

Positive impact of business efficiency sub-factors and variables on the competitiveness of the lemon agro-industry in Colima, Mexico

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ABSTRACT

Objective: To establish which business efficiency sub-factors and variables have a positive impact on the competitiveness of the lemon agro-industry in Colima.

Design/Methodology/Approach: In this mixed research, we used a questionnaire with 33 questions with a scale of 1 to 6. We applied the questionnaire in the field to nine managers and established its validity and reliability using Cronbach's alpha (0.91). We used variable standardization and the arithmetic mean as statistical tools. With this technique, we integrated 33 variables in one index. We considered different means for each of the companies and used the software SPSS version 22.

Results: Labor market and management practices were the sub-factors with the highest number of variables that have a positive impact on the competitiveness of the lemon agro-industry in Colima.

Study Limitations/Implications: The study limitations included the lack of time and availability of the interviewees, as well as the expenses in which we incurred traveling to their companies.

Findings/Conclusions: The variables with the highest positive impact on the competitiveness of the lemon agro-industry in Colima are the following: customer satisfaction is very important; security and hygiene-related issues are adequately addressed; social responsibility is high; and attracting and retaining talents is a priority. We concluded that business owners within this agro-industry seek to create good work teams, offer training opportunities, provide good security and hygiene conditions, and have an adequate financial control.

Key words: Competitiveness, Lemon agro-industry, Questionnaire, Labor market, Customer satisfaction.

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INTRODUCTION

This study is based on state-of-the-art business efficiency and competitiveness. The term “business efficiency” implies the optimization of all activities that companies carry out for their own benefit and that of their partners. In other words, a company is efficient in business when it makes the most of its resources and adapts to change in order to be competitive. This leads us to our second topic, *i.e.*, competitiveness. We must discuss the state-of-the-art regarding this topic in the context of the companies we are studying within the lemon agro-industry in Colima, Mexico. Chavarría *et al.* (2002) propose a methodological approach

that integrates the main components of agricultural competitiveness and links them in a fitting manner with the process of sustainable development of agriculture. This theoretical approach is based on two units: 1) the agri-food chain and its corresponding links and agents; and 2) the territorial units where the different productive agents are located. The latter unit is based on certain elements of the location theory of development. In addition, it lays the foundations for the inclusion of a number of infrastructure components that support production and the availability of natural resources. In this context, agricultural competitiveness can be defined as a comparative concept based on the dynamic capacity of an agri-food chain spatially located to maintain, expand, and constantly and steadily improve its participation in both domestic and international markets. All this is achieved through the production, distribution, and sale of goods and services at the required time, place, and form, with the ultimate goal of benefiting society (Chavarría *et al.*, 2002). The competitiveness of the agri-food sector is its capacity to place its produced goods in the market under fair competition conditions, achieving the welfare of the population (García, 1995). The competitiveness of agri-food chains has a close relation to sustainable development. Regional competitiveness can be defined as the management of resources and capacities to steadily increase business productivity and the welfare of the regional population (CEPAL, 2010).

Since the late 20th century, globalization has prevailed as one of the main traits of international economy; it is characterized by a convergence towards more open and competitive markets (Rojas and Sepúlveda, 1999). The concept of agricultural competitiveness must be understood within the context of sustainable development, which comprises four dimensions: social, political-institutional, environmental, and economic (Rojas and Sepúlveda, 1999). The objectives of these dimensions are equity, governance, sustainability, and competitiveness, respectively. The Asia-Pacific Cooperation Forum's (APCF) understanding of competitiveness acknowledges that the new world economy is characterized by market globalization and by a new era of information, knowledge, and ongoing, fast, and uncertain change. Therefore, this perspective complements the approach based on productivity and economic policy by grouping it in four dimensions: business environment, innovation system, human resources development, and a high-capacity information and telecommunications infrastructure. This leads to a broader scheme of competitiveness (Soto-Ramírez, 2005) with different national and international approaches. In the case of Mexico, real competitiveness is based on productivity, skilled labor, logistics, tariff structure, innovation, technological development, and democracy. According to the IMD - World Competitiveness Center (WCC), there is an international competitiveness of nations, an international sectoral competitiveness, and an international company competitiveness (Garelli, 2004). The competitiveness of nations seeks to create and maintain an environment that sustains company competitiveness (Krugman, 1994). Competitiveness is a country's ability to create, produce, distribute, and/or service products in international trade, simultaneously earning higher returns on their resources (Scott and Lodge, 1985; Otero *et al.*, 2006).

