Original scientific paper UDC:339.137.025 doi: 10.5937/ekonhor1401031K

# TESTING THE BOUNDARIES OF THE RELEVANT MARKET IN THE COMPETITION POLICY

#### Milan Kostic\*

Faculty of Economics, University of Kragujevac, Kragujevac, Serbia

The concept of the relevant market is very important for the competition policy. The assessment of the market power of the economic entities operating on a relevant market depends on the market size. The relevant market has two dimensions – the production and the geographic ones – hence, there are a relevant product market and a relevant geographic market. The purpose of the paper is to show the possible ways of determining the relevant market boundaries, in an explicit and systematic way, by applying appropriate tests, and on the example of the specific Serbian market. In the paper, two important tests to determine the boundaries of the market have been applied: the Price Correlation Test and the Goods Physical Movement Test (the Elzinga-Hogarty test). The tests are very useful in situations where researchers only possess secondary data and want to determine the boundaries of the market based on them. The disadvantages of the tests, which of course exist, do not diminish their importance; therefore, they are very useful and recommended for determining the scope of the market.

Keywords: relevant market, competition policy, Price Correlation Test, Elzinga-Hogarty test

JEL Classification: D47, L40, K21

### INTRODUCTION

Defining the relevant market boundaries is a necessary prerequisite for determining the market power of corporations and is, therefore, the first stage in the analysis of competitive conditions (Xianlin, 2008, 541). A differently defined relevant market implies a different assessment of corporations' market power, which results in the same firm having a different market power in different proceedings before the

anti-monopoly authorities (ABA, 2005, 53-54). If the boundaries of the relevant market are narrowly defined, individual firms are likely to enjoy a greater market share and, consequently, a greater market power than in a broadly defined market (Stadler, 2009, 1062). The assessment of the relevant market boundaries precisely depends on defining the boundaries (Kostić, 2007, 105). It follows that the phenomenon of the relevant market sets out a framework within which to analyze the conditions of competition and apply the rules of the protection of competition, in a systematic and comprehensive manner, so we can say that it belongs to the anti-monopoly dogma, which is

<sup>\*</sup> Correspondence to: M.Kostic, Faculty of Economics, University of Kragujevac; D. Pucara 3, 34000 Kragujevac, Srbija; e-mail: mkostic@kg.ac.rs

becoming increasingly important today (ACPC, 2009, 83; Lopatka, 2011, 69).

Before defining the boundaries of the relevant market, two tasks are set. The first is to define the line of the products that are substitutable and the geographic areas in which the substitutability is achieved; and the second one, which refers to the identifying of the market participants, their market share, and the degree of the market concentration resulting from it (DOJ & FTC, 2010, 7).

The subject of this paper is to test the boundaries of the relevant market on the example of the sector of the Serbian economy. In this way, we will try to show the importance of this segment of the economic analysis for the competition policy. The aim is to provide a complete picture of what it is like to define the relevant market boundaries by applying appropriate economic tests. Starting from the defined subject and the aim of the research, we are going to test the research hypotheses to determine the boundaries of the relevant market. The main research hypothesis is:

H0: The market of edible oils can be treated as a single relevant market, which covers the entire territory of the Republic of Serbia.

The two additional hypotheses are derived from this one, and they relate to the individual dimensions of the relevant market:

H1 : Edible oil alone constitutes a relevant product market.

H2: The relevant geographic market in which edible oil is sold is the territory of the Republic of Serbia.

According to the defined subject, aim, and scientific hypotheses, the research was performed on the basis of the secondary data that were available in the statistical publications and databases of the relevant national and international institutions. The resulting data were used in accordance with the procedures requiring techniques for defining the relevant market boundaries, and thus the research hypotheses were tested.

The paper is so designed to comprise five sections. In addition to the introduction, the paper presents the theoretical background of the concept of the relevant market, the description of the methodology of the data collection, the results of the research with a discussion and the concluding remarks with the limitations of the research and the paper itself.

