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SPECIALTY SECTION

This article was submitted to
Social Movements, Institutions and
Governance,
a section of the journal
Frontiers in Sustainable Food Systems

RECEIVED 05 December 2022

ACCEPTED 03 March 2023

PUBLISHED 23 March 2023

CITATION

Del Prete M and Samoggia A (2023) Does
fairness matter? Consumers' perception of
fairness in the agro-food chain.
Front. Sustain. Food Syst. 7:1116319.
doi: 10.3389/fsufs.2023.1116319

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Does fairness matter? Consumers' perception of fairness in the agro-food chain

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Introduction: Defining 'fairness' in the agro-food sector is a challenging task. There is no single definition of fairness and the literature does not provide a complete conceptualization from the consumer's point of view. The current research seeks to explore the consumers' interest in fairness and ethics in the agro-food chain by exploring (i) a comprehensive theoretical framework to conceptualize fairness from a consumer perspective, and (ii) the consumers' perceived importance of different food attributes as fairness-related aspects.

Method: Literature review and focus groups allowed for the creation of the final survey to be submitted to consumers. 529 valid responses from a predominantly Italian female sample were collected. Data were elaborated with Exploratory Factor Analysis and ANOVA test.

Results: The research identified five dimensions of fairness: Fair price, environment, networking, short chain, and working condition. Also, it emerged that age influences consumers' perceived importance of products with fair attributes.

Discussion: This research contributes to the development of a fairer and more sustainable food system by identifying perceptions of agro-food chain fairness and establishing a link with food shopping intentions. The research provides companies with suggestions on how to expand sales by reaching a greater number of consumers.

KEYWORDS

fairness, ethic, agro-food chain, consumer, perception, purchasing behaviour

1. Introduction

Defining "fairness" in the agro-food sector is a challenging task. The concept of fairness in agro-food chains has been refined over time. In recent years, researchers addressed fairness, ethics or justice, often used as synonyms, mainly from the farmers' point of view. Since the early 2000s, falling prices have seen farmers complain of low profits and unfair working conditions (Busch and Spiller, 2016). From dairy farmers to workers in tomato fields, protests have involved workers all over Europe, making fairness and justice issues of primary importance for the European Union (EU) (Nadotti, 2019; ANSA, 2021). In June 2018, the European Commission presented legislative proposals for the new Common Agricultural Policy focusing on rural community development and environmentally sustainable farming (European Commission, 2021) with the aim of protecting workers and supporting their work. One year later, the EU issued a directive (2019/633) on Unfair Trade Practices (UTPs) that aims to protect farmers and their organisations (e.g. cooperatives) (European Commission, 2021; Gudbrandsdottir et al., 2021).

Past literature has often focused on fair price for producers (Bolton et al., 2003; Xia et al., 2004; Gielissen and Graafland, 2009; Briggeman and Lusk, 2011; Andrés-Martínez et al., 2013; Singh et al., 2022) and on fair price distribution along the chain (Samoggia et al., 2021).

However, as mentioned above, the economic dimension of fairness captures only part of a wider phenomenon. Several international organisations have identified various dimensions to describe the concept of fairness. Fairtrade certification includes a range of economic, environmental and social criteria that must be met by producers and traders [Fairtrade, (n.d.)]. The Food Ethics Council also sets its standards on the concepts of “fair shares”, or equality of outcome; “fair play”, or equality of opportunity; and “fair say”, or autonomy and voice (Food Ethics Council, 2020). Food and Agriculture Organisation (FAO) identified sustainability and transparency as fundamental principles for a fair food system (FAO, 2021). Moreover, there is a considerable amount of academic literature demonstrating that fairness in agro-food chain extends beyond the concept of sustainability, integrating aspects of honesty, level of information shared, integrity as well as management, organisation, and respect (Shaw et al., 2005; Chang and Lusk, 2009; Gielissen and Graafland, 2009; Nguyen and Klaus, 2013; Konuk, 2017; McGarraghy et al., 2022).

However, academic literature has had only limited focus on the consumer perspective on fairness especially along the entire food chain (Maas et al., 2022). So far, literature has focused on the fair price that consumers are willing to pay for food products, or the fair price distribution along the chain with a focus on farmers. Though there is broad agreement on the need to transition to a more fair food system (Allen and Gillon, 2022), consumer potential in shaping a fair food system has often been overlooked. Given the potential of consumers in shaping the supply chain, it is crucial to understand which aspects define fairness to better meet their needs.

Thus, the current research aims to fulfil the gap by exploring consumers' perception and interest in fairness in the agro-food chain. The study aims at defining: (i) a comprehensive theoretical framework to conceptualise fairness from a consumer perspective, and (ii) the consumers' perceived importance of food attributes taking into account various aspects, including fairness, product characteristics and consumer habits. Ultimately, the outcome of this research might be utilised to increase the earnings of fair products market.

