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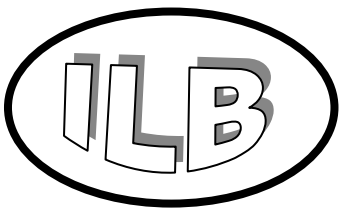

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Short Chain in FVG Region: An Evaluation of the Customer Satisfaction at the "Farmer's Shopping Points"

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Summary

Farmer market, farmer shops, milk dispenser, 0-Km are some of the new born initiatives for trading agricultural products at (or near) the farm gate, now spreading in EU-USA; their purpose is to offer to the farmers the chance to trade directly their products, and offer to the consumers new shopping opportunities alternatives to conventional food marketing outlets. This study was addressed to test the customer satisfaction at the farmers' shops created by a farmer cooperative. The experiment was performed in Friuli VG a North-East region of Italy, with a survey using a questionnaire submitted to a number of customers randomly selected at the end of their shopping. The customer satisfaction (CS) was evaluated with the SERQUAL procedure consisting in measuring the discrepancy between consumer's perception and expectation of their shopping experience. The results suggested the following observations: the majority of customers was over 50's, with an income less than 20 thousand €; they appreciated the variety and origin of the products and criticized the scarcity of space inside the shopping, parking and payment facilities. The frequency of shopping varied from once or twice a week to once a month while the average expenditure at farmers' shops varied between 20-25 € per visit. The usual food shopping was made at different market stores (from two to four) but most of the food budget was spent at the LD (Large distribution). Eight different consumer's profiles were elaborated based on the results of the CS using the cluster analysis. Compared to other retailing facilities, consumers generally expected to find a better food quality, lower prices and were not strongly concerned about brand and packaging strategies, more important at the LD shopping. Quality, freshness and courtesy were the mostly appreciated attributes of this shopping experience, while critics were addressed to the scarcity of space inside the shops, difficulties in parking, payment facilities and market visibility.

Keyword: *Farmer markets, short chain, direct selling, customer satisfaction, shopping point*

1 Introduction

The Italian family monthly expenditure in 2009 was 2485 € of which 475 € (19%) were dedicated to the food and beverage; the estimated components of food and beverage expenditure are: 242 Euro (51%) for business and services; 142,4 € (30 %) for food industry and the remaining 90,5 € (19 %) for farm goods. The 70% of consumers made at least once, a food purchasing directly to one of the fifty thousand farms; quality, freshness and convenience with an estimated saving between 20 and 30% compared to LD, were the mostly appreciated attributes of this shopping experience. The short chain, reducing the number of passages from farm to retail stage was experimented with different initiatives: farmers market, farm selling points, Km-0, milk dispenser and others.
Quality and consistent supply of perishable foods, are now growingly demanded by consumers; the LD try to answer to these emerging needs with more vertically integrated system, imposing quality standards, (Euregap)[1], contractual relation with suppliers and price-quality specification; (Boehlje 1999; Echánove and Steffen 2005). The presence of LD (large

1. EurepGAP is an equal partnership of agricultural producers and retailers which want to establish certification standards and procedures for Good Agricultural Practices (GAP). It is a pre-farm-gate-standard that means the certificate covers the process of the certified product from before the seed is planted until it leaves the farm. EurepGAP is a business-to-business label and is therefore not directly visible for the consumers.

distribution i.e hyper or supermarkets) is causing a shift from the exclusive reliance on spot markets toward the use of specialized wholesalers contractors (Timmer, 2005); Key and McBride 2003). The quality and safety standards are more enforced with institutional regulations by imposing the tracing-tracking and external certification procedures (Henson and Reardon, 2005). The growth of LD has been mirrored by the increasing demand for higher value agricultural products (HVAPs) such as fruits and vegetables, poultry, pigs meats and dairy products. These HVAP markets are becoming increasingly attractive to farmers because of the net benefits of selling directly to shopping points instead of supermarkets, specially when quality and personal relations are appreciated by the customers. (Gowindasamy and Nayga, 1997). The opportunity for smallholder farmers who do manage to enter into these more lucrative markets, is quite often limited by the higher marketing costs and lack of managerial skills or business experience required to perform effective commercial strategies. Rural producers may suffer a competitive gap when confronted with LD because of less sophisticated marketing mix strategies requiring higher investments shared in larger volume of product units. (Gulati and others, 2007). Smallholder farmers may have difficulties in meeting stringent food safety, quality standards; they are occasionally able to sell standardized products on a continuous basis as demanded by customers, and they often lack of adequate market information to challenge the customers' need and wants. Nevertheless opportunities are disclosed to those that are able to organize agro-business using a mix of traditional and internet facilities to publicize their products and attract the urban consumers in search of new shopping experiences (Rosa, 2007).
This emerging scenario suggests to adapt the selling strategies to cut costs and improve the quality of food products to compete more effectively with the large distribution chains. (Reardon and others, 2005). Profitable market strategies may be enhanced with support of external organisation to diversify or upgrade farm products, create platform and commercial strategies.
The success will depends on the following factors:

- Association of small-scale producers, able to interact, and coordinate their strategies to achieve economies of scale in logistic operations, transactions with input suppliers and buyers and marketing strategies;
- Develop alternative marketing channels by using new tools to share information to customers (product specifications, market, prices) and business services for rural producers;
- Enable rural producers to deliver the standards required by buyers in urban markets;
- Diversify and raise levels of knowledge and skills in agricultural production and
- post-harvest processing that adds value to products;
- Providing financial services for facilitating the transactions, parking facilities, children area;
- Investing in specific marketing strategies to increase the CS.

The above conditions imply the need for closer linkages between farmers, processors, and traders, to create commercial platforms and access to key business development services (BDS) such as market information, input supplies, and transport services. Delivering these key services can differ substantially, by regions and type of farmers profile, level of education; in this sense there is an on-going debate about the role of the public and private sectors in providing BDS (Miehlbradt and McVay 2005). Some have objected that public provision of BDS distorts market prices (services are delivered, in many cases in highly subsidized manner, with prices lower than those determined by market forces and undermines the provision of BDS by the private sector (Hitchens et al. 2004).

