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Measuring the Economic Impact of Farmers' Markets on Local Economies in the Basque Country

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Abstract: Farmers' markets are a traditional exchange space for local peasants, around which alternative agri-food networks (AFNs) are being built on a local scale. These AFNs seek to establish quality and trust-based equitable relationships within value chains. The main objective of this paper is to measure the economic impact of 10 farmers' markets on the local economy in the Basque province of Gipuzkoa (Northern Spain). To calculate the degree of impact, we use the tools of input-output analysis, adapting the SEED & NEED & FEED (Sticky Economic Evaluation Device & Neighborhood Exchange Evaluation Device & Food Environment Evaluation Device) approach to the specific context of the Basque Country. The results obtained give an economic value of the impact of these marketing spaces, including direct and indirect effects on other economic sectors. Furthermore, the results show that markets present other factors, not just economic, that add value for both producers and consumers, as well as for the local economy.

Keywords: farmers' markets; economic impact; alternative agri-food networks; input-output analysis

1. Introduction

According to Mauleón [1], "Farmers' Markets are public spaces where farmers and artisan food processors regularly sell their products directly to consumers from market stalls", and emphasizes that the direct relationship between producer and consumer is one of the main characteristics of these marketing channels. Farmers participating in these markets are small-scale producers who grow and/or process their own products. They are engaged in family farming, using mostly short food supply chains (SFSC) and controlling the entire value chain of their production. In the case of the Historical Territory (or province) of Gipuzkoa (Basque Country), in the past, local markets not only played a fundamental role in the articulation of commercial relations between agrarian activity and its immediate territorial environment, but also acted as spaces for social dynamization at a regional level. Gipuzkoa is one of the three provinces of the Basque Country region or Autonomous Community, and it is the smallest province of Spain in terms of surface area. However, it is densely populated (374 inhabitants per square kilometer, with more than 700,000 inhabitants), and has one of the highest GDP per capita of Spain (31,352 euros per inhabitant in 2014). Its GDP (22.3 billion euros) was 2.1% of Spanish GDP in 2015 (1.1 trillion euros). The importance of the primary sector is relatively reduced (0.6% of GDP and 1.2% of employment in 2015), compared with its relevance at national level (2.8% of GDP and 4.3% of employment in the same year), and it has been declining over recent decades,

reflecting a profile characterized by mountain area farming: small-sized farms, an aging labor force and ownership, and predominance of livestock (although other activities, like wine production and horticulture, are also present) [2].

Over the last few decades, farmers' markets have experienced a major boom in northern countries within the context of the development of alternative agri-food networks (AFN). These AFNs constitute a response from consumers and producers questioning the global agri-food system, concerned by its impact on people and the imbalance of control along the food value chain in communities and regions in terms of food quality and safety, health, environment, access to food or social and economic inequalities [3–5]. Within this concept, the condition of "alternative" lies not only in the possible elimination of intermediaries, but also in the type of relationship fostered between production and consumption.

Scientific literature has generated a rich discussion on the differential factor of these alternative channels related to other marketing channels, such as supermarkets or the like, where farmers lose any control on marketing decisions and consumers lose a closer connection with the food production process itself. These AFNs are characterized by a variety of features: the access of the consumer to all available information about the product and its context, with a new added value of transparency and the creation of relationships of trust; the political project shared among the actors that make up the network [6]; the pursuit of social, ecological and economic sustainability [7]; the sharing of objectives and social responsibility between the different parts of the production chain [8]; product differentiation in terms of moral and ethical values [9]; and the redistribution of power in the food value chain [6,10].

Scientific literature presents a diversity of studies on the concept of alternative food systems (AFS), defining them as "the set of activities that contribute to the formation and distribution of agri-food products and, consequently, to the fulfilment of the role of the food chain in a given society" [11,12]. This concept of the food system adopts a systemic perspective that encompasses the set of actors and processes that are related to food and, in turn, studies the connections between the different territorial scales and certain moments in time. AFN and AFS could be understood as two levels of analysis on food distribution chains, which have different but overlapping perspectives, with emphasis on food distribution networks—in the first case—and on the processes of governance and social and ecological roots in the second case.

