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An Study of the Competitiveness of the Spanish Ceramic Tile Industry.

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46TH CONGRESS OF THE EUROPEAN REGIONAL SCIENCE ASSOCIATION.

AN STUDY OF THE COMPETITIVENESS OF THE SPANISH CERAMIC TILE INDUSTRY.

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Abstract

The main objective of the research project is to increase the competitiveness of the Spanish ceramic tile industry and, in this paper, we make a first approach to the state of the art in order to generate a theoretical model of study.

This industry faces an increasing competition from other countries. Nowadays, the sector has access to a great deal of technological capacity and needs to diversify and differentiate its products.

The precise objectives that we wish to pursue are the following: First, we intend to identify the resources and capacities of the different companies' behaviour and to evaluate the impact of industrial concentration, with the aim of developing a model that would allow us to propose new competitive strategies.

1.- Introduction⁽¹⁾.

The purpose of the project is to improve the competitiveness of the firms of an important industry of the Valencian region, as is that of coverings and ceramic pavements that is facing important challenges currently.

This paper constitutes the first phase of the general objective, the generation of a model of analysis of the competitive conditions adapted to the characteristics of the regional industry, carrying out a

(1) We thank the Spanish Ministerio de Educación y Ciencia for the financial support it granted to the project.

characterization of the competitive firms, identifying its behavior to be able to propose actions of promotion of the competitiveness according to its needs.

Several authors affirm that the competitiveness is built in a very located process, based on firms located around one or various industries that converge or are intertwined some with other (Porter, 1998a, 1998b; Grant, 1996, Mintzberg and Lampel, 1999). In a complementary way, it is affirmed that the strategy of the business should be based on its resources and internal capacities, having these factors preponderance in the market (Grant, 1996b).

Although these two approach, the external one (Five forces of Porter, among others) and the internal one (Resources and Capabilities) have been presented as different alternatives for the study of an industry's competitiveness, some authors consider them complementary (Henderson, 2000).

We think that the present situation of the ceramic industry requires to contrast these ideas, analyzing the complementarity of both approach through a competitiveness analysis model of an industry, that combine the exogenous items and those resources and capacities that favor its competitive behavior (Segarra, 2003). In this paper we establish the theoretical bases and present a model to carry out the research..

2.- The Spanish Ceramic Tile Industry.

According to information provided by the "Consellería de Empresa, Universidad y Ciencia", (Generalitat Valenciana, 2005), the floor tile-makers and ceramic coverings producers group up to 294 firms, that have an average dimension of 86 employees and that invoiced as a group near 3.670 million € in 2004: Of them the 94%, approximately, are located in the Valencian Community. This industry is characterized for a high development of the chain of value, due to the high investment rates. Conforms a "cluster" or industrial district that gathers the tile-makers with other related industries.

With regard to the geographical locating, tile producers are located mainly in Castellón, the geographical proximity of the firms permits the interrelation among them, the accumulation and the development of know-how, as well as services of common support. The businesses that integrate the cluster ceramic of Castellón represent the 75% of the Spanish floor tile-makers and ceramic pavements, as well as the 94% of the production of these products. They contribute with a 4,6% to the regional GDP and with the 40% of the GDP of the province of Castellón. They represent likewise the

7,3% of the employment of the regional industry, since they give occupation to 25.200 people. Besides, these businesses have a great capacity of investment, with 91,14 million €, what supposed the 17,5% of the industrial investment of the autonomous region in 2002. On the other hand, the ceramic industry maintained a growing tendency of the main economic magnitudes in 2003, but now the situation presents certain stagnation. In fact, the index of industrial production of the sector is situated in 101,5 slightly over the average of the regional industry situated in 100,3. The last data of the foreign trade of this sector, referred to 2004, reflect a growth of the exports of the 2,1% respect al same period of the previous year, with a value of 1.860 million € that suppose a 10,8% of the total of exports of the Valencian Community; United States (11%), France (11%) and United Kingdom (10%) were the main buyers of the Valencian ceramics producers.

The acceptance, in recent years, of the importance that clusters have for competitiveness, has supposed an important change in the appraisal of the locating of the businesses. The competitive advantages reside, each time more, in the “know-how”, in the capacities, in the information, in the motivation, all they aspects related to the environment and that the competitors located outside the cluster cannot obtain.

