

Fava, Nadia; Laganà, Valentina Rosa; Nicolosi, Agata

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Article

The Impact of COVID-19 on Municipal Food Markets: Resilience or Innovative Attitude?

Nadia Fava ¹, Valentina Rosa Laganà ^{2,*} and Agata Nicolosi ²

¹ Department of Engineering Construction, University of Girona Plaça Sant Domènec, 3 Edifici Les Àligues, 17004 Girona, Spain; nadia.fava@udg.edu

² Department of Agriculture, Mediterranean University of Reggio Calabria, Feo de Vito, 89122 Reggio Calabria, Italy; anicolosi@unirc.it

* Correspondence: vale_laga@yahoo.it

Abstract: The pandemic has accelerated the search for innovative product/process/service solutions in city markets as well as the search for “open innovation challenges” more in line with current needs. The aim of the research is to understand the adaptation mechanisms of the local food system and, in particular, of the public space of the market system. The article analyses the change produced by the COVID-19 pandemic in the municipal markets of Sant Feliu de Guixols, Costa Brava, Spain. The data were collected through a semi-structured questionnaire administered to food sellers and contextually to a group of consumers. Factor analysis and the AGIL model were applied to the data collected and were confirmed with cluster analysis. The analysis highlights that the resilience of sellers is no longer sufficient and in many cases, they have equipped themselves with innovative solutions to meet the new customer demands arising from the pandemic (food delivery, e-commerce, take-away food, digital media, etc.). The document concludes with a discussion of food markets and innovations introduced in this period. Further studies can focus on the relationships between food practices and the transformation of urban spaces so that the food market can support new social practices that promote the food transition. The change would represent a switch which would provide traditionally less powerful actors, such as producers, the opportunity to reformulate the food supply chain in a way more linked to the territory. It would also create a resilient dimension for managing other possible food crises and present a challenge to achieving the ultimate goals of the businesses.

Keywords: COVID-19; municipal food market; seller survey; consumer survey; factor analysis; cluster analysis; AGIL model; open innovation



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1. Introduction

On 11 March 2020, the WHO (World Health Organization) declared COVID-19 to be a pandemic. Concerns about the resilience of food systems spread throughout Europe as a result of this pandemic [1]. Although food scarcity was not a real threat, the crisis increased awareness of the potential exposure of food systems to new shocks and crises, especially related to food access [2,3] consumer behaviour, small-scale production, and alternative food networks [4]. Many European countries established restrictive measures to avoid contact between people and reduce their movements. This changed in a perturbing way the relationship between public spaces and facilities and personal environments and habits. It highlighted the fragility of the food system and its social role [5]. The unusual situation accelerated processes that were already underway. Such a profound, sudden change provided the opportunity to test the capacity to adapt at various levels. In the process, the food system demonstrated its ability to support a disruptive event for food production and transport. The global emergency made visible the unsustainability and vulnerability of the food system at all societal levels [6], highlighting its weaknesses and fragility [7,8]. Moreover, after the possible origin of the pandemic at Huanan wet market in Wuhan and the relation between the pandemic and climate change were communicated to

the public, the need to question how food is produced, distributed, consumed and disposed of became more urgent [8]. The national press in Italy and Spain have focused during the pandemic on the role of the food chain, including different levels that are usually invisible, such as producers or food transporters.

Unlike in Asia or Africa, the entire food system in Europe proved that it had resilient capacity [8]. Unconventional food distribution at food markets also demonstrated a capacity for resilience and innovation. Markets have historically played the role of providing a fresh food supply to the local community. More recently, they have been included as authentic attractions in touristic destinations [9], thereby modifying their role and actors. The literature in the last ten years has also focused on municipal markets (MM) as specific public spaces and infrastructures that provide an essential service for community development [10,11] by improving food innovation.

Public indoor or street food markets have historically played a primary role as a place of connection between territory and city and as a driving force in local life and retail. Markets are urban spaces for meeting and socialising, and they represent an important heritage of local gastronomic culture and a link to healthy and traditional eating habits [12]. Food markets have been at the centre of urban life for centuries, and despite changes in the distribution structure of the agri-food trade and the rapid evolution of large-scale retail, they still provide affordable food and work opportunities for millions of people across the world [10,13].

Since the 1950s, many American and European markets have undergone redevelopment as part of urban regeneration projects and transformation processes with the broad, complex involvement of institutions and city governance. These trends are still pushing towards the transformation of food markets in the urban fabric of cities. In many cases, the direction is gentrification or touristification, which reduces the diversity of products sold, discourages lower class consumers and the cheapest sellers, and encourages local producers to make room for “foodies” and low-cost and low-value products specifically designed for tourists. These projects also transform the retail structure around markets. They improve to varying degrees the “traditional” aspect of the market and introduce “innovation” to compete with supermarkets or other forms of selling [14]. In different contexts and depending on market types and location, there are multiple trends that drive markets to transform and all lead to modification of urban and rural places and landscapes as part of the food chain.

Before the Coronavirus pandemic (COVID-19), the challenge for municipal markets [15,16] was their management as a public service in relation to socioeconomic and historical contexts and constant competition with the “new way of selling and shopping”, including the increasing demand for online shopping [17]. After the 2015 Milan Urban Food Policy Pact, the role of the food market across Europe became associated with the ability of essential infrastructures to address the fragility of the agri-food system as a place to implement the United Nations Sustainable Development Goals (SDGs); such as, for example, sustainable cities and communities (SDG 11) and responsible consumption and production (SDG 12). The European urban food policies set out in the New Green Deal must also be implemented to guarantee the right to food and activate circular economy models that require the mobilisation of a wider spectrum of public and private actors.

From spring 2020, numerous studies have been published on the shift in perceptions about food and the effects of disruption of the food chain at different level [18–23]. Food appears to be an essential issue to address again in Europe and developed countries [24–26]. Our study focusses on the social dimension at the community level and aims to address the capacity of food sellers to adapt to the changing behaviour of consumers as observed during the pandemic.

Researchers have highlighted the food system’s varying capacity for resilience depending on location and have focussed on the impact of breakdowns or bottlenecks in any part of the food supply chain (FSC) [27,28]. In addition, numerous articles on the FSC have

focused on calls for transformative change in food systems to support local markets and producers [7,29–31].

Consumers have also become more sensitive to the environment and the negative effect of the food chain on climate [32,33]. Changes in behaviour have been observed in terms of healthier habits in food consumption [3,34,35]. Since the COVID-19 pandemic, the food industry has been increasingly challenged by changes in consumer behaviour, consumer purchasing behaviour, and consumption patterns [36].

These changes are affected by factors such as economic, regional and sociodemographic diversity [37]. There is growing awareness of responsible production [38] and consumption, and there are habits that are considered more social because they are based on the formation of solidarity groups that work on access to food for specific collectives [39,40]. The pandemic period has also affected the consumption way of life, for example, food distribution channels have become more resilient and purchasing patterns show the use of digital technology, such as online delivery platforms and food retail applications [41]. Food consumption is associated with sustainable cities and societies and healthy food with a demand for fresh and kilometre zero products. An emphasis has also been placed on support for local entrepreneurs [42].

The aim of the research is to understand the mechanisms of adaptation of the local food system, specifically the public space of the market system. This study focuses on the evolution of the municipal market during the COVID-19 pandemic in relation to the necessary changes in a model towards a sustainable food transition/innovation. The question is raised of whether the changes that have taken place are only related to the capability of resilience or form part of an ongoing process of transformation of the food system and of retail [18,43,44].

Resilience theory scholars [45] have mainly focused on the capacity of socio-ecological systems to deal with disruptive change, such as a pandemic. They have addressed three main types of resilience: resilience of persistence through steady movement; resilience of adaptation without any innovation; and resilience of transformation which includes innovation. These concepts are the basis of the theory of evolutionary resilience [46,47].

Our main question is whether the adjustments that occurred in the food market represent a steady movement or indicate an ongoing process of transformation and innovation. In this latter case, the food market could represent not only a tradition but also a renewed innovation hub for the food transition and a central place for the future “15 min city” [48] which implies a new type of public space able to have different and diverse functions during the day.

