AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Competitive strategies in the Italian pasta industry

Mariarosaria Simeone, Giuseppe Marotta & Giacomo Rotondo

Department of Economic, Law and Social Studies (SEGIS), University of Sannio, Benevento (Italy)
mariarosaria.simeone@unisannio.it

Abstract

The aim of this research paper is to analyse the Italian pasta market with a specific focus on the competitive strategies played by different brands. We applied a theoretical approach to statistical data from preeminent sources. For each company, we calculated an index in order to infer the price elasticity. From the results, we deduced that for some of the companies analysed, the value assumed by the index has led to a cross price elasticity rather than own price elasticity. For these companies, the economic results are influenced mainly by the competitors' price policies rather than from their own price policies. That indicator η, whose calculation is straightforward, is able to relate the variation of quantities sold to the variations of sales revenues. This is an index of strength or vulnerability of each company that gives a measure of competition. The effectiveness of the non-price strategies will be undoubtedly reflected on the parameter η.

Keywords*: competitive strategies, price positioning, promotion, innovation, pasta market.*

Introduction

The aim of this research paper is to analyse the Italian pasta market with a specific focus on the price strategies played by different brands. We applied a theoretical approach to statistical data from preeminent sources (IRI, 2008).

The Italian Antitrust Authority investigated whether companies of the Industrial Union of Pasta Makers, which represent about 85% of the market, colluded to fix the price of pasta. According to the regulator, and the numerous documents found, have clearly showed that in 2006 and 2007 some of these companies had a common strategy of using coordinated prices (Notaro, 2013; Giangiulio D.; 2011).

From this specific case, a certain interest arose in the study of how the price strategies of the major Italian pasta brands have an impact on their own sales and on those of other competitors in the market.

The structure of an industry determines the intensity of competitive rivalry and the cooperative or warfare outcome that can be reached. It is important to understand how competitors are moving. In fact, if competitors try to meet the same needs or to compete with similar products, one firm's gain is likely to erode the others' profitability.

This study differs from those aimed at testing the direction and magnitude of changes in prices which are determined by the need to transfer the cost variations. Moreover, it differs also from those studies that are more specifically designed to verify if, as a result of raw materials purchase price fluctuations, operators are limited to control a transfer

on the final sale price (Giangiulio 2011).

In this study, we calculated an index in order to infer the price elasticity for each company. Looking at the value assumed by this index, we deduced that for some of these companies analysed, the results have led to cross price elasticity instead of own price elasticity. Therefore, for these companies, the economic results seem to be influenced mainly by the competitors' price policies rather than by the companies' established price policies. The work focuses on the Italian pasta market with the intent to analyse the value of price policy in the competition among the different main pasta brands on the Italian market.

We referred to the concept of empirical elasticity proposed by Labini (1979). According to the author, when a business man aims to predict the possible consequences of price or quantity variation he will look at the total revenues given by the pairs of prices and quantities. In this paper, because we do not have the prices of the pasta companies, from the data on sales and quantities we have quantified the index over time for each brand. For this purpose, this index as calculated give the reactivity of sales sales to volumes. Once defined η, on the base of data available, from it we infer, through a functional relation, the (adjusted) elasticity respect to the price ε in order to capture, for each brand, either the effect of the own price elasticity and of the cross price elasticity.

Because in our study we did not have data to calculate "ε" but we had data on revenues "R" and on quantities "Q" we calculated the value of η for the Italian pasta market and we deduced the value of the elasticity "ε" for all the firms using the implicit formula of η.

The results of the analysis highlighted a first group of companies with negative demand elasticity where the quantity demanded moves in the opposite direction to their price variation (i.e. when the price increases the quantity decreases). Furthermore, the results allowed us to identify a more interesting group of companies where the indicator η is between 0 and 1 ($0<\eta<1$), the elasticity has a positive value and their revenues seems to be influenced by competitors' price policy. For these companies there are two possible scenarios depending on the sign of the price variation: on one hand they could increase the sold quantities in both volume and value when their price increases, on the other hand they could decrease the sold quantities in both volume and value when the competitive companies adopt a strategies of decrease in price.

From conclusions arise that some companies of Italian pasta market are not affected by price reduction policies of competitors. Of particular interest is the ability of these companies that they will not see a reduction of their market share and of their revenues, even if they increase their prices. We believe that those kinds of companies rely on the product differentiation to obtain the customer loyalty.

Price policies in the Italian pasta market.

Competition can be played on many fronts: prices, product features, brand image, or support services (Porter, 1998). When rivalry is based only on prices, it is destructive to profitability. Competition can assume many forms, including price discounting, advertising campaigns (Suzuki et al., 1994), product innovation (Traill and Grunert 1997) and service improvements. We concentrate on product competitiveness as the result of a promotional campaign to maintain a low product price in order to reach new consumers.

Price discount campaigns are short term policies because in the medium term, prices have to be at their regular levels, even with a possible contraction of production and of revenues: the magnitude of such reduction depends on the effects of promotional campaigns previously implemented.