1.1. Review of literature

The following figure integrates the fairness framework presented by Busch and Spiller (2016) with the concept of Environmental fairness, included by the Food Ethics Council (2020) in the Food Justice report (Figure 1). It provides an overview of the concept of fairness and its dimensions from a general perspective. It incorporates the concepts of distributive fairness, interpreted as the fairness of price received (Adams, 1965; Bolton et al., 2003; Haitao Cui et al., 2007; Gielissen and Graafland, 2009; Zitzmann and Dobhan, 2010; Briggeman and Lusk, 2011; Lu et al., 2021), procedural fairness, the perceived fairness of the procedures used to determine price distributions (Thibaut and Walker, 1978), interactional fairness, the quality of employees' interpersonal treatment (Bies and Moag, 1986; Colquitt et al., 2001), and environmental fairness, respect for the environment (Food Ethics Council, 2020). Past research conceptualised interactional fairness as the third dimension of fairness (Colquitt et al., 2001)

or as the social part of procedural fairness (Folger and Konovsky, 1989).

1.2. Distributive fairness

The concept of distributive fairness was introduced by Adams in 1965 who stated that if the relationship between the single actor's inputs and outputs is balanced then the outcome is perceived as fair (Konovsky, 2000). The concept of outcome is often defined as the “price” that each actor in the chain receives for their products. In general, a price is fair when all parties are satisfied. This is why the concept of distributive fairness is often associated with the concept of fair price distribution (Haitao Cui et al., 2007; Lu et al., 2021).

Even in the case of distributive justice, there are different perspectives. From a producer's perspective, fairness concerns the price they get for their products (Hellberg-Bahr et al., 2012). From a consumer perspective, the distribution is fair when producers get the highest share and the rest is distributed equally to other stakeholders (Busch and Spiller, 2016). Consumers believe that they are treated fairly when the product they buy gives them good value for money (Nguyen and Klaus, 2013). Price increases are also seen as fair if small or poor stakeholders get a benefit rather than large and powerful ones (Gielissen and Graafland, 2009).

1.3. Procedural fairness

The concept of procedural fairness is commonly linked to agreements, negotiation processes and bargaining power. It was introduced by Thibaut and Walker (1978) and it deals with the procedures used to achieve outcomes rather than the actual outcome achieved. In fact, procedural fairness can be defined as equity related to the procedures used to achieve outcomes (Konovsky, 2000; Korsgaard, 2002). Outcomes will be perceived as fairer if the process that generated them is considered fair by those who participated in the decision making-process (Folger, 1977). A fair procedure must be consistent, impartial, open to all, transparent and credible (Lewicki and Bunker, 1995; Bolton et al., 2005). A procedure is considered unfair when the bargaining process does not take place or when it is perceived as unfair (Thal, 1988; Druckman and Wagner, 2017).

The literature does not clarify who is responsible for ensuring certain standards at economic and social level. It is not clear whether it should be the retailers or processors who guarantee a fair price to farmers for their products (Gielissen and Graafland, 2009; Busch and Spiller, 2016) or the consumers themselves by paying a higher price (Gielissen and Graafland, 2009). Policy makers also have a great responsibility in ensuring a fair food chain by creating policies that ensure farmers a decent livelihood and promoting information campaigns for more careful and conscious choices (Busch and Spiller, 2016).

1.4. Interactional fairness

Whether it is the third dimension of fairness or an aspect of procedural fairness, interactional fairness is about the

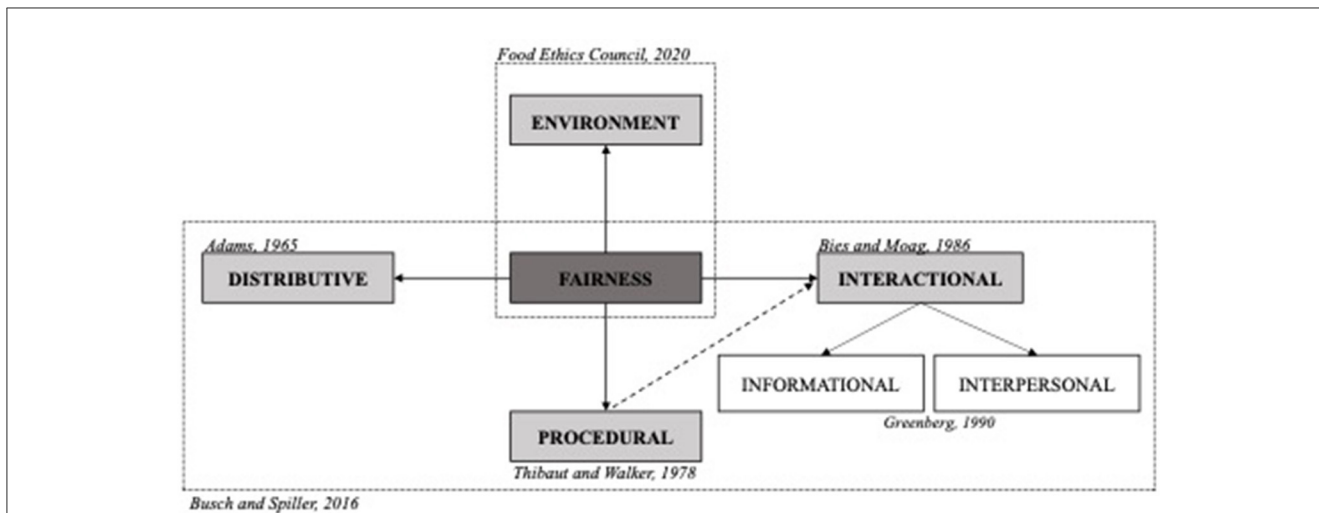


FIGURE 1 Fairness in agro-food chain.

