

How Reshoring Has Shaped the Impact of COVID-19 on Spanish Footwear Firms

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ABSTRACT

The COVID-19 pandemic has caused major disruption to the operations of firms in terms of both their supply chains and their demand. This paper studies how the configuration of the supply chains, resulting from previous offshoring and reshoring decisions, has affected the responsiveness and resilience of firms in this situation. The analysis is applied to the Spanish footwear sector and allows us to develop possible future scenarios in which the reconfiguration of value chains and the use of advanced technologies play an essential role. To do this, we use the “scenario planning methodology” combined with analytical models for the offshoring question. We conclude that the reshoring process motivated by the 2008 crisis has been fundamental for strengthening the resilience of firms to the COVID-19 crisis, as has the incorporation of new technologies.

Keywords: Reshoring; Backshoring; COVID-19; Firms’ resilience; Shoemakers.

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Cómo la Deslocalización Ha Influido en el Impacto del COVID-19 en las Empresas Españolas de Calzado

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RESUMEN

La pandemia de COVID-19 ha causado importantes alteraciones en las operaciones de las empresas, tanto en sus cadenas de suministro como en su demanda. En este trabajo se estudia cómo la configuración de las cadenas de suministro, resultado de anteriores decisiones de deslocalización y relocalización, ha afectado a la capacidad de respuesta y resiliencia de las empresas en esta situación. El análisis se aplica al sector español del calzado y nos permite desarrollar posibles escenarios futuros en los que la reconfiguración de las cadenas de valor y el uso de tecnologías avanzadas juegan un papel esencial. Para ello, utilizamos la "metodología de planificación de escenarios" combinada con modelos analíticos para la deslocalización. Concluimos que el proceso de relocalización motivado por la crisis de 2008 ha sido fundamental para reforzar la resiliencia de las empresas ante la crisis COVID-19, al igual que la incorporación de nuevas tecnologías.

Palabras clave: Reshoring; Backshoring; COVID-19; Resiliencia de las empresas; Calzado.

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1. Introduction

The global crisis of 2008 gave rise to the beginning of a growing reshoring process in advanced economies which has continued to the present day (Dachs et al., 2019). The reduction in demand at the end of 2008 and throughout 2009 which generated the crisis led to the “Great Trade Collapse” which was contained in subsequent years thanks to the widespread rejection of protectionism by the principal world leaders (Baldwin and Taglioni, 2009). However, there were many voices among the public opinion and important leaders, such as President Donald Trump, who defended protectionism, using the argument of protecting national industry and promoting its restructuring. In this respect, the trade war between the USA and China may have given rise to reshoring processes whereby activities that were offshored in the past in Southeast Asia were brought back to the home country.

However, the reshoring processes that have been carried out, both in the USA and in the majority of advanced economies, have responded to the changes generated by the new economic crisis environment. Its causes are broadly analysed in the literature (Stentoft et al., 2016). But these reshoring processes did not imply the complete abandonment of previous offshoring strategies. On the whole, they consisted in the partial reversal of previously offshored production to complement the offshoring operations that remained. In fact, business operations in the developed world undertaken through participating in offshoring processes and global value chains have not only continued growing in recent decades but have become increasingly more global (Kano et al., 2020).

Within this context, in 2020 the world faced a public health crisis caused by COVID-19 with much more devastating effects on the global economy (Baldwin and Evenett, 2020). While the crisis of 2008-2009 led to the “Great Trade Collapse” that of 2020 has generated the “Greater Trade Collapse” (Baldwin and Evenett, 2020).

The COVID-19 crisis began in December 2019 in China. In order to protect the health of the population and contain the spread of the virus, in January 2020 the Chinese government implemented a series of measures including the isolation of its inhabitants, a reduction in activity or the paralysis of companies, border controls, travel restrictions, etc. All of this had a major impact on the operations of global value chains throughout the world, as China is still the principal supplier of intermediate goods in the global market.

The first effect was a supply-side disruption in international markets, which gradually worsened in the following months due to the spread of the virus throughout the world and the imposing of similar measures of isolation and restrictions in every country. Cancelled shipping routes, the inability to unload in ports and the confinement of goods were some of the many trade restrictions. On 11 March 2020, the virus was declared a pandemic by the World Health Organisation. In turn, a demand-side crisis arose due to the reduction of consumer activity (Sharma et al., 2020).

Although the crisis began not long ago, given the severity of the situation and how different it is compared to previous crises, during this short period of time many studies have been published on the immediate impacts of the COVID-19 pandemic on many fields and, in particular, companies and their participation in global value chains. However, the reality that the crisis has generated is so complex and is affecting such a diverse array of companies and industries so severely that there is a continuous call for new academic research in order to gain a more in-depth understanding of its effects on specific firms and sectors and to find possible feasible strategies to respond to the new changes that it has brought about (Juergensen et al., 2020; Kraus et al., 2020). Within this context, learning about the reality of companies, the strategies that they are implementing and their consequences and gaining a greater knowledge of the actions that they consider to be optimal in different scenarios provides valuable results regarding the reaction of the global value chains in the COVID-19 crisis.