Price competition is highly unstable and quite likely to leave the entire industry worse off from the point of view of profitability. Price cuts can be transferred quickly and easily to competitors and once matched, they lower revenues for all firms unless industry price elasticity is high enough. Pricing is one of the most important issues in marketing research and an extensive stream of research on price elasticity has been conducted (Gadi F., et al., 2005). The limits of market research can be expanded through the use of scanner data. Many works exist, on the market analyses using scanner data that are reliable estimates of demand parameters for specific commodities. With the availability of supermarket scanner data, consumer promotions have become a focal point in market response analysis. Their use consents significant advances in our understanding of food marketing because it allows estimating firms and brand levels as well as market or commodity demand models (Cotteril 1994). Another study (Andreyeva et al, 2010) that focus on the effects of price changings on the demand of primary food products, where for primary demand we intend the quantity related to a group of food category: this study is based on 160 research conducted on the subject and it calculates the average value of the elasticity of demand for 16 groups of foods and drinks.

Price promotions are used extensively in marketing and the sale increase for a brand on promotion could be due to the consumers accelerating purchases and/or consumers switching their choices from other brands. In their study, Bell et al. (1999) develop a framework for understanding variability in promotional response that is based on the consumer's perspective of the benefits from a price promotion. The paper reports the decomposition of total price elasticity for 173 brands across 13 different product categories and on average they find that 25% of elasticity is due to primary demand expansion (i.e. purchase acceleration) and 75% to secondary demand effects or brand switching. They offer an empirical generalization of a key finding on promotional response, purchase incidence, stockpiling and they give new insights into factors that explain variance in promotional response. McLaughlin and Lesser (1986) describe on their experiment of systematically varying prices and tracking subsequent movement of potatoes through the use of scanner data. They calculate appropriate store-specific demand elasticity based on data over 42 weeks period from eight retail food stores in New York. Retailers could make use of store-specific elasticity to assess impacts of promotional activity, to determine optimal space allocation and to develop sales management models.

In our work we will refer to the concept of empirical elasticity proposed by Labini (1979). According to the author, when a business man aims to predict the possible consequences of price or quantity variation he will look at the two total revenues given by the pairs of prices and quantities. In this paper, because we do not have the prices of the pasta companies, from the data on sales and quantities, we have quantified the empirical elasticity, over time for each brand, simply by dividing the percentage change in sales volume by the percentage change in revenues. The elasticity (adjusted) ε, inferred from η, measures the competitiveness of each brand in relation to the pricing strategies adopted by firms that stand as competitors.

Material and Methods

The index ɳ and its implication

Econometrics models are able to measure the own price elasticity of a good in regards to its price and they are able to isolate the effect on the demand from both the other goods price variations (cross price elasticity) and the consumers' income variations.

The movements along the demand curve have a meaning when it is assumed that the income of consumers and, above all, the prices of goods produced by competitors, are given. Thus, the elasticity of demand is own price elasticity. Competitors' policies of higher prices cause shifts in the demand curve. Since the goods are identical in terms of merchandise (the pasta!), it is possible to assume a certain degree of substitutability when competitors' price increase. If one company decides a price reduction, it is possible that a competitor's reaction could be a drop in prices. This would have the effect of rotating inwards the demand curve of the good X and therefore a reduction of its elasticity.

Therefore, a price reduction policy of the good X would lead to an increase in its quantities sold less than proportional to the price reduction. In that case, a price reduction can cause a decline in sales revenues. (figure No. 1).

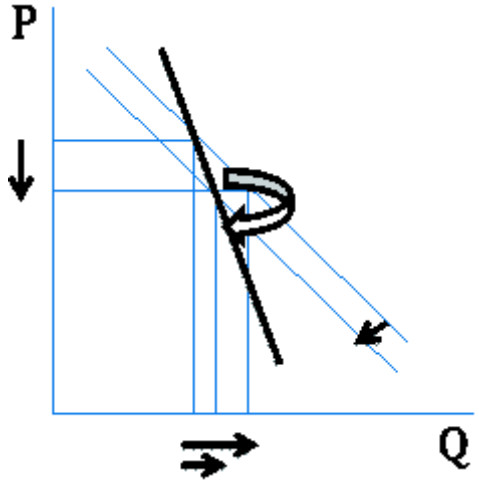

Figure 1. *Rotation of Demand function for good X if competitors reduce prices*

If a company decide to reduce the price of its good X and competitors react by raising prices of their goods, the effect would be to shift outward the demand curve of good X and an increase of its elasticity (Figure 2). In our study, we observed that for the years considered, the total quantity sold, in value, was almost unchanged, therefore the movements of the demand curve at the level of single brand must be attributable to changes of the other brands prices.

The demand curve for each company considered is a dynamic demand because it changes the slope and the elasticity as the effect of price policies implemented from the competitors. The change is not only in value but also in the sign of the demand curve slope and thus in its elasticity.

