

## **THE INTERNATIONALISATION OF SMES: MANAGER PROFILE AS A VECTOR OF EXPORT PERFORMACNE**

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### **ABSTRACT**

This research aims to analyse the influence of the profile of managers on the export performance of SMEs. Based on data collected from 43 Algerian SME exporters, and through a model of structural equations, we tested the effects of two groups of factors, namely, cognitive and intrinsic characteristics of managers on two types of performance measures (objective and subjective). Our results show the importance of the factors related to personal attributes of manager, as his attitude towards risk related to export activity, his level of commitment to export activities and his know-how.

### **KEY WORDS :**

SMEs, Performance, Export, Structural Equations, Manager Profile

**JEL CLASSIFICATION :** F2, F23, L25

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## **L'INTERNATIONALISATION DES PME : LE PROFIL DU DIRIGEANT COMME VECTEUR DE PERFORMANCE A L'EXPORTATION**

### **RÉSUMÉ :**

Cette recherche a pour objectif d'analyser l'influence du profil des dirigeants sur la performance à l'export des PME. En nous basant sur des données recueillies auprès de 43 PME exportatrices algériennes, et à travers un modèle d'équations structurelles, nous avons testé les effets de deux groupes de facteurs, à savoir les caractéristiques cognitives et intrinsèques des dirigeants sur deux types de mesures de la performance (objective et subjective). Nos résultats montrent l'importance des facteurs liés aux attributs personnels du dirigeant comme son attitude à l'égard du risque lié à l'activité export, son niveau d'engagement dans les activités export et son savoir-faire.

### **MOTS CLÉS :**

PME, Performance, Export, Équations Structurelles, profil du dirigeant.

**JEL CALSSIFICTION :** F2 ; F23 ; L25.

## تدويل المؤسسات الصغيرة والمتوسطة: مميزات الشخصية للمسير لتفسير أداء التصدير

ملخص:

يهدف هذا البحث إلى تحليل تأثير جوانب شخصية مسيري المؤسسات الصغيرة والمتوسطة على أداء التصدير. وحسب البيانات التي تم جمعها من طرف 43 مصدرًا جزائريًا لمؤسسات صغيرة ومتوسطة الحجم ، ومن خلال نموذج المعادلات الهيكلية، قمنا باختبار تأثيرات مجموعتين من العوامل المرتبطة بالخصائص الإدراكية والجوهرية للمسيرين على نوعين من مقاييس الأداء) الموضوعية والذاتية . (واظهرت نتائج الدراسة أهمية العوامل المتعلقة بسمات شخصية المسير كموقفه من المخاطر المتعلقة بنشاط التصدير، ومستوى التزامه في أنشطة التصدير ومعارفه العلمية.

كلمات مفتاحية:

المؤسسات الصغيرة والمتوسطة، الأداء التصدير، النماذج الهيكلية، جانب شخصية

المسير .

تصنيف جال: F2 ; F23 ; L25

## INTRODUCTION

Economic development and market interpenetration have pushed small and medium-sized enterprises (SMEs) to adopt export operations as a strategy for their development and survival (Dikova et al., 2016).

Several past theoretical and empirical studies show that internationalization of these firms is motivated by factors related to their external environment (Minavand, 2012). If these factors are associated with a general reduction of tariffs, a decline of transport costs, financial globalization, technical progress and trivialization of information and communication technologies (ICTs), this association will facilitate exports and increase the performance of SMEs.

However, several authors added that the specificity of SMEs requires the integration of other specific factors such as the characteristics of the manager profile in order to identify the internationalization issue of these businesses (Sala&Yalcin, 2015). To this end, the manager's education, his commitment level, his attitude towards export risk, his know-how and his experience constitute explanatory factors for SMEs export performance (Tan et al., 2007; Chen et al., 2017; Kotorri&Krasniqi, 2018).

The purpose of this research is to determine the influence of the characteristics of SME managers on export performance. With the analyse of a sample of 43 Algerian SME exporters, the aim of this study is to treat *how the cognitive and intrinsic characteristics of manager can affect the success of his export firm*.

To answer our question, we have structured this article as follows: the first and second part will be devoted to the state of the art on manager profile and export performance, respectively. The third part is dedicated to develop the model hypotheses. The fourth is devoted to the methodology of research and the implementation of empirical analysis. Finally, the last part is designed to the examination of the main obtained results and their discussion.

## **1. THEORETICAL FRAMEWORK**

### **1.1. Manager profile: resource based view as a framework for analysis**

In this paper, we will adopt the resources and competences model as an analysis framework in order to link the determinants influencing SMSs' export performance to manager characteristics (manager profiles). The latter are grouped into two dimensions: the cognitive characteristics and intrinsic characteristics.

For Laghzaoui (2011), the notion resource based view (RBV) appears as gathering the various traditional approaches related to internationalization of SMEs. Each of them relies, more or less implicitly or explicitly, on this concept by favouring certain resources and skills over others to explain the success of SMEs internationally. Learning enables to accumulate experiences and reduces the psychic distance between firm and its export market. Similarly, the relationships developed by the network approach constitute a central resource of growth used by firms in internationalization (Laghzaoui, 2009; Chen et al., 2017). It is possible to focus resources and skills around three specific areas: manager, firm and environment. The specific combination for these different resources allows controlling external markets more easily. However, for the sake of delimitation of the analysis, we opted for the role of manager profile as an explanatory element of the success of exporting SMEs through five dimensions: level of education, experience in activities in relation to export activity, level of commitment, know how, and attitude towards the risk associated with export activity.