For this reason, the main research questions of this study are to analyse in depth the extent to which the design of global value chains arising from the previous crisis, specifically the offshoring-reshoring strategy, can make firms more resilient to the COVID-19 crisis and, then, whether a new reshoring wave could occur in response to the challenges that will characterise the post-crisis

economy. The literature has remarked that to make firms more resilient to disruptions in their sourcing, besides inventory overstocking. (Goldman Sachs, 2022; Lafrogne-Joussier et al., 2023; De Lucio et al. 2023), strategies based on flexibility, agility, collaboration and redundancy can be implemented to deal with the main risk sources (Shekarian and Parast, 2020). This paper does not discuss how each of them affect the resilience of firms but takes a more general perspective departing from the models such as Gray et al. (2017), de Treville et al. (2014a), de Treville et al. (2014b), which incorporate volatility and risk as reasons for finding the optimal sourcing strategy.

The sector selected for the study is the Spanish footwear sector, as it is an industry with a long and intense experience in offshoring processes and participates in global value chains and, in recent years, has carried out reshoring operations.

The paper is structured as follows. After the introduction, the impacts of COVID-19 on global value chains detected in the available literature are presented. Next, the methodology used in the study is described, applied to firms in the footwear sector. This is followed by the empirical analysis and finally the results, discussion and conclusions.

2. COVID-19 and the functioning of global value chains

During the period of time between the appearance of the first cases of COVID-19 and the present day, many researchers have analysed the impacts of the pandemic both on health and the economy. One aspect that has been widely studied is that of the global value chains, including empirical studies with case study methodology (Sharma et al., 2020; Kraus et al., 2020; Belhadi et al., 2021; El Baz, and Ruel, 2021; Cohen et al., 2022; Ozdemir et al., 2022; Shen and Sun, 2023), studies from a micro-level perspective and quantitative methodology (Bellandi et al., 2020; Pantano et al., 2020; Juergensen et al., 2020; Garvey and Carnovale, 2020; Strange, 2020; Paul and Chowdhury, 2020; Ivanov and Das, 2020; Lafrogne-Joussier et al., 2023; De Lucio et al., 2023), technical reports of international bodies (OECD, 2020; Flegontova and Ponomavera, 2020; Goldman Sachs, 2022; Pimenta et al., 2022), and literature reviews (Golan et al., 2020; Verma and Gustafsson, 2020; Chowdhury et al., 2021; Spieske and Birkel, 2021).

The content of the available literature on the impact of the COVID-19 crisis on the activities of global value chains can be summarised in three points. First, the shock caused by the outbreak of the pandemic. Second, the changes implemented by firms in the global value chains during the pandemic. Third, the proposal of strategies to reinforce the maintenance of the global value chains, as well as some strategies observed since and after the outbreak of the Covid-19 pandemic in various industries and countries.

The first point refers to the initial effects generated on the demand and supply side. On the demand side, the impacts were sudden and highly diverse, depending mainly on the sector of activity. In some sectors (for example, cars, petrol and transport), the demand collapsed (Abhishek et al., 2020), while in others (for example, sectors of goods related to the treatment of the virus or technological companies) growth was extraordinary (Paul and Chowdhury, 2020). Another noteworthy aspect in the changes in demand was the overall increase in the use of online channels (Pantano et al., 2020). On the supply side, the immediate effects for the firms were the interruptions in the supply of their international suppliers, basically from China (Richards and Rickard, 2020).

The second point basically refers to the intense changes generated in the use of technology. This has been a highly important factor that has determined the success or failure of firms during the crisis (Garvey and Carnovale, 2020).

Finally, the strategies for firms with respect to the changes that could be adopted to favour the construction of more resilient global value chains. In this group, we find some recommendations such as: a) Favouring sustainable production chains (OECD, 2020); b) Promoting more flexible global value chains (Verma and Gustafsson, 2020; Ivanov and Das, 2020; Shen and Sun 2023); c) Intensifying greater technological development (OECD, 2020; Verma and Gustafsson, 2020); d) Promoting the development of a culture of collaboration (Paul and Chowdhury, 2020; Shen and Sun, 2023; e)

Increasing the number of suppliers and their diversification (Flegontova and Ponomareva, 2020); f) Promoting greater automation, which, in some cases, can motivate reshoring processes. (Juergensen et al., 2020, Strange, 2020; Spieske and Birkel, 2021). In this same line, some recent articles study the observed strategies that firms have developed since the outbreak of the Covid-19 pandemic. They can be synthesised around the following lines: a) increase of the stock of intermediate inputs from companies participating in value chains (Lafrogne-Joussier et al., 2023; De Lucio et al. 2023); b) changes in supply sources towards small circles of qualified suppliers or alternative sourcing locations through reshoring or nearshoring strategies, depending on the type of industries (Cohen et al., 2022; Khanna et al., 2022; Pimenta et al., 2022); c) development of innovations and strong relationships with the suppliers (Ozdemir et al., 2022) d) improvements in management techniques (El Baz and Ruel, 2021) and e) intensification of the use of digital technologies and Big Data Analytics, as well as the use of advanced industry 4.0, for specific supply chains, such as those of the automobile and airline industries (Belhadi et al., 2021).

