The Italian Consumers' Preferences for Pasta: does Environment Matter?

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Demand for food in developed countries is nowadays moving towards increasing contents of quality requisites. A large part of consumers lives in cities and demand for tasty and healthy food but pays also attention to environmental concerns and cultural references, to express their own lifestyles and ethical values.

Agriculture can therefore increase income and employment through the supply of a wide range of valuable goods and services related with the countryside and the environment.

As an effect of climate and environmental conditions, pasta made by Sicilian durum wheat, can be considered safer and healthier than standard pasta (alias common pasta) manufactured by major producing companies.

Healthy diet can therefore be considered as an ecosystem service. The goal of this survey is to offer some interesting elements of valuation about the influence of quality requisites, related to the territory, on consumers' preferences for pasta. For the study, focus group and the AGIL methodology were applied.

Consumer preferences revealed a high interest with regards to healthy food coming from specific environmental conditions. The communication of information contents regarding origin, tradition and healthy requisites of Sicilian pasta, leads consumers to express a higher preference towards this features, compared to those of common pasta.

1. Introduction

The food market has always been a growing market, due to rising economy and population. Nevertheless, during the last years, in developed countries, a decrease in food consumption has been registered as a result of economic recession and demographic stability (Zezza and Tasciotti, 2010). In this context, agriculture had to pursue better economic results, no longer through higher efficiency and returns to scale, but through an enhanced quality, able to meet a higher willingness to pay of the consumer for typical and healthy food (Columba et al., 2013). In Italy, from 2011 to 2014, the value of PDO or PGI certified food raised by 5%, in the meanwhile the value of not certified food fell by 3% (ISMEA, 2017).

The demand for quality food has been boosted by the need to ensure food safety, but it is now related with healthy diets too, according with a new consciousness of the role food plays in causing metabolic diseases because of overeating or when poor in quality (Paarlberg, 2013).

The market demand for quality food is, therefore, driven by the consumer needs of human health, environment and landscape protection, and cultural/ethical values (Distaso, 2007; Columba, 2015). To overcome the restraints of urban living, citizens demand for rurality; agriculture supplies restoration and rural tourism but also a food representative of local specificities: territory becomes a part of the goods themselves (Squadrilli and Scarso, 2015), while quality food carries rural territory inside the town (Moore and Diez Roux, 2006).

The stated relation between food and territory and the benefits people can derive from an appropriate food environment, was already observed and reported by the world famous biologist of the Minnesota University, Ancel Keys, who in 1957, gave the definition of Mediterranean Diet (Keys, 1980). The Mediterranean diet is a lifestyle where an important role in feeding is played by bread and pasta made from durum wheat, that is one of the major crops in Sicily.

Several researches have stated that arid climate conditions in Sicily, while causing low production yields and protein content, allow a total absence of mycotoxins (Maddiona et al., 2013) that sometimes affect imported wheat, largely employed by industrial pasta manufacturing.

The object of this study is to assess consumers' preferences and opinions with regards to environmental issues connected to pasta, and moreover to have a first understanding of the most important dimensions of communication that influence consumers' purchasing behaviours.

2. Methodology

The Focus Group (FG) methodology is, commonly, used for qualitative studies (Morgan et al., 1998) because it has proven to be an effective method for gathering information about food choices among consumers at relatively low costs (Chironi et al. 2017a). This methodology allows people to discuss simultaneously about a topic or a product providing an instant feedback with regards to perceptions, opinions, beliefs and purchasing behaviours (Krueger et al., 2015), via group interaction (Hennink, 2007). For this study three FGs were carried out in three Italian big cities (Palermo, Milan and Rome), with twelve participants for each FG (Chironi et al. 2017b). As market segment consists of a group of customers who share a similar set of needs and wants, we categorized five homogeneous consumer segments basing on consumers' characteristics (Kamakura et al., 1997), according to FG's literature and most used segmentation models. Afterwards participants were selected according to the socio-demographic characteristics of each segment categorized (Table 1).

Table 1: The composition of the FGs

Age	Gender	Employment	Behavioural characteristics
20-30	1 male, 1 female	Students	Healthy and ordinary feeding
30-40	1 male, 1 female	Professionals or employees	Healthy and ordinary feeding
40-50	2 males, 2 females	Professionals or employees	Healthy and ordinary feeding
50-60	1 male, 1 female	Professionals or employees	Healthy and ordinary feeding
60-70	1 male, 1 female	Retired, professionals or employees	Healthy and ordinary feeding

According with the aim to analyse the preferences for high quality pasta to be sold on market with high prices, all the participants were selected among medium – high income level, and medium – high educational level, but also it was decided to exclude people not eating pasta for health reasons (i.e. gluten sensitivity or celiac disorders). A moderator, with experience in FGs, conducted the discussion, and three impartial observers (hidden from view), monitored the dynamics of the FGs. The moderator and the three observers received training in focus-group implementation, following Krueger (2015) advises for focus group researches.