In this context of innovation, we can place the concept of open innovation. Open innovation was first introduced by Chesbrough [49]. It refers to internal and external knowledge flows to improve internal innovation (open inbound innovation) and expand the markets for external exploitation of innovation (open outbound innovation). Open innovation that utilises all available resources has come to be recognised as an essential strategy for firms. The target of open innovation has been expanded from technology to product development and business models. Currently, open innovation is one of the keys to a successful business. There is extensive literature on the concept. Valdez-Juarez et al. [50] considered open innovation from a consumer perspective and examined the relationship between online buyers and technology. The significant drivers of open innovation are innovation networks, collaboration with stakeholders in the supply chain, innovation ecosystems, and digital technology which are crucial issues for businesses and policymakers [51]. Miralles et al. [52] studied the organization of the Alternative Food Networks (AFN) in Valencia.

Our article focuses on the innovation observed in seller strategies and consumer behavioural changes in the municipal markets (MM) of Sant-Feliu de Guíxols, a middle-sized touristic city on the Costa Brava, Spain, to highlight the adaptation strategies in selling and buying caused by COVID-19 and the change in the use of this public space. In particular, even in city markets, the pandemic has accelerated the search for innovative

product/process/service solutions and the search for “open innovation challenges” more in line with current needs.

The research questions were:

What impact did the COVID-19 pandemic have on agri-food sellers in the market?

What impact did the COVID-19 pandemic have on food purchasing habits in the market?

In addition, the study examined other relevant aspects related to the strategic dynamics involved in the changes, in particular:

What changes were promoted by consumers and sellers?

Did the suggested changes reflect adaptation or a step towards food transition/innovation and expanded food governance?

In the long-term, what are the impacts and perspectives that the pandemic has opened regarding the links between cities and food systems?

Food distribution is considered a holistic system involving the producer, distributor, and retailer of local products in which the market becomes a commercial, cultural and social mediator within the transaction chain and in which governance could be represented by the network of buyers and sellers. Sant Feliu de Guíxols in the province of Girona in Catalonia, Spain, is a medium-sized touristic city with three municipal markets. In this context, the markets can become real nodes on two scales, namely the urban and the territorial.

The exploratory survey consisted of two semi-structured questionnaires which were administered to sellers and consumers interviewed at the Sant Feliu de Guíxols food market during March and July 2020.

In this paper, the content of the topics has been organised into sections: first, we examined the survey area and its main characteristics and features; second, we described how the survey was conducted, including the methodological approaches adopted for the interviews with the sellers and with consumers, including their preferences; finally, we discussed the results, and at the end, outlined some concluding considerations.

2. Case Study: Sant Feliu de Guíxols

Our study is focussed on Sant Feliu de Guíxols, a touristic coastal town of 21,925 inhabitants (data 2019) situated in the southwest of the fertile agrarian Baix Empordà region in the province of Girona, Catalunya. Sant Feliu de Guíxols used to be one of the most important centres of the traditional cork industry and was a relevant port for the transportation of cork. This town has always been the biggest on the Costa Brava in terms of population—a result of its industrial, commercial and tourism activities—and has traditionally been regarded as the capital of the Costa Brava. The open market dates from the Middle Ages, while the Municipal Market Hall was built in 1929 to meet the demands of population growth resulting from the vital cork industry. The Municipal Market Hall along with the Town Hall are located at the end of the commercial axis of Carrer Major in a town square. The main aim of this market was to supply food to the increasing population and to control the quality of food, principally meat and fish, and prices. Since the 1960s, Sant Feliu de Guíxols has been fully integrated into tourism, which over the years has shifted to international mass tourism. Tourism is now the main activity, and this has influenced the town's retail food structure, including the municipal market. The town has a degree of complexity that could be comparable to other tourist towns in Spain that have shifted from an industrial, commercial economy to one relying on tourism, including gastronomy.

The rise of mass tourism stemming from the 1980s has significantly changed the urban structure of food retailing and has resulted in the conversion of many of the shops into restaurants. Up until now, the municipal market where most of the remaining food shops are still located has played a role as a driver for the food commerce around it.

3. Materials and Methods

3.1. Methodology and Data Collection

The methodology used was a combination of qualitative and quantitative analysis. Urban planning uses mostly quantitative and geographical analyses to provide statistical results that are contextualised in the territory and social space. Qualitative analysis is a complementary way of listening to and interpreting the city and the food retailing system related to markets, flows, and movements. It is a suitable tool for highlighting the actors involved in urban life and current trends as well as indicating possible innovations, improvements or disruptions.

The main role has been attributed to actors involved in the life of the market and, in particular, to sellers and consumers. Sellers are people who have an authorised place in the market and who can be either retailers (they sell food produced by others) or agricultural sellers/producers who sell their own products. Consumers were interviewed at the same time as sellers to examine their preferences, consumption habits, and changes in purchasing caused by COVID-19.

Consumers opinions were compared with those of retailers or producers/sellers in the covered market (CM), daily street markets (DSM), and weekly street markets (WSM).

The main attributes of the sellers and consumers and the influence of the pandemic on the dynamics of the urban functions of the markets in Sant Feliu de Guíxols were examined through semi-structured questionnaires administered to the actors.

We interviewed (Figure 1):

- All 34 vendors present in three markets, namely 16 agricultural seller/producers who sold their products and 18 retailers at their stalls in the three types of market: CM, DSM, and WSM.
- A total of 30 consumers intercepted in the CM, DSM, and WSM. The use of masks and sanitary regulations made it difficult to carry out further face-to-face interviews the time and place of the interviews with sellers and consumers corresponded.

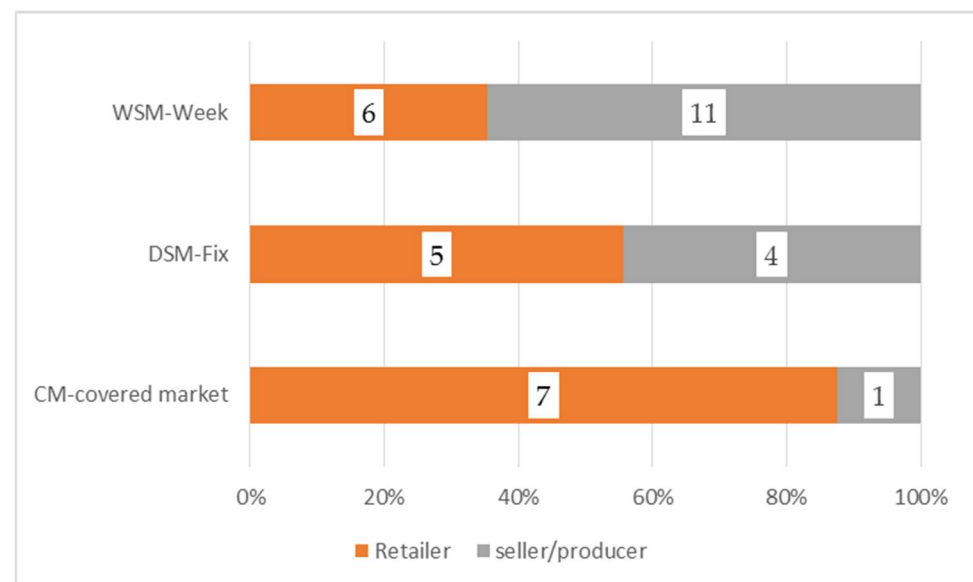


Figure 1. Type of market by type of vendors (retailers or sellers/producers). Source: The authors.

Ten-minute personal interviews with sellers and consumers were conducted anonymously based on two semi-structured questionnaires. The questionnaires were used during March and July 2020. Three people who were trained administered the questionnaires. Questions focused on the impact of COVID-19 on the municipal market.

The methods used for gathering data were:

1. Participant observation: on-site examination of the food retail urban structure in the central area of the town and in the food markets.
2. One-to-one interviews with:
 - a. Food retailers at MM;
 - b. Sellers/producers at MM;
 - c. Consumers at MM.
3. The data obtained were processed using quantitative statistical analysis, topological analysis, and qualitative analysis. Most of the processing was done using SPSS version 21.