The resources and skills of any firm are key elements of different choices that SME faces. For Pantin (2006), the RBV approach offers a broader analysis of the process of internationalization of SMEs, compared to the behaviourist approach. According to the former, the commitment of SMEs internationally does not only depend on the resources available to them, but also on the profile of managers.

In this context, several studies have shown that the manager's attitude towards risks inherent to any commercial operation, to his age, to his experience, to his level of education, to his strategic

orientation towards export markets, will condition his export decision and even the performances realized by his firm internationally (Cavusgil&Névin, 1981, Tan et *al.*, 2007).

## **1.2. State of the art on export performance**

The success of exporting firm can be evaluated by its export performance. In this regard, a variety of measures on export performance are listed in the literature. Katsikeas et *al.* (2000) conducted a literature review on export performance measures, listing 42 indicators. They grouped them into three categories: economic indicators (export sales ratio, export profit, export market share, etc.), non-economic (new products exported, export country/market number, etc.), and generic in nature (perceived export success, strategic export performance, etc.). Economic measures are by far the most frequently used. However, these accounting measures such as the turnover and the income are difficult to obtain.

Meanwhile, researchers mainly use two dimensions for the measurement of export performance: objective performance and subjective performance (Dess & Robinson 1984, Venkatraman&Ramanujam 1986, Lages&Lages 2004, Sousa 2004; Sala&Yalcin, 2015). Aaby and Slater (1989) and Howard (2018) indicated that export performance of SME must be evaluated on the basis of the success of its objectives (i.e. related to its turnover or market shares).

In reality, the export strategy differs from one firm to another and leads eventually to different export performances. In this context, the establishment of performance measures should take into account the dynamics of different facets of SME's export activities. Subsequently, several factors that explain performance are identified. For Allouani & Berbou (2012), the analysis of manager profile and the decision-maker-specific models are the only most appropriate approach for predicting the export success factors of SMEs.

Globally, studies mentioned clearly that the measurement of export performance is multi-dimensional and complex, consisting of economic, non-economic and generic indicators (Aaby& Slater, 1988, Madsen, 1987). These three dimensions operate in an objective way or

in a subjective way. Although objective measures are scientifically preferable a priori, they raise two essential problems. The first is related to the information unavailability. In fact, many firms avoid sharing accounting information about the turnover and the profit. The second problem is of a practical nature. In many cases, even if the accounting information is available, the financial documents of firms rarely distinguish domestic sales from export sales (Yang et al., 1992).

## **2. HYPOTHESES AND THE RESEARCH MODEL ADOPTED**

Several studies have shown that the characteristics of SME owner or manager influence the achieved performance (Cavusgil&Névin, 1981; St-Pierre et al., 2017; Gilaninia et al., 2013; Bonfim et al., 2018; Kotorri&Krasniqi, 2018). The most important manager characteristics are essentially those that can have a direct or indirect effect on the success of exporting SMEs. The key ones include the level of management commitment (Aaby& Slater, 1989, Allouani&Berbou, 2012); the level of manager commitment in export expressed by his level of interest in information related to export markets; and finally, the manager's risk aversion. As part of our work, we structured the manager profile into two main characteristics, namely cognitive characteristics and intrinsic characteristics.

### **2.1. Cognitive characteristics**

The cognitive characteristics refer to the ability to use information. As part of this research work, cognitive characteristics of managers are identified by the experience and education. We formulate the first hypothesis as follows:

*H1: The cognitive characteristics of managers positively influence the performance of SME exporters.*

#### **2.1.1. Manager's education level**

Many studies conducted in countries with different levels of economic development indicate the existence of a causal relationship between export activity and education level of SMEs managers (Leonidou et al., 1998, Dkhissi, 2014). Dkhissi (2014) reported, on the

basis of a study conducted on a sample of Moroccan companies, the existence of a positive relation between the education level of SME managers and the success of their exporting firms. This suggests that the more the manager is educated, the better the performance or the more important is the commitment to export. This result is consistent with that of Leonidou *et al.* (1998).

In this respect, the most educated managers would easily accumulate more knowledge in relation to export activity. According to Dkhissi (2014), this result can be explained by two main facts. Firstly, information and communication technologies which play an important role in the speed of reception and processing of information, they are better controlled by the most educated leaders. Secondly, the ability to establish relationships. International networks would be created easier by the most educated managers (mastery of language, communication skills). Learning helps accumulate experiences and reduces the psychic distance between firms and their export markets (Johanson & Vahlne 2009; Kotorri & Krasniqi, 2018). Similarly, the relationships developed by the network approach (network outsidership) and used by firms constitute a central resource in internationalization (Johanson & Vahlne, 2009; Pinho *et al.*, 2016).

