

Analyse des facteurs de l'efficacité technique des systèmes de production de lait cru de vache au Niger

Analysis of the factors affecting the technical efficiency of raw cow's milk production systems in Niger.

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Pour citer cet article : MOUSSA M. A., AMADOU Z., ASSOUMA A., CHAIBOU M. (2026) « Analyse des facteurs de l'efficacité technique des systèmes de production de lait cru de vache au Niger », African Scientific Journal « Volume 03, Num 37 » pp: 001 – 035.



DOI : 10.5281/zenodo.22842803

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Abstract

This study examines whether internationally recognized quality certification is associated with export participation among Moroccan small and medium-sized enterprises (SMEs), while considering firm size and complementary resource and capability variables. The analysis uses the World Bank Enterprise Survey Morocco 2023 and a final analytical sample of 328 SMEs. Export participation is defined as direct or indirect exporting. Six progressively specified binary Logit models are estimated with robust standard errors, followed by average marginal effects and Probit robustness checks. The results show that quality certification is positively and consistently associated with export participation across all specifications. In the full model, certification is associated with an average increase of about 17.2 percentage points in the probability of exporting. Firm size is also positive and significant throughout the models, with an average marginal effect of about 7.7 percentage points for a one-unit increase in log employment. By contrast, perceived financial obstacles, formal credit, and product innovation do not show statistically precise independent associations with export participation once the other firm characteristics are taken into account. The results also indicate sectoral differences in export participation. The Probit estimates confirm the stability of the main findings. The study contributes to the literature by focusing on the binary threshold of export participation rather than post-entry export intensity or performance, and by examining internationally recognized quality certification as an observable indicator of organizational quality-management capability and export readiness within a Resource-Based View perspective. The findings provide recent firm-level evidence from Morocco, but they should be interpreted as statistical associations rather than causal effects because the data are cross-sectional.

Keywords: internationally recognized quality certification; export participation; SMEs; Morocco; Resource-Based View; World Bank Enterprise Survey

1. Introduction

1.1 SMEs and Export Participation in the Moroccan Context

Morocco has become increasingly integrated into international trade and global value chains. Merchandise exports reached MAD 456.3 billion in 2024, an increase of 6.1% compared with 2023 (Office des Changes, 2025). The country has also developed important export activities in automotive, phosphates, agriculture and agri-food, and textiles. At the same time, the OECD (2024) notes that trade and foreign investment have become important parts of Morocco's growth model, with strong links to European production networks. This progress gives exporting an important place in the Moroccan economy, but it does not mean that participation in foreign markets is broadly distributed across firms.

The structure of the Moroccan business sector makes this issue particularly relevant for small and medium-sized enterprises (SMEs). According to the OECD (2024), 91% of active firms had ten or fewer employees in 2022, and Morocco had relatively few exporting firms compared with its population. Using turnover-based size categories for active incorporated enterprises, the Observatoire Marocain de la Très Petite, Petite et Moyenne Entreprise (OMTPME, 2026) reports that large enterprises generated 79.9% of export turnover in 2024, compared with 9.8% for medium-sized enterprises. These categories differ from the employment-based definition adopted in the present study, but they still show a strong concentration of export activity among larger firms.

The main issue is therefore not only the growth of Moroccan exports at the national level. It is also the capacity of smaller firms to cross the threshold into export markets. For SMEs, this transition can require resources, internal organization, market knowledge, and the ability to meet requirements that are often more demanding than those of the domestic market. Understanding which firm characteristics are associated with export participation is consequently important for both research and policy in Morocco.

1.2 Research Problem and Empirical Gap

Morocco already has an established firm-level literature on exporting. Fafchamps, El Hamine, and Zeufack (2008) studied selection into exporting among Moroccan manufacturers and examined the

roles of productivity, firm age, and market familiarity. Their results showed that many exporting firms entered foreign markets early in their life cycle and that market-specific learning was important in explaining export behaviour. This earlier work is important because it shows that the exporter/non-exporter question has been studied in Morocco and should not be presented as an unexplored issue.

Later studies moved toward other dimensions of SME export activity. El Makrini (2017) examined export performance among 168 established Moroccan SME exporters and used a resource-based perspective to analyse firm size, R&D, advertising, and network relationships. Because the sample included only firms already engaged in exporting, the study focused on post-entry export performance rather than on the probability of export participation. More recently, Haddoud et al. (2023) used Moroccan World Bank Enterprise Survey data to examine technology, R&D, innovation, and direct-export intensity among SMEs. This study provides recent evidence on firm capabilities, but its outcome is the level of exporting rather than the binary decision to participate in export markets.

Quality certification introduces a different but related firm-level dimension. Evidence from developing-country samples indicates that internationally recognized standards certification is positively associated with export participation, partly because certification can support organizational efficiency and reduce information and transaction problems in international exchanges (Bangwayo-Skeete & Moore, 2015; Goedhuys & Sleuwaegen, 2016). However, the Morocco-specific studies reviewed above do not make internationally recognized quality certification the focal predictor of a binary export-participation outcome. There is therefore room for more recent Morocco-specific evidence on whether certification is associated with the exporter/non-exporter threshold, while accounting for other firm resources and capabilities. The 2023 Morocco World Bank Enterprise Survey provides an appropriate setting for examining this question with recent firm-level data.

1.3 Research Question, Objectives, and Theoretical Positioning

Against this background, the study asks the following research question: To what extent is internationally recognized quality certification associated with export participation among

Moroccan SMEs, and what role do firm-level resources and capabilities play in explaining export participation? The first objective is to examine the association between internationally recognized quality certification and the probability that an SME participates in exporting. The second is to assess the role of firm size as an indicator of differences in resource endowment within the SME population. The analysis also considers financial conditions and product innovation as complementary explanatory dimensions, while controlling for firm age, managerial experience, and sectoral differences.

The study is positioned mainly within the Resource-Based View (RBV). The RBV directs attention to differences in the resources and capabilities that firms control and organize, and to how these differences can be related to firm outcomes (Barney, 1991). This perspective has been applied to SME export research (Dhanaraj & Beamish, 2003) and to previous work on Moroccan SME exporting (El Makrini, 2017). In the present article, quality certification is the focal organizational indicator of underlying quality-management capability and export readiness. Firm size represents a secondary resource-endowment dimension, while finance and innovation are treated as complementary resources and capabilities. Empirically, the study uses the Morocco 2023 World Bank Enterprise Survey and binary Logit models, with Probit as a robustness estimator. The results are interpreted as associations because the data are cross-sectional.

This study examines the association between internationally recognized quality certification and export participation among Moroccan SMEs. Its main objective is to assess this relationship while considering firm size and other firm-level resources and capabilities. The remainder of the article develops the theoretical framework, presents the methodology and empirical results, discusses the findings, and concludes with the main theoretical and empirical contributions.

1.4 Structure of the Article

The remainder of the article is organized as follows. Section 2 reviews the relevant literature and develops the theoretical framework and hypotheses. Section 3 presents the World Bank Enterprise Survey data, sample construction, variable operationalization, and econometric strategy. Section 4 reports the descriptive and bivariate analyses, the Logit estimates, robustness tests, and the

discussion of findings. Section 5 concludes by summarizing the main findings and presenting the theoretical and empirical contributions of the study.

