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The impact of marketing expenditures on economic performance: The case of agricultural processed products industry

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Abstract

Taking under consideration the high importance of primary sector for the Greek economy, the present study combines quantitative and qualitative research in order to examine the effectiveness of marketing expenditures on the profitability of Greek agricultural processed products industry. The sample is consisted of 163 firms of the fruit and vegetables processing industry that report economic data for the 6 year period from 2010 to 2015. The results of the quantitative research reveal that marketing expenditures (packaging, advertising, participation in trade fairs) have significantly positive influence on the economic performance of the firms of the sector. Qualitative research confirms this finding and further highlights packaging as the most important marketing element, since it attracts consumers at selling point. International trade shows also proved to be crucial for exporting companies in winning new customers and as a consequence lead to increased profitability. The results of this study could help all the firms of this sector to better understand the way marketing can affect their economic performance and could also give advice and ideas about their future decisions in order to exploit all the opportunities that they may have, as well as to be better prepared to face any threats and solve any problems.

Keywords: Marketing Expenditures; Agricultural Products Industry; Economic Performance; Profitability.

JEL classifications: Q13

1. Introduction

Agriculture is a sector of high significance in Greece. The companies of this sector cover a high percentage of employment and the effects on economy and society are positive. Especially, the Greek agricultural processed products industry has a good potentiality for further economic growth. However, this industry faces high competition from other countries. Greece as well as the other countries are both exporters and importers of processed fruit and vegetables at the same time. Intensive competition, globalization, scarcity of agricultural products and the dynamic of the sector are all factors that make the decisions of the companies as regards their strategies, very important for their existence in the sector and their profitability.

For all the above-mentioned reasons, companies should be very careful in the way they position their products and take advantage of their

special characteristics. Greek agricultural products are considered to be of high quality and this is a characteristic that should be advertised and communicated to consumers. In this case, the marketing strategy followed by a firm, in order to communicate the value offered, is very important. Companies should pay special attention to their decisions as regards the marketing expenditures that they will have and the different types of expenses and investment they will choose in order to promote their products in the domestic and international market.

There are several studies that try to investigate whether there is a relationship between the marketing expenditures of a company and its profitability and growth (Shaw and Merrick, 2005; Joshi and Hanssens, 2010; Graham and Frankenberger, 2011; Agiomirgianakis et al., 2014; Banerjeea and Siddhanta, 2015). The authors believe that it would be useful to examine this relationship also for the Greek agricultural processed products industry, due to its significance for the Greek economy. Specifically, the purpose of this paper is to provide an analysis on whether the marketing expenditures such as advertising, packaging, participation in exhibitions etc. are able to affect the economic performance and profitability of the firms of the Greek agricultural processed products industry. The originality of this study is high since no research about the marketing expenditures of the agricultural processed products industry and its relationship with the firms' profitability in Greece has ever been conducted.

To realize the purpose of this paper, secondary data of the economic and demographic situation of the firms of the Greek processed fruit and vegetables industry have been collected from the ICAP database. Also, primary data about marketing expenditures of these firms have been collected by phone or e-mail. In order to enhance the results on the effectiveness of marketing expenditures on firms' profitability and to specify the most suitable ones for the industry, qualitative research through interviews has also been conducted.

The structure of this paper is the following: Section 2 presents a short review on marketing expenditures. Section 3 covers issues about the data and methodology used in the research. Section 4 includes the results of the regression analysis of the data and a discussion of the findings of the research with an analysis of the variables of the model and their significance and meaning. Section 5 includes the results of qualitative research about the marketing expenditures of the industry, in order to enhance our findings and provide further analysis. Section 6 provides a conclusion of the study, a summary of its main findings and indicates suggestions for further research.

2. Marketing expenditures

In a rapid changing economic environment, in which the marketplace faces dramatic changes daily, firms need to be able to adapt quickly to new practices in order to gain competitive advantage against others. Successful companies are those that go beyond standardized practices, such as conforming to the ISO 22000 standard (see Chountalas et al., 2009), and eventually construct a strong and long-lasting relationship with customers by satisfying their needs and offering superior value. In order to achieve this goal, successful marketing is absolutely necessary and firms should pay attention to the marketing strategies and tools selected for their products.