From the above elements, we formulate the following hypothesis:

*H1.1: The more educated the manager, the better the performance or the more important is the commitment to export.*

### 2.1.2. Manager's experience

Export experience of manager is one factor that has a direct impact on export performance (Hosseini & MirjahanMard, 2011). Export experience of manager is measured by the number of years that a manager has worked in international business activities (Stoian & *et al.*, 2011). More importantly, many studies indicate the existence of a positive relationship between export decisions and the professional experience of SME manager (Dkhissi, 2014, Leonidou *et al.*, 1998, Favre-Bonte & Giannelloni, 2008; Chen *et al.*, 2017). For instance, Dkhissi (2014) indicated that the experience of Moroccan SMEs executives has a positive effect on the decision and intensity of their



exports. In the same respect, Leonidou et al. (1998) found a positive causal link between manager experience and the decision to export or develop SME exporting. This means that the more experienced the manager, the more opportunities for the company to engage in export. On his part, Favre-Bonte&Giannelloni (2008) explain that a business manager with expertise in international procedures would have better geographical, geopolitical and ethnological knowledge, that enable him to travel and discover new countries, devote more time to prospect, and engage more resources in export. In short, he will be more sustainable for international".

From the developed elements, we formulate the following hypothesis:

*H1.2: The more experienced the manager, the better his firm's export performance.*

## **2.2. The intrinsic characteristics**

The intrinsic characteristics of managers are indicated in our study by export know-how of manager, manager's attitude to risk associated with export activity, manager's level of commitment to export.

We formulate the second hypothesis as follows:

*H2: The intrinsic characteristics of managers positively influence the performance of SME exporters.*

### **2.2.1. Export know-how of manager**

Several studies have identified a positive influence of the manager's expertise and know-how on export performance (Leonidou et al., 1998, Majocchi et al., 2005). According to Luong et al. (2010), the know-how of manager or management team in foreign markets is very useful for building an export marketing advantage. In this context, a business manager who has information on a target market, would have better geographical, geopolitical and ethnological knowledge and be able to export to this market.

This knowledge of the market and export procedures was measured in the framework of our work by the scale of Morgan et al.

(2003). Later, it was reused by Luong *et al.* (2010). The scale identifies five areas of information concerning firm export activity:

1. Economic and political situation of export and target market;
2. Business customs in export market;
3. Importance of markets and their evolution;
4. Intensity of competition in export markets;
5. Regulations, rights and standards in force on export markets.

We formulated our hypothesis as follows:

*H2.1: Manager's know-how has a positive influence on the performance of his export firm.*

#### 2.2.2. Manager's attitude to risk associated with export activity

In economics, the risk is associated with the case of uncertainty related to a given situation. One of the characteristics of manager that have attracted the attention of researchers is the attitude of the manager towards the risk related to export activity. Indeed, several authors have studied the relationship between export performance of SMEs and the profile of their managers (St-Pierre&Cadieux, 2009). For the SME manager, negotiating a contract with a foreign customer is one risk that must be taken into consideration. In this regard, Favre-Bonte & Giannelloni (2008) commented that export performance, whether measured objectively or subjectively, is necessarily mediated by the choices or behaviours of managers, and not directly by their personality.

We formulated our hypothesis as follows:

*H2.2: The positive attitude of manager towards export activity has a positive influence on export performance of his firm.*

#### 2.2.3. Manager's level of commitment to export

Positive perceptions would increase managers' commitment and resource allocations towards export activities which in turn improve performance (Papadopoulos & Martin, 2010).

One can argue over the nature of existing link between objective or subjective performance and the degree of manager's commitment that is materialized by his choices and behaviours (Allouani&Berbou 2012). According to these authors, the results obtained by SMEs abroad are

partly explained by the degree of commitment of the SME manager to exports. Indeed, managers see in export activity an opportunity that might be economic, strategic or personal. According to Luong et al. (2010), exporting brings more profits even if it is associated with high risk, increases the turnover and the profit of firms. It may also improve the notoriety of firms and avoid competition in domestic market. All these elements can have an influence on the conduct of export activity, and therefore on firm performance.

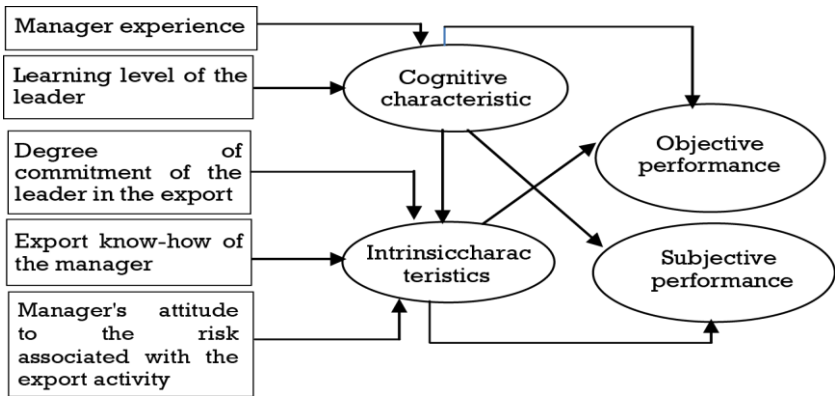
This leads us to formulate the following hypothesis:

*H2.3: The level of manager commitment in export activity positively influences his firm performance.*

### 2.3. The conceptual and summary model of hypotheses

Our contribution tends to mobilize the resource and skills approach. To achieve this, we have referred to the synthesis of different studies such as Castonguay (2005), Luong et al. (2010);Allaoui& El Makrini (2014); *Haddoud et al. 2019* to build our explanatory model of objective and subjective performance of Algerian SMEs exporters. The variables that constitute manager profile are grouped into two groups of factors: cognitive characteristics and intrinsic characteristics.