Although the existing literature provides evidence of the impact of the COVID-19 crisis, it has not yet been developed for enough sectors so as to provide an overall perspective. Moreover, most studies have focused on supply chains for high-demand essential goods and healthcare products, while low-demand items and SMEs have been largely ignored (Chowdhury et al., 2021). More importantly, the existing research has not discussed how the configuration of the global value chains of firms has influenced the impact they have suffered. Other limitation of the available research is the lack of a consensus on whether a specific theoretical framework for cases like this is required. Then, it is necessary to discuss whether the phenomena generated by COVID-19 fit into the variables that the existing models consider.

Thus, we identify these interesting gaps in the existing literature which this paper seeks to fill through an empirical analysis of cases obtained from the footwear sector. Besides, there are calls for new academic research about COVID-19 and supply chains (Chowdhury et al., 2021) to enhance the value of the research with cases from different countries. The studied sector, a low-demand non-essential good in an industry composed of SMEs, broadens the perspective provided by available research.

This industry had reshaped its supply in the last years, reversing some of the offshoring processes that had previously undertaken (Martínez-Mora and Merino, 2014). So, its analysis will allow us to better know the relevance of the different solutions to the shoring question (offshoring, nearshoring, reshoring totally or partially) to do firms more resilient to a shock like COVID-19.

Finally, in relation to the need for a theoretical framework for the analysis of the impacts of the COVID-19 crisis, it should be borne in mind that all of the sources of risk indicated by the literature (Shekarian and Parast, 2020) have, in fact, materialized. Otherwise, new models will be necessary in order to gain a better understanding of the configuration of supply chains once managers and firms have internalized that risks such as COVID-19 cannot be neglected.

3. Methods

3.1. Methodology

The methodology used in this study, presented in Knight et al., (2020), is called “scenario planning”. Its use is widely acknowledged by academic researchers and many papers implementing it have been published (Młody, 2016; Spaniol and Rowland, 2018). It is a methodology based on qualitative data and an intuitive logics approach. It has similarities with the traditional case studies methodology, also based on qualitative data, but with differences that justify the adequacy of this method for the purpose of this study.

The methodologies typically used in case studies seek to respond to the questions “what/how” and “how/why” in the design of the research (Yin, 2018). Meanwhile, the scenario planning methodology focuses on questions such as “what if”. Its purpose is to define an object of study, consider the known

and uncertain factors and forces that may condition its future and develop possible scenarios related to the execution of these forces (Frith et al., 2020). In a situation such as the one derived from the COVID-19 crisis, firms may reasonably contemplate many scenarios depending on the evolution of the pandemic or the type of measures taken by the authorities of their own countries and those of other nations, the social reactions to the new situation or the characteristics of the post-pandemic situation which has an unknown date, etc. Therefore, this type of methodology emerges as the most appropriate to identify the key elements that firms are considering with respect to their supply chain.

The existing literature reveals that COVID-19 has affected supply chains because supply has been interrupted, demand has changed drastically and some technologies, although widely available before, are now being used extensively. All of these factors shape an economic environment whose main characteristic is uncertainty regarding how these elements will affect the firms and, specifically their supply chains in the mid and long term. Scenario planning is a research method widely used to analyse situations underpinned by uncertainty. Some examples include the future of sustainable tourism (Gössling and Scott, 2012), the sustainability impact challenges of Industry 4.0 (Bonilla et al., 2018) or the consequences of reshoring (Mfody, 2016).

The aim of this paper is to learn how the supply chain, and specifically the previous reshoring decisions, has influenced the ability of firms to operate in the new situation that COVID-19 has generated. To do this, we will identify and analyse the factors that have been determining the operation of these global value chains during the crisis and how they have affected their activity in a set of cases that will illustrate different ex-ante situations and different strategies to deal with the phenomenon. We will also study the strategies that firms are implementing in this context and consider the plausible scenarios related to them. CEOs faced tough decisions, in a framework highly uncertain and with few (if any) tool or benchmark to help them. The analysis on what they did at those moments, the differences between firms that had offshored or not, etc. and the different consequences allows us to highlight whether decisions on the configuration of their global value chains affected their actions and their consequences. Besides, CEOs also had to think in longer term strategies, so, we will discuss the situation of the firm and the future scenarios in the light of models of de Treville et al. (2014a, 2014b) that provide a comprehensive framework for understanding the “shoring” decision.

3.2. Case selection

Spain is one of the global leaders in the footwear industry and is the world’s ninth exporter. In 2017, this sector was made up of 3,559 firms and employed close to 30,000 workers. In the same year, local production amounted to 97.9 million pairs with a value of over two billion euros. Total exports of 158 million pairs with a total value of over 2.6 billion euros were sent to more than 150 countries (source: FICE, 2020).

