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DYNAMIC STRATEGIC MARKETING ADJUSTMENT OF THE VEGETABLE PRODUCERS SECTOR UNDER COVID CRISIS CONDITIONS

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Abstract. The paper deals with the issue of the pandemic and its impact on the work of vegetable producers in the Republic of Croatia in the domain of their marketing activities. Namely, the changed business circumstances because of changing daily life and consumption patterns, forced entrepreneurs, including vegetable producers, to revise existing businesses and marketing strategies in terms of adjustment and in that way to take new measures and activities related to distribution and sales channels. The purpose of this paper is to gain insight into the most effective ways to promote and sell vegetables in times of changing business conditions in the domestic vegetable market under pandemic conditions. The aim of this paper is to investigate the impact of individual applied marketing adjustments of small agricultural enterprises in the sector of vegetable production in crisis conditions on their business success and satisfaction of their owners. The main primary research was conducted using the survey method on a sample of vegetable producers in the Republic of Croatia. For analysis and processing of collected data, descriptive analysis of measures of central tendency, measures of dispersion, measures of asymmetry and roundness, then bivariate analyses, and multivariate methods were used. SPS 21 software package was used for data processing.

Keywords: vegetable producers, covid crisis conditions, marketing activities, adjustment.
JEL code: L21, L66, M31, O13, Q13

Introduction

The emergence of the COVID-19 pandemic has had an impact on food markets, including on the sector of vegetable production and its market. Throughout the food supply chain, all stakeholders from producers and logistics to retailers have faced shocks in supply and demand (Ritter & Pedersen, 2020). It can be said that two types of supply chain disturbances have been recorded, short-term or immediate impacts and long-term impacts (Richards & Rickard, 2020). The short-term effects of the pandemic are manifested at all stakeholders, and they are mainly related to the problems of everyday business. Namely, the newly created situation is recognized precisely by situations of unforeseen circumstances that affect the change of daily business routine (Sheth, 2020). For example, the first problem faced by entrepreneurs in general was the issue of the health safety of their employees (Aday & Aday, 2020). These operational issues are just the tip of the iceberg because in reality there has been tectonic disruption and dislocations throughout the whole supply chain. Thus, for example, there was a short-term closure of restaurants, schools, universities and the like, so it is clear that there was a temporary (short-term) loss of an entire segment of the distribution of vegetables and related agri-food products. However, despite everything, it should be assumed that the cumulative rate of food consumption will not change, but there are changes in the form of its distribution, but also the structure with regard to the way it is consumed. It is clear that the redistribution of the sales structure is in favour of retail, so food producers are faced with a specific task of repurposing existing product lines and their distribution. This in any case requires flexibility of food producers in terms of conversion of product lines and its purpose, in accordance with the dynamic change of consumer needs (Donthu & Gustafsson, 2020).

Agri-food products intended for food supply chains are generally interchangeable. For example, a vegetable producer places its product on an equal footing in retail and through other forms of distribution located in the service sector. This means that in an era of disturbed market relations, the closure of one part of the market, vegetable producers are focusing more in the direction of those sales segments where there was no closure. From a business perspective, producers who serve consumers of food services will

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have to find alternative consumers in the retail channel and vice versa, offering them new forms of added value or delivery of new values (Peterson et al., 2022). All these activities in terms of determining the final market should be regulated at the time of sowing certain vegetable crops, because they are largely perishable or long-term storage is not possible, so in such situations it is clear that not all products can be sold the same. Namely, such specifics of vegetables as commodities distinguish vegetable growing as a sector from most other agricultural production. However, it should be noted that in addition to fresh vegetables, many producers process, preserve or freeze their products, so their situation with distribution and sales is easier, and this fact suggests that this may reduce current and future sales of fresh vegetables product. Furthermore, depending on consumer experiences with processed vegetables, any short-term changes in the combination of fresh and processed vegetables may change the purchase pattern itself in the future. The issue of processing fresh products is a fundamental issue of creating added value, both for the consumer and for the producer in terms of achieving higher margins but also the horizontal filling of the product range. In combination with the expanded range, there is also the possibility of multi-dimensional segmentation, i.e. expansion of the existing market (Kapsak, 2020).