The focus groups were divided in two distinct phases. The first phase has allowed the free expression of the participants' opinions on the consumption of pasta; at the end, participants were asked to fill out a questionnaire that highlighted the relevant elements. After the first phase a comparative tasting between two types of pasta, a conventional one and a pasta *integrale* (i.e. whole wheat), of the same manufacturer and origin of the raw material, was carried on. During the tasting, the moderator briefed the participants on the benefits of pasta integrale and the influence of environmental conditions on the healthy value (absence of mycotoxins in Sicilian grains, various characteristics of gluten, etc.). The new inputs were unknown to the participants. After tasting and information, the changes of opinion and different assessments of the participants were reported in a further group discussion. A second questionnaire was used to understand how consumers' opinion evolved after the information provided by the moderator.

A multidimensional methodology of analysis was applied to the FG results. This methodology is used for the study of social phenomena and is suitable for assessing the effectiveness of communication (Lazarsfeld, 1967). This methodology was adapted to the agri-food sector (Chironi et al., 2017c) and, particularly, in this case, to fit with the specific purposes of the study.

The results of the FG were used to identify the most relevant topics in shaping consumers' preferences; for this purpose, the results were brought into the 4 dimensions (Persuasive, Cognitive, Integrative and Identity dimensions) of the AGIL scheme (Parsons, 1964; Martelli, 2003); the 4 dimensions were then subdivided into 8 sub-dimensions (Table 2).

Table 2: The AGIL scheme (dimensions and sub-dimensions)

Dimensions	Sub-dimensions	Indicators
(A)	Healthiness	Absence of toxins
Persuasive	Certification	Expression of liking
(G)	Taste	Expression of liking
Cognitive	Texture	Expression of liking
(I)	Price	Expression of importance
Integrative	Common pasta	Expression of liking
(L)	Pasta integrale	Expression of liking
Identity	Sicilian pasta	Expression of liking

Persuasive: results of information;
Cognitive: consumers' experience;
Integrative: common view on pasta;
Identity: life style and personal beliefs.

Each one of the identified dimensions and sub-dimensions has been evaluated by participants assigning a score, according to a Likert scale, from 1 to 10 (1 = absence of liking, 10 = maximum liking). A CxV matrix was created for collecting the scores obtained by each indicator of the sub-dimensions, were "C" means cases and "V" means variables following the literature (Grosso and Signori, 2013), in order to evaluate the phenomenon, according to the four phases of the theoretical framework of Lazarsfeld (1967).

The scores obtained by the 4 dimensions measure the importance the FGs have given to all the indicators and, ultimately, measure the relevance of healthiness values (resulting from the environment) and of identity values (cultural attributes) that are derived from the characteristics of the territory.

3. Results and discussion

Due to the used 10-pt Likert scale, every sub-dimension considered could reach a maximum value of 30 (10 x 3 Focus Groups). The total maximum value reachable by the whole analysis is therefore equal to 240.

Pasta is a mature product whose consumption is a daily habit for the Italians, but since many years the market demand has been fulfilled by industrial production. Consumers, nowadays, do not consider pasta a local specialty as it was in the past. Consumers choice is often driven by the direct personal knowledge but under the strong influence of massive advertising. With regards to the reasons for consumption of pasta, consumers evaluations confirmed that texture and taste are considered the most relevant attributes (score 24-25/30), the dimension '**Cognitive**' obtained, therefore, the highest score, as we expected for a well-known and appreciated food like pasta is. Moreover, consumers' experience and specific knowledge about the intrinsic attributes of pasta appeared key factors in influencing purchasing choice. These results are in line with large number of consumer studies confirming that sensory attributes (Hung et al., 2017) and health information of foodstuffs (Bekele et al., 2017) are the primary drivers of liking and influence consumer choices.

The participants to the FGs said they did not have any knowledge about the content of toxin in certain wheat productions, neither they were used to eat the pasta integrale; only a few participants of the FG in Milan said they buy the pasta integrale, but only from some recognized producers. However, the tasting of an integrale Sicilian pasta was successfully appreciated by participants who mostly said they formerly thought it was not good in taste and texture, because they only occasionally ate a weight loss dietetic food, judged, rather, unsatisfying. Furthermore, the moderator provided additional information about the ancient tradition, in Sicily, of durum wheat cultivation and its use in food transformation; participants from Rome and Milan highlighted they had poor knowledge about this tradition and use. These results confirm those of previous studies affirming, largely, that farmers, processors and traders are misaligned regarding the preferences of consumers (Olivares-Tenorio et al., 2016).