2.1.- Strategic analysis of the ceramic industry.

The report of competitiveness of the ceramic industry of the Valencian Community (Generalitat Valenciana, 2005), was carried out an analysis of TOWS Matrix (Wehrich, 1982). We would like to highlight the main results of it in figure 1.

Figure 1.- TOWS Matrix

STRENGTHS	WEAKNESSES
High technological development, especially in processes.	High dependence of energy resources with a high price
Local raw materials of great quality and smaller cost relative	Constant reduction of profits
Good social appraisal in the environment	Ceramic product does not have enough prestige
World leadership in the subsector of enamels.	Insufficient knowledge of the market about

<p>Product of quality with extensive technical possibilities and esthetics and better qualities than substitutes.</p> <p>Phenomena of geographical concentration.</p> <p>Control of the domestic market</p> <p>Domestic market with high demand</p>	<p>the esthetics and technical possibilities of the product.</p> <p>The market has the perception to be a product “out of fashion”.</p> <p>Low control on the distribution channels.</p> <p>Difficulty for differentiating products, fewer consolidated and recognized brands for the final consumer.</p> <p>Associated problems to the geographical location, as environmental impact.</p> <p>Need to increase management in some areas of the business (marketing, logistic,environment)</p> <p>It lacks of scale- economies given the reduced dimension of firms.</p>
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Generalitat Valenciana, (2005)

2.2.- Present situation of the Ceramic Tile Industry.

Analyzing the situation of the Ceramic tile industry we can identify those external aspects that can affect its competitiveness;

- The negative world economic joint, in relation to the parity euro/dollar.
- Growing competence of producing countries, especially China, with smaller labor prices.
- Lack of environmental and labor force regulation.
- An increment in the gas rates.
- Investments in environmental aspects are needed.
- Improvement of transport infrastructures.
- Possible fall of the demand house building industry.

Therefore, the industry has to face several challenges to enlarge their competitiveness. It turns out to be necessary to identify the resources and capacities of the firms behavior and evaluate the

impact of the synergical concentration in order to build up a model that help us to propose competitiveness strategies.

3.- Contrasting endogenous and exogenous aspects affecting competitiveness.

Among contemporary authors, one could say that Porter (1980, 1985, 1990, 1998) is the one that has paid more attention to the effects and influence that firms' external aspects and industries have on entrepreneurial competitiveness.

Porter (1985) stresses the importance of acquiring *competitive advantage* in order to overcome successfully the changing conditions of the environment. The author raises the question of how competitive advantages should be acquired and maintained. Porter (1990) spells out the role that a country's environment, institutions, and economic policies play in the competitive success of some industrial sectors. He introduces a model of research, widely used subsequently by the scientific community: *the diamond*. From this point on, he begins to focus on what he calls *cluster* (1998).

Porter (1990) and Krugman (1991a, 1991b) have developed the essence of the contemporary literature about *clusters*. They are the first ones to consider geographical concentration as the key when studying markets and competitiveness, although many authors had already written about this before (Marshall 1890, Brusco 1982).

Porter (1998) defines *cluster* as the geographical concentration of related firms and institutions - this includes competitors, suppliers, clients and associations – that combine competitive and cooperative behaviours.

According to Krugman (1991a, 1991b), there are three regional factors that influence entrepreneurial performance:

- That firms' basic resources and capabilities, in order to be competitive at the international and interregional level, can be found in the region.
- That other regional clusters develop activities that can be shared by firms belonging to the cluster.
- That firms' strategic options can be influenced by information transfer and by the combination of competence and cooperation that can be found in regional clusters.

Batista (1998), too, thinks geographical concentration is a very important factor. Concentration facilitates interchange and cooperation among research centres, clients and suppliers from the region,

and promotes research within the sector. On the other hand, the concentration of specific activities in a specific area attracts specialised knowledge.