Decisions on vegetable production are made three to six months in advance, or even earlier (Silva Dias, 2011). Vegetable production takes place in the open, which is actually the least risky in terms of workers' current situation health safety. Thus, production and products, despite the poor health and safety situation, are not in dispute at all, but it is clear that the problem arose on the market, or more precisely within the domain of distribution (Kazancoglu et al., 2022). Certain trends in the trade sector have been noted, especially at the beginning of the crisis, that some products were temporarily unavailable on the shelves (hygiene supplies, water, pasta, flour, yeast etc.), but not vegetables. It is obvious that even a small change in demand leads to a redistribution of categories within trade sector that result in the perception of shortages, although retail supply chains remain relatively strong even in times of crisis. However, even earlier, regardless of the crisis, the phenomenon of switching categories was noticed (Temme et al., 2013). Consumer decisions to buy certain categories of food often depend on the type of priority or need, or whether a product is indisputably necessary or just a subject of desire. For example, the category of fruit and vegetables plays an important role in the substitution pattern with the category of cereals and bakery products, meat and non-alcoholic beverages. In this context, the possibility of changing categories caused by shock should be understood in more detail as the possibility of reducing demand for some products that will not be a priority in stockpiling or supplying consumers with products to insure against the current crisis (Szerb et al., 2018). At the same time, increased demand for priority products has the effect of increasing their price, which in turn could generate higher demand for fresh produce as the crisis grows. Therefore, switching categories may have important implications for future intentions to purchase fresh vegetables and products of increased nutritional quality (Benton, 2020). Second, and perhaps more importantly, different food categories provide consumers with different micro and macro nutrients, and stocks and potential substitutions between food categories can have implications for food quality (Eggers, 2020). Vegetables are a particularly important source of dietary fiber and many vitamins and minerals. All substitution patterns resulting from possible stock management (mainly cereals) may inadvertently discourage consumers from eating the recommended amount of vegetables (Hassen et al., 2020).

The next phenomenon that has resulted in this crisis is online sales. While much of this online ordering activity certainly involved non-perishable household products, the fact that consumers thus have the ability to avoid physical contact shopping in stores. Once consumers learn how to shop online and experience the benefits in terms of convenience and speed, many will at least occasionally be online shoppers (Van Heerde et al., 2013). For the retail of fresh products, and thus vegetables, many believe that this experience could

be a turning point that pushes the boundaries of previous shopping experience and represents an opportunity for both consumers and producers.

Direct channels, such as agricultural markets and stalls, are an important source of buying fresh vegetables. While social exclusion is likely to mean the end of most direct face-to-face markets for fresh produce in the short term, it also provides an opportunity for farmers to expand local delivery services of their own fresh or processed products. (Eggers et al., 2012).

Redirecting food consumption in restaurants to eating at home has potentially important implications for the issue of food waste. Namely, according to some research, more than 50% of food waste is generated when it is prepared at home, as opposed to food preparation in restaurants, canteens, etc., when it is about 8% (Gooch et al., 2010). Thus, food preparation at home as a consequence of closure has become a widespread phenomenon and as such causes an increase in the amount of food waste (Wunderlich, 2021). In addition to this phenomenon, it is necessary to add excessive buying, which is a frequent consequence of crisis situations, as another factor influencing the creation of increased food waste (Fanelli & Di Florio, 2016). On the other hand, the perception of lack can lead to households becoming more efficient, both in food use and in planning food purchases.

Due to these circumstances, even those least prone to change had to turn to alternative forms of sales and marketing of their products.

The aim of this paper is to investigate the impact of individual applied marketing adjustments of small agricultural enterprises in the sector of vegetable production in crisis conditions on their business success and satisfaction of their owners. In this way, it strives to gain insight into the most effective ways of vegetable marketing activities in times of changed business conditions in the domestic vegetable market in a pandemic.

Based on the defined subject of work, defined goal and purpose of work, it can be assumed that the adjustment of marketing strategies due to market contraction caused by the pandemic of COVID 19 to vegetable growers, is an opportunity for business success reflected in their increased marketing efficiency.

Research results and discussion

1. Materials and methods

Primary empirical quantitative research was conducted on a sample of experts from representatives of agricultural companies in the Republic of Croatia that are primarily engaged in vegetable production. Given the limiting factors and resources of the survey, as well as taking into account the objective shortcomings of the use of a random sample, the survey was conducted on a deliberate sample during the first half of 2021.

Since the research had primarily the character of quantitative research, it was based on statistical measurements, i.e. conducted by the survey method, and in order to obtain information on the relevant research domain, the survey questionnaire was used as a research instrument. Questionnaire variables (excluding socio-demographic questions) were constructed using a five-point Likert scale.