In recent years, there has been an evident change in thinking from subsidized supply-led BDS provision to market-determined demand-driven services, where both the demand and supply sides of the market were developed. In the majority of cases, however, the “short market chains” has proven to be unable or unwilling to provide essential services and facilities causing increase in costs. In response, policy makers started to give incentives to small-scale producers to associate, collaborate, and coordinate together in order to access the BDS to achieve economies of scale in making transactions with input suppliers and buyers.
Research in customer preferences have suggested preferences for freshness and typicality; hence in Italy, food market operators have reorganized their business to challenge these emerging consumers’ needs. Commercial campaign of Iper and Carrefour chain have been addressed to promote the logo "Terre d'Italia", reminding the Italian terroir, similarly the Crai has supported the campaign "Piaceri Italiani", Conad has promoted "Creazioni d'Italia", Auchan, "Sapori e dintorni", Esselunga, "I Sapori delle Regioni". Farmer also are trying to challenge these emerging trends by focussing their business on the origin and typicality, by promoting visits in farms, sharing protocol of production between farmer and customers.
The purpose of this research is to analyse the customer satisfaction at the farmer’s shopping points of the Cospalat, a farmer’s cooperative recently born in the region FVG with the purpose to sell the farmers product directly, improving the customer relation, quality and transparency and respect for the nature. This philosophy seems to be appreciated by many customers: the constant growth of the business is visualized in fig. 1 with the turnover rising constantly since 2006, when the first shop opened to now: from 1,2 million euro to 5 million euro in two years, represents monthly growth ratio estimated to 6% and a ROI of 35%.

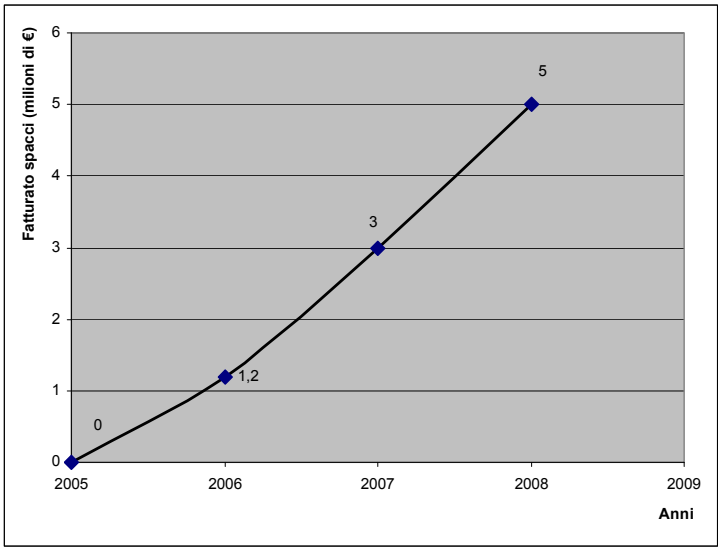

Figure 1. Sale trend at selling point of Cospalat

2 The survey

Changing food habits: the need for farmers to afford the marketing strategies to sell their products and gain higher margins has determined a farmer coop[1] located in the region FVG to manage a network of food shops, directly selling their food products delivered by members. The commercial success determined the growth of the number in shopping points: however the question is if the success is due to the contingent state of the economy that has readdressed the consumers' preferences toward cheaper food products or this is a signal of durable changes in consumers' attitudes for new shopping experiences, oriented to the binomia price/quality, origin/typicity, cultivation/nature and friendly/personalized customer relations.
To explore the determinants of the customers satisfaction the following hypotheses were formulated:

H1. Is the consumer, unsatisfied with the present distributive system, is looking for alternative purchasing foods experiences?
H2. Who are the product' attributes that could increase his customer satisfaction (cs) ?
H3. Are the shopping points a viable alternative to the traditional LD system?
H4. Will the CS sufficient to suggest a new strategy of market segmentation to justify the growth of this network?.

Individual in-depth interview were made to identify the drivers of CS at the farmer shopping points: product attributes, atmosphere, services to trigger creative insights about the shopping experience. For this purpose the interviews were conducted face to face with the respondent in which the subject matter of the CS was explored by a trained interviewers to find the determinants to select product and market place. Laddering helped to go deeper into the customer's motivations: each attribute of the purchasing experience from product to service was probed to see why it was important to respondent then that that reason was probed and so on. The hidden issue questioning was the second explorative technique of the questionnaire: the focus of the questions were not on socially shared values but rather on personal "show spots" not general life style but deep felt personal concerns. The third explorative technique was a symbolic analysis attempting to analyse the symbolic meaning of objects by comparing them with the opposites. This would suggest that one of the attributes to be highlighted in an ad campaign for direct purchasing could be the face to face communication. The survey involved a number of customers selected from the various shopping points following a sort of "snowball two phases sampling technique" to reduce the costs of sampling. Initially a random selection of initial respondents was made, based on socio-demographic traits as age, gender, income, distance from shopping point and others. The interviews were made at the end of the shopping in different hours of the day and different days in the week. Additional interviews were based on information of the initial respondents and more dissected to the scope of the CS. The size of the sample was decided on the measure of the population variance living in the region.

1. The project to create a network of shopping points by Cospalat was imposed by the dramatic need to allocate the milk product delivered by the coop members; the projects started with processing the milk by Cospalat and selling dairy products directly at their shopping points. The growth of business suggested to expand the lines including salami, tomatoes, frozen foods and other typical local products. The step ahead will be the creation of a commercial brand name supported by consistent investments in promotion and advertising. Cospalat is an Association representing 320 dairy farmers, delivering 70 thousand ton of milk per year, the 60% of the regional production, 1/3 of which exported for lack of local facilities. This project has been supported by local consumer organization.