The research questions were related to the current situation in the covered, fixed and weekly street markets and in the agri-food trade in the vicinity of the market (open stalls, product sold, origin of the product, type of consumers, and type of sellers) in order to understand:

- Changes in users' food purchasing habits during the COVID-19 lockdown, differentiating between loyal and sporadic customers;
- Changes experienced by vendors during the COVID-19 lockdown, differentiating between sellers/producers and retailers and their abilities to adapt to a changing situation.

3.2. Factor Analysis and AGIL Model

The questionnaire administered (see Table A3) to sellers examined some aspects related to personal characteristics and the difficulties they encountered during the lockdown period as well as any changes they implemented and/or encountered. Here, we considered the variables of type of place (internal stall or external stall), daily or non-daily presence in the San Feliu market, whether they were producers/sellers or retailers, the origin of the products they offered (local or otherwise), the distance from their place of residence, the years of activity, the type of business, and any online sales.

Participants were also asked for their perceptions of difficulties and problems due to the pandemic as well as how they dealt with the changes that had taken place, for example, with respect to willingness to take orders by phone, make home deliveries and meet customers in various ways. We asked whether there were concerns and problems with the market structure during the pandemic. Other parts of the seller questionnaire were designed to highlight aspects of company organisation and problems and changes that the sellers faced in the period of the COVID-19 health emergency. Questions that we focused on for the factor analysis and subsequent processing are indicated in Table 1.

Table 1. Main variables chosen for processing, coding of the name, and methods of recording the interviews with Sant Feliu de Guíxols market sellers.

Variable n.	Variable Name	Description	Modalities
V1	Food stall—place	Exterior stall, Interior stall	1–2
V2	Market type	Covered market (CM), daily street market (DSM), weekly street market (WSM)	1–3
V3	Retailer or Seller/producer	Retailer, Seller/producer	1–2
V4	Production place	Sant Feliu de Guíxols, Girona, Palamos and Calonge, Llagostera, Castell d'Aro, Torrella de Mongri, More places (Lloret, Vidreres, Gaverres, Palafrugell, Tossa de Mar, Roses, Cassà de la Selva, Mercat de las Flores)	1–7
V5	Distance from the place of production (proximity < 25 km)	0 km, 1–25 km, 26–50 km, over 50	1–4
V6	Years of activity	Less than 10 years, 11–30 years, 31–50 years, 51–100 years, no reply	1–5

Table 1. *Cont.*

Variable n.	Variable Name	Description	Modalities
V7	Family business	Family business, not a family business	1–2
V8	Residence of the seller/producer	Sant Feliu de Guíxols, other places (Calonge, Llagostera, Girona, Palamos, Castell d’Aro, Cassà de la Selva, Palafrugell, Tossa de Mar)	1–2
V9	Distance from residence	Residence in Sant Feliu de Guíxols, residence 1–20 km away, residence 21–50 km away, residence 51–90 km away	1–4
V10	Membership in associations	Traders’ association, producers, market sellers, No	1–4
V11	Products types per food stall	Fish, meat, cheese, dried food, vegetables and fruit, herbs/spices, wine, other products	1–8
V12	Online distribution	Yes, No	1–2
V13	Revenue generated from sales or consumption	Consumption, sales	1–2
V14	Types of customers	Loyal customers, not loyal customers	1–2
V15	Frequency of other markets	Yes, No	1–2
V16	Sale in other spaces	Yes, No	1–2
V17	Number of days in Sant Feliu market	1 day, 2 days, 7 days	1–3
V18	COVID-19: number of consumer changes	Yes consumers increased, No consumers did not increase, no reply	1–3
V19	COVID-19: changes in sales	Yes sales increased, No sales did not increase, no reply	1–3
V20	COVID-19: new loyal customers	Yes, No, no reply	1–3
V21	COVID-19: different ways of buying after lockdown	+Face-to-face, +Online, +Telephone, In any case, no reply	1–5
V22	COVID-19: purchase changes after lockdown	Yes, No, No reply	1–3

Source: The authors.

The factor analysis allowed us to reduce the complexity of a problem described by a consistent number of variables to a smaller number of latent variables/factors that could capture a significant percentage of the overall variability of the departure data [53]. Analyses were applied in the literature even to small samples [52,54–57].

In the context of multivariate statistics, principal component analysis (PCA) and factor analysis (FA) are techniques used for data simplification. The reduction in complexity occurs by limiting the analysis to the main factors (by variance) among the new variables. For the choice of the number of components (sufficient to reproduce the starting data with a good approximation), we proceeded through the graph of the eigenvalues or screen. In the graph, the number of components corresponding to the “elbow” point of the line are chosen [58]. They were used in the factor analysis procedure to identify and analyse the main explanatory variables and to highlight the main problems that emerged after the COVID-19 pandemic. Socioeconomic characteristics, sales habits, and any adjustments that retailers adopted after lockdown due to the health emergency were also examined. In this case, the most important contribution was the introduction of multidimensionality in the structure of the attitudes of retailers or producers in the market.

We subsequently tried to explore whether the factors which emerged from the factor analysis might outline the subsystem of the AGIL scheme, namely the Parson’s AGIL

method. This qualitative-quantitative methodology of multidimensional analysis is frequently applied in qualitative studies and has been proved to be valid and effective both for the rapidity of obtaining results and for its relatively low cost [59,60].

This methodology has also been recently improved and consolidated for its generalisation and applicability in other studies and in marketing studies for food products [61,62].

As highlighted in the papers by Sciulli [63] and Sciortino [64], the basic assumption underlying Parsons' [65] sociological paradigm is that every social system must meet four basic requirements or functional problems to survive and develop. These requirements are indicated by the acronym AGIL: Adaptation (A); Goal attainment (G); Integration (I); and Latent pattern maintenance (L).

The AGIL scheme is based on a conceptual grid that breaks down a complex phenomenon into four parts and a number of indicators. In line with this methodology, the components that emerged from the factor analysis were analysed, outlined, and explained using the AGIL scheme.

Thanks to this modelling, the potentialities of the open innovation challenge that can help overcome the system crises caused by the pandemic were examined.

This multidimensional qualitative-quantitative analysis uses a methodologically suitable model to measure the different aspects of a complex system and has proved to be valid and effective in many studies [66–68].

According to the AGIL scheme of Talcott Parsons, the four functional needs of the system represent the “actions”, the set of socioeconomic activities implemented to allow the social system to survive and develop [61]. In particular, A and G look at the problems and needs for change, while I and L aim to coordinate, develop and implement change in order to overcome obstacles.

According to Parsons' method, community development is closely related to the development of the four main elements of the subsystem:

Adaptation (A) means that the system has to cope with situational needs that come from the outside. It must adapt to the environment and adapt the environment to its needs (in our case, the pandemic).

Goal attainment (G) identifies the allocation and use of resources for the achievement of priority social purposes (in our case, the sale and maintenance and/or recovery of clients).

Integration (I) concerns the necessary coherence between the choices and actions of the structures that make up the social system (subsystems, groups, roles); the system must regulate the relationship of the parts that are its components (in our case, for example, joining online sales).

Latent pattern (L; maintenance of the model) means the system must integrate, maintain, and renew individual motivation and the cultural models that create and maintain this motivation (in our case, entrepreneurial solidity and the tendency towards associations).

The methodological approach chosen uses multiple criteria and was also validated by the subsequent application of cluster analysis.

4. Results

4.1. The Market as a Central Node of the Local City

Participant observations for the survey of open food shops, including caterers in the historic centre and their positions on maps revealed the presence of a dense system, with an increasing presence of bars and restaurants (73%) as one of the features of a touristic place and a lack of shops selling food and fresh produce (Table 2 and Figure 2). Those that existed were mainly concentrated close to the market. Butchers (6%) and supermarkets (5%) were the most common. Bars and restaurants were closed during the lockdown from 14 March to 30 June 2020.

Table 2. Food stores in the centre of Sant Feliu de Guíxols (2017 and 2020).