Marketing can be defined as the process of creating value for customers in order to satisfy their needs, and develop strong relationship with them so as to gain back value (Armstrong and Kotler, 2011). Marketing is an ongoing communication with customers in order to build a relationship with them. Marketing expenditures are all these expenses and investment payments that a firm may make as part of its marketing strategy in order to create value for customers and communicate it to them. Marketing expenditures include expenditures for advertising, packaging, sales promotion, direct mail, public relations, sponsorship, and interactive marketing (Barwise and Styler, 2002).

Advertising is a type of communication that is commonly used by companies in order to influence and convince the potential consumers to buy their products or services. The majority of people are bombarded with hundreds of marketing messages every day, especially via television and the internet that have an impact on their feelings, emotions and their general behavior that finally affect their consumer behavior in favor of some products. Most companies spend huge amounts of money in order to build a brand that will stay in consumers' memory which will finally lead to the purchase of their product (Kumar and Raju, 2013).

Another tool that is also commonly used in marketing communication programs is sales promotion. According to Buil et al. (2013), there are two different types of sales promotion; the monetary sales promotion and the non-monetary sales promotion. The monetary sales promotion includes reductions in the price and coupons. This type of promotion may sometimes have negative effect on brand equity. The non-monetary promotions include free samples, free gifts or participation in contests and according to previous research this type of promotion may have a positive influence to consumers and enhance brand equity.

According to Joshi and Hanssens (2010) advertising has both direct and indirect effects on firm value since it has not only short-term results such as increase of sales or profit margin but it can also have an impact on investors. It should nevertheless be mentioned that advertising expenditures need to be kept at an optimum level because they can cause negative effects on firms' stock price. It is proven that advertising and promotion expenditures contribute to firms' earning and that their effect exceeds their cost. Of course, most of the earnings are gained in the year of the expenditure but there are also earnings for the next three years and this is a positive sign to investors for future performance. Even during recessions, it is shown that increasing marketing communication expenditures can increase firms' profitability (Graham and Frankenberger, 2011).

A common tool that is also used in marketing strategies of food products is the participation in trade shows. Trade shows are events where suppliers and potential customers meet at the same place and suppliers exhibit their products in order for consumers to try or taste them. Trade shows are a way of internationalization of firms and a way of finding new customers and increasing sales (Evers and Knight, 2008).

Packaging is one of the most important factors that affect consumers' behavior and is probably the most valuable tool for marketers that is used to influence the audience and communicate the value offered (Deliya and Parmar, 2012). The primary function of packaging is to

protect the product during transfer, storing and selling (Agariya et al., 2012). Except from this function, packaging with all its elements such as material, shape, design, color, labels, pictures etc. plays a very significant role in marketing strategy. Packaging is a way of building a brand and making a product attractive to consumers. Packaging is a way of identification of brand when the consumer comes to the point of sale (Shah et al., 2013).

In a high intensity competitive environment companies should adopt innovation in their production in order to be able to survive and become more profitable in the long term. Packaging can contribute to adopt innovation. New packaging can offer new functions, higher protection and could provide more information useful to customers that will make them purchase the product (Rundh, 2013). E-marketing capabilities have also positive effects on firms' economic performance because they lead to an increase of earnings and - on top of this - they cost less. In periods of turbulence and in high intensity competitive markets e-marketing capabilities can be characterized as a competitive advantage for the firms (Trainor et al., 2011).

Marketing productivity can be defined as the contribution and result of an investment on marketing assets such as pricing, customer relationship and marketing expenditures on the performance of a firm and its position in the market (Rust et al., 2004).

As a result, from the above analysis we can understand that marketing expenses and investment can affect the economic performance of a firm if the managers make the right decisions about the appropriate expenditures. As the above-mentioned literature review shows, there is previous research that reveals the utility of marketing expenditures and that if done correctly they may have a positive effect on the firms' profitability. In this study we try to make a connection between the marketing expenditures and the firms' profitability of the Greek agricultural processed products industry.