The importance of geographical concentration and the evidence of the existence of industrial clusters have been widely studied along time. Saxenian (1996) analysed the organisation and the characteristics of the electronic firms in Silicon Valley, Glasmeier (1991) Switch watches, Faulkner and Anderson (1987) the cinematographic industry in Hollywood, Scott (1991) the electronic-aero spatial industry in South California, Brusco (1982) studied several sectors in the North of Italy.

Krugman's work (1991a, 1991b) focus on the interaction between market structure and economic geography. According to this author, "geographic concentration is a fact that most evidences economic activity" (Krugman 1991a). Krugman's ideas reconsider Marshall's (1920) statements. According to Marshall, there are three reasons for industrial concentration:

Labour force; the concentration of an important number of firms belonging to the same sector in the same area gathers workers with the same skills and knowledge. This situation benefits both sides, workers and firms, facilitating the occupation of vacant jobs, and minimizing the effects of the economic-productive cycles. Krugman (1991a, 1991b) demonstrated that this situation is very positive, independently of the way in which this "labour force" is organised (Baptista, 1998).

Intermediate factors; a located industrial sector can include a greater number of specialised local suppliers, both regarding specific goods as well as services, which results in a greater variety at a lower cost.

Technological externalities; if the information about new technologies, products and processes flows easily in a local area, the firms located in that industrial pole benefit themselves from the positive externalities. This would be more difficult if the firm was not located in that specific area.

Arthur (1990) thinks the externalities produced by the geographical concentration of firms appear when the cluster's benefits (*cluster* Porter, 1990 or *district* Marshall, 1920) increase proportionately to the number of firms located in the region.

The empirical studies carried out based on the externalidades due to the geographical concentration of industries focus, mainly, in the implications that affect the productivity and business growth:

- ◆ Henderson (1986) found important evidences that the concentration of an industrial sector in a geographical zone enlarges the productivity.
- ◆ Ciccone and Hall (1996) found a positive elasticity between the geographical density of the employment and the productivity.
- ◆ Glaeser and other (1992) did not they detect a positive relation between the geographical concentration and the growth of the employment in the region, but they found evidences that the business diversity and the high competence in the area affect in a positive way the business growth in terms of benefits.
- ◆ Henderson (1994) concluded that to maintain high levels of business growth in an industry, the region needs employment concentration, but also needs a diversified industrial support that genetrates productivity increases.
- ◆ Dayasindhu (2002) showed the relation among knowledge transfer in the Indian software cluster and the business competitiveness.
- ◆ Rama, Ferguson and Melero (2003) identified the subcontracting level in a cluster as one of the main characteristics of the existence of an industrial district. They concluded that, subcontracting provides an important channel of technological learning and innovation.
- ◆ Albino, Carbonara and Giannoccaro (acc. 2004) indicate that firms belonging to the industrial districts should modify their innovative behaviors to survive in a highly competitive environment. They recommend the introduction of new learning processes as well as the traditional learning processes.
- ◆ Newbert (2005), studies the formation of new businesses since the perspective of the dynamic capacities, relating the entrepreneurship capacity with aspects of learning and broadcast of know-how due to the geographical locating.
- ◆ Flor and Oltra (2005), studied the technological capabilities related on the exporting rates of the firms belonging to the ceramic cluster in Castellón.
- ◆ Sher and Yang (2005) studied how can endogenous exogenous aspects affect the semiconductors producers in Taiwan in order to explain the effects of the innovation in the competitiveness of the firms that integrate it.

Besides the advantages of geographical proximity, such as reduction of good and transport costs (Marshall, 1920) and concentration of qualified workers and a variety of suppliers (Krugman, 1991), some of the most important advantages are produced because the members are integrated in a strong social net.