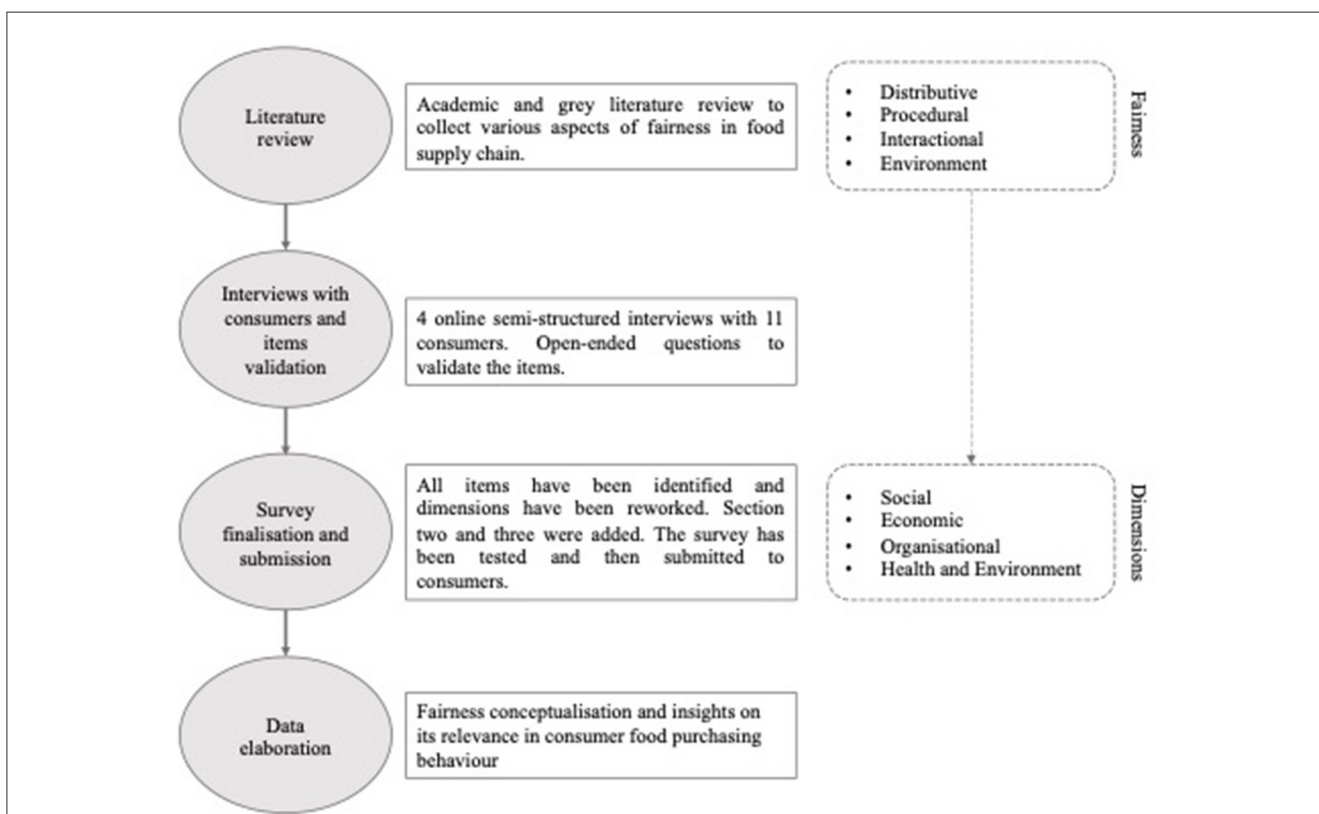


FIGURE 2 Methodological framework of the research.

intention behind every action (Rabin, 1993). Introduced by Bies and Moag (1986), the concept of interactional fairness was subsequently subdivided into interpersonal fairness and informational fairness (Greenberg, 1990). The former refers to the honest and respectful behaviour of chain trading partners. The latter refers to the quantity and quality of information shared (Busch and Spiller, 2016).

In the agro-food sector, integrity is mainly about how producers are treated. Everyone must be guaranteed a job that allows to have a good standard of living, both economically and in terms of safety, and that guarantees equal opportunities such as adequate education. No exploitation, intimidation or abuse should be accepted (Fairtrade, (n.d.); Food Ethics Council, 2020). Gender policies should be developed and support programmes for

TABLE 1 Sources of questionnaire items.