3. Methodology

Since it is shown from previous research that there is positive relationship between marketing expenditures and firms' profitability, in this section we identify this relationship for the selected sector, the Greek agricultural processed products industry and especially the fruit and vegetables processing industry. More analytically, in the following analysis we present the primary and secondary data used in the research as well as the methodology with which we tried to analyze our data.

The empirical model presented below follows a research conducted by Magoutas et al. (2011). We adjust this empirical model to our data in order to indicate the effects of marketing expenditures on firm profitability.

3.1 Research questions

The aim of this research is to analyze the relationship between marketing expenditures such as advertising, packaging, participations in exhibitions, promotions etc. and the economic performance of a company. Along with marketing expenditures there are also some other variables such as the age of the firm, the size, the location of the

Head Office and the asset turnover that are investigated about their impact on the profitability of a firm.

The research questions that concern the Greek agricultural processed products industry are the following:

- Is there a relationship between marketing expenditure of a firm and its profitability?
- Is there a relationship between the age of a firm and its profitability?
- Is there a relationship between the size of a firm and its profitability?
- Is there a relationship between the asset turnover of a firm and its profitability?
- Is there a relationship between the location of the Head Office of a firm and its profitability?

In short, we identify the impact that marketing expenditures, the age, the size, the location and the asset turnover of the firms of the Greek processed fruit and vegetables industry have on their economic performance by examining these variables during the period 2010 - 2015.

3.2 The data: origin and selection

The data used in this research were collected from the ICAP database which is a database that collects demographic data and balance sheets for all Ltd and SA companies in Greece. The initial sample was consisted of 242 firms which were active in the agricultural processed products industry in Greece during the period 2010 - 2015. The data used for these firms concern:

Demographic statistics such as their foundation year and the location of Head Office

Economic statistics such as sales, profits and assets

We supplemented these secondary data collected from the ICAP database with additional primary data about the marketing expenditures of the firms, by conducting a research by e-mails and phone. The firms that answered to the questions about their marketing expenditure were 163 out of 242, that is a responsiveness of 67.3%. The final data-set includes 163 companies for the years 2010 to 2015 for which all the necessary information for the research were obtained with a total of 978 observations. From this data-set one can observe that there is a higher concentration of the locations of Head Offices of the companies in the region of Macedonia as it is shown below:

Table 1: Location of Head Office

Location of Head Office	Number of firms
Macedonia	58
Central Greece	41
Rest regions of Greece	63
Total	162

3.3 Description of the data

The final data-set that were acquired through the ICAP database, e-mails and phone from the 162 companies were placed in a panel data. The variables that were measured in our analysis are the following:

One dependent variable:

- Firm profitability, which is measured as ROI and was computed as the fraction of the Net profits before tax to the Sales

Five independent variables:

- Assets Turnover, which was computed as the fraction of the Sales to the Total assets
- Marketing Expenditures, which is a dummy variable taking the value 1 if the firm spends money for marketing and value 0 if the firm does not spend money for marketing
- Firm Size, which was computed as natural logarithm of Sales
- Age, which was computed as a logarithmic form of year t minus establishment year
- Location of Head Office, which is a dummy variable taking the value 1 if the firm is located in the region Macedonia and value 0 otherwise.

Assets turnover is a measure of the ability of a firm to gain revenues from its assets and reveals the utilization of its assets. Any changes that occur in firms' current profitability could be caused by changes in assets turnover. Also, changes in assets turnover could mean changes in productivity which is also an indicator for the future firm economic performance (Fairfield and Yohn, 2001).

Marketing expenditures, as it is mentioned in the previous section, include any expenses of the firm that regard the communication of the firms' products and the value offered. It usually includes expenses for advertising, packaging, sales promotions, trade shows etc. Marketing expenditures contribute to firms' earnings and lead to an increase of sales. In our research marketing expenditures are expressed as a dummy variable and come from the answer of companies to the question asked by e-mail or phone about whether they spend money on marketing expenses or not.

