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Conference Paper

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45th Congress of the European Regional Science Association: "Land Use and Water Management in a Sustainable Network Society", 23-27 August 2005, Amsterdam, The Netherlands

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Rodríguez-Cohard, Juan Carlos; Moral-Pajares, Encarnación (2005) : ICT, global markets and small firms in less-developed regions in Europe - the case of mature sectors in a Spanish Province, 45th Congress of the European Regional Science Association: "Land Use and Water Management in a Sustainable Network Society", 23-27 August 2005, Amsterdam, The Netherlands, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/117798>

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45th Congress of the European Regional Science Association. 23-27 August,
Amsterdam

ICT, GLOBAL MARKETS AND SMALL FIRMS IN LESS-DEVELOPED REGIONS
IN EUROPE: THE CASE OF MATURE SECTORS IN A SPANISH PROVINCE¹

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Abstract

Globalisation affects the smallest specialised firms in mature sectors, particularly in the less-developed regions in Europe. In these cases, the competitive advantage that these industries achieved in international markets due to low factor costs has been broken. One way for these firms to improve their competitive position is to actively participate in international markets by using information and communication technologies along the production chain. This paper describes these specialised companies in European mature sectors. Specifically, we examine firms from the province of Jaén (Andalusia, Spain). The results have been obtained by surveying about 100 firms from the agro-food, textile and wooden furniture sectors. They show how these enterprises use information and communication technologies to adapt their competitive capacity in the new global market.

Key words: ICT, globalisation, mature sectors, small firms, Andalusia.

JEL codes: L66, L67, O14, O18.

1. Introduction

The internationalisation process currently under way, which is being encouraged by the opening up and liberalisation of national markets, and above all by the appearance and proliferation of new information and communication technologies (ICT), is generating important changes in the economic system that are having direct

¹ This research presents some of the results from the research project “*Estudio de la situación actual y perspectivas de la evolución de las nuevas tecnologías basadas en Internet a través de las empresas agroalimentarias, textiles y del mueble de madera exportadoras de la provincia de Jaén*” (Study of the current situation and prospects for evolution of the new internet-based technologies in agro-food, textile and wooden furniture exporters from Jaén province), financed by the European Social Fund via the *Equal Promojaén* programme.

effects on the foundations upon which the firms of a region base their competitiveness. The economies of low-income regions, specialising in mature sectors that target national markets, are suddenly being exposed to markets organised at the international level. Their firms are beginning to face important risks deriving from the greater competition existing in global markets, in which transaction costs have been cut drastically, and every day brings new entries into the market, firms that produce at great distance and under more advantageous conditions, due to their lower labour costs.

In this business environment, the only firms that can be sure to survive, consolidate and expand will be those that comply with the efficiency criteria established by the global market, in other words, those that are competitive. It is important for these firms to adapt to the new reality by participating in the new technological paradigm and pushing forward the internationalisation of their operations. Incorporating the new information and communication technologies allows these firms to gain access to new sources of supply and demand, introduce changes in the systems organising and controlling their production processes, and even to produce goods that are more adapted to customer needs. Nowadays, investment in ICT is essential for all firms, not just for them to become more competitive compared to their rivals, but simply to survive. On the other hand, orienting part of their production to foreign markets is now not simply an obligatory component of any strategy of expansion and improvement of the firm's competitive position, but it is also a means for the firm to defend its position in its own domestic market.

Given the above, the work on which this paper is based aims to determine how small firms that participate in the global market, which direct part of their production outside national frontiers, are located in peripheral regions of Europe and specialise in mature products, are incorporating ICT into the daily operations of their business as part of a strategy for consolidating their market position. Specifically, we aim to assess the technological resources that these exporters from a southern European region have at their disposal, as well as their application in e-commerce, as a mechanism for facilitating and expanding the companies' commercial relationships with other firms and with their end-consumers. For this purpose, we analyse the results obtained from a survey of 96 firms belonging to different sectors of production out of a total of 230 firms, randomly distributed in terms of importance and firm size.