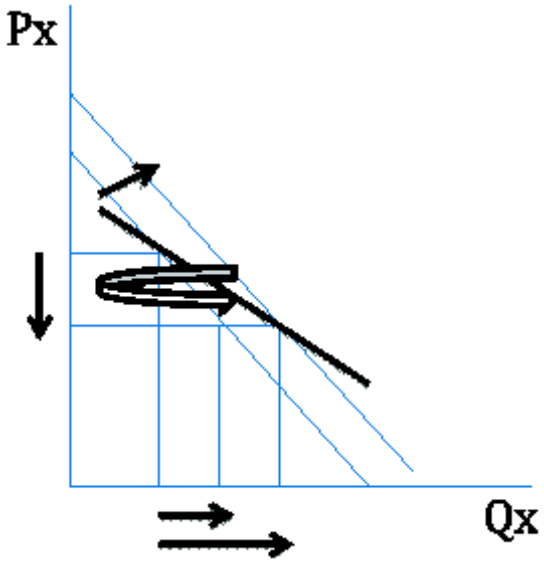

Figure 2. *Rotation of Demand function for good X if competitors raise prices*

The demand elasticity can be inferred indirectly when the quantity of pasta sold and the company revenue (that coincide with the money paid by consumers) are known, at the beginning and at the end of the time interval.

Once defined the following index we have:

1) $$\eta = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta R}{R}},$$

where Q is the quantity (volume) and R is the revenue (value).

It is important to underline that when "R" changes than the variation of "Q" depends on its ε (reactivity of quantity "Q" for each variation of the price level "P").

The ratio $\frac{\Delta R}{R}$ is:

2) $$\frac{\Delta R}{R} = \frac{P\Delta Q + Q\Delta P}{PQ} = \frac{Q\Delta P}{PQ}\left(1 + \frac{P\Delta Q}{Q\Delta P}\right).$$

Then, we can write η as:

3) $$\eta = \frac{\frac{\Delta Q}{Q}}{\frac{Q\Delta P}{PQ}\left(1 + \frac{P\Delta Q}{Q\Delta P}\right)} = \frac{\frac{\Delta Q}{Q}}{\frac{\Delta P}{P}\left(1 + \frac{P\Delta Q}{Q\Delta P}\right)}$$

and therefore η is:

4) $$\eta = \frac{\varepsilon}{1+\varepsilon}.$$

We have defined η as function of ε, the demand elasticity and we can study the function curve. As it is known, according to the theory, the elasticity "ε" should always be negative. That is why in the figure (3) below we do not draw the curve of the function η in the part where the elasticity is positive: in the first and fourth quarter there is no curve, it exists just between 0 and -1 and between -1 and -∞.

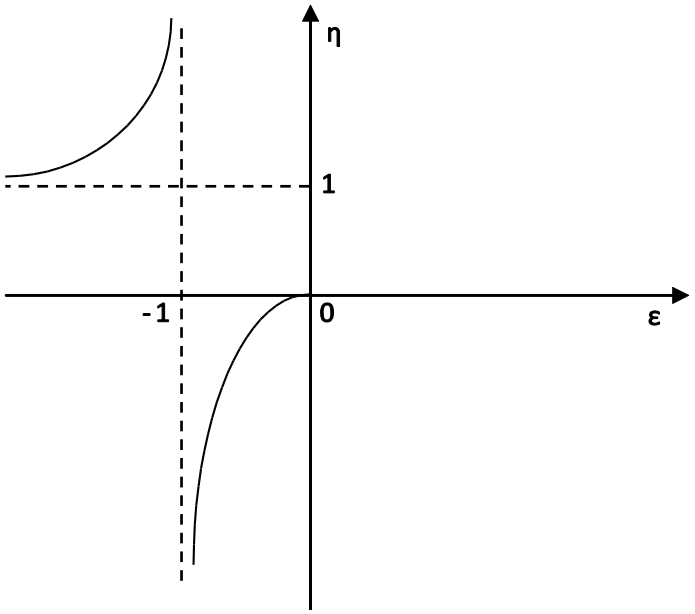

Figure 3. *Function* $\eta = \frac{\varepsilon}{1+\varepsilon}, \varepsilon : -\infty \prec \varepsilon \prec 0, \varepsilon \neq -1.$

Because in our study we did not have data to calculate "ε" but we had data on revenues "R" and on quantities "Q" we analysed the value of η for the Italian pasta market and we calculated, as a result, the value of "ε" using the implicit formula of η.

Doing so, we had the possibility to observe that for some pasta industries the adjusted "ε" is not negative but, on the opposite, in the majority of the cases examined, it is positive. The reason of the positive value of elasticity comes from the fact that competitors' prices of goods are not fixed, but they change. The prices variation of competitors' goods can influence the quantity sold of the other firms, therefore it can affect the other companies' elasticity. That means that when the customers find an increase on the price of a brand, he will probably choose to buy another brand of pasta. Therefore if the competitors increase the price of their goods also the other companies on the market can increase their prices with good results in terms of revenues. This is true, for example, when the company's final price (after the increase) is minor than the final price of the other competitors that increased the prices.

The market share of the Italian pasta companies

The Italian pasta market is highly concentrated. In 2007, the market leader was Barilla with 42.3% share of the market, followed by Divella with 9.26% and De Cecco with 7.46%.