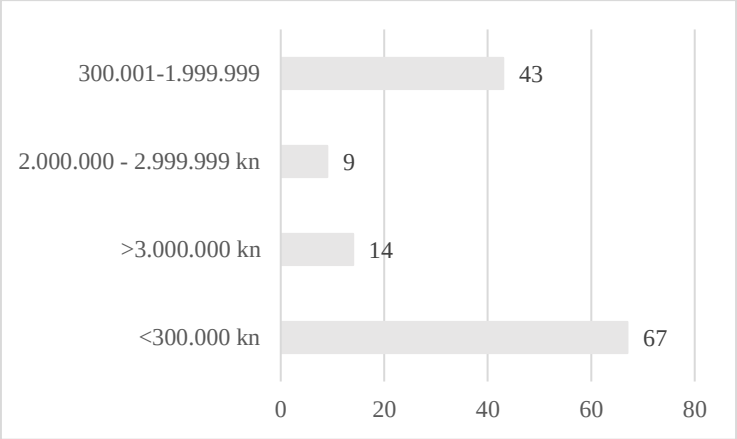
The target group of respondents consisted of a total of 250 respondents, but due to incomplete data in the survey, 117 surveys were excluded from the analysis. Therefore, the number of relevant respondents is 133 in total. For the purpose of testing the hypothesis, the methods of univariate analysis, bivariate analysis (correlation analysis and regression analysis) and multivariate analysis (confirmatory factor analysis) were used. All collected data were processed and analysed using the statistical software package IBM SPSS 22.0., As well as MS Office Excel.

The estimation of the actual values of the model was checked by a sample of respondents, and for all variables from the model, reliability was determined using the Cronbach α coefficient.

2. General research results

Examining the age of the respondents, it is evident that the largest number of vegetable growers in Croatia belongs to the age group of 31-39 years, 55 of them. This is followed by the age group 40-49 years 40 respondents, 20-30 years 22 respondents, 50-59 years 12 respondents, while the smallest number of respondents is 3 in the age group over 60 years.

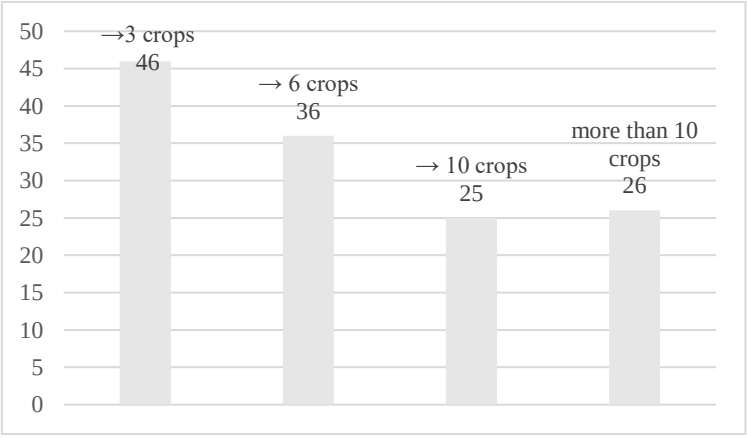
The largest number of enterprises engaged in vegetable growing, 67 of them belong to the economic group of enterprises whose annual turnover does not exceed 300.000 kuna. This is followed by enterprises with an annual turnover between HRK 300.001 and HRK 1.999.000, 43 of them. Only nine surveyed enterprises have an annual turnover of between two and three million kuna, and 14 of them stated that their annual turnover is more than three million kuna (Figure 1).