#### THEORETICAL BACKGROUND

In terms of defining the concept, and therefore the market boundaries, the views of economists have changed over time, which has particularly been complicated by the emergence of the theory of imperfect and monopolistic competition in the midtwentieth century (Werden, 1992, 126). The first texts on the relevant market and its boundaries appeared during the 1970s and the 1980s. Afterwards, the concept was introduced in the economic literature and was primarily associated with the competition policy (Massey, 2000, 313). Simultaneously with the appearance of this concept, the economic analysis in the area of the regulations of the state started to extensively be applied (Kostić, 2012, 250).

As an area where competition confronts, the relevant market has two dimensions - the production and the geographic ones, which means that it must be defined in terms of the range and in terms of the area in which the range is sold. This implies that the relevant market includes the relevant product market and the relevant geographic market (Labus, 2008, 52). The relevant product market is mainly defined as a set of goods and services that consumers and other users consider substitutable in terms of a common purpose, characteristics, and prices, and the relevant geographic market as the territory in which participants take part in demand or supply and where there are the same or similar conditions of competition, which significantly differ from the conditions of competition in the neighboring territories (The Republic of Serbia, 2009, Article 6 & Eropean Union, 1997, Par. 7 and 8). Thus, the relevant product market includes all the products that significantly limit a change in the price of the analyzed product, and the relevant geographic market includes all the firms which are so located that they can have a significant influence on the price established by the company that is the subject of the analysis (ABA, 2005, 54).

That the relevant market involves a group of products in a particular territory, where a hypothetical monopolist has the ability to profitably slightly but permanently raise the price of his products can also be included in the previous conceptual definition of the relevant market (Coate & Simons, 2012, 673-674). As such, the concept of the relevant market is narrower than the general concept of the market, which includes the exchange of goods and services in all the territories regardless of the conditions of competition and the existence of the substitutability of products (Geroski, 1998, 681). The following figure shows what the concept of the relevant market looks like.

Figure 1 demonstrates that the most important elements affecting the boundaries of the relevant market are

supply-side and demand-side substitutability and potential competitors rarely included in the analysis.

The relevant market is the key instance which the application of the rules of competition depends on (Labus, 2008, 49). When investigating cases of the distortion of competition, in the first step, it is necessary that the boundaries within which a distortion occurs should be determined and that an appropriate action against these activities should be taken (Xianlin, 2008, 541). However, most researchers neglect the importance of defining the boundaries of the market for at least two reasons. First, because what happens in the market is always more interesting than its boundaries are, and second, defining the relevant market boundaries contains a large dose of subjectivity and for the majority of authors, it is not the field worthy of being analyzed (Geroski, 1998, 678). We will do our best to disregard these barriers and access the research that is of paramount importance to the protection of competition.

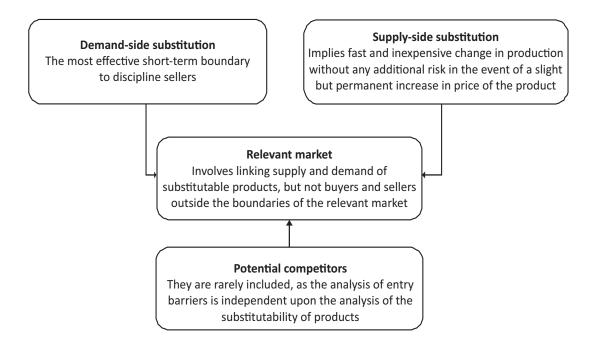


Figure 1 The concept of the relevant market

Source: Labus, 2008, 53

## RESEARCH METHODOLOGY AND DATA COLLECTION

Defining the boundaries of the relevant market in the production and geographic terms is predominantly based on the use of economic tests. The paper presents the market boundaries definition on the example of Serbian edible oil. An appropriate algorithm is used in defining the boundaries (Figure 2), where the emphasis is on the part of the algorithm which refers to the use of economic tests and the inclusion of the specifics of the analyzed markets.

Although the assertion that there is no commonly accepted approach, or test, to define the boundaries of the relevant market is still valid (Kaplow, 2012, 951), we have opted for the two commonly used tests, which are applicable to the data at our disposal. These are: the Correlation Price Test and the Goods Physical Movement Test (the Elzinga-Hogarty Test). The first test will be applied so as to define the relevant product market boundaries, and the other one so as to define the relevant geographic market boundaries. In economic theory, there are other tests used for defining the boundaries of the relevant market. The

most common classification of tests is the one to those based on data about prices and those based on data about the movement of products (Slade, 1986, 293). The Hypothetical Monopolist Test (SSNIP) stands out among the techniques and belongs to the group of techniques based on the price movement; however, the available data did not allow it to be used.

