Impacts of Covid-19 Confinement on Transport Companies and Perishable Food Manufacturers in Spain

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The Covid-19 crisis has had a serious effect on the Spanish food sector and has highlighted the strategic role of Spain as a national and international food provider. The pandemic has posed a challenge not only to providing these foods but also to responding to changing consumer requirements during confinement. These changes have seen an upsurge in online purchases, which has always been a little used channel in the Spanish food sector. Despite these challenges, the food industry and transport sector have managed to efficiently supply goods to the population. The closure of hotels, restaurants and catering, that is, food service industries and their distribution channels (HoReCa Channel (HC)), and the financial challenges in external markets with regard to the import of raw materials and export of products, has seriously affected food subsectors to different extents. The relevance of short channels to local sales has become more obvious. This situation poses both challenges and opportunities for producers and for transporters who have become producers’ fundamental partners and who face problems of unknown magnitude. It is essential that public authorities and stakeholders, particularly senior managers, focus their attention on the promotion and development of these opportunities. How do politicians prioritise these objectives?

A crisis is a time of change, and companies that adapt their strategies and survive will be stronger at the end of the process. This dynamic has been supported by economists such as David Ricardo, Milton Friedman, Paul Samuelson and Joseph Schumpeter. Schumpeter argues that for progress and creation, destruction must occur simultaneously (Rothengatter, 2011). According to Schumpeter’s central idea, creative destruction is the engine of development and the key element in this process is the differential innovative capacity of economic agents to generate new products, processes, forms of organisation, and access to the market. Rothengatter (2011), simulating different economic and transport scenarios for the EU’s 27 Member States, applies the ‘Schumpeter Paradigm’ and establishes that the economic crisis of 2008 offered the possibility of structural change. This is difficult during a period of prosperity but crisis-driven changes in the transport sector enable more efficient and environmentally friendly planning and management methods and tools in transport operations. Opportunities to renovate sectors in austere times have been observed in different countries (Gomes et al., 2015). Papoutsis et al. (2013) show that an economic crisis does not have the same consequences for all types of transport, and shipping and railways have been more resistant to its impact. Furthermore, their findings reveal a decreasing tendency towards road transport activities in urban areas.

“Les données mettent en évidence une transformation schumpétérienne des mécanismes d’adaptation des industries agroalimentaires en réponse aux effets du confinement.”

In the context of this study, Tsekeries (2013), Ferreira and do Couto (2015), and Stamos et al. (2016) are prominent. They quantified the substantial reduction in road transport activity in southern European countries caused by the 2008 economic crisis. Paradoxically, they also revealed that those years of austerity provided opportunities for transport companies to introduce profitable and promising innovative schemes and solve their problems. Similarly, addressing the unprecedented
tensions caused by Covid-19, a recent study by Deconinck et al. (2020) emphasises the remarkable speed with which supply chain actors have been able to reorganise to ensure the continuous availability of food, at least in the developed world. This study defends the hypothesis that changes wrought by the Covid-19 crisis allow food manufacturing and transport companies to progress, develop and modify their routines to create new evolutionary paths in their fight to survive.

The aim of our study was to determine the initial impact of confinement and closure of the HC on producers and transporters of perishable foods following the 14 March 2020 decree by the Spanish government. Did they experience an increase or a decrease in their activities? How did they adapt to their clients’ new requirements? Which sectors of the food industry increased their turnover and which sectors were reduced? Were any producers compelled to shut down due to the closure of the hospitality sector or were they able to re-invent themselves to survive? To answer these questions, we set the following objectives:

1. Analyse a sample of transport contracts between producers and carriers to compare the transport company’s expected turnover between March and April 2020 (according to their business plan compiled at the end of 2019) to their actual turnover. Box 1 provides information on the composition of the sample and the research method used.

2. Analyse/examine subsectors and channels with significant differences between expected and actual turnovers.

3. Explain in detail the responses of affected companies and their strategies to reinvent and survive in an unprecedented crisis, based on in-depth interviews with those responsible for the contracts studied.