With regards to the dimension '**Persuasive**', healthiness of pasta, and the Sicilian origin of wheat appeared the most effective aspects to convince consumers (Cummins, 2007), this because participants inferred from these two attributes the guarantee of absence of toxins and other harmful elements for human health (Thøgersen et al., 2017). The sub-dimension '**Healthiness**' received an evaluation 'High' (score 27/30) showing only little differences among the FGs. The presence of origin (PDO or PGI) or organic (BIO) certifications was evaluated as 'Medium', this may be explained because of the general Italians' opinion about pasta is it has to be a "good and healthy" food anyway. However, the overall score observed in the dimension 'Persuasive' is 'High', this means that further knowledge acquired by participants, which derived by information provided by the FG's moderator about issues connected to pasta and its intrinsic characteristics, strongly influenced consumers' opinion after the discussion.

Similarly, deeper knowledge about history, tradition and origin of durum wheat, acquired by participants, as well as their appreciation of the pasta integrale after the tasting, influenced mainly the dimension 'Identity'. This result means that consumers, by choosing a pasta integrale or a Sicilian pasta, aim to communicate their beliefs about a healthy life style and their appreciation of a product that comes from a history they belong to (Viganò et al., 2015). The dimension '**Identity'** obtained the overall score 'High' as a result of the score 'Medium' of pasta integrale and the score 'High' of the Sicilian pasta. Information and communication about identity features of pasta seem to play an important role in building a consumers' awareness and therefore influencing purchase decision (Neuninger et al., 2017), in fact, more informed consumers are more likely to enhance preferences for locally cultivated wheat and local manufacture of pasta.

With regards to the dimension '**Integrative'**, results highlighted that after the groups appreciated the high quality pasta (i.e. without toxins, integrale and of Sicilian origin), the 'Common pasta' was less attractive, even though it was highly appreciated in the opinions expressed during the first part of FGs (before the tasting). The sub-dimension 'Price' was the less important element of choice for all the FGs but the one in Rome where pasta was intended to be "good and cheap". The dimension 'Integrative' obtained the lower score 'Medium', this demonstrates that the consciousness acquired by participants about the quality features of pasta, that were discussed during the FG, strongly affected their opinions.

Table 3: The results according to AGIL scheme

Dimensions	Sub-dimensions	PA	MI	Rome	Sub dimensions		Dimensions	
(A)	Healthiness	10	8	9	27	H	46	H
Persuasive	Certification	7	6	6	19	M		
(G)	Taste	7	8	9	24	H	49	H
Cognitive	Texture	7	9	9	25	H		
(I)	Price	4	4	7	15	M	32	M
Integrative	Common pasta	4	6	7	17	M		
(L)	Pasta integrale	7	6	7	20	M	47	H
Identity	Sicilian pasta	10	8	9	27	H		
Total AGIL		56	55	63			174	H

Another interesting element that came out from the FG's discussion is related with the price of pasta. In fact, participants, asked about the price they usually pay for common pasta (first part of the FGs) and the price they were willing to pay for Sicilian pasta and pasta integrale (second part of the FGs), revealed an average increase by 37% of the price they were likely to pay. Under this point of view, differences among the three FGs were rather wide: highest price and relative increase (56%) was shown in Milan, medium price but lower increase (10%) in Rome, while in Palermo the price was the lowest (but very near to average market price of common pasta) and the increase was medium-high (48%).

These results are consistent with some previous studies on consumer preferences that provided the existence of differences based on geographic area or place of residence (Garavaglia et al., 2017), as it was observed in this study.

4. Conclusions

Pasta is worldwide increasingly appreciated but, in Italy, it is a mature product and producers need to avoid decline and to push a restart of consumption through innovation. The study about consumers' preferences for pasta, related with the features of southern Italy territory, confirms that health and origin are features consumers consider as the most important in purchasing choices.

Particularly, the participants, evaluated very interesting the absence of toxins, related to climate conditions in Sicily. This could, therefore, be considered as an ecosystem service that would be useful to evaluate the adoption of sustainable and healthy agricultural models, as suggested by Mediterranean diet.

The results given by the FGs, confirm that, under the correct information, educated consumers' willingness to pay for pasta with high quality features, may increase.

Therefore, pasta producers, among the possible product innovations, could improve denomination of origin, safety guarantees, and healthy features (for example the pasta integrale), which seem to be the most suitable elements of success. To this purpose, it is, nevertheless, necessary to convey the correct information to consumers, because they seem to have modest knowledge and awareness about safety and healthy features of pasta, and this leads to a lower willingness to pay.

This study, based on the AGIL methodology, applied to results of the focus groups, gives interesting results thanks to the identification of dimensions and sub-dimensions through the expression of opinions of third parties, i.e. the participants. Dimensions and sub-dimensions in the AGIL approach are usually expressed by the researcher.

Although widely used, focus groups give information based on little samples of the population of consumers; robust results may be obtained by the application of this approach to a large data set derived by extensive surveys. Further study, that use the AGIL methodology applied to preferences of a large sample of consumers, is being carried out by the authors.

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