Firm size is a measure of sales of a firm and it is computed as natural logarithm of sales. It could reveal whether there are economies of scale in the industry and the impact that firm size has on the firms' profitability and growth.

The age of the firm shows the number of years the firm exists in the industry. It is computed in a logarithmic form and it could show the effect that the age of a firm has on its profitability and whether a firm performs better when it is new or not.

The location of the Head Office is a measure used to examine if the firms that are concentrated in one of the most agricultural regions of Greece are more profitable. It is expressed by a dummy variable which will reveal whether there is relationship between the location of the Head Office of a firm, and especially its location in the region of Macedonia and its profitability.

3.4 Statistical methodology

The statistical methodology that is used in order to analyze these data is multiple regression analysis as it is a statistical process that helps to estimate the relationship that exists between various variables. In our empirical model there is one dependent variable which is the profitability of a firm which can be measured by ROI ratio and five independent variables (asset turnover, size, age, location and marketing expenditures) and we will try to estimate their relationship using regression analysis.

The regression model that comes out from the above variables and we will try to estimate is:

$$ROI_{i,t} = \beta_0 + \beta_1 ASS_TURN + \beta_2 SIZE + \beta_3 AGE + \beta_4 D_MARKETING + \beta_5 D_LOCATION + \varepsilon_{i,t}$$

Where i refers to the firm, t refers to the year and ε is the error of the model. The above model contains five independent variables, two of which are dummies. As regards the testing of the statistical significance of the regression coefficients, the statistical hypotheses that need to be examined are the following:

$$H_0: \beta_i = 0 \text{ versus } H_1: \beta_i \neq 0$$

It needs to be mentioned that the acceptance of null hypothesis means that the regression coefficient is not statistically significant and occurs when the p-value of the test is greater than the significance level that was used, while the acceptance of the alternative hypothesis means that the regression coefficient is statistically significant and occurs when the p-value of the test is lower than the significance level used (Cohen et al., 2003).

3.5 Qualitative research methodology

Due to the fact that it is very crucial for the firms of the Greek agricultural processed products industry to choose the suitable marketing expenditures such as advertising on different media, packaging, participation in trade fairs or different types of events etc., depending on the consumers target group that they want to focus on and the different types of markets, we have also conducted interviews administered to a sample of practitioners in the sector that are aware of the current situation of the Greek market, the global markets as well as the emerging trends. Thus, we interviewed a group of producers / manufacturers of processed fruit and vegetables of Northern Greece ($N=12$), and a marketing consulting service group ($N=1$). So, we have interviewed both sides of marketing expenditures users, the clients of marketing expenditures that is those that pay for the marketing investments as well as the suppliers of marketing expenditures that is those that get paid in order to produce and supply the marketing investments.

The interviews took place during the spring of 2017 and, in all cases, were held at the interviewee's place of business. Their duration ranged from 1 to up to 2 hours. All the interviews were audio-recorded, and subsequently transcribed for further data analysis. The interviews were based on a semi-structured form; the main questions that had guided the interviews are as follows:

- Do you believe that marketing expenditures in the domestic market are effective?

- Do you believe that marketing expenditures in the international market are effective?
- As regards the agricultural processed products industry, please characterize the effectiveness of marketing expenditures, separately for each one of the following areas:
 - packaging.
 - listing in a food magazine.
 - participation in international trade fairs.
 - participation in domestic trade fairs.
 - sponsorship in cultural events.
 - TV commercials.
 - TV shows.
 - radio commercials.
- What would you like to improve in relation to the competition in the processed agricultural products industry?

4. Quantitative research

In the previous chapter we presented analytically the primary and secondary data used in our research that were collected from the ICAP database and by e-mails and phone. After the explanation of the empirical model that we used and the statistical methodology followed, in this section we present the results of the regression analysis of the data as well as a discussion of the results. The following results show the relationship between the variables assets turnover, size of the firm, age of the firm, marketing expenditures, location of the Head Office and the firms' profitability.