In this conceptual framework, farmers' markets allow AFNs to be built on a local scale, making local food visible in the public space, rebalancing and redistributing power bases, fostering greater diversity in food production and educating consumers on the potential and seasonal limits of these foods [13]. Thus, farmers' markets more closely link production and production spaces, offering opportunities to create closer relationships between consumers and producers within a value chain on a local scale [14]. On the other hand, the AFS look for ways of commercialization that in some cases require long-distance selling or selling in conventional markets [15], or at best the distribution of products through what has been called "hybrid networks" [16].

This conceptual debate is of great importance in relation to the objective of this study, since the evaluation and appreciation of the economic impact of local markets could help to overcome the current limitations and contradictions of these concepts. With this insight, the possibility of developing partnerships between actors involved in the food chain, with research institutions, policy makers as well as with social and food-related social movements, can gain strength.

The economic impact of farmers' markets, although not sufficiently investigated, has been viewed from different perspectives. An initial approach focuses on the generation of embeddedness among market participants (producers/sellers and consumers) [17–22]. In this case, the participation of the different agents (producers and consumers) can be influenced by embeddedness or, in other words, linked to values such as trust, custom, identity or commitment to the territory. Nevertheless, participation may also be driven by mercantilist (income- or price-related) or instrumentalist motivations (individual reasons, such as buying fresh or higher quality foods by consumers, or testing new products in the market by producers). Hinrichs [17] states that all markets

could be characterized as fluctuating combinations between social embeddedness, mercantilism and instrumentalism.

From an economic perspective, the impact of farmers' markets can be estimated, primarily, from the level of sales in the marketplace [23–28]. However, these estimates differ markedly depending on which source is used to carry out this calculation. In general, producers tend to underestimate income while consumers overestimate spending [26]. As far as producers' income is concerned, this is largely determined by their profile, with more professional producers having higher sales compared to the income of retired producers or part-time workers [29]. In addition, the economic dimension is also determined by the size of the town where the market is located, the distance from it to other food stores, the level of crossover with other local marketing spaces and the level of income of nearby residents. Factors such as the educational level of the consumers or the longevity of the market also seem to have a significant influence [26].

Input-output (IO) analysis could be a useful tool for estimating the direct, indirect and induced economic effects of farmers' markets on local economy [30]. IO analysis is an economic quantitative technique for analyzing the interdependence of production sectors of the economy of a country or region, identifying the main economic sectors and the flows among them during a stated period of time (usually a year). IO tables have a matrix structure, where rows of the table represent how the output of each sector is distributed among other sectors, and columns show how each sector obtains inputs of other activity sectors to produce its goods or services. The value of the output or production of each sector corresponds to the value of the intermediate used inputs plus the added value. IO tables and multipliers are a useful tool to measure the economy-wide impact on the output of an initial change in the final demand, though they have well-known limitations (i.e., fixed prices, industry, no supply constraints, industry homogeneity, etc.) [30,31]. Consequently, IO analysis has also been extensively used to model and evaluate the performance of rural and agricultural policies [32–35].

Reviewing the models used to analyze the regional economic impact of local markets, we find that the regionalization of IO tables has been frequently applied, under different approaches. Flegg and Tohmo [36] used location quotients (LQ), based on employment based location quotients by Flegg et al. [37]. GRIT (Generation of Regional Input-Ourput Tables) approach [38] is also based in LQs, using in this case Cross Industry Location Quotient (CILQ) or Simple Location Quotient (SLQ). GRIT approach has been commonly employed for rural economic analysis [33,35,39–41]. However, in the case of the analysis of local farmers' markets (LFM) "step-down" regional models such as IMPLAN [42] or RIMS [43] based on the input-output analysis [27,44–46] are the most prominent. These models have been used in the SEED & NEED & FEED (Sticky Economic Evaluation Device & Neighborhood Exchange Evaluation Device & Food Environment Evaluation Device) methodological approach to assess the economic, social and cultural impact of local markets in the United States [47]. However, key parameters in these models are based on national averages, adjusted to reflect regional supply and demand relationships [48]. Thus, the absence of regional multipliers or regional input-output tables makes it difficult to use such tools. In our case study, the existence of Basque Country regional input-output tables and the assumption that provincial intersectorial economic relationships have large enough similarities with the regional ones facilitates the use of IO in order to obtain an estimation of the economic impact of local farmers' markets in the economy of the province of Gipuzkoa.