Table 1. *Market share of Italian pasta companies.*

Production in volume	Brand	Market share	Market share cumulated	Production in volume	Brand	Market share	Market share cumulated
Apr. 2005 Apr. 2006		Apr. 2006		Apr. 2006 Apr. 2007		Apr. 2007	
248409020	Barilla	0.432	0.432	236851558	Barilla	0.423	0.423
91045748	Private Label	0.158	0.590	91557568	Private Label	0.163	0.586
58625588	Divella	0.102	0.692	51862365	Divella	0.092	0.679
40466845	De Cecco	0.070	0.763	41764506	De Cecco	0.074	0.753
22558536	Voiello	0.039	0.802	21853191	Agnesi	0.039	0.792
22186456	Agnesi	0.038	0.840	21406980	Voiello	0.038	0.831
21385242	Amato	0.037	0.878	20012014	Amato	0.035	0.866
18717459	Granoro	0.032	0.910	19293514	Granoro	0.034	0.901
13919574	Garofalo	0.024	0.934	16503041	Garofalo	0.029	0.930
8923704	Russo Cicciano	0.015	0.950	7707638	Buitoni	0.013	0.944
7842155	Buitoni	0.013	0.964	7531068	Russo Cicciano	0.013	0.957
4672146	Jolly	0.008	0.972	4676923	Jolly	0.008	0.966
4383283	Del Verde	0.007	0.979	4273426	Russo Pomigl.	0.007	0.973
3801898	Russo Pomigl.	0.006	0.986	3966128	Del Verde	0.007	0.980
2467741	Riscossa	0.004	0.990	3195812	La Molisana	0.005	0.986
2404427	Corticella	0.004	0.994	3077830	Rummo	0.005	0.992
1569065	La Molisana	0.002	0.997	2784814	Riscossa	0.004	0.997
1315529	Rummo	0.002	1	1602009	Corticella	0.002	1
574694416				559920385			

Source: our calculation on scanner data from IRI (total volume of pasta sold in Italy in ipermarket, supermarket and superette points (2008).

The data in the table 1 is for market shares of Italian pasta brands based on scanner data of the total quantity of pasta sold monthly at all points of sale in Italy (Ipermarket, Supermarket and Superette) (Simeone and Marotta 2012). In the column "market share cumulated" brands are sorted in a decreasing market share. Therefore, that column provides an indication of the market concentration of the brands considered. In fact, for the period from April 2005 to April 2006, the first nine companies (out of 18 considered as a whole) control over 93% of sales volume.

The Italian pasta market is characterised by three segments on the basis of the price to the consumers: the low, the medium and the premium price segment. The data used in the table refers to two moments: a beginning time in April 2005, and an ending time

in April 2007[1]. The total production of pasta is measured on the national territory in the hyper, super and minimarkets with annual frequency.

Table 2 shows the trend of each company in the three market segments (P = premium price, M = medium price, L = Low price): in the third column of the table there is the percentage change of production in volume for each company in the period April 2006 – April 2007; in the fourth column the percentage change of production in value for each company; in the fifth and sixth column the index η and the percentage of price changes has been respectively calculated for each company.

Table 2 *- Companies in the three market segments: Premium, Medium and Low price*

Company	Segment	Prod. change in vol: april 2007/2006 (%)	Prod. change in value:april 2007/2006 (%)	η	% change in price[2]
Del verde	P	-22.15	-25.60	0.87	-3.45
Rummo	P	257.79	198.00	1.30	-59.79
De Cecco	P	5.71	6.15	0.93	0.44
Garofalo	P	23.49	24.33	0.97	0.84
Voiello	P	-18.16	-7.00	2.59	11.16
La Molisana	P	115.59	108.45	1.07	-7.14
Agnesi	M	6.32	1.32	4.79	-5.00
Buitoni	M	-12.24	-22.00	0.56	-9.76
Jolly	M	1.17	1.49	0.78	0.32
Corticella	M	-26.49	-22.00	1.20	4.49
Barilla	M	-4.16	-1.67	2.49	2.49
Granoro	L	-0.42	-1.12	0.38	-0.7
Amato	L	2.88	-0.06	-47.93	-2.94
Russo C. Cicciano	L	-16.37	-11.64	1.41	4.37
Divella	L	-10.49	-8.84	1.19	1.65
Private Label	L	0.38	0.21	1.81	-0.17
Russo C. Pomigli.	L	26.41	22.79	1.16	-3.62
Riscossa	L	27.92	19.16	1.46	-8.76

Source: Our elaboration on IRI data.

[1] In regards to the calculation of η, the magnitudes of the variables used is referred to the year. In particular, for each of the variables, the initial value is given from the aggregated data for the period April 2005 – April 2006, the final value, however, Is referred to the aggregated data for the period April 2006 - April 2007

[2] The percentage change in sales price has been inferred by doing so. He derived the revenues (sales value) versus time t:. $\frac{\partial R}{\partial t} = \frac{\partial P}{\partial t}Q + \frac{\partial Q}{\partial t}P$. By appropriate transformations, we come to express the percentage change in prices depending on the algebraic difference between the percentage change in sales value and the percentage change in sales volume: $\frac{\partial P}{\partial t}\frac{1}{P} = \frac{\partial R}{\partial t}\frac{1}{R} - \frac{\partial Q}{\partial t}\frac{1}{Q}$.