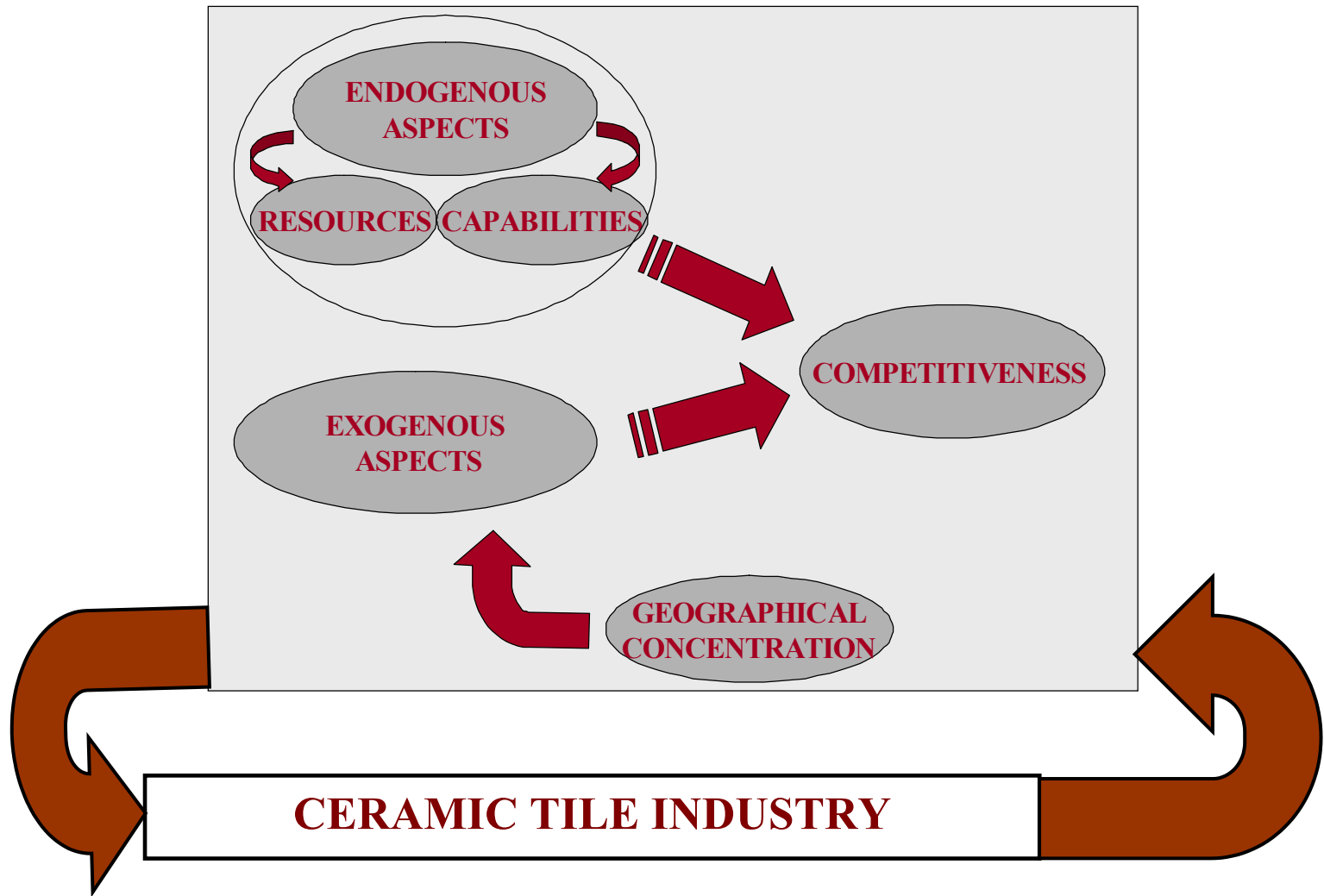
Porter (1998) states many advantages of a cluster depend on physical proximity, on personal contacts, on the relationships within the cluster, and on the accessible information.

Proximity and the informal social net facilitates the transfer of specific; technological knowledge (Aufdretsch y Feldman, 1996, Baptista y Swan, 1998), knowledge about the clients' preferences (Von Hippel, 1988), and about the processes (Helper, 1990, Saxennian, 1996).

5.- Conclusions.

Figure 2 represents the model of the proposed competitive analysis. Our model of analysis of competitiveness would be based on the ideas about an industrial sector's competitiveness proposed by the theory of resources and capabilities, applied to a specific context – the ceramic tile industry. However, taking into account several researches' recommendations about entrepreneurial competitiveness, we propose a hybrid model, complemented by the external approach, and analysing, concretely, the synergic industrial performance.

Figure 2 Competitive analysis model. Segarra, 2003.



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