A broader analysis of the impact of LFM on the regional economy would have to take into account two factors related to the effects on other economic activities. First, there is the question of opportunity cost; that is, purchases from markets may not generate an additional demand for food but simply change the source of the purchase whilst reducing sales levels in shops and supermarkets in the area. Therefore, determining the opportunity cost allows us to calculate the net impact of the markets [45,46]. Secondly, an analysis should also include the impact of markets on other sectors of local economic activity, such as trade, hospitality and other tourism-related activities, as well as attracting visitors and playing a vital role in stimulating the local economy [47]. In addition, the positive impact on local taxes or the level of employment should also be considered [44,49,50].

A deeper appreciation of the wider economic impact of local markets is needed along with the identification of research tools to help add to our understanding of food systems under construction. Therefore, the aim of our research is to determine the gross economic impact of ten of the most significant producer markets in the Historical Territory of Gipuzkoa on the economy of the province, thereby demonstrating the level of economic importance of markets as SFSC and their economic role in the local food system.

In addition to this introduction, in the next section of this paper we detail the methodological approach of the research for the evaluation of the economic impact, based on previous literature. Then, we present the results of the evaluation of the total economic impact of the farmers' markets of Gipuzkoa. Finally, we present the discussion and conclusions gathered from the research process and the results obtained.

2. Materials and Methods

The research methodology approach is based on the SEED & NEED & FEED (Sticky Economic Evaluation Device & Neighborhood Exchange Evaluation Device & Food Environment Evaluation Device) model of market-level assessment [51], for evaluating economic, social and cultural dimensions of farmers' markets. This has already been used in this field of study as described in previous literature [47,52] and is adapted to the specific context of the Basque Country. Therefore, knowledge of the different economic, social and cultural reasons behind the motivations of both producers and consumers for attending markets is important for gaining a better insight into how these influence the way in which they participate in farmers' markets. Although we could consider these different impacts of farmers' markets in Gipuzkoa, here, we are only presenting the economic impact dimension (to review the results of the research on the other dimensions, see Begiristain et al. [53]). The SEED dimension of this methodology uses surveys to calculate the economic impact, direct and induced, of each market on the economy of a particular territory or county. In order to do this, we use the input-output analysis already widely applied in research as detailed in previous literature [27,44,46]. In the case of the USA, expenditure multipliers were used at county level, where the impact of each additional dollar spent on a particular activity is estimated, taking into account the linkages and productive chains between the different economic sectors. In our case, since the multipliers were not available at a provincial level, the use of the input-output regional tables allows us to calculate in an analogous way the multiplier effect of the expenses generated around the markets on the rest of the productive sectors. An antecedent of the use of the input-output analysis tools in the primary sector of the Basque Country is found in the study of Murua et al. [54], on the impact of the effects of the deagrarianization on the regional economy.

Most of the markets analyzed occur on a weekly basis, although there are also markets that are held daily, twice a week or just once a month. As noted below, counts were made to estimate the number of people regularly attending markets. The Table 1 shows the number of people attending the different markets each week. In total, it was estimated that 25,496 people went to these markets every week.

Table 1. Number of people attending markets every week and the frequency of the market.

Market	Weekly Attendance	No of Producers	Frequency of Market	Population (2016)
Arrasate	2076	16	Twice a week	21,903
Azpeitia	1866	32	Weekly, Tuesdays	14,812
Eibar	1704	24	Daily (Mon.–Sat.)	27,158
Tolosa	4698	56	Weekly, Saturdays	19,041
Ordizia	3066	39	Weekly, Wednesdays	9488
Donostia Ibiltaria	786	18	Monthly, Saturdays	180,179 (14,280 Antiguo)
Donostia Bretxa *	6318	12	Daily (Mon.–Sat.)	180,179 (21,265 Centre)
Bergara	1242	11	Weekly, Saturdays	14,905
Zumarraga	1692	26	Weekly, Saturdays	9820
Zarautz	2048	22	Daily (Mon.–Sat.)	23,040
Total	25,496	255	-	-

* The initial count estimate has been reduced by 10%. Source: Compiled by the authors and EUSTAT.