The value calculated of η infers the own price elasticity of the product. If $1 \prec \eta \prec \infty$ then $-\infty \prec \varepsilon \prec -1$; if $-\infty \prec \eta \prec 0$ then $-1 \prec \varepsilon \prec 0$.

Where $1 \prec \eta \prec \infty$, the demand of the product is elastic and sensitive to price variations. This sensitivity tends to rise when η tends to 1: in fact the own price elasticity tends to -∞. The reaction of the demand to its price is reduced when η tends to ∞: in this case, the elasticity of the good tends to -1.

In the part of the function where $-\infty \prec \eta \prec 0$, the demand of the good is inelastic, and it is less reactive to price changing when η tends to 0: in fact, when η tends to -∞, ε tends to – 1, while when η tends to 0, ε tends also to 0.

For some companies, on the basis of available data, the result is $0 \prec \eta \prec 1$. Then, the value of η is not inside the co-domain defined above. In other words, if $0 \prec \eta \prec 1$, the elasticity ε ceases to be negative and becomes positive.

For these companies the intensity of the cross price elasticity dominates the own price elasticity. The net effect is a positive elasticity. Figures 4, 5, 6 show the function η when ε is defined with regard to the entire set of real numbers. The same figures showed the point, on the $\eta = \frac{\varepsilon}{1+\varepsilon}$, where each company is situated. Looking at the figure 1, companies with $0 \prec \eta \prec 1$ are the ones for which we can hypothesise the variations of production in volume and in value that have been the result of competitive companies price changing.

When $0 < \eta < 1$, changes in the quantities sold and sales revenue will move in the same direction: $\frac{\Delta Q}{Q} = \eta \frac{\Delta R}{R}$. If the variations of both the quantities and the revenues are positive, the firm takes advantage from competitors pricing policies, so the firm can actually increase its sale price without seeing the reduction of either the sales volume and the revenues.

If, however, the changes in revenues and in quantities are negative, then it means that the firm with η such that $0 < \eta < 1$ is affected strongly by the pricing policies implemented by the competitors. In fact, a price reduction is not able to recruit new customers, nor, above all, to stop the loss of regular customers. Therefore, depending on the sign of the change in revenues, an η such that $0 < \eta < 1$ can denote either positions of strength or position of extreme vulnerability of businesses. These companies are represented in Figure No. 4.

In the premium price segment (indicated in the table 2 with letter P), three companies have a value of η with $0 \prec \eta \prec 1$ and therefore they have a positive value of ε. Two of these companies have seen the increase of their own production in volume and in value as the effect of competitive companies' price policies (increased price). The other company has suffered the price reduction of the other competitive companies in terms of contraction of its production, in volume and in value.

In the medium price segment (indicated in table 2 with letter M), two companies have been impacted by the competitive companies' price policies: one positively, the other negatively. Finally, in the low price segment, only one firm has suffered a reduction of production in volume and in value, caused by price reduction of the competitors.

Companies with a value of η presented in figure 5 with $1 \prec \eta \prec \infty$ can be considered as the companies for which competition is played mainly on price, and this is especially

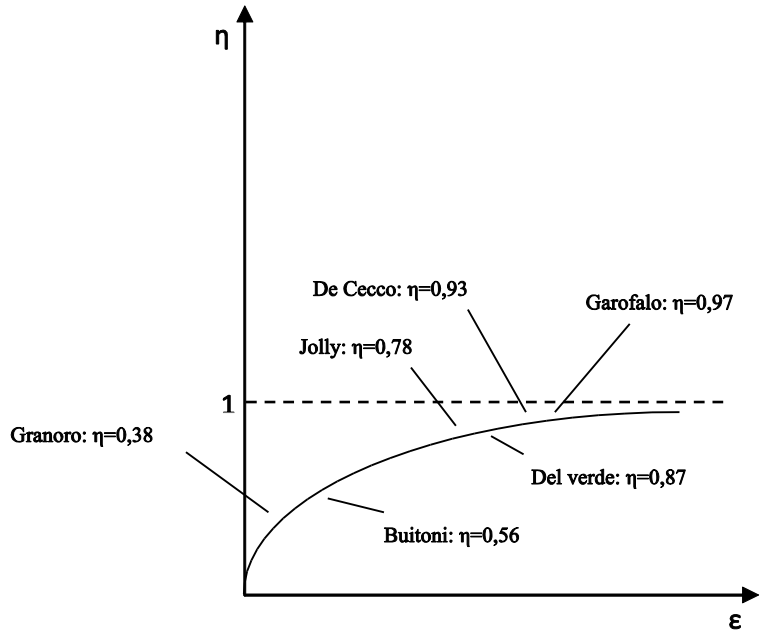

Figure 4: *Function* $\eta = \frac{\varepsilon}{1+\varepsilon}$, $\eta : 0 \prec \eta \prec 1$

