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*in*

Chataigner J. (ed.).
Economie du riz dans le Bassin Méditerranéen

Montpellier : CIHEAM
Cahiers Options Méditerranéennes; n. 15(2)

1996
pages 79-91

# Strategy of the retail of rice in a district of great tradition in cultivation

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*This paper results from the following collaboration: Pietro Berni (Chap. I and V), Diego Begalli (Chap. III), Roberta Capitello (Chap. II, and Luigi Spellini (Chap. IV).*

**Abstract.** The main objective is to outline the strategies adopted by the management of food retail with regard to rice. Attention is focused on relations between the typical variety (Vialone Nano Veronese) and other rice varieties and on the strategic position of rice among other food products. With respect to these two systems of variables, it will be possible to outline strategic factors driving specific choices of purchase, sale and promotion that food retailers adopt for rice. The relations between the different types of enterprise (traditional retailers, superettes, supermarkets, hypermarkets) and the strategic factors identified previously are also defined.
Original data collected through the direct interview of a significant sample of food retailers in the Verona district have been used.
The data has been processed according to the two following steps: univariate analysis and bivariate and multivariate analysis. Parametric and non parametric tests of bivariate analysis (test of Kruskal-Walllis and analysis of variance) have been used to select the most significant predictive variables, while the use of univariate statistics stressed the main characteristics of every typology.
The guidelines adopted at present for management have been identified so as to define the key factors of development upon which marketing strategies could be based in the future.

## I – Objectives of the research

The main objective is to outline the strategies of food retail for a particular product such as rice characterized not only by strong typicity and increasing supply differentiation, thanks to product innovation and new services, but also by low value per kilo meaning modest business volume for retailers.

Attention is focused on the relations between the typical variety Vialone Nano Veronese, of definite cooking value, and other varieties of rice as well as on the strategic position of rice among other food products. Given these two systems of factors, it will be possible to outline strategic factors driving to specific choices of purchase, sale and promotion that food retailers adopt for rice. On the other hand, this research intends to define relations between the type of enterprise (traditional retailers, superettes, supermarkets, hypermarkets) and the strategic factors identified previously. These aspects assume importance for medium and small local rice mills that, knowing the growing demand segmentation and diversification of consumers behaviour, will be more and more competitive with respect to alternative products. These observations will moreover be able to orient structural change in food retails.

## II – Methodology

Original data collected through direct interview of a significant sample of food retailers have been used.

The retailers have been selected systematically from firms with at least three employees. The selection uses as key variable the number of employees and allows to identify a sample of 57 enterprises from a population of 392.

The questionnaire used for the interviews is composed of four sections (general character, purchasing strategies, stategies of sale, promotions and advertising) summarized in *Chart 1*.

**Chart 1. Summary chart of information collected through the questionnaire**

| | |
|---|---|
| **General characters** | – Georgaphic position<br>– Juridical form<br>– Number of employees<br>– Exposition area |
| **Purchasing strategies** | – Quantity purchased per different typology of rice<br>– Typology of wholesalers<br>– Typology of packaging<br>– Number of brands<br>– Contractual linkages (quantity, packaging, brand, position of rice shelves, assortment) |
| **Sale strategies** | – Position on the shelves<br>– Height of the shelves<br>– Criterion for the position of rice with respect to other products and single brands (in terms of sale, diversification of production, innovation)<br>– Criterion for the brand choice<br>– Minimum and maximum Prices |
| **Promotion strategies** | – Kind of promotion (on price quantity)<br>– Kind of advertising instrument (television, press, posting, p.r., in store promotion, consumer promotion) |

The data was processed using the following: a) univariate analysis; b) bivariate and multivariate analysis. In the second step, in particular, discriminant analysis (Kleckla, 1990) was used to verify the homogeneity/differentiation degree between different typologies of firm defined on the basis of the exposition area; parametric and non-parametric tests of bivariate analysis (test of Kruskal-Wallis and analysis of variance) were used to select the most significant predictive variables while the use of univariate statistics stressed the main characteristics of every typology.

As is known, discriminant analysis allows one to select differences between two or more groups from a set of variables. In this specific situation, the use of this technique is related to the achievement of two goals: 1) interpretation through the estimation of the canonical discriminant function, to evaluate the main characteristics that distinguish the groups; 2) classification, to predict the group to which a case most likely belongs.

Here, the stepwise method of selection of variables has been used to build the discriminant function. This method is applied to solve the problems of an *a priori* definition of the predictive variables, most useful to distinguish the groups in discriminant analysis, or in other regression techniques for confirming the hypothesis. Between the different selection criteria available[1], the Distance of Mahalanobis has been chosen; through this criterion, at every step, the variable generating the higher estimation between closer groups is selected to induce the higher degree of separation beween the couple of groups.

As regards the second step—classification—the procedure adopted is based on the Theory of Bayes; in fact, the probability that a discriminant score D owes to the group i is determined in the following way:

$$P(G_j/D) = \frac{P(D/G_i)P(G_i)}{\sum_{i=l}^{g} P(D/G_i)P(G_i)}$$

with $P(G_j)$ representing the *a priori* probability or, in other words, the probability that the case belongs to group $G_j$ when there is no more information available, and $P(D/G_j)$ the conditional probability of D, given group $G_j$. Every case is classified, based on its discriminant score D, in the group for which the posterior probability is the largest.

By using that procedure, it is possible to evaluate the propriety of the *a priori* classification, in this case the surface of exposition, and to evaluate the probability of belonging to the groups previously defined for new cases observed with information of discriminant variables.

## III – Characteristics of the enterprises

The enterprises under analysis are situated in the Verona district, as shown in *Figure 1.* It is possible to distinguish three areas: 1) the area of typical production of *Vialone Nano Veronese* rice, where 19 out of the 57 retail points selected operate; 2) the urban area of the city of Verona with 13 selling outlets; 3) the rest of the district with the remaining 25 retail points.

With a range from 25 sq.m. to 7,000 sq.m., the average exposition area is 632 sq.m.. In particular, following the standard classification based on exposition area, the sample is composed of 34 traditional retailers, 5 superettes, 14 supermarkets and 4 hypermarkets. As is easy to note, this is a market structure in slower evolution compared to other industrialized countries; though the situation in the northern regions of Italy is more dynamic thanks to the typical model of widespread economic growth. In fact, considering both the number of shops and the exposition area *(Table 1*), free service shops are more present in the city of Verona than in the rest of in Italy.

The peculiarity of the demand and the proximity to many rice mills explain the direct purchasing of white rice from the producers. Actually, wholesalers trade more than a third of that total amount. As regards parboiled, precooked, brown and brown parboiled, the ratio is inverted because these are products mainly made by mills on a national level, sometimes for private labels *(Table 2)*.

In general white rice is offered in every food shop and represents more than 90% of the total rice supplied; among other varieties, Vialone Nano Veronese accounts for 93.1% of the total amount of white rice *(Table 3)*.

One-kilo packages (paper bag, cardboard, or vacuum) are largely preferred; bigger sizes are present only for white rice and parboiled. The smaller sizes are of little interest to the market: 500 g packages are rare and 250 g package are non existent *(Table 4)*. This shows that even if the average number of people per family is lower, the high per capita consumption does not justify small packages.

As regards the key factors of purchasing contracts, great emphasis is given to brand image as a guarantee of qualitative homogeneity for the consumer; quantity and assortment, on the other hand, are of secondary importance.

In other terms, the selling outlets prefer to offer to consumers famous brands likely to guarantee the quality of the product, thus not jeopardizing their image with low standard products. In general, purchasing policies, both in quantity and quality, show a low interest in rice because it offers low profits, except in particular typologies that have still not expressed their potential *(Table 5)*.

On the shelves, rice is generally placed close to pasta, so as to promote choice between the alternative possibilities for first dishes. However, it has to be stressed that the position of rice on the shelves is not propitious, for it is located in the central area of the shops and the exposition area is always very limited, even in hypermarkets.

The national brands offering products with higher contents of service are better placed because they have higher prices, induce more value-added and their contractual power defines better the conditions of exposition. We must remember that the share of the total value of business for the positioning of the products is a priority for the management of distribution firms.

For brand choice, retailers prefer the qualitative homogeneity of the product rather than price which is not a discriminant variable.

The prices change greatly between different kinds of rice and also within the same typology. This means that importance is given not only to the level of the content of services, but also to the brand in itself because it is able to differentiate a product apparently homogeneous. In other terms, consumers seem to appreciate the particular brand and justify the differences of price: the range of price oscillation is very high for white rice that is proposed with strongly diversified varieties; it is lower for parboiled and brown rices, with few brands present in the market and without specific varieties *(Figure 2)*.

In the local area of production of Vialone Nano Veronese rice, the average price is lower than in the city of Verona and in the rest of the district because of the direct purchase of consumers and local retailers from the local rice mills, which favours costs and high consumption.

Promotions are made only by great retailers, both as discount sale advertising, mostly in the shops, to diminish their costs.

## IV – Typologies of retailers and strategic choices

Starting with the hypothesis that strategies of purchasing, promotion and sale are correlated with the typology of the firm, the application of techniques of bivariated and multivariated statistic analysis allows us to verify the degree of association with most of the aspects included in the questionnaire and to evaluate distances between different retail structures.

Basing the discriminant analysis on the classic categories of firm (traditional retailers, superettes, supermarkets and hypermarkets) with the "stepwise" method, certain predictive variables have been selected.[2]

From the analysis, four aspects have been stressed more than others to differentiate the strategic behaviour of these commercial firms:

1) the propensity to offer different packages from the traditional 1-kg package (e.g. 2 kg or more; or 1/2 kg);
2) the attention to certain particular contractual aspects (e.g. the quantity and the position of rice on the shelves);
3) the presence of private labels for white rice;
4) the propensity to use advertising or promotion, in particular "consumer promotion".

The method allows us to obtain three significant discriminant functions.

1) The first explains 61% of the total variance and turns out to be correlated with the attention to the position of rice on the shelves, the arrangement of peculiar contracts with the suppliers and the propensity to advertising.

2) The second function is characterized by the attention to quantitative aspects of the supply, in terms of contracts and of promotion, and the need to diversify in new products (brown parboiled, precooked) or national brands.

3) The third function is correlated with variables that express the need to have a wider assortment, with packages other than the 1-kg package, the typologies of white rice *fino* and *comune*, and private labels.

The method allows us to evaluate the usefulness of the principle of classification on the basis of the predictive variables *(Table 6)*: through these variables more than 4/5 of the cases are assigned to their groups.

Subsequently, by using bivariated analysis, it was possible to define the distinctive characteristics of different typologies of firm *(Tables 7 and 8)*.

The strategies of sale for traditional retailers aim to minimize the costs of management but, at the same time, to offer consumers the complete range products requested. Purchasing must pass through wholesalers that grant all the references needed also for low price products. The quantity exposed and the position reflect the need of the consumers, who are used to buying white rice in low amounts. In fact, the assortment is based on local varieties of good quality (Vialone Nano Veronese and Carnaroli) and, as an alternative, Arborio. The main package is the traditional 1-kg.

Retailers' prices on the shelves are high compared to the average, because their average total costs are higher than those of bigger salers.

The supermarkets and superettes have similar strategies and may be analysed together; they mostly represent the natural development of traditional retailers and are family run. The average size is closer to the bottom of their category (superettes 254 sq.m., supermarkets 839 sq.m.) and justifies strategies of sale that are simplified and based on imitating the behaviour of bigger retailers, though adapted to their needs. Among the supermarkets, only three shops have an exposition area that is much larger than the group average; and in fact they tend to resemble the hypermarkets.

The supermarkets and superettes offer consumers a well diversified range of products with white, parboiled and brown rice always present, and precooked in 25% of the cases. The number of references is obviously higher for white rice, but still moderate because of the small exposition area. In the choice of the size, type and brand of rice to offer at the retails, during the bargaining with rice mills, particular consideration is given to certain characteristics such as the purchase price and brand notoriety, so as to guarantee the constant sale of a significant amount of rice. The lower price for rice is generally reached through direct purchase from local mills and low investment in advertising and promotion.

The hypermarkets present the most articulate strategies. They buy directly from local and national rice mills, sometimes imposing their own brand so as to have the widest range of brands, references and products. The exposition area (the average size is 5,000 sq.m.) allows them to take more care over positioning the products on the shelves, favouring the national brands that have the higher volumes of sale.

Included are innovative products per type of rice, size and packaging (paper bag, cardboard, cellophane bag, vacuum bag) to satisfy every segment of the market. In fact, sizes such as 1/2 kg and 5 kg are useful for "singles" and groups respectively.

In these firms, the range of prices is wide in respect of the different service content and brand notoriety. In particular, private labels entail competitiveness of price and high appeal to the consumer and are sometimes marked either directly by the name of the hypermarket or with private labels of a line of products of large consumption.

Even if the hypermarkets systematically promote and advertise their products, rice is rarely present in these initiatives. The lack of interest is justified by the low volume of business made by rice and by the low margin of profit for retailers. Most of the promotion concerns national brands and is included in purchasing contracts; to reduce costs it is made mostly as "in store" or "consumer promotion".

## V – Some final remarks

The research stresses the main strategies adopted by retailers in the sale of rice. The guidelines at present adopted by management have been identified so as to define the key factors of development on which it will be possible to base marketing strategies of the future.

In particular, we note the high segmentation of the market at the big stores, evidenced by the large number of brands, references and range of prices, though the range of products at the traditional retailers and superettes is more reduced. This segmentation allows the local brands to impose the typical *Vialone Nano Veronese* thus avoiding the competition of national brands. The national brands are present in the segment of the market dominated by rices with a high service content but are still little known by the consumers and rarely present at the traditional retailers.

The package reflects the need of consumers strongly linked to traditional habits; small sizes are present exclusively at hypermarkets, but for the future, the growing demand of new groups of consumers (singles and elderlies in particular) will have to be considered.

As regards purchasing contrats, we observe the attention to brand notoriety as a guarantee of quality. For the hypermarkets, where there is strong competitiveness between private labels and national brands, aspects such as the position on the shelves and the range of products also become important.

Finally, the rare recourse to “in store” promotion and advertising in store is a symptom of the low contractual power of rice mills caused by the low concentration of the supply and the low volume of business for rice.

**Notes**

1. Wilk's lambda and Partial F Ratio; Rao's V; F between groups; sum of variance unexplained.
2. In particular, retailers have been classified in the following way: traditional retailers, if the exposition area is under 200 sq.m.; superettes, if it is between 200 and less than 400 sq.m.; supermarkets if it is between 400 and 2,500 sq.m.; and hypermarkets over 2,500 sq.m..

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Fig. 2 - Average price per typology of rice (£ lt./Kg)

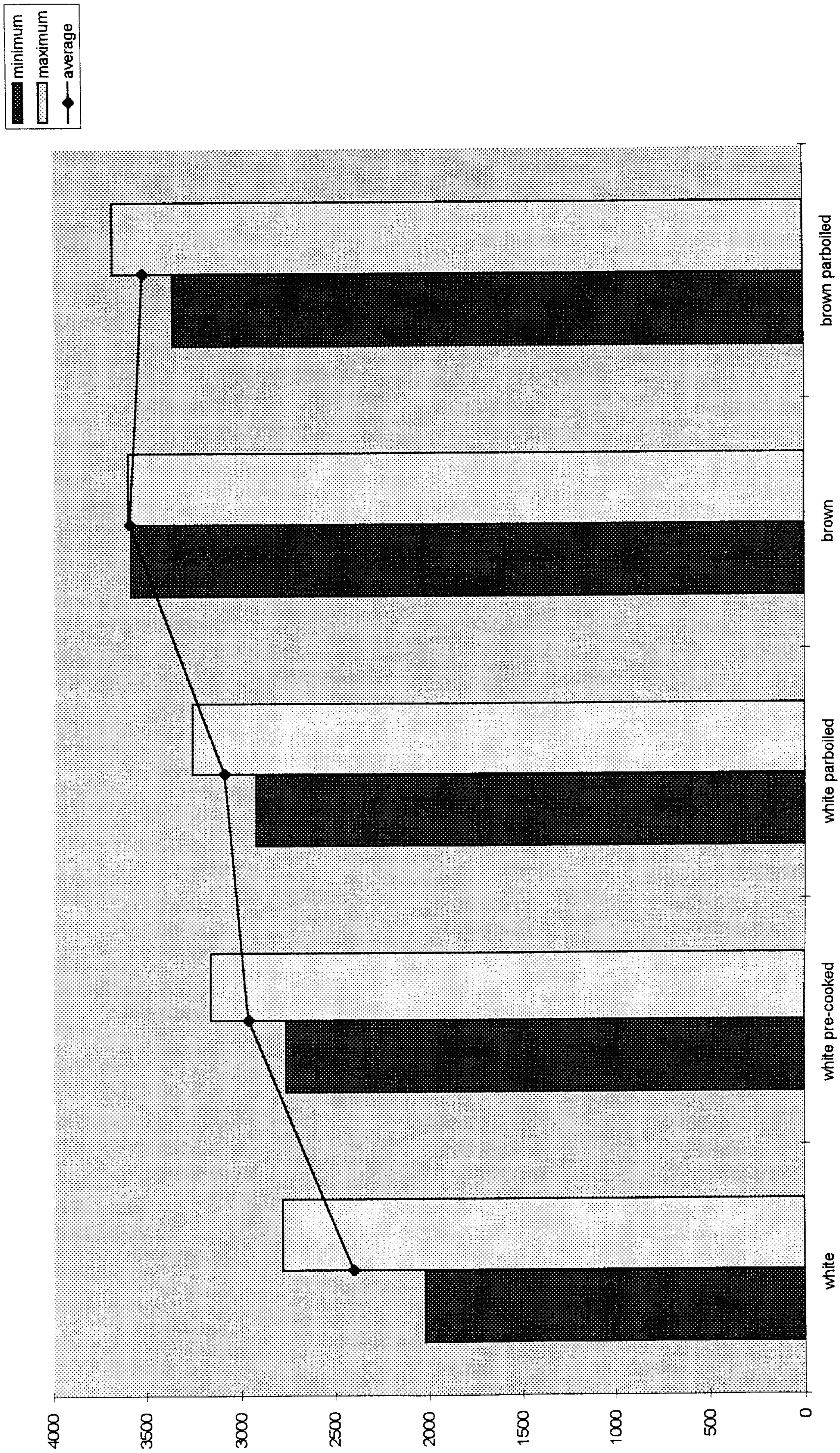

Table 1 - Food distribution in Italy

| | 1987 | 1988 | 1989 | 1990 | 1991 |
|---|---|---|---|---|---|
| Supermarkets | 2,570 | 2,818 | 3,176 | 3,399 | 3,465 |
| Hypermarkets | 32 | 40 | 69 | 70 | 82 |
| Other food retailers | 313,166 | 309,424 | 303,231 | 298,059 | 294,414 |

Table 2 - Source of supply per type of rice (%)

| | white | white pre-cooked | white parboiled | brown | brown parboiled |
|---|---|---|---|---|---|
| Wholesalers | 37.5 | 77.8 | 72.9 | 75 | 73.7 |
| Rice mills | 52.1 | 0 | 2.9 | 8.3 | 0 |
| Co-operatives among rice mills | 10.4 | 22.2 | 24.2 | 16.7 | 26.3 |
| Total | 100 | 100 | 100 | 100 | 100 |

Table 3 - Varieties and types of rice on the shelves (%)

| | (%) |
|---|---|
| white | 92.0 |
| - comune | 0.6 |
| - semifino | 87.5 |
| - fino | 0.3 |
| - superfino | 3.6 |
| white pre-cooked | 0.5 |
| white parboiled | 3.7 |
| brown | 2.0 |
| brown parboiled | 1.7 |

Table 4 - Presence of types of packaging on the shelves per type of rice (%)

| | 250 g. | 500 g. | 1,000 g. | 5,000 g. |
|---|---|---|---|---|
| white | 0.0 | 0.2 | 94.0 | 5.8 |
| white pre-cooked | 0.0 | 0.0 | 100.0 | 0.0 |
| white parboiled | 0.0 | 0.0 | 98.8 | 1.2 |
| brown | 0.0 | 0.0 | 100.0 | 0.0 |
| brown parboiled | 0.0 | 0.0 | 100.0 | 0.0 |

Table 5 - Distribution of types of rice per label

| | Labels of local rice mills | Labels of national rice mills | Private labels |
|---|---|---|---|
| white | 91.4 | 7.2 | 1.4 |
| white pre-cooked | 6.3 | 93.7 | 0.0 |
| white parboiled | 8.3 | 91.1 | 0.6 |
| brown | 16.7 | 83.3 | 0.0 |
| brown parboiled | 6.8 | 91.6 | 1.6 |

Table 6 - Classification results of the discriminant analysis

| | Actual Group | No. of cases | Predicted group membership | | | |
|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 |
| Traditional retailers | 1 | 34 | 32 | 0 | 2 | 0 |
| | | | 94.1% | 0.0% | 5.9% | 0.0% |
| Superettes | 2 | 5 | 1 | 2 | 2 | 0 |
| | | | 20.0% | 40.0% | 40.0% | 0.0% |
| Supermarkets | 3 | 14 | 4 | 0 | 10 | 0 |
| | | | 28.6% | 0.0% | 71.4% | 0.0% |
| Hypermarkets | 4 | 4 | 1 | 0 | 0 | 3 |
| | | | 25.0% | 0.0% | 0.0% | 75.0% |

Table 7 - Analysis of variance and degree of association with the firm typology

| | Kruskal-Wallis | | | | | |
|---|---|---|---|---|---|---|
| | Chi-square | Significance | Mean rank | | | |
| | | | Retailers | Superettes | Supermarkets | Hypermarkets |
| Contract linkages: | | | | | | |
| - quantity | 19.17 | 0.00 | 23.34 | 33.90 | 38.79 | 36.75 |
| - quality | 0.00 | 0.00 | | | | |
| - package | 7.29 | 0.06 | 28.00 | 28.00 | 30.04 | 35.13 |
| - label | 7.10 | 0.07 | 25.96 | 33.50 | 33.50 | 33.50 |
| - position on the shelves | 26.98 | 0.00 | 28.00 | 28.00 | 28.00 | 42.25 |
| - assortment | 15.44 | 0.00 | 24.68 | 28.70 | 35.21 | 44.38 |
| Position with respect to other products: | | | | | | |
| - percentage on sales | 4.03 | 0.26 | | | | |
| - diversification | 9.43 | 0.02 | 25.35 | 27.80 | 35.96 | 37.30 |
| - innovation | 7.29 | 0.06 | 25.74 | 29.40 | 34.07 | 38.50 |
| Position among trade marks: | | | | | | |
| - percentage on sales | 7.11 | 0.06 | 25.71 | 28.40 | 35.00 | 36.75 |
| - diversification | 9.07 | 0.02 | 25.43 | 28.10 | 35.32 | 38.38 |
| - innovation | 6.88 | 0.08 | | | | |
| Brand choice: | | | | | | |
| - price | 9.78 | 0.02 | 24.50 | 34.20 | 39.07 | 25.50 |
| - image | 3.57 | 0.31 | | | | |
| - services | 1.57 | 0.66 | | | | |
| - quality costant | 0.70 | 0.87 | | | | |
| - guarantee | 2.49 | 0.48 | | | | |
| - package | 2.84 | 0.42 | | | | |
| Promotion: | | | | | | |
| - on price | 17.37 | 0.00 | 24.50 | 30.20 | 36.71 | 38.75 |
| - on quantity | 12.63 | 0.00 | 26.00 | 31.70 | 32.11 | 40.25 |

| | Kruskal-Wallis | | | | | |
|---|---|---|---|---|---|---|
| | Chi-square | Significance | Mean rank | | | |
| | | | Retailers | Superettes | Supermarkets | Hypermarkets |
| Advertising: | | | | | | |
| - TV | 7.29 | 0.06 | 28.00 | 28.00 | 30.04 | 35.13 |
| - press | 7.29 | 0.06 | 28.00 | 28.00 | 30.04 | 35.13 |
| - posting | 13.25 | 0.00 | 28.50 | 28.50 | 28.50 | 35.63 |
| - p. r. | 0.00 | 1.00 | | | | |
| - in store promotion | 10.99 | 0.01 | 26.34 | 25.50 | 35.68 | 32.63 |
| - consumer promotion | 18.00 | 0.00 | 27.50 | 27.50 | 29.54 | 41.75 |
| | | 0.00 | | | | |
| - white | 0.00 | 1.00 | | | | |
| - white pre-cooked | 7.28 | 0.06 | 27.01 | 24.50 | 32.64 | 38.75 |
| - white parboiled | 7.35 | 0.06 | 24.91 | 34.30 | 35.93 | 32.88 |
| - brown | 4.61 | 0.20 | | | | |
| - brown parboiled | 9.41 | 0.02 | 25.36 | 25.20 | 35.79 | 40.88 |

Table 8 - Analysis of variance and degree of association with the firm typology

| | Analysis of variance - Anova | | | | | |
|---|---|---|---|---|---|---|
| | F | Significance | Means | | | |
| | | | Retailers | Superettes | Supermarkets | Hypermarkets |
| Quantity of rice purchased: | | | | | | |
| - white ordinario | 2.82 | 0.05 | 0.21 | 1.00 | 0.93 | 2.00 |
| - white semifino | 0.03 | 0.99 | | | | |
| - white fino | 2.84 | 0.05 | 0.03 | 1.00 | 0.70 | 0.00 |
| - white superfino | 0.12 | 0.95 | | | | |
| - white pre-cooked | 1.68 | 0.18 | | | | |
| - white parboiled | 0.66 | 0.58 | | | | |
| - brown | 0.07 | 0.98 | | | | |
| - brown parboiled | 0.16 | 0.92 | | | | |
| Typology of purchasers of white rice: | | | | | | |
| - wholesalers | 2.91 | 0.04 | 49.12 | 42.00 | 17.96 | 2.50 |
| - rice mills | 1.87 | 0.14 | | | | |
| - co-operatives | 0.79 | 0.50 | | | | |
| Variety of white rice: | | | | | | |
| - semifino Vialone Nano | 5.35 | 0.00 | 97.73 | 93.00 | 90.71 | 88.75 |
| - superfino Carnaroli | 4.08 | 0.05 | 13.75 | 7.50 | 8.12 | 0.00 |
| - ordinario | 1.90 | 0.25 | | | | |
| - Arborio | 194.67 | 0.00 | 100.00 | 0.00 | 4.3 | 15.00 |
| - semifino Padano | 0.00 | 0.99 | | | | |

| | Analysis of variance - Anova | | | | | |
|---|---|---|---|---|---|---|
| | F | Significance | Means | | | |
| | | | Retailers | Superettes | Supermarkets | Hypermarkets |
| Typology of white rice package | | | | | | |
| - 500 g | 2.88 | 0.04 | 0.00 | 0.00 | 0.50 | 1.25 |
| - 1,000 g | 3.41 | 0.02 | 97.35 | 88.00 | 90.71 | 85.00 |
| - 2,000 g | 10.74 | 0.00 | 0.00 | 4.00 | 0.00 | 3.75 |
| - 5,000 g | 1.79 | 0.16 | | | | |
| Typology of precooked rice package | | | | | | |
| - 500 g | - | - | | | | |
| - 1,000 g | 2.64 | 0.06 | 8.82 | 0.00 | 28.57 | 50.00 |
| - 2,000 g | - | - | | | | |
| - 5,000 g | - | - | | | | |
| Typology of parboiled rice package | | | | | | |
| - 500 g | - | - | | | | |
| - 1,000 g | 2.83 | 0.05 | 44.12 | 80.00 | 82.86 | 75.00 |
| - 2,000 g | - | - | | | | |
| - 5,000 g | 1.03 | 0.39 | | | | |
| Typology of brown rice package | | | | | | |
| - 500 g | - | - | | | | |
| - 1,000 g | 1.58 | 0.20 | | | | |
| - 2,000 g | - | - | | | | |
| - 5,000 g | - | - | | | | |
| Typology of parboiled brown rice package | | | | | | |
| - 500 g | - | - | | | | |
| - 1,000 g | 4.27 | 0.01 | 17.65 | 20.00 | 57.14 | 75.00 |
| - 2,000 g | - | - | | | | |
| - 5,000 g | - | - | | | | |