This industry is highly intensive in labour, which, throughout the 1990s and 2000s, was mostly displaced to emerging economies, particularly China and other Asian countries. When China joined the WTO, Chinese footwear gained easier access to international markets. This motivated many international footwear firms to start moving their production to China in order to exploit its advantage in labour costs, in the same way as many other industrial sectors. The small size of these companies (and the consequent lack of resources in terms of finance and managerial knowledge), the absence of issues regarding secrecy in the production process and the availability of companies to produce the final product in Southeast Asia explain why Spanish firms opted for arms-length contracts with local suppliers without making investments in those countries (Miranda, 2013). However, in the years following the crisis beginning in 2008, many firms in this sector implemented reshoring processes, taking their production back to Spain or to nearby countries (Martínez-Mora and Merino, 2014, 2017). The huge fall in demand and financial difficulties of retail customers caused by the global crisis of 2008 and 2009 and the new distribution patterns introduced by the large chains required the frequent replenishment of new products in small quantities. This was unfeasible for companies that had located their whole production process in Southeast Asia where they had to make large orders and accept long

delivery terms. Therefore, many companies responded by relocating part of their manufacturing that had been offshored to Southeast Asia back to Spain or nearby countries, where it was possible to manufacture and dispatch smaller orders in shorter periods of time.

3.3. Data gathering

The data collection process was carried out in several stages. A previous survey administered among the 641 identified firms of the sector provided a database of 141 firms, 42 of which had offshored. The main characteristics of these 141 respondents in terms of size and export intensity are similar to those of the whole population.

In order to analyse how the geographical configuration of their value chains conditioned the responsiveness and resilience of the firms to the crisis caused by COVID-19 we focused on 42 firms which we knew had offshored and for which we had extensive information on some of their characteristics.

We contacted these firms and found that five of them were immersed in special legal situations (state of insolvency, voluntary arrangement of creditors, etc.), it was not possible to contact another four (changes to their addresses, mergers with other firms, ...) and 18 of them refused to collaborate in the study. This gave us a sample of 15 firms with which we conducted extensive interviews. The personal interviews with their CEOs, based on a semi-structured questionnaire to obtain information on the impact that COVID-19 has had on them and how this impact relates to their previous offshoring-reshoring strategy, were carried out in October 2020. The interviews contained 62 questions divided into six large blocks. The first refers to the characteristics of the participation of the companies in the global value chains. This block contains detailed questions on the characteristics of their production processes abroad, the tasks that were offshored as well as the advantages and problems encountered when moving their production to another country. The other five blocks refer to the possible impacts of COVID-19 on the key aspects detected in the incipient international literature. Fundamentally, aspects related to the use of new technologies and their implications for employment, production abroad and demand.

The offshoring processes of the firms interviewed and their responses to the crisis of 2008-2009 with reshoring strategies are summarised in Table 1.

Reshoring strategies have mainly been carried out by companies which, until 2008, had concentrated all of the manufacturing activities abroad in Southeast Asia. These operations have two relevant characteristics. First, they diversify and increase the number of foreign supplier countries. Second, they maintain part of their manufacturing in Southeast Asia. Large quantities are still produced in Southeast Asia due to cost and competitiveness reasons. Meanwhile, firms that concentrated their foreign production in neighbouring countries in 2008 have not carried out any kind of reshoring

Table 1: Reshoring strategies of companies after the crisis of 2008-2009

| Firm | Headquarters in: | Type of product | Total sales (2019) € | Year 2008 | | Years 2010-11-12 | Situation in Year 2020 | | Reshoring strategy ¹ |
|--------------------|--------------------------|-------------------------|----------------------|-----------------------------|---------------------------|------------------|--|---------------------------|---------------------------------|
| | | | | Offshoring (produces in) | % of production offshored | Reshores? | Produces in: | % of production offshored | |
| PIKOLINOS | Alicante (C. Valenciana) | Dress-fashion | 120,000,000 | China | 60% | Yes | Several countries in Asia, Morocco, Portugal | 60% | Outsourced reshoring |
| CALZADOS PITILLOS | Arnedo (La Rioja) | Dress-fashion | 40,000,000 | Tunisia, Morocco | 30% | No | Tunisia, Morocco | 30% | -- |
| GIOSEPPO | Alicante (C. Valenciana) | Dress-fashion-casual | 37,717,000* | China, India | 100% | Yes | Viet Nam, Taiwan, China, India | 70% | Reshored for outsourcing |
| LÍNEA DE SEGURIDAD | Arnedo (La Rioja) | Professional (security) | 1,552,000* | China, India | 50% | No | India | 100% | -- |
| CALDEPIEL | Alicante (C. Valenciana) | Children | 9,162,000* | Viet Nam, Albania, Portugal | 40% | No | Viet Nam, Albania, Portugal | 45% | -- |
| CALZADOS HERGAR | La Rioja | Dress-fashion-casual | 29,716,000* | Morocco | 30% | No | Morocco | 30% | -- |
| J'HAYBER | Alicante (C. Valenciana) | Sport | 15,000,000* | China | 90% | Yes | China | 80% | Reshored & insourcing |
| KTINA ESSENCE | Alicante (C. Valenciana) | Dress-fashion | 5,618,000 | India | 100% | Yes | All in Spain | 0% | Reshored & insourcing |