This paper is structured in three sections continuing on from this brief introduction. In the second section we study and analyse the theoretical arguments that researchers have employed to establish links between ICT and the economic development of different regions. Section 3 presents the method used to obtain and handle the quantitative information upon which the research is based, and subsequently reports the main findings of the empirical work carried out. Finally, the work concludes with Section 4, in which we outline the main conclusions that can be drawn from the study.

2. Information and communication technologies as engine of economic development

The new information and communication technologies, as well as their continuous use, have altered the productive and organisational model in force until the mid-1980s, accelerating production processes, cutting costs, expanding target markets, generating new production areas and eliminating some of the technical and operational rigidities of the system. These changes have had important effects on the territorial organisation of economic activity, insofar as the new technological paradigm implies, among other things, the following consequences (Méndez, 1997; Bernal and Rodríguez Cohard, 2003):

- The modification of relationships in space and time, on the basis of improved communications, which allow firms to operate in real time and simultaneously from multiple locations. This equates to a shrinking of distances, measured in terms of time and cost, with the consequent effect on patterns of inter-regional and inter-urban location and competition.

- The densification of networks of tangible and intangible flows that interconnect firms and regions, which facilitates a systemic functioning at increasingly large spatial scales. This lends strategic importance to firms and regions' level of connection/disconnection to these networks, compared to the simple effect of proximity to centres of activity.

- A new spatial division of labour, in function of regions' differing capacities to produce or incorporate technological innovations, which originate new spatial divergences.

From this perspective it is interesting to reflect about how the new ICT may affect regional imbalances according to different authors. Their arguments, founded both on theoretical reasoning and empirical evidence, can be grouped into three categories:

- A) Some authors argue that the scientific grounding required fully to exploit ICT and its cumulative nature justify the idea that using these technologies contributes to widening rather than narrowing regional inequalities (Gillespie, 1991).
- B) A second group of authors, in contrast, cite the diffusion effect attributable to ICT to justify a process of convergence between regions at different stages of development (Capello and Nijkamp, 1996).
- C) Finally, other authors maintain that access to good long-distance communications allows firms to disperse their production operations and employment, favouring the dynamising of those backward regions that prove able to exploit their resources strategically, at the expense of regions at an intermediate level of development with higher production costs, which will be shut out from processes of regional competition (Castells, 1996; Vázquez Barquero, 2005).

The use of the new information and communication technologies by firms forming part of a local production system calls for technological capacity, in other words, sufficient aptitude and favourable attitudes to be able to apply them. On the other hand, there is also a need for complementary assets coming from the environment and making possible the commercial, financial and general management conditions ideal for exploiting the technologies successfully. Thus, business factors co-exist with others of an institutional nature that favour the appearance of increasing returns to capital, as a consequence of the exploitation of economies that are external to the firm but internal to the region (Viladecans, 2003; Rodríguez Cohard, 2004).

Among the factors providing firms from developed regions with certain comparative advantages in their exploitation of ICT, the following stand out:

- a) The scientific basis upon which the use and application of these technologies are founded, given that it requires a higher level of professional training from the firms, and in particular, from the ICT users themselves (Cuadrado, 1986).
- b) The cumulative nature of technological knowledge, which makes it dependent on the path followed. Thus, applying ICT in firms in the immediate future depends on the experience accumulated. This does not mean that the innovation is subjected to a determinism, because uncertainty, common to all cognitive processes, introduces random elements of discontinuity that do not alter the general trend observed (Molero, 2001).
- c) The externalities and “spillover effects” produced by ICT, since the impact of these technologies is not confined to the industry or firm in which they are introduced, but rather, as a result of their application and diffusion, networks between customers and suppliers can be created that lead to an improved allocation of resources, favouring an equilibrium between supply and demand. All this contributes to aggregate productivity growth (Audretsch, 2003).
- d) The existence in the higher-income areas of economies that are external to the firms but internal to the local production system, and which improve its efficacy and reinforce concentration. This includes, for example, the improved fluency of information exchange between firms, the competitive rivalry between them, joint labour markets that make a qualified workforce available that is adapted to companies’ requirements, or the existence of a greater number of local suppliers of specific factors and services (Krugman, 1990).
- e) The superior infrastructure conditions of the richer regions, as part of their global capital. An adequate endowment of infrastructures raises the potential supply of the economy by reducing firms’ production costs and, particularly, their communications and training costs. Thus, more prosperous and well-developed regions maintain a margin in their favour compared to poorer and worse-equipped ones (Biehl, 1988; Vázquez Barquero, 1996).
- f) The higher local demand that they concentrate, given their greater population density and higher income levels, which allows for higher consumption capacity and more efficient logistics.