Figure 1: A Conceptual Framework of the Determinants of Export Performance



Source : prepared by the authors.

Figure 1 illustrates the model general structure where different variables are positioned according to their more or less direct relationships with objective and subjective performance. It is, first, the latent variable "cognitive characteristics" formed from two constructs, namely the manager's experience in export activity and the education level of manager, and second, the latent variable "the intrinsic characteristics" formed from three constructs, namely the commitment degree of the manager in export, his attitude towards the risk related to export and his know-how about export.

### **3. THE RESEARCH CONTEXT AND METHODOLOGY**

#### **3.1. The research context: Algerian exporting SMES**

The Algerian economy has several specificities in terms of international economic integration: a strong dependence on import (food, medicines and industrial inputs), a polarization of its foreign trade (2/3 of trade with the EU), a strong dependence on hydrocarbons in terms of fiscal resources and foreign revenues (95% of the exports are done by the public company "Sonatrach"), galloping inflation (6.5% in 2016) and an unstable business climate (According to Doing Business report 2019, Algeria ranked 157 out of 190 countries).

Accordingly, the Algerian SMEs dependence on oil export revenues makes the economic integration in international markets very difficult (Kadi&Harizi, 2016). Meanwhile, the industrial sector is characterized by the important role of public companies (or public groups), some large private companies (Cevital, SIM, Soummam, etc.), and a multitude of small and medium enterprises.

Despite the predominance of SMEs in Algeria with more than 97% of the total number of businesses (NOS, 2015), many indicators reflect the low competitiveness of them. In this sense, Joyal (2010) indicated that according to the National Consultative Council for the Promotion of Small and Medium Enterprises (CNCP-SME), Algerian SMEs are the most fragile in the Mediterranean region.

For Daoud (2010) and Kadi&Harizi(2016), competition imposed by the implementation of regional and international trade agreements (WTO, EU, Arabe zone (ZALE)), bureaucracy, presence of large informal

sector, low rates of banking, lack of a skilled labour force and weakness of innovation are explanatory elements of the fragility of Algerian SMEs to export. An examination of these factors clearly highlights the importance of economic constraints in the Algerian context.

Globally, 50 firms out of 800 SME exporters (according to NOS data, 2015) carry out an export activity on a regular basis. The main destination markets are those of European Union (France, Italy and Spain in particular), and the sectors concerned are mainly agriculture and agri-food, ferrous waste, extracted raw materials and some electrical products. Therefore, our sample of 43 SMEs covers 5.4% of the Algerian SME exporters, and nearly all the regular exporter category.

### **3.2. Research methodology**

#### **3.2.1. Implementing empirical research**

We used the structural equation method to model the influence of manifest and latent variables (related to the manager's profile) on the performance of Algerian exporting SMEs, according to the approach of Luong *et al.* (2010) and Allouani&Berbou (2012). Our contribution tends to mobilize the resource and skills approach. To achieve this, we have referred to the synthesis of different studies such as Castonguay (2005), Luong *et al.* (2010); Allaoui& El Makrini (2014); Haddoud *et al.* (2019) to build our explanatory model of objective and subjective performance of Algerian SMEs exporters.. Our empirical analysis will be carried out according to Churchill's paradigm which identifies the principal stages. The Churchill paradigm consists of three steps: a step for conceptual domain definition (operationalization of variables), an exploration step, and a confirmatory step. The operationalization step consists in constructing scales to measure the model variables through the literature review, qualitative interviews or researcher intuition. The exploratory step consists of purifying the scales of explanatory model by performing Cronbach Alpha test, Kaiser-Meyer-Olkin (KMO) test, and the factor analysis (principal component analysis) using SPSS19.0 software. The scale purification step allows constructing rigorous measurement instruments (multiple scales) (Mahoui&Ferfera, 2013; Allouani&Berbou, 2012; Haddoud *et al.*

(2019)Our contribution tends to mobilize the resource and skills approach. To achieve this, we have referred to the synthesis of different studies such as Castonguay (2005), Luong *et al.* (2010); Allaoui& El Makrini (2014); to build our explanatory model of objective and subjective performance of Algerian SMEs exporters.). Finally, the confirmatory analysis consists in validating the adopted research model (external and internal model) through a structural equation analysis with latent variables and PLS (Partial Least Square) using XLSTAT-PLSPM 2019 software.