	Sant Feliu de Guixols 2017		Sant Feliu de Guixols 2020	
	n.	%	n.	%
Meat	5	7.4	5	5.4
Fish	3	4.4	1	1.1
Fruit and vegetable	4	5.9	1	1.1
Bakery	6	8.8	3	3.3
Patisserie	2	2.9	3	3.3
Gourmet	4	5.9	1	1.1
Food store	1	1.5	6	6.5
Organic product	1	1.5	-	-
Dry fruits and sweet	1	1.5	-	-
Deli	3	4.4	1	1.1
Ice-cream	1	1.5	-	-
Bar-restaurant	33	48.5	67	72.8
Supermarket (>400 mq)	4	5.9	4	4.3
Total food retailing	68	100.0	92	100.0

**Figure 2.** Food retailing historical analysis (2017 and 2020). Left: Food vs. restaurant businesses. The area with the greatest concentration coincides with the market location. In 2017, 45% of food shops were restaurants and bars. In 2020, they represented 73%. Source: Maximiliano Monsalvo González, Joaquim Perea i León.

The municipal market system consists of a covered market (CM) and two street markets, one that was daily (DSM) and was located right in front of the covered market and the second that was once a week on Sundays (WSM) and was located on the maritime promenade to attract consumers from the surrounding areas (Figure 3).

The CM sells fresh vegetables, confectionery, gourmet food, and groceries, but what distinguishes it from the other markets is fish and meat. The DSM is specialised in fresh produce, fruit, and vegetables.

During the pandemic, the CM was open regularly from Tuesday to Sunday from 9:00 to 13:30 and on Fridays and Saturdays in the afternoon. However, the DSM and WSM had a drastic reduction in the number of stalls and had to change from their regular positions at the market because of the COVID-19 open public space restriction. For example, in the Plaça del Mercat where the CM and the DSM are located, the presence of new or larger terraces complicated the presence of market stalls.

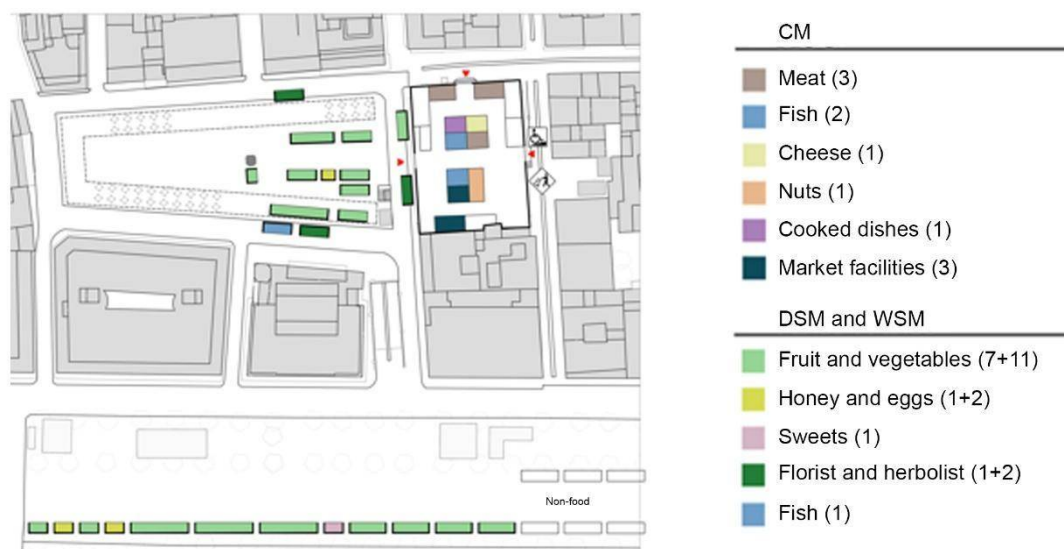


Figure 3. The Sant Feliu de Guíxols system of three markets. Source: Maximiliano Monsalvo González, Joaquim Perea i León.

4.2. Factor Analysis, AGIL Method, and Cluster Analysis

The factor analysis applied to sellers/producers identified six main components which in combination represented 74.889% of the total variance. In the study, 22 variables were considered (indicated in Table 1). Verification of the adequacy of the sample was examined with the Kaiser–Meyer–Olkin (KMO) test. The value obtained was 0.605 (values > 0.60 are considered acceptable). Complete tables with the results of the total variance explained and of the rotated component matrix have been included in Table A1.

Factor analysis allowed us to reduce the complexity of our database from several variables to a smaller number of variables or latent factors that can capture a significant percentage of the overall variability of the starting data. We proceeded through the eigenvalue graph or screen plot (included in Figure A1). In the graph, the number of components corresponding to the “elbow” point of the broken line was chosen [69]. This was used in the factor analysis procedure to identify and analyse the main explanatory variables and, in particular, to highlight the distinctive attributes that have the greatest impact on decision-making processes and the choices of the interviewed sellers.

An orthogonal rotation (see Table A2) was applied with the varimax method to allow easier reading of the matrix of the extracted components. To simplify the reading of the results, only the values that characterise the six extracted components are indicated and illustrated in Table 3.

The first latent factor extracted (23.576% of variance explained) identifies the *consolidated habits of sellers*. The grouped items are place/type of food stall (external or internal position according to the MM), type of market (CM, FSM, DSM), origin of the products, residence of the interviewee, distance of residence from the market, and sale in other spaces.

The second latent factor extracted (18.7%), which we called *the new challenges of the sellers*, includes the number of days in the Sant Feliu market and the variables concerning the aspects that retailers had to face in the COVID-19 emergency phase: number of consumer changes, changes in sales, new loyal customers, different ways of buying after lockdown (different ways of purchasing by consumers: present, online or telephone).

The third latent factor extracted (9.6%) focuses on *family businesses* and frequency of other markets.

The fourth latent factor extracted (9.55%) concerns aspects related to the *sale of products*.

The fifth latent factor extracted (7.7%), which we called *diversification*, includes years of activity, attendance at other markets, types of loyal consumers, and purchase changes after

lockdown (such as restaurants and hotels, citizens who have remained loyal by adapting to new needs).

Finally, the sixth latent factor extracted (5.7%), refers to the *retailer's propensity for forms of association*. The choice to keep this latent sixth factor is based on the combination of some criteria: eigenvalues over 1; scree plot; the percent of cumulative variance; a very high loading over 0.8 (see Comrey and Lee, who classify the loadings above 0.71 as excellent) [70].

Table 3. Results from the factor analysis. Rotated component matrix ^a—factors extracted by component.

				Factors					
		Mean	Std. Deviation	1	2	3	4	5	6
1	Place	1.76	0.43	0.695					
2	Market type	2.26	0.83	0.878					
3	Seller/producer	1.47	0.51				0.736		
4	Production place	7.76	70.12	0.682					
5	Distance from the place of production	3.23	10.74	−0.623					
6	Years of activity	2.94	10.61					0.731	
7	Family business	1.12	0.41			0.733			
8	Residence of the seller/producer	5.06	40.99	0.888					
9	Distance from the residence	1.74	0.83	0.881					
10	Membership of associations	3.59	0.96						0.831
11	Product types per food stall	5.91	30.19				0.437		
12	Online distribution	1.47	0.51				0.509		
13	Revenue generated from sales or consumption	1.97	0.17				0.550		
14	Types of loyal customers	1.09	0.29					0.684	
15	Frequency of other markets	1.56	0.50			0.739			
16	Sale in other spaces	1.76	0.43	−0.850					
17	Number of days in Sant Feliu market	2.00	0.98		0.888				
18	COVID-19: number of consumers changes	2.00	0.65		0.918				
19	COVID-19: changes in sales	1.97	0.67		0.770				
20	COVID-19: new loyalists	1.91	0.71		0.732				
21	COVID-19: different ways of buying after lockdown	3.65	10.07		0.762				
22	COVID-19: purchase changes after lockdown	1.88	0.73					0.598	
Percent of total variance explained				23.6%	18.7%	9.6%	9.6%	7.7%	5.7%
Total variance explained by Factors 1–6 = 74.9%									

Extraction method: principal component analysis. Rotation method: Varimax with Kaiser normalization. ^a Rotation converged in 16 iterations.

As for the negative loads (as can always be seen from Table 3), they represent the sign of the difficulties of the sellers: variable 5 “Distance from the place of production” highlights that the goods also arrive from distances of over 100 km; variables 15 and 16 underline the difficulties related to traveling to attend other markets and to sell in other spaces; and finally on-line sales, the difficulties of promoting distance selling via the internet. However, these aspects represent the greatest challenges to be faced.