Information and communication technologies, whose development is fundamental to what some have already termed “the third industrial revolution” (Piore and Sabel, 1984; Castells, 1996), permit increases in computing power, the increasing computerisation of many business processes and activities, and a greater connectivity in the case of the internet. All this leads to efficiency gains and consequently contributes to raising the GDP *per capita* of modern economies (Ontiveros, Manzano and Rodríguez, 2004).

The new technologies have already demonstrated part of their potential for transforming how goods and services are produced and supplied in markets, leading at the same time to increases in the total productivity of the factors employed. They are consequently encouraging adaptations in a growing number of business sectors, not just the typical digital-economy firms. In an international context that is increasingly approaching the integration of markets, these changes are intensifying the competition between firms seeking increasingly large market shares. Small firms that focus on producing for local markets that were once protected by distance will consequently disappear. The situation not only affects industry, but will also involve a growing number of retail stores and services, whose customers are increasingly distant (Méndez, 1997).

The efficiency improvements that are a consequence of the new technologies are not simply to be found in the processes of production and distribution coordinated from central sites. ICT is widely recognised to have a positive impact on less-developed economies in three areas:

- a) First, it reduces distances. ICT shrinks space, which eliminates the traditional disadvantages of regions distant from traditionally well-developed centres, thanks to the use and exploitation of the opportunities offered by the internet. Under this assumption, electronic access to more distant markets becomes less expensive, and at the same time firms benefit from lower installation and running costs.

- b) Second, ICT provides the firms of these areas access to remote sources of information and specialised services, which are located in central areas at some distance away.
- c) Finally, these technologies allow local and regional firms to enter electronic communication channels for the supply of intermediate inputs. The availability and intensive use of these technologies to manage relationships in the intra-industrial market can considerably improve the productivity of local firms, helping them to respond more quickly and accurately to the needs of the firms that control the global manufacturing chains (Goldstein and O'Connor, 2002).

The attraction of these new forms of trade founded on ICT for firms located in less-developed regions reflects the substantial advantages offered by the internet, specifically the formation of a virtual network, since this facilitates the reduction in production costs as well as the elimination of physical and temporal barriers to orders. First, e-commerce allows firms to obtain economies of scale thanks to the increased size of the market, since firms can target as many customers as there are internet users. Second, it provides economies of scope, by improving cooperation between firms and encouraging firms to open up ways that promote new business. And third, e-commerce cuts transaction costs between firms and between firms and their consumers, which promotes trade and boosts profits. In short, in an increasingly competitive environment in which firms deploy their strategies aimed at maintaining or expanding their market shares, in order to improve the returns on their investment, incorporating ICT helps firms to adapt to the changing market conditions and respond to rival firms' strategies (Vázquez, 2005).

The reduction in transaction costs is particularly relevant in the case of e-commerce between firms (B2B), since it leads to efficiency gains in four areas (Lucking-Reiley and Spulber, 2001):

1. The automation of transactions cuts costs before, during and after the exchange, thanks to the replacement of traditional forms by electronic media, so that errors are reduced, telephone and mail costs cut, and the speed of the contacts rises.
2. Disintermediation in the sale – although not in the distribution – due to the ease of establishing commercial relationships via the internet.

3. The reduction in entry costs for some firms in particular markets.
4. Its contribution to managing rapidly the flexible organisation of production, permitting a permanent control over the external links of the manufacturing chains in particular sectors.

The main studies carried out by the OECD (2001) in rural areas in different countries have shown that gradual access to ICT is the most successful option for firms in mature sectors of less-developed regions, since it offers them small improvements without altering their technical or production organisation. With all this, the adoption of these new technologies by rural firms fundamentally faces social and institutional barriers rather than technical, economic or infrastructural obstacles, although in many cases these are present too. These difficulties eventually culminate in the limited availability of specialised personnel, which hampers these small firms' attempts to embark on e-commerce strategies suited to their objectives and to the needs of potential users.