Source: author's calculations based on own research

Fig. 1. **Economic size of the enterprise**

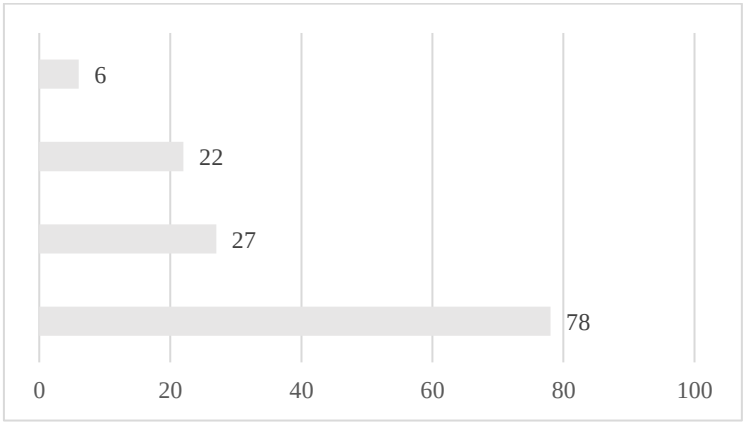
The enterprises in the sample do not really differ much when it comes to the number of crops grown. However, the largest number of those who grow up to three crops, it is about 46 surveyed enterprises. Up to six crops are grown by 36 surveyed enterprises. Interestingly, as many as 26 respondents from the enterprises that participated in the survey stated that they are engaged in the cultivation of more than ten crops. Slightly fewer, 25 surveyed enterprises are engaged in the cultivation of more than six and less than ten vegetable crops (Figure 2).



Source: author's calculations based on own research

Fig. 2. **Number of crops grown**

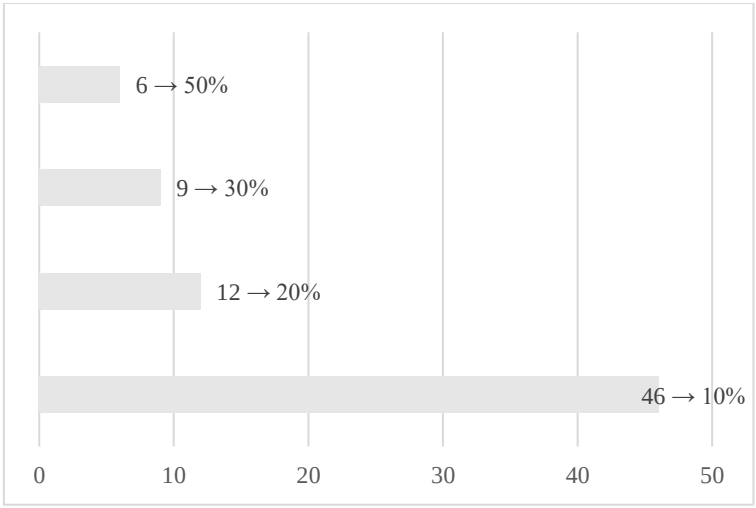
Agricultural enterprises engaged in the cultivation of vegetable crops are a typical example of an agricultural enterprise in the Republic of Croatia, and this fact is indicated by the results of a survey on the number of members / employees in the surveyed enterprises. Namely, it is evident that the largest number of surveyed enterprises, 78 of them, do not have more than three employees or members (Figure 3).



Source: author's calculations based on own research

Fig. 3. **Number of members / employees**

Respondents assess the impact of the crisis on general business mostly affirmatively. 46 of them believe that the crisis brought prosperity, i.e., that it had a positive impact on business. 55 of them hold that no progress has been made, but state that they are in a state of stagnation. Interestingly, a relatively small number consider the effect to be positive but economically it then manifests itself through stagnation. On the other hand, 23 respondents stated that this crisis had a negative impact on their business, and six of them stated that they felt a negative effect with stagnation. It is very interesting to find that in the case of 46 surveyed enterprises there was a growth of 10%, 12 of them had a growth of 20% and, 9 of 30% and in the case of six enterprises the growth was more than 50% (Figure 4).



Source: author's calculations based on own research

Fig. 4. **Revenue growth in times of crisis**

The issue of business in times of crisis is a matter of dynamic adaptability of each enterprise, and in fact such situations are real indicators of business success of an individual enterprise. Respondents in this study believe that their business models, which are largely based on marketing adaptation to market factors, have adapted well to the crisis caused by the COVID 19 pandemic. As many as 113 respondents, or 84.96%, believe that they have successfully adapted.

3. Results of research on marketing adjustment of the vegetable production sector

For the purpose of researching the factors of marketing adjustment of the vegetable producer sector in the conditions of the pandemic, a study of the impact of certain elements of the marketing strategy on the realized marketing efficiency was defined through marketing activities and perception of the quality of delivered products. For this purpose, two measurement scales were constructed with which the construct of marketing efficiency as a dependent variable and the construct of strategic marketing action were measured.

The construct of strategic marketing action is defined as an independent variable (SMA). In this sense, respondents were asked questions about the perception of superior qualities for their consumers, the concept of marketing efficiency, satisfaction of their consumers with the products they supply, marketing adaptability in crisis conditions and market orientation. The particles of the dependent variable were measured on a 5-point Likert scale (Table 1).