### 3.2.2. Research methodology: data collection and operationalization of the model variables

In order to carry out our research, we opted a quantitative approach based on a field survey by questionnaire of a sample of Algerian SME exporters. As all data collection methods, the questionnaire survey has advantages and limitations. Roussel (2005) indicated that the questionnaire appears as one of the most efficient modes of data collection when it comes to making a quantitative study. It offers the possibility of standardization and compatibility of the information collected. It also allows the anonymity of the collected data. However, the collection of data by questionnaire has some limitations. According to the same author, the information collected by the questionnaire is not flexible, because once the intake phase of questionnaires is initiated, it is no longer possible to go back to make changes.

#### 3.2.2.1. Questionnaire development and data collection

We constructed a questionnaire to quantify the measurement of each of the variables related to the selected research model. The questionnaire has three sections. The first two sections are reserved respectively for characteristics: the manager profile of SME and the internal characteristics of firms. The third section is devoted to identify objective and subjective export performance.

Primarily, we desired to use the internet as an exclusive mode of questionnaire administration. However, through the directories of exporting firms provided by ALGEX, ANEXAL and CACI<sup>1</sup>, we found

out the absence of e-mail addresses belonging to certain firms. Therefore, beside the internet, we added another instrument which is the face-to-face technique, by being present in events involving exporters such as fairs, trade shows and meetings. For greater efficiency, we have visited different public bodies to help us send the questionnaire to the large exporting firms appearing in their databases. This operation allowed us to have more than 43 completed questionnaires (10 via ANEXAL, 11 via CACI and 22 through face to face). The small number of exporting firms and their disparity forced us to expand our survey sample to reach exporting SMEs around different localities, in a random way. The respondents were managers of SMEs, in the case where a manager was unavailable; he is replaced by the responsible of trade transactions.

#### 3.2.2.2. Operationalization of the constructs (model variables)

The question of operationalizing constructs is a fundamental methodological concern (Allouani&Berbou, 2012). According to Allouani, the absence of adequate measures of constructs and variables characterizing the studied phenomena, provokes a risk, so the knowledge produced is not generalized and diffused, as well in academic as in practice context. That is why, it is so important to operationalize construct according to the object of research, the objectives targeted by the information and the mode of its use. Operationalizing a construct means passing systematically from a theoretical anchorage to an empirical formulation of variable. Generally, measures are influenced by the research subject and the approach adopted since the most important variables are latent (Allouani&Berbou, 2012). This leads us to say that certain theoretical constructs are not observable, and cannot be directly measurable.

Consequently, some specific variables related to the theoretical constructs are designated as indicators of latent variable. In this regard, the adoption of structural equations in our study allowed the identification of these unobservable relations. The scale of measurement used is that of Likert with seven (7) anchorage points. This is to answer a question by ticking the number corresponding to

the respondent's assessment (the manager of the firm or the responsible of the trade operations).

The results of the exploratory phase in which several criteria and methods for purifying scales have been mobilized, have not been included in this document. Several principal component analyses (PCA) with a varimax rotation were performed on each scale. This exploratory analysis allowed us to highlight the main dimensions that make up the scales chosen, and eliminate the complex items and those that do not form dimensions. We applied the Kaiser, Meyer, and Olkin (KMO) criteria to check if the items are "factorizable". Then we checked the reliability (internal consistency) of the scales using Cronbach's alpha.

#### **4. RESULTS OF PLS-PM ESTIMATION**

The results are structured around four elements: the results of the external model, the internal model, the model's fit and the hypotheses validation.

##### **4.1. Characteristics of the sample**

The descriptive results shown in Table 1 indicate that the average size of firms in the sample is 96 and the average age of managers is 46. More than 70% of the managers have a university level. In addition, the average number of export transactions is 21 transactions per year. Nevertheless, the standard deviation values suggest a very heterogeneous sample. In fact, more than 60% of the SMEs in the sample operate in the agriculture sector, 18% in the food industry and 11% in the petrochemical industry. The types of products exported are mainly dates and derivatives, fruit juices, confectionery products and equipment. The firms are exporting 30% to the European Union, 30% to the African countries and 20% to North America.

**Table 1: The descriptive elements of the sample**

Characteristics	Average	Standard deviation
Firm size (number of workers)	96,95	78,54
Manager age	46	11,07
Number of destination countries for export	2,00	1,00
Number of export transactions per year	21,15	24 ,39

*Source : calculated from the survey.*



It also appears that the Algerian SMEs adopt different export strategies in terms of the level of commitment. Mid-sized companies (50 to 249 employees) adopt a mixed strategy to minimize the risks associated with export activity by keeping some of their market opportunities for domestic demand. Whereas, small firms (9 to 49 employees) tend to adopt a totally export-oriented strategy. In general, the strategic choice determines the level of export commitment of these firms. In some cases, the export strategy is explained by the profit gained from export sales. For some managers, the export market is considered as an alternative for the domestic market which is conquered by the Chinese products and as a profitable outlet for surplus seasonal production such as agricultural products. All of these differences in strategic vision may possibly explain differences in the level of export commitment of SMEs in our sample.

#### **4.2. The results of the external model**

From the analysis of the external model, the obtained results are considered satisfactory in these two sub-dimensions, namely the analysis of unidimensionality and the reliability of the blocks of manifest variables, and the analysis of convergent and discriminant validity. To measure the unidimensionality and block reliability, the eigenvalue values, Cronbach's alpha and Dillon-Goldstein's Rho are all satisfactory (see Appendix 2).