Survey results

Figure 1 shows the deviations between the sample CLOs’ forecast turnover at the end of 2019 and the actual turnover obtained between February and April 2020. Deviations were considerable between March and April 2020 compared to February 2020 (which is considered a normal month). In March 2020, the deviation was 14 per cent greater than the forecast and 29 per cent lower than in April 2020.

In March 2020, CLOs’ actual turnover was 14 per cent higher than expected. They also transported more merchandise because the news of the epidemic’s progress (officially declared a pandemic by the WHO on 11 March 2020) frightened the population with the possibility of shortages. This was a time of high uncertainty. The Spanish population massively increased its demand for food. Shelves were rapidly emptied in supermarkets and hypermarkets and this news was quickly retransmitted by the media, which provoked an even stronger reaction among citizens.

In April 2020, against all expectations prior to Covid-19, turnover plunged by 29 per cent. First, Spanish homes restricted their purchases to necessary products, especially fresh produce, which increased in price. After three weeks of strict lockdown measures, households realised that there was no real risk of supply shortage. Second, the closure of hotels, bars and restaurants brought a sudden end to the normal quantity of orders from these businesses. Third, in April, the Easter holiday celebrations in Spain, which usually result in the largest national

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**Box 1: Materials and method**

This study focuses on a representative sample of 60 companies with contracts governing the outsourcing of perishable food logistics: 56 belonged to the food industry and sold their products locally, nationally and internationally, and subcontracted all or part of the transport with any of the remaining 4 companies, such as cold logistics operators (CLOs) and transport service providers. We conducted in-depth interviews with open questions to enable companies to reveal their actual experiences. The interviewees were managers who were directly responsible for subcontracting transport. Firms that were interviewed had a branch in the Valencian Community; this restriction was necessary as the state of alarm in Spain made it extremely difficult to gather information. Table 1 shows the number and types of activities carried out by the 60 sample companies comprising of food producers, retailers and wholesalers, restaurants, and CLOs. Sixty per cent of the merchandise manufactured by the 56 companies mentioned above is destined for large distribution, and 40 per cent for the HC.
population displacement after summer, could not be enjoyed because of the movement restrictions between cities and towns.

A detailed analysis of the different types of client activity is presented in Table 2. Specifically, increases in movement of goods from manufacturers of meat and processed meat, dairy products, and other food products are significant, as they are the food products in highest demand by households, and show expected turnover deviations of 45 per cent, 65 per cent, and 22 per cent, respectively. Conversely, we note that closure of HC significantly affected restaurants, wholesalers specialising in HC, and fish and seafood producers, whose products are consumed in bars and restaurants, with negative deviations of 17 per cent, 43.5 per cent and 31 per cent, respectively.

The negative deviation in April 2020 seriously affected all types of activity except for the manufacture of milk products, where turnover increased by 39 per cent (especially milk and yoghurt which was mainly consumed by children who were isolated in their homes for the longest period of time). Producers of fish and shellfish, fruit and vegetables, bread and pasta, and wholesalers demonstrated deviations of 62 per cent, 95 per cent, 74 per cent and 33 per cent, respectively, whereas restaurants had no income at all for the entire month.

In terms of strategies, the transporters prioritised the industries that manufactured for large distribution and directed all their resources towards them (more staff, more vehicles, longer working hours, longer shifts, amongst others). According to the CLOs surveyed, these clients guaranteed the payment of their invoices as opposed to manufacturers specialising in HC that suffered serious difficulties with their liquidity. They also concentrated on acquiring new clients and designed ad hoc logistics for them in record time because of the speed at which market demands were evolving.