Table 1

The construct of strategic marketing strategic action

	Items
SMA1	At the time of the pandemic, our market share was growing.
SMA2	The importance of our brand has grown.
SMA3	Increase in consumer intentions in the field of consumption and purchase of vegetables.
SMA4	Consumer loyalty.
SMA5	Increasing consumer satisfaction.
SMA6	Price elasticity.
SMA7	Growth of business marketing costs.
SMA8	Company image growth.
SMA9	Product / service quality.
SMA10	Our company is involved in the work of the local community.
SMA11	Our company knows what products / services competitors offer to consumers.
SMA12	We react very quickly to activities carried out by competitors.
SMA13	We are looking for ways to offer consumers more value.
SMA14	We deliver products or services with favourable environmental performance.
SMA15	We consider issues that affect environmental protection in the design of new products / services.
SMA16	Our company has generated the development of a significant number of sustainable innovative products and services.
SMA17	In our company we systematically research and consider the needs and desires of our consumers.
SMA18	We research and develop new innovative distribution channels.
SMA19	The crisis is an opportunity to emphasize the greater value (differentiation) of our products / services.
SMA20	We use sustainability arguments in promotion and advertising.
SMA21	We conduct market research in the direction of detecting the needs and desires of our consumers.
SMA22	We strive to improve the efficiency of consumption of materials and raw materials.

Source: author's calculations based on own research

In the further part of the research, an exploratory factor analysis of the measurement scale of strategic marketing activities with orthogonal rotation of factors was used. Prior to the application of the exploratory factor analysis, the suitability of the data for further analysis was checked. The test was performed using the Kaiser-Meyer-Olkin test (KMO), as the Barlett test of sphericity. Since the Kaiser-Meyer-Olkin coefficient is 0.773, the adequacy of the data for factor analysis was determined. Bartlett's test of sphericity is also statistically significant (p <0.000), which indicated further performance of factor analysis. Iteration of factors identified five factors, and based on theoretical and empirical experience that define the following variables: product superiority (PS), efficiency (EF), consumer satisfaction (CS), adaptability (AD) and market orientation (MO). To finally confirm the factors of the next level of research, it was necessary to determine the reliability of the scale using the Cronbach alpha coefficient. For the variable "product superiority" the coefficient was α = 0.728, for the variable "efficiency" α = 0.621, for the variable "consumer satisfaction" α = 0.706, for the variable "adaptability" α = 0.842 and for the variable "market orientation" α = 0.724.

The construct of marketing efficiency is defined as a dependent variable, and based on theoretical empirical experience, the following variables are defined: marketing activities (MA) and quality (QU).

In order to determine the impact of strategic marketing activities in times of crisis on the marketing efficiency of companies in the vegetable sector, or to determine exactly what factors are a prerequisite for its acquisition, it is necessary to conduct multiple regression analysis where independent variables are product superiority, efficiency, consumer satisfaction, adaptability and market orientation. And the dependent variables will be "marketing activity" and "quality".

The first step in this procedure is to calculate the correlation matrix between independent and dependent variables (Table 2).

Table 2

Correlation matrix of dependent variables and independent variables

		MA	QU	PS	EF	CS	AD	MO
Pearson Correlation	**MA**	1.000	0.799	0.459	0.400	0.652	0.409	0.550
	QU	0.799	1.000	0.605	0.563	0.852	0.461	0.705
	PS	0.459	0.605	1.000	0.610	0.863	0.555	0.765
	EF	0.400	0.563	0.610	1.000	0.845	0.510	0.896
	CS	0.652	0.852	0.863	0.845	1.000	0.596	0.923
	AD	0.409	0.461	0.555	0.510	0.596	1.000	0.808
	MO	0.550	0.705	0.765	0.896	0.923	0.808	1.000

Source: author's calculations based on own research

The correlation table shows that the independent variables are statistically significantly related to the dependent variables.

In order to test the hypothesis, one dependent marketing efficiency (MU) and four dependent variables were defined, and multiple regression analysis was performed. Regression analysis based on the established correlation and knowledge of the values of independent variables creates predictions about the values of the dependent variable (Table 3).