We observe that for all latent variables, the eigenvalue is greater than 1. The obtained Dillon-Goldstein rho values are all greater than 0.8. This means that all the manifest variables explain more than 80% the total variance of the latent variable. So, we can say that the results of the unidimensionality of the blocks are satisfactory. On the other hand, the mean, standard deviation and indices values do not appear for the latent variables regarding the manager's experience and level of education because they have only one associated manifest variable.

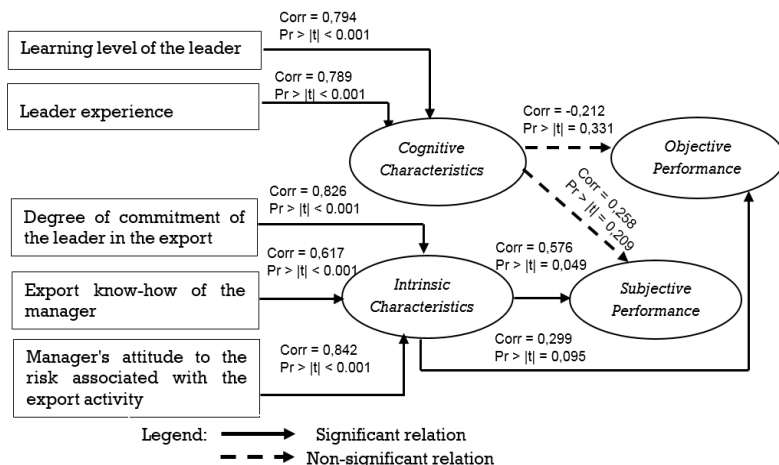
The discriminant validity consists, for its part, in verifying through a crossed matrix that the items attached to a construct do not contribute too strongly to the other constructs (Lacroux, 2009). It is also advisable to check the discriminant validity by ensuring that the

shared variance between the latent constructs (measured by the correlations between constructs) is less than the variance shared by a construct with its indicators (measured by the square root of the average variance extracted AVE). To ensure the discriminant validity of the variables of the model, we calculated the correlation matrix and the square root of the constructs, using the XLSTAT2019 software, whose values are represented in Appendix 3.

### 4.3. Estimation of the internal model

We can observe from the structural analysis of the different equations that all latent variables are interdependent with each other, thus forming a complex scheme. Figure1 allows identifying the relationships between the several explained, explanatory and latent variables of our model. On the other hand, the reciprocal effects between the several dependent variables can be tested in this method. These dependent variables can, at the same time, play the role of independent variables, by assuming the role of intermediate variables (Allouani & Berbou, 2012).

Figure 2: The explanatory structural model



We observe from Graph1 that the majority of links in our global model are significant at the 1% and 5% level. With a correlation

coefficient ( $R^2 > 0.78$ ), we consider that the variable "cognitive characteristics" is well explained by the manifest variables retained in the theoretical model, namely manager's level of education and his experience. The results of the model estimate indicate the existence of a significant and positive relationship at the 1% level. With coefficients of correlation ( $R^2 > 0.8$ ), the variable "intrinsic characteristics" is well explained by the manifest variables selected, namely the manager's level of export commitment, his know-how and his attitude towards the risk related to export activity.

In addition, we observe that the variable "intrinsic characteristics" has a positive influence on objective and subjective performance. On the contrary, the variable "cognitive characteristics" has no influence on export performance (the non-significant relationship at the 10% level).

It is now clear that the adoption of the PLS approach forces us to apply tests other than those traditionally used to verify the statistical significance of the model (Roussel *et al.*, 2002). Indeed, given the assumption of non-normality distribution of data in the framework of the PLS approach, two techniques of non-parametric tests can be used: the jack-knife or the bootstrap. In our case, we will use the bootstrap test because it provides two essential measures of the structural model:  $t$  value and  $R^2$ . The predictive power of the model can be evaluated using  $R^2$  derived from the Bootstrap.

As part of this work, the results of the internal model (structural model) are represented in two tables provided by the XLSTAT-PLSPM software, namely the correlation table ( $R^2$ ) and the path coefficients (see Annex 3, 4, 5 and 6).

#### **4.4. Quality of fit of the model**

As part of the structural equations analysis with the PLS approach, the quality of fit of the model is done using indicators different from those used in the framework of a LISREL approach. According to Roussel *et al.* (2002), the adjustment quality of the structural model by PLS approach is evaluated through two indicators: commonality and redundancy. Commonality evaluates the external model, while redundancy evaluates the internal model.

Table 2. **The fit quality of the global model (internal and external)**

Designation	GoF	GoF (Bootstrap)	Standard Error	Critical ratio	Minimum	Maximum
Absolute	0,478	0,507	0,060	7,907	0,409	0,675
Relative	0,760	0,763	0,057	13,364	0,639	0,914
External model	0,977	0,951	0,048	20,534	0,857	1,073
Internal model	0,778	0,801	0,033	23,812	0,700	0,861

Source : Modelisationresults

Table 2 summarizes the global adjustment indices derived from the goodness of fit (GOF) results provided by the XLSTAT software. The indexes of relative GOF, absolute GOF, outer model GOF, and inner model GOF should be close to 1.