4.1 Results of regression analysis

The panel data described in the previous section were analyzed and the empirical model was estimated using regression analysis. The significance level that was used in the analysis is 95%. The results of this analysis are shown below:

Table 2: Model summary

Regression Statistics	
Multiple R	0.136
R squared	0.019
Adjusted R squared	0.013
Standard error	1.840
Observations	978

Table 3: ANOVA - Summary of multiple regression analysis

	df	SS	MS	F	F-significance
Regression	5	62.071	12.414	3.667	0.003
Residuals	972	3290.543	3.385		
Total	977	3352.613			

The F-significance ($p=0.003$) examining the overall significance of the model is low. The meaning of this result is that we reject the null hypothesis H_0 and we accept the alternative hypothesis H_1 which shows that the model is statistically significant.

The F-significance also reveals that R squared is significantly different from zero and this provides an estimation of the strength of the relationship between the dependent variable and the independent variables examined (Cohen et al., 2003).

Table 4: Coefficients - Results of multiple regression analysis

Determinants of profitability						
	Coefficients	Standard Error	T-stat	P-value	Lower 95%	Upper 95%
Intercept	-0.802	0.240	-3.349	0.001	-1.272	-0.332
ASS TURN	0.245	0.088	2.802	0.005	0.073	0.417
D MARKETING	0.301	0.123	2.441	0.015	0.059	0.542
SIZE	-0.017	0.013	-1.289	0.198	-0.043	0.009
AGE	0.432	0.168	2.569	0.010	0.102	0.761
D LOCATION	-0.144	0.128	-1.125	0.261	-0.396	0.107

After the above results that were obtained using regression analysis the regression equation has the following form:

$$\text{ROI} = -0.802 + 0.245 \cdot \text{ASS_TURN} - 0.017 \cdot \text{SIZE} + 0.432 \cdot \text{AGE} + 0.301 \cdot \text{D_MARKETING} - 0.144 \cdot \text{D_LOCATION}$$

4.2 Discussion of the results

From the above analysis we may conclude to the following results as regards the impact of each variable to the profitability of the firms:

Assets Turnover variable: This variable proves to be statistically significant. The p-value of this variable is 0.005 which is lower than the selected significance level of the analysis 0.05. So, we conclude to the result that we reject the null hypothesis $H_0: \beta_1 = 0$ and we accept the alternative hypothesis $H_1: \beta_1 \neq 0$. The regression coefficient of Assets turnover variable is 0.245 which means that Assets turnover have a positive effect on the firms' profitability, as it was expected. Assets turnover is a tool that reflects the managerial efficiency and as it is proved it is very significant for the firms' profitability. Since it is computed as Sales divided by Total Assets, it reflects the effective and profitable use of Total Assets - both Fixed Assets and Current Assets - and as a consequence it means that the management of the firms' assets is effective and profitable.

Firm Age variable: This variable is also statistically significant according to the regression analysis because its p-value ($p=0.010$) is lower than the significant level used in this analysis which is 0.05. Consequently, we reject the null hypothesis $H_0: \beta_3 = 0$ and we accept the alternative hypothesis $H_1: \beta_3 \neq 0$. The regression coefficient of the age variable is 0.432 which reflects the positive impact that the age of firm has on its profitability, which is a result that was expected. The foundation year of a firm seems to be a significant determinant of the profitability of a firm in this sector. This is because with the duration in years a company can gain experience and knowledge about the technology used in the industry and can create strong relationships with customers, which in turn affects positively firms' profitability.

Marketing Expenditures dummy variable: This variable also proves to be statistically significant since its p-value ($p=0.015$) is lower than the selected significance level of the analysis 0.05. As a consequence, we reject the null hypothesis $H_0: \beta_4 = 0$ and we accept the alternative hypothesis $H_1: \beta_4 \neq 0$. The regression coefficient of the dummy variable of Marketing Expenditures is 0.301 which shows that marketing expenditure positively affects the firms' profitability. This result was expected according to previous research. Marketing expenditures are all these expenses made by the firm in order to promote its products, communicate the value offered to consumers and as a result lead to increase of sales. It includes packaging, advertising, sales promotions, participation in exhibitions etc. As it is shown in the above analysis the increase of this kind of expenses leads to increase in firms' sales and finally increase in firms' profitability.