The introduction of technical innovations is not an automatic process: rather, it depends on the internal running of the firms, their relationships with their suppliers and customers, as well as their relationships with the institutional environment. Thus, it is essential for institutions to adapt constantly to the needs and demands of companies, as well as to strive to facilitate technological change. The greater the flexibility in the adaptation of the institutions, the greater the effects of the new technologies on the region's development process (Vázquez, 2005).

When considering the possible effect of ICT on a region we should finally mention the global strategies of multinational firms. These firms seek to adapt themselves more closely to the new globalised context by exploiting the conditions or advantages of each country or region to carry out specific operations. This implies fragmenting the production chain into a large number of specialised units that work as a network in a coordinated way. The integration that is required favours a functional hierarchisation of the establishments and the jobs, which implies a parallel hierarchisation of the regions in which the plants are located (Méndez, 1997).

The search for lower production costs tends to be regarded as the main explanatory factor of industrial delocation processes, which may either involve the transfer of part of the production capacity from the home country to a peripheral country, or alternatively the creation of firms acting as sub-contractors of the central firm abroad. This would be the case of the vertically-integrated network, since each establishment specialises in one step of the process, manufacturing parts or components that are subsequently assembled at other sites, generally close to the main target markets. But integration can also be horizontal, with plants dedicated to manufacturing different lines of end-products for the global market and/or pieces exchanged between work centres in various countries. Indeed, the network relationship between firms located in different regions can evolve over time. And, although at the beginning the components produced by the firms located in peripheral regions are designed and assembled in central subsidiaries of the firm, the strategic role of these peripheral entities can grow later, if they manage to improve their own capacities by incorporating advanced production factors.

In all the cases mentioned, information and communication systems play a crucial role in the administration of materials. By allowing firms to track components while they are being transported to a particular assembly plant at some distance away, information systems allow firms to optimise their production programme in accordance with the time that the components are expected to arrive at their destination. Firms are increasingly exchanging electronic information to coordinate the flows of inputs required in their manufacturing processes, and the same can be said for the flows of outputs in their distribution processes.

The development of information technologies, and in particular telecommunications, permits a greater geographic dispersion of the population, economic activities and employment, since access to good long-distance communications via these media is the necessary condition for starting up companies. Thus, a key element in the current world reality is the existence of global cities, converted into meeting points of near and far, global and local, interests. These are, indeed, huge dispersed metropoli, integrated and coordinated, where the destiny of the global economy is being decided, co-existing with intermediate locations situated between these nodes that are failing to exploit the benefits of ICT.

Each one of the versions discussed above presents advantages, disadvantages, opportunities and threats according to the resource endowment of each region and its capacity to adapt strategically to international competitive conditions. In the following section we examine our case study, the basis for the conclusions that will be outlined in the final section.

3. Analysis

On the basis of our discussion in the previous section, we aim to determine how exporters of mature products situated in southern Europe are incorporating the new information and communication technologies into the design of their competitive strategies. Finding that these firms make significant use of ICT in their production and commercial operations would suggest that they are adequately adapted to the new technological framework, which would have repercussions in terms of greater efficiency and/or efficacy in the use of the resources employed. This would consequently raise product sales in overseas markets and hence the growth potential of the local production system. In contrast, their lack of adaptation would negatively affect the competitiveness of the system, and consequently the levels of well-being of the region's population.

a) Context

The firms participating in this analysis have been operating in a province with a low level of development: located in Andalusia (southern Spain) it is classified as an Objective 1 region, since it has less than 75% of the mean EU income. Specifically, Andalusia had 68.49% and Jaén 61.11% in 2002 (Alcaide and Alcaide, 2003). All the signs are that it will continue in this position in the next Community Support Framework, in spite of the entry of the ten new countries into the EU, all of which are poorer than the mean EU level prior to their integration.

The productive structure of the province is characterised by a marked specialisation in agriculture: more than 10% of the GVA corresponds to this sector, three times more than for Spain as a whole. In its industrial production, responsible for 30.40% of the provincial GDP, three sectors stand out: agro-food, textiles and wooden

furniture. These industries are served by small firms that have traditionally placed part of their production in international markets – proof of their capacity to exploit the opportunities offered by large markets, and equally of the competitiveness of their products. Specifically, exports of olive oil from Jaén reached €226.214 million in 2004, representing 31% of total provincial exports, and the figures for foreign sales of wooden furniture and textile products were €38.445 million and €2.043 million, respectively.