Table 3

Assessment of the representativeness of the regression model for the dependent variable Marketing Activities

Person's correlation coefficient R	Coefficient of determination r^2kor	Corrected coefficient of determination	Estimate standard error	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
0.804	0.646	0.635	0.53600	0.646	58.340	4	128	0.000

Source: author's calculations based on own research

Finally, a regression model for the dependent variable marketing efficiency was obtained (Table 4).

Table 4

Coefficients of the regression model for the dependent variable Marketing Activities

model	non-standardized regression coefficients		standardized regression coefficients	t	Sig.	collinear statistics	
	B	std. error	ß ponder			tolerance	VIF
constant	0.623	0.241		2.586	0.011		
PS	-0.857	0.120	-0.834	-7.127	0.000	0.459	-0.533
EF	3.378	0.306	2.823	11.037	0.000	0.652	0.698
CS	1.021	0.140	0.959	7.314	0.000	0.409	0.543
AD	2.297	0.092	2.279	3.226	0.000	0.563	0.273
MO	1.119	0.089	1.111	1.343	0.000	0.461	0.117

Source: author's calculations based on own research

The influence of independent variables on the dependent variable was assessed as statistically significant ($p<0,001$) with the corresponding standardized coefficients. For the observed variables, the coefficient of determination (r2) is 0.646, i.e. 65% of variations in marketing efficiency in the vegetable production sector in times of crisis caused by the COVID-19 pandemic are due to dynamic adjustment in marketing strategic action of their managers or owners. The results of correlation and regression analysis show the existence of statistically significant correlations, and it can also be considered that the research enterprises found that strategic marketing orientation has an effect on successful management in crisis, which confirms a well-developed coefficient of determination.

Conclusions, proposals, recommendations

1) The situation in the Croatian and global economy with the beginning of the crisis caused by the COVID pandemic has experienced serious disturbances due to the emergence of a kind of crisis. Although most business entities reacted negatively to the new situation, in some sectors the situation was the opposite. But despite the current situation, it is difficult to predict the continuation of the general economic situation with greater certainty.

2) Most factors from various sectors in the Republic of Croatia announce a decline in revenue for the research period, which is directly attributed to the impact of the coronavirus pandemic on the economy i.e., the impact of lockdown that caused a significant slowdown in economic activity.

3) However, the sectoral situation is not one-dimensional. Exceptions have been noticed in some sectors or sub-sectors, so some of their segments have even grown. The vegetable growing sector is an example of sectoral strength and resilience and despite the current negative results of other sectors.

According to the results of the research, vegetable producers state that their income is growing in times of crisis. For example, 46 respondents had a revenue growth of 10%, 12 respondents a 20% increase, while 15 respondents recorded an income growth above 30%. Thus, in the vegetable sector, this crisis has had a positive impact on their business. These positive trends have been realized thanks to the adjustment of marketing orientation and increased investments in combination with the Government's measures to help maintain employment. Some family farms within the vegetable growing sector have turned to alternative sales and marketing channels. Direct sales directly to the child's doorstep, as well as online sales, are becoming more and more prominent. This means that there has been a transformation of marketing activities which represents a business opportunity not only for individual companies within the sector but for agriculture in general as part of the economic development opportunity. In this sense, it was important to determine which elements of marketing commitment and in what way with the active application of strategic and operational marketing in times of crisis to develop effective business policies through their marketing success.

4) For the development and application of efficient marketing models of agricultural enterprises in the vegetable production sector, it was necessary to ensure their measurement. The results of the research confirmed the multidimensionality of marketing efficiency and confirmed the psychometric characteristics of the measuring instrument. The conducted regression analysis shows the existence of predictive ability of appropriate elements of strategic marketing commitment to the crisis to achieve marketing efficiency of surveyed enterprises, which is confirmed by research results, so it can be stated that it is possible to confirm the research hypothesis. The new situation represents an opportunity for vegetable production business which is reflected in increased marketing efficiency. This enables a vegetable producer a more competitive position on the market.

5) Namely, as a key predictor of efficiency in the researched case of vegetable producers in the Republic of Croatia is the product which in its basic characteristics is defined through the construct of market quality. Also, in combination with domestic quality products as an excellent alternative to the same or similar imported products, which in pre-crisis times were the most easily available supply of vegetables mainly through retail supermarket chains, it should be noted that small domestic companies have proven quite effective in the current agile marketing adjustments in the emerging market situation. Adjustment is a consequence of the active implementation of the market orientation strategy. This approach has resulted in increased consumer satisfaction and greater demand for domestic vegetable products, even despite higher prices than imported vegetables.

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