#### **Price Correlation Test**

The Price Correlation Test shows how data about the prices of different products change over time. Some proponents of this test, such as G. J. Stigler and R. A. Sherwin (Stigler & Sherwin, 1985, 555), believe that its source lies in the classic Marchallian understanding of the market, which says that a market is an area where product prices seek uniformity, and possible discrepancies are related to the amount of transportation and transaction costs (Geroski 1998, 679). The idea of the test is that the prices of products belonging to the same market tend to move in the same direction and with the same intensity (Motta, 2008, 107). If the prices of all potential substitutes are moving with the same intensity in the same direction,

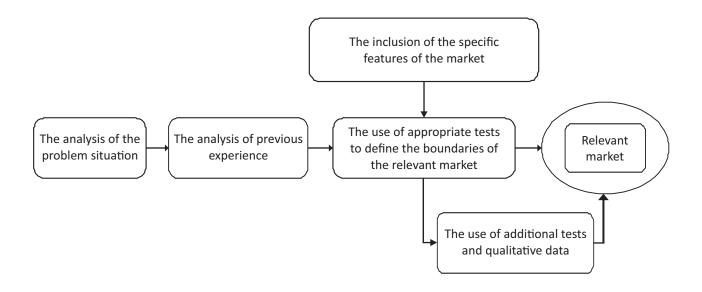


Figure 2 The algorithm of the definition of the relevant market boundaries

Source: Author

then these products can be said to most likely belong to a single relevant product market. The same applies to the relevant geographic market, if the product prices of the companies stationed at different locations are analyzed (Massey, 2000, 315). The Price Correlation Test is very useful for testing the local as well as a wider relevant geographic markets (Cartwirght, Kamerschen, & Huang, 1989, 79).

Correlation itself is a statistical technique examining whether there is a quantitative agreement between the two phenomena and if so, to what extent, where it does not matter which phenomenon is dependent and which one is independent. The correlation coefficient (Pearson's coefficient) can be determined using the following formula:

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{n \sum x^2 - (\sum x)^2 \sqrt{n \sum y^2 - (\sum y)^2}}}$$
(1)

where n is the number of the data pairs, and x and y are the variables whose correlation is being tested. The value of the coefficient obtained in this way can range from -1 to +1, where -1 is the perfect inverse correlation and +1 the perfect direct correlation between the two phenomena, in this case the prices (Vuković, 2013, 201). The economic analysis of anti-monopoly cases takes +0.8 as the reference value, so if the value of the coefficient is below +0.8, it means that such products do not belong to the same market, while any value above +0.8 means that there is a high probability that the analyzed products do belong to the same relevant market. However, the value above +0.8 does not automatically mean that the products are a part of a single market, but rather that it is necessary that additional analyses be carried out to confirm that (ABA, 2005, 62-63).

Anti-monopoly authorities in developed countries often use the price correlation test in the analysis of anti-competitive behavior, and a representative example is the case of the merging of the *Nestle* and *Perrier* corporations in the French market, where correlation between the price movement of bottled non-carbonated drinking water and non-carbonated juices was investigated. The research, which had been conducted during the five consecutive years, showed a

low level of correlation in the price movements of these two products. Consequently, this fact enabled the definition of the relevant market for non-carbonated drinking water that does not contain other non-carbonated non-alcoholic beverages in itself (Motta, 2008, 108-109). The method based on movements in prices served a group of researchers to define the relevant electricity market in the case of the Nordic countries. Thus, Sweden, Finland, part of Denmark, and part of Norway belonged to one relevant market for the wholesale of electricity, while the second part of Norway and part of Denmark constituted a separate relevant market (Juselius & Stenbacka, 2011, 186-188).