Items	References
Social dimension	
Guarantee no discrimination	Fairtrade, (n.d.); Food Ethics Council, 2020
Avoid agro-mafia	Fairtrade, (n.d.)
Avoid child labour	Fairtrade, (n.d.); Cho et al., 2019; FAO, 2022
Guarantee training opportunities to workers	Fairtrade, (n.d.); Food Ethics Council, 2020
Include small scale producers	Chang and Lusk, 2009
Provide local products	Czczotko et al., 2021; Hoang, 2021; Lord et al., 2021; Winterstein and Habisch, 2021
Include disadvantage people (immigrants, disabled, etc.)	Fairtrade, (n.d.); Food Ethics Council, 2020
Promote traditional products	From Focus Group
Ensure activities that do not require excessive physical exertion and respecting normal life times	Food Ethics Council, 2020
Economic dimension	
Charge the same price for organic and conventional product	From Focus Group
Guarantee producers a remuneration that covers production costs	Fairtrade, (n.d.); Gielissen and Graafland, 2009; Food Ethics Council, 2020
Ensure good value for money	Nguyen and Klaus, 2013
Invest in supply chain innovation projects	Fairtrade, (n.d.)
Invest in projects in the community's interest	Fairtrade, (n.d.)
Guarantee producers stronger relationships with buyers	Fairtrade, (n.d.)
Make consumers pay a higher price in order to ensure fair pay for the actors in the chain	Gielissen and Graafland, 2009; Busch and Spiller, 2016; Jeong et al., 2021
Make food retailers ensure farmers receive a fair price for their agricultural products	Gielissen and Graafland, 2009; Busch and Spiller, 2016
Make food processors ensure farmers receive a fair price for their agricultural products	Gielissen and Graafland, 2009; Busch and Spiller, 2016
Make policies promote an information campaign for farmers to receive a fair price	Gielissen and Graafland, 2009; Busch and Spiller, 2016
Make policies ensure farmers receive a fair price for their agricultural products	Busch and Spiller, 2016
Have a low price for consumers	Nguyen and Klaus, 2013
Organisational dimension	
Indicate the origin of the ingredients	Aprile et al., 2012; Food Ethics Council, 2020
Highlight the expiration date of the products	Food Ethics Council, 2020
Indicate the cultivation and breeding methods	Food Ethics Council, 2020
Use labels, standards and certifications	Aprile et al., 2012; Nguyen and Klaus, 2013; Zepeda et al., 2013; Brenton, 2018; Verma et al., 2022

(Continued)

TABLE 1 (Continued)

Items	References
Sell tasty products	From Focus Group
Indicate price distribution information on labels	Food Ethics Council, 2020
Have a discount for consumers	Nguyen and Klaus, 2013
Ensure no waste	Fairtrade, (n.d.); FAO, 2021
Promote "pick-your-own" option	Sacchi, 2018; Hoang, 2021
Promote on farm selling	Sacchi, 2018; Hoang, 2021
Promote farmers market	Sacchi, 2018; Hoang, 2021
Strengthen the direct relationship with producers	Sacchi, 2018; Hoang, 2021
Health and Environment dimension	
Guarantee a natural product, with no modification of colour, shape or appearance for commercial purposes	Fairtrade, (n.d.); Rozin et al., 2004; Korzen et al., 2011; Food Ethics Council, 2020; Czczotko et al., 2021; FAO, 2021
Promote easier access to nutritious food avoiding junk food	Food Ethics Council, 2020; FAO, 2021
Guarantee healthy food (hormones free, antibiotics free, etc)	Fairtrade, (n.d.); Rozin et al., 2004; Shaw et al., 2005; Korzen et al., 2011; Konuk, 2017; Food Ethics Council, 2020; Czczotko et al., 2021; FAO, 2021
Guarantee animal welfare	Grumett, 2019; Nawroth et al., 2019; Swaffield et al., 2019; Food Ethics Council, 2020; Höglund, 2020; Beck and Ladwig, 2021; FAO, 2021; Reis et al., 2021
Be vegan	Alvaro, 2017; Beck and Ladwig, 2021
Be organic	Shaw et al., 2005; Chang and Lusk, 2009; Aprile et al., 2012; Bartels and Onwezen, 2014; Konuk, 2017; Czczotko et al., 2021; Winterstein and Habisch, 2021
Include Fair Trade products	Nguyen and Klaus, 2013
Guarantee soil protection	Fairtrade, (n.d.); de Olde and Valentinov, 2019; Peano et al., 2019; Zimmerer et al., 2019; Czczotko et al., 2021; FAO, 2021
Guarantee sustainable packaging	FAO, 2021

disadvantaged people should be guaranteed (Fairtrade, (n.d.); FAO, 2021). Any kind of discrimination, be it gender, marital status or ethnicity, should be avoided (Fairtrade, (n.d.); Food Ethics Council, 2020). Furthermore, an ethical agro-food chain should prohibit forced and child labour (Fairtrade, (n.d.); FAO, 2021), support the community by encouraging the work of small-scale producers (Chang and Lusk, 2009), guarantee producers long-term "contract" [Fairtrade, (n.d.)], and finally, ensure facilities to allow producers to manage the Premium price (FAO, 2021).

TABLE 2 Sources of food attributes.

Food attributes	References
Habits	Pappalardo et al., 2020; Tao et al., 2022
Seasonality	Wang et al., 2023
Promotion/Offer	Grover and Srinivasan, 2018
Nutritional/health label	Lin and Lee, 2021
Taste	De Pelsmaeker et al., 2017b
Vegan/vegetarian	Derbyshire, 2017
Packaging	Arraztio-Cordoba et al., 2022
Local product	Ozretic-Dosen et al., 2007
Brand	Ozretic-Dosen et al., 2007; Lin et al., 2022
Fair price for farmers	Bissinger and Leufkens, 2017
Lack of time	Pappalardo et al., 2020; Tao et al., 2022
Environmental sustainability (e.g., organic)	Chen et al., 2022
Money for value	Nguyen and Klaus, 2013

1.5. Environmental fairness

Often included within the concept of sustainability, environmental protection is included as a fundamental part to describe fairness in food systems (Food Ethics Council, 2020; Zamzow and Basso, 2022).