By applying the AGIL method, it was possible to capture all the varied aspects sought by sellers to adapt to the market changes caused by COVID-19. In fact, even in city markets, the pandemic accelerated the search for innovative product/process/service solutions. This is because in some cases, it was no longer just a question of resilience but of the ability to innovate and to research/use external open innovation challenge tools that were more in line with current needs: the network, e-commerce, associations, new requests by clients, such as food delivery, takeaway food and street food, influencers, and digital media.

Furthermore, with the application of the AGIL method, the main results of the factor analysis have been reinterpreted to understand the type of resilience or innovation implemented by the San Feliu market sellers during the pandemic crisis. The total variance explaining the main factors extracted was redistributed in the four quadrants of the AGIL scheme. The previously identified latent factors and the corresponding grouped items were considered for each subsystem.

Table 4 shows these groupings. Like Parsons’ original scheme, the four systems of the acronym AGIL have been identified and the extracted factors have been considered as subsystems of the scheme.

Table 4. AGIL scheme model of adaptation of the sellers/producer—sellers of the San Feliu market to the health crisis arising from COVID-19. For each quadrant, the subsystem and variables are indicated.

GOAL ATTAINMENT (G) <i>Subsystem—Management the system defines the goals achievement:</i> <i>Power, ability to reach the sales target despite COVID-19</i> Variables: <ul style="list-style-type: none"> - Type of sellers/sellers-producers (V3) - Product types per food stall (V11) - Online distribution (V12) - Revenue generated from sales/consumption (V13) 	ADAPTATION (A) <i>Subsystem—Ability to adapt to the health emergency from COVID-19</i> Variables: <ul style="list-style-type: none"> - Number of days in Sant Feliu market - COVID-19: number of consumer changes (V18) - COVID-19: changes in sales (V19) - COVID-19: new loyal customers (V20) - COVID-19: different ways of selling after lockdown (V21)
INTEGRATION (I) <i>Subsystem—Community</i> <i>Power of established habits and the ability to associate</i> Variables: <ul style="list-style-type: none"> - Type of Food stall—place (V1) - Market type (V2) - Production place (V4) - Distance from the place of production (V5) - Residence of the seller/producer (V8) - Distance from residence (V9) - Sale in other spaces (V16) - Membership of associations (V10) 	LATENT PATTERN MAINTENANCE (L) <i>Subsystem—Corporate culture</i> <i>Power of family businesses</i> Variables: <ul style="list-style-type: none"> - Family business (V7) - Frequency of other markets (V15) - Years of activity (V6) - Types of customers (Loyal customers, not loyal customers) (V14) - Purchase changes after lockdown (V22)

Source: The authors.

- Adaption (A): This subsystem relates to the ability to adapt to the health emergency resulting from COVID-19 and indicates the possibility of rationalising decision-making processes and finding the solution with the resources available. This aspect is important because it identifies the changes that have occurred due to the pandemic, the sales and new demands of consumers, and security problems.
- Achievement of the goal (G): This subsystem indicates the ability to achieve the goal of the sale. The principle of the realisation of business income follows.
- Integration (I): This subsystem indicates the main characteristics of the sellers in the markets, such as the location of the stalls (CM, DSM, WSM), internal or external, the origin and distance of the products sold, the established habits, and the ability to associate.
- Maintenance of the latent pattern (L): This subsystem captures the corporate culture, with the power of family businesses, the years of activity, the dynamism and presence in different markets, and the loyalty of customers taking on importance.

Table 5 examines the factors extracted from the factor analysis and the relative variance explained within the conceptual framework of the AGIL scheme. To proceed with the construction of the model, both the latent factors extracted through factor analysis and the variance explained in each factor (%) were identified and catalogued in relation to the four main action systems of the model which, therefore, responded to the related subsystem. For example, action system Integration (I) which has the highest percentage (39%) includes factors extracted from factorial analysis 1 and 6. In the same way, the Latency (L) action system includes factors extracted from factorial analysis 3 and 5. The percentage significance of the action system has been calculated using an equality between ratios (applying the mathematical formula of proportions). Finally, the meaning of the AGIL model actions in resilience/resistance strategies of sellers due to the pandemic were defined.

Table 5. Components extracted from the factor analysis, percentage variance from each component, action system and subsystem of the AGIL scheme relative weight of the components on the total and meaning of the AGIL action system in the resilience/resistance model of vendors to the health emergency from COVID-19.

Factor Extracts	Variance Explained in Each Factor (%)	Action System and Subsystem	Significance of Action System (%)	Meaning of AGIL Action System in the Resilience/Resistance Model
Factor extract 2 Effectiveness of adaptation	18.743	Adaptation (A) Capacity to adapt to the COVID-19 health emergency	25.028	Different ways of selling after lockdown, ability to change
Factor extract 4 Effectiveness of the sale	9.557	Goal Attainment (G) Ability to achieve the goal of the sale	12.762	Online networks, diversification (increase in product types per food stall)
Factor extract 1 + 6 Effectiveness of habits. Propension to association	29.302	Integration (I) Power of established habits. Associations consolidated	39.127	value attributed to the place of origin of the products
Factor extract 3 + 5 Effectiveness of family businesses, attendance in other markets	17.288	Latency (L) Power of family businesses	23.085	Attractiveness of local markets and family business
Total	74.889	AGIL	100.000	

Our adaptation of the AGIL from Ingrassia M et al., 2020 [61]. Source: The authors.

The AGIL model made it possible to highlight and structure in detail the relevant social drivers and the identified qualitative scenarios through integration with scientific theories. It also allowed the identification of gaps in knowledge.

Adaptation (A): Action/ability to adapt to COVID-19 and the health emergency. This action is important; it represents 25% of the shares of the AGIL scheme. The elements of the sub-action highlight the salient aspects of the adaptation, such as the regularity in the days of presence of the sellers in the San Feliù market. In fact, 47% of the sellers (mostly producers) were present every day. The predisposition to increase or decrease the number of consumers, sales, and loyal consumers plays an important role in influencing the changes in attitude induced by the pandemic.

Achievement of objectives (G): The action concerns the ability to achieve the goal of the sale. This action represents 12% of the total scheme and has the lowest incidence; the pandemic has put a strain on the sellers of the San Feliù market. However, some sellers have adapted by introducing online sales (53%), focussing on the vast production range offered for sale (47% sell fruit and vegetables) and focussing on diversification (21% sell additional products). The type of seller—retailer (53%) or seller/producer (47%)—can also influence the action.

Integration (I): This action looks at the social group in the community that revolves around the market. The subsystem has the greatest weight (39%) on the total of the AGIL scheme. Eight variables among those detected have an important role in this action: the place where the stall is located if the position is internal (76% of cases) or external to the MM; if the activity is carried out in the covered market (open from Tuesday to Sunday from 9:00 to 13:30 and on Fridays and Saturdays in the afternoon); if the FSM which completes the market's offer of fruit and vegetables is covered (with the same timetable) and the DSM which also sells plants, fish, and sweets. Another important aspect in this action is the origin of the production, with 44% of the products sold coming from neighbouring areas (within 25 km) and 14% of the products sold coming from a distance within 100 km. In the

sphere of the community, the residence of the sellers in San Feliù (47%) or at most within 20 km (35%) plays a role in the integration and in the link with the territory, and the sale in other municipal markets in the area is limited (23%). In this action, we also find the associative aspect (about 20%) which, however, should increase.

Maintaining the latent pattern (L): This action affects a total of 23% and is mainly represented by the attractiveness of neighbouring local markets (44%) and family tradition. In 91% of cases, it is an activity that has been handed down in the family, and in 29.4% of cases, the years of activity are between 50 and 100 years. In the action and sub-action, factors 3 and 5 of the factor analysis were accumulated, which is also characterised by the presence of loyal consumers (91.2%) who have not changed their buying habits very much but have changed their buying methods (in 47% of cases).

4.3. Cluster Analysis

The next step was to carry out a cluster analysis to group the subjects involved. A hierarchical clustering was carried out using the Ward method (quadratic Euclidean distance). A cluster analysis was developed to identify the profiles of the sellers through their main socioeconomic characteristics. This made it possible to identify the potential and ability of sellers to adapt their marketing strategies due to the evolution of the health emergency.