In addition, we should bear in mind that the national production system, in the framework of which the firms that are object of analysis here operate, is significantly backward in terms of investment levels and diffusion of ICT goods and services compared to the more advanced countries. In general, Spain's level of integration into the information society is inferior to the mean of the wealthiest European countries (Ontiveros, Manzano and Rodríguez, 2004).

b) *Database*

The statistical information used in the analysis comes from the planning and design of a questionnaire directed at firms in the province of Jaén that conduct real exchanges with foreign customers and suppliers in the sectors under analysis.

There is no single up-to-date register centralising regional information about exporting firms, so the data used to determine the population to be surveyed was obtained from the individualised censuses of these entities produced by the National Council of Spanish Chambers of Commerce, the Spanish State Tax Agency and the Trade Promotion Agency of Andalusia (EXTENDA). This latter regional institution keeps a register of firms that have contacted it in order to undertake an export mission or exploratory operation overseas.

The total number of firms registered in all sectors was 230, of which 112 correspond to the sectors under analysis. Of these, 96 agreed to our requests for an interview, with a random distribution in terms of importance and size of firm. All questionnaires were filled in by a survey taker selected for the purpose, in the presence of managers from the surveyed firms.

The questionnaire was validated by carrying out the appropriate pilot interviews, and is structured in eight blocks of questions concerning general information, origin of export activity and early process, number of workers and their qualifications, innovation and sources of information for commercialisation, investment strategies and change of orientation, characteristics of current export activity, volume of revenues and image and promotion, all of these in relation to their adaptation to the new information and communication technologies.

The questions in the questionnaire are of four types: semi-structured questions with closed stimulus and open response; structured questions with multiple closed response; structured questions with single closed response; and structured questions with multiple semi-open response. We also used two types of scale for the responses: a 5-point Likert-type scale and a semantic differential scale. The final analysis was carried out using the statistics program SPSS for Windows, version 11.0.

c) Results

Determining the importance of ICT in the competitive strategies of the firms under analysis requires that we understand how and when these firms started using the internet, and the main applications in their relationships with customers and suppliers. We now present the main results from our analysis of the statistical information obtained from the survey carried out.

In principle, we might logically assume that given the increasing importance of ICT in the society as a whole, these new technologies will be present in all the productive operations of the firms under analysis, permitting them to carry out their production and commercialisation tasks more efficiently. Likewise, we would expect the use of these technologies to have positively affected the firms, with a direct relation between their use and the firms' turnover.

Table 1 reveals the position of each sector in terms of its use of the internet as a communication channel, availability of web page and the age of this. Above all, it is significant that among the exporters there are agro-food firms and particularly wooden furniture manufacturers that have still not understood the strategic value of the new

technologies, not having incorporated e-mail into their communication systems. It is equally surprising that more than 10% of the firms surveyed still lacked a web page in 2004, a percentage that rises to 43.9% in 2001.

Table 1:
ICT resources of exporters from textile, agro-food and wooden furniture sectors
from Jaén

ICT resources	Export firms			
	All sectors	Textile sector	Agro-food sector	Wooden furniture sector
% firms with e-mail	93.7	100.0	96.6	93.3
% firms with web-page (2004)	88.4	87.5	89.3	92.3
% firms with web-page (2001)	56.1	87.5	51.5	53.4

Source: The authors, 2004.

In contrast to other communication media the web page offers firms a wide variety of uses, which can be summed up as follows. First, it is a channel for promotion, acting simply as a shop window for the entity, a means for potential customers to make first contact with the productive unit. Second, and expanding on the first point, it can act as a vehicle to contact potential customers of the product being offered. In this case the web page would require certain contents in terms of models, prices, quality, etc. Third, it is a channel open to customers, in which they can express their preferences and needs precisely, enabling them to be attended better. Fourth, it is an instrument for selling, which allows the buyer to order and/or pay through the web page. Finally, and in view of the above, the firm can use its web page to aid in its cost cutting.