The sample size and relevance of the survey

Random extractions and minimum size are the two criteria for defining the number of the interviews to minimize the cost and represent the population characteristics. To be sure that all the objects of the population shall have an equal probability to be selected into the sample,(*sampling ratio),* it must be considered the risk that is roughly proportional to the variance of the variables and in inversely related to the sample size. The formula adopted to compute the sample size is the following:

$$n = \frac{N\sigma^2}{(N-1)D + \sigma^2)} \quad \text{for} \quad D = \frac{B^2}{z^2}$$

n = sample size unknown
N = population size
σ^2 = population variance
B = predefined error from the estimate
Z = normal standardized variable corresponding to the confidence interval **(1 – a)**
The income is the auxiliary variable adopted to estimate the sample size, justified by the fact that the income will affect the decisions of purchasing**.** **The** sample size is relatively limited because the population is restricted to only two provinces of the Friuli VG region, Udine and Pordenone the area where live the potential customers of our shopping points.

For calculating the sample size the following parameters were evaluated:
i) number of people in the area approximately equal to 800 thousand;
ii) variability of income comprised between 10 and 100 thosand €;
iii) predefined error of the estimate equal to 10 thousand €;

The variance σ^2 of the population it is assumed that the range is approximately equal to to 4 times the standard deviation:

$$\sigma^2 = \frac{(100-10)^2}{4} = \frac{8100}{4} = 2025$$

$$D = \frac{B^2}{z^2} = \frac{10^2}{1{,}96^2} = 26{,}03$$

$$n = \frac{800 * 2{,}025}{(799 * 0.026) + 2{,}025} = 71$$

The minimum number of sample is 71, actually the interviews were 97; to compute the improvement of the sample reliability it was used the following formula:

$$\sigma_e = \text{standard error of } X_M = \sigma / \sqrt{n} \text{ and } \sigma = \sqrt{\sigma^2};$$

σ^2 e σare the variance and standard deviation. In the table is reported the reduction in standard error due to the increase in the sample size; in % it is the 13,5% (Aaker p. 397).

3 Measure of customer satisfaction: the Serqual procedure

The customer satisfaction reflects the perception of attributes of quality, freshness, tipicity convenience, services, affecting customer's choice depending on mental attitudes (attention, excitement boredness..), and the personal relation with the shopping staff .
These perceptions are measured with the Likert scale a psychometric multi-item scale, used in questionnaires where the respondents are asked to specify their level of agreement with a variety of statements related to attides or objects[1]. An important distinction must be made between a *Likert evaluation scale* that measure the level of agreement/disagrement with a specific item and a *Likert item* that is the statement about the product event or attitude. A Likert item is simply a statement which the respondent is asked to evaluate according to any kind of subjective or objective criteria by expressing his agreement or disagreement. Most commoon evaluations are based on five ordered response levels although many psychometricians advocate using seven or nine levels.[2] The Likert scale is the sum of responses on several Likert items and the attitude is measured in terms of agreement/ disagreement versus multiple objects (items referred to a specific construct) of the CS.
The scale is composed by objects and evaluation: in a table the columns report the object name of the comparative scale for cathegory at one pole /Stapel scale) and the row indicates the level of consensus varying between two extremes. (Aaker pag. 264). There aren't fixed rules to define the number of cathegories depending on the opportunity evaluation of the analyst for the attitude measurement about quality of product/service. The Serqual method (Parasuraman and others, 1985) is used to measure the construct of CS referred to the perceived quality (as opposite to the intended objective quality) using selected groups of items to describe the different aspects of CS. The perception of quality is the consumer's judgement of an entity's overall excellence or superior similar to an overall attitude established by convenience. Hence the CS is the discrepancy between perception (ex-ante perception of quality related to sensorial cues) and the expectations are developed following three steps:
i) Measure the perceptions: an example is in this selling point I will make a new experience; I expect not only to spend less but to buy genuine and safe products and talk friendly with the seller, receive suggestions about product, origin, producer, method of production and other similar hints.
ii) Compare the perceptions with expectations: if the gap is negative, the object/service of quality would generate negative attitude (selective dissonance); if the gap is positive the opposite would happen. To generate an evaluation scale of the CS a great attention is dedicated to the item definition measuring the perceptions and expectation. The criterium must be a perfect correspondence between expectation and perception about a product/ service that must correspond to the category of which is part. The item definition must take account of the discrepancy paradigm with some indications.
iii) Definition of items with balancing the perception with expectation. It is important to use the same quality attributes for perception and expectation. For instance if the perception of the item concerning the relations can be stated as follows: "the customer receiving at the

1. Commonly called also a summated scale for the score of individual items are summed to produce a total score for thew respondents.
2. A recent empirical study found that a 5- or 7- point scale may produce slightly higher mean scores relative to the highest possible attainable score, compared to those produced from a 10-point scale, and this difference was statistically significant.

selling point is very warm and informal", it is needed that in the description of expectation the item is: "I expect that that the receiving at the selling point is very warm and informal.

To build a reasonable number of items for the factors of CS component of Servqual (tangibility, reliability responsiveness assurance and empathy) it is necessary to be sure that all relevant aspects of CS are driving to consistent purchasing decision.

4 The questionnaire

The questionnaire was structured in three sections:

i) the first one was addressed to collect information about the socio-demographic e psycho-graphic elements of the customers;

ii) the second one was oriented to collected information about services at the selling point, parking facilities, guarantee of quality and safety of products, and payments;

iii) the third one was addressed to monitor the level of satisfaction of the customers and intention to repeat the purchase (customer fidelity).

The 19 variables of the first part were used to elaborate the descriptive part are:

- **Socio-demographic variables** (8): gender, age, civil status, family size, income, occupation, school level, residence place;
- **Life-style** (7): time dedicated to hobby/bricolage, Tv watching, theatre/cinema, reading, sport, social activity, other free time activities;
- **Complementary Variables** (4): distance from store, transport vehicle used to reach the store, purchasing habits, visibility of shopping point.

