concepts related to the issue were presented. To provide insights, a content analysis of articles published on the same subject between 2006 and 2016 was conducted. Internationalization theories were reviewed to better understand the drivers and factors influencing SME internationalization. SCF was examined to establish its characteristics and elements as a competitive strategy, and logistic capabilities were analyzed to provide insights influencing both SCF and SMEs.

I.2. Internationalization of Companies:

The internationalization of small and medium-sized enterprises (SMEs) has garnered growing attention from scholars in recent years. Despite the evolution of this subject through various theoretical models (Paul et al., 2017), research in this area remains disjointed.

The term "internationalization" is defined as the progression of heightened engagement in global markets, achieved through different forms of foreign direct investment and/or exporting (Zahoor et al., 2020). An internationalized firm refers to a company that has expanded its operations beyond its domestic market through diverse strategies, including exporting, non-equity entry modes like licensing and franchising, strategic alliances such as joint ventures, acquisitions, or the establishment of subsidiaries (Arregle et al., 2012). Advances in technology and communication have facilitated business interactions across various sizes and locations, enabling SMEs to engage in the value chains of major corporations and service providers on a global scale. Internationalization has become increasingly vital for long-term success. In the present context, SMEs adopting a global strategy can promptly capitalize on cross-border activities, opening up opportunities for revenue growth, knowledge exchange, and capability enhancement, thereby strengthening the firm's long-term competitiveness (Islam et al., 2023).

Piercy (1981) and Turnbull (1985) provided two perspectives on internationalization. First, they described it as a business moving beyond its home country. Second, they portrayed it as a gradual increase in participating in international transactions (Welch & Luostarinen, 1988). Further studies examining how companies go global found that there isn't a one-size-fits-all framework to fully capture the various paths companies may follow in their internationalization journeys (Bołkunow, 2019).

I.3. Logistics and Supply Chains:

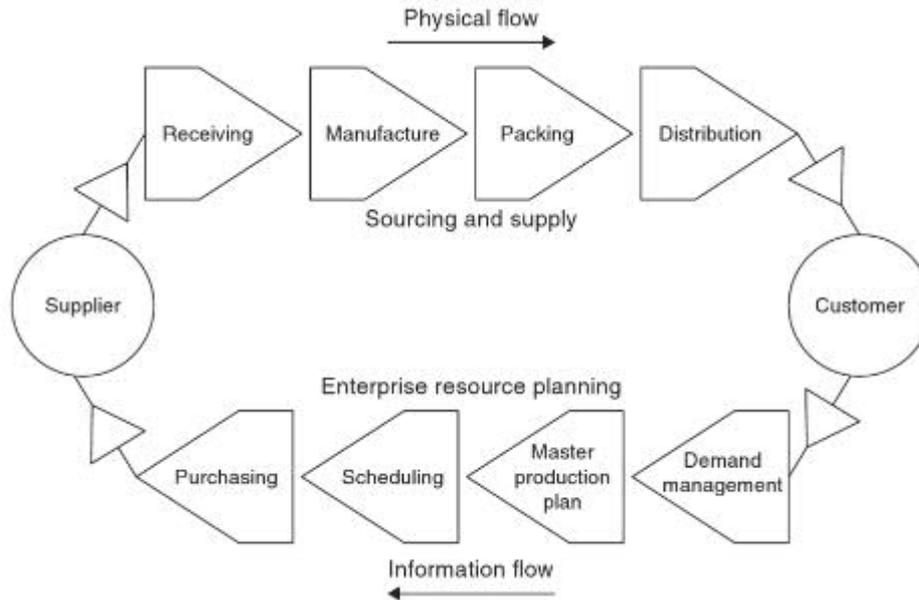
There are various definitions of logistics, with some of the most well-known being: "Logistics is all activities that facilitate the movement and coordination of supply and demand in creating temporal and spatial utility" (Farahani, 2011). According to the Chartered Institute of Logistics and Transport, it is the positioning of resources at the right time, in the right place, at the right cost, and with the right quality (Tetteh, 2014). ASLOG defines logistics as "the art and manner of making a given product available at the right time, in the right place, at the lowest cost, and with the best quality" (ASLOG, 2022). Building on these earlier definitions, logistics can be described as all the efficient and effective processes of transportation and storage of goods, including services, and related information from the point of origin to the point of consumption to meet customer requirements. This definition encompasses inbound, outbound, internal, and external movements.

As for Supply Chain Management (SCM), it is a broader concept than logistics. It was first articulated in a white paper produced by the consulting firm, then called Booz Allen and Hamilton, in 1982 by Keith Oliver and Michael Webber (Christopher, 2016). Supply Chain Management is the integration of key operational processes from the original suppliers of raw materials and services and information to the end-user to add value to customers and other stakeholders (Estampe, 2015). Supply Chain Management aims to establish a relationship between the company, suppliers, and customers, and coordinate processes across the various sections of the chain. In other words, the objectives of supply chain management are to plan, implement, and control all processes that add value to products and customers.

I.4 Logistic Operations in an International Context

The objective of the supply chain is to deliver products to consumers at the right time, place, quantity, and required specifications, through a set of operations and processes as illustrated in the following figure:

Figure (01) : Supply Chain Operations.



The source: Ron Basu J, Nevan Wright, (2010), p06.

Indeed, internationalization often involves significant logistical challenges, such as inventory management, transportation, customs and tax management, quality control, and compliance with international standards, as well as the distribution of products in international markets (F. Wood, 1995) . Efficient logistics enables Algerian SMEs to optimize their supply chain and minimize costs, which is essential for remaining competitive in international markets

From Figure 01 and the approach to the internationalization of businesses, we have concluded that the processes that can lead to the internationalization of companies are:

- a. **Exportation:** Exportation is the sale of products from one country to another(Aissi, 2021), following a recognized system, laws, and regulations that support importation by consumer countries and exportation by exporting countries (Baghiani, 2019). There are two methods of exportation: direct exportation, where the company relies on its own capabilities without depending on intermediaries (BESSOUH, 2022). In contrast, indirect exportation involves intermediaries in the operation (Rahmani, 2019).
- b. **Direct Investment:** Foreign Direct Investment (FDI) is a form of investment undertaken by foreign citizens with the aim of creating physical assets and production capacities in a host country(Al-Taib, 2022). It involves the ownership or control of all or a fraction of businesses by foreigners in a national economy through the acquisition or creation of new assets, purchasing existing assets, or co-owning with the government or citizens of the host countries(Bayou, 2022).
- c. **Participation in Production:** Cooperative production is one of the significant achievements of business internationalization (Monostori, 2015). The company engages in collaboration between two or more independent companies without financial or legal ties. Companies coordinate or merge business processes to enhance their overall performance(Tran). These companies participate in the industry of a product within a supply chain (Blyde, 2014). Therefore, if establishments are located in different countries, the company's involvement in production becomes a method of internationalization.

I.5 The Growth of SMEs in Algeria:

According to Algerian legislation (*Official Journal of the Algerian Republic* 2017) , an SME is defined as:

- A business engaged in the production of goods and/or services.

- Employing one (1) to two hundred fifty (250) individuals.
- Whose annual turnover does not exceed four (4) billion Algerian dinars, or whose total annual balance sheet does not exceed one (1) billion Algerian dinars.

Based on this classification, the Algerian Ministry of Industry surveyed SMEs in March 2022, and the results are presented in the following table:

Table (01) : SMEs in Algeria

Nature of SMEs	2020	SME Movements for the Year 2021				2021
		Creation	Deregistration	Reactivation	Growth	
Legal Entities	689 383	27 443	7 709	11 378	31 112	720 495
Individuals	541 461	29 686	6 799	1 297	24 184	565 645
Total	1 230 844	57 129	14 508	12 675	55 296	1 286 140

The source: Algerian Ministry of Industry, Information Bulletin No. 40 (2022).

The table presents the movements of SMEs in Algeria from 2020 to 2021. Overall, the number of SMEs increased by 55,296 over this period, reaching a total of 1,286,140 in 2021. Legal entities represent a larger share than individuals. Movements include creation, deregistration, reactivation, and growth. Although significant creations were recorded, deregistrations remain high. In summary, despite fluctuations, the net growth of SMEs remains positive, emphasizing the importance of maintaining a favorable environment for entrepreneurship.

According to official statistics from the Algerian Ministry of Commerce and Export Promotion, the number of companies active internationally in Algeria has increased in recent years, rising from 800 companies in 2021 to 2000 companies in 2022. These figures include all Algerian companies, both large and small, exporting products abroad, including SMEs. However, it is important to note that internationalization can be a challenge for many SMEs due to their size, lack of experience, and limited resources. Therefore, encouraging SMEs to venture beyond borders is an important goal for the economic development of Algeria.

I.6 The Role of SMEs in the Algerian Economy

Small and medium-sized enterprises (SMEs) play a crucial role in the Algerian economy. Here are some key points to illustrate their importance:

- **Contribution to the Gross National Product (GNP):**

The Algerian economy heavily relies on the hydrocarbon sector, but in recent years, there have been efforts to diversify the economy and reduce excessive dependence on hydrocarbons (Rahou, 2022). This involves promoting small and medium-sized enterprises to export their products to increase gross income. Their contribution over the past years is as follows, as indicated in the table below:

Table (02): GNP in Billion Dollars.

	GNP	Non-hydro GNP	SMEs GNP	Contribution to GNP (%)
2015	165.98	1.96	1.19	61
2016	160.03	1.80	1.09	61
2017	170.10	1.93	1.17	61
2018	174.91	2.83	1.81	64
2019	171.76	1.79	1.14	64
2020	145.74	3.70	2.36	65
2021	163.47	4.45	2.89	68
2022	195.00	7.31	5.11	70
2023	224.00	11.80	8.26	70

The source: Researchers based on World Bank data and the Ministry of Commerce, 2024.

The presented table provides an overview of the evolution of Gross National Product (GNP) in Algeria from 2015 to 2023, highlighting various components such as total GNP, non-hydrocarbons GNP, SMEs GNP, and their respective contributions to the total GNP in percentage. An initial observation reveals a general upward trend in GNP over the period, despite a slight dip in 2020, likely attributable to economic disruptions, possibly related to the COVID-19 pandemic. A significant trend emerges from non-hydrocarbons GNP, showing a notable increase, rising from 2.58 in 2014 to 11.80 in 2023. This progression suggests a growing diversification of the Algerian economy, indicating efforts to reduce dependence on oil and gas resources. Concurrently, SMEs' GNP displays marked growth, increasing from 1.19 in 2015 to 8.26 in 2023, illustrating the increasing importance of this sector in the national economy. Furthermore, the contribution of SMEs to the total GNP has also risen, from 61% in 2015 to 70% in 2023, underscoring their increasingly crucial role in the composition of the Algerian economy. These data reflect efforts to promote more diversified and resilient economic growth in Algeria, highlighting the crucial role of SMEs in this transition to an economy less dependent on hydrocarbons.

Job Creation:

SMEs are often the major job creators in a country (Salmi, Iassamamen, & Moulla, 2021). They provide employment opportunities for a wide range of individuals, including recent graduates and low-skilled workers, thereby contributing to reducing unemployment and fostering economic development. According to the latest statistics from the Algerian Ministry of Industry (Information Bulletin No. 40), the workforce is distributed among SMEs in 2022, as indicated in the following table:

Table (03) : SME Employers by Sector

Activity Sectors	Number	Share in (%)
Agriculture	11640	0.9
Hydrocarbons, Energy, Mines, and related services	3573	0.27
Construction, Public Works, and Hydraulics	201468	15.4
Manufacturing Industries	117528	9
Services including liberal professions	668434	51
Craftsmanship	303605	23.43
Total	1306248	100

The source: Algerian Ministry of Industry, Information Bulletin No. 40, (2022).

SMEs in Algeria play a vital role in job creation, significantly contributing to alleviating unemployment and boosting the country's economy. With a total workforce of 1,306,248 employees, according to the World Bank report for the year 2023, SMEs represent approximately 11% of the total workforce in Algeria, estimated at around 12,638,622 employees (The World Bank, 2023). This strong presence in the job market attests to the importance of SMEs in the Algerian economic landscape, enabling them to play a driving role in economic growth and social development.

Contributions to Value Added:

While individual SMEs may have smaller revenues compared to large enterprises, their large number means that they contribute significantly to value added in the Algerian state economy (Gribi, 2023). This supports public expenditures in various sectors such as education, health, and infrastructure. The contribution of SMEs to value added in recent years is shown in the following table:

Table (04): Value Added of SMEs in Billion Dinars.

Secteur juridique	2015		2016		2017		2018		2019		2020	
	Valeur	%	Valeur	%	Valeur	%	Valeur	%	Valeur	%	Valeur	%
Part du Public	1313,3	14,22	1414,6	14,23	1291,1	12,775	1362,2	12,51	1449,2	12,66	1299,9	12,23
Part du Privé	7924,5	85,78	8529,2	85,77	8815,6	87,22	9524,4	87,49	10001,3	87,34	9326,5	87,77
TOTAL	9237,8		9943,9		10106,7		10886,6		11450,6		10626,46	

The source: Algerian Ministry of Industry, Information Bulletin No. 40, (2022).

The table displays the distribution of value added by sector (public and private) in Algeria from 2015 to 2020. There is a relative stability, with a predominance of the private sector, accounting for approximately 85-88% of the value added over the period, while the public sector contributes around 12-14%. These data underscore the significance of the private sector, especially SMEs, in creating value added and their contribution to public expenditures.

- **Regional Development:**

SMEs also play a crucial role in regional development by creating economic activities and employment opportunities in remote or less developed areas (Bouyacoub 2020). They contribute to reducing regional disparities in terms of economic development. According to the latest statistics from the National Social Security Fund (CNAS/CASNOS), the distribution of SMEs in Algeria in 2022 is as follows:

Table (05): Distribution of SMEs by Region

Region	Number of SMEs	Concentration Rate (%)
North	894 882	69,57
High Plateaus	283 416	22,03
South	108 068	8,40

The source: CNAS/CASNOS, 2022.

The table depicts the distribution of SMEs by region in Algeria in 2022, with a notable concentration in the North region, where nearly 70% of SMEs are located. The High Plateaus and South regions show lower numbers of SMEs, reflecting regional disparities in terms of economic development. This underscores the significance of SMEs in regional development and highlights the need for policies to encourage entrepreneurship in less developed areas.

- **Economic Diversification:**

SMEs contribute to the diversification of the Algerian economy by creating a diversified industrial and commercial base. They operate in various sectors, reducing excessive dependence on the hydrocarbons sector (Belkaid, 2022). The following table shows the contribution of each sector to the creation of value added:

Table (06): Value Added of SMEs by Sector in Billion Dinars.

sector	2015	2016	2017	2018	2019	2020
Agriculture	2089.5	2140.2	2281.8	2426.9	2500.9	2598.5
Construction and Public Works	1773.9	1990	2117.3	2254	2400.3	2285
Transportation	1687.9	1796.9	1965.4	2139.8	2244.8	2044
Services	218.7	228.9	247.9	263.3	281.2	292.4
hostelry	192.6	240.3	269.3	292.1	304.1	193.7
Agro-food	376.4	389.5	408.1	433.4	444.7	465.5
Leather industry	2.8	2.8	2.8	3	3.2	3.1
E-commerce	1995.1	2341.2	2123.8	2349.5	2445.8	1987.2

The source: National Office of Statistics, 2022.

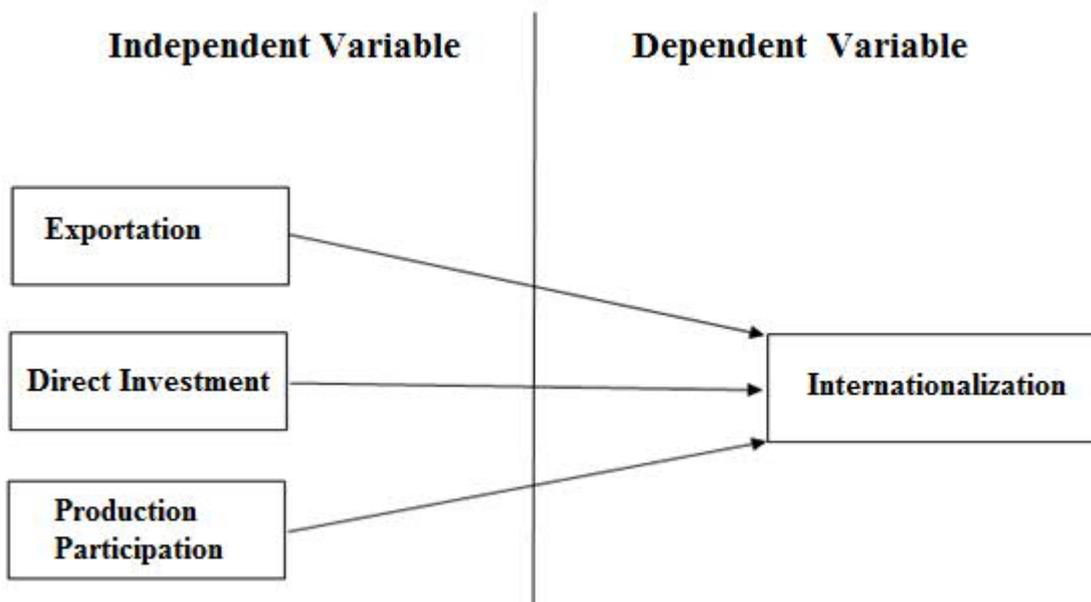
The table illustrates the contribution of various sectors to the value added of the Algerian economy between 2015 and 2020. There is a general growth in several sectors such as agriculture, transportation, services, and hospitality. However, some sectors like Construction and Public Works showed a slight decline in 2020. This underscores the importance of economic diversification and the role of SMEs in this strategy to reduce excessive dependence on hydrocarbons.

II- Methods and Materials:

This research employed a quantitative research methodology to study the impact of logistic determinants on the internationalization of Algerian SMEs. The literature review conducted guided the identification of variables for investigation. To address our research question, we conducted an online questionnaire survey consisting of 22 questions, targeting 108 SMEs. The questions were grouped into five sections covering the identification of SMEs, internationalization, exportation, foreign direct investment, and cooperative production.

Variables and Questions: Based on the literature review, the following variables were identified:

Figure (02): Study Variables.



The source: By authors, (2023).

The questions are grouped into five sections focusing on the identification of SMEs, internationalization, exportation, foreign direct investment, and cooperative production, as shown in the following table:

Table (07) : Survey questions.

groupe	question
Identification	- Are you a business? -What is your legal status? -What is your field of activity? -In which year was your company established?
Internationalisation	- The success of the company in the local market has led to considering entering the foreign market. -Incentives in the foreign market have prompted the company to consider entering it. -The company plans to enter the foreign market to expand its operations. -The organization seeks to establish relationships with foreign clients to access the foreign market. -The quality of the company's products qualifies it for international competition. -The company aims to develop its products to ensure competitiveness in the market.
Exportation	- Exporting is the easiest way to enter the foreign market. -The company's capabilities qualify it to export products. -The company can export its products without relying on intermediaries. -Seeking intermediaries helps the company export its products.
Foreign Direct Investment	-The company aims to invest in other countries. -Establishing a branch in another country helps provide products in its market. -The company's potential allows it to invest in other countries. -Foreign direct investment helps the organization grow.
Cooperative production	- The involvement of companies from other countries in production helps the company penetrate foreign markets. - The participation of foreign companies in the manufacturing sector helps the company gain experience. - The involvement of foreign companies in the manufacturing sector helps in gaining international reputation. - The participation of foreign companies in the manufacturing sector contributes to development and innovation.

The source: By authors, (2023).

To answer the questions, we chose the five-point Likert scale, except for the identification of SMEs, for which the responses were open-ended.

Hypotheses :

- **H1:** There is a significant impact of exportation on the internationalization of Algerian SMEs ($\alpha=0.01$).
- **H2:** There is a significant impact of Foreign Direct Investment on the internationalization of Algerian SMEs ($\alpha=0.01$).
- **H3:** There is a significant impact of Participation in production on the internationalization of Algerian SMEs ($\alpha=0.01$).

Sample Description

The statistical sample consists of 108 Algerian businesses from various sectors who decided to participate in a survey regarding their experiences with internationalization. The variables

studied include the legal status of the company, its field of activity, the year of establishment, and the company's interest in entering the foreign market due to its success in the local market.

The average for the variable "Are you a company?" is 1.1944, suggesting that the majority of businesses in the sample are individual enterprises rather than corporations. The average for the variable "What is your legal status?" is 2.2315, indicating that most companies have an LLC status. The average for the variable "What is your field of activity?" is 1.2315, suggesting that most companies belong to the commerce or services sector. The average for the variable "In what year was your company established?" is 2.4537, indicating that most companies were recently created.

Finally, the average for the variable "The success of the company in the local market has led to consideration of entering the foreign market" is 4.3981, indicating that the majority of companies have succeeded in the local market and consider internationalization as a viable option for their future growth. The standard deviation for each variable is relatively low, suggesting some homogeneity in the sample.

In summary, this sample represents a set of relatively recent Algerian businesses, predominantly composed of LLCs in the commerce and services sectors. These businesses have experienced success in the local market and view internationalization as an opportunity for future growth.

III- Results and discussion :

We tested the validity and reliability of the sample using Cronbach's alpha coefficient, and the results were as follows:

Table (08) : Validity and Reliability.

Cronbach's Alpha	Validity Coefficient	Number of Items
0.893	0.944	18

The source : spss26.

The values of Cronbach's alpha (0.893) and the validity coefficient (0.944) indicate good reliability and validity of the measurement instrument used in this study. A Cronbach's alpha above 0.7 is generally considered acceptable for measuring the internal consistency of a set of items, and a validity coefficient above 0.8 is generally considered acceptable for measuring the convergent validity of an instrument.

To test the hypotheses, we used the Fisher's test, correlation test, and linear regression. The results are in the following table:

Table (09): The results.

Model	F	F(t)	R	R ²	A	B	sig
Internationalization / Exportation	251,915	3,15	0,839	0,701	0,767	1,098	0,000
Internationalization / Foreign Direct Investment	7,854	3,15	0,263	0,060	0,250	3,141	0,006
Internationalization / Participation in Production	33,670	3,15	0,491	0,234	2,068	0,498	0,000
Internationalization / Logistics	119,777	3,15	0,728	0,526	0,949	0,415	0,000

The source : spss26.

Based on the results, the Fisher coefficient F is 251.915, and the F value in the Fisher table for a 1% margin of error is 3.15. Since the F value is higher than $F(t)$ and the sig value is 0.000, lower than 1%, it means there is a significant impact of exportation on the internationalization of

Algerian SMEs, confirming our hypothesis H1. To assess the intensity of the impact, we tested the correlation and obtained an R value of 0.701, which is higher than 70%. This indicates a strong positive relationship between the two variables. The F value is 7.845, and $F(t)$ is 3.15. Since the F value is higher than $F(t)$ and the sig value is 0.006, lower than 1%, it means there is a significant impact of foreign direct investment on the internationalization of Algerian SMEs. We have confirmed our hypothesis H2. However, the R value is 0.263, indicating no relationship between the two variables, and the impact is weak. For the third hypothesis H3, we also confirmed that the F value is 33.670, higher than 3.15 $F(t)$, while the sig value is 0.000, lower than 1%. Similarly, we tested the correlation and obtained an R value of 0.491, indicating a moderate relationship between the variables.

We noted a difference in the intensity of influence and the relationship between independent variables and the dependent variable. Exportation is the most influential, followed by foreign investment, and then participation in production. This suggests that Algerian SMEs prefer to export rather than use other methods, as exporting is the simplest and least risky way. Small and medium-sized enterprises have limited capabilities compared to large enterprises that can invest abroad and participate in cooperatives.

Regarding logistics, it influences the internationalization of Algerian SMEs as the F value is 119.777, higher than 3.15 $F(t)$, and the sig value is 0.000, lower than 1%. For correlation, $R = 0.728$, indicating a strong relationship, and $R^2 = 0.526$, meaning that logistics explains 52% of the change that exists in the internationalization of Algerian SMEs, and the rest is explained by other factors outside the scope of the study. It can be expressed in the form of linear regression, as in the following equation:

where:

Y = Internationalization index of SMEs

X = Logistics index

$A = 0,949$ $B = 0.415$ \rightarrow $Y = 0.949 X + 0.415$

IV- Conclusion:

Logistics plays a crucial role in the internationalization of Algerian SMEs. Efficient logistics is essential for optimizing the supply chain and minimizing costs, but it should be considered as part of a broader internationalization strategy. SMEs can benefit from collaboration with experienced logistics partners to overcome challenges related to internationalization.

This study has proven the significance of logistics as a factor in the internationalization of Algerian SMEs, considering it as the link between the company and the international market. The study results show:

SMEs play a vital role in the Algerian economy as drivers of growth, employment, innovation, and regional development. Their continuous promotion and support are essential for stimulating the long-term economic prosperity of the country.

A strong positive impact and relationship between logistics and the internationalization of Algerian SMEs. Companies prefer the easy way to enter international markets, which is through exportation.

Logistics explains 52% of the change that exists in the internationalization of Algerian SMEs, meaning most of the change. However, there are other factors influencing the internationalization of Algerian SMEs, which will be the subject of future research.

To enter the international market, Algerian SMEs should focus on improving their logistics. Here are some recommendations that could help:

1 .Develop Logistics Skills:

It is crucial to have a skilled workforce to manage logistics operations. Algerian SMEs should develop training programs to educate workers in logistics, from supply chain management to cargo handling.

2 .Utilize Information and Communication Technologies (ICT):

ICT can enhance logistics operations and reduce costs. Algerian SMEs should use inventory management systems, tracking and tracing systems, and warehouse management systems to improve efficiency.

3 .Collaborate with International Partners:

Leveraging strategic partnerships with international companies can provide Algerian SMEs with logistics expertise and a global network. Collaborating with local carriers can also help reduce transportation costs.

4 .Adhere to International Standards:

To enter the international market, Algerian SMEs must comply with international logistics standards and regulations. This may include quality, safety, and environmental standards. Ensuring products and services conform to these standards is crucial for accessing international markets.

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