Table 2 reports the percentage of firms surveyed that exploit each of the utilities offered by web pages. These data confirm that the firms use web pages particularly in their sales-related activities, regarding this tool as a channel for overseas promotion, and particularly for making themselves known to potential customers. Its function as a

mechanism of customer service is, however, significant, especially among the textile firms, as well as its use by the customers to make their orders. In fact, only 30.4% of the agro-food firms claim to have concluded sales transactions via their web pages, a percentage that declines to 28.6% in the textile industry, and 8.3% among exporters of wooden furniture. Finally, we might mention that only agro-food firms use their web pages for cost-cutting purposes, evidence that the firms surveyed here do not generally manage the factor markets by exploiting the advantages offered by ICT, particularly with regards the reduction in transaction costs.

Table 2:
Utility of web-page to exporters from agro-food, textile and wooden furniture sectors (%)

	Agro-food	Textile	Furniture
Publicity function	60.9	57.1	72.2
Capture customers	65.2	85.7	90.9
Customer service	39.1	57.1	36.4
To sell	30.4	28.6	9.09
Cut costs	13.0	0.0	0.0

Source: The authors, 2004.

The customers served by the different types of entity are, above all, firms and particularly intermediaries and dealers, which maintain a direct link with the final demand. They include multi-brand shops and even large distribution chains dedicated to placing the wide variety of products manufactured by the firms in this province in the final market. However, if the end-consumers at any time decide to contact with the provincial productive unit, they can be attended through this channel. A reality that, according to the statistical information presented in Table 3, is more common in the agro-food sector. This is a sector where a significant proportion of firms claim to maintain distribution agreements with other firms for their e-commerce operations (B2C). On the other hand, as the firms incorporate new communication systems into their commercial operations, and these contribute to expanding and improving their capacity of communication with their customers, as well as the dynamism of their relationships with them, any differences between national and foreign trading partners decline.

Table 3:
**Characteristics of trading partners of exporters from textile, agro-food and
 wooden furniture sectors in Jaén (%)**

Type of trading partner			
	Agro-food	Textile	Wooden furniture
Firms	17.6	66.7	71.4
Private individuals	-	-	-
Firms and private individuals	82.4	33.3	28.6
Total	100.0	100.0	100.0
Geographic origin			
	Agro-food	Textile	Wooden furniture
Spanish partners	29.4	16.7	-
Spanish and foreign partners	70.6	83.3	100.0

Source: The authors, 2004.

The firms not using electronic communication in their relationships with their customers offer various reasons to justify their position. Among these, the most significant are the difficulty of contacting the target public through this medium, its weaknesses as a commercial channel, and even the high cost and complexity of using it. It seems clear that these are poorly justified arguments founded on an absolute ignorance of the medium.

Information and communication technologies, particularly the internet, likewise facilitate intra-firm relationships and cooperation agreements with other firms, allowing for the management in real time of an entire network of suppliers of different types of factor, including manpower, which is the objective when firms externalise the most labour-intensive stages of their production to regions with lower labour costs. The result is marked improvements in the productivity of the units that participate in global markets for products and factors.

Table 4 offers information about the firms of the different sectors considered with regards their use of the internet in inter- and intra-firm relationships. It is particularly interesting to note the percentage of firms not making use of internal internet-based communication systems that ensure a constant flow of information in real time between the various components of the firm. Likewise, many firms – particularly

in the wooden furniture industry – do not use the internet as an open communication channel with other firms from the same sector, or even with the firms that supply their inputs. A situation that evidences the poor level of exploitation of the potential benefits of the internet by the productive units of the province.

Table 4:
Percentage of firms maintaining relationships via Internet (%)

Sectors	Intra-firm	With suppliers	With other firms from sector
Agro-food	50.0	82.8	67.9
Wooden furniture	20.0	46.7	14.3
Textile	16.7	87.5	50.0
All	32.4	73.1	50.0

Source: The authors, 2004.

This reality is a consequence of both economic and institutional factors. Among the first, we might mention the small size of the entities analysed and their limited resources in terms of financing and qualified manpower. Indeed, these firms base their competitiveness on the intensive use of natural resources in the case of the agro-food sector, or on their employment of a relatively unqualified workforce, particularly in the textile and agro-food sectors. Among the institutional factors, we should mention those of a cultural and social nature that foster confrontation between families or entrepreneurs opposed to cooperation.