Three clusters were identified, the largest with 21 subjects (61.8%), the second with eight subjects (23.5), and the third with five subjects (14.7%).

The main characteristics of the individual clusters are:

- Cluster 1—*permanent sellers, attentive and available to the needs of the consumer* (61.8%). The sellers in this group were mainly farmers, that is, producers/sellers (57%), the remaining were retailers (43%). The products and food that they sell came from nearby places in 90% of the cases (from distances less than 25 km). Almost all of the sellers have a family business. All subjects in the group stated that they have loyal consumers. They sell seven days a week in San Feliu (76%). The health problem caused by COVID-19 has neither increased sales nor increased the number of loyal consumers. It has definitely not caused changes in sales.
- Cluster 2—*occasional regular and open to consumer needs* (23.5%). These are mainly sellers/traders, most with a stall in the covered market. In this case, the proximity of products prevails (from distances of less than 25 km). The businesses are family ones. Almost all of them also sell online. They have loyal consumers and all are present at the San Feliu market one to two days a week and also have stalls at other markets. During the COVID-19 lockdown period, some changes in sales occurred. There was an increase in consumers and sales. They stated that they gained some new loyal consumers.
- Cluster 3—*occasional regular* (14.7%). This small group mainly contains farmers. The products come from areas that are more distant (25 km and up to 90 km). They do not sell online. They only stand at the San Feliu market one two days a week and sell at other markets. Due to COVID-19, they have not increased sales or attracted new consumers. They have not activated any different types of sale and have not registered any changes in requests for product sales.

Thanks to the applied methodologies, a group of sellers with a greater ability to use open innovation tools strongly emerges (group in Cluster 2). These sellers are vendors who keep themselves informed via the media, have a greater sensitivity to adapt to changes, and have an ability to develop trust through relationships and their marketing strategies, for example, offering a delivery service.

4.4. Loyal Consumers, New Loyalties, and Seller Innovation

The loyal consumer is synonymous with the circle of trust which can be found at the basis of the concept of proximity living and the circular economy. As shown in Figure 4, 63% of interviewees claimed to be loyal market shoppers. This leaves a high percentage of sporadic consumers. Only 40% of interviewees stated that they were over 61 years old,

which was a novelty because market buyers before COVID-19 tended to be elderly people who had time to shop at the market in the morning.

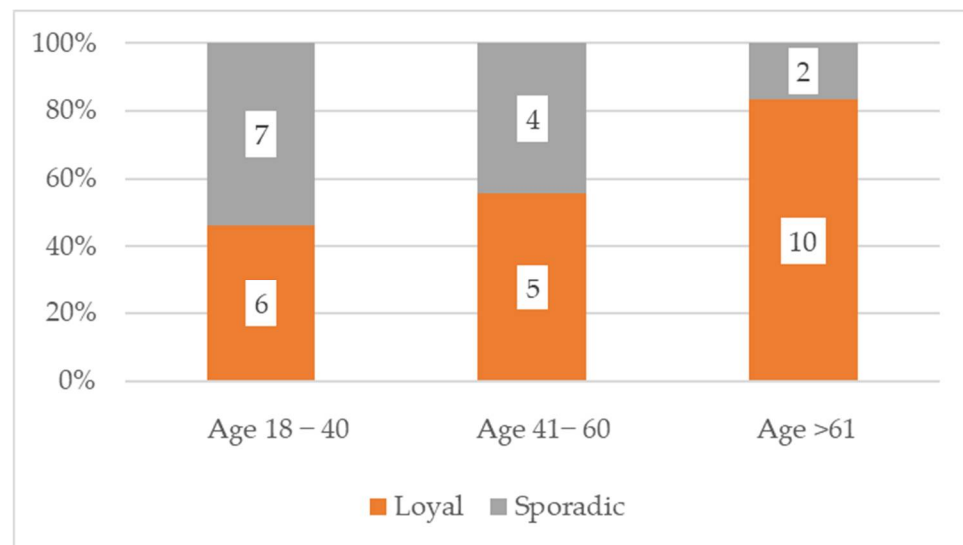


Figure 4. Attendance and loyal and sporadic consumers. Source: The authors.

The results show differences between consumers who describe themselves as loyal and sporadic in several dimensions.

For example, loyal consumers gave more reasons for shopping at the market, from quality and diversity to costs and aspects that were more closely related to social factors, such as supporting the local economy. In contrast, sporadic customers were mainly focussed on aspects related to food quality and local origin (Figure 5).

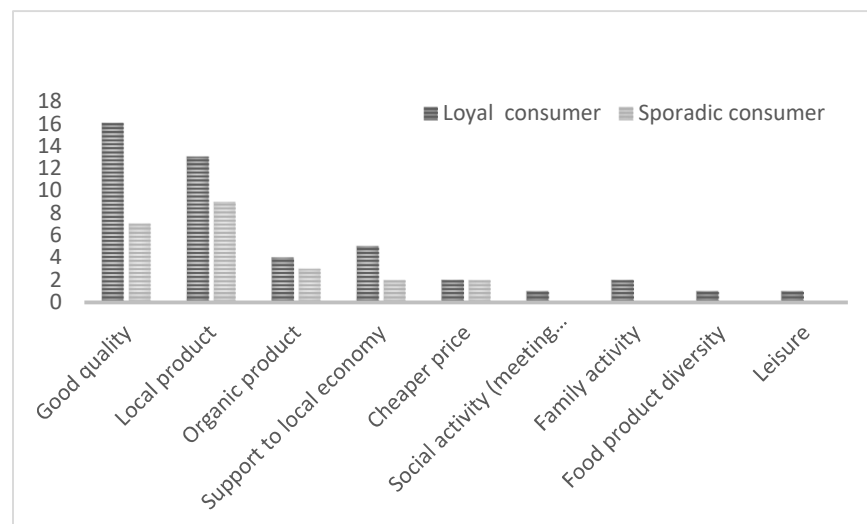


Figure 5. Consumer's motivation for attending the food markets. Source: The authors.

Moreover, suggestions for improving market conditions from loyal and sporadic consumers included the need to identify who are the sellers or retailers, to change the opening hours and to enable the creation of more small markets in the town.

A total of 43.8% of producers and only 16.7% of retailers, comprising a total of 60.5%, stated that they had experienced new customer loyalty since the lockdown period (see Figure 6).

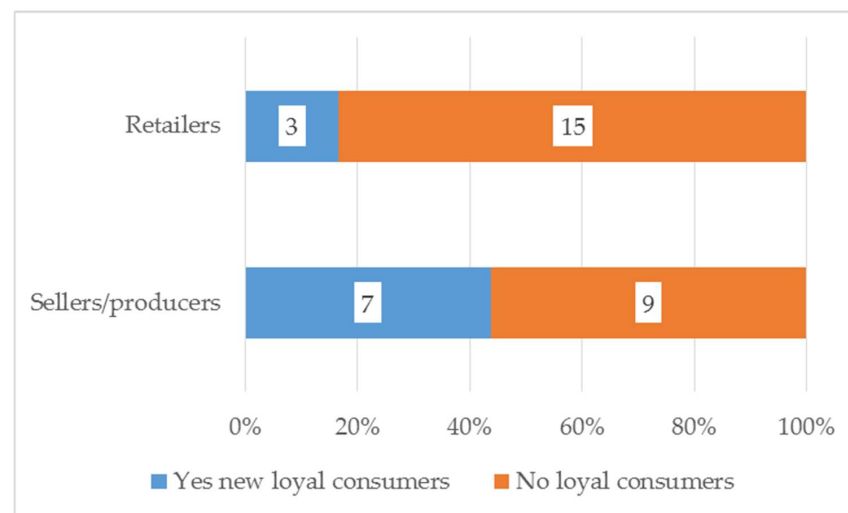


Figure 6. New loyal consumers %. Source: The authors.

During the period of the pandemic, 61.8% of vendors (producers and non-producers) had innovated in sales by investing in staffing to create consumer loyalty by means of take-away food or by investing in websites and complying with COVID-19 health regulations (see Table 6).

Table 6. Seller/producer and retailer innovation.