CLOs made a huge effort to anticipate events due to the inefficiencies along the distribution chain caused by massive consumer purchases during March 2020 and the first week of April 2020. According to the CLOs, manufacturers were unable to cope with this increased demand and the delivery of goods to large distribution platforms collapsed and hypermarkets and supermarkets reduced their variety to prioritise the sale of basic products. These processes were neither planned nor maintained logically or systematically. With this experience in mind, it was vital to anticipate the demand of large distributors, and therefore, daily, weekly and monthly forecasts were compiled to guarantee the availability of supplies and the necessary means to satisfy the demand. This was made possible due to the permanent and fluid dialogue between transporters and producers that led to the estimation of daily sales, maintenance of excellent service, controlled production costs to avoid

| Table 1: Company analysis by type of activity |
|---------------------------------------------|
| Type of Activity | No. of Companies |
|------------------|------------------|
| Processing and conservation of meat and meat products | 14 |
| Processing and conservation of fish, shellfish and molluscs | 3 |
| Processing and conservation of fruits and vegetables | 3 |
| Manufacture of oils and vegetable and animal fats | 1 |
| Manufacture of milk products | 2 |
| Manufacture of bread and pastas | 7 |
| Manufacture of other Food Products | 12 |
| Retailers/Wholesalers | 11 |
| Restaurants | 3 |
| Refrigerated Road Transport Operators | 4 |

Source: Compiled by the authors.

| Table 2: Difference between estimated and actual turnover of transport companies according to the type of clients’ activities |
|--------------------------------------------------------------------------------------------------------------------------------|
| Type of Activity                                                                 | Expected Turnover (£) | Actual Turnover (£) | Difference | Difference |
|--------------------------------------------------------------------------------------------------------------------------------|
| Processing and conservation of meat and meat products | 24,360 | 32,282 | 35,365 | 29,908 | 45.18 | –7.35 |
| Processing and conservation of fish, shellfish and molluscs | 10,786 | 11,543 | 7,417 | 4,389 | –31.23 | –61.98 |
| Processing and conservation of fruits and vegetables | 1,568 | 7,863 | 1,497 | 405 | –4.53 | –94.85 |
| Manufacture of oils and vegetable and animal fats | 0 | 0 | 362 | 11 | –100.00 | –100.00 |
| Manufacture of milk products | 5,679 | 5,764 | 9,382 | 7,994 | 65.21 | 38.69 |
| Manufacture of bread and pastas | 13,278 | 19,321 | 13,495 | 4,989 | 1.63 | –74.18 |
| Manufacture of other Food Products | 77,917 | 83,436 | 94,967 | 77,464 | 21.88 | –7.16 |
| Retailers/Wholesalers | 13,906 | 14,687 | 7,855 | 9,810 | –43.51 | –33.21 |
| Restaurants | 9,376 | 14,010 | 7,792 | 0 | –16.89 | –100.00 |
| TOTAL | 156,870 | 188,906 | 178,132 | 134,970 | 13.55 | –28.55 |

Source: Compiled by the authors.
unnecessary losses that could put the CLOs’ viability at risk, and intensive inter-departmental coordination.

Consequently, these adjustments led to the overexploitation of resources, such as 10- to 12-hour working days that included weekends and missed holidays and the lifting of legal restrictions regarding truck-driving time. Staff dedicated exclusively to providing service to HCs, such as order preparers, were laid off in Temporary Employment Regulation Files.

How did the producers and wholesalers adapt? The situation differed radically depending on the channel they supplied. Producers that specialised in the retail food channel experienced a huge increase in orders from hypermarkets and supermarkets between March and April 2020. The biggest problem was to offer a rapid response to the demands of this large distribution, such as changes in the demands and requirements, which had previously materialised over 30 days but were experienced over a period of just 24 hours during the confinement.

Undoubtedly, manufacturers specialising in HC have been amongst the worst affected by the Covid crisis, and about 85 per cent were forced to close their facilities during the state of alarm in Spain as they did not have an alternative market, especially those that allocated at least 80 per cent of their production to the supply of bars, restaurants and fast-food chains. The rest have developed renewal strategies and seek new solutions, services and markets to maintain their activities, as explained below.

Wholesalers specialising in HC suffered from late payments by their clients; small and medium-sized firms could not withstand the lack of liquidity (they also stopped paying their bills and lost the confidence of their providers) and merged with larger companies to avoid disappearing.

Die Daten zeigen, dass die Anpassungsmechanismen der Lebensmittelindustrie als Reaktion auf die Auswirkungen der Beschränkungen einen Schumpeterschen Wandel erfahren haben."