4. Conclusions

The new information and communication technologies are a fundamental element in the economic development processes of all regions, since they can explain improvements in performance, and their incorporation in the traditional sectors contributes to renewing processes and products, making them more productive, efficient and competitive. This directly impacts on the evolution of relative income and wealth levels between regions. Evidently, the technical position of the local production system, in terms of the technology firms use to coordinate their factors of production, is the

fundamental variable that defines the specialisation of the productive apparatus in the home market, and the specificity of their trading relationships overseas, determining their position in the competitive environment imposed by the inter-regional division of labour.

In view of this situation, the analysis carried out here demonstrates that the case studied, which we presume to be similar to other peripheral economies, is significantly backward in its process of incorporating ICT into its production system. Indeed, some of the most dynamic entities of the local productive apparatus – exporters of textile, agro-food and wooden furniture products – still do not employ electronic communication, which negatively affects both the fluency and ease of their relationships with their customers, suppliers and the other firms from the same sector. Even when the firms recognise the strategic value of the new information and communication systems, as occurs in the majority of cases, and there is a growing interest in exploiting the synergies that can be gained by applying them, the degree of real exploitation of these technologies is very limited, confined largely to an informative role, or to the beginning of the commercialisation process. For more than 80% of the firms surveyed the use of ICT is limited to running a web page, through which coordinating relationships with the customers is the most common function realised. This situation is particularly relevant in this case because these are all export firms, and we can infer that they are among the most innovative firms in their sectors since they compete in international markets.

There are, however, important differences between the firms studied. The textile firms make most use of the new technologies in their customer service activity. An explanation for this might be that there has been a substantial purge in this sector, which has left only those firms best able to adapt to an increasingly competitive environment in the market. A more backward position is evident among the agro-food firms, and particularly among the manufacturers of wooden furniture. In both cases, these sectors have been less exposed to competition. The wooden furniture sector continues to be a fragmented market, where there are few large multinational groups capable of fully exploiting the advantages of global factor markets to put pressure on their competitors, as has occurred in the textile sector. The agro-food industry, in turn, benefits from significant comparative advantages linked to the exploitation of natural resources, and

relies on the protection offered by the Common Agricultural Policy to a part of the local production chain.

On the basis of the analysis carried out here we should point out that the failure to exploit ICT on the part of the firms of these mature sectors, increasingly exposed to global competition, reduces the chances of survival in the market of a large proportion of them in the scope of the EU. This is already occurring in the textile-clothing sector in the whole of Europe. It is of course true that small entrepreneurs feel some reservations about using these technologies, given doubts about the reliability of the transactions, the deficient security in the data transfer, building customer loyalty or the data management. In some cases this leads firms to use this medium less. However, the majority of these problems are not very different from those facing ordinary trade.

Consequently, if using ICT is essential for a region to ensure the constant renewal of its comparative advantages and transform them into competitive advantages, and if the dynamism of markets is determined by competition at the international scale, a development strategy founded on a weak technological level is extremely suspect, above all, because of the intense competition at this level coming from non-OECD member countries. Only by making an adequate use of ICT, and particularly using it to manage the factor markets, can firms guarantee the competitiveness of their products in international markets. Thus, those regions that are failing to adopt sufficiently quickly the production, management or commercialisation models imposed by the new ICT will be marginalised and confined to low-value-added functions. This will intensify the pattern of various speeds that is already consolidating as an economic and social reality in the European Union.

Today, the internet is the main information and communication reference point at the global level. Any firm can now become a data transmitter at a reasonable cost, gaining access to a potentially global market. Thus, it is essential to change perceptions about the advantages and disadvantages of using this medium in order to facilitate access to this potential market for firms from traditional sectors such as textiles, agro-food and wooden furniture, which make little use of these technologies and are reluctant to do so. Likewise, a better use of these new technologies, and by a more qualified personnel, is critical for developing potential competitive advantages. Competitive

advantages that will ensure the survival of the region's firms in the international market, and consequently improve income and well-being in the local economy.

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