#### The Product Movement Test – "Elzinga-Hogarty" Test

In addition to the techniques based on the data about the price movement, the techniques based on the movement of products are also used in the antimonopoly policy. They are mainly used to determine the territorial boundaries of the market. One of the most important and the most commonly used technique as well is the Elzinga-Hogarty Test, which was created in the works of the authors after whom it was named in the 1970s. This test defines the relevant geographic market through data about the movement of products and is called the Product Movement Test. Its application eliminates the disadvantages of the tests based on data about the price movements (Elzinga & Hogarty, 1973, 50).

The Elzinga-Hogarty Test determines the geographic boundaries of the market based on the percentage of the total spending accounting for the goods produced in the region and the percentage of the total production consumed in the region where it is produced. If both percentages are high, it indicates that the analyzed geographic area can be considered to be a single relevant market (Massey, 2000, 315). Otherwise, if the percentages are low, it means that the analyzed geographic area can be considered as part of a wider market. K. Elzinga and T. Hogarty recommended that the limit value of indicators should range from 0.75 to 0.9 (Stigler & Sherwin, 1985, 580). This means that a market can be considered as single if part of spending which accounts for domestic production and part of the

production placed in the domestic consumption range between 75% and 90%. This logic can be applied in the opposite way, by the amount of goods that enter and leave a region, so that the region is a single market if a small part of the local consumption accounts for the products originating from other regions and if a small part of the local production crosses the borders of the region (Motta, 2008, 114). In accordance with the logic, the LIFO (Little In From Outside) and LOFI (Little Out From Inside) tests are used to assess whether a market is single. The LIFO test can be explained as a situation in which only a small percentage of spending in the region is "imported" from another region (Figure 3) (Elzinga & Hogarty, 1973, 54).

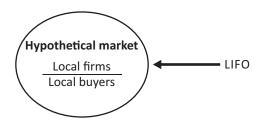


Figure 3 LIFO analysis

Source: Elzinga & Hogarty, 1973, 54

The LOFI test can be explained as a situation in which only a small percentage of the local production is "exported" to another region (Figure 4) (Elzinga & Hogarty, 1973, 58).

In case that the percentage of the LIFO and LOFI tests is less than 10 % (0.1), a geographic area can be considered to be a "strong" relevant market; if it is higher than 10% (0.1) but no higher than 25% (0.25), it is a "weak" relevant market. Any value above 25% (0.25) means that the geographic region is not a single relevant market, but rather a part of a wider market. (DOJ)

The aforementioned tests for determining the boundaries of the market are applied to the data obtained from the following sources: the National

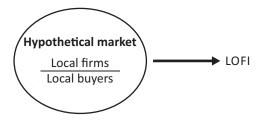


Figure 4 LOFI test

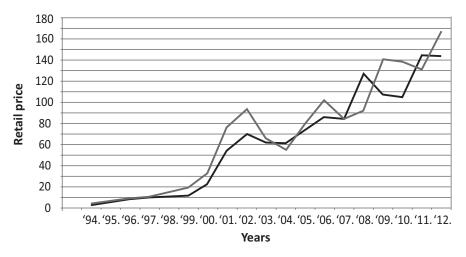
Source: Elzinga & Hogarty, 1973, 58

Bureau of Statistics of the Republic of Serbia (the Statistical Yearbooks from 1994 to 2012), the Internet site of the European Bank for Reconstruction and Development (EBRD), the Internet portal of The Observatory of Economic Complexity (atlas.media.mit. edu), and the Internet portal of Index Mundi (www. indexmundi.com). The data of the National Bureau of Statistics were used for defining the boundaries of the relevant product market based on the data about the average annual retail prices of the analyzed product and its closest substitute. The data obtained from the website of the European Bank for Reconstruction and Development (EBRD) were used to reduce the current prices to the prices in 1994 in order to eliminate the effects of the inflation. The Internet portal of The Observatory of Economic Complexity was used to collect the data about the value of imports and exports and as a complement to this source, the Internet portal Index Mundi was used. The time frame in which the tests were being applied was from 1994 to 2012 for the Correlation Price Test and from 2005 to 2011 for the Elzinga-Hogarty Test. The time frame was based on the consistency and comparability of the available data. The statistical analysis was performed in the Statistical Package for Social Sciences – SPSS.