The second part was directed to collects the information to go deeper insight into the exploration of the consumer behaviour by examining the CS a complex construct revealed by 25 items representing the consumer's experience determined by the product quality (intended as performance), including services, price, imagine and relations with the sellers. (Antonides , 1998; Baden and others, 2008). Following the psycho-functional theory the consumer's expectations are related to functional benefits (functional and psycho-social and values (instrumental and terminal) associated to the product and evaluated with reference to his own preferences (Adebanjo, 2001, Grunnert, 2001). These expectations are stimulated by a number of attributes and grow with the knowledge of consumer alternatives and with the effectiveness of communication strategies. The marketing psychology suggests four dimensions of CS: i) the satisfaction related to physical intrinsic attributes; ii) satisfaction related to extrinsic intangible attributes as the image, quality of the relations with sellers; iii) satisfaction related to services and quality; iv) satisfaction related to price/convenience (Lee e Lambert, 2000, Dellaert ed al, 1998, John and Howards, 1998, Churcill ed al, 1982, Cronin, 1992). Hence the CS is evaluated as a multidimensional construct connected with different groups of items combined in four factors, used to elaborate the profile of the consumer's attitude versus the shopping point.
The SERVQUAL model (Parasuraman, Zeithaml e Berry, 1988) measured the discrepancy between perceived quality (cues of quality) expressed with the score in the Likert scale compared to an expected "a priori" quality that is the maximum of the scale. The diachronic relation between perception and expectation was defined the paradigm of the discrepancy

(or gap performance-expectation) working on the subtraction criterion between the level of perception and expectation. (Kotler ed altri, 2005). The expectations depended on personal experiences, intensity on needs/wants, social and marketing communication. (Antonides, 1998). The shopping points was expected to create an atmosphere where all factors of CS were able to enhance the shopping experience with a blend of price/quality/image/territory/ services/relations. These expectations were monitored with a reasonable and representative number of item for each area of the Servqual model (attributes intrinsic/extrinsic, attribute level, tangibility, reliability, responsiveness, assurance, empathy) related to consumer's preferences.

5 Data collection

The multi-dimensional construct "customer satisfaction" (CS) was measured with 25 item aggregated in four factors representing peculiar aspects of the CS: CS-relational (6 items of empathy), CS-quality of the selling point (12 items of reliability and responsiveness), CS-quality of services (4 items of tangibility), CS-quality of products (3 items for quality assurance).

The four factors of the CS are described as follows:
F1 - customer satisfaction relational: the seller experience affects the quality of the relations in terms of competence, confidence, dedication, attention to customer needs. The CS is revealed by the support to the product choice, based on knowledge about the producer, method of production origin. These item generate an a "a priori" perception of quality the seller is able to transmit to the customer ; politeness and communication in local language are behavioural item to orient the customer tastes, contributing to make enduring relations with customer by evoking stereotype and ethnocentrism; (Rosa, 2001, Bearden W.O, p. 344).

Table 1. Items of the CS: perceived quality of relations

		Score									
	Items	1	2	3	4	5	6	7	8	9	10
1	Confidence										
2	Courtesy										
3	Feeling: Direct relation										
4	Competence										
5	Efficiency										
6	Correttness										

F2 - customer satisfaction at the selling point: the factor defined "perceived quality" with the following items: number of products, variety, presentation, number of branded products, facility to access, space available in store, clear, exhaustive information, price/quality, continuity of supply, clean, time opening/close, availability of local products.

Table 2. Items of the CS: perceived quality of selling point

	Items	Score									
		1	2	3	4	5	6	7	8	9	10
1	Product variety										
2	Product Branded and brand/label knowledge										
3	Brand Variety										
4	Facility to access the products										
5	Room available inside the shopping and outside										
6	Price information										
7	Ratio qualità/price										
8	Continuity of product supply										
9	Cleaness										
10	Time (opening-closing)										
11	Presence of local products										
12	Presence of local specialties (DOC, IGP..)										

F3 - customer satisfaction about service: It is obtained from the comparison of services offered at the selling point with those offered by LD. The service quality is appreciated in terms of time saving, , transport facility inside and outside the selling point, reimbursement in case of product failure, payment facilities. The items are reported in the following table.

Table 3. Items of the CS: perceived quality of services

	Items	Score									
		1	2	3	4	5	6	7	8	9	10
1	Payment facility										
2	Parking facility										
3	Product packaging										
4	Product guarantee										

F4 - customer satisfaction product: The CS is related to the perception of intrinsic quality (organoleptic quality,) of the product purchased .The customer is searching for attributes of safety, security, functionality, genuineness, freshness.

Table 4. Items of the CS: perceived quality of products

	Items	Score									
		1	2	3	4	5	6	7	8	9	10
1	Genuinità										
2	Safety/security										
3	Freshness										

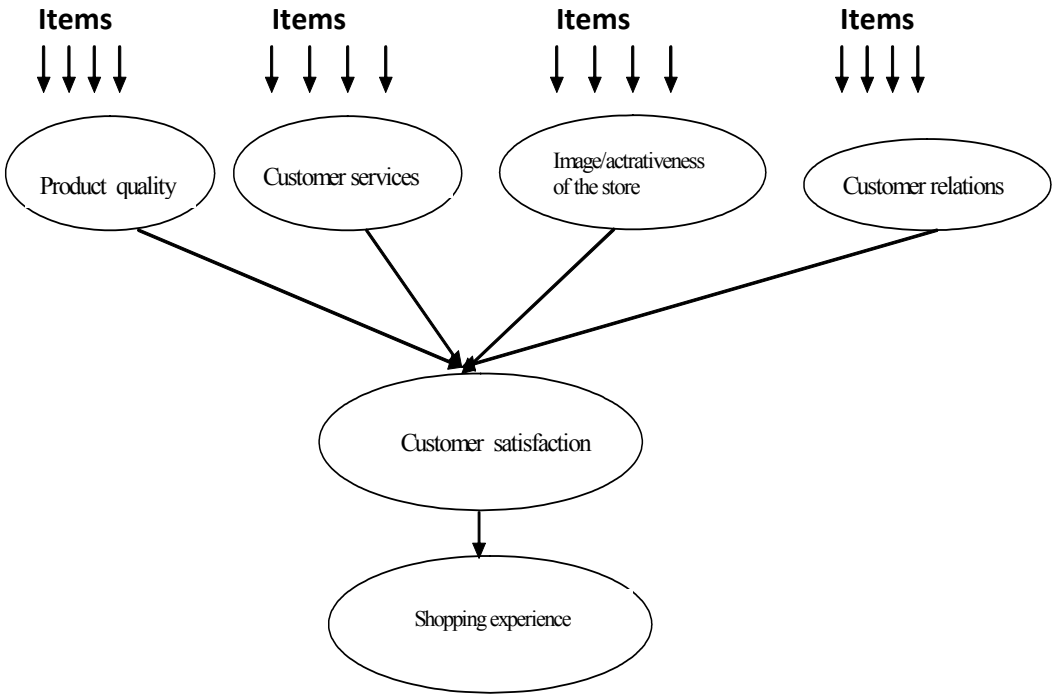

Figure 2. Modelling the CS

6. The descriptive analysis

The first part of the questionnaire reported preliminary questions in order to focus the customer:
1) socio-demographic attributes (Aaker p. 255);
2) access to selling point and services;
3) lifestyle;