The definition of the concept of competitiveness takes into account three analytical levels: micro, meso, and macro. Coincidences were found in the micro and meso levels; however,

there is some disagreement regarding the macro level. In this sense, reference is made to economist Paul Krugman, who criticizes the use of the concept of national competitiveness (Lombana and Rozas-Gutiérrez, 2009; García-Ochoa *et al.*, 2017). In order to leave this debate behind, the authors suggest using the term “competitive environment of a nation” (within each country), instead of referring to “competitiveness of nations” (among countries). In 1989, the Economic Commission for Latin America and the Caribbean (ECLAC) and the United Nations Industrial Development Organization (UNIDO) pointed out that competitiveness is the capacity to sustain and increase participation in international markets while simultaneously improving the living standards of the population (Zamora *et al.*, 2013). Meanwhile, in its 1997 report, the Competitiveness Advisory Group states that the competitiveness of a nation or region can be observed in its ability to develop several factors that are essential for long-term economic growth, such as productivity, efficiency, specialization, or profitability (Zamora *et al.*, 2013). Competitiveness is the capacity to combine quality, price, design, and delivery time in order to meet the customer’s needs and eventually make the company a reliable link of the productive chain that includes other companies that offer similar products (Inmujeres, 2009; Saavedra-García, 2020).

Porter (1990) argues that developing a widely accepted theory to explain a nation’s competitiveness is more relevant than adopting any of the concepts proposed for the term. The competitiveness of nations has been linked to variables such as type of currency, type of interest, and budget deficit. According to Krugman (1990), an analysis of a nation’s competitiveness should consider the different determinants of the population’s living standards (*e.g.*, growth, employment, and wage distribution). Porter (1987) believes that a nation’s competitiveness could be defined as the degree to which, under open market conditions, the nation can produce goods and services that satisfy the test of international markets, while at the same time it maintains and expands its citizens’ long-term real income. The Organization for Economic Co-operation and Development defines competitiveness as the ability of companies, industries, regions, and countries to generate income, as well as high employment levels, in a sustainable manner, while being exposed to international competition (OCDE, 1997).

Porter (1990) indicates that a country’s competitiveness depends on the ability of its industries to innovate and improve. One indicator of a country’s competitiveness is the performance of its exports in international markets. According to Amaral (1992), competitiveness is a socioeconomic organization’s ability to conquer, maintain, or expand its market participation in a profitable way that allows its growth. As stated by Ruiz (1995), the basic competitiveness level, according to the systemic approach, comprises the companies and the factors that affect their capacity to compete. Competitiveness is the ability to push back the limits of external restrictions: the higher a country’s capacity to compete in its own or in foreign markets, the higher the economy’s capacity to grow unhindered by external deficit (Bejarano-Ávila, 1998). Calva (2007) states that competitiveness is a complex phenomenon in which multiple interrelated factors intervene; for this reason, it is considered systemic. According to Ramos (2001), a country’s competitiveness can be currently measured and quantified based on the World Economic Forum’s (WEF) Global Competitiveness Report and the International Institute for Management Development’s

(IMD) World Competitiveness Yearbook. Both measurement tools have used similar competitiveness factors to analyze the economies of the countries included in their reports and arrange them in order of importance. The IMD classifies data based on four main competitiveness factors: economic performance, government efficiency, business efficiency, and infrastructure. Each of these factors has five sub-factors. In the case of business efficiency, the subject matter of this study, the five sub-factors are productivity and efficiency, labor market, finance, management practices, and attitudes and values. The study's main purpose is to establish which business efficiency sub-factors and variables have a positive impact on the competitiveness of the lemon agro-industry in Colima. The aim of this study was to obtain information that can be useful for the managers of the studied companies. It will serve as reference for researchers who want to expand their knowledge in this area.