| | | | | | | | | | |
|-----------------------|-------------------------------|--------------------------|------------|----------------|-----|-----|-----------------------|-----|-----------------------|
| ALBACETE INDUSTRIAL | Albacete (Castilla-La Mancha) | Boots-standard | 13,000,000 | Romania | 30% | No | Romania | 30% | -- |
| CALZADOS GAIMO | Arnedo (La Rioja) | Dress-fashion | 14,304,000 | Morocco | 70% | Yes | All in Spain | 0% | Reshored & insourcing |
| HI-TEC | Alicante (C. Valenciana) | Sport – mountaineer ring | 6,000,000 | Asia | 90% | Yes | Asia, Portugal, Spain | 60% | Reshored & insourcing |
| CALZADOS BESTARD S.A. | Mallorca (Balearic Islands) | Mountaineer ring | 5,000,000 | China, Romania | 25% | Yes | Romania | 40% | Outsourced reshoring |
| CALZADOS ANDANINES | Alicante (C. Valenciana) | Children | 2,095,000* | India | 10% | Yes | All in Spain | 0% | Reshored & insourcing |
| CALZADOS CDN S.L.U. | Alicante (C. Valenciana) | Dress-fashion | 898,000* | India, China | 5% | Yes | All in Spain | 0% | Reshored & insourcing |
| JEMMA FOOTWEAR S.L. | Alicante (C. Valenciana) | Children | 2,586,000* | India, China | 5% | Yes | All in Spain | 0% | Reshored & insourcing |

* Data for 2018.

¹ According the Gray et al. (2013) typology

Source: Surveys to CEOs and data from the Official Register of Companies

4. Empirical analysis

4.1. Short-term impacts of the COVID-19 crisis

4.1.1. Supply: supply chains

The companies with suppliers in Southeast Asia place their orders for the manufacture of their products for each season six months in advance. Therefore, in August every year, orders are made for the spring-summer season of the following year which are received in February. Also in February, orders are made for the autumn-winter season of the following year which are received in August of the year when the orders are placed. Note that there is a large risk inherent in this timetable (it is necessary to make orders of different models six months before the sales season starts).

A large part of Asia lifted the lockdown and restrictions in February/March of 2020 and the companies began to serve the previous orders. Therefore, at the end of February and in the first half of March all of the goods for the spring-summer season of 2020 had been received in Spain from China and the rest of the Southeast Asian countries. Furthermore, throughout February (when the restrictions in Spain had still not been implemented and the firms were operating normally) all of the orders for the next autumn-winter season (2020/2021) were placed and the firms in the sector confirm that they received them normally in the month of August.

In other words, those companies whose global value chains include some Asian countries (such as Pikolinos, Línea de Seguridad, Gioseppo, Caldepiel, J'Hayber and Hi-Tec) indicate they did not suffer any significant supply disruption of the goods manufactured in Southeast Asia as a result of the COVID-19 crisis.

Similarly, the production that was located in foreign countries close to Spain where the firms had outsourced their production (Romania, Portugal, Morocco and Tunisia) has not encountered supply problems that could create difficulties in the distribution of the Spanish firms under study (Pikolinos, Calzados Pitillos, Caldepiel, Calzados Hergar, Albacete Industrial, and Calzados Bestard).

So, thanks to the coincidence of the lockdown dates in Europe and Asia, this industry has not suffered any significant supply disruptions. Although this has clearly not been the case in other industries, managers in this sector do not incorporate this element as one of the cornerstones for designing their mid and long term location strategies.

4.1.2. Demand

The companies of the sector indicate that the real problem generated by COVID-19 is not on the supply side but on the demand side (the turnover of retailers of personal equipment, which includes shoes as well as clothing, decreased 52.4% in 2020Q2 with respect to the previous year according Spanish Statistical Institute). Although the official statistics do not provide a breakdown, the data gathered in the interviews with the sector association indicate that this effect has not been homogeneous in all companies but depends on the type of footwear produced. With respect to adult dress and fashion footwear, when the lockdown ended in Spain and the stores reopened in June, demand and sales plummeted and consumption did not recover over the following months. The fall in sales fluctuated between 50 and 80 per cent with respect to the previous year. This led to a long chain of order cancellations by retail stores, defaults and large amounts of stocks accumulating in the firms or stores. In the interviews, the firms of this segment indicated that in September 2020 there were still large amounts of unsold stock corresponding to the spring-summer season. For companies operating in this market niche, the greatest problem is stock accumulation.

Firms in the professional (Línea de Seguridad), sports, mountain (J'Hayber, Hi-Tec, Calzados Bestard) and children's footwear (Caldepiel, Calzados Andanines, Jemma Footwear) segments indicate that the drop in sales has been much smaller than in other segments. According to the firms, the fall in their sales in these lines fluctuated between 5 and 15 per cent.

The interviewed firms indicate that in all cases there has been a significant increase in online sales which, while not compensating for the reduction in the sales of physical stores, has in some way cushioned the sharp drop.

4.1.3. Adoption of new technologies and their role to deal with COVID-19

Together with the consequences derived from the fall and change in demand, all the interviewed firms (and sectoral association) indicate that the second major impact of the COVID-19 crisis is the advance in digitalisation. They recognise that the use of new technologies has been fundamental for preventing the total paralysis of their production and sales.

On the supply side, the incorporation of new technologies has occurred on two levels. First, in digital communication. From December 2019, the companies cancelled all of trips to Southeast Asia by their technical personnel to the factories of the foreign suppliers to undertake coordination, advisory and quality control tasks. All of this activity was replaced by virtual meetings and communication through new technologies. Second, the measures adopted by the government to contain the pandemic obliged the firms to implement teleworking in all tasks wherever possible.

The interviewed companies indicated that they considerably increased their investments in IT equipment renovation, buying licenses, new connection systems, digital platforms, etc. and increased the number of teleworking positions. Some of them (Pikolinos, Gioseppo, Caldepiel, J'Jayber, Línea de Seguridad, Albacete Industrial) have also implemented training plans in digitalisation and the new technologies for their employees. Furthermore, digitalisation has been particularly useful in computer-aided design since it enables footwear designs to be digitally sent to the Asian suppliers.

On the demand side, the firms indicate that the use of the new technologies has been part of their response strategy. It facilitated online sales and communication with their clients, the promotion through advertising on digital platforms and participation in social networks. Table 2 summarises the information provided by the companies, and which can be generalised for the whole of the sector.

4.2. Medium term strategies of the firms

The study of the responses given by the companies in the surveys and interviews reveals that, in the medium term, they implemented a series of strategies that, as we can see are conditioned by the geographical distribution of their current suppliers. Table 3 summarises these strategies.

4.2.1. Production planning

One of the fundamental decisions of the firms in the sector is the planning of production for each season as their future viability depends on the existence or not of significant mismatches between supply and demand. A large excess of supply can lead to a level of stocks that compromises profitability and an insufficient supply endangers the continuity of the customers.

The COVID-19 pandemic, its huge impact on the fall in demand and the uncertainty surrounding its evolution complicate the decision-making process of firms regarding the planning of their production volumes in the medium term.

The information gathered in the interviews reveals heterogeneity in the strategies adopted depending on the geographical distribution of the firms' supply chains and the type of product. However, there is a common element that allows us to conclude that the reshoring strategies carried out by companies in response to the previous crisis of 2008-2009 played a fundamental role in their production planning processes. The strategies adopted can be classified into two groups:

Table 2: Short-term impacts of the COVID-19 crisis on the companies

| Firm | Countries of suppliers | Supply disruption | Type of product | Sales reduction | Stocks trouble | Use of TICs |
|--------------------------------|--|-------------------|--------------------------|-----------------|----------------|-------------|
| PIKOLINOS | Several Asian countries, Morocco, Portugal | No | dress – fashion | 50% | Yes, large | Yes |
| CALZADOS PITILLOS | Tunisia, Morocco | No | dress – fashion | 50% | Yes, large | Yes |
| LÍNEA DE SEGURIDAD | India, China | No | professional (safety) | 5% | No | Yes |
| GIOSEPPO | Viet Nam, Taiwan, China, India | No | dress - fashion - casual | 60% | Yes, large | Yes |
| CALDEPIEL | Viet Nam, Albania, Portugal | No | Children | 10% | Yes, small | Yes |
| CALZADOS HERGAR | Morocco | No | dress - fashion - casual | 50% | Yes, large | Yes |
| J'HAYBER | China | No | Sport | 10% | Yes, small | Yes |
| KTINA ESSENCE | All in Spain | -- | dress – fashion | 10% | Yes, small | Yes |
| ALBACETE INDUSTRIAL | Romania | No | boots – standard | 40% | Yes, large | Yes |
| CALZADOS GAIMO | All in Spain | -- | dress - fashion | 80% | Yes, large | Yes |
| HI-TEC | Asia, Portugal, Spain | No | sport - mountaineering | 10% | Yes, small | Yes |
| CALZADOS BESTARD S.A. | Romania | No | mountaineering | 15% | Yes, small | Yes |
| CALZADOS ANDANINES | All in Spain | -- | Children | 10% | Yes, small | Yes |
| CALZADOS S.L.U. ^{CDN} | All in Spain | -- | dress - fashion | 10% | Yes, small | Yes |
| JEMMA FOOTWEAR S.L. | All in Spain | -- | Children | 10% | Yes, small | Yes |

Source: Survey and interviews with the CEOs

Table 3: Strategies of the firms in the medium term in the COVID-19 crisis

| | Production planning | Diversification of suppliers | Investment or use of ICTs, Digitalisation | Current Offshoring and Reshoring Strategies |
|---|---|------------------------------|---|---|
| Companies with suppliers in Asia | | | | |
| PIKOLINOS | Reduce production in Asia. Adjust supply-demand with domestic output or production manufactured in nearby countries | YES | YES (A, CAD, VP,OD) | Maintain |
| GIOSEPPO | | YES | YES (CAD,VP,OD) | Maintain |
| CALDEPIEL | | YES | YES (A,CAD,VP) | Maintain |
| J'HAYBER | | YES | YES (CAD,VP) | Maintain |
| HI-TEC | | YES | YES (CAD,VP) | Maintain |

| LÍNEA DE SEGURIDAD | Maintain production | usual | NO | YES (CAD,VP) | Maintain |
|--|---|-------|----|--------------|------------|
| Companies with suppliers in Spain or nearby countries | | | | | |
| CALZADOS PITILLOS | Make-to-order production and reduction of production | | NO | YES (VP,OD) | Maintain |
| CALZADOS HERGAR | Make-to-order production and reduction of production | | NO | YES (VP) | Maintain |
| KTINA ESSENCE, S.L. | Make-to-order production and reduction of production | | NO | YES (VP,OD) | May change |
| ALBACETE INDUSTRIAL, S.A. | Make-to-order production and reduction of production | | NO | YES (A,VP) | Maintain |
| CALZADOS GAIMO | Make-to-order production and reduction of production | | NO | YES (VP) | May change |
| CALZADOS BESTARD | Make-to-order production and reduction of production | | NO | YES (VP) | Maintain |
| CALZADOS ANDANINES | Make-to-order production and reduction of production | | NO | YES (VP) | May change |
| CALZADOS CDN S.L.U | Make-to-order production and reduction of production | | NO | YES (VP) | May change |
| JEMMA FOOTWEAR, S.L. | Make-to-order production and reduction of production | | NO | YES (VP) | May change |

Note: A: Automatization & Digitalization; CAD: Computer Assisted Design, OD: Organizational Digitalization; VP: Virtual Platforms.

4.2.1.1. Companies with suppliers in Southeast Asia

The companies with suppliers in Southeast Asia can, in turn, be classified into three groups: those that produce dress and fashion footwear (Pikolinos, Gioseppo), those that make sports, mountaineering and children's footwear (J'Hayber, Hi-Tec, Caldepiel) and professional footwear producers (Línea De Seguridad). In the first case, the two factors that hinder the decisions regarding production volume for the spring-summer season of 2021 are that they manufacture in Southeast Asia and they produce a fashion product. As they sell fashion products, they cannot use the stocks accumulated from the previous season and Asian suppliers require the manufacturing orders to be made in advance. Given these circumstances and the huge uncertainty about the evolution of the COVID-19 virus for the spring-summer 2021 season, and therefore the demand, the companies

decided to reduce the volume of production manufactured in Southeast Asia with respect to the previous season with the forecast that demand will not recover, as indicated in the Table III. If demand increases more than expected, additional output would be obtained by increasing production in Spain or nearby countries, where these firms had increased their suppliers as a result of their reshoring processes (Table 3).

In the case of sports (Hi-Tech, J'Hayber) and children's (Caldepiel) footwear, the strategy is the same (Table III). However, the reduction in the volume of production manufactured in Southeast Asia is lower as the demand for this type of footwear fluctuates less (Table 2).

Finally, there has barely been a variation in the sales of professional footwear (Línea de Seguridad), so production is to remain stable for the next season (Tables 2 and 3).

4.2.1.2. Companies with suppliers in Spain or nearby countries

The firms whose suppliers are located in Spain or in nearby countries order the amount of production in accordance with the orders that they receive from their retail customers as the delivery times are much shorter (Table III).

4.2.2. Increase in the diversification of suppliers

The interviews with the CEOs of the firms revealed that they consider lead times as one of the key variables to determine the location of their suppliers, which corresponds to what models such Gray et al. (2017) or de Treville et al. (2014a), de Treville et al. (2014b) propose. As we have already seen in Table 1, many of the firms that initially offshored their production to countries in Southeast Asia developed partial reshoring processes while diversifying their suppliers in the region. This diversification of locations (which largely consists in reshoring to closer countries such as North Africa, East Europe or Portugal) implies shorter lead times, which, according Gray et al. (2017) make a location with higher cost-per-unit more profitable thanks to the reduction of the volatility, the cost of which is incorporated in the model. In addition, the diversification of suppliers allowed to resort to alternative suppliers if the foreign suppliers had to close the factories due to positive cases among their workers. This diversification strategy has been particularly valuable in the current COVID-19 crisis because it helped to make the global value chains of these firms more resilient.

4.2.3. Digitalisation

The third strategy which is fundamental for responsiveness to the COVID-19 crisis is the intensifying digitalization, through four phases. The first three are related to the production process and refer to the digitalisation of the operation of the supply chains with the application of computer-aided design (CAD), the organisational digitalisation (OD) and automation through robotics (A). The fourth phase is related to demand and refers to the digitalisation of sales and marketing with investments in virtual platforms (VP) and dissemination on social networks (Table 3).