Past literature does not present a uniform picture in describing consumer interest in environmentally sustainable products. According to Kit et al. (2018), the environmental-conscious food market expansion is due to consumers' growing interest in the environment. However, although the topic is much debated today, the demand for eco-friendly products is lower than would be expected (Kamalanon et al., 2022). A study by Moslehpour et al. (2021), shows that it takes a tangible element like sustainable packaging to get positive attitude towards environmentally sustainable products. Attitudes, environmental concerns, environmental knowledge, and subjective norms, are among the major positive drivers of green purchase behaviour (Young et al., 2020; Wijekoon and Sabri, 2021). Some organisations, such as FAO or Fairtrade, deeply addressed the environmental topics setting various key issues for agro-food system regarding the environment. A much-debated topic when it comes to environmental ethics is the use of genetically modified organism (GMO). Opinion on genetically GMOs is still controversial (Wilson, 2021). The greatest concerns relate to the potential danger to human health or the environment (Fairtrade, (n.d.); de Olde and Valentinov, 2019; Peano et al., 2019; Zimmerer et al., 2019; FAO, 2022), but also to how right it is to 'unnaturally' alter nature (Weale, 2010). The naturalness of food is in fact perceived as a positive aspect (Rozin et al., 2004; Korzen et al., 2011; Román et al., 2017). Carbon footprints, e.g., carbon emissions from energy used in the manufacture of fertiliser and for transport, should be reduced. Waste, whether of food, water or materials, should be minimised (Fairtrade, (n.d.); Bagherzadeh et al., 2014; de Olde and Valentinov, 2019; FAO, 2021). Responsible use of resources should be ensured, especially in reducing the water footprint, i.e., how much water is

TABLE 3 Socio demographic characteristic of the sample.

	Sample (%)
Gender	
Male	25.9
Female	73.3
Other*	0.8
Total	100
Nationality	
Italian	98
Other*	2
Total	100
Age	
18–24	25.9
25–34	41.0
35–44	12.9
Over 45	20.0
Other*	0.2
Total	100
Family members	
1	10.2
2	25.7
3	19.1
4	31.9
5	10.2
6	1.3
7	0.2
8	0.2
Other*	1.1
Total	100
Member working in agri-food sector	
Yes	18.1
No	81.5
Other*	0.4
Total	100

*It includes blank answers.

used in food production and processing (Fairtrade, (n.d.); Peano et al., 2019; FAO, 2021).

2. Methodology

2.1. Methodological framework of the research

The methodological framework of the research included four different steps (Figure 2): Step (1) literature review, Step (2) semi-structured online interviews with consumers and validation of the

TABLE 4 Results of Exploratory factor analysis.

Items	Factors				
	Environment	Networking	Short chain	Fair price	Working condition
Indicate the cultivation and breeding methods	0.539				
Guarantee a natural product, with no modification of colour, shape or appearance for commercial purposes	0.521				
Guarantee healthy food (antibiotics free, etc)	0.680				
Guarantee animal welfare	0.672				
Be organic	0.517				
Guarantee soil protection	0.748				
Guarantee sustainable packaging	0.696				
Provide local products		0.509			
Ensure good value for money		0.553			
Invest in supply chain innovation projects		0.671			
Guarantee producers' stronger relationships with buyers		0.576			
Promote "pick-your-own" option			0.556		
Promote on farm selling			0.794		
Promote farmers market			0.814		
Strengthen the direct relationship with producers			0.713		
Make consumers pay a higher price to ensure fair pay for the actors in the chain				0.800	
Make food retailers ensure farmers receive a fair price for their agricultural products				0.886	
Make food processors ensure farmers receive a fair price for their agricultural products				0.822	
Include disadvantage people					0.518
Ensure activities that do not require excessive physical exertion and respecting normal lifetimes					0.625
Guarantee no discrimination					0.629
Guarantee training opportunities to workers					0.526
Cronbach's Alpha	0.795	0.617	0.769	0.816	0.651
Mean Values of Factors	6.2	5.5	5.2	6.4	5.9
Std. Dev.	0.8	1.0	1.2	1.0	1.0

items list, Step (3) survey finalisation and submission, and Step (4) data elaboration. The first two steps allowed for the creation of the final questionnaire to be submitted to consumers (third step), while the fourth step lead to consumers' fairness perception and relevance in food purchasing.

In particular, the first step of the present study aimed at creating an initial group of phrases presented as items to capture the potential different aspects of fairness in the agro-food chain retrieved from several sources. The websites of Fairtrade International, Food Ethics Council, and Food and Agriculture Organisation (FAO) were consulted in addition to the most relevant academic studies on the research topic retrieved from Scopus database. Since the concept of fairness does not have a clear and unique definition, the purpose of step 1 was to collect aspects

potentially related to a broad idea of fairness, focusing on the consumer's point of view. These aspects were then organised in an Excel file and divided into macro-dimensions, dimensions and sub-dimensions in which fairness can be classified. This step allowed the creation of an initial pool of 90 items. After merging and removing duplicate, redundant or non-applicable items, the authors' selection process brought to a set of 39 items.