#### RESEARCH RESULTS AND DISCUSSION

### Defining the boundaries of the relevant product market

As noted above, defining the boundaries of the relevant product market involves the definition of a product or a



Average retail price of edible oil of 1 liter
Average retail price of lard of 1kg

Figure 5 Movements in the current average retail prices of edible oil and lard in the period between 1994 and 2012

Source: Statistical Yearbooks of the Republic of Serbia between 1994 and 2012

group of products which make a single market in terms of their substitutability with conditions acceptable for consumers. Starting from the habits of consumers in Serbia, a logical substitute for edible oil is animal fat (mainly pork fat – hereinafter referred to as "lard") intended for human consumption. The substitutability of these products was tested through correlation in the price movement. The research was carried out on the example of the current average annual retail prices of edible oils and lard in the period between 1994 and 2012. Given the fact that these are annual average prices, there was no need to include any interval in the price movements between the analyzed products. The need for this would exist if the data were monthly or quarterly data. In Figure 5, the price movement of the analyzed products in the period between 1994 and 2012 can be seen.

Analyzing the data about the price movements of both products, their very similar trend can be noticed. This is confirmed by the following analysis. Table 1 shows the descriptive statistics data about the product price movement, whereas Figure 6 is a diagram of the dispersion of the data about the price movement.

With the dispersion diagram, the attitude about almost identical product price movements can be confirmed, as evidenced by the statistical analysis in Table 2.

The statistical analysis (Table 2) leads us to a conclusion that there is a direct and very strong correlation between the movement of edible oil and lard, which is statistically significant, since p < 0.01. The conclusion is that these two products can belong to the same relevant product market since the correlation coefficient is above the theoretical threshold of 0.8. The confirmation of the thesis on belonging to a single market requires further testing because theoretically a high correlation coefficient is just the first indication of the existence of a single relevant market, but it does not necessarily mean that.

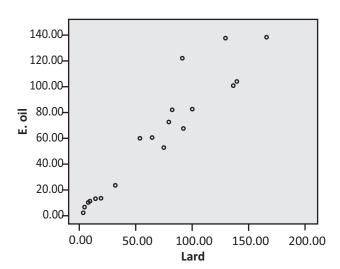
The conclusion on the high correlation of the price movement obtained on the basis of the data about the price movement given in this way is quite wrong because there is a significant common factor that impacts the price movement of the analyzed product and undermines the validity of the analysis – and

**Table 1** The descriptive statistics of the data about the movement in the current average retail prices of edible oil and lard in the period between 1994 and 2012

	Z	Minimum	Maximum	Mean	Std. deviation	Variance
Edible oil	19	1,93	143,94	62,26	48,40836	2343,370
Lard	19	3,90	167,06	69,21	51,80404	2683,658
Valid N (listwise)	19					

Source: Author

that is inflation. The further research excludes the effect of inflation due to the objectivity of defining the boundaries of the market, and as a correction factor, we used the data about the consumer price movement at the disposal of the EBRD. The prices of the analyzed products were reduced to those in 1994, and based on these data, the testing of the boundaries of the relevant



**Figure 6** The diagram of the dispersion of the data about the movement in the current average retail prices of edible oil and lard in the period between 1994 and 2012

Source: Author

**Table 2** The correlation coefficient of the movement in the current average retail prices of edible oil and lard in the period between 1994 and 2012

		E. oil	Lard
E. oil	Pearson Correlation	1	.949**
	Sig. (2-tailed)		.000
	N	19	19
Lard	Pearson Correlation	.949**	1
	Sig. (2-tailed)	.000	
	N	19	19

<sup>\*\*</sup>Correlation is significant at the 0.01 level (2-tailed)

Source: Author

product market was performed. Figure 7 makes it possible for us to conclude, as in the previous case, that the price movement of the analyzed products is similar, but to a smaller extent. This raises the question of whether this is really the case.

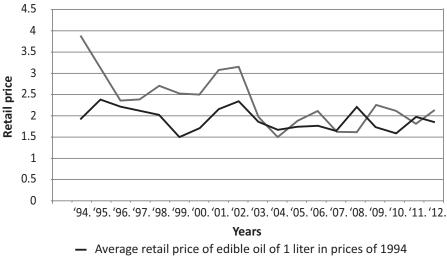
Tables 3 and 4 and Figure 8 point to the conclusion that the price movement of the analyzed products is not what it seemed to be at first. The dispersion diagram (Fig. 8) and the statistical analysis based on it (Table 4) are specifically indicative of this.