It can be seen from the results obtained that the absolute GOF is 0.478 which is close to its bootstrap estimate (0.507). This value is difficult to interpret and is mainly used to compare between different groups of individuals or models. The absolute GOF value of 0.478 is considered satisfactory in complex studies such as the current study. Moreover, the relative GOF and those based on the internal and external models are very high (close to 1) and reflect a good quality of fit of the model.

#### 4.5. Validation of hypotheses

The model of structural equations offers the possibility to verify causal relations between the latent variables and their constructs and, on the other hand, between different latent variables. It also offers the possibility of classifying or ranking the explanatory variables in terms of the level of influence on the explained variable.

Table 3: **prioritization of the determinants of export performance and validation of hypotheses**

Hypotheses	Structural parameters	Results
IntrinsicCharacteristics=>Subj Performance	0,576(t=0,049)	Validated P < 0,05
IntrinsicCharacteristics=>Obj Performance	0,299 (t= 0,095)	Validated P < 0,1
CognitiveCharacteristics=>Obj Performance	-0,212 (t=0,331)	Invalidated p > 0,1
CognitiveCharacteristics=>SubPerformance	0,576 (t = 0,209)	Invalidated p > 0,1

Source: realized by the authors from the results of modelling.

From the estimation results of the explanatory model of the export performance, two sub-hypotheses were affirmed (Table 3): the positive effect of the intrinsic characteristics on objective and subjective performance. On the other hand, two sub-hypotheses are invalidated in the framework of this work, namely the absence of a significant effect of the cognitive characteristics on objective and subjective performance of SME exporters.

By analogy, we can conclude that the results of our empirical analysis allowed us to validate the second hypothesis that indicates that the intrinsic characteristics of managers have a positive influence on the export performance, and invalidate the first hypothesis, which indicates that the cognitive characteristics of managers have a positive influence on the export performance.

#### **4.6. Discussion of results**

From the results obtained, we can observe a global structure of our explanatory model of the objective and subjective export performance of Algerian SMEs. As part of this work, our main objective was to define and measure the performance of SME exporters through several latent variables that form the entrepreneurial profile of the manager. The review of previous research and the empirical study allowed us to build and validate a chain-shaped model. Our results primarily concern the measurement of performance through its objective and subjective dimensions. Then, the two levels of the chain are analysed: the cognitive characteristics and the intrinsic characteristics of manager.

In terms of the impact on export performance, this study shows that Algerian SME exporters share the same explanatory factors for their export performance as those of other developing countries. Indeed, the intrinsic characteristics of manager of Algerian SME through the level of commitment to export activity, export know-how and attitude towards risk, have a direct and significant impact on objective (0.576 at the 5% level) and subjective (0.3 at the 1% level) performance. This result demonstrates that entrepreneurial manager is personally committed to achieving financial goals by

increasing export turnover and strategic expansion objectives by increasing the number of countries / markets, and functional objectives by improving the skills of employees within his firm.

This result is also consistent with that obtained by Luong et al.(2010); Allouani&Berbou, (2012);Gilaninia et al. 2013 ; St-Pierre et al. (2017) and Bonfim et al.(2018) concerning the role of entrepreneurial profile. Indeed, the entrepreneurial manager is the one who takes risks of conquering new markets and disposes of more export know-how which allows the exporting SME to have a cognitive and competitive advantage to exporting. This means that the knowledge accumulated by export market managers is helpful to enhance product benefits.

In addition, the results obtained suggest no significant relationship between cognitive characteristics of manager in exporting SME (his education level and experience) and their objective and subjective performance. In this context, the psychological distance is not a determining factor in the export success of Algerian SMEs. This psychological distance is defined by Johanson&Wiedersheim-Paul (1975) as the set of factors preventing and disrupting the flow of information between firms and export market. It concerns manager's education level and experience. This result contradicts those obtained by Luong et al., 2010; Dkhissi, 2014; Leonidou et al., 1998; Favre-Bonte&Giannelloni, 2008; Chen et al., 2017).It is partly explained by the specificity of the Algerian economy (a rentier economy) where entrepreneurial act and its success depends on the ability of managers to redeploy themselves in the local and international markets despite all difficulties hinder the development of firms. These are the intrinsic qualities of individuals that enable them to succeed and overcome the difficulties of export activity.

## **CONCLUSION**

This article focused on the analysis of the effects of manager's profile through the cognitive and intrinsic characteristics on performance of Algerian SME exporters using the analysis of structural equation modelling with latent variables. To this end, we

conducted a quantitative questionnaire survey of a sample of 43 Algerian SME exporters. To ensure the reliability of constructs and their validity, we carried out an exploratory analysis using a battery of techniques and tests. We applied the Cronbach Alpha test, KMO test and factor analysis (principal component analysis). This step allowed us to reduce measurement errors related to the design of data collection instrument and the respondents' attitudes and perceptions. Afterwards, a confirmatory analysis of factors influencing the performance of a sample of exporting SMEs was performed using the latent variable structural equations. Most of the relationships included in our research model have been statistically significant.