The second step consisted in organising a series of online interviews with consumers. The aim was to select the fairness items and to add those not identified by the literature. Due to the COVID-19 global pandemic, the foreseen interviews were held online and involved a limited number of consumers (Burton and Bruening, 2003; Stewart and Williams, 2005; Tuttas, 2015; Kite and Phongsavan, 2017). Semi-structured interviews with 11 consumers

TABLE 5 Influence of socio-demographic characteristics and perceptions of fairness on perceived importance of 'fair price for farmers' attribute.

		Mean	Std. deviation	Std. error	F	Sig.
Age	≤34	4.7	1.9	0.100	15.083	<0.001***
	>34	5.3	1.5	0.116		
Gender	F	4,9	1,8	0.092	0.050	0.951
	M	4,8	1,8	0.155		
Family member working in the agro-food sector	Yes	4,8	1,9	0.190	0.437	0.509
	No	4,9	1,8	0.087		
Short Chain	≤low	4.3	1.8	0.169	2.227	0.001***
	>high	5.1	1.7	0.087		
Fair price	≤low	3.6	1.7	0.316	1.973	0.018**
	>high	5.0	1.8	0.080		
Environment	≤low	3,6	0,5	0.037	1.032	0.421
	>high	4.9	0,5	0.024		
Networking	≤low	3,6	0,4	0.072	1.477	0.08
	>high	5,5	0,7	0.031		
Working condition	≤low	3,7	0,5	0.031	1.730	0.21
	>high	4,8	0,4	0.022		

"Short chain" and "Fair price" were dichotomized based on mean value of a 7-point Likert scale. Answers below or equal to 4 were included in low level of agreement. Answers above 4 were included in high level of agreement.

, *Significant at $p < 0.05$; $p < 0.01$.

Socio-demographics were dichotomized as follows: Gender: F vs. M; Age: Below and equal vs. above average age (34 years); Members working in the agro-food sector: YES vs. NO.

were organised at the end of February 2021 and included open-ended questions asking about the perception of the concept of fairness in food chains. Consumers were contacted through the mailing list of an agro-food company selling and distributing local food. In order to invite consumers to participate, two reminder e-mails were sent at intervals of 1 week. Participants received a 15% discount on a minimum purchase of €30 as a reward for participating.

The purpose of the third step was to test and finalise the survey structure and submit it to consumers. Three items were added based on interviewees feedback reaching a final pool of 42 items (Table 1). The full set of items was reorganised into dimensions for easier understanding by consumers. The list of items was then tested with 4 experts in consumer food behaviour to refine unclear questions and develop a robust data collection instrument. After suggested fine-tuning the survey was submitted to consumers. The online survey has been administered with the support of Qualtrics, (Version number: March 2021; Qualtrics, Provo, UT, USA), an online data collection software.

The fourth step consisted in data analysis. First, an Exploratory Factor Analysis (EFA) was conducted to identify the various dimensions of fairness. Then, an ANOVA was conducted to analyse the relationship between sustainable consumption and socio-demographic characteristics.

2.2. Survey structure

The survey includes three main sections. The first section includes a list of 42 items to explore consumers' perceptions

of fairness in the food sector. The items that share the same theme were grouped together into factors. Consumers were asked to provide their rating for each item with a 7-point Likert scale (from 1 = strongly disagree, to 7 = strongly agree). In the second section, consumers were presented with 13 factors potentially influencing their purchasing behaviour like attributes related to the environment, economic or product characteristics (e.g., taste, brand, etc) (Table 2). They were asked to rate (from 1 = not at all important, to 7 = extremely important) according to what extent they take those characteristics into account when buying food. The objective is to understand to what extent ethical aspects are among the purchasing drivers. The third section is about consumers' socio-demographic information (age, gender, nationality and members of family working in the food system).

2.3. Data collection of the survey

The survey was distributed between March and July 2021. To increase the number of responses, the questionnaire has been distributed through various channels, such as a local agro-food companies, agro-food networking association and different online platforms such as Instagram, Facebook, and WhatsApp. Research team sent reminders during the following 2 weeks to maximise survey responses. The data collection ended when researchers observed that the survey promotion campaign was progressively yielding a lower number of responses. All of the respondents were provided with a participant information sheet signed an online consent form detailing their rights. By denying the consent forms, the questionnaire ended automatically. Moreover,

participants' anonymity was guaranteed as no personal data were required.

2.4. Sample

The survey was filled in by 626 consumers. Data cleaning, which included rejecting questionnaires that were <80% completed, yielded a final convenience sample of 529 questionnaires used for data analysis. The sample included mostly women (73%), and respondents had an average age of 34 years old, were Italian (98%), had three family members on average. More than 80% of them have no members working in the agro-food sector (Table 3).

2.5. Data analysis

Data elaborations were performed with the support of the software SPSS (IBM, version 27, Armonk, NY, USA). Data analysis followed three steps. The first step aims at understanding the perception of fairness in the agro-food chain. The first set of forty-two items of the questionnaire on the consumers' perception of fairness in food chain was processed using the EFA (Table 4). Principal Components Analysis (PCA) was used as an extraction method. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value was 0.880 therefore, above the required level of 0.6 (Tabachnick and Fidell, 2012); and the Bartlett's Test of Sphericity value was significant, $p < 0.001$. A Varimax rotation was performed to clarify and simplify the results of factor analysis. Items with factor loadings below 0.5 were excluded. The EFA grouped twenty-two items into five multi-items components (identified cumulated variance ~57%). Considering the number of missing values in the variables included in the factor analysis, the pairwise method was adopted. The pairwise method occurs when the statistical procedure uses cases that contain some missing data. This procedure does not exclude responses with missing data. The choice of factors was made on the basis of the Eigenvalue criterion being higher than 1. The reliability of each factor was checked with Cronbach's Alpha (CA) coefficients and considered acceptable (Ponterotto and Ruckdeschel, 2007; Bassioni et al., 2008; Wachter et al., 2012). The mean value was then calculated for each factor.