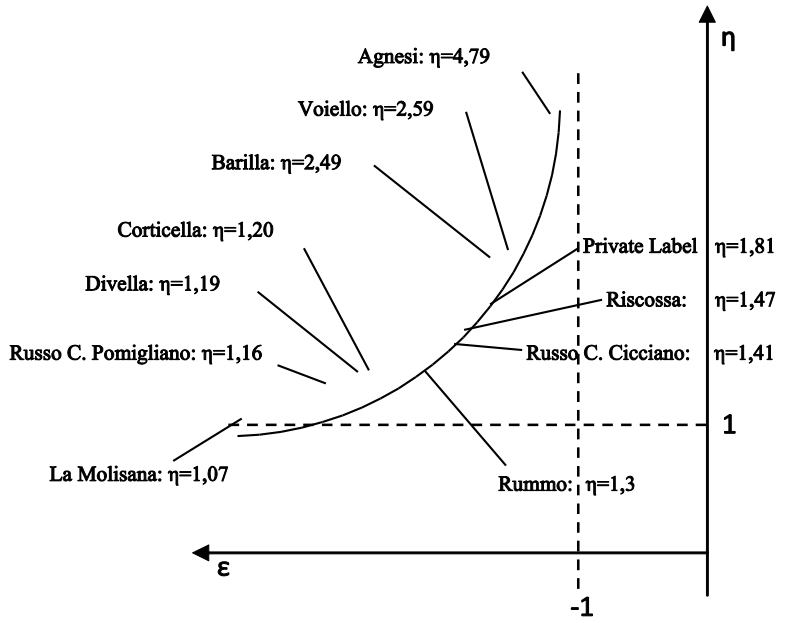

Figure 5. *Function* $\eta = \frac{\varepsilon}{1+\varepsilon}$, $\exists \forall \varepsilon : -\infty \prec \varepsilon \prec -1$

true for companies that have a $\eta \rightarrow 1$. The changes in revenues and in quantities move in the same direction.

In the premium price segment three companies present $1 \prec \eta \prec \infty$. Two of these companies have seen the increase of production both in volume and in value. For these companies we can suppose a strategy of price reduction. For the third company, given

the contraction of production both in volume and in value, we can suppose a strategy of prices increase.

In the medium price segment, three companies have $1 \prec \eta \prec \infty$.

For two companies we can suppose a price increase, given the drop of production both in value and volume; for the third, a drop of prices given by the increase of production in value and in volume.

Finally, in the low price segment, companies with $1 \prec \eta \prec \infty$ are five. For three of these companies we can hypothesize a price increase strategy while for the other two, a price reduction strategy. In the low price segment we can find also the case of $-\infty \prec \eta \prec 0$, (Figure 6): for an increase of production in volume - as direct effect of price reduction- has followed also a reduction of production value.

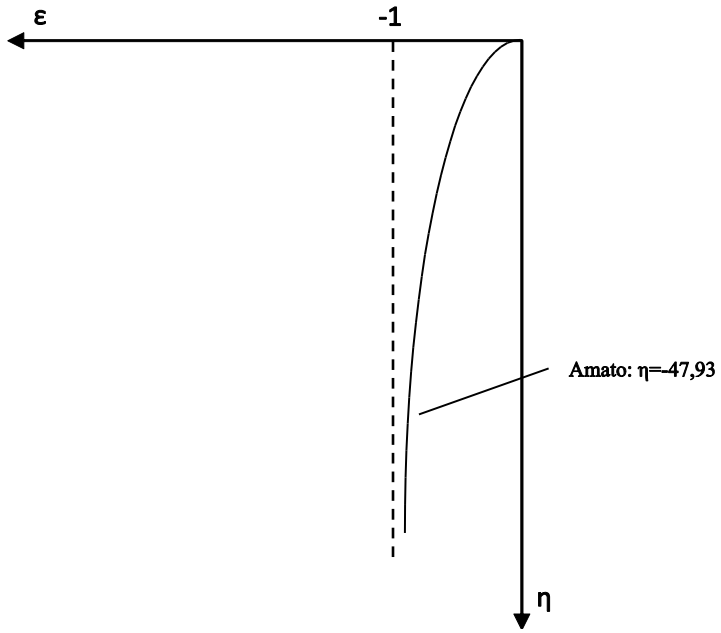

Figure 6. *Function* $\eta = \frac{\varepsilon}{1+\varepsilon}$, $\exists \forall \varepsilon : -1 \prec \varepsilon \prec 0$

Results and Discussion

The situation of the main Italian companies in the pasta market has been synthesised (table 3). For each of them the estimation of η and the correspondent value of ε are reported, taking into account the segment they belong to. In particular, we make a distinction between the two cases: the first is when the company has adopted price policies (increasing or decreasing) the second is the case in which the competitors have adopted price policies (increasing or decreasing).

In such competitive markets where competition is played mainly on price reductions, it is important to change from price strategy toward other fronts of competition. The market for dry pasta is considered a mature industry where it is increasing the importance of advertising and, more generally, of the product differentiation strategies through innovation (Simeone and Marotta 2011).