	Application of Innovations		
	Yes	No	Total
Sellers/producers	32.3% (n° 11)	14.7% (n° 5)	47.1% (n° 16)
Retailers	29.4% (n° 10)	23.5% (n° 8)	52.9% (n° 18)
Total	61.7% (n° 21)	38.2% (n° 13)	100.0 (n° 34)

Source: The authors.

In contrast, most of the retailers did not experience an increase in sales. In this context, the sellers are the group with the highest increase in sales, which could be associated with the fact that only 15% of the consumers who were interviewed claimed to want to improve their diet during the pandemic.

5. Discussion

5.1. Adaptation or Transformation of the Food System after Pandemic

An analysis of the results shows different forms and paradoxes due to adaptation to the pandemic by market sellers and food consumers in order to manage the crisis. It also shows a response to problems that emerged before the pandemic, such as the need for innovation in the food chain to increase sustainability and an increasing awareness of climate change and its effects related to food sectors.

Consumers had to respect sanitary regulations and avoid any unnecessary movements and to purchase their home food supplies from local shops or food markets.

It emerged from the application of the AGIL scheme that some customers had changed habits but not the quality of the food purchased nor the seller. The most notable change was in social awareness of the pandemic, which led some people to decrease the frequency of purchase. Sellers invested in staff as the demand for home selling increased. The types of purchase requests also increased: by phone, via WhatsApp, and remotely. Some sellers invested in web pages for online sales. Investments/adjustments were necessary to adapt to health regulations (purchase of masks, disinfectants, etc.) and to improve and adapt to spacing regulations, such as parking lots for loading and unloading goods into stalls.

The research also used cluster analysis and identified three main groups of sellers/producers: permanent sellers, attentive and available to the needs of the consumer;

occasional regular and open to consumer needs; and occasional regular, closed and blocked in the face of difficulties. These groups confirmed that the social and economic context has an enormous impact on the capacity to adapt.

The increasing demand for door-to-door delivery shows the need to organise collectively by enlarging food governance, not only to construct a seller/producer network but also to promote consumers as active agents in the food chain. In the Mediterranean city, the food market represents a social space with great potential for the exchange of goods as well as skills and competences, and for the construction of greater governance. Markets can be places to locate pick-up points or for food cooperatives to distribute their products. A space could also be created for disseminating the food dimension of the city, with the concession of the public administration.

In the frame of neoliberalism, governance has received criticism for being a process that transfers responsibility for issues arising from complex structural problems to individuals [71]. In the case of a municipal market, the complicity between vendors and buyers in a public space could be interpreted in such a way as to expand the citizen governance involved in the food chain with reference to innovation and evolutionary resilience.

These innovations attracted new customers, especially in the age range of young families. During the pandemic, shopping became more of an individual experience. The necessity to contribute to access to food for elderly people, people with young children or homeless people led to the creation of support groups [72]. In addition to greater sensitivity to food-related issues, people had the opportunity to go to the market or to spend more time ordering local food online while they were working from home. The time factor that resulted in having more time in many cases was at the root of many of the changes and the construction of new social networks of food sellers and buyers. The partnership and cooperation of buyers and sellers in the emergency period open a new chapter in which to focus on the transition to food sustainability, with an innovation based on a broader spectrum of actors involved in the food chain.

5.2. The Possibility of Open Innovation in Food Industry including Restaurant

The restaurant sector is key in the cultural economy of a country as they have to adapt to changes in consumer habits while being influenced by new experiences or technological changes. Open innovation is essential for the success of restaurants, generating new business lines. Competition fosters product innovation in restaurant companies, but investment in Information and Communications Technology (ICT) and in staff training has been shown to be the main determinants of product and process innovation in the restaurant industry [73–75]. Open innovation in restaurants proposes that customers should be seen as co-creators of the value of cuisine [76]. Innovation in haute cuisine restaurants contributes to stimulating the creation and development of gastronomy tourism products through innovation processes that add quality to the products and services offered by gastronomy tourism. Open innovation in the food industry is in a growth phase [77,78], having to face problems of the integration of the concept in the innovation management process. There is a growing interest of these companies in opening their innovation processes, obtaining benefits from collaboration with universities and other sources of knowledge [79,80]. The main characteristics of the current food industry refer to the increasing number of actors in the food chain and the heterogeneous needs of consumers. Consequently, open innovation should be considered a generalized corporate practice. Within the food industry, open innovation plays an important role in restaurant success. There is literature on key cases of the restaurant ecosystem [81], where an open innovation framework was used to analyse how to grow. At the bases need building a successful business ecosystem that shares knowledge, encourages individual growth, and embeds trust among participants, generates sustained growth models, thereby expanding “open innovation” with stakeholders.

This is also true for the Municipal Markets and for the farmers’ markets which for some years have been the subject of renewed interest and urban reorganization and transformation. [11,82]. The Market as an urban space for exchanges and relationships, a place

for everyday life and conviviality [83]. For some years now, many European municipal markets have been moving in this direction, promoting social innovations, sustainable consumption, online services and home deliveries, the fight against waste, etc.

The market changes the face of the spaces and/or shops with the sale of fresh and dried fruit products, vegetables, butchers, cheeses, and various foodstuffs; at certain times of the day, they appear in a new function, becoming restaurants ready to welcome citizens, people in transit, and tourists. Open innovation has become an emergent topic in innovation management founded on the assumption that the development of innovative processes may lie outside the companies' boundaries. In particular, this paper has pursued to address one gap in existing research on open innovation, namely the investigation of its relationship with market orientation that promotes continual processes of innovation leading to higher customer value.

6. Conclusions

6.1. Theoretical and Practical Implications of this Study

The pandemic situation in Spain and in other countries has led to an enormous increase in supermarket and online shopping. On the positive side, people have also been demanding more local food. In April 2020, food delivery reached all-time highs in Google searches globally. However, local vendors that had over time constructed a circle of trust with buyers could manage the crisis mutually with their buyers [71].

During the pandemic, small sellers/producers were affected in different ways, depending on the country. In touristic places, the appearance of the disease resulted in a lack of demand through the usual selling channels, such as hotels, restaurants, and cafes [72]. In Sant Feliu de Guíxols, the effects of border closing reduced the presence of mass tourism in the city. These disruptive effects of the pandemic involved other aspects as well, such as the possibility of innovating and expanding the consumer network using basic online tools, including WhatsApp, email or existing Internet pages. In our case study, the most accepted innovation was one-to-one delivery. Home delivery has some contradictions. First, it is costly in term of capital investment for delivering the product the problematic "last mile". Second, it is socially and environmentally unsustainable. From the perspective of poor working conditions for delivery drivers and time pressure for perishable food, which is a challenge for small delivery companies or producers, the social sustainability of this form of transport is questionable. In addition, this kind of transportation implies a lack of direct contact between sellers/producers and consumers. It disrupts the social role of the market's urban space. If the direct link between retailers and buyers is interrupted, producers become invisible and cannot communicate sustainability issues in food supply chains [73].

From the perspective of environmental sustainability, door-to-door transport is expensive in terms of its CO₂ footprint. It is necessary to monitor to what extent this innovation will be disruptive for a food system that aims at a transition towards environmental, social, and economic sustainability and to screen between those adaptations that aim towards a sustainable and solidarity-based model and those which return to the previous reality. The distances are not only physical but also social and economic along the food chain.

6.2. Limits and Future Research Topics

Our main question was whether these changes have just been temporary adaptations or whether they point to more profound changes in the structure of the role of food markets in the city from the urban perspective and that of its actors.

The transition to a sustainable food supply chain should be placed at the centre of urban policies [76,77], much like the market system and the local distribution of food. This is one of the main issues that is currently being solved by the private sector, especially in small towns where institutional structures are usually little interested in these issues. In the case of food markets (and the adaptations introduced in this period), there is a need for further studies focused on the relationships between ordinary food practices and urban

space. We can imagine transformations which envision the model of the “15 min city” to understand how the food market could support new social practices that are able to not only promote the food transition/innovation but also a renewed urban space. Open innovation from this perspective can be seen as a strategy for sustainable development. The intensive development of open innovations in agriculture is one of the main directions to take to ensure the sustainability of food markets. The need for open innovation lies in the fact that with the proper organisation of active cooperation between farmers, they will be able to access the world’s best technologies and competencies as quickly as possible. They will also be able to use their technologies and competencies to approach new and diverse threats to the sustainable development of food consumption and agriculture [78,79].