Producers that were able to rapidly adapt re-invented themselves by opening new markets (direct sales to final consumers), which involved implementing new technologies in their companies. Online sales systems in Spain were underdeveloped because of their minority nature. Therefore, direct home sales were enhanced as the websites of supermarkets and hypermarkets were blocked and saturated within a few days of being triggered, leading to delays in shipments of more than three weeks. Large distributors were unable to rely on CLOs for their home deliveries due to the lack of economic agreements. In some cases, attempts were made to resolve the situation by allowing consumers to pick up goods in their own cars. Producers also experienced this disadvantage in selling directly to consumers because transporters’ tariffs were not economically viable to deal with small retail food orders. This problem persists and companies are working to find solutions. Similarly, these producers attempted to sell their products to supermarkets in the retail food chain, and accepted smaller profit margins than those obtained from HC.

The HC was significantly affected because confinement restrictions slowed down its activity. Only a few restaurants remained open to develop the home delivery service. During March and April 2020, delivery options were not successful because of the fear of contagion among the citizens. Subsequently, with the recovery of economic activity after confinement, delivery has gained popularity and become an opportunity for restaurants to provide their services to more consumers.

Implications

The unexpected confinement in Spain caused the demand for food from the HC to collapse, and retail demand to skyrocket, while manufacturing and transportation were required to perform unceasingly. However, the supply chain demonstrated its flexibility, robustness and resistance during the Covid-19 crisis. The speed with which industries and transporters have reorganised and innovated to guarantee their survival and the continued availability of food has been

Many restaurants closed while others had to rapidly adapt to increased demand for home delivery.
remarkable. This is a testimony to the so-called ‘resurgence of creative destruction’ or ‘Schumpeter’s Paradigm’, stated above, which postulates that when a system collapses, it offers the opportunity for renewal and to find new solutions, products and markets. Thus, not all the consequences of the pandemic have necessarily been negative, and the crisis has driven a highly positive change in the behaviour of manufacturing and transport companies, which have emerged stronger. In this sense, CLOs have reinforced communication within the company and with other links in the chain, betting strongly on dialogue to redirect their capacity in record time toward customers who demonstrated peaks in demand. This shows how informal networks and personal relationships improve supply chain integration and efficiency. Moreover, CLOs have also expanded the working hours and operational capacity of the staff to offer personalised services for each client and develop more innovative and efficient ways to improve the planning and management of food mobility. Manufacturers, wholesalers, and restaurateurs have innovated by opening new markets, services and by implementing new delivery methods, intensified the use of new technologies and digital platforms to sell their product, and sought new partners and alternative suppliers. The data demonstrate the importance of making decisions based on rigorous facts and communication.

Companies’ actions received government support. In addition to health measures to guarantee workplace safety against Covid-19, the government adopted measures in other areas: economic and fiscal measures focused on preserving the liquidity of companies, protection of employment, promotion of consumption, support measures for export, competitiveness, proximity products, and digitalisation development measures. This study shows that overcoming these supply chain challenges requires the attention and cooperation of political and business leaders as the impact of the pandemic on the food chain continues to evolve and new trends are being consolidated with enormous influence on the chain, such as the increase in online purchases or the increase in demand for local products. The chain will require further adjustments to address consumer habits, frequency of purchase, points of sale, packaging, amongst other changes. Certain strategies implemented by companies and analysed in this study still require improvement to ensure their profitability and future development.

The main limitation of this study is the data provided by the companies. Although the period covered can be considered relatively short and difficult to interpret, the data collected are valuable, as they represent a unique source of knowledge that cannot be replaced or found in any other way. The data also reveal evidence of a Schumpeterian transformation in the adaptation mechanisms of food industries in response to the effects of confinement.

"The data reveal evidence of a Schumpeterian transformation in the adaptation mechanisms of food industries in response to the effects of confinement."
adaptation mechanisms of food industries in response to the effects of confinement, a historical event unparalleled in the last hundred years. Furthermore, the conclusions drawn are consistent with the research available to date (Deconinck et al., 2020; European Commission, 2020).