As regards the number of producers, certain adjustments had to be made to the censuses provided by the authorities responsible for market management, most of which are the municipalities themselves, since in many cases these censuses were not updated. In the end, 255 active producers were identified.

Surveys were conducted in the different markets over a period of about six months, from autumn 2015 to spring 2016. In the case of producers, the sample covered only local producers (farmers and craft processors) that sold through the markets, including a few resellers that sold products that met certain local criteria, but leaving aside those that were dedicated to trading. A total number of 213 producers were surveyed, accounting for 83.5% of the total farmers present in the 10 local markets studied. Farmers were asked questions related to their marketing and sales performance in farmers' markets (number of markets attended; number of years attending the market; foodstuff sold; volume of sales, percentage of income provided by markets comparing with other channels, etc.), and the social and cultural aspects related to their participation in the markets (mainly concerning their relationships with consumers). All surveys were conducted on-site and on a personal basis. In terms of consumers, the sample covered 396 people surveyed across 10 markets, that is, 2.31% of the population that go to local markets [55]. In the literature referred to, samples with similar characteristics have been found: Hunt [20] surveyed 216 consumers, and Connell et al. [56] used a sample of 446 individuals. Consumers surveyed were randomly selected within the marketplaces. Consumers were asked about their consumption habits related to markets (expenditure in the market; expenditure in bars, restaurants and shops in the area during market day; kind of food purchased; how often they attended the markets, etc.), and about social and cultural issues related to their participation in the markets. This consumers' survey provided an average expenditure per consumer both in the market (19.5 euros) and in the surrounding bars and shops of the area (14.3 euros) during every market day.

The scope of our research involved 10 LFM of different towns of Gipuzkoa that are held daily or weekly. Two of them are located in the main city, Donostia-San Sebastian (the provincial capital, with 180,000 inhabitants). Two different surveys were carried out on farmers (Of the 255 producers participating in the markets, 213 (83.5%) answered the survey. It should be noted that 88.3% of the producers interviewed answered questions related to their economic situation, even though in one of the markets the majority of the producers declined to participate when they realised the questions were related to their economic situation. This was due to an existing conflict with the local administration, which had created a defensive attitude among the producers towards an intervention that might have any links with the local administration) and consumers, to obtain information about the characteristics of participating stakeholders and to identify the main consumption patterns present in these markets: age and gender of sellers and buyers; volume of sales; purchasing motivations; participations in other marketing channels, and so on. In this article, we focus on the results related to the levels of sales or spending, both direct and collateral (related to the spending in bars, restaurants and shops in the local area), in the markets.

In addition, the quantitative measurement of the attendance of consumers to LFM is calculated through the RMA tool (Rapid Market Assessment) developed by Oregon State University [24]. By means of these counts, we planned to estimate the number of people who visit the markets daily. Thus, once the average expenditure per consumer and day was obtained, the daily, weekly and annual expenditure in each market is estimated, as well as indirect spending in shops and other establishments in the area on market days. These counts were made from locations at market access points, targeting those people who entered specifically to purchase in the market. Therefore, only adults were counted. In the case of couples, these were counted as one person. Counts were made over a 10-min period in every hour, using counting devices. These counting results were extrapolated to obtain the number of consumers per hour. Adding the estimated number of consumers for all the hours of the market duration, we obtained the estimation of number of consumers per market day. In the daily markets, two different counts were carried out: one during a working day, and another on a Saturday.

In some cases, factors were detected that caused certain difficulties in counting: the presence of groups of people (retired, tourists) who did not spend; difficulty in some markets to distinguish the market stalls belonging to producers from those who were resellers, and so forth. This led to a downward correction on the number of consumers initially estimated.

The following table (Table 2) details the technical data of the surveys carried out:

Table 2. Technical data of the research sample.

Markets	10
Number of producers interviewed	213
Number of consumers interviewed	396
Sample type	Random
Period in which the surveys and counts were carried out	October 2015–April 2016

Source: Compiled by the authors.

The surveys provided two different estimates of sales (or direct expenditure) in the markets: one provided by producers, and the other from the consumers. In the case of the former, the indicator used is the annual sales volume, obtained through the daily turnover declared by the farmers themselves. To estimate the second, the annual sales volume is calculated from the daily expenditure on each market day declared by consumers. The differences between the two indicators are significant, although similar divergences have already been found in previous research [26]. Each of the groups has opposite tendencies when it comes to declaring their economic performances: producers/sellers have a tendency to declare lower incomes than those actually obtained, while consumers tend to overestimate the expenses incurred. The survey with consumers also reveals their expenditure during market days in other establishments (commerce and hospitality) in the local area. The latter is the collateral expenditure.

Due to the lack of updated provincial input-output tables, we assume that the productive structure of the province of Gipuzkoa has sufficient similarities with those of the Autonomous Community of the Basque Country. In order to calculate the total economic impact on the local economy, using the sum of direct and collateral expenditure, the production induced by this expenditure is applied to the rest of the activity sectors of the province. In order to do this, the demand model of the input-output analysis mentioned previously is used, with the values of the domestic output (that is, corresponding to the Basque Country) of the symmetric input-output table of the Autonomous Community of the Basque Country of 2010 [57]. We have assumed that there was no technical progress during the 2010–2015 period, due to the impact of the economic crisis from 2010 to 2012. Based on these tables, the technical coefficients of the different sectors of activity are obtained (A matrix). The demand model is defined as follows:

$$(I - A)^{-1}x D = X$$

where A is the matrix of the technical coefficients, $(I - A)^{-1}$ is the inverse matrix of Leontief, D is the column of the final demand vector and X is the column of the output vector. The final demand vector is determined exogenously by the results of the survey. We made the assumption that there are only exogenous changes in the demand of the branches of Agriculture, livestock and fisheries (branch 1, 1st row) and Retail trade (branch 50, 50th row), the value for the rest of the rows being zero.

These values would correspond to the annual sales of the producers (direct expenditure) and sales in the establishments of the local area (collateral expenditure), obtained in the surveys carried out on producers and consumers. We assume that the direct sales in the farmers' markets imply an equivalent change on the demand of the branch 1, and the same for sales in the shops in the surrounding area and the branch 50.

Therefore, the output vector X is the endogenous part of the model. By applying the demand model, the indirect output (X) is obtained for those sales in the 85 branches of activity that these tables cover. In our case, just forward linkages have been calculated. This output is calculated using both

producer and consumer sales estimates. As the GDP of Gipuzkoa (22.3 billion euros in 2015) is 32.9% of the GDP of the Basque Country [58], the impact on each one of the branches of the Gipuzkoan economy is obtained by applying that percentage to the result obtained. In order to calculate the total aggregate effect, the impact on the production of each one of the branches is added. From the input-output tables, the impact on the employment in these markets is also calculated.

3. Results

3.1. Direct and Indirect Expenditure

As already mentioned in the methodological section, the annual sales volume of each market was used to calculate direct expenditure. We assumed that markets are held during all the weeks of the year, so to calculate annual sales we have multiplied weekly sales by 52. Two estimates were made, based respectively on the information provided in the surveys by producers and consumers. In the case of the producers, the sales data per market day was used, whether this was from daily markets or just weekly ones. In the case of the markets that are held daily, the sales figures collected represent the weekly total. These weekly sales have been calculated summing up daily sales. In the case of markets held just once weekly, the estimated sales of the market day gave us the weekly sales data. In the case of the monthly itinerary market in the Antiguo neighborhood of Donostia-San Sebastian (Donostia Ibiltaria), the data included represent only the monthly sales registered in that market, not having been extrapolated to the other two traveling markets of this city (although the participating producers are practically the same).

There are quite significant differences between each market (see Table 3), ranging from 292 euros (Donostia Ibiltaria) to 47.5 euros (Eibar). The average per day by market and producer is 179.7 euros, which means average annual sales per producer of 12,664 euros. Therefore, the total annual sales volume or direct expenditure is almost 3.75 million euros (equivalent to 0.016% of Gipuzkoan GDP of 2016). By volume of sales, the largest market is that of Bretxa in the capital of the province (18% of total annual sales), closely followed by the Tolosa market (17.8%). This is one of the most traditional and renowned markets in the territory. At the other extreme are the markets of Zumarraga (7.8%), Bergara (4.0%) and Donostia Ibiltaria (1.6%).

Table 3. Sales in markets according to producers (in euros).

Market	Sales/Market Day/Producer	Weekly Sales	Annual Sales	% of the Total Annual Sales
Donostia Bretxa *	-	12,940.81	672,922	18.0%
Tolosa	229.2	12,834.50	667,394	17.8%
Zarautz	72.4	9332.95	485,314	12.9%
Ordizia	228.2	8899.40	462,769	12.3%
Eibar	47.5	6697.50	348,270	9.3%
Arrasate	94.0	3006.67	312,693	8.3%
Azpeitia	179.2	5733.33	298,133	8.0%
Zumarraga	215.3	5596.50	291,018	7.8%
Bergara	260.0	2860.00	148,720	4.0%
Donostia Ibiltaria	292.0	5110.00	61,320	1.6%
Total	179.7	73,011.66	3,748,553	100%

* Almost all the producers that attended this market refused to give information about their earnings, so the weekly and annual sales are calculated using the average of the other nine markets. Source: Compiled by the authors.

With regard to the results obtained from the consumer surveys, the average expenditure declared by consumers per market day was 19.5 euros. Due to the small sample size of each of the markets, this value has been used to calculate daily sales per producer, as well as weekly and annual sales. From this data, and using the consumer figures of each market obtained from the counts, this would suggest that average daily sales by market can be estimated at 33,490 euros and average sales per

producer per market day would be 1310 euros. However, this average encompasses wide deviations, since the values obtained oscillated from 2201 euros (Bergara) to 235.6 (Eibar) (See Table 4). The weekly sales of all 10 markets would approach half a million euros, while annual sales (direct spending) would reach almost 25.9 million euros. This volume of sales is 6.9 times greater than the estimate from the perspective of the producers, which is consistent with the results obtained from other research studies [44]. The average annual sales according to survey information from producers would be only 109,840 euros per producer.

Table 4. Sales in markets according to consumers (in euros).

Market	Sales/Market Day/Producer	Weekly Sales	Annual Sales	% of the Total Annual Sales
Donostia Bretxa	1710.9	123,185	6,405,605	24.8%
Tolosa	1635.7	91,599	4,763,142	18.4%
Ordizia	1532.80	59,779	3,108,513	12.0%
Arrasate	1264.98	40,477	2,104,786	8.1%
Zarautz	309.5	39,931	2,076,398	8.0%
Azpeitia	1136.9	36,382	1,891,874	7.3%
Eibar	235.6	33,224	1,727,628	6.7%
Zumarraga	1268.8	32,990	1,715,461	6.6%
Bergara	2201.4	24,216	1,259,222	4.9%
Donostia Ibiltaria	875.7	15,325	796,899	3.1%
Total	1310.4	497,106	25,849,527	100%

Source: Compiled by the authors.

In line with the results from the perspective of the producers, the greatest volume of weekly sales occurs in the markets of Bretxa-Donostia (25% of the total sales), followed by Tolosa (18%). This similarity is also true for the markets with the least sales: Zumarraga (6.1%), Bergara (4.5%) and Donostia Ibiltaria (2.9%). However, rankings change in the rest of the markets: Ordizia is ranked the third (12.0%) and the market of Arrasate (8.1%) appears to have a higher economic dimension than the markets of Zarautz (8.0%) and Eibar (6.7%), rankings not shared from the perspective of the producers.

In terms of collateral spending, that is, consumer spending in establishments (shops or bars and restaurants) in the locality of the markets, this estimation allows us to determine the role markets play as a driving force in the commercial and economic fabric of the local area. In this case, the expenditure data is obtained from consumer surveys. The average collateral expenditure is 14.3 euros. Based on this data and on the estimates of the number of consumers, the annual collateral expenditure is calculated to be 20.46 million euros. This means that, from the perspective of consumers, for every euro spent on the market, consumers spend 0.73 euros on the shops and bars in the area.

Therefore, the estimated total annual (direct plus collateral) expenditure of the 10 markets analyzed ranges from 24.5 million euros (from the producers' perspective) to 44.96 million euros (from the consumers' perspective).

3.2. Economic Impact on the Rest of the Productive Sectors and on Employment

In order to measure the overall impact of markets on the economy of the province of Gipuzkoa, the direct and indirect economic impact of the markets on other economic activities is calculated. For this purpose, the tools offered by the input-output analysis are used, with the data offered by the symmetrical tables of the Autonomous Community of the Basque Country of 2010 [57].

As highlighted in the previous section, it should be borne in mind that we have two different estimates (from the perspective of producers and consumers). Therefore, both estimates are also taken into account here. So, the total economic impact is broken down in both cases into two differentiated elements: on the one hand, direct expenditure on the markets (A) and collateral expenditure on the establishments in the neighborhood (C). The estimation of consumers' collateral daily expenditure is

based on the answers provided from consumers taking part in the survey. The declared average daily expenditure per person was 14.3 euros. To calculate the annual expenditure we have multiplied the average daily expenditure per person by the estimated number of consumers and the number of market days. These expenditures also lead to further production (B in the case of market expenditures, and D for expenditure in the establishments), that is, the additional production generated in other productive activities as a result of this expenditure. This indirect production is obtained through the use of input-output tables. The final sum of all these components gives us the total gross economic impact of local farmers' markets in the historic territory of Gipuzkoa. Indirect production is calculated using the demand model explained in the methodological section, where D is direct expenditure. The total gross economic impact (adding direct and indirect costs and additional outputs) of the markets from the producers' perspective is 38.1 million euros (equivalent to 0.16% of GDP of Gipuzkoa) and 76.5 million euros from that of the consumers (0.33% of GDP).

The summarized results are shown in Table 5.

Table 5. Total net economic impact of the farmers' markets in the historical territory (in euros).

Total Net Economic Impact of the Farmers' Markets in the Historical Territory (in Euros)	Economic Impact of Expenditure in the Markets		Economic Impact of Expenditure in the Establishments in the Local Area		Total Economic Impact A + B + C + D
	Direct Expenditure (A)	Indirect Production (B)	Collateral Expenditure (C)	Indirect Production (D)	
Producers' perspective	3,748,553	2,771,859	20,460,414	11,113,490	38,094,316
Consumers' perspective	25,849,527	19,114,376	20,460,414	11,113,490	76,537,807

Source: Compiled by the authors.

Concerning the distribution of this increase in production between the different branches (see Table 6), in both cases the greatest impact on additional production is located in its own branch: in Agriculture, Livestock and Fisheries for direct expenditure (sales from producers in the market) and collateral expenditure (sales of local commercial establishments). In the case of direct expenditure, other branches that register significant increases in production are Other Food Industries (9.16%) and Basic Chemicals (6.90%). The first 10 branches account for 85% of the increase in production. In the case of collateral spending, this percentage is practically 80%, although aside from the intra-branch increase, no productive sector gains more than 4%.

Table 6. Indirect production in the different productive branches (% of the total).

Indirect Production from Direct Expenditure		Indirect Production from Collateral Expenditure	
Productive Branches	%	Productive Branches	%
Agriculture, livestock and fisheries	54.10	Retail sector	60.80
Other food industries	9.16	Electrical power	3.56
Basic chemical products	6.90	Real estate activities	3.36
Retail sector	4.51	Other land transport of goods	2.17
Repair and installation	2.36	Financial services, except insurance	1.77
Extractive industries	1.89	Other auxiliary activities	1.73
Other land transport of goods	1.84	Wholesale trade	1.70
Coke and refined petroleum products	1.73	Legal and accounting activities	1.67
Electrical power	1.51	Publicity and market research	1.61
Construction	1.02	Construction	1.57
Total	85.0	Total	79.9

Source: Compiled by the authors.

Lastly, the results on employment generated by the activity in the markets are estimated. Here, the estimates also differ markedly depending on the origin of the expenditure data. Thus, from the

perspective of producers 56 jobs would be created in all productive branches, while from the consumers' perspective that number would increase to 465. In terms of employment linked to indirect spending, 155 jobs would be created.

4. Discussion and Conclusions

Given the scarcity of studies on experiences in European territory, this study helps to highlight the relevance of the economic impact of local farmers' markets, both directly and indirectly, on other productive activities in the local economy of a highly industrialized territory suffering from deagrarianization, such as Gipuzkoa. In addition, in the absence of ad hoc research, this paper also fills a research gap and helps to emphasize the role of other AFNs in the local economy. In our research, some relevant issues, which are detailed below, have emerged related to the economic dimension of these AFNs.