In the last phase, data analysis aimed at understanding if consumers' socio-demographic characteristics and fairness perception (independent variables) influence consumers' perceived importance of food with fairness-related characteristics (dependent variables). The "fair price for farmers" attribute was cross-analysed using ANOVA test with socio-economic characteristics and fairness factors previously identified by the EFA. Those variables that revealed statistical significance after ANOVA were further analysed to see if consumers' socio-economic characteristics and perception of fairness played a role in influencing consumers' perceived importance of fairness attributes. Factor mean values were dichotomized as above vs. below 4 within the 7-point Likert scale to assess how the perceived importance of fairness attributes of products changes among those with a high and low perception of the concept of fairness as "short supply chain" and "fair price".

3. Results

3.1. Consumer perception of fairness in agro-food chain

The research identified the fairness-related aspects and then sought to understand which aspects influence the perceived importance of fair attributes of food products. Results identified five factors defining consumers' perception of fairness (Table 4):

- Fair Price: This construct focuses on chain players' responsibility in ensuring that all actors, in particular farmers, receive a fair price. Farmers' fair price can be ensured thanks to processors' and retailers' contributions.
- Environment: This construct combines items with an environmental background. Cultivation and breeding methods, animals and soil treatment, packaging, and health in terms of natural products (hormones and antibiotics-free, with no modifications), are key aspects of this factor.
- Networking: This factor emphasises the importance of the network between all actors in the chain actors, from farmers to consumers. Buying local products implies tightening the relationship with the farmers.
- Short chain: This factor underlines the importance of the connexion between consumer and producer. Thus, short-chain channel is a specific dimension when addressing agro-food chain fairness.
- Working condition: This factor merges items of the quality of labour force working conditions. Workers, at all levels of the chain, should be treated without discrimination of any kind and receive training appropriate to their task. This would ensure a fair working condition.

The factors' mean values provide insights on the consumers' fairness perception along the agro-food chain. The most relevant factors are "Fair price" (mean 6.4; SD 1.0) and "Environment" (mean 6.2; SD 0.8). Ensuring producers receive a fair price for their products is the most important aspect for consumers when it comes to ethics in agro-food chains. Soil protection is of prime importance to consumers who prefer a natural product with no modification of colour, shape or appearance for commercial purposes. Then, with decreasing importance, "Working condition" (mean 5.9; SD 1.0), "Networking" (mean 5.5; SD 1.0), and "Short chain" (mean 5.2; SD 1.2) contribute to the conceptualisation of a fair agro-food chain.

3.2. Consumers' perceived importance of different food attributes

This section provides the results on the importance of product attributes when consumers are effectively purchasing food. The most important attribute is the taste (mean 6.0; SD 1.1), followed by the seasonality (mean 5.8; SD 1.3), the origin of the product (mean 5.6; SD 1.4), the sustainability in terms of environment (mean 5.4; SD 1.6), the value for money (mean 5.2; SD 1.5), fair price for farmers (mean 4.9; SD 1.8), habits (mean 4.7; SD 1.5), promotion or offers (mean 4.4; SD 1.6), packaging (mean 4.4; SD 1.8), and vegan

or vegetarian (mean 4.0; SD 2.1). Product nutritional or health label, the lack of time to groceries, and brand are the least important in the choice of food products (mean 3.8, 3.4, and 3.3 respectively; SD 1.9, 1.8, 1.7 respectively). Standard deviation values support there is consistent consumers' perception of the relevance of taste and seasonality, but less for vegetarian or vegan attributes. Results support that environmental sustainability is more important to consumers than farmers' receiving a fair price for their products.

3.3. Consumers' socio-demographic characteristics and perception of fairness concept

Results indicate that consumers' socio-demographic characteristics and fairness perception moderately impact on the consumers perceived importance of fair attributes. "Short Chain" and "Fair price" are the dimensions of fairness most affecting perception of importance of fair characteristics. The key socio-demographic factor influencing perceived importance of fair attributes is age. Results support that older consumers tend to value fairness more than younger consumers. Moreover, consumers with higher scores for the "short chain" and "fair price" factors consider a fair price for farmers to be more important when buying products (Table 5).

Table 5 Influence of socio-demographic characteristics and perceptions of fairness on perceived importance of 'fair price' for farmers' attribute.

4. Discussion

This study aimed to conceptualise a fair agro-food chain from consumers' perspective by analysing their comprehension and perception of the concept of fairness and to understand whether and to what extent fairness influences the perceived importance of certain food attributes when buying food. The novelty of the topic makes fairness an interesting area for researchers. Although the study's inferences are valid for Italian (mainly female) consumers, this study is pioneering and innovative within the academic literature panorama.