Based on the degree of correlation and the significance level given in Table 4, we can conclude that there is a moderate direct correlation not statistically significant between the price movement of edible oil and lard in the period between 1994 and 2012, expressed in the prices in 1994; therefore it can be concluded that the two products do not belong to the same relevant product market, but edible oil alone constitutes a relevant product market. In this way, we confirmed the research hypothesis H1.

#### Relevant geographic market

The relevant geographic market is a single territory with the similar conditions of competition.

The boundaries of the relevant market are determined using the LOFI and LIFO tests and the two simulations. The first one is based on the data obtained from the Statistical Yearbook of the Republic of Serbia and the



- Average retail price of lard of 1 kg in prices of 1994

Figure 7 Movement in the retail prices of edible oil and lard in the period between 1994 and 2012, expressed in the prices in 1994

Source: Author

http://atlas.media.mit.edu site (The Observatory of Economic Complexity), whereas the other one is based on the data obtained from the http://www.indexmundi. com/ site (Index Mundi). Assuming that the territory of Serbia, as a single relevant market, can be taken as the market of edible oil, using the available data about production, consumption, imports and exports, the hypothesis was tested.

**Table 3** The descriptive statistics of the data about the movement in the retail prices of edible oil and lard in the period between 1994 and 2012, expressed in the prices in 1994

	z	Minimum	Maximum	Mean	Std. deviation	Variance
Edible oil	19	1.53	2.39	1.94	.26189	.069
Lard	19	1.51	3.90	2,37	.61903	.383
Valid N (listwise)	19					

Source: Author

Both simulations presented in Table 5 lead to similar results and conclusions that confirm their validity.

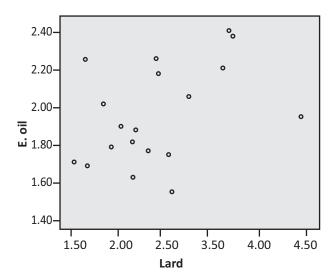
From the point of consumption, the value of the LIFO test indicates that Serbia is a single, generally "strong" relevant geographic market. From the point of

**Table 4** The correlation coefficient of the movement in the retail prices of edible oil and lard in the period between 1994 and 2012, expressed in the prices in 1994

		E. oil	Lard
E. oil	Pearson Correlation	1	.410
	Sig. (2-tailed)		.081
	N	19	19
Lard	Pearson Correlation	.410	1
	Sig. (2-tailed)	.081	
	N	17	17

<sup>\*\*</sup>Correlation is significant at the o.o1 level (2-tailed)

Source: Author



**Figure 8** The diagram of the dispersion of the data about the movement in the retail prices of edible oil and lard in the period between 1994 and 2012, expressed in the prices in 1994

Source: Author

the LOFI test, the Serbian market is, in the observed period, generally part of a wider relevant market. However, the Competition Law, the fact that Serbia has not yet become part of the EU, and that – according to the volume of the production of edible oil – Serbia belongs to the group of the leading countries in the region diminish the importance of the LOFI test. It can be concluded that the territory of Serbia can be defined as the relevant geographic market in this research. This is especially corroborated by the fact that all the brands of edible oil produced in local firms are equally available at a similar price in the branched retail network. In this way, the research hypothesis H2 is confirmed.

Based on the foregoing, we can conclude that the relevant market for the examination of the market power of the economic entities producing edible oil is the edible oil market in the Republic of Serbia. In this way, the main research hypothesis is confirmed and the procedure for defining the relevant market boundaries is presented.

**Table 5** LOFI and LIFO tests

Year	LOFI	LIFO				
Simulation 1						
2006	12.78	8.98				
2007	29.39	11.74				
2008	31.51	8.84				
2009	29.92	9.49				
2010	37-53	2.68				
	Simulation 2					
2006	31.68	15.09				
2007	35.65	6.00				
2008	35.56	5.88				
2009	57.65	4.21				
2010	45.29	2.11				
2011	50.00	2.27				

Source: Author

The boundaries of the relevant market so defined are of great importance for the implementation of the competition policy, because they allow the proper assessment of the market power of the economic entities operating in it by only including those entities that really affect the conditions of competition. In this manner, the market as a relatively wide term is reduced to a narrower, practical dimension. That is the reason why developed countries test the boundaries of the relevant market using the above-presented and similar techniques of the economic analysis. It follows that these techniques are very important for the practical conduct of the competition policy.