A consumer-driven open innovation strategy plays a vital role in business model design and appears to be a novel opportunity for driving food consumption. The change would provide an opportunity for traditionally less powerful actors, such as producers, to reformulate the food chain in a way that is more closely linked to the territory with a resilience dimension for handling other possible food crises [7] and a challenge to reach the ultimate business goal.

Author Contributions: Conceptualization N.F. and A.N.; methodology N.F. and A.N.; formal analysis, N.F., A.N. and V.R.L.; investigation, N.F.; resources, N.F., A.N. and V.R.L.; data curation, N.F., A.N. and V.R.L.; writing—original draft preparation, N.F. and A.N.; writing—review and editing, N.F., A.N. and V.R.L. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

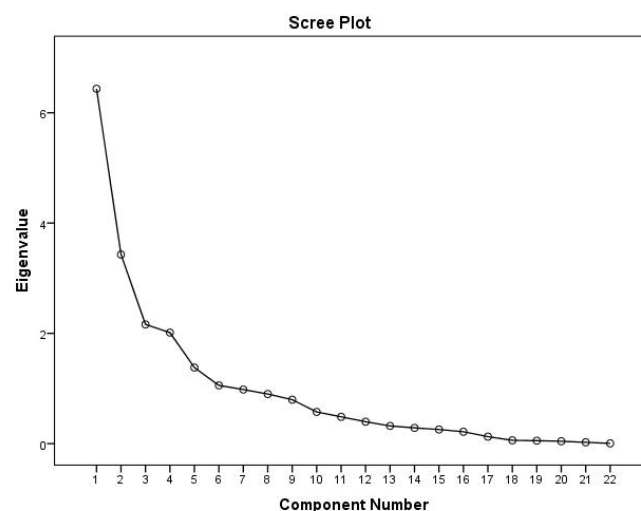


Figure A1. Scree plot of Factorial analysis. Source: The authors.

Table A1. Results of the factor analysis. Total variance explained.

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.435	29.250	29.250	6.435	29.250	29.250	5.187	23.576	23.576
2	3.429	15.587	44.837	3.429	15.587	44.837	4.123	18.743	42.319
3	2.163	9.830	54.667	2.163	9.830	54.667	2.113	9.603	51.922
4	2.014	9.153	63.819	2.014	9.153	63.819	2.103	9.557	61.479
5	1.379	6.269	70.088	1.379	6.269	70.088	1.691	7.685	69.163
6	1.056	4.802	74.889	1.056	4.802	74.889	1.260	5.726	74.889
7	0.980	4.457	79.346						
8	0.899	4.088	83.434						
9	0.796	3.620	87.055						
10	0.575	2.612	89.667						
11	0.485	2.206	91.873						
12	0.397	1.805	93.679						
13	0.321	1.460	95.138						
14	0.286	1.298	96.437						
15	0.256	1.164	97.601						
16	0.216	0.980	98.581						
17	0.127	0.575	99.156						
18	0.060	0.273	99.429						
19	0.054	0.244	99.673						
20	0.043	0.1195	99.868						
21	0.024	0.109	99.977						
22	0.005	0.023	100.000						

Extraction method: principal component analysis. KMO and Bartlett's test: Kaiser–Meyer–Olkin measure of sampling adequacy = 0.605. Source: The authors.

Table A2. Results from the factor analysis. Rotated component matrix ^a.

		Factors					
		1	2	3	4	5	6
1	Place	0.695	0.267	−0.279	0.473	0.141	0.021
2	Market type	0.878	−0.083	−0.144	0.391	0.088	0.034
3	Seller/producer	0.117	−0.036	−0.231	0.736	0.163	−0.069
4	Production place	0.682	−0.080	0.478	−0.059	0.192	−0.070
5	Distance from the place of production	−0.623	0.429	0.142	−0.485	−0.045	−0.240
6	Years of activity	0.014	−0.114	−0.014	0.230	0.731	−0.166
7	Family business	0.112	0.275	0.733	−0.118	0.071	0.094
8	Residence of the seller/producer	0.888	−0.146	0.094	−0.105	−0.060	−0.078
9	Distance from the residence	0.881	−0.271	−0.046	−0.008	−0.160	−0.097
10	Membership of associations	−0.057	0.135	0.101	−0.039	−0.211	0.831
11	Product types per food stall	0.360	0.149	0.430	0.437	0.188	0.262
12	Online distribution	0.029	0.343	−0.486	−0.509	−0.048	−0.283
13	Revenue generated from sales or consumption	0.137	0.062	0.267	0.550	−0.113	−0.392
14	Types of loyal customers	−0.470	−0.097	−0.165	0.023	0.684	0.013
15	Frequency of other markets	0.354	0.251	−0.739	0.011	0.042	0.085
16	Sale in other spaces	−0.850	0.303	0.002	−0.222	0.058	−0.008
17	Number of days in Sant Feliu market	−0.069	0.888	−0.033	0.119	−0.122	−0.091
18	COVID-19: number of consumers changes	−0.087	0.918	0.012	0.074	−0.058	0.004
19	COVID-19: changes in sales	−0.392	0.770	0.058	−0.094	−0.097	0.082
20	COVID-19: new loyalists	0.021	0.732	0.021	−0.096	−0.084	0.348
21	COVID-19: different ways of buying after lockdown	−0.259	0.762	−0.019	−0.147	0.263	−0.003
22	COVID-19: purchase changes after lockdown	0.187	0.061	0.289	−0.063	0.598	−0.039

Extraction method: principal component analysis. Rotation method: Varimax with Kaiser normalization. ^a Rotation converged in 16 iterations. Source: The authors.

Table A3. Questions posed to vendors. Source: The authors.

Questions	Answers
Food stall—place	Exterior stall []
	Interior stall []
Market type	Covered market (CM) []
	daily street market (DSM) []
	weekly street market (WSM) []

Table A3. Cont.

Questions	Answers
Retailer or Seller/producer	Retailer [] Seller/producer []
Production place	Sant Feliu de Guíxols [] Girona [] Palamos and Calonge [] Llagostera [] Castell d'Aro [] Torrella de Mongri [] Lloret [] Vidreres [] Gaverres [] Palafrugell [] Tossa de Mar [] Roses [] Cassà de la Selva [] Mercat de las Flores []
Distance from the place of production (proximity < 25 km)	0 km [] 1–25 km [] 26–50 km [] over 50 []
Years of activity	Less than 10 years [] 11–30 years [] 31–50 years [] 51–100 years [] no reply []
Family business	Family business [] not a family business []
Residence of the seller/producer	Sant Feliu de Guíxols [] Calonge [] Llagostera [] Girona [] Palamos [] Castell d'Aro [] Cassà de la Selva [] Palafrugell [] Tossa de Mar []
Distance from residence	Residence in Sant Feliu de Guíxols [] residence 1–20 km away [] residence 21–50 km away [] residence 51–90 km away []
Membership in associations	Traders' association [] Producers association [] market sellers association [] No []
Products types per food stall	Fish [] Meat [] Cheese [] dried food [] vegetables and fruit [] herbs/spices [] wine [] other products []

Table A3. Cont.

Questions	Answers
Online distribution	Yes [] No []
Revenue generated from sales or consumption	Revenue generated from sales [] Revenue generated from Consumption []
Types of customers	Loyal customers [] not loyal customers []
Frequency of other markets	Yes [] No []
Sale in other spaces	Yes [] No []
Number of days in Sant Feliu market	1 day [] 2 days [] 7 days []
COVID-19: number of consumer changes	Yes consumers increased [] No consumers did not increase [] no reply []
COVID-19: changes in sales	Yes sales increased [] No sales did not increase [] no reply []
COVID-19: new loyal customers	Yes [] No [] no reply []
COVID-19: different ways of buying after lockdown	Face-to-face [] Online [] Telephone [] In any case [] no reply []
COVID-19: purchase changes after lockdown	Yes [] No [] No reply []

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