Table 5. Decription of the Sample

Attribute	Description	nr	frequency	Attribute	Description	nr	frequency
(1) sex	Male	38	40,43	(7) education	Elementary	29	30,85
	Female	56	59,57		Professional	14	14,89
	18 e 25 anni	4	4,26		Maturity	42	44,68
	26 e 35 anni;	15	15,96		B.S	3	3,19
(2) age	36 e 55 anni;	34	36,17		Master	6	6,38
	56 e 65 anni;	23	24,47		more than 20.000	35	37,23
	Over 65 anni.	18	19,15	(15) place of living	10.000 e 20.000	2	2,13
	single man	11	11,70		5.000 e 10.000	19	20,21
	single woman	5	5,32		less than 5.000	38	40,43
(3) civil status	married	69	73,40		less than 1 km	46	48,94
	vidow	9	9,57		1 - 5 km	15	15,96
	without son	24	25,53	(16) distance from s.p	5 - 10 km	14	14,89
	one son	34	36,17		more than 10 km	19	20,21
(4) family	two sons	21	22,34		walking	21	22,34
	more than two sons	15	15,96	(17) transporto mean	bicycle/bike)	14	14,89
(5) income	below 20 thousand €;	76	80,85		auto	59	62,77
	20 - 50 thousand €;	18	19,15				
	Employeee	19	19,59		local shopping	5	5,32
	Teacher	4	4,12	(18) visits to store	LD	82	87,23
	Business	2	2,06		Internet	1	1,06
	Entrepreneur	3	3,09		directly to farmer	6	6,38
(6) occupation	Free profession	7	7,22				
	Worker	7	7,22		friends/relatives	48	51,06
	Farmer	4	4,12		newspapers	0	0,00
	Housewife	9	9,28		radio and media	0	0,00
	Student	9	9,28	(19) information s.p	television	0	0,00
	Retired	27	27,84		door to door	0	0,00
	Other (specify)	6	6,19		visibility of shop sign	46	48,94

Table 6. Life style: activities performed during the free time

Object	none	few	quite	much	none	few	quite	much
Hobby/bricolage	48	40	9	0	49,48	41,24	9,28	0,00
Look at Tv	22	72	3	0	22,68	74,23	3,09	0,00
Theater/Cinema	18	55	24	0	18,56	56,70	24,74	0,00
Reading	1	31	60	5	1,03	31,96	61,86	5,15
Sport	61	11	24	1	62,89	11,34	24,74	1,03
Social activity	55	31	11	0	56,70	32,00	11,30	0,00
Travelling/Vacation	28	60	9	0	28,87	61,86	9,28	0,00

There were no significant differences in the age distribution between male and female: the 40% of males and 34% of females are in the age between 36 and 55 years; in the age between 56 and 65 years the males are the 24% and the females the 25% and in the retired group with age over 65, the male are the 18,4% and females the 20%, the two tails are represented by retired people (19%) and young (20%).

Table 7. Sample stratification by age

Age	male		female	
	val ass	%	val ass	%
18-25	1	2,63	3	5,36
26-35	6	15,79	9	16,07
36-55	15	39,47	19	33,93
56-65	9	23,68	14	25,00
> 65	7	18,42	11	19,64
Totale	38	100,00	56	100,00

The majority of the customers that frequented the SP were married (72%) with one or more sons; their average annual income was less than 20 thousand euro; (this is the income of the 70% of the Italian population (according to the income declaration, ISTAT, 2008) and was not significantly related to the profession or degree.
Degree: the 44% had a diploma of maturity, the 30% frequented the elementary school, the 10% had a university degree.
Residence: the 38% lived in cities with more than 20 thousand peoples, the 39% in cities with less than 5 thousand peoples, the 21% in cities between 5 and 10 thousand peoples, only the 2% lived in cities between 10 and 20 thousand peoples. This distribution suggested that the size of the city with different retail facilities had not affected the customer search for other stores. The life style was a mirror of a large variety of situations: the standard profile was based on two elements: watching TV and limited time dedicated to hobby, common to 90 % of the interviewed; attending to cinema/theatre or reading newspapers, was practiced by 25% and 62%.

7 The explorative analysis

The 97 interviews were collected at six selling points of the cooperative network; the sample was composed by 57 females (59%) e 40 males (41%), the extraction was based on one over three customers interviewed at the end of their shopping and grouped in homogeneous clusters using the hierarchical analysis and clustering with the K-mean algorithm

Table 8. Sample description

Objects	**Quantity**
Population	1 million residents province UD, PN
Minimum sample size	71
Actual number of interviewed	97
Area of monitoring	Provinces of Udine and Pordenone
Nr of variables (objects or items)	37

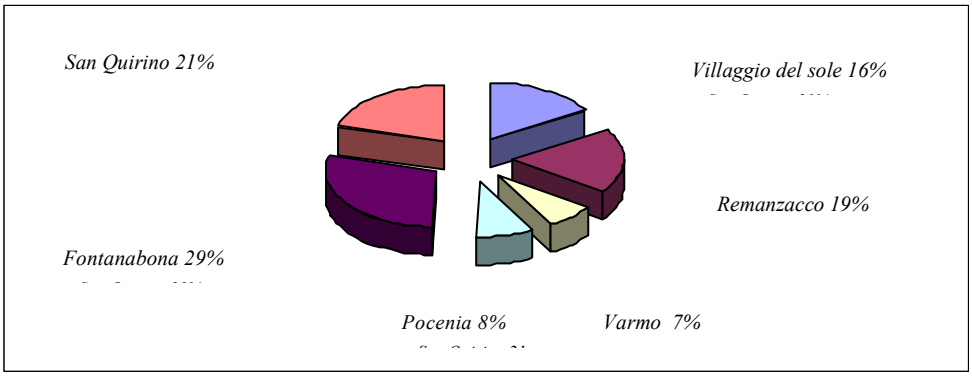

Figure 2. Distribution of the interviews among the selling points

7.1 Cluster analysis: the similarity

For grouping the customers it was used the similarity criterion based on the Euclidean distance:

$d^2_{ij} = S\ m=1,\ p\ (Xim - Xjm)^2$

Xim e Xjm were the standardized values (mean = 0, standard deviation = 1) of the mth. attribute of the object i e j e d^2_{ij} was the estimated squared distance euclidean [1] signalling the degree of homogeneity or similitude between clusters

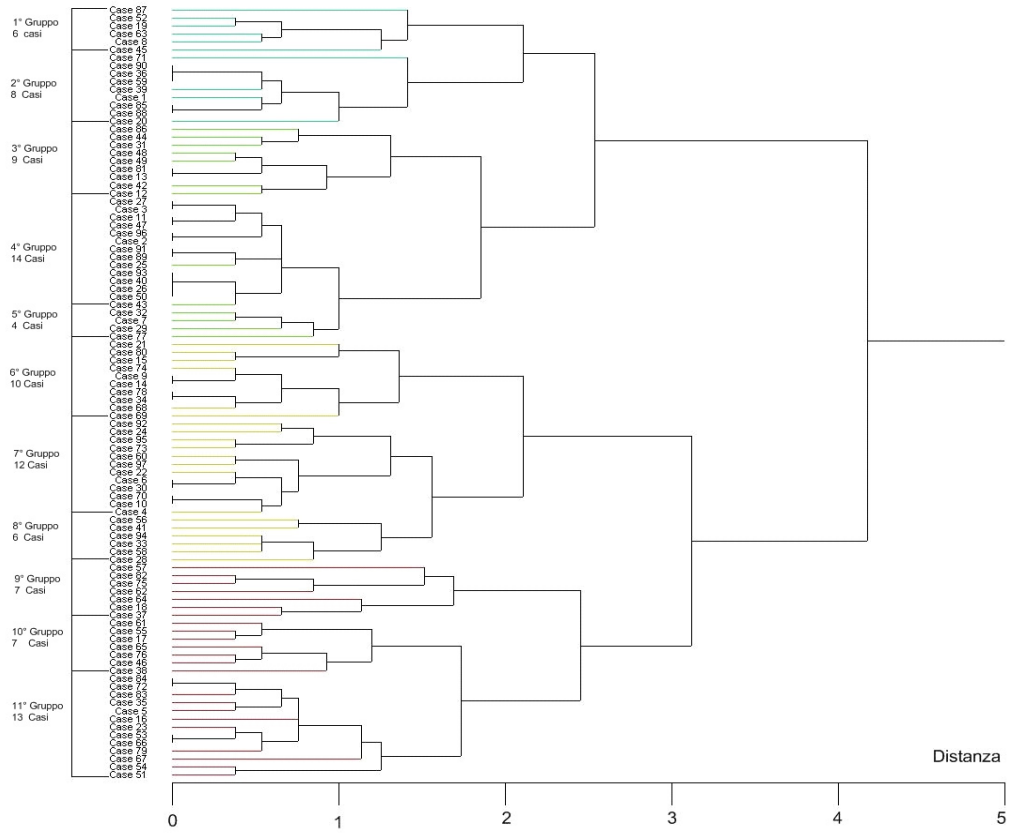

Figure 3. Dendrogram obtained from the hyerarchical analysis

Proceeding from bottom to up and starting from cluster with one object to cluster of larger dimension, eight groups were extracted; each one referring an homogeneous customer's profile with a size varying from 6% to 13% (see tab. 9). Different aggregations were experimented by observing at each run the changes in ESS and the F test. This allowed to make exhaustive picture of different customer profiles about CS result of the combination of socio-demographic and psico-graphic elements tailored to the purposes of this research that is to relate the CS to the continuity of shopping. The eight cluster or customer profiles are reported in the following table

1. The standardization is required when the observation (attributes) of the object are measured with different scales

Table 9. Cluster K-hierarchic (ESS of Ward)