In the Serbian competition policy, the implementation of the aforementioned and similar techniques practically does not exist. Although the regulatory authorities declaratively advocate for a greater application of the economic analysis, it has not yet been implemented to the extent acceptable to the contemporary competition policy. Defining the boundaries of the market in Serbia is typically based on a descriptive assessment primarily based on the experience of a researcher, which can be a starting point for an analysis but not its ultimate achievement.

#### **CONCLUSION**

According to the results, it can be concluded that the relevant market in its both dimensions includes edible oil on the entire territory of the Republic of Serbia. As such, it is a single market in which economic entities, whose market power can be estimated, operate. The determining of the boundaries of the market in which the power manifests is precisely a prerequisite for the determination of the market power. As a rule, companies with a large market share also have a great market power. However, in order for a market share to become a market power, companies need to possess the ability to profitably raise the price of their products.

The research has certain limitations, however, which certainly do not diminish its importance, but they need to be taken into account when making a new assessment of the market size. The limitations primarily concern the tests conducted.

As far as the Correlation Price Test is concerned, the problem that may arise in its implementation is related to the certain components of the price, such as transportation and transaction costs. These constituent elements of the price can greatly affect the level of correlation, but they are difficult to exclude. There is also the influence of the common factor, which is difficult to remove and may cause the prices of the products, which do not belong to the same market, to have the identical movement, so it is possible to reach a wrong conclusion that they belong to the same market. Such correlation is called the spurious correlation (Motta, 2008, 108) and the most frequent common factor affecting its creation is inflation. The research eliminated the influence of this factor. A very important limitation of the temporal (mis)matching of data is on the movement in the prices of the analyzed products. It happens that a change in the price of a product affects the price of another product with a certain time-lag and when this time-lag is included, we approach the value of correlation indicating that it is (or is not) about the products belonging to a single market (Slade, 1986, 293). The research did not include the time-lag, since these are annual data and their inclusion makes no sense.

On the other hand, the Product Movement Test is criticized because of the simplified understanding of the geographic market. The presence of the goods movement between regions is often not a sufficient condition to claim for a market to be part of a single market (Stigler & Sherwin, 1985, 580). A significant movement of consumers between the territories is a possibility, which is the proof of the existence of the single market. What follows is that in defining the geographic boundaries of the market not only the mobility of goods but also the mobility of customers should additionally be studied as well. This is especially true in the service industries, where the test is applicable to a limited extent due to the characteristics of the goods (Elzinga & Swisher, 2011, 143). There is also a problem with the joint involvement of the movement of finished goods, intermediate goods, and raw materials. It is common to only take the movement of finished products for convenience, rather than intermediate products and raw materials, although their movements may indicate the direction of the movement of the final bid. There is also a problem of the movement of the product because of different prices between territories. Care should be taken in the event that prices are different, since products are always exported to the region where the price is higher until prices have become equal. An analysis of the flow of goods at a time when prices are different can create a misleading picture of the connection between the two areas. Therefore, the analysis which is carried out when prices are equal and stable among regions is more precise. The problem of an asymmetric movement of goods between regions is also significant. It is the situation in which a region exports more of some products than it imports them. This problem existed in our research, but was removed with a greater emphasis on the importation of goods.

In addition to the limitations of the tests, the limitations of the research can also be mentioned. Along with the secondary data for the purpose of determining the market boundaries, the primary data obtained through surveys, where consumers give their opinions on the substitutability of the analyzed products, can be used as well. Also, they can declare on the degree of their attachment to domestic product brands. Such an analysis can be a complement to the previous tests.

Furthermore, a series of collected data could be longer, which would ensure a greater validity of the research.