***Table 3**: Pasta market and price policies*

Company	Market segment	η	ε	Price policy			
				Adopted by Firm		Adopted by competitors	
				Price Increase	Price Decrease	Price Increase	Price Decrease
Del verde	P	0.86	6.41		x		x
Rummo	P	1.3	-4.31		x	x	
De Cecco	P	0.93	12.87	x		x	
Garofalo	P	0.97	27.86	x		x	
Voiello	P	2.59	-1.63	x			x
La Molisana	P	1.07	-16.18		x	x	
Agnesi	M	4.79	-1.26		x	x	
Buitoni	M	0.56	1.25	x			x
Jolly	M	0.78	3.63	x		x	
Corticella	M	1.20	-5.90	x			x
Barilla	M	2.49	-1.67	x			x
Granoro	L	0.38	0.60		x		x
Amato	L	-47.93	-0.98		x		x
Russo C. Ciccia.	L	1.41	-3.46	x			x
Divella	L	1.19	-6.35	x			x
Private Label	L	1.81	-2.24		x	x	
Russo C. Pomigliano	L	1.16	-7.30		x	x	
Riscossa	L	1.46	-3.19		x	x	

Differentiation strategies could contribute significantly to market competition in comparison to other market elements, to form an inelastic demand (Porter 2008, Santini et al. 2007, Cesaretti et al., 2011, Bernetti et al.2006).

In fact, with an elastic demand a reduction in price in the short term may increase both sales volume and value. In the medium and long term that price (low) is unsustainable. The price must therefore return to its normal level consistent with profit maximization.

Therefore, an appropriate strategy of market differentiation is able to increase the production in volume and value in the medium term also and to have profits at their regular levels if it is able to make the demand inelastic.

Through innovation, therefore, companies can avoid suffering a decrease in product demand without increasing product prices. Referring to the market scenario presented (Italian pasta market from 2006-2007) innovation is strategic to all the productive activities where it is impossible to increase, even temporarily, their market share through a price reduction (Russo et al. 2003).

Managerial Implications and Conclusions

Our analysis has shown that there is a match between the adjusted elasticity ε and η the indicator.

In the table 4, we synthesis the three possible cases:

Table 4**: Adjusted elasticity and **η

ε	η
$-\infty<\varepsilon<-1$	$1<\eta<\infty$
$-1<\varepsilon<0$	$-\infty<\eta<0$
$\varepsilon>0$	$0<\eta<1$

Starting with the last of the three cases reported in the table 4, when $0<\eta<1$, changes in the quantities sold and in the sales revenue will move in the same direction $\frac{\Delta Q}{Q}=\eta\frac{\Delta R}{R}$. If the variation of both the quantities and the revenues is positive, the company takes advantage of the competitors' price policies and it can actually increase its sale price without seeing the reduction of neither the volume of sales nor of the revenues.

The demand curve rotates assuming a positive slope and elasticity (see Figure 7).

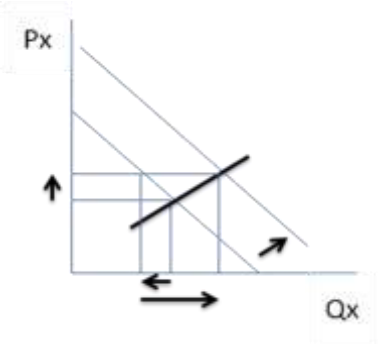

Figure 7. *Rotation of the Demand function for the good X: when both the price of good X and the price of the competing goods increase*

If the changes in revenues and in quantities are negative, then it means that the firm with η such that $0<\eta<1$ is affected strongly by competitors price policy and a price reduction cannot recruit new customers. Therefore, depending on the sign of the change in revenues, an η such that $0<\eta<1$ denotes positions of strength or of extreme vulnerability of the company.

With η such that $1<\eta<\infty$, the changes of revenues and of quantities sold move in the same direction. The difference with the previous case is that a price reduction policy has positive effects in maintaining market shares without affecting the sales revenue.

The company that on the other hand opted for a price increase, turns out to be heavily penalized both in regards to market share and in relation to earning capacity.

Finally, the case in which η such that $-\infty<\eta<0$. Changes of sale revenues and of the quantities move in the opposite direction. To defend themselves from competition, in order to preserve their market share, the company is forced to make a sharp reduction in prices, with a detriment to the ability of earnings (see the example of Amato).

Therefore, the indicator η, whose calculation is straightforward, is able to relate the variation of quantities sold to the variations of sale revenues. This is an index of strength or vulnerability of each company that gives a measure of competition.

The non-price competitive strategies are effective if they can change the preferences of consumers and strengthen the pricing strategies. In fact, the advertising and its infor-

mation content may have an impact on the consumer brand choice. The effectiveness of the non-price strategies will be undoubtedly reflected on the parameter η and it can determine the effectiveness of the price policies also in response to those of competitors. Further studies could extend the analysis taking into account more years in order to see, through an indicator η, if other companies have managed to strengthen their market position.

Above all, however, another important contribution would be to investigate the differentiation policies implemented by companies, and in light of this re-read the values of η. In Particular, a value of η such as $0 < \eta < 1$, in fact, might suggest that firm's non-price competitive strategies are effective and these companies do not Seem to be adversely affected by the competitors price reduction policies.

Particular interest is given to the capacity of such firms to increase their product prices without losing either their market share or their revenues. Instead, a value of η such that $\eta > 1$ denotes the effectiveness of non price competitive measures, when reduction in prices leads to a strong market penetration (the ability to reach new customers), generating increase in sales volume and revenues more than proportionally with respect to the price change. Finally, when $\eta < 0$, it can indicate the effectiveness of non price competitive strategies (i.e. advertising, product innovation, service, etc.) These strategies are able to increase the consumers loyalty and therefore to minimize the potential negative impacts of an increase in company prices, in terms of losses of customers who leave the brand, but resulting in an increase in sales revenues (loyalty).

References

Andreyeva T., Long M.W., Brownell K. D. (2010). [The Impact of Food Prices on Consumption: A Systematic Review of Research on the Price Elasticity of Demand for Food, *American Journal of Public Healt,* February 2010, Vol. 100, N. 2].

Bell, D., Chiang J., Padmanabhan V. (1999). The decomposition of promotional response: an empirical generalization. *Marketing Science* Vol. 18, n.4: 504-526.

Bernetti I., Casini L. Marinelli N. (2006). Wine and Globalisation: Changes in the International Market Structure and the Position of Italy, *British Food Journal,* Vol. 108, n. 4.

Cesaretti GP, Scarpato D, Misso R, Annunziata A, Borrelli IP, Olleia A, Viola I (2011). Sustainability and Equity in a competitive economy: the "Green society" strategy in *Calitatea-acces la succes,* vol. 125, p. 22-28.

Cotterill. R.W., (1994). Scannerdata: new opportunities for demand and competitive strategy analysis in *Agriculture and Resources Economics Review,* 23 n.2, 125-39.

Gadi F., Arieh G., Oded L. (2005) "The dynamincs of price elasticity of demand in the presence of reference price effects", *Journal of the Academy of Marketing Science.*

Giangiulio D. (2011). *Meccanismi di trasmissione dei prezzi lungo la catena agro-alimentare: un esercizio di analisi sulla filiera della pasta alimentare secca.* Autorità garante della concorrenza e del mercato. http://www.agcm.it/

Jaeger, S. (2006). Non-sensory factors in sensory science research, *Food Quality and Preference,* Vol. 17, No. 1-2: 132–144.

Labini, P.S. (1979): *Oligopolio e progresso tecnico.* Forth Edition, Einaudi. Torino.

McLaughlin, E. and Lesser, W. (1986). Experimental price variability and consumer response:

Tracking Potato sales with scanners, *Agricultural Staff Paper* 86-28, Cornell University.

Notaro G. (2013): *Assessing Methods for the Quantification of Antitrust Damages. An Application to the Pasta Cartel in Italy*. Autorità Garante della Concorrenza e del mercato n. 14, Maggio 2013. www.agcm.it

Peri, C. (2006). The universe of food quality, *Food Quality and Preference*, Vol. 17, No. 1-2: 3-8.

Porter, M.E. (1998). *Competitive Strategy: Techniques for Analysing Industries and Competitors*. Harvard Business School Press.

Russo, C., Cardillo, C., Perito, M.A. (2003). Product innovation and imperfect competition in the italian fruit-drink industry. *International Food and Agribusiness Management Review*, vol. 06, n.1.

Santini C., Cavicchi A., Rocchi B. (2007). Italian wineries and strategic options: the role of premium bag in box, *International Journal of Wine Business Research*, Vol.19, n.3: 216-230.

Seo S. C., Capps O. (1997). Testing for store-level differences in factors affecting item movement of Prego and Ragu spaghetti sauces using point of sale data. *Journal of Food Distribution Research,* 28,3: 42-53.

Simeone M, Marotta, G. (2012). The price discount effects in the Italian pasta market. *Journal of Food, Agriculture & Environment,* Vol.10 (1): 162-166.

Simeone, M., Marotta, G. (2010). Towards an integration of sensory research and marketing in new food products development: A theoretical and methodological review. *African Journal of Business Management,* 29 December 2010, 4(19): 4207-4216.

Suzuki, N., Kaiser, H., M., Lenz, J.,E., Kobayashi, K., Forker, O.,D. (1994), Evaluating Generic Milk Promotion Effectiveness with an Imperfect Competition Model. *American Journal of Agricultural Economics,* Vol. 76, No. 2 (May, 1994), pp. 296-302

Tellis, Gerard J. (1988). The Price Elasticity of Selective Demand: A Meta-Analysis of Econometric Models of Sales. *Journal of Marketing Research*, 25: 331–41.

Traill, B. and Grunert K.G. (ed.) (1997). *Product and Process Innovation in the Food Industry*. Blackie Academic & Professional, London, l.c.