2. Literature Review and Theoretical Framework

2.1 The Resource-Based View and SME Export Participation

An important starting point for the Resource-Based View (RBV) is Penrose's (1959) view of the firm as a collection of productive resources. Her argument was that firms differ not only in the resources they possess, but also in the ways managers use and combine them. Wernerfelt (1984) later developed this resource perspective more explicitly by suggesting that strategic analysis should look at the resources controlled by the firm, alongside the products and markets in which it competes. This shifted attention toward internal differences between firms as one explanation for differences in performance.

Barney (1991) further developed the RBV by explaining how strategically valuable resources can support sustained differences in firm performance when they are unevenly distributed and difficult for competitors to reproduce. Peteraf (1993) similarly emphasized resource heterogeneity and imperfect mobility as conditions that can preserve differences between firms over time. For this study, the main implication is not that every resource must satisfy all VRIN conditions. Rather, firms differ in the resources available to them and in their capacity to organize and mobilize those resources. This distinction is particularly relevant for SMEs, where a narrower resource base can limit the range of strategies a firm is able to pursue.

This reasoning is also relevant to internationalization. Entering foreign markets requires firms to coordinate financial, managerial, technological, and operational resources beyond the requirements of domestic activity. These demands can be especially important for SMEs because they often have less room to absorb the fixed costs and organizational adjustments associated with foreign-market entry. Using a resource-based approach, Dhanaraj and Beamish (2003) showed that firm-level resources and capabilities are useful for explaining differences in SME export performance. İpek's (2018) integrative review also confirms the extensive use of RBV in export research, while pointing to continuing limitations related to country setting, industry effects, and firm size. More recently,

Kaur and Kumar (2026) highlight the continuing importance of internal resources and capabilities in research on SME internationalization.

In this study, the RBV is used as an organizing framework for examining export participation among Moroccan SMEs. Internationally recognized quality certification is the main focal construct because it may reflect underlying quality-management routines, process discipline, and readiness to meet external market requirements. Firm size is treated as a secondary indicator of the breadth of the firm's resource base. Financial conditions and product innovation are retained as complementary dimensions of firm resources and capabilities, while sector, firm age, and managerial experience are treated as contextual or control factors. This hierarchy makes it possible to examine whether quality-related organizational capability is associated with export participation while accounting for broader differences in the resources available to Moroccan SMEs.

2.2 Quality Certification and Export Readiness

Quality certification occupies a central position in this study because it can be read in two ways. It is first a formal recognition that a firm follows an internationally recognized quality standard. At the same time, it may also reflect internal routines that make this recognition possible, such as documented procedures, process control, corrective actions, and regular monitoring. In an RBV perspective, the certificate itself should not be treated as a rare or inimitable resource. Its value for this study lies rather in the organizational capability that may sit behind it and in the fact that this capability can be recognized by actors outside the firm (Barney, 1991). For smaller firms with limited organizational slack, building and maintaining such routines can also represent a meaningful commitment of managerial time and resources.

This distinction is important for SMEs preparing to sell abroad. Exporting often exposes a firm to buyers, distributors, and other partners who have limited information about the reliability of a new supplier. A recognized certification can make part of this information easier to communicate. Terlaak and King (2006) show that ISO 9000 certification can reduce information asymmetry between suppliers and buyers, particularly when buyers have difficulty evaluating supplier quality directly. Certification may therefore support export readiness not only through internal quality-

management practices, but also through the credibility it provides in transactions with unfamiliar partners.

Evidence from international trade research supports this signaling and transaction-cost argument. Clougherty and Grajek (2008) find that the diffusion of ISO 9000 standards is positively related to exports from developing countries, although their analysis is conducted at the country-pair level rather than the firm level. More directly, Goedhuys and Sleuwaegen (2016), using World Bank Enterprise Survey data from firms in 89 developing and transition economies, report that internationally certified firms are more likely to export and tend to export on a larger scale. Their results suggest that certification may support foreign-market participation through both productivity improvements and lower transaction costs. This evidence is especially relevant to the present study because it uses a comparable firm-level survey environment and focuses on economies where institutional and information constraints can be important.

Recent firm-level evidence also points in the same direction, although the effects can depend on context. Yang et al. (2023), studying Chinese agri-food firms, find a positive relationship between ISO 9001 certification and exports and show that the strength of this relationship differs across sectors and ownership structures. Taken together, these studies suggest that certification should not be understood simply as an administrative label. It may capture a combination of internal quality-management capacity and external credibility that becomes useful when firms enter markets where standards, consistency, and supplier reliability matter. The literature also suggests that the benefits of certification are unlikely to be identical across firms or sectors, which supports keeping sectoral differences visible in the empirical analysis.

For Moroccan SMEs, this mechanism is theoretically relevant even without assuming that every export market requires the same certification or that certification automatically leads to exporting. The World Bank Enterprise Survey measure used in this study refers broadly to internationally recognized quality certification and is therefore not equivalent to ISO 9001 alone. The ISO-based literature is used to clarify the mechanisms through which recognized standards may matter, while the empirical analysis tests the broader WBES certification construct. This distinction keeps the theoretical argument aligned with the actual variable and provides the basis for examining whether certified Moroccan SMEs are more likely to participate in export markets.

2.3 Firm Size and Resource Endowment

Within the Resource-Based View, firm size can be treated as a broad indicator of the resources available to a firm rather than as a strategic resource in itself. Penrose (1959) argued that firms grow through the accumulation and use of managerial, financial, and productive resources. As firms become larger, they generally have more room to distribute responsibilities across specialized functions, invest in systems and equipment, and absorb unexpected costs. These advantages can matter when entering foreign markets, where firms often face additional expenses linked to logistics, compliance, market development, documentation, and relationships with external buyers.

This resource logic has long been reflected in the export literature. Wagner (2001) describes the positive relationship between firm size and direct exporting as a recurring empirical pattern, while also noting that the way export behavior is modeled affects the conclusions that can be drawn. Evidence from SMEs also supports the idea that size captures meaningful differences in resource availability. Ruzzier and Konecnik Ruzzier (2014), studying Slovenian SMEs, found that internationalized firms were significantly larger in terms of sales and possessed more specialized human, organizational, and financial resources than non-internationalized firms. In South Africa, Naudé and Serumaga-Zake (2003) similarly found that larger manufacturing firms were more successful in exporting than smaller firms.

More recent evidence suggests, however, that the size-export relationship should not be treated as mechanically linear. Using Vietnamese manufacturing data, Ha et al. (2020) found that firm size was positively associated with export volumes, but that this relationship became weaker at higher levels of export activity. Earlier work by Bonaccorsi (1992) also challenged the assumption that larger firms necessarily achieve higher export intensity. This distinction is important for the present article because export participation and export intensity are not the same outcome. A relatively larger SME may have enough resources to cross the threshold into exporting, without size necessarily determining how much of its sales will subsequently come from foreign markets.

The present study therefore focuses on size differences within the SME population rather than on a comparison between SMEs and large firms. The Morocco 2023 World Bank Enterprise Survey is restricted here to firms meeting the adopted employment-based SME criterion. Even within this

group, resource heterogeneity can remain substantial. A firm employing several dozen workers may have greater managerial capacity, production flexibility, financial resilience, and ability to assign staff to export-related tasks than a firm operating with only a few employees. Firm size is consequently retained as the study's main secondary resource-endowment construct and is expected to be positively associated with export participation, while the empirical analysis will determine the strength and stability of that relationship.

2.4 Financial Resources and SME Export Participation

Financial resources form part of the broader resource base that allows firms to pursue strategies requiring investment before returns are realized. This is particularly relevant to exporting. Before receiving revenues from foreign sales, firms may need to finance market information, product adaptation, compliance procedures, logistics, distribution arrangements, and additional working capital. These costs can be difficult to absorb for SMEs operating with limited financial reserves. From an RBV perspective, finance is therefore important not because it automatically creates a competitive advantage, but because it can expand the range of strategic choices available to the firm (Penrose, 1959).

This study considers two different financial dimensions from the World Bank Enterprise Survey. The first is the firm's assessment of access to finance as an obstacle to its operations. The second indicates whether the firm currently has a formal loan or line of credit. These measures should not be treated as equivalent. A firm may report financial difficulties even while using formal credit, whereas another may have no loan because it does not need one, relies on internal funds, or has not sought external financing. Kuntchev et al. (2013) also caution against relying only on perceptions when assessing financial constraints and develop a credit-constraint classification based on observable Enterprise Survey information.

Empirical research provides substantial evidence that financial constraints can limit SME exporting. Using data from 65 emerging and developing countries, Pietrovito and Pozzolo (2021) find that credit constraints are negatively associated with both the probability of exporting and the share of exports in total sales. The relationship is particularly pronounced for smaller and younger firms. Forte and Salomé Moreira (2018), using liquidity and leverage indicators for Portuguese

manufacturing SMEs, similarly find that firms in weaker financial positions are less likely to export, although the estimated influence of financial constraints is relatively modest. Together, these studies suggest that limited financial flexibility can make the fixed and uncertain costs of foreign-market entry more difficult to absorb.

Formal credit provides a related but different perspective. In a study of Ghanaian SMEs, Abor et al. (2014) report that access to bank finance is positively associated with the likelihood of exporting. Their results are consistent with the argument that external finance can help firms meet the additional costs of international activity. However, in the present study, having a loan or line of credit is interpreted as formal credit possession or use, not as proof that a firm faces no financial constraint. Borrowing also reflects financing needs, preferences, and lending conditions.

Financial variables are therefore retained as complementary explanatory factors rather than as the main theoretical focus of the article. Their inclusion allows the analysis to examine whether the associations between quality certification, firm size, and export participation remain after accounting for differences in firms' financial conditions.

2.5 Product Innovation and SME Export Participation

Product innovation is considered in this study as a complementary firm-level capability rather than as a primary theoretical construct. The World Bank Enterprise Survey records whether a firm introduced a new or improved product or service during the three years preceding the survey. This binary measure does not capture the intensity of innovation, research and development effort, or process innovation. It nevertheless provides an observable indication that the firm has been able to develop or introduce changes in its market offering. From an RBV perspective, such activity may reflect the ability to combine knowledge, organizational routines, and other resources in ways that support adaptation and differentiation in competitive markets.

The link between product innovation and exporting has received considerable attention in the SME literature. Ganotakis and Love (2011), studying new technology-based firms in the United Kingdom, find that product innovation is positively associated with the probability of entering export markets. Their results are especially relevant to the present study because they distinguish

export entry from export intensity: innovation appears to matter more clearly for becoming an exporter than for explaining how much an exporting firm sells abroad. Exposito and Sanchis-Llopis (2020) also report a positive relationship between innovation activity and international market engagement among Spanish SMEs after controlling for firm size, sector, and other characteristics.

Several mechanisms may explain this relationship. Product innovation can help firms offer greater differentiation, respond to changing customer needs, or adapt products to requirements that differ across markets. These advantages may be particularly useful for smaller firms that cannot compete internationally on scale alone. Innovation may also give a firm a clearer reason to approach foreign customers when its domestic market is limited or highly competitive. This does not mean, however, that innovation automatically translates into exporting. The direction of the relationship is not straightforward. Golovko and Valentini (2011) show that innovation and exporting can operate as complementary strategies for SME growth, while exposure to foreign markets may itself create learning opportunities that encourage later innovation. Cross-sectional survey data cannot establish which process occurs first.

For this reason, product innovation is retained as a complementary explanatory variable in the empirical model. Its inclusion makes it possible to assess whether the relationships between quality certification, firm size, and export participation remain after accounting for differences in firms' innovation activity. This treatment is consistent with the broader resource-and-capabilities framework of the article while keeping quality certification as the central organizational capability under investigation.

2.6 Sectoral Heterogeneity in SME Exporting

Export participation does not depend only on the resources and capabilities of individual firms. It also varies across sectors because industries differ in their degree of tradability, production structure, exposure to foreign demand, regulatory requirements, and the costs involved in reaching external markets. A manufacturing firm producing standardized goods, for example, does not face the same internationalization conditions as a locally oriented service firm. Sector can therefore shape both the opportunities available to a firm and the relevance of particular firm-level resources. Ignoring

these differences may make a resource or capability appear more important simply because it is concentrated in activities where exporting is already more common.

Empirical research supports the need to account for this structural heterogeneity. Farole and Winkler (2014), using firm-level data from more than 35,000 manufacturing and service firms in 76 low- and middle-income countries, show that export participation is influenced not only by firm characteristics but also by the economic environment in which firms operate. Their analysis points to differences across locations and industries and to the importance of local export activity and industrial structure. This is relevant for SME research because the same firm characteristic may have different implications in a sector that is strongly connected to international markets than in one where demand is mainly domestic.

Earlier evidence from Clerides et al. (1998) also helps explain why sectoral context should not be treated as a minor technical control. Using plant-level data from Colombia, Mexico, and Morocco, the authors show that firms entering export markets are not randomly drawn from the population of domestic firms. Exporters tend to differ before entry, which supports a selection interpretation of export participation. Although their study is not designed to isolate sector effects in the same way as Farole and Winkler (2014), it reinforces the broader point that export participation reflects both firm characteristics and the conditions surrounding market entry. For the present article, this makes it important to separate the association of quality certification and firm size from differences that may simply reflect sector composition.

Sector is therefore included in the empirical model through indicator variables based on the industry groupings available in the Morocco 2023 World Bank Enterprise Survey. No directional hypothesis is proposed because there is no single theoretical expectation that applies uniformly across industries. Firm age and managerial experience are also retained as control variables. Age provides a broad indication of organizational maturity, while managerial experience may capture accumulated knowledge of customers, suppliers, and sector practices. These variables are not treated as focal constructs; their role is to reduce omitted heterogeneity when estimating the relationships of quality certification and firm size with export participation.

2.7 Hypotheses Development and Conceptual Framework

The preceding sections suggest that export participation among SMEs should be examined as the outcome of a broader resource and capability configuration rather than of a single firm characteristic. The Resource-Based View provides the organizing logic for this argument: firms differ in the resources they control and in their ability to combine those resources in ways that support strategic action (Barney, 1991; Wernerfelt, 1984). In this article, the framework is deliberately hierarchical. Internationally recognized quality certification is the focal construct, firm size represents a secondary resource-endowment dimension, and financial conditions and product innovation are treated as complementary explanatory factors.

The first hypothesis concerns quality certification. The certificate itself is not assumed to be a rare or inimitable resource. Its relevance lies in what it may reveal about the routines and management systems that support consistent quality and in the credibility it can provide to external buyers. Terlaak and King (2006) show that ISO 9000 certification can reduce information asymmetry when buyers have difficulty evaluating suppliers. More directly, Goedhuys and Sleuwaegen (2016), using firm-level data from 89 developing and transition economies, find that internationally certified firms are more likely to export and that certification can reduce transaction costs in international markets. This provides a strong basis for examining the same relationship among Moroccan SMEs.

H1: Internationally recognized quality certification is positively associated with the probability of export participation among Moroccan SMEs.

The second hypothesis concerns firm size. Within the RBV, size is interpreted as a broad indicator of the resource base available to the firm rather than as a competitive advantage by itself. Larger SMEs may have more capacity to distribute specialized tasks, absorb entry costs, and manage the organizational demands associated with foreign markets. Ruzzier and Konecnik Ruzzier (2014) find that internationalized Slovenian SMEs are larger and possess more specialized resources than non-internationalized firms, while Ha et al. (2020) report a positive association between firm size and export performance in Vietnamese manufacturing. The present study therefore tests whether meaningful size differences within the SME population are also associated with export participation in Morocco.

H2: Firm size is positively associated with export participation among Moroccan SMEs.

The remaining variables complete the framework without generating additional formal hypotheses. Perceived financing obstacles and formal credit possession or use represent different aspects of firms' financial conditions, while product innovation captures recent innovation activity. Sector, firm age, and managerial experience are retained as contextual or control variables. Their inclusion allows the empirical analysis to examine whether the two focal associations remain visible after accounting for broader firm heterogeneity. Figure 1 summarizes this structure. The arrows represent expected statistical associations and do not imply causal relationships.

Figure N°1: Conceptual framework of the study

Focal construct Internationally recognized quality certification (H1)	→	EXPORT PARTICIPATION (Binary outcome)
Secondary construct Firm size / resource endowment (H2)	→	
Complementary factors Financial conditions • Product innovation	→	
Contextual and control variables Sector • Firm age • Managerial experience	→	

Source: Authors' elaboration.

3. Research Methodology

This study follows a quantitative and deductive research approach within a post-positivist perspective. The hypotheses are derived from the Resource-Based View and prior empirical evidence and are tested using secondary firm-level data. This approach is appropriate because the study seeks to examine statistical associations between observable firm characteristics and export

participation. Given the cross-sectional nature of the WBES data, the analysis does not aim to establish causal relationships.

3.1 Data Source : World Bank Enterprise Survey Morocco 2023

The empirical analysis draws on data from the World Bank Enterprise Survey (WBES) conducted in Morocco in 2023. The World Bank's Enterprise Surveys constitute a standardized data source for examining firm characteristics, their economic and institutional environment, financing conditions, innovation capacity, and participation in international markets. The 2023 Moroccan survey initially covers 598 establishments and includes 354 variables, covering general firm characteristics, productive structure, access to finance, innovation activities, and trade performance.

Data collection relies on a standardized questionnaire administered to formal private-sector establishments. Information is primarily gathered from owners, managers, or financial officers of the surveyed firms. The WBES sampling design follows a probabilistic, stratified procedure that accounts for establishment size, sector of activity, and region. The Moroccan sample thus covers different geographic areas and sectors of the economy, providing a diversified representation of the productive fabric under study.

The choice of the WBES is justified by its ability to bring together, at the firm level, the main dimensions mobilized in this research. The database allows for the identification of export participation, internationally recognized quality certification, firm size, access to finance, financial obstacles, innovation activities, as well as manager and sector characteristics. It is therefore particularly well suited to analyzing the factors associated with the export participation of Moroccan SMEs.

This study uses the data in cross-sectional form, with each establishment observed at a single point in time. This feature does not allow a firm-level temporal dimension to be exploited. The econometric results are therefore interpreted as statistical associations rather than as strictly established causal relationships.

A distinction is made between the initial database and the sample actually used for estimation. The original file comprises 598 establishments, whereas the analytical sample retained for the

econometric estimations consists of 328 SMEs. The procedure for moving from the initial sample to the final sample is presented in the following subsection.

3.2 SME Definition, Sample Construction, and Data Preparation

The sample used in the econometric estimations does not correspond directly to the full set of 598 establishments present in the WBES database. The analytical sample was constructed progressively in order to retain observations meeting the criteria required for the analysis and possessing the information needed for the variables used in the models.

To preserve the traceability and reproducibility of the data processing, the original WBES file was kept unmodified. A working file was then created to recode variables, construct the indicators needed for the analysis, and handle missing values. Observations excluded from the analytical sample were not deleted from the working file but were flagged through an indicator distinguishing retained observations from those failing to meet the inclusion criteria.

The first step was to retain establishments for which the dependent variable relating to export participation was available. Out of the 598 initial establishments, 573 observations had usable information on this variable. Subsequent steps took into account the availability of the explanatory variables required for estimation, namely the perceived financial obstacle, formal credit, product innovation, firm age, quality certification, and manager experience. Firm age was calculated as the difference between the survey year (2023) and the start-of-operations year declared by the manager. The rare missing or inconsistent values were handled through imputation based on cross-referenced information on manager experience and the firm's founding date.

A second restriction concerns the definition of the population under study. In line with the objective of this research, establishments employing fewer than 100 employees were retained in the final sample. This selection was carried out using the employment variable l1, which directly measures the establishment's headcount. The use of this variable applies the retained SME threshold explicitly and reproducibly rather than relying solely on the size stratum provided in the survey.

The combination of these steps led to a final analytical sample of 328 observations. Out of the 598 establishments initially available, 93 additional observations were excluded because of the size

criterion, while the remaining exclusions mainly resulted from incomplete information for variables used in the analysis. The progressive sample reduction is reported in Appendix 1 (Sample Attrition Tracking).

An important element of the empirical strategy is that the six Logit specifications are estimated on the same final sample of 328 observations. This harmonization allows direct comparison of the coefficients across specifications without changes being attributable to variation in sample composition.

3.3 Variable Definition and Operationalization

The variables are operationalized from the WBES Morocco 2023 questionnaire and from variables constructed for the analysis. The focal variables are export participation, internationally recognized quality certification, and firm size. Financial variables and product innovation are treated as complementary explanatory variables, while firm age, manager experience, and sector are included as controls.

3.3.1 Export Participation

Export participation is the binary dependent variable. It takes the value 1 when the establishment reports positive direct exports (d3c) or positive indirect exports (d3b), and 0 when both direct and indirect exports are zero.

3.3.2 Quality Certification

Internationally recognized quality certification is measured using WBES variable b8. The indicator takes the value 1 when the establishment reports holding an internationally recognized quality certification and 0 otherwise. This variable corresponds to H1.

3.3.3 Firm Size

Firm size is measured using permanent employment (l1). In the econometric models, the natural logarithm of employment is used. Firm size corresponds to H2.

3.3.4 Financial Variables

Two financial measures are included as complementary explanatory variables. The perceived financial obstacle (k30) is measured on an ordinal scale from 0 (no obstacle) to 4 (very severe obstacle). Formal credit (k82) is a binary indicator equal to 1 when the establishment reports having a bank loan or line of credit.

3.3.5 Product Innovation

Product innovation is measured using WBES variable h1. It identifies whether the establishment introduced a new or improved product or service during the previous three years. It is treated as a complementary explanatory variable rather than as a separate hypothesis.

3.3.6 Control Variables

The control variables are firm age, manager experience, and sector of activity. Firm age is expressed as the logarithm of the number of years in operation. Manager experience (b7) is measured as the number of years of experience of the principal manager. Sector of activity (a4a) is included as a categorical variable, with food processing as the reference category.

Table N°1: Presentation of Model Variables

Notation	Variable	Source	Measure	Role
Export_i	Export participation	d3b, d3c	1 if direct or indirect exports > 0	Dependent
Certif_i	Internationally recognized quality certification	b8	1 if certification is reported	H1
ln(Size_i)	Firm size (log)	l1	Natural log of permanent employment	H2
ObstFin_i	Perceived financial obstacle	k30	Ordinal scale: 0 (none) to 4 (very severe)	Complementary explanatory
Credit_i	Formal credit	k82	1 if bank loan or line of credit	Complementary explanatory
Innov_i	Product innovation	h1	1 if new or improved product/service in past 3 years	Complementary explanatory
Control_i	Firm age (log)	b5, b6b, a14y	Log of number of years in operation	Control
mgr_exp	Manager experience	b7	Number of years of manager experience	Control
Control_i	Sector of activity	a4a	Categorical; reference = Food processing	Control

Source: authors' compilation based on World Bank Enterprise Survey (WBES) data, Morocco 2023.

3.4 Econometric Specification and Estimation Strategy

To identify the factors associated with the export participation of Moroccan SMEs, the study estimates a binary logistic regression model (Logit). This choice follows from the dichotomous nature of the dependent variable, which takes the value 1 when the firm participates in exporting and 0 otherwise. Binary choice models are commonly used in analyses of firms' participation in foreign markets. Goedhuys and Sleuwaegen (2016), for example, use a Probit model followed by an IV-Probit model to examine export participation and address the potential endogeneity of certification. In the present study, Logit is retained as the main model, while Probit is used as a robustness check.

More generally, the probability that firm i participates in exporting is specified as:

$$P(\text{Export}_i = 1 \mid X_i) = \Lambda(X_i'\beta)$$

where $\Lambda(\cdot)$ denotes the logistic function and $X_i'\beta$ represents the set of explanatory and control variables introduced in each specification.

The analysis relies on six related specifications. Certification, firm size, and the control variables are retained throughout, while the complementary financial and innovation variables are introduced in different combinations to assess the stability of the associations associated with H1 and H2.

Table N°2: Logit Estimation Sequence

Model	Specification
M1	Baseline model: focal variables and controls
M2	M1 + perceived financial obstacle
M3	M1 + product innovation
M4	M1 + perceived financial obstacle + product innovation
M5	M1 + formal credit
M6	M1 + perceived financial obstacle + formal credit + product innovation

3.5 Diagnostics and Robustness Strategy

Before interpreting the multivariate models, the analysis examines bivariate relationships between export participation and the main firm characteristics. Pairwise correlations and variance inflation factors (VIF) are then used to assess whether multicollinearity may affect the estimates. The sector

variable is represented through separate dummy variables, with food processing as the reference category.

The Logit estimations are reported with robust HC1 standard errors. Average marginal effects are calculated from the full specification (M6) to express the estimated associations in probability terms. Model fit is assessed using the log-likelihood, McFadden's pseudo- R^2 , AIC, and BIC.

As a functional-form robustness check, the same six specifications are re-estimated using Probit on the identical analytical sample of 328 SMEs. Robustness is assessed primarily through the stability of the sign and statistical significance of the two central variables, certification and firm size.

4. Empirical Results and Discussion

4.1 Descriptive Analysis

Table N°3: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Export participation	328	0.2348	0.4245	0	1
Perceived financial obstacle	328	1.6402	1.1354	0	4
Formal credit	328	0.2165	0.4125	0	1
Product innovation	328	0.1250	0.3312	0	1
Firm size (employees)	328	26.8720	22.3375	4	96
Firm age (years)	328	16.3232	11.6632	2	73
Quality certification	328	0.0976	0.2972	0	1
Textiles and garments	328	0.1189	0.3242	0	1
Other manufacturing	328	0.1738	0.3795	0	1
Retail trade	328	0.2805	0.4499	0	1
Other services	328	0.2652	0.4421	0	1
Manager experience	328	18.5244	9.8344	1	63

Source: authors' compilation based on WBES 2023 data and Stata estimation results.

The descriptive statistics refer to the 328 Moroccan SMEs retained in the final analytical sample. Export participation is observed for 23.48% of firms, while 76.52% do not export.

Internationally recognized quality certification is reported by 9.76% of SMEs. Formal credit is reported by 21.65% of firms, while 12.50% introduced a new or improved product or service.

Average firm size is 26.87 employees, with a minimum of 4 and a maximum of 96 employees. Average firm age is 16.32 years, ranging from 2 to 73 years. Average manager experience is 18.52 years, with a minimum of 1 and a maximum of 63 years.

The perceived financial obstacle has a mean of 1.64 on the 0-4 scale. The sectoral distribution is 11.89% textiles and garments, 17.38% other manufacturing, 28.05% retail trade, and 26.52% other services. Food processing, the reference category in the models, accounts for the remaining 16.16%.

4.2 Bivariate Analysis and Pre-Estimation Diagnostics

Table N°4: Bivariate Relationships between Export Participation and Main SME Characteristics

Variable	Exporters	Non-exporters	Test	Statistic	p-value
Quality certification	19.48% certified	6.77% certified	Pearson χ^2	10.8075	0.001
Average size	36.00	24.07	Student's t	-4.2022	<0.001
Manager experience	20.66 years	17.87 years	Student's t	-2.1934	0.029
Formal credit	22.08%	21.51%	Pearson χ^2	0.0111	0.916
Product innovation	14.29%	11.95%	Pearson χ^2	0.2934	0.588

Source : authors' compilation based on WBES 2023 data and Stata estimation results.

The bivariate results show that quality certification is significantly more frequent among exporting SMEs (19.48% versus 6.77%; $\chi^2 = 10.8075$; $p = 0.001$). Their average size is also higher (36 versus 24.07 employees; $t = -4.2022$; $p < 0.001$), as is manager experience (20.66 versus 17.87 years; $t = -2.1934$; $p = 0.029$). By contrast, no significant difference is observed for formal credit (22.08% versus 21.51%; $\chi^2 = 0.0111$; $p = 0.916$) or product innovation (14.29% versus 11.95%; $\chi^2 = 0.2934$; $p = 0.588$).

Table N°5: Distribution of Firms by Perceived Financial Obstacle and Export Status

Perceived financial obstacle	Non-exporters (n=251)	Exporters (n=77)
None	16.33%	20.78%
Minor	32.27%	29.87%
Moderate	25.90%	23.38%
Major	19.52%	24.68%
Very severe	5.98%	1.30%
Total	100%	100%

Source : authors' compilation based on WBES 2023 data and Stata estimation results.

The distribution of firms across the different financial-obstacle levels appears relatively similar between exporting and non-exporting SMEs. The χ^2 test does not reveal a statistically significant difference between the two groups ($\chi^2(4) = 4.3223$; $p = 0.364$).

Table N°6: Sectoral Distribution of Firms by Export Status

Sector	Non-exporters	Exporters
Food processing	17.93%	10.39%
Textiles and garments	9.56%	19.48%
Other manufacturing	14.74%	25.97%
Retail trade	31.47%	16.88%
Other services	26.29%	27.27%

Source: authors' compilation based on WBES 2023 data and Stata estimation results.

Exporting SMEs are more strongly represented in other manufacturing (25.97%) and textiles and garments (19.48%), whereas non-exporting SMEs are mainly found in retail trade (31.47%) and other services (26.29%). Food processing accounts for 17.93% of non-exporters and 10.39% of exporters, while other services show similar proportions across the two groups.

Table N°7: Correlation Matrix of Variables

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1 Export	1											
2 Certification	0.182	1										
3 Log size	0.222	0.236	1									
4 Log age	0.106	0.218	0.309	1								
5 Manager exp.	0.121	0.064	0.110	0.348	1							
6 Financial obstacle	-0.040	-0.059	-0.004	-0.002	0.041	1						
7 Credit	0.006	0.052	0.059	0.041	0.013	0.049	1					
8 Innovation	0.030	0.062	-0.065	-0.109	-0.020	0.014	0.070	1				
9 Textiles-garments	0.130	-0.057	0.278	-0.039	0.007	0.042	-0.033	-0.053	1			
10 Other manuf.	0.126	0.066	0.197	0.176	0.094	0.039	0.111	-0.003	-0.169	1		
11 Retail trade	-0.138	-0.068	-0.222	-0.002	0.005	0.096	0.001	-0.072	-0.229	-0.286	1	
12 Other services	-0.005	-0.080	-0.212	-0.189	-0.139	0.016	0.002	-0.017	-0.222	-0.282	-0.364	1

Source: authors' compilation based on WBES 2023 data and Stata estimation results. Note: Food processing is the sectoral reference category and is not represented by a dummy variable in the matrix.

The correlation matrix does not reveal strong correlations among the main explanatory variables retained in the Logit models. The highest correlation is between log firm age and manager experience (0.348), followed by log size and log age (0.309). Certification is correlated with firm size at 0.236 and with firm age at 0.218, while correlations involving the financial obstacle, formal credit, and innovation remain low. Overall, the matrix does not indicate an important multicollinearity problem.

Table N°8: Multicollinearity Test (VIF)

Variable	VIF	1/VIF
Perceived financial obstacle	1.03	0.972
Formal credit	1.03	0.974
Product innovation	1.05	0.956
Log size	1.38	0.723
Log age	1.32	0.756
Certification	1.12	0.890
Manager experience	1.15	0.873
Food processing (ref.)	—	—
Textiles and garments	1.65	0.608
Other manufacturing	1.79	0.560
Retail trade	2.12	0.472
Other services	2.04	0.491
Mean VIF	1.42	—

Source: authors' compilation based on WBES 2023 data and Stata estimation results.

VIF values range from 1.03 to 2.12, with a mean VIF of 1.42. The highest values concern retail trade (2.12) and other services (2.04), while the focal variables also remain low. These results do not indicate an important multicollinearity problem among the explanatory variables retained in the models.

4.3 Logistic Regression Results

The Logit model constitutes the main multivariate estimation because export participation is binary. Six related specifications are estimated to examine the stability of the associations involving certification and firm size as complementary variables are introduced in different combinations.

Table N°9: Results of the Six Logit Models

Variable	M1	M2	M3	M4	M5	M6
Certification	1.121*** (0.423)	1.107** (0.430)	1.086** (0.436)	1.070** (0.443)	1.132*** (0.423)	1.081** (0.444)
Log size	0.456** (0.225)	0.464** (0.228)	0.469** (0.229)	0.477** (0.232)	0.462** (0.224)	0.485** (0.230)
Log age	-0.043 (0.237)	-0.050 (0.238)	-0.029 (0.241)	-0.035 (0.242)	-0.044 (0.237)	-0.034 (0.243)
Manager experience	0.025* (0.013)	0.025* (0.014)	0.024* (0.013)	0.025* (0.014)	0.025* (0.013)	0.025* (0.014)
Food processing (ref.)	—	—	—	—	—	—
Textiles and garments	1.326** (0.518)	1.355*** (0.520)	1.339*** (0.518)	1.370*** (0.520)	1.331** (0.523)	1.379*** (0.527)
Other manufacturing	1.137** (0.474)	1.172** (0.479)	1.134** (0.472)	1.171** (0.477)	1.163** (0.487)	1.205** (0.492)
Retail trade	0.301 (0.479)	0.341 (0.485)	0.314 (0.480)	0.357 (0.486)	0.312 (0.485)	0.372 (0.494)
Other services	1.007** (0.454)	1.014** (0.457)	1.007** (0.452)	1.015** (0.455)	1.020** (0.461)	1.032** (0.463)
Financial obstacle	—	-0.096 (0.121)	—	-0.099 (0.122)	—	-0.098 (0.122)
Product innovation	—	—	0.298 (0.453)	0.311 (0.453)	—	0.341 (0.455)
Formal credit	—	—	—	—	-0.158 (0.348)	-0.189 (0.356)
Constant	-3.859*** (0.850)	-3.739*** (0.845)	-3.969*** (0.883)	-3.849*** (0.878)	-3.854*** (0.848)	-3.861*** (0.879)
N	328	328	328	328	328	328
Log-likelihood	-161.283	-160.978	-161.028	-160.701	-161.174	-160.551
Pseudo R² (McFadden)	0.0977	0.0994	0.0991	0.1010	0.0983	0.1018
AIC	340.565	341.957	342.056	343.402	342.348	345.102
BIC	374.702	379.887	379.986	385.126	380.278	390.618

*Source: authors' compilation based on WBES 2023 data and Stata estimation results. Robust standard errors (HCl) in parentheses. *** $p < .01$; ** $p < .05$; * $p < .10$. Sectoral reference category: Food processing.*

Across all six specifications, the coefficient associated with certification remains positive and statistically significant, ranging from 1.070 (M4) to 1.132 (M5). In the full model (M6), the coefficient is 1.081 and remains significant at the 5% level. Firm size is likewise positive and significant at the 5% level in all six models, ranging from 0.456 (M1) to 0.485 (M6). The stability of these two coefficients shows that the introduction of the financial and innovation variables does not substantially alter the main associations.

Firm age is negative but statistically non-significant in all six models. Manager experience is positive and significant at the 10% level across specifications. Relative to food processing, textiles and garments, other manufacturing, and other services show positive and statistically significant coefficients, while retail trade does not differ significantly from the reference sector.

The complementary explanatory variables are statistically imprecise. Product innovation is positive where included, reaching 0.341 in M6, but remains non-significant. Formal credit is negative and non-significant in M6 (−0.189), as is the perceived financial obstacle (−0.098). These estimates do not provide statistically precise evidence of an independent association with export participation once the other firm characteristics are included.

The six models use the same sample (N = 328). McFadden's pseudo- R^2 increases slightly from 0.098 in M1 to 0.102 in M6. AIC and BIC generally increase with the addition of complementary variables, indicating that the more complex specifications do not improve fit sufficiently to offset the penalty for added parameters. The main result is the stability of certification and firm size across specifications.

Table N°10: Average Marginal Effects from the Full Logit Model (M6)

Variable	dy/dx	Std. Err.	z	p-value	95% CI
Perceived financial obstacle	−0.0156	0.0193	−0.81	0.418	[−0.0534; 0.0222]
Formal credit	−0.0300	0.0566	−0.53	0.597	[−0.1409; 0.0810]
Product innovation	0.0542	0.0725	0.75	0.455	[−0.0879; 0.1963]
Log size	0.0770	0.0360	2.14	0.032	[0.0065; 0.1475]
Log age	−0.0055	0.0386	−0.14	0.887	[−0.0812; 0.0703]
Certification	0.1717	0.0691	2.48	0.013	[0.0362; 0.3071]
Manager experience	0.0040	0.0021	1.84	0.066	[−0.0003; 0.0082]
Food processing (ref.)	—	—	—	—	—
Textiles and garments	0.2144	0.0867	2.47	0.013	[0.0445; 0.3843]
Other manufacturing	0.1796	0.0724	2.48	0.013	[0.0377; 0.3214]
Retail trade	0.0435	0.0570	0.76	0.445	[−0.0683; 0.1553]
Other services	0.1470	0.0634	2.32	0.020	[0.0227; 0.2712]

Source: authors' compilation based on WBES 2023 data and Stata estimation results.

Certification has the largest average marginal effect: 0.172 ($p = .013$). Conditional on the included covariates, holding an internationally recognized quality certification is associated with an average probability of exporting about 17.2 percentage points higher than that of a non-certified firm. This result provides empirical support for H1.

Firm size also has a positive and statistically significant marginal effect (0.077; $p = .032$). A one-unit increase in log firm size is associated with an average increase of about 7.7 percentage points in the probability of exporting. This result supports H2. A one-unit increase in the natural logarithm of employment corresponds to multiplying employment by approximately 2.72; for example, moving from 10 employees to about 27 employees corresponds to this change in log size.

The complementary variables do not show statistically significant marginal effects in the full model. Innovation is positive (0.054; $p = .455$), while formal credit and the perceived financial obstacle are negative (-0.030 and -0.016 , respectively) and non-significant. Manager experience has a small positive marginal effect of about 0.4 percentage points per additional year, with $p = .066$.

4.4 Robustness and Sensitivity Analysis

To assess robustness to the choice of binary-response link function, the six specifications are re-estimated using Probit on the same sample of 328 observations and with the same variables. The full results are reported in Appendix 2.

Certification remains positive and statistically significant in all six Probit specifications, with coefficients ranging from 0.659 to 0.690; in P6, the coefficient is 0.664 and significant at the 5% level. Firm size also remains positive and significant across the six models, with coefficients ranging from 0.272 to 0.284 and a value of 0.284 in P6. These results are consistent with the Logit findings and provide additional support for H1 and H2.

The complementary variables are also consistent with the Logit estimates. In P6, the perceived financial obstacle is negative and non-significant (-0.052), formal credit is negative and non-significant (-0.106), and innovation remains positive but non-significant (0.216). Manager experience remains positive and significant at the 10% level (0.015 in P6).

The Probit specifications are estimated on the same sample. In P6, AIC and BIC are 344.291 and 389.808, respectively. Robustness is interpreted primarily through the stability of the sign and significance of the central variables. The shift from Logit to Probit therefore does not alter the main conclusions. The findings remain associations rather than causal estimates, given the cross-sectional data and the possible endogeneity of certification.

4.5 Discussion of Findings

This study asks: To what extent is internationally recognized quality certification associated with export participation among Moroccan SMEs, and what role do firm-level resources and capabilities play in explaining export participation? H1 proposes a positive association between internationally recognized quality certification and export participation, while H2 proposes a positive association between firm size and export participation. Financing and product innovation are treated as complementary explanatory variables rather than separate hypotheses. The results provide empirical support for H1 and H2 across all six specifications.

Regarding quality certification, the positive and statistically significant association is consistent with Goedhuys and Sleuwaegen (2016), who find, using firm-level data from developing and transition economies, that internationally recognized certification is associated with a higher probability of export participation. They link this pattern to reduced information asymmetries and transaction costs, with certification serving as a credible signal to foreign buyers. Bangwayo-Skeete and Moore (2015) similarly report that internationally recognized quality certifications facilitate export entry across developing-country firms. Methodologically, these studies use more complex approaches than the present analysis: Goedhuys and Sleuwaegen use Probit and IV-Probit, while Bangwayo-Skeete and Moore employ a multilevel GLLAMM framework. The convergence of results strengthens the plausibility of the association observed here, but it does not establish causality in the present cross-sectional setting.

The positive association between firm size and export participation is consistent with Fakhri and Ghazalian (2014), who report a positive size effect on the probability of exporting among manufacturing firms in the MENA region. It is also consistent with Rankin et al. (2006), who find firm size to be a robust determinant of export participation across manufacturing firms in five Sub-Saharan African countries. Their conditional Logit specifications account for time-invariant unobserved firm heterogeneity, providing a useful methodological comparison with the present cross-sectional Logit analysis. Sterlacchini (2001) also finds that, within the small-firm subsample, size is positively related to both export probability and export intensity, while the relationship is more complex among larger firms. This suggests that the positive within-SME size association

found in the present study is consistent with prior evidence, while possible non-linearities remain an avenue for future research.

The financial and innovation variables do not show statistically precise independent associations with export participation once the other firm characteristics are controlled for. This applies to the perceived financial obstacle, formal credit, and product innovation. These non-significant estimates should not be interpreted as proof that finance and innovation do not matter. They may reflect limited statistical power, measurement constraints in the available WBES indicators, or heterogeneous effects across sectors and firm-size groups that are not captured by the present specification.

The sectoral results also indicate contextual heterogeneity. Relative to food processing, textiles and garments, other manufacturing, and other services are positively associated with export participation, while retail trade is not statistically different from the reference category. This pattern supports treating sector as an important contextual control rather than assuming that the same export-participation conditions apply uniformly across activities.