Despite all the limitations and problems, the tests are extremely useful and stand for a practical basis for defining the market boundaries. The paper should be understood in this light, as a pioneering venture in a higher application of the economic analysis in the area of the protection of competition. It is a trend in developed economies (the U.S. and the EU), where every decision aimed at sanctioning anticompetitive practice is based on the economic analysis - from defining the boundaries of the market to examining the consequences of such a behavior and measures for its elimination.

The application of the economic analysis is particularly important in the area of defining the market boundaries, because this ultimately determines the area in which conditions of competition are examined. The competition policy in the Republic of Serbia lacks exactly this economic analysis. The approach based on the factographic interpretation of the articles of law is insufficient. Every decision must be substantiated with the economic analysis. The introduction of legal acts and legislations by applying specific tests to determine the boundaries of the market could be a good approach to this.

Future research is likely to be related to the practical development of the issues concerning the relevant market and the definition of its borders, especially the removal of the limitations the analysis has encountered. Considerable attention will be focused on the assessment of the market power of corporations by applying appropriate indicators of concentration and inequality in the distribution of a market share.

#### REFERENCES

- ABA (2005). *Market Power Handbook*. USA: American Bar Assocation, Sector of Antitrust Law.
- ACPC (2009). Glosar termina koji se koriste u politici konkurencije Evropske unije Antimonopolsko pravo i kontrola konkurencije. Beograd, Srbija: Tehnička pomoć Komisiji za zaštitu konkurencije.

- Cartwirght, P. A., Kamerschen, D. R., & Huang, M. Y (1989). Price Correlation and Granger Causality Tests for Market Definition. *Review of Industrial Organization*, 4(2), 79-98. doi: 10.1007/BF02284670
- Coate, B. M., & Simons, J. J (2012). In Defense of Market Definition. *Antitrust Bulletin*, 57(4), 667-717.
- DOJ & FTC (2010). *Horizontal Merger Guidelines*. USA: U.S. Departement of Justice and the Federal Trade Commission.
- DOJ (n.d.). *U.S. Department of Justice*. Preuzeto 09.09.2012. sa http://www.justice.gov/atr/public/health\_care204694/chapter4.htm#N37
- EBRD (n.d.). Preuzeto 16.10.2012. sa http://www.ebrd.com/pages/research/economics/data/macro.shtml#macro
- EBRD (n.d.) Preuzeto 30.03.2014. sa http://www.ebrd.com/downloads/research/REP/rep-may-2013.pdf
- EBRD (n.d.) Preuzeto 30.03.2014. sa http://www.ebrd.com/downloads/research/REP/regional-economic-prospects1210.pdf
- Elzinga, K., & Hogarty, T (1973). The Problem of Geographic Market Definition in Antimerger Suits USA. *Antitrust Bulletin*, 18(1), 45-81.
- Elzinga, K. G., & Swisher, A. W (2011). Limits of the Elzinga-Hogarty Test in Hospital Mergers: The Evanston Case. *International Journal of the Economics of Business*, *18*(1), 133-146. doi: 10.1080/13571516.2011.542963
- European Union (1997). Commission Notice on the Definition of the Relevant Market for the Purposes of Community Competition Law. Official Journal of European Union.
- Geroski, P. A (1998). Thinking creatively about markets. *International Journal of Industrial Organization*, 16(6), 677-695.
- Index Mundi (n.d.). Preuzeto 16.10.2012. sa http://www.indexmundi.com
- Juselius, M., & Stenbacka, R (2011). The Relevant Market for Production. *Scandinavian Jouranl of Economics*, 113(1), 167-189. doi: 10.1111/j.1467-9442.2010.01640.x
- Kaplow, L (2012). Market definition alchemy. *Antitrust Bulletin*, 57(4), 915-952.
- Kostić, M (2007). Merenje koncentracije ponude grane. *Ekonomski horizonti*, 9(1-2), 89-108.
- Kostić, M (2012). Značaj relevantnog tržišta za kvalitetnu procenu uslova konkurencije. U V. Leković (Red.), *Institucionalne promene kao determinanta privrednog razvoja Srbije* (249-260). Kragujevac: Ekonomski fakultet Univerziteta u Kragujevcu.

- Labus, M (2008). Uporedna analiza relevantnog tržišta koncept i primena. *Ekonomika preduzeća*, 56(1-2), 48-60.
- Lopatka, E. J (2011). Market Definition? