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Exploring Collaboration and Consumer Behavior in Food Community Networks and Constraints Preventing Active Participation: The Case of Turkey

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Abstract: The term food community networks (FCNs) has been introduced to define a governance structure where consumers and producers integrate their functions to promote socially just, environmentally conscious, and healthier ways of food provisioning for communities. We use the theory of planned behavior (TPB) to explore how consumers' behavioral intentions are shaped to participate in FCNs in Turkey. We extend the theory by exploring if collaboration is a factor that influences consumer participation. We further identify the main challenges associated with active participation. The findings show that the extended construct in our study, that is collaboration, positively and significantly predicted consumers' attitude, while attitude, along with subjective norm and perceived behavioral control (PBC) had significant and positive effects on consumers' intention to participate (co-produce) in FCNs. Consumers regarded time constraints as the biggest issue preventing active participation, while lack of volunteers taking responsibility and lack of communication within the communities were suggested as governance challenges that need to be addressed. This research can contribute to the debate on the importance of collaboration in food communities, towards adopting collaborative governance structures on a local scale, and shed light on the relatively novel experience of FCNs in Turkey.

Keywords: consumer behavior; food communities; food community networks; collaboration; governance challenges; co-producers; theory of planned behavior

1. Introduction

The rapid development of alternative local food networks and short food supply chains, especially in the last two or three decades in many parts of the world, represents an effort to build a renewed model and a sustainable paradigm in the food system, in response to the practices of the dominant industrial system and negative externalities associated with them. These initiatives call for more just, equal, and sustainable food systems, through a process of re-embedding food production, distribution, and consumption practices, both in a social and a spatial sense [1]. In the same direction, there is a growing body of literature that is emphasizing the place of food beyond being just a commodity on the market, towards being a focal point, that is influenced through the role of consumers, that articulate the relation to society as a political matter [2]. Seyfang and Smith (2007) introduced the term grassroots innovations to describe networks of activists and organizations generating novel bottom-up solutions, that involve people at the community level experimenting with social innovations and the capacity to build resilience at a community level [3]. Communities, they argue, through the development of raised levels of awareness, empowerment, and capacity building, have the potential to make a contribution to more profound "paradigm change" within society [3,4]. Meanwhile,

Pascucci (2010) introduces the term food community networks (FCNs) to define a governance structure where consumers and producers strongly integrate their functions by organizing a "club", in which resources, decisions, and responsibilities are shared among participants, towards more sustainable, just, and resilient food systems [5]. These networks are usually not very formalized and rely on mutual collaboration among consumers and between consumers and producers, usually supported by strong ethical movements. Some well-known examples are community supported agriculture (CSA) practices born in the United States, solidarity purchasing groups (SPGs) in Italy, and Association pour le Maintien d'une Agriculture Paysanne (AMAP) in France [6]. In this regard, there have been numerous studies that aimed to explain the main motivations of consumers participating in local food networks, and through which mechanisms their level and type of involvement are shaped [7,8]. In these networks, individuals engage in common actions, such as co-producing and distributing food products, or sharing resources or risks, in order to produce and have access to ecological food products [9]. In this regard, collaboration is key to food communities as consumers collaborate with each other as well as with producers to organize and govern these networks [10]. Some studies argue that the main goal of the self-organized consumers in these groups, which also in some cases call themselves "co-producers", or "pro-sumers" [11], is to bring consumption in line with the ethical principles of political consumerism, and collaborate to bring fair prices for small producers, while at the same time reducing the negative environmental, social, economic, and cultural externalities associated with the industrial food system [5]. Meanwhile, other studies link these motivations to personal traits and values [12–14]. Etgar (2008) presents a model for consumer engagement in co-production, and explains that there are numerous social benefits linked to participating in co-production processes, including social networks, and belonging to communities [15]. Andretta and Guidi (2017) question how consumers and producers come together in co-production processes to act together in times of economic crisis, suggesting that in the adverse context of an economic crisis, local alternative consumerism practices can develop alternative processes through civic food networks and achieve better outcomes [16].

This study uses the theory of planned behavior (TPB) [17] to explore how consumers' intentions are shaped towards participating in FCN initiatives, in order to understand the key elements of the local food movement in terms of both community networks and local food consumption. In this direction, the aim of this study is to explain consumer behavior and intentions to participate in FCNs in Turkey, through an extended TPB; in this context, perceptions towards collaboration within the food community will also be presented. The study will also touch upon the main motivations of consumers to participate in these communities as well as main constraints that are preventing them to participate more actively, and recommendations for improvement. In our study, we use the term FCN to refer to food communities where consumers come together (either formally or informally) to select local producers to directly purchase their food products from and meet on a regular basis.

The main novelty of the paper is to be found in its empirical contribution. While the aim of the investigated bottom-up organizations is to provide networks of economic solidarity through social relations by utilizing the shortest possible distribution channel, different motivations, including utilitarian and ethical ones, seem to underline consumers' choices to participate in these groups. As these motivations are not fully known, the main contribution of this paper is to reveal insights into the phenomenon of participation in FCNs and intentions of consumers. In addition, we focus on the experience of the Turkish FCNs, a country where FCNs have been emerging recently, and where the novel experience of these bottom-up initiatives is not studied. In the face of global challenges and the urgent need to change national food systems to more sustainable ones, understanding the dynamics within local food networks is of utmost importance towards sustaining these newly emerging systems and to lay the ground for policy making. Hence, while aiming to provide insights into this understudied phenomenon of participation in FCNs, especially in the case of a developing country like Turkey, and giving rise to implications for both future research and practice, we rely on the TPB, a theory that is well-established and tested successfully across many different fields,

and which provides the opportunity for us to direct empirical research towards exploring the intentions of consumers to participate in FCNs.

In the literature, certain studies used the TPB to explain the intentions of individuals to purchase and consume organic or green products [18–21] and local food products [22–24]. On the other hand, the theory has been used by some scholars to study the intentions and behavior of individuals to participate in local initiatives. Some examples include studies using the TPB to explain the factors behind citizen participation in local recycling schemes [25–27], forest ecosystem management programs [28], local community forest management [29], air pollution control schemes [30], and source waste separation activities [31,32]. On the other hand, some studies used the theory to explain the involvement of individuals in community supported agriculture (CSA) programs, and their experiences of belonging to a CSA group and diet-related outcomes [33], while other studies focused on participation behavior of youth in urban agricultural programs [34], as well as participation of university students in urban agricultural programs [35]. Hence, to our knowledge, although the theory has been used to explain how intentions of citizens and individuals are shaped to participate in some local community initiatives, the use of the theory to study the factors affecting the decision to participate in local food communities is limited. Moreover, although, there are numerous studies discussing the importance of collaboration and collective action in dealing with complex problems in the food systems [36], perception of consumers towards collaboration and collaborative governance mechanisms within FCNs are not studied. In addition, there is no scientific research studying the Turkish case of consumer participation in FCNs, hence, consumer motivations and behavior related to participate in these networks is unknown. In this regard, this study can contribute to efforts to unravel consumer behavior in food communities in Turkey, in order to shape their future and to design local policies accordingly.

The paper is organized as follows: first, in Section 2.1, we present the theoretical background of the TPB, our hypothesis, and propose an adapted theoretical framework introducing the aspect of collaboration into the theory. We also present the research design and methodology (Sections 2.2–2.5). We then present our findings in Section 3. Finally, we discuss the implications of our results (Section 4) and provide conclusions (Section 5).

2. Materials and Methods

2.1. Research Model and Hypothesis

In this study, we use Ajzen's theory of planned behavior [17], as shown in Figure 1, as our theoretical framework, and further propose an extended theory of planned behavior, as shown in Figure 2 (presented in this section after the introduction of the hypotheses), to assess the factors affecting the intentions of consumers to participate in FCN initiatives. In our extended theory, we introduce the component of collaboration as an antecedent of attitude towards behavior, which is also an original contribution of our study to the literature.
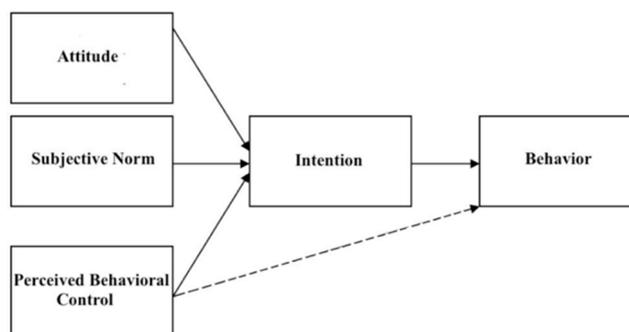

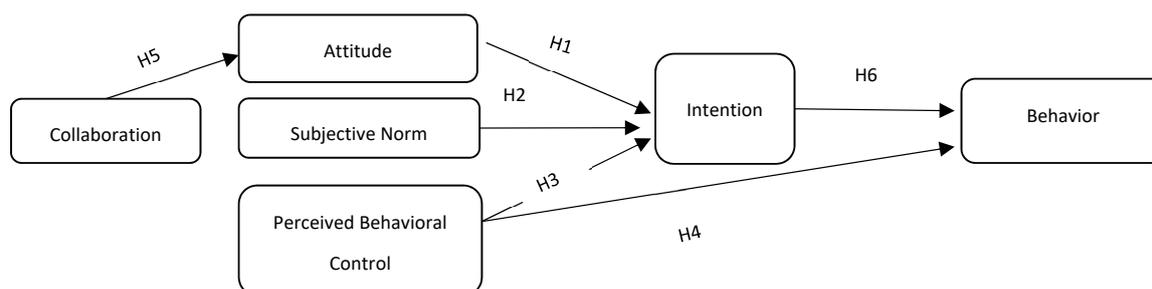**Figure 1.** The theory of planned behavior (Ajzen, 1991).

Figure 2. The extended theory of planned behavior (elaboration of the authors).

Here, the term "participation" is conceptualized by referring to the definition of Grasseni (2012) while discussing the practices of solidarity purchasing groups (GAS – Gruppi di Acquisto Solidale) in Italy. According to this definition, participation in FCNs is coined as consumers organizing themselves in groups in a local context (usually neighborhoods or provinces), who hold regular meetings to select their providers and organize logistics. By creating new direct producer/consumer economic circuits, they wish to responsibly collaborate with the farmers, enabling them to conduct an economically viable business, but also negotiating quality criteria and encouraging "conversions" to organic farming [10]. The theory of planned behavior (TPB) suggests that behavior depends on both motivation (intention) and ability (behavioral control). Intentions, in turn, are related to attitudes (ATT), subjective norm (SN), and perceived behavioral control (PBC). Attitude refers to a person's beliefs about the expected effects of a particular behavior, SN is a person's perceived social approval regarding a behavior, and PBC is a person's perceived capacity to perform a behavior [22]. Ajzen (1991) argues that if ATT, SN, and PBC are strong, the intention will be strong, which will lead one to perform the given behavior. In this direction, the hypotheses that we discuss below are taken from Ajzen (1991) (apart from H5, that introduces collaboration as a novel contribution), and are adapted to include FCNs in the wording, for the purposes of our study.

Hypothesis 1 (H1). *Consumers' attitude towards participating in a food community network has a positive influence on their intention to participate.*

Attitude towards a behavior represents the degree to which an individual values a behavior as being positive or negative, good or bad. Some studies discussed the strong direct and positive influence of attitude towards behavioral intention towards food consumption, namely local, organic, or green products [22,37–39]. Kumar and Smith (2017), who studied consumer motivations to support and purchase local foods, using the TPB, also proposed three factors to impact attitude toward local food: health consciousness, concern for the environment, and concern for local economies [22].

Hypothesis 2 (H2). *Consumers' subjective norms have a positive influence on their intention to participate in food community networks.*

Subjective norms are perceived as a social pressure to engage or not to engage in certain behavior [40]. Subjective norms are determined by a set of normative beliefs which consist in the expectations of individuals' reference group formed by their immediate social network, such as family, friends, colleagues, or neighbors, and argued to be positively related to behavioral intention [17].

Hypothesis 3 (H3). *Consumers' perceived behavioral control has a positive influence on consumers' intention to participate in food community networks.*

A behavior is influenced by the presence of adequate resources and ability to control barriers to behaviors. The more resources and fewer obstacles individuals perceive, the greater their perceived behavioral control and the stronger their intention to perform behaviors [16]. Moreover, both the

social cognitive theory [41] and modified learning theory [42] suggest that even though a person thinks that a behavior will produce positively valued outcomes, they will be motivated to (try to) perform the behavior to the extent that they are confident in their ability to perform it successfully. Hence, for behaviors that are dependent on (the perception of) certain skills, competence, planning, cooperation of others, time, money, or the handling of other external or internal hindrances [17], action will thus be a product of both outcome and efficacy expectancies [41], which together make up perceived behavioral control.

Hypothesis 4 (H4). *Consumers' perceived behavioral control has a positive influence on consumers' participation in food community networks.*

Individuals with a high perceived behavioral control are more likely to adopt a behavior [17,43]. Hence, Ajzen (1991) proposes a direct positive relation between PBC and behavior. In fact, he argues that behavior depends jointly on intention and behavioral control, noting that to the extent that a person has the required opportunities and resources, and intends to perform the behavior, they should succeed in doing so.

Hypothesis 5 (H5). *Consumers' belief towards the existence of collaboration in the group has a positive influence on their attitude towards participation in food community networks.*

Community initiatives often operate as partnerships or coalitions, where participants work towards similar needs, goals, common purpose, or mission, and collaboration is key to this process [44]. Ideally, collaborations operate as a model of shared power, with all participants involved as equals in decision making and problem solving [45]. Moreover, ensuring citizen participation in local governance structures requires trust and belief in their co-participants [46]. Collaboration is also vital to the success of local food systems, and the importance of collaboration in food networks and local communities are stressed in the literature often [47–50]. Within local food systems, collaboration is used to improve important functions, such as marketing, transportation, brokering, storage, packaging, and distribution [51]. Considering the many ways in which collaboration is central to local food systems, the emergence of collaborative organizational structures, such as food hubs, local food networks, and communities of practice around food systems, comes as no surprise [51]. Despite some differences in how these concepts operate on the ground, the overarching similarity is that they all focus on developing partnerships and collaborations to advance a shared mission or purpose concerning local agriculture and food [51]. In the case of food community networks, citizen-consumers, collaborating with other citizen-consumers and citizen-producers, actively reshape their relations with different stages of the food system and start revaluing the social, cultural, and environmental meanings of food [11].

According to Musso and Weare (2015), collaboration increases trust and social capital and this in turn leads to building capacity for local problem-solving and collective action [52], while Karpouzoglou et al. (2016) add that face-to-face dialogue is at the heart of a process of building trust, mutual respect, shared understanding, and commitment [53]. Ansell and Gash (2007) and Emerson et al. (2012), on the other hand, who used collaboration and collaborative arrangements in the public administration domain, add that shared ownership of process, shared commitment, transparency in decision making, common understanding, common problem definition, and common values are key to collaboration, and that the presence of these aspects will lead to successful collaborative governance practices [54,55]. In this direction, collaboration in this study is conceptualized as the perception of consumers as to the extent of which they believe there are aspects of collaboration existent in their food community, and how this influences their attitude towards participating in FCNs, and the indicators of the construct are: (1) transparent decision-making procedures within the group; (2) having a say in the decision-making processes of the group; (3) sharing the same values with the participants of the group; and (4) feeling trust towards other participants of the group [54,55].

Previous studies used trust, which is a central indicator of collaboration, as a construct to extend the TPB in several different areas of research, including citizens' trust in affecting their willingness to use bus-based park-and-ride (P&R) facilities [56], trust in organic labels in affecting purchase of organic products [57], and academics' intention to share knowledge [58]. Tao and Fan (2017), using a modified decomposed theory of planned behavior (DTPB) [59] to consider the relationship between trust, commitment, and future intentions, argue that online trust influences the perception towards reliability of data from the internet and affects online purchase behavior intention [60]. Garbarino and Johnson (1999) on the other hand, who studied the relationship between trust and behavior intention, in the area of consumer confidence in the quality and reliability of services offered by the organization [61], have verified the relationship between trust and behavioral intention.

While the main elements of the TPB are generally accepted, it has been suggested at many occasions that the model would benefit by the inclusion of more constructs in terms of explanatory quality [62]. In this study, we use the formative variable "collaboration", an aspect that is central to local governance structures [63] and food community networks [64] to extend the TPB.

Hypothesis 6 (H6). *Consumers' intention to participate in food community networks has a positive influence on their actual participation in the group.*

Ajzen (1991) argues that intention is an indication of an individual's readiness to perform a given behavior, and intentions are an immediate antecedent of behavior [17]. Ajzen also notes that a behavior is a function of compatible intentions and perceptions of behavioral control in that perceived behavioral control is expected to moderate the effect of intention on behavior, such that a favorable intention produces the behavior only when perceived behavioral control is strong. In the case of participation in FCNs, consumers' intention to participate will be analyzed through their stated intention to participate.

In accordance with the hypotheses presented above, we propose the below extended theory of planned behavior, as shown in Figure 2, to identify aspects that are influencing consumers' behavior to participate in FCNs.

2.2. Research Measures

The proposed research framework in this study has six latent variables or constructs, all coming from and pre-defined by Ajzen's (1991) TPB, except for the latent variable of collaboration. The attributes are presented in Appendix A. Five variables are measured on a 7-point Likert scale: 1—strongly disagree, 2—disagree, 3—slightly disagree, 4—neither agree nor disagree, 5—slightly agree, 6—agree, 7—strongly agree. One variable, participation behavior, is measured on a 6-point frequency scale: 1—never, 2—once every two months or less frequently, 3—once a month, 4—two or three times a month, 5—once every week, 6—two times a week or more frequently.

In this study, we referred to both reflective and formative variables. With reflective (or effect) measurement models, causality flows from the latent construct to the indicator. However, not all latent constructs are entities that are measurable with positively correlated items; hence, in formative measurement models causality flows in the opposite direction, from the indicator to the construct [65]. Although the reflective view dominates the psychological and management sciences, the formative view is common in economics and sociology [66]. Accordingly, in this study, attitude towards participation in FCNs represents the extent to which the consumer values positively or negatively the performance of the behavior, and it is a latent reflective construct with four items [17]. Subjective norms are a formative construct consisting of three items adapted from Clement, Henning, and Osbaldiston (2014), measuring the extent to which people who are important to an individual approve and support participation in FCNs [67]. Perceived behavioral control consists of situational factors and resources like time, money, and knowledge that facilitate the conditions that determine individuals to participate in FCNs, and it is a formative construct with four items, of which two are adapted after Ajzen (1991) and two are developed for the context of this study. Collaboration is a formative construct with four items that are

adapted from Ansell and Gash (2007) and Emerson et al. (2012) for the purposes of this study [55,56]. The consumers' intention variable is measured as a formative construct with two items, which are adapted from Ajzen (1991).

2.3. Translation and Pretesting

The questionnaire utilized in this study was initially developed in English, based on previous literature, and then translated into Turkish. A back-translation technique was used to ensure the consistency between English and Turkish. Furthermore, pretesting was used to ensure the effectiveness and comprehensibility of the questionnaire. Two professors and two volunteers from each food community network detected in Turkey were invited to test the questionnaires, and minor revisions were made to improve the questionnaire.

2.4. Data Collection

The data of the study came from an online survey that was implemented in Turkey. Quantitative data analysis was performed to assess the significance level of the TPB factors and the relationship among them. We chose to conduct a quantitative study, followed by preliminary field research, consisting of interviews with producers, coordinators, and consumers (the results of which are not discussed in this paper). Performing the analysis in this order gave us the opportunity to previously determine the current situation in the case of Turkey, where scientific research or knowledge is almost non-existing regarding the topic in question, and then to collect quantitative data that accommodates higher generalizability. The attributes and indicators employed in the analysis and the details regarding construction of the survey questions are presented in Appendix A. Meanwhile, we were also able to collect qualitative data as part of our online survey, through two open-ended questions utilized, which provided us with some insights about the challenges related to the process and proposals for improvement, from the perspective of consumers.

In this study, the definition that has been used for "food communities" was all communities that are established, where consumers come together (either formally or informally) to select producers to directly purchase their food products from and who come together through meetings or purchase days on a regular basis. All of these groups, one way or another, although on different levels, are in very close contact with their producers and put into use some measures to either directly or indirectly support their producers. While some of them only purchase food with weekly orders, others also pay for their new investments on the farm or reimburse for their losses or provide yearly guarantee of purchase. The preliminary field research and desk-research conducted prior to the survey have revealed some well-known food community groups in Turkey. Following this first round, other groups were found and reached through snowball sampling and personal contacts made during the first round. As a result, a total of 33 groups were reached. According to the findings of our research and contacts with experts in this field, Turkey, being in its early stages of food community practices has still a very limited number of food community initiatives. Hence, apart from the ones that are very small, local, and known only by its very close environment, all well-known groups have been reached. These groups have been contacted through e-mails or messages sent through Facebook pages, asking them to share the survey with their participants. A cover letter was also shared, explaining the aim and the target audience of the survey, in addition to aspects of confidentiality and privacy of data. The target audience in this study was determined as all individuals that are one way or another part of food communities/groups and who purchase food products from producers of these groups, or who take part, take responsibility, or volunteer in these groups either actively or passively. Among the groups reached, 18 agreed to take part in the survey (2 in Ankara, 4 in İzmir, 8 in İstanbul, 1 in Adana, 1 in Balıkesir, 1 in Antalya, 1 in Bursa). Bearing in mind the distribution and the total number of food community networks in Turkey, this sample gives a good representation of the food community networks that are currently operational in Turkey. Thus, the survey has been shared with all members of the groups, those agreed to take part, through e-mail and WhatsApp groups, depending on which

social media mediums the group used. The data was collected during the period of January 2020, and a total of 214 people participated in the survey.

2.5. Data Analysis

In this study, we used partial least squares structural equation modelling (PLS-SEM) with SmartPLS v.3.2.9 software, to analyze our quantitative data. The inclusion of a relatively complex model that assesses the direct, and indirect relations, and the smaller sample size [66], with formative scales, PLS-SEM has been regarded as a more suitable approach. Finally, the use of PLS-SEM allowed us to employ formative scales. We evaluated the research model in two steps: the outer model (measurement model) and the inner model (structural model) [66]. We then applied the resampling procedures (i.e., bootstrapping) to 2000 resamples [66].

3. Results

3.1. Descriptive Statistics of the Sample

Table 1 below presents the descriptive statistics of our sample.

Table 1. Descriptive statistics.

Variables	Categories	Frequency	Percentage (%)
Gender	Female	155	72.40%
	Male	59	27.60%
Age	Less than 18	1	0.47%
	18–25	6	2.80%
	26–35	51	23.83%
	36–45	73	34.11%
	46–55	50	23.36%
	Above 55	33	15.42%
Education Level	Below High school	0	0.00%
	High school	11	5.10%
	Pre-University	6	2.80%
	University	93	43.50%
	Graduate Level	104	48.60%
Background (Rural/Urban)	Rural-rooted	32	15.20%
	Urban-rooted	179	84.80%
Employment	Employed	194	91.10%
	Not-employed	19	8.90%
Collar	Blue-collar	7	3.87%
	White-collar	174	96.13%

According to Table 1, 72.4 percent of participants consisted of women. This may suggest that women were more inclined to take part in the survey, or it may be the case that participants of food community networks are highly consisted of women in Turkey, as making the food selection, bringing food home, and feeding the household/family may be regarded more as a task of women. Furthermore, 48.6 percent of the participants had graduate degrees (master or Ph.D.), while in total, 92.1 percent of participants had a university degree or higher, indicating that the sample had reflected only a certain part of society. This is also in line with the arguments in the literature that food communities, and alternative food networks, to put it in a broader picture, reflect only a limited part of society that is highly educated, and have relatively higher access to financial resources [68]. The fact that 96.13 percent of the respondents in our sample work in the city in white-collar occupations, which generally have higher income then blue-collar workers, also support this argument. In addition, 84.8 percent were from an urban background. This is in line with the discussions that those consumers

who live in the city and who do not have direct access to rural areas or are directly involved in agricultural production are more connected to FCNs in order to access healthy and trusted products from local producers, and this is one of the few ways to do it (initial face-to-face contacts with food community members in İzmir, Turkey). Table 2 below shows the results of the ranking made according to the responses received from survey participants, to the questions asking their beliefs/motivations about participating in FCNs in Turkey. These beliefs were asked using a 7-point Likert scale in the survey, and then for each item, those responses of 6 (agree) and 7 (totally agree) were summed up, to form the scale of motivations for participation (responses of 6 and 7 were given a value of "1", while all the rest of the responses were valued as "0", and then all responses rated as 1 were summed for each item). According to the rating, the respondents were part of these networks mostly because, here, they could have access to healthy products for themselves, and because by participating in these networks, they could contribute to promoting local tastes and products. The second in line was consumers' belief that by participation in these networks, they could support local farmers. It was noted that issues related to contribution towards combatting climate change or waste reduction were among the least rated items.

Table 2. Motivations/beliefs about participation.

Beliefs about Participation	Percentage
Healthy for the participant	13.0%
Promoting local tastes and products	13.0%
Supporting local farmers	12.7%
Healthy for the family/close ones	11.9%
Better tasting products	11.7%
Community with like-minded people	10.2%
Fighting climate change	9.7%
Reducing waste	9.0%
Engage in debates about local food systems	8.9%

We also were able to collect responses by two open-ended questions that were part of our online survey, which could reveal the main barriers associated with being active consumers/co-producers in FCNs, and what the participants of good communities would change, if they could, about the networks they were part of. The open-ended questions received a high number of responses (117 and 98 responses collected, respectively), which provided us with useful insights. The results are detailed in Tables 3 and 4 below. Out of a total of 117 open-ended responses collected, 53 percent of the responses were related to personal constraints faced by consumers, out of which, the highest percentage came from constraints faced due to "having little or limited time/having limited time because of too much work" (62.3%). Time constraints were followed by accessibility problems (19.7%) and the need for serious planning for each meeting (16.4%). Personal challenges, on the other hand, were followed by constraints related to group dynamics (21.4%). This cluster included an insufficient number of people that were taking responsibility as volunteers in the group (36%) as its highest component, followed by difficulties associated with the lack of awareness of consumers that were part of the group (24%), especially those "who want to see these groups operate as supermarkets" and "those who do not understand the aspect of being a community". These aspects were then followed by difficulties related to communication and taking decisions in the group (16%), lack of communication with producers (16%), and finally "coordinators and old members not being so open to new or different members", which was also expressed as "grouping or bunching" in the group. The next group of constraints were related to products (17.9%), related to their high price (71.4%) or lack of variety (28.6%), and the final group of constraints revealed was regarding operational challenges of the group (7.7%).

Table 3. Barriers preventing more active participation.

Main Category	Sub Categories	Percentage
Personal challenges		**53.00%**
	Lack of time/lack of time due to too much work	62.3%
	Accessibility problems/need to travel far	19.7%
	The need for serious planning for each meeting	16.4%
	Not believing to be able to make a difference	1.6%
Group dynamics		**21.4%**
	Lack of people taking responsibility/volunteering	36.0%
	Lack of awareness of consumers	24.0%
	Lack of communication inside the group/not being able to arrive at decisions	16.0%
	Lack of communication with producers	16.0%
	Grouping/clustering of participants favoring some	8.0%
Products		**17.9%**
	High price of products	71.4%
	Lack of product variability/lack of products	28.6%
Operational challenges of the group		**7.7%**
	Lack of a decent place for purchase days/meetings	50.0%
	Organizational problems with purchase days	30.0%
	Other organizational/logistical problems	20.0%

Table 4. Proposals for improvement.

Aspects Proposed	Percentage (%)
More volunteers that are ready to take responsibility	21.4%
Improvements with operational matters and place/space of meetings/purchases	21.4%
More effective communication with producers/having a better grip on production processes	16.3%
More appropriate and just pricing	10.2%
Improving communication in the group	9.2%
More awareness about the food system and about the group	8.2%
To be able to reach a higher number of consumers	7.1%
Other	6.1%

Meanwhile, out of all participants who proposed an aspect that needs to be changed or improved (98 open-ended responses collected), the two aspects that had the highest percentage (21.4%) were, first, the necessity to have a larger number of volunteers who are willing to/ready to take responsibilities in the group, and second, improvements regarding operational matters and the place/space allocated for the group meetings. Then followed, with 16.3 percent, the necessity to pursue more effective communication processes with producers (details are provided in Table 4 below).

3.2. Evaluation of Measurement Model

The structural model in this study used the extended TPB model, whose constructs are illustrated in Figure 2. The goal of the model is to explain the role of collaboration (CD), attitude (ATT), subjective norm (SN), perceived behavioral control (PBC) on intention (INT) to participate in FCNs. Both the outer model and the inner model need to be evaluated. The outer model consists of the indicators (measures) and corresponding latent constructs. The inner model consists of the outcome variable and the path coefficients and the extracted R^2 or variance explained among other key parameters that need to be checked for acceptable and significant results.

3.2.1. Outer Model Results

Extant studies state that conventional factor and internal consistency analyses should not be employed to assess composite constructs with formative indicators [69,70]. Hair et al. (2014) recommend three steps for testing the fitness of formative measurement models—first, assessment of convergent validity, then collinearity, and finally, significance and relevance of indicators [71]. Accordingly, in our study, we evaluated the fitness of our formative constructs (CD, SN, PBC, and behavior (BEH)), by testing for indicator collinearity and statistical significance of relevance of the indicator weights [71]. We were not able to test for convergent validity because of certain limitations (see Section 4 for details). A formative measurement model is based on a multiple regression. Each indicator has a distinctive relation to the latent variable, and high multicollinearity makes the validity problematic [72]. Thus, reliability evaluation for formative constructs is to assess the assumption of no multicollinearity [69]. In this regard, variance inflation factor (VIF) is evaluated, as shown in Table 5. Our evaluations showed that VIF values were well below the threshold of 5. Accordingly, multicollinearity was not a worry [66]. In addition, all the VIF values were smaller than 3.3, showing that there are no concerns regarding common method bias [73].

Table 5. Variance inflation factor (VIF) values.

Attributes	VIF
BEH2	1.449
BEH3	1.629
BEH7	1.180
CD2	2.173
CD3	3.078
CD4	2.661
PBC1	1.057
PBC2	1.162
PBC4	1.160
SN1	1.811
SN2	1.811

On the other hand, we tested for the significance and relevance of indicators by evaluating outer weights and outer loadings of the items [69,74], as shown in Tables 6 and 7. According to Sarstedt et al. (2017), if the outer weight is statistically significant the indicator is retained. If the weight is not significant, but the indicator's outer loading is 0.50 or higher, the indicator is still retained if the theory supports its inclusion; yet, if the weight is not significant and the loading is also low (<0.50), then the indicator should be removed from the model [75]. As a result of this, BEH4, BEH5, BEH6, CD1, PBC3, and SN3 have been removed from the model, having both insignificant outer weights and low outer loadings (< 0.50). BEH2, BEH7, CD2, and PBC1, on the other hand, having insignificant outer weights but high (> 50) and significant outer loadings (0.555, 0.574, 0.773, and 0.561, respectively) were kept in the model.

On the other hand, we assessed the reflective measurements through three common aspects of PLS analysis: convergent validity, internal consistency reliability, and discriminant validity, as shown in Table 8 and Table 10. As Hair et al. (2014) underlines, the reflective measurement models need to be assessed on their composite reliability, convergent validity, and discriminant validity, yet the criteria for reflective measurement models cannot be applied to formative measurement models [71]. Henseler et al. (2015) further add that heterotrait-monotrait (HTMT)-based criteria assumes reflectively measured constructs, and applying them to formatively measured constructs is problematic, because neither the monotrait-heteromethod nor the heterotrait-heteromethod correlations of formative indicators are indicative of discriminant validity [76]. For this reason, in Table 8 and Table 10 below, we only show the values for the two reflective items of our model (ATT and INT).

Table 6. Outer weight values.

|	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*P* Values
ATT1 <- ATT	0.264	0.265	0.016	16.419	0.000
ATT2 <- ATT	0.300	0.299	0.013	22.529	0.000
ATT3 <- ATT	0.257	0.258	0.016	15.948	0.000
ATT4 <- ATT	0.270	0.269	0.013	21.329	0.000
BEH2 -> BEH	0.169	0.134	0.263	0.642	0.521
BEH3 -> BEH	0.733	0.590	0.350	2.095	0.036
BEH4 -> BEH	−0.008	0.023	0.309	0.027	0.979
BEH5 -> BEH	0.065	0.041	0.278	0.232	0.816
BEH6 -> BEH	−0.571	−0.419	0.414	1.380	0.168
BEH7 -> BEH	0.528	0.407	0.309	1.710	0.087
CD1 -> CD	−0.046	−0.041	0.105	0.434	0.664
CD2 -> CD	0.133	0.130	0.139	0.956	0.339
CD3 -> CD	0.397	0.387	0.172	2.310	0.021
CD4 -> CD	0.575	0.573	0.142	4.053	0.000
INT1 <- INT	0.538	0.536	0.022	25.001	0.000
INT2 <- INT	0.502	0.505	0.020	24.984	0.000
PBC1 -> PBC	0.376	0.358	0.197	1.908	0.057
PBC2 -> PBC	0.572	0.544	0.169	3.391	0.001
PBC3 -> PBC	−0.064	−0.062	0.212	0.301	0.764
PBC4 -> PBC	0.488	0.460	0.195	2.498	0.013
SN1 -> SN	0.577	0.566	0.254	2.273	0.023
SN2 -> SN	0.469	0.439	0.259	1.815	0.070
SN3 -> SN	−0.114	−0.091	0.246	0.464	0.643

Table 7. Outer loading values.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*P* Values
ATT1 <- ATT	0.922	0.921	0.018	52.025	0.000
ATT2 <- ATT	0.942	0.941	0.011	86.392	0.000
ATT3 <- ATT	0.872	0.871	0.022	39.078	0.000
ATT4 <- ATT	0.927	0.926	0.015	63.725	0.000
BEH2 -> BEH	0.555	0.454	0.217	2.554	0.011
BEH3 -> BEH	0.845	0.694	0.221	3.828	0.000
BEH4 -> BEH	0.429	0.375	0.247	1.735	0.083
BEH5 -> BEH	0.250	0.206	0.209	1.199	0.231
BEH6 -> BEH	0.052	0.067	0.276	0.187	0.852
BEH7 -> BEH	0.574	0.467	0.204	2.815	0.005
CD1 -> CD	0.377	0.371	0.097	3.877	0.000
CD2 -> CD	0.773	0.764	0.061	12.638	0.000
CD3 -> CD	0.920	0.908	0.044	20.833	0.000
CD4 -> CD	0.955	0.944	0.031	30.907	0.000
INT1 <- INT	0.964	0.963	0.010	94.832	0.000
INT2 <- INT	0.958	0.958	0.012	78.623	0.000
PBC1 -> PBC	0.561	0.532	0.174	3.222	0.001
PBC2 -> PBC	0.794	0.748	0.108	7.328	0.000
PBC3 -> PBC	0.401	0.383	0.173	2.322	0.020
PBC4 -> PBC	0.738	0.694	0.137	5.389	0.000
SN1 -> SN	0.933	0.888	0.091	10.300	0.000
SN2 -> SN	0.880	0.836	0.109	8.086	0.000
SN3 -> SN	−0.424	−0.388	0.229	1.854	0.064

Table 8. Cronbach's alpha, composite reliability, and average variance extracted (AVE) values.

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
ATT	0.936	0.940	0.937	0.787
INT	0.917	0.919	0.918	0.848

To assess internal item reliability, we resorted to Nunnally's (1978) rule of thumb of 0.60 [77]. Items of all reflective variables had ratings above the 0.60 threshold and were statistically significant, as shown in Table 8 below. We further ensured internal consistency by calculating composite reliability (CR). All CR scores were above the 0.70 benchmark, as shown in Table 8. Regarding convergent validity, we calculated the average variance extracted (AVE) for all reflective measures. All AVEs of reflective measures were above the 0.50 threshold, as shown in Table 8. Furthermore, factor loadings were greater than 0.60, apart from PBC1, which was kept in the model as it was close to the threshold of 0.60 (0.562), as shown in Figure 3.
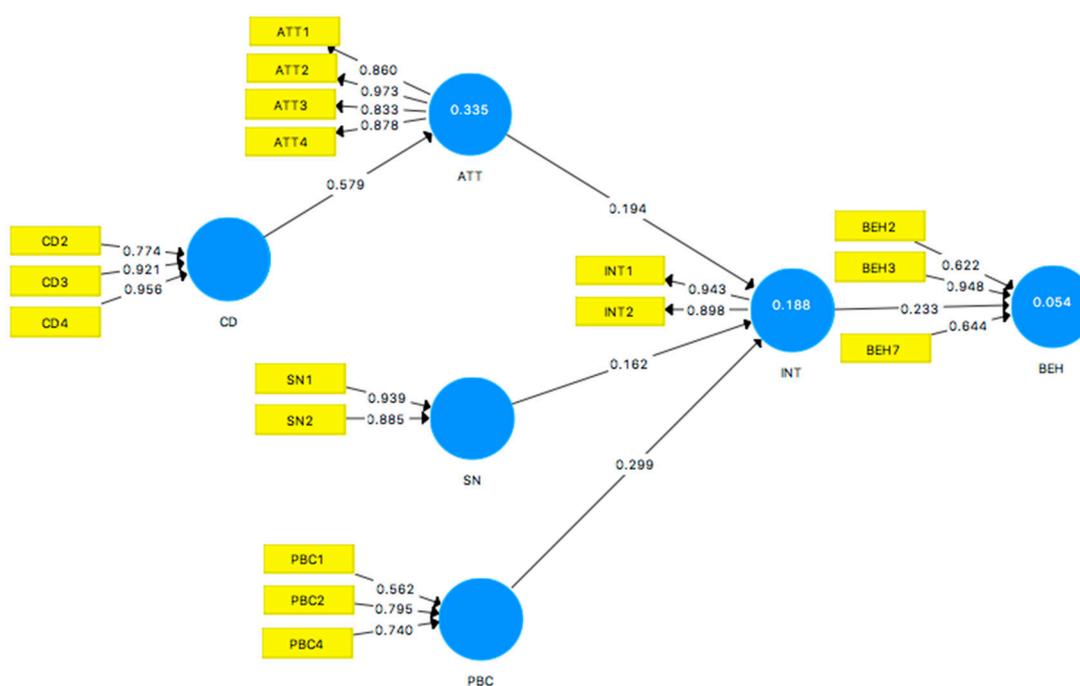
Figure 3. Partial least squares structural equation modelling (PLS-SEM) model with indicator loadings and structural coefficients.

Similarly, all indicator loadings were higher than their respective cross loadings, providing further evidence of discriminant validity, as shown in Table 9.

Finally, in line with the suggestion of Henseler et al. (2015), the heterotrait-monotrait (HTMT) ratios are all lower than 0.85, as shown in Table 10, which suggests that discriminant validity has been established between our two reflective constructs (ATT and INT), and that the upper confidence bounds (97.5%) are less than 1 [78].

Although, composite reliability, convergent validity, and discriminant validity tests are only applicable to reflective models [71,76], as described above, we present two additional tables in Appendix B, that are showing the discriminant validity and composite reliability values of all of our constructs (including the formative ones), to make sure of the fitness of our model. For the purposes of these analyses, we treated all of our variables as reflective variables (by converting them to reflective measures in SmartPLS) and re-conducted the tests. The findings presented in Table A2 (see Appendix B) suggest that the Cronbach's alpha results are over 0.60, which according to Nunnally's rule of thumb of 0.60 [77] is acceptable, while all composite reliability scores were above the 0.70

benchmark, and all AVEs values are above the 0.50 threshold [71]. Furthermore, the results presented in Table A3 (see Appendix B), show that the HTMT ratios are all lower than 0.85, suggesting that discriminant validity has been established [76].

Taken together, the results lend sufficient assurance that the reflective measurement model fits the data well.

Table 9. Cross loadings.

	ATT	**BEH**	**CD**	**INT**	**PBC**	**SN**
ATT1	**0.860**	−0.076	0.494	0.211	0.018	0.101
ATT2	**0.973**	−0.057	0.573	0.199	0.042	0.180
ATT3	**0.833**	−0.002	0.483	0.190	0.001	0.244
ATT4	**0.878**	−0.032	0.499	0.228	0.010	0.202
BEH2	0.042	**0.622**	0.028	0.145	0.282	0.134
BEH3	−0.021	**0.948**	0.035	0.221	0.335	0.165
BEH7	−0.117	**0.644**	0.014	0.150	0.430	0.100
CD2	0.448	0.040	**0.774**	0.413	0.134	0.155
CD3	0.533	0.041	**0.921**	0.390	0.072	0.234
CD4	0.553	0.024	**0.956**	0.374	0.028	0.111
INT1	0.246	0.206	0.392	**0.943**	0.314	0.242
INT2	0.182	0.223	0.373	**0.898**	0.304	0.242
PBC1	0.187	0.121	0.172	0.189	**0.562**	0.149
PBC2	−0.114	0.386	−0.034	0.267	**0.795**	0.139
PBC4	0.035	0.353	0.033	0.248	**0.740**	0.150
SN1	0.174	0.173	0.175	0.246	0.233	**0.939**
SN2	0.205	0.139	0.137	0.232	0.123	**0.885**

Table 10. Heterotrait-monotrait (HTMT) ratio.

	Original Sample (O)	**Sample Mean (M)**	**2.5%**	**97.5%**
INT -> ATT	0.233	0.235	0.071	0.408

3.2.2. Inner Model Results

Upon confirming the reliability and validity of the constructs, we proceed with the evaluation of the structural model shown in Figure 4 below. This figure displays the path coefficients together with their significance values and the corresponding R^2 of the constructs. It was found that all relationships in this structural model are significant, as shown in Table 11, hence, all constructs were kept in the model. Meanwhile, all hypotheses were accepted. On the other hand, the R^2 values of intention is in line with prior studies [78], while R^2 of attitude could be regarded as high, and the R^2 value for behavior is lower than prior studies [66].
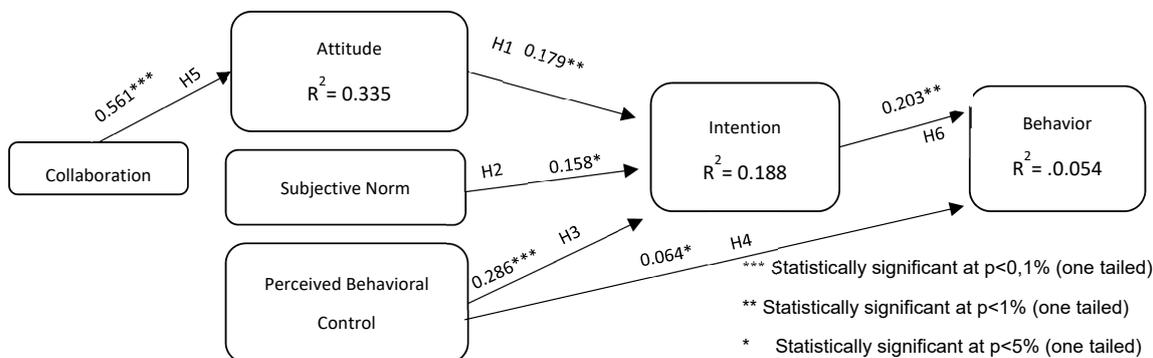

Figure 4. PLS-SEM model.

Table 11. Path coefficients and P values.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*P* Values
ATT -> INT	0.179	0.178	0.066	2.703	0.007
CD -> ATT	0.561	0.568	0.077	7.289	0.000
INT -> BEH	0.223	0.244	0.073	3.073	0.002
PBC -> INT	0.286	0.297	0.056	5.104	0.000
PBC -> BEH	0.064	0.074	0.030	2.139	0.033
SN -> INT	0.158	0.161	0.066	2.396	0.017

We have conducted this analysis in two parts to observe both direct and indirect relations to behavior. First, we observed the direct relations between our constructs attitude (ATT), subjective norm (SN), and perceived behavioral control (PBC) to behavior (BEH), before adding intention (INT) into the model as a mediator, to test the theory. Table 12 shows that we could identify significant direct relations between PBC and BEH, but not SN and ATT. However, the change in the magnitude and significance of direct relationships of ATT, SN, and PBC to behavior as well as their significant relationship to intention, indicate a mediating effect, as shown in Table 13. In addition, the results show full mediation for the relationship of ATT and SN to behavior, because of the non-significant direct effects and significant indirect effects. For the relation of PBC to behavior, we specify a complementary mediation effect since both the direct relation and indirect relation of PCB to behavior are positive and significant.

Table 12. Direct effects between attitude, subjective norm, perceived behavioral control, and behavior.

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*P* Values
ATT -> BEH	−0.071	−0.070	0.078	0.912	0.362
CD -> ATT	0.561	0.566	0.080	7.033	0.000
CD -> BEH	−0.040	−0.040	0.045	0.889	0.374
PBC -> BEH	0.494	0.504	0.056	8.845	0.000
SN -> BEH	0.075	0.089	0.069	1.094	0.274

Table 13. Total effects: direct and indirect relationships.

.	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	*P* Values
ATT -> BEH	0.040	0.044	0.022	1.817	0.069
ATT -> INT	0.179	0.178	0.066	2.703	0.007
CD -> ATT	0.561	0.568	0.077	7.289	0.000
CD -> BEH	0.022	0.026	0.015	1.548	0.122
CD -> INT	0.101	0.103	0.045	2.231	0.026
INT -> BEH	0.223	0.244	0.073	3.073	0.002
PBC -> BEH	0.064	0.074	0.030	2.139	0.033
PBC -> INT	0.286	0.297	0.056	5.104	0.000
SN -> BEH	0.035	0.040	0.022	1.591	0.112
SN -> INT	0.158	0.161	0.066	2.396	0.017

In this study, we have also attempted to use gender, rurality, and employment as control variables, however, all three of these have shown to have path coefficients that were insignificant; hence, they were not used in the model.

4. Discussion

Our findings suggested that consumers' intention to participate in FCNs could be predicted by attitude (ATT), subjective norm (SN), and perceived behavioral control (PBC) in addition to

collaboration (CD). ATT, SN, and PBC were found to have all significant positive effects on participation intention, which was supported by the TPB, and some other similar studies that aimed to explain the participation in urban agriculture initiatives [34,35], and organic food consumption behavior [57]. Hence, our overall results confirmed that the TPB model and its measures, with also the addition of collaboration, were suitable for the studied group. Our findings suggested that PBC had the strongest and most significant influence on intention. In our study, PBC refers to the individual's perception of their ability to participate in FCNs. In line with Ajzen's work (1991), PBC has been assessed in two components: self-efficacy and controllability. In our study, the influence of self-efficacy, which was measured by the perception of ease to participate in FCNs, was lower than measures of controllability. Meanwhile, the items measuring constraints related to time and financial resources and the obligation to purchase food products from industrial food chains were utilized to explain individuals' ability to participate in these networks. Meanwhile, the item measuring the influence of having access to financial resources has been removed from the model, being insufficient to match the quality criteria, and the influence of having access to time had the strongest influence on the perception of the ability to participate in FCNs. This finding was also supported by the responses collected with the open-ended questions as part of the survey, as shown in Table 3, where lack of time was argued to be the biggest constraint standing in the way of more active participation. Subsequently, individuals who faced constraints (such as lack of time, or inability to easily buy food products from food communities, as opposed to industrial chains), were losing their motivation or strong positive attitudes regarding participation.

Moreover, the results showed that ATT and SN influence behavior of consumers to participate in FCNs, only through the mediation effect of intention, as supported by the TPB. We also observed, in the case of PBC, that indirect and direct PBC measures were significantly correlated, which fits the premise of the TPB and the role of indirect measures. Furthermore, the direct influence of PBC to BEH was much stronger than its indirect effect through the mediation effect of INT. This strong direct link may suggest that strong PBC leads to people being more persistent to try to implement a behavior, meaning that members of FCNs who perceive to have more control over participation in FCNs try harder to do so.

Collaboration on the other hand had a strong positive relationship with attitude. Several authors have suggested to add new constructs to the TPB in order to improve the explanation of intentions and behavior [79]. In our study, collaboration, which was the antecedent of attitude, could explain 0.335 of the construct (which had the strongest explanatory power in our model). Furthermore, the addition of collaboration was able to increase, although slightly, the explanatory power of our model (R^2 of intention increased to 0.188, from the value of 0.171, and R^2 of behavior increased to 0.054 from 0.05). In this regard, our findings show that collaborative mechanisms within the group needs to be taken seriously and implemented meticulously, in order to increase the level of participation. While this study did not find significant differences in measures by any demographic feature, future research may focus on this issue in an attempt to find differences among age, gender, education, and more important among background of participants (urban versus rural) or work status (employed, unemployed, or retired) in affecting their intentions to participate in FCNs.

In addition, some deeper insights that were also collected through open-ended questions also revealed some of the governance challenges that may stand in the way of achieving the above mentioned collaborative outcomes. Our findings revealed that one of the most repeated governance challenges was lack of volunteers that are ready to take responsibility in the groups, and the fact that responsibilities and tasks piling up on a limited amount of people, is creating fatigue and operational problems. Another important point was the lack of communication among consumers, as well as between consumers and producers, which is creating many problems within the groups. Hence, while these challenges need to be addressed carefully within each food community, it should also not be forgotten that addressing these challenges may also help strengthen the collaboration mechanisms within the group, hence resulting in stronger participation by consumers.

Our study is subject to a number of limitations. Firstly, the study considers "participation in FCNs" as a behavior, and "intention to participate in FCNs" as the behavioral intention. Thus, in this regard, a definition was provided for the participants of the survey, to explain what is meant by "participation". In Turkey, food community networks use the term "co-producers" to address the consumers/participants of these communities, referring to those who are willing to work with other consumers and producers and to take a greater responsibility in local food systems, in order to became active consumers, rather than passive end-users. Hence, the contacts with community coordinators and pretesting of the survey have revealed that what is meant by "participation in FCNs" was generally clear for these groups. Yet, it is still believed that a more concrete and specific conceptualization of the behavior could have been understood even better by participants. Understanding the reasons and motivations behind participation in FCNs is a broad area and for future research, it may be plausible to work on more specific behavior "within the participation concept" to be able to capture the details of this phenomenon (such as "buying healthy products from FCNs", "supporting farmers in FCNs", or simply "going to weekly meetings of FCNs", and so on). In addition, one of the most important limitations in the present study regards the relationship between intentions to participate and actual participation (behavior). Intentions have been found to predict behavior quite well across many studies [40]. However, while we found a positive and a significant relationship between these variables, as expected, the R^2 at 0.041 had been quite low, to have explanatory power of intention to actual participation. This low value could have been caused by another limitation of the study, which is related to the collection of the data for behavior (behavior of participation in FCNs) at the same time as behavioral intentions, despite intention being a precedent of behavior. Due to a low response rate predicted in the case of a second round of data collection from the same participants, a decision was made to measure behavior, in the form of stated regular behavior of participants, rather than actual past behavior measured at a later point in time. This decision, however, was also consistent with numerous studies, including those focusing on similar topics, such as organic food or green product consumption and purchasing behavior as well as recycling intentions [18,20,27,80].

Another limitation was the inability to test our formative variables in our model by conducting a convergent validity test. Convergent validity is the extent to which a measure in the model correlates with other measures (or items) in the same constructs. In this regard, Hair et al. (2014) propose that when evaluating formative constructs, we have to test whether the formatively measured construct is highly correlated with a reflective measure of the same construct [71]. In order to be able to execute this approach, it is necessary to utilize a reflective latent variable in our data collection phase and to collect data also for this additional construct. One of the limitations of our research was that due to several constraints, we were not able to include in our online survey the necessary reflective constructs, which would give us a chance to test the convergent validity of our four formative constructs (namely CN, SN, PBC, and BEH). Yet, we were still able to employ the assessment of collinearity and significance and relevance of indicators. It is also worthwhile to note that we had to remove numerous items from our initial model (namely BEH4, BEH5, BEH6, CD1, PBC3, SN3) as they did not fulfil the outer weight and outer loading requirements, while at the same time, the Cronbach's alpha value of PBC was considered low (0.61), as it was just above the acceptance limit of 0.60 (see Appendix B).

In addition, another important limitation of our study was due to its small sample size and consequently, its low representativeness. Larger samples of consumers of FCNs in Turkey would have made our data and findings stronger. Furthermore, comparisons with other countries, which have a longer history and tradition of food communities, could make the research fruitful. In addition, better familiarity with a behavior may also lead to the TPB working better, in terms of statistical robustness, which could explain the phenomenon of participation in FCNs better. Recommendations for future research and applications may include the testing of other variables, including a wider range of personal characteristics, that may impact participation behavior in FCNs, and that may increase the explanatory power of the model.

5. Conclusions

This study examined the extended framework of the TPB model, in which collaboration was added as an antecedent of attitude towards consumers' participation in FCNs. While collaboration is regarded to be one of the most crucial aspects of local food networks in general, and FCNs in particular, our study was able to address the effect of collaboration in consumers' attitudes towards active participation. With collaboration exerting a strong influence on the attitude towards participation, the coordinators and participants of FCNs should be aware of the importance of a collaborative governance mechanism in place within the groups and how consumers' perception is influenced depending on the extent of which they believe collaboration is existent with the group. While addressing this issue, the main challenges raised by consumers as part of our research also may inform governance mechanisms within groups, namely, regarding constraints with time and organization, difficulties concerning lack of volunteers taking responsibility, and problems associated with communication within consumers and between consumers and producers. Furthermore, although several studies used the TPB to explain the participation behavior in local initiatives (e.g., urban agriculture programs, local community forest management, air pollution control schemes), to our knowledge, our study is the first to explore participation behavior in the context of food community networks.

Given that food communities in Turkey, which have a rather short history, are flourishing in the last 5 to 6 years, and they are claiming to still find appropriate ways and solutions to how to make these networks work and function (preliminary field research), the research appears to be conducted in an appropriate time. More specifically, our research contributes to knowledge in three areas. First, consumers' intentions towards participation in FCNs is still an untapped issue, while the relation of collaboration to attitude has not been studied yet with regards to the theory of planned behavior, and finally, FCNs in Turkey are still a black box, and any additional findings in this context can be of great use for understanding local food systems and for local policy making that could support agricultural areas and small scale local farmers.

Appendix A

Table A1. Attributes and survey questions.

Attributes	Indicators/Survey Questions
Attitudes	(7-point Likert scale: 1—Strongly disagree to 7—Strongly agree; NA)
ATT1	Being part of and being a consumer/co-producer in a food community network/food collective is gratifying to me
ATT2	Being part of and being a consumer/co-producer in a food community network/food collective is satisfying to me
ATT3	Being part of and being a consumer/co-producer in a food community network/food collective is important to me
ATT4	Being part of and being a consumer/co-producer in a food community network/food collective makes me proud
Subjective Norm	(7-point Likert scale: 1—Strongly disagree to 7—Strongly agree)
SN1	People important to me think it is important to be part of and consume/co-producing in a food community network/food collective
SN2	People who influence my behavior think it is important to be part of a food community network/food collective

Table A1. *Cont.*

Attributes	Indicators/Survey Questions
SN3	The people in my life (e.g., school, university, company, etc.) consider as useless being part of and consume/co-producing in a food community network/food collective
Perceived Behavioral Control	(7-point Likert scale: 1—Strongly disagree to 7—Strongly agree; NA)
PBC1	For me, being part of/co-producing in a food community network/food collective on a regular basis is not easy
PBC2	Although I would like to participate more actively in a food collective more often, I do not have enough time to do so
PBC3	Although I would like to participate more actively in a food collective more often, I do not have the financial resources to do so
PBC4	Even though I do not prefer it, I have to buy industrial food products at times
Collaboration	(7-point Likert scale: 1—Strongly disagree to 7—Strongly agree)
CD1	I have a say in the decision-making process of the food collective that I am part of, a consumer/co-producer in.
CD2	The inclusion criteria, operational mechanisms, and decision-making processes of the food collective that I am part of is shared transparently with its participants
CD3	We share the same values with the other participants of the group (i.e., coordinators, consumers, and producers)
CD4	I trust the other participants of the group (i.e., coordinators, consumers, and producers)
Intentions - INT	(7-point Likert scale: 1—Highly unlikely, to 7—Totally likely; NA)
INT1	I want to take part as a consumer/co-producer on a regular basis, in the food collective/group that I am part of in the next three-month period
INT2	I intend to take part as a consumer/co-producer on a regular basis, in the food collective/group that I am part of in the next three-month period
Behavior - BEH	(6-point scale to access frequency of activity: 1—Never, 2—Once every two months or less frequently, 3—Once a month, 4—Two–three times a month, 5—Once every week, 6—Two times a week or more frequently)
BEH2	I share information about the food collective that I am part of and about co-production to people outside of the initiative
BEH3	I regularly communicate and exchange information with the producers and consumers of the food collective I am part of
BEH4	I visit and buy products regularly from the producers of the food collective I am part of
BEH5	I contribute in terms of resources (e.g., donations, contributions, guarantee of purchase, contributing to investments, equipment donation/sharing) to producers of the food collective I am part of
BEH6	I contribute to the production processes of the food collective I am part of (e.g., planting, maintenance, harvest)
BEH7	I take responsibility/volunteer in coordinating of activities (e.g., purchase days, setting up market, communication with producers or consumers, audit processes, financial matters) in the food collective I am part of
Motivations to Participate	(7-point Likert scale: 1—Strongly disagree to 7—Strongly agree; NA)
BB1	I believe that being part of and being a consumer/co-producer in this group is healthy for me
BB2	I believe that being part of and being a consumer/co-producer in this group is healthy for my family and/or ones that are close to me
BB3	I believe that by being part of and being a consumer/co-producer in this group I can have access to better tasting products
BB4	I believe that by being part of and being a consumer/co-producer in this group I can help promote local tastes and products
BB5	I believe that by being part of and being a consumer/co-producer in this group I can help fight the negative effects of climate change
BB6	I believe that by being part of and being a consumer/co-producer in this group I can help reduce waste
BB7	I believe that by being part of and being a consumer/co-producer in this group I can support local farmers

Table A1. *Cont.*

Attributes	Indicators/Survey Questions
BB8	I believe that by being part of and being a consumer/co-producer in this group I feel like I belong to a community with like-minded people
Demographics	
Gender	Your gender: Female/Male/Not applicable (NA)
Age	Your age (open-ended)
Education	What is the highest level of school you have completed? -Middle school or lower degree -High school graduate -University graduate -Post-graduate level
Occupation	What is your occupation? (open-ended)
Rural/Urban	Do you come from a farming background or farming family? -No -No, but I got involved in agricultural production later in life -Yes, I grew up in a farming family, but I am no longer involved in agricultural production -Yes, I am currently involved in agricultural production

Appendix B

Table A2. Cronbach's alpha, composite reliability, and average variance extracted (AVE) values (treating all of our variables as reflective variables).

	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
ATT	0.936	0.954	0.839
BEH	0.715	0.871	0.772
CD	0.884	0.928	0.811
INT	0.917	0.960	0.923
PBC	0.611	0.786	0.554
SN	0.802	0.910	0.835

Table A3. Heterotrait-monotrait ratios (HTMT) (treating all of our variables as reflective variables).

	Original Sample (O)	Sample Mean (M)	2.5%	97.5%
BEH -> ATT	0.051	0.109	0.041	0.241
CD -> ATT	0.603	0.613	0.420	0.766
CD -> BEH	0.052	0.106	0.032	0.246
INT -> ATT	0.233	0.238	0.055	0.405
INT -> BEH	0.245	0.250	0.075	0.440
INT -> CD	0.463	0.460	0.296	0.599
PBC -> ATT	0.096	0.145	0.065	0.261
PBC -> BEH	0.456	0.465	0.287	0.643
PBC -> CD	0.117	0.154	0.076	0.262
PBC -> INT	0.369	0.372	0.220	0.511
SN -> ATT	0.233	0.245	0.105	0.391
SN -> BEH	0.220	0.226	0.061	0.392
SN -> CD	0.219	0.230	0.080	0.402
SN -> INT	0.293	0.302	0.156	0.453
SN -> PBC	0.185	0.223	0.102	0.361

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