MATERIALS AND METHODS

This research is mixed, *i.e.*, it is both qualitative and quantitative. As a data collection tool, we used a questionnaire with 33 questions with a 1-6 scale and applied it to nine companies. Cronbach's alpha (0.91) was used to establish the questionnaire's validity and reliability. The questions were designed based on the business efficiency factor and its five corresponding sub-factors. The interviewees were nine managers of companies within the lemon agro-industry in Colima. Afterwards, we used variable standardization and the arithmetic mean to determine the sub-factors and variables that influence the competitiveness of the lemon agro-industry in Colima. Both statistical tools were used to integrate the 33 variables into a single index. Different means were considered for each of the companies using the SPSS software. Subsequently, these means were standardized, and the resulting mean value was 50%. In other words, the median is 50%; therefore, results that show values over 50% are above the mean in terms of competitiveness. This is how we determined the sub-factors and variables that have a positive impact on the competitiveness of the studied companies.

RESULTS AND DISCUSSION

In total, the five business-efficiency sub-factors included 23 variables that have a positive impact on the competitiveness of the lemon agro-industry in Colima, Mexico.

According to one variable of the productivity and efficiency sub-factor, the knowledge and use of international standards favors companies within the lemon agro-industry, providing them the possibility of exporting their products. Within the labor market sub-factor, the following variables had a positive impact on competitiveness: labor costs are high; labor relations usually tend towards cooperation and teamwork; training of management and operative staff is a high priority activity. The local, state, and regional labor market offers qualified staff, able to develop the companies' economy; the demand of staff with professional and specialized knowledge is therefore widely met on a state and national level. Likewise, attracting and retaining talent is an important activity in the lemon agro-industry in Colima; operative employees have a well-developed career plan and the companies try to retain them. Senior managers have a wide domestic and international business experience.

The state and regional markets offer a pool of candidates with at least undergraduate studies who can work in management positions (*e.g.*, supervisor, head of department, or manager) and who will be able to ensure the companies' financial development.

Within the finance sub-sector, the impact variables were the minimal requirements established by banking institutions to grant credits to the studied companies helps them to achieve financial development; self-financing by means of cash flow is also relevant.

The impact variables within the management practices sub-factor were the following: the studied firms are highly adaptable to market changes; ethical practices are implemented in all their activities; the board of directors has an efficient and effective management control; auditing and accounting practices are adequately followed based on the accounting principles established by regulations. Customer satisfaction is very important for these companies; managers show an entrepreneurial spirit; the companies have high levels of social responsibility; security and hygiene issues are addressed in a strict and adequate manner, following the rules set by the Ministry of Health.

Finally, the attitudes and values sub-factor included the following impact variables: flexibility and adaptability to new challenges are high; the organizational values system practiced by the operative and the management staff fosters competitiveness.

CONCLUSIONS

We conclude that, out of all the business efficiency sub-factors, labor market and management practices have the highest number of variables with a positive impact on the competitiveness of the lemon agro-industry in Colima. Business owners attach great importance to their internal and external customers. They seek to create cooperative work teams among their internal customers (*i.e.*, their employees) and retain them for as long as possible. Therefore, it is of the utmost importance for them to train their staff and provide them with good security and hygiene conditions to carry out their daily activities. Of similar importance, employees that work in these companies—whether they are part of the management or the operative staff—are trained and available in the region, and management staff has enough domestic and international business experience.

Regarding their external customers, business owners seek to fully apply marketing tools (*i.e.*, to meet all their customers' needs and wishes and to ease their fears). These companies easily adapt to market changes, since their staff has the right attitudes and abilities to adequately fulfil their duties, carry out their activities in an ethical manner, has an adequate financial control, and is socially responsible. Our findings help business owners of the lemon agro-industry in Colima, Mexico in their decision-making and are also useful to develop new lines of research about companies within the lemon agro-industry, both in Mexico and elsewhere.

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