4.2.4. Reshoring and offshoring

One important conclusion that firms with suppliers in Southeast Asia (Pikolinos, Gioseppo, J'Hayber, HI-TEC) indicated is that their assessment of the reshoring strategy is positive as it has enabled them to be more resilient in their supply chain. Even if in the case of certain product segments (sports, professional, mountain and synthetic) the offshoring processes to Southeast Asia for large quantities must remain because the greater cost advantages. Meanwhile, companies with suppliers only in nearby countries (Calzados Pitillos, Albacete Industrial, Calzados Bestard) consider maintaining this strategy, due to the proximity and cost advantages that these locations provide them.

Only the companies that had relocated all their production in Spain, which are the smallest, (Ktina Essence, Calzados Gaimo, Calzados Andanines, Calzados CDN, SLU, Jemma Footwear, SL) have indicated that if their sales increased enough to make profitable contracting suppliers in Asian countries, they would again carry out offshoring (Table 3).

To sum up, in accordance with the models of de Treville et al. (2014a) and de Treville et al. (2014b) we can expect an increase in reshoring as, when we incorporate the inherent cost of the risk of a volatile (and more difficult to forecast) demand, the same cost-per-unit differential reduces the appeal of producing in Southeast Asia. Moreover, producing in a nearer country is a strategy that reduces the demand uncertainty since the production orders can be made with much shorter lead times or even when the firm has received firm orders from the retailers.

5. Possible future scenarios

The scenario planning methodology which has been followed enables us to determine different scenarios based on the analysis and discussion of the results derived from the information gathered (Knight et al., 2020). The discussion of the different strategies which the firms have implemented and how they are conditioned by previous decisions (e.g. reshoring) or structural features of the firms, enables us to identify different possible scenarios. We should remember that they are based on the strategies that the companies are effectively implementing and the initiatives and actions of the technological centres and associations of the sector to address the COVID-19 crisis.

After developing the stages that the scenario planning methodology indicates, we can identify three scenarios, each of which gives greater importance to different factors.

The first scenario gives greater prominence to the complementarity of the offshoring processes that involve participation in global value chains by Spanish footwear companies in Southeast Asia with reshoring processes. Their interdependence has been shown to be a fundamental factor in the COVID-19 crisis and it is forecast that both strategies will continue after the pandemic has been overcome. Analytical models that introduce the cost of the uncertainty of the demand and its volatility (Gray et al., 2017, de Treville, 2014a, 2014b) also support this scenario.

The CEOs of the firms interviewed (Pikolinos, Gioseppo, J'Jayber and HI-TEC) report that the complementarity of these two strategies has made it easier for them to plan their production in the highly uncertain environment that the crisis has generated. Offshoring in Southeast Asia guarantees the exploitation of the comparative advantage of large scale production with low costs. Meanwhile, producing in Spain or nearby countries, thanks to reshoring, allows firms to reduce the associated risk inherent in the long order periods required by the Asian manufacturers.

The second scenario is characterised by the intensive use of advanced information and communication technologies. Its use reduces the cost of the offshoring and emerges as an important part of the future in this industry in accordance with theoretical models on the design on supply chains to hedge risks. This was specially remarked by those companies with suppliers in Southeast Asia (Pikolinos, Gioseppo, Caldepiel, J'Hayber, HI-TEC, Línea de Seguridad).

The third scenario is characterised by the disappearance of many firms from the scene prior to the COVID-19 crisis. The crisis has reduced the sales of this industry to such an extent that the smallest firms have hardly been able to survive. Among the companies that survive, we find those ones that have increased their investments in technological innovations, according with the information provided by the companies and the outlook of the sector association.

6. Discussion and conclusions

This study analyses the impacts of the crisis derived from the spread of COVID-19 on the Spanish footwear industry, examining the strategies that firms are implementing from the perspective of theoretical models on reshoring such as Gray et al., 2017, de Treville et al. (2014a) and de Treville et al. (2014b) and, also proposing some long-term scenarios.

Through the scenario planning methodology, the study has been built on surveys and semi-structured interviews conducted among a wide range of participants made up of the CEOs of firms, associations and technological centres of the sector. It also draws from other sources of information published in different media.

The factors identified that explain the impacts of COVID-19 are the following. On the supply side, in this sector no relevant interruptions in the supply from foreign suppliers have taken place. With respect to the demand of the sector, the lockdowns and the paralysis of the activity have led to a collapse in sales, generating stock problems for the firms. In both cases, the emergence of the intense use of the new technologies has contributed to mitigating the negative impacts of the crisis.

Within this context, the crucially important problem was the production planning for the following year with the suppliers in Southeast Asia. In this fundamental decision, the reshoring processes carried out by the firms in the previous crisis of 2008-2009 and the expansion and diversification of suppliers and locations played a fundamental role as they enable mixed supply strategies to be implemented that reduced this risk and made the firms more resilient. The value added that this strategy has generated in the first months of the pandemic indicate that we can expect the current offshoring and reshoring processes to continue in the future as production in Asia enables costs to be reduced while production in nearby countries provides complete flexibility which is necessary in a situation such as the one generated by the COVID-19 pandemic.

These results show that theoretical models that incorporate different elements to justify reshoring (de Treville et al., 2014a, de Treville et al. 2014b) have relevant capacity to explain the behaviour of the firms during the crisis.

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