Overall, the findings place internationally recognized quality certification and firm size at the center of the empirical explanation of export participation in this sample. The results are consistent with the article's resource-based framing: certification can be interpreted as an observable manifestation of quality-management routines and export readiness, while firm size reflects broader resource endowment. At the same time, the absence of precise independent associations for finance and innovation suggests that individual resource indicators do not necessarily translate directly into export entry when considered separately.

The cross-sectional design remains an important limitation. The results should therefore be read as conditional associations rather than causal relationships. Future research could use panel data or identification strategies that address the potential endogeneity of certification and allow the dynamics of SME internationalization to be studied more directly.

5. Conclusion

5.1 Summary of Main Findings

This study examined the association between internationally recognized quality certification and export participation among Moroccan SMEs, while also considering the role of firm size and other firm-level resources and capabilities. The empirical analysis was based on a final sample of 328 SMEs from the World Bank Enterprise Survey Morocco 2023, of which 23.48% participated in export markets.

The results provide consistent support for the two hypotheses developed in this study. First, internationally recognized quality certification is positively associated with export participation. This relationship remains statistically significant across all six Logit specifications. In the full model, certified SMEs have an average predicted probability of exporting that is approximately 17.2 percentage points higher than that of non-certified SMEs, after accounting for the other variables included in the model. Second, firm size is also positively and significantly associated with export participation across all specifications. These results indicate that certification and firm size are the two firm-level characteristics that show the most stable relationship with export participation in the sample.

The complementary variables provide a more mixed picture. Product innovation shows a positive association with export participation, but the estimate is not statistically significant. Similarly, neither perceived financial obstacles nor access to formal credit shows a statistically precise independent association with export participation once the other firm characteristics are taken into account. Manager experience presents a weaker positive association, while the results also indicate differences in export participation across sectors.

The robustness analysis using Probit specifications leads to the same main conclusions. Certification and firm size remain positive and statistically significant, while the results for finance and innovation remain statistically imprecise. Taken together, the findings provide consistent evidence that organizational readiness, reflected through internationally recognized quality certification, and firm resource endowment, reflected through firm size, are closely associated with the participation

of Moroccan SMEs in export markets. These findings should nevertheless be interpreted as statistical associations rather than causal relationships because the study relies on cross-sectional data.

5.2 Theoretical and Empirical Contributions

This study makes a theoretical contribution by using the Resource-Based View to organize the analysis of SME export participation around differences in firm-level resources and capabilities. The results support the relevance of this perspective, but they also suggest that these resources should not be treated as equally important. Internationally recognized quality certification emerges as the most prominent firm-level characteristic associated with export participation. In this study, certification is not considered a strategic resource in itself or assumed to possess all the characteristics of a VRIN resource. Rather, it is interpreted as an observable manifestation of underlying quality-management routines, organizational readiness, and the ability of the firm to meet requirements that may become important when dealing with international markets. Firm size provides a second resource-based dimension, reflecting differences in the broader resource endowment available to SMEs.

The findings also provide a more differentiated view of the role of firm resources in export entry. Financial conditions and product innovation do not show statistically precise independent associations with export participation once the other firm characteristics are considered. This does not imply that finance and innovation are unimportant for SME internationalization. Instead, the results suggest that individual resources may not translate directly into export participation when examined separately. Their contribution may depend on how they interact with other capabilities, organizational conditions, or sector-specific characteristics.

Empirically, the study contributes recent firm-level evidence from Moroccan SMEs using the World Bank Enterprise Survey 2023. It focuses specifically on export participation as a binary outcome, which is different from export intensity or export performance after a firm has already entered foreign markets. This distinction is important because previous Moroccan research has largely examined export performance, export intensity, innovation, technology, and other post-entry dimensions. The present study complements this literature by examining the exporter/non-exporter

threshold and by placing internationally recognized quality certification at the center of the empirical analysis.

Finally, the study adds evidence from SMEs operating across several sectors within a developing-economy context. The observed sectoral differences indicate that export participation should not be understood independently of the activity in which firms operate. Taken together, these contributions provide a more focused understanding of how organizational readiness, resource endowment, and firm context are associated with the participation of Moroccan SMEs in export markets.

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Appendices

Appendix 1: Sample Attrition Tracking

Step	Remaining N	Lost	% of initial base
Full base	598	—	100.0
+ dependent variable (export)	573	25	95.8
+ perceived financial obstacle (k30)	554	19	92.6
+ formal credit (k82)	514	40	85.9
+ product innovation (h1)	503	11	84.1
+ firm age (b5)	472	31	78.9
+ quality certification (b8)	436	36	72.9
+ manager experience (b7)	421	15	70.4
+ SME restriction (l1 < 100)	328	93	54.8

Source : authors' compilation based on WBES 2023 data and Stata estimation results.

Appendix 2 : Results of the Six Probit Model Specifications

Variable	P1	P2	P3	P4	P5	P6
Certification	0.684*** (0.256)	0.678*** (0.258)	0.666** (0.261)	0.659** (0.263)	0.690*** (0.256)	0.664** (0.263)
Log size	0.273** (0.126)	0.272** (0.127)	0.279** (0.128)	0.279** (0.129)	0.276** (0.126)	0.284** (0.128)
Log age	-0.034 (0.135)	-0.036 (0.135)	-0.025 (0.137)	-0.027 (0.137)	-0.036 (0.135)	-0.028 (0.137)
Manager experience	0.015* (0.008)	0.015* (0.008)	0.014* (0.008)	0.015* (0.008)	0.015* (0.008)	0.015* (0.008)
Food processing (ref.)	—	—	—	—	—	—
Textiles and garments	0.817*** (0.300)	0.834*** (0.300)	0.832*** (0.300)	0.851*** (0.300)	0.815*** (0.300)	0.850*** (0.302)
Other manufacturing	0.698** (0.272)	0.715*** (0.274)	0.703*** (0.271)	0.721*** (0.273)	0.709** (0.277)	0.735*** (0.279)
Retail trade	0.204 (0.265)	0.223 (0.267)	0.212 (0.265)	0.232 (0.267)	0.206 (0.267)	0.236 (0.270)
Other services	0.636** (0.256)	0.638** (0.256)	0.641** (0.255)	0.644** (0.255)	0.639** (0.258)	0.649** (0.258)
Financial obstacle	—	-0.050 (0.070)	—	-0.053 (0.070)	—	-0.052 (0.070)
Product innovation	—	—	0.194 (0.253)	0.202 (0.253)	—	0.216 (0.254)
Formal credit	—	—	—	—	-0.090 (0.197)	-0.106 (0.201)
Constant	-2.312*** (0.478)	-2.237*** (0.478)	-2.381*** (0.493)	-2.306*** (0.493)	-2.306*** (0.477)	-2.308*** (0.494)
N	328	328	328	328	328	328
Log-likelihood	-160.890	-160.648	-160.554	-160.287	-160.787	-160.146
AIC	339.781	341.296	341.109	342.574	341.574	344.291
BIC	373.918	379.226	379.039	384.297	379.504	389.808

Source : authors' compilation based on WBES 2023 data and Stata estimation results. Robust standard errors (HCl) in parentheses. *** $p < .01$; ** $p < .05$; * $p < .10$. Sectoral reference category: Food processing. Sample identical to the Logit models ($N = 328$).