The results obtained assert that the profile of manager through its intrinsic characteristics dimension is an important factor in the success of SME exporters in our sample. On the contrary, the least confirmed dimension is the impact of cognitive characteristics on objective and subjective performance that has been nevertheless defended by authors such as Luonget *al.*(2010); Sala&Yalcin(2015), but within an economic context totally different to that of Algeria. This prompts us to reflect, in future research, on a possible re-specification of our model by incorporating a larger sample and considering a qualitative survey either through interviews or focus-groups to better understand the profile of exporting SME managers.

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Appendix 1 : Discriminant Validity of Model Variables (Square Correlations <AVE) (Dimension 1)

Variables	Experience	Cognitives characteristics	Education level	Commitment level
Experience	<b>1,000</b>	-0,457	-0,218	-0,212
Cognitives characteristics	-0,457	<b>1,000</b>	-0,135	-0,116
Education level	-0,218	-0,135	<b>1,000</b>	-0,534
Commitment level	-0,212	-0,116	-0,534	<b>1,000</b>
Attitude towardsrisk	-0,148	-0,125	-0,509	-0,971
Know-how	-0,246	-0,148	-0,565	-0,984
Interinsticcaractéristiques	0,212	0,125	0,558	0,994
Objective performance	-0,185	-0,207	-0,622	-0,618
Subjective performance	-0,078	-0,003	-0,105	-0,371
Moyenne Communalités (AVE)	0,650	0,430	0,580	0,368

Appendix 1 : continuation of the painting

Variables	Experience	Cognitives characteristics	Education level	Commitment level	Attitude towardsrisk
Experience	<b>1,000</b>	-0,457	-0,218	-0,212	-0,148
Cognitives characteristics	-0,457	<b>1,000</b>	-0,135	-0,116	-0,125
Education level	-0,218	-0,135	<b>1,000</b>	-0,534	-0,509
Commitment level	-0,212	-0,116	-0,534	<b>1,000</b>	-0,971
Attitude towardsrisk	-0,148	-0,125	-0,509	-0,971	<b>1,000</b>
Know-how	-0,246	-0,148	-0,565	-0,984	-0,976
Interinsticcaractéristiques	0,212	0,125	0,558	0,994	0,983
Objective performance	-0,185	-0,207	-0,622	-0,618	-0,596
Subjective performance	-0,078	-0,003	-0,105	-0,371	-0,348
Moyenne Communalités (AVE)	0,650	0,430	0,580	0,368	0,350

Source : Modeling results, XLSTAT-PLSPM 2015 software output. Note: XLSTAT software displays results in bold when Cor2> AVE,

## Appendix 2

Variable latente	Dimensions	CronbachAlpha	Rho de D.G. (ACP)	number of conditioning	Critical values	Proper values
Experience	1	/	/	/	/	/
Cognitives characteristics	3			1,385	1,000	1,299
Education level	1	/	/	/	/	/
Commitment level	6	0,643	0,812	2,820	1,000	2,241
Attitude towardsrisk	4	0,596	0,793	1,559	1,000	1,428
Know-how	5	0,781	0,853	3,402	1,000	2,714
Interinsticcaractéristiques	15	/	/	7,543	1,000	3,888
Objective performance	2	0,678	0,861	1,761	1,000	1,512
Subjective performance	4	0,718	0,826	2,926	1,000	2,185

Source : XLSTAT-PLS-PM 2019 Software Release

## Appendix 3 : R<sup>2</sup> (cognitive characteristics / 1)

R <sup>2</sup>	F	Pr > F	R <sup>2</sup> (Bootstrap)	Standard Error	Critical ratio (CR)	Lowerbound (95%)	Upperbound(95%)
0,987	1118,250	0,000	0,950	0,047	21,005	0,834	1,000

Source modelling results, XLSTAT-PLSP M 2019 software release

## Appendix 4 : Path coefficients (caractéristiques intrinsèques / 1) :

R <sup>2</sup>	F	Pr > F	R <sup>2</sup> (Bootstrap)	Standarderror	Critical ratio (CR)	Lowerbound(95%)	Upperbound(95%)
0,997	2261,093	0,000	0,997	0,002	440,757	0,990	1,000

Source: modelling results, XLSTAT-PLSP M 2019 software release.

Appendix 5 : **R<sup>2</sup> (objective performance / 1):**

R <sup>2</sup>	F	Pr > F	R <sup>2</sup> (Bootstrap)	Standard error	Critical ratio (CR)	Lowerbound(95%)	Upperbound(95%)
0,077	1,245	0,302	0,206	0,099	0,775	0,043	0,415

Source: modelling results, XLSTAT-PLSP M 2019 software release.

Appendix 6 : **R<sup>2</sup> (subjective performance / 1):**

R <sup>2</sup>	F	Pr > F	R <sup>2</sup> (Bootstrap)	Standard error	Critical ratio (CR)	Lowerbound(95%)	Upperbound (95%)
0,314	6,857	0,004	0,417	0,162	1,931	0,095	0,756

Source: modelling results, XLSTAT-PLSP M 2019 software release.