Variables	Cluster							
	1 (23)	2 (5)	3 (9)	4 (21)	5 (11)	6 (1)	7 (11)	8 (10)
Size	25,27%	5,49%	10%	23%	12%	1,10%	12%	11%
Gender	female	male	female	female	male	male	male	female
Age	18-25	36-55	36-55	oltre 65	26-35	36-55	36-55	36-55
Marital status	single	married	married	vidow	single	married	married	married
Family size	no sons	1 son	2 sons	> 2 sons	no sons	no sons	> 2 sons	2 sons
Income	<= 20 000	<= 20 000	20-50 000	<= 20 000	<= 20 000	<= 20 000	20-50 000	20-50 000
Occupation	other	employee	entrepreneur	retired	entrepreneur	teacher	artisan	other
Scolarity	diploma	diploma	univ. Degree	lem. Schoo	diploma	univ. Degree	univ. Degree	diploma
Hobby	few	few	few	nothing	quite	few	nothing	nothing
TV	few	quite	few	quite	quite	quite	few	quite
Cinema	few	quite	quite	nothing	few	nothing	quite	few
Newspaper	abbastanza	few	quite	quite	quite	nothing	quite	few
Sport	abbastanza	few	quite	nothing	nothing	nothing	few	nothing
Voluntary	few	few	nulla	nothing	nothing	nothing	few	nothing
Vacation	few	few	few	nothing	nothing	nothing	few	few
Residence(nr people)	<= 5 000.	> 20.000	<= 5 000.	<= 5 000.	> 20.000	10-20.000	<= 5 000.	5-10.000
Distance to s.p.	> 10 km	< 1 km	1-5 km	< 1 km	< 1 km	> 10 km	< 1 km	< 1 km
Vehicle of transport	auto	cicle/byke	cicle/byke	cicle/byke	auto	auto	auto	auto
Frequency of buy at s	irett. Produt	GDO	GDO	GDO	GDO	GDO	GDO	GDO
Information	friends	friends	friends	sign of store	gn of shoppi	friends	sign of store	sign of store
CS.rel-feeling	8,52	7,20	8,56	9,14	9,91	8,00	8,00	8,30
CS.rel-courtesia	9,04	8,60	8,56	9,48	10,00	8,00	8,36	8,50
CS.rel-competence	8,70	7,80	8,33	9,24	9,82	8,00	8,00	8,20
CS.rel-confidence	8,26	6,80	8,00	9,24	9,55	9,00	7,45	8,30
CS.rel-efficiency	8,48	8,20	7,89	9,33	9,82	10,00	8,18	8,20
CS.rel-correttness	8,91	9,00	8,33	9,48	9,82	9,00	8,45	8,40
Average CS. relation	8,65	7,93	8,28	9,32	9,82	8,67	8,08	8,32
CS.s.p-assortim.	8,39	7,80	8,00	9,05	9,00	6,00	7,27	7,70
CS.s.p-prestige	8,48	7,00	7,78	9,10	8,64	8,00	7,73	7,80
CS.s.p. variety	7,48	6,40	7,56	8,90	8,36	7,00	7,55	7,70
CS.s.p. access	8,26	7,40	8,00	9,24	9,55	8,00	8,00	7,90
CS.s.p. space	7,65	6,60	8,33	8,10	7,64	7,00	6,55	7,00
CS.s.p. transparency	8,43	6,80	7,67	8,95	9,27	8,00	7,91	7,60
CS.s.p-relation	8,74	8,00	8,11	9,10	8,91	8,00	8,27	7,30
CS.s.p. easy to find	8,78	7,60	7,78	9,00	9,18	8,00	7,91	7,60
CS.s.p cleaness	8,96	9,00	8,67	9,33	9,82	8,00	8,09	7,90
CS.s.p time	9,17	9,40	8,56	9,43	9,64	10,00	8,27	8,60
CS.s.p products	8,96	8,40	9,11	9,38	9,18	10,00	8,45	8,00
CS s.p.local specialty	8,83	8,40	9,00	9,29	9,18	8,00	8,45	7,90
Average CS.s.p.	8,51	7,73	8,21	9,07	9,03	8,00	7,87	7,75
CS.service-payment	8,13	7,40	8,00	8,67	8,73	8,00	8,00	7,90
CS.service-parking	8,65	8,40	8,44	9,10	9,27	8,00	8,55	8,00
CS.service-packaging	8,09	7,60	8,11	9,24	9,18	9,00	8,00	8,10
CS.service-guarantee	8,65	8,60	8,22	9,43	9,18	8,00	8,09	8,30
Average C.S. service	8,38	8,00	8,19	9,11	9,09	8,25	8,16	8,08
CS.prodotti-genuinity	8,87	8,20	8,44	9,62	9,27	8,00	8,55	8,10
CS.prodotti-fragrance	8,91	8,20	8,33	9,62	9,36	9,00	8,55	8,20
CS.prodotti-freschnes	9,04	8,40	8,33	9,62	9,27	9,00	8,55	8,20
Average C.S. produc	8,94	8,27	8,37	9,62	9,30	8,67	8,55	8,17
VAR00045	1,00	1,00	1,00	1,00	1,00	1,00	1,00	1,00
VAR00046	1,22	1,20	1,22	1,14	1,36	1,00	1,27	1,40
VAR00047	1,00	1,00	1,00	1,00	1,09	1,00	1,00	1,00

Table 10. Similarity of cluster measured with distance from centres of final cluster pairs[1])

Cluster	1	2	3	4	5	6	7
2	6,33						
3	8,68	5,97					
4	5,60	9,47	10,47				
5	9,14	9,32	6,89	7,77			
6	12,51	11,17	9,62	14,09	12,02		
7	8,69	6,72	5,96	8,81	6,97	10,48	
8	6,52	7,96	10,41	6,41	10,58	13,63	7,20

7.2 Description of clusters and customer's profiles

The size of clusters varied from 1 object of the cluster 6 to a maximum of 23 objects for cluster 1 [2]. The profiles resulted from a combination of socio-demographic and psycho-graphic traits. The CS suggested the different level of involvement and experience made at this shopping point revealing the strength and weakness of CS and suggesting how to improve the satisfaction. The differences between pair of clusters were evaluated on the basis of the distance from centroid and was reported in table 10: for the pair of clusters 1-2, 1-4, 2-3, 3-7, 1-8, 4-8 the distances were approximate to the value 6; greater value distances are observed for pair of cluster: 1-6, 2-6, 3-4, 3-8, 4-6 (maximum), 5-6, 6-8; this result suggest the cluster 6 being significantly different from the other cluster.

Cluster 1 – Customer profile: open to new shopping experiences

Description of customer profile: young female with age between 18-25 years single, high school education, income below 20.000 €, occupied in different activities. The time dedicated to hobby, or TV, was quite limited while the most of spare time was dedicated to practice sport and reading. She lived in a city with less than 5000 people and used frequently the car to cover the distance to the s.p that was distant more than 10 Km; the highest food budget quota was spent at the LD, at this s.p. she spent approximately 25 € once a week. She got the information about the s.p from friends and relatives. Her CS score was in general close to the average but is lower for the product appreciation.

Cluster 2 – Customer profile: moderately open to new shopping experience

Description of customer profile: male with age between 36 e 55 years, married with more than one soon, high school diploma, income below 20.000, independent worker. His life style is characterized by a modest practice of hobby, reading, sport, social activities, while more time is dedicated to watching TV, cinema. He lives in a city with more than 20.000 people, the distance from s.p is less than one km, covered by bycicle/bike; the food budget expenditure at the s.p was approximately the 20% of the total equivalent to 100 €, the frequency of visits was once a week. He knew about the existence of the s.p from friends.

CS: his evaluation was particularly severe: all the values of the CS were below the mean and the score was particularly low with staff relations, product variety, space inside the s.p. while he expressed favourable opinion with cleaness and timetable.

1. The variability of the error, see Aaker p. 617
2. The K-cluster procedure allows to identify aggregations of cases relatively homogeneous but requires to define the number of cluster that can be made with the criterion of the minimum distance between the Ward centroid and the observation of the ch'ange in ESS.