However, subsequent events, such as the ‘de-escalation’ and ‘new normal’ phenomena of May 2020 are not included in the analysis due to the limitations of the period of study. This illustrates the importance of deepening this research over time and expanding the analysis of the opportunities and challenges that the food chain will face in the future based on real and carefully collected data.

In the early stages of the pandemic, hypermarkets and supermarkets reduced their variety to prioritise the sale of basic products.

Further Reading

- Andrés, S., Muñoz, P. and López, J.F. (2015). Firm size, contractual problems and organizational decision-making: Logistics for perishable goods. *International Food and Agribusiness Management Review*, 18(4): 189–204.
- Bimbo, F., Bonanno, A., Viscecchia, R. and Nardone, G. (2015). The hidden benefits of short food supply chains. *International Food and Agribusiness Management Review*, 18(1): 1–16.
- Deconinck, K., Avery, E. and Jackson, L.A. (2020). Food supply chains and Covid-19: Impacts and policy lessons. *EuroChoices*, 19(3): 34–39.
- De Schutter, O., Jacobs, N. and Clément, C. (2020). A ‘Common Food Policy’ for Europe: How governance reforms can spark a shift to healthy diets and sustainable food systems. *Food Policy*, 96.
- European Commission (2020). *EU Agricultural Outlook for markets, income and environment 2020–2030*. Publications Office of the European Union, Luxembourg.
- Ferreira, S. and do Couto, A.F. (2015). Introduction to special issue: Austerity and sustainable transportation. *Research in Transportation Economics*, 51: 1–2.
- Gomes, R., Pinho de Sousa, J. and Galvão Dias, T. (2015). Sustainable demand responsive transportation systems in a context of austerity: the case of a Portuguese city. *Research in Transportation Economics*, 51: 94–108.
- Meersman, H. and Van de Voorde, E. (2013). The relationship between economic activity and freight transport, in *Freight Transport Modelling*, Emerald Group Publishing Limited, United Kingdom.
- Mitsakis, E., Salanova, J.M., Aifandopoulou, G., Tona, P., Vreeswijk, J., Somma, G., Blanco, R., Alcaraz, G., Jeffic, Z., Toni, A. and Blom, G. (2014). Large scale deployment of cooperative mobility systems in Europe: Compass4D. *Proceedings of The Third International Conference on Connected Vehicles and Expo, ICCVE 2014*, pp. 469–476.
- OECD (2020). Covid 19 and the food and agriculture sector: Issues and policy responses. Available online at: http://www.oecd.org/coronavirus/en/
- Papoutsis, K., Basbas, S., Bouhouri, E. and Sdoukopoulos, E. (2013). Impact investigation of economic crisis to road freight sector in Thessaloniki, in C.A. Brebbia (ed.). *Urban Transport XIX*, WIT Press, Southampton, pp. 547–558.
- Rothengatter, W. (2011). Economic crisis and consequences for the transport sector, in *Transport Moving to Climate Intelligence*, Transportation Research, *Economics and Policy*, Springer, New York.
- Schneider, F., Kallis, G. and Martinez-Alier, J. (2010). Crisis or opportunity? Economic degrowth for social equity and ecological sustainability. Introduction to this special issue, *Journal of Cleaner Production*, 18(6): 511–518.
- Stamos, I., Mitsakis, E. and Tsekeris, T. (2016). Harnessing the opportunities of austerity: a detailed mapping of the Greek transportation sector. *Journal of Land Use, Mobility and Environment*, 9(3): 269–286.
- Tsekeris, T. (2013). Transport investment through the NSRF and prospects for the period 2014–2020. Development policies and sectors. *Greek Economic Outlook*, 22: 52–60.