Firstly, there are notable differences in the levels of expenditure recorded between markets. These differences seem to be more related to the structural characteristics of each market, where the number of potential consumers (i.e., the number of inhabitants of the population in which they are located) does not seem to be the most relevant factor. According to Beckie et al. [14], there are certain factors that limit the role of farmers' markets within food systems: the scale (the number of markets accessed and the products), the scope (variety of products), accessibility and convenience (location, timetable), physical infrastructures (storage and processing) and organizational capacity are just some of them. It is clear that the economic dimension of markets is linked to their ability to attract both producers and consumers.

This capacity to attract producers and consumers is closely related to the concept of embeddedness [17,59,60]. Although not discussed in this paper, the motivations behind the embeddedness of producers and consumers in supporting markets is made up of a combination of social and cultural factors closely related to its economic dimension. Thus, factors such as enhancing the local economy, building relationships of trust with producers, offering a social and commercial space that is part of the community or finding quality food are all factors that attract consumers to local markets. In parallel, while markets are obviously an economic motivation for producers, beyond the instrumentalist reasons, they also enjoy the components related to socialization and cultural habits. Therefore, these social and cultural motivations are strongly intertwined with economic ones. So, we find that "fluctuating mixes" of ecological, social and spatial embeddedness, together with commercial motivations, characterize farmers' markets, as well as other AFNs [17].

This situation highlights the valuation of the externalities of the markets themselves. Markets generate non-monetary benefits that cannot be measured solely through a one-dimensional methodology. For this reason, we consider that this interrelation reinforces the need for integral methodologies when addressing the evaluation of the economic impact of farmers' markets together with the social and cultural impact. In this sense, the SEED & NEED & FEED methodology proves to be a useful and flexible tool that, together with the input-output analysis, allows us to examine the structure and development of markets as a whole.

The analysis performed, however, also has some limitations. First, the disparity between producers and consumers in the declared direct expenditure constitutes an important limitation, that reinforces the necessity to build more robust methodological designs in similar future studies. Besides, it should be noted that the economic impact is calculated in gross terms; that is, the opportunity cost has not been taken into account, which both farmers and consumers generate from their participation in farmers markets. Unlike the IMPLAN model used by Hughes et al. [49], the level of sectorial aggregation of the input-output tool available for this research does not allow an estimation of the impact that market sales would have on sales in food stores in the province. Likewise, the upwards productive chains ("step up") generated in other branches by sales in local markets have not been considered. Nevertheless, through the empirical work of this research, we consider that this limitation also opens up another debate not included in the economic calculations of the literature. In addition

to measuring the extent to which market sales may imply a change in the spatial origin of food and a reduction in buying from other local circuits, the attraction to local products—linked to social dimensions of market embeddedness—is also increasingly present in these other local circuits. These circuits offer producers from farmers' markets the opportunity to develop multi-channel marketing strategies, to sell their products through these circuits and therefore not just on market day and to attract a different customer profile. Therefore, it is necessary to take into account all these variables to have a complete picture of these supply chains.

In the case of producers/consumers, these benefits are generated with the satisfaction of values linked to embeddedness and related to elements such as the image of the territory and promotion of tourism. Likewise, the assessment of the economic impact of farmers' markets cannot be dissociated from the social impact on the generation of jobs, as already highlighted by previous research, and on culture and related areas of their communities, reinforcing the idea of the difficulty of separating the social from the economic [61].

Nevertheless, this broader knowledge of the true picture of the LFM of Gipuzkoa has allowed us, through direct contact with territorial agents involved in these markets, to highlight the relevance of governance structures in guaranteeing the socioeconomic viability of farmers' markets. The regulation of the farmers' markets analyzed is in the hands of the municipal administrations, but in most cases the decision making process and the part played by producers and other social agents is either non-existent or not clearly defined. In this sense, there is a need to define governance models that allow all the different stakeholders to have a say on what innovative marketing strategies could strengthen farmers' markets and what creative approach is needed to ensure the construction of an enduring socioeconomic network. Such an approach would allow the building of new structures of social and political organization linked to the territories that can offer greater support for the projects and innovations arising from it.

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