Cluster 3 – Customer profile: Careful evaluation of the product purchased
Description of customer profile: female with many traits in common with the cluster 2 as it was evident from the distance between pairs of table 10, including family, age, the income was higher as well as her instruction represented by a university degree. She lived in a city with less than 5. 000 people and the distance to the s.p was between 1 to 5 Km, covered by using bicicle/bike.
Frequency of shopping was twice a week and average expenditure at each visit was 20 €.
CS. The four factors of CS were evaluated just below the average and no specific evidence of criticalities were expressed.

Cluster 4 – Customer profile: Traditional habits, modest capacity of expenditure
Description of customer profile: female with age higher than 65 years, widow with sons, elementary school degree and retired. The lifestyle is very modest: absence of hobbies, the time dedicated to watching TV, no cinema, seldomly reading magazine. She lived in city with less than 5.000 people and the distant from the s.p was less than 1 km covered usually by bicycle. The greater budget quota was spent to LD with two visit a week and 25 € per visit. She learned from friends/relatives about the existence of this s.p.
CS. Her score evaluation was very high for the all aspects of the CS; however, the score didn't reveal any specific critical or excellent aspect of the shopping experience.

Cluster 5 – Customer profile: search for new shopping experiences
Description of customer profile: male with the age between 26 and 35 years single with diploma and income below 20.000 €, profession employee. His life style was characterized by practising different hobby, watching Tv, cinema, reading newspapers, some time dedicated to sport and more time dedicated to vacation and social activities. He lived in a city with more than 20.000 people, distant less than 1 Km from the s.p, and used the car to reach it. The purchasing habit is characterised by a one visit per week with average expenditure between 15-20 €, the higher % of the food budget was spent at the LD.
CS - His evaluation was highly positive: appreciation for courtesy; more critic opinion was expressed for the quality of services and space inside the s.p. Beside quite similar to cluster 1 the higher distance revealed different attitudes due probably to the gender.

Cluster 6 – Customer profile: higher level of criticality
Description of customer profile: significantly different from the others the customer is a male with 36-55 years, married without sons, good education level with university degree, teacher, modest salary, and a very limited interests in any of the free time activities.
CS - His evaluation is characterized by scores close to the average value in almost all components of CS; a lower score was assigned to the shopping point quality, however this was a common trait of the all customer between 36-55 age.

Cluster 7 – Customer profile: similar to cluster 2
Similar to cluster 2 and is confirmed by the distance between centroids.

Cluster 8 – Customer profile: Concerned about product origin
Description of customer profile: female with age between 36 and 55 years married two sons, with diploma and income between 20 e 50.000 €. Her lifestyle was characterized by a considerable amount of free time dedicated to hobby, cinema, reading and vacations. She lived in a city with 5-10.000 people and was distant less than 1 km from the s.p.; covered by car. This was one of the few cases that discovered the s.p by watching the shop signal.
CS. The evaluation was quite similar to cluster 3.

8 Conclusions

The object of this analysis was to collect information about CS at the shopping points (s.p) recently created by a Farmer's cooperative, with the purpose to discover those factors inducing the customer to afford new shopping experience in a "short chain food shopping".
The analysis was performed in two steps: the first one consisted in a description of the socio-economic traits and habits of the customers attending these s.p. The age revealed a large group of customers with age between 36 and 55 years (36%) and another group over 56 (44%), the 73% of them was married with sons. The income for the large majority of them was inferior to 20 thosand € according with the results of ISTAT enquires about family consumption and there was not an evident correlation between salary, scholarity and expenditure. However the lower salary affected the customer's lifestyle, attitude versus the s.p. and willingness to pay and repeat this shopping experience. The expenditure at these s.p indicated a quota on average inferior to the 15% of the total food expenditure, the highest quota was spent at the traditional LD; the total monthly food expenditure was on average 475 € of which 60-80 € were spent at this SP, the average expenditure for a single visit was 25-30 €. The number of visits varied from 1-2 a week to 1-2 per month, the main factors of attractiveness were the curiosity, convenience, food quality, supply of local products, personal relation with the selling staff, friendly atmosphere; the main critics regarded the scarcity of services, reduced space in the SP, reduced parking and payment facilities. The explorative part of the analysis was addressed to go deeper into CS with a cluster approach. The cluster analysis suggested eight profiles referred to groups of customers with sizes varying from 6 to 23 units. In general the two main determinant of the shopping were the products quality and convenient prices; however, the CS score varied with the groups: the male customers with age between 36-55 years (cluster 2 and 7) expressed more critical opinions while people more aged expressed more satisfaction with this shopping experience. The distance from the residence to the SP didn't discourage the customers, that usually reached the s.p. by auto. A very critical factor for the diffusion of these SP was the bad visibility of the shopping location: during this short commercial story, a limited amount of money was invested in advertising and communication, as a consequence the SP has not yet a well defined image; this has delayed the customisation of a larger number of potential consumers. The four hypotheses of CS were supported by empirical evidences: the first one "is the consumer, unsatisfied with the present distributive system, is looking for alternative purchasing foods experiences?" the research suggested that a considerable number of urban customer were affording this new shopping experiences and most of them were disposed to repeat it in future. To the second one: "Who are the product' attributes that could increase his customer satisfaction?" the research revealed that origin, freshness, typicality and convenience were the main attributes positively perceived by customers. However in the shopping experience, the CS of the product was not separated by the other three component of CS and particularly atmosphere and friendly relation contributed to increase the satisfaction. To the third one: "Are these farmer shopping points a viable alternative to the traditional LD system?" the scenario is in evolution it is required more time to observe the further evolution of the customizing process to evaluate the importance of the s.p as a niche or segment. Finally to the fourth one "Will the CS sufficient to suggest a new strategy of market segmentation to justify the growth of this network?" the evidences suggested different customer profiles related to CS and purchasing behaviour. In the food market, commercial strategies were dictated until now by the LD: some services as the payment facilities, parking, food standard, cleaness and marketing strategies like promotion and advertising entered into the customer habits and their presence is a prerequisite for the survival of any form of food market outlet.

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