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In 2020, the world suffered a sudden economic recession resulting from an unprecedented health crisis due to Covid-19 that confined millions of people to their homes and shut down all non-essential activities. Countries have rapidly realised how vulnerable they are without food producers, manufacturers and distributors. Based on a case study from Spain, this article compiles ‘first-hand’ information with the aim of revealing the changes that confinement has wrought on perishable food carriers and manufacturers in Spain. The results confirm a general decline in business activity with significant ups and downs depending on the subsector. In addition, they are consistent with ‘Schumpeter’s Paradigm of creative destruction’ in the context of the pressures and disruptions caused by the Covid-19 pandemic. In this context, austerity offers companies various opportunities for renewal and finding new solutions, products and markets. These include more effective communication strategies and more efficient methods of planning and managing improved food transport, implementation of new technologies, and development of innovative, profitable, and forward-thinking business schemes to deal with the difficulties caused by confinement. Therefore, it is essential that public authorities and stakeholders, particularly senior managers, focus their attention on the promotion and development of these opportunities.

En 2020, le monde a subi une récession économique brutale résultant d’une crise sanitaire sans précédent due au Covid-19 qui a confiné à domicile des millions de personnes et provoqué un arrêt de toutes les activités non essentielles. Les pays ont rapidement réalisé à quel point ils sont vulnérables sans les producteurs, fabricants et distributeurs de denrées alimentaires. Fondé sur une étude de cas en Espagne, cet article compile des informations ‘de première main’ dans le but de révéler les changements que le confinement a entraîné chez les transporteurs et les fabricants de denrées périsposables en Espagne. Les résultats confirment une baisse générale d’activité de ces entreprises avec des hauts et des bas importants selon les sous-secteurs. De plus, ils sont cohérents avec le ‘paradigme de destruction créative de Schumpeter’ dans le contexte des pressions et des perturbations causées par la pandémie de Covid-19. Dans ce contexte, l’austérité offre aux entreprises diverses opportunités de renouvellement et de recherche de nouvelles solutions, produits et marchés. Il s’agit notamment de stratégies de communication plus efficaces, de méthodes plus efficientes de planification et de gestion d’un transport alimentaire amélioré, de la mise en œuvre de nouvelles technologies et du développement de schémas commerciaux innovants, rentables et avant-gardistes pour faire face aux difficultés causées par le confinement. Il est donc essentiel que les pouvoirs publics et les parties prenantes, en particulier les cadres supérieurs, concentrent leur attention sur la promotion et le développement de ces opportunités.

Im Jahr 2020 erlebte die Welt eine plötzliche wirtschaftliche Rezession als Folge der beispiellosen Covid-19-Gesundheitskrise. Durch diese Krise waren Millionen von Menschen in häuslicher Isolation und alle nicht lebensnotwendigen Aktivitäten kamen zum Erliegen. Die Länder haben schnell erkannt, wie verwundbar sie ohne Beschäftigte in Lebensmittelproduzierenden, -herstellenden und -vertriebenden Unternehmen sind. Auf der Grundlage einer Fallstudie aus Spanien stellt der vorliegende Artikel Informationen über die Veränderungen zusammen, welche die häusliche Isolation für den Transport und die Herstellung verderblicher Lebensmittel in Spanien bewirkt hat. Die Ergebnisse bestätigen einen allgemeinen Rückgang der Geschäftstätigkeit mit einem deutlichen Auf und Ab je nach Teilsektor. Vor dem Hintergrund der durch die Covid-19-Pandemie verursachten Zwänge und Brüche stehen die Ergebnisse im Einklang mit ‘Schumpeters Paradigma der schöpferischen Zerstörung’. In dem Zusammenhang bietet die Austerität den Unternehmen verschiedene Möglichkeiten zur Erneuerung bzw. zur Suche nach neuen Lösungen, Produkten und Märkten. Dazu gehören wirksamere Kommunikationsstrategien und effizientere Methoden für die Planung und Verwaltung verbesserter Lebensmitteltransporte. Außerdem sind die Einführung neuer Technologien und die Entwicklung innovativer, rentabler und zukunftsorientierter Geschäftsmodelle zur Bewältigung der durch die Beschränkungen verursachten Schwierigkeiten zu nennen. Daher ist es von entscheidender Bedeutung, dass Behörden und die Interessenvertretungen, insbesondere Führungskräfte, ihre Aufmerksamkeit auf die Unterstützung und Entwicklung dieser Möglichkeiten richten.