The main contribution of this study is the finalisation of a comprehensive framework of the concept of fairness providing results valuable in marketing and management research. In fact, past studies have often analysed the concept of fairness from a general perspective or from the consumers' point of view, often with regard to the producers' remuneration only (Bolton et al., 2003; Xia et al., 2004; Gielissen and Graafland, 2009; Briggeman and Lusk, 2011; Andrés-Martínez et al., 2013). For these reasons, this study is the first to present an in-depth analysis of the concept of fairness from the consumers' perspective on the entire agro-food chain. The study goes beyond existent literature that interprets fairness as identified as distributive fairness (Adams, 1965; Bolton et al., 2003; Haitao Cui et al., 2007; Gielissen and Graafland, 2009; Zitzmann and Dobhan, 2010; Briggeman and Lusk, 2011; Lu et al., 2021), procedural fairness (Thibaut and Walker, 1978), interactional fairness (Bies and Moag, 1986; Colquitt

et al., 2001) and environmental fairness (Food Ethics Council, 2020). The study reshapes fairness into five dimensions: Fair price, Environment, Working condition, Networking, and Short chain. Results confirm past literature findings in supporting that fairness is a multidimensional concept, but valuing another key actor perspective and providing consumers' interpretation of fairness. While fair price, environment, and working conditions were already included in the previous framework, short supply chain and networking are two new dimensions of fairness. It is known in the literature that short supply chains are positively perceived by consumers who consider them more environmentally sustainable, less polluted due to shorter distances, and more economically sustainable, as producers set the price (Giampietri et al., 2018). However, short supply chain as a dimension of fairness is a new and unexplored result. Similarly, the networking dimension focuses on connexions between supply chain actors, demonstrating a positive effect of communication and exchange between stakeholders.

Identifying consumer perception of what a fair product should be, may help companies to better align with consumer demands. This would benefit not only the companies themselves, increasing their market by reaching more consumers but also the agri-food system, making it increasingly ethical and sustainable. In fact, each aspect that influences consumers' preferences, choices and intentions towards fair product purchase, leads to the development of a more ethical agro-food system.

Results on consumers' perceived importance of various food attributes show that the most considered attribute when purchasing is taste. The second and third most important key attributes are seasonality and origin. These findings confirm past studies' results (van der Lans et al., 2001; De Pelsmaeker et al., 2017b; Meyerding et al., 2019). Moreover, fair price for farmers is less important than environmental attributes. This result both confirms and contradicts previous studies. Some studies found that consumers are willing to pay a higher price for fair trade products than for organic products (Loureiro and Lotade, 2005; Didier and Lucie, 2008; Rousseau, 2015). Li and Kallas (2021) argue the willingness to pay for environmentally sustainable products is higher than for economic or social attributes. This research shows that consumers have a well-defined idea of what ethical means, but it also shows that their choices are motivated more by opportunistic reasons, such as taste, rather than altruism and concern for the environment or workers' remuneration (Poelmans and Rousseau, 2016; De Pelsmaeker et al., 2017a).

Finally, the research results also highlight if consumers' perception of the concept of fairness influences the importance attributed to fair characteristics of food products and consequently their behaviour. The research results support that consumers with a higher sensitivity towards fair price and short chain considered fair price for farmers more important when buying products. Moreover, it explores the influence of consumers' socio-demographic characteristics because limitedly explored in past research (Long and Murray, 2013). Age influences the fairness orientation of consumers' food purchasing behaviour partially contradicting Morrel and Jayawardhena (2010), who claim that age is not a discriminating factor when purchasing

fair trade products. Younger consumers' lower purchasing power may impact their purchasing choices favouring the purchase of promotion and discount products over certified or ethical products. In addition, consumers' conceptualisation of fairness positively affects purchasing habits towards fair products. Increased awareness of short chains and fair price concepts can positively impact food purchasing behaviour, leading to fairer choices (Pedregal and Ozcağlar-Toulouse, 2011).

Consumers have a holistic vision of fairness. They are aware that a fair agro-food chain should be based on principles of respect for all chain actors and the planet. However, it is also clear that taste is the primary driver of consumption, to the detriment of more ethical attributes such as a fair price for consumers.

The results of this research are useful for policy makers as they provide interesting insights for future decisions. It is undeniable that consumers play an increasingly crucial role in shaping the market, and they influence companies' management practises and food offers. Understanding consumers' preferences and attitudes towards fairness in the agro-food chain allows to promote fairness and sustainability in the agro-food system, and to satisfy a broader number of consumers by creating products that better reflect their needs. For this reason, policies and organisations should consider that to promote fairness such as the fair price for farmers and to care for the environment and good workers' conditions, they should ensure a basket of tangible and intangible food product attributes appreciated by consumers. Given consumers' interest in closer connexion with producers, strengthening local identity and community building, policies should favour the development of short supply chains, which not only have an effect on environmental sustainability by reducing transport and intermediaries but also guarantee producers the price they consider fair. These results contribute to the understanding of the market, fostering a system in line with the objectives proposed by the international institution regarding payments, workers' treatment, working conditions and environmental protection.

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Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

MD: conceptualisation, methodology, formal analysis, data curation, writing—original draft, and editing. AS: supervision, methodology, conceptualisation, and writing—review. Both authors contributed to the article and approved the submitted version.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary Material for this article can be found online at: <https://www.frontiersin.org/articles/10.3389/fsufs.2023.1116319/full#supplementary-material>

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