Firm Size variable: This variable is not statistically significant since its p-value ($p=0.198$) is higher than the significance level used which is 0.05. This leads to the result to accept the null hypothesis $H_0: \beta_2 = 0$. This means that the size of a firm in the industry is not statistically significant for its profitability.

Location of the Head Office dummy variable: This dummy variable is not statistically significant since its p-value ($p=0.261$) is higher than the significance level used in the analysis which is 0.05. As a result we accept the null hypothesis $H_0: \beta_5 = 0$. This means that the location of the Head Office of a firm, whether it is in the broader area of Macedonia or elsewhere in Greece is not statistically significant for its profitability.

5. Qualitative research

In order to enhance the results on the effectiveness of marketing expenditures on firms' profitability and to specify the most suitable ones for the industry, we conducted interviews exploring the perceptions of the two sides that make use of marketing expenditures - those who pay for these expenditures (i.e. the producers of agricultural processed products) and those who get paid for marketing expenditures and organize the marketing activities for the industry (i.e. a marketing consulting service group).

From the interviews conducted we realized that there were several topics that both groups - the group of producers and the marketing consulting service group - had the same opinions. We will provide a few comments about the results of the interviews in order to clarify the way that both sides think about marketing expenditures and their effectiveness.

First, both groups underline that marketing expenditures are effective in the domestic market and the international market as well. They share the opinion that marketing expenditures are very important in this industry in order to make products more well-known and attractive and as a result this will certainly lead to positive effects in the economic performance. However, the group of producers insisted that they have a preference to invest in expenses for the international market because they have increasing profitability in this market in contrary to the unfavorable economic situation in Greece.

As regards the effectiveness of different types of marketing expenditures such as packaging, listing in food magazine, participation in international and domestic trade fairs, sponsorship in cultural events, advertising in TV or radio, the answers that emerged from the interviewees are almost identical. For marketing expenditures in packaging, both interviewed groups agree that packaging is one of the most important elements of agricultural processed products. Except from the protection and the determination of the shelf life of the products, packaging is also what attracts the consumers at the selling point. Consumers choose products that are attractive and convenient. Innovative packaging with special characteristics that make the products useful to consumers is the trend that exists nowadays in the market. Also, it is stated by both groups that packaging is crucial for the international as well as the domestic market.

Since most companies of the sector and especially the processed fruit and vegetables industry are mainly exporting companies that focus on the international market, both sides insist that participation in international trade shows is more effective and could lead to new customers and as a consequence increased profitability. International trade shows are meeting points of suppliers and customers from all over the world, where potential customers have the ability to watch a presentation of all the suppliers' products or taste of some of them in order to see if they meet their expectations.

For the rest of the types of marketing expenditures, which are the TV shows and commercials, radio commercials, listing in food magazines and sponsorship in cultural events the group of producers believe that their effectiveness is low. The same belief also comes from the part of marketing consulting service group. The difference is that the marketing consulting service group points that these types of marketing expenditures could become more effective if used in the appropriate market. For those companies that focus on the domestic market, TV and radio commercials are indicated in order for the consumers to get aware of the products. Also, listing in food magazines as well as TV shows such as cooking TV shows where products are promoted have positive impact on the sales of products and the economic performance of firms in general.

As regards the interviewees' opinion about the competition of the Greek agricultural processed products industry and the competitors' advantages, they believe that competitors have the ability to spend more money in advertising, whereas Greek companies prefer to spend the available amount of money mostly on packaging. The disadvantage of Greek companies derives from the fact that the situation of Greek economy is unfavorable and the policies implemented by government in Greece are not helpful for them at all. Finally, if both groups could change something in the marketing expenditures made by the Greek agricultural processed products companies in relation to the competitors, they would choose more expenses and investments in participation in trade fairs, because participation in food trade shows is considered to be the way for the most immediate and long-lasting results for the economic performance of the firm.

In conclusion, from the interviews conducted to the group of producers and the marketing consulting service group we noticed that both sides have similar opinions as regards the marketing expenditures of the firms of Greek agricultural processed products industry. The result that derives from the interview is that international market is more

preferable for the companies of the Greek agri-food sector. Also, marketing expenditures in packaging are the most important in order to make the products more attractive and it is the element that needs to be innovative and follow the needs of the customers. Finally, participation in trade fairs is very important for these companies because this type of expenditures has the advantage of the products being tested by the consumers.

6. Conclusion

Undoubtedly agriculture is a core sector for the Greek economy. Many regions of Greece are mainly employed in this sector since Greece with its land, weather conditions, and climate offers a prosperous opportunity to people who want to cultivate and produce agricultural products. Greek agricultural products are considered as premium quality, exquisite products. In addition, there are many companies in Greece that take these premium quality and tasty fresh products of the Greek land and follow a process in order to enlarge their shelf life and produce a high-quality product that could be very competitive and attractive in the international market as well. These manufacturing companies compose the agricultural processed products industry in Greece. Today this industry is a key factor for Greek exports and the Greek economy in general. Greece is very rich in production of fruit and vegetables that are mostly exported (fresh or processed). Processing of agricultural products industry and to be more precise, fruit and vegetables processing industry includes all those firms that produce canned, jarred, frozen or dried fruit and vegetables, fruit juices, edible nuts etc.

Nowadays, people are more concerned about their health, fitness and the environment. This is the reason why when acting as consumers they tend to seek products that will improve their health situation. Fresh fruit and vegetables may be preferred by consumers, but it is noticed that processed fruit and vegetables are also gaining market share, since for example nuts and juices are proposed by dieticians and the production of processed fruit and vegetables has changed during the last years. The cultivation of organic crops is increasing and manufacturers reformed their production by adding less or no preservatives, additives and sugar. This is also indicated on packaging and labeling in order to communicate it to consumers and attract them.

Due to the fact that processing of fruit and vegetable industry is of high importance for the Greek economy and marketing expenditures are made by firms in order to promote their products, in this paper we examine whether there is a relationship between the marketing expenditures of a firm and its economic performance in the Greek agricultural processed products industry. This study is unique for the industry since no research that relates marketing expenditures and profitability for this important sector has ever been conducted.

The results of this study point out that the assets turnover, the age of the firm as well as the marketing expenditures have a significant and positive effect on the firms' profitability. So, marketing expenditures can affect the economic performance of a firm in the Greek processed fruit and vegetables industry, as expected. This conclusion is in line with several other studies performed in different sectors in the literature (e.g. Joshi and Hanssens, 2010, on personal computers and sporting goods industries; Graham and Frankenberger, 2011, cross-

sectional; Agiomirgianakis et al., 2014, on tourism industry; Banerjeea and Siddhanta, 2015, on personal care industry).

After having shown that marketing expenditures play an important role in increasing firms' profitability in the selected sector, we conducted interviews to define which marketing expenditures are more suitable for the sector. The interviewees were the group of producers / manufacturers of Northern Greece and a marketing consulting service group which are the two sides of marketing expenditures users, the buyers and the suppliers. According to them, packaging is the most important element because it does not only define the shelf life of the product but also attracts consumers at selling point. This finding is also supported by a number of previous studies that highlight the critical role of packaging (e.g. Deliya and Parmar, 2012; Shah et al., 2013; Rundh, 2013). Also, both sides agree that, as regards the international market, participation in international trade shows could be proved to be the most efficient marketing investment because potential customers have the ability to see and taste the real product. Similar results are presented in the study of Evers and Knight (2008) and Sasaka (2012).

However, there is still area for further research in this topic. It would be useful to collect data about the specific amount spent on marketing expenditures by the firms of the sector as well as the different types of marketing expenditures that each firm selects in order to examine which one is the most common and the effectiveness of each kind of marketing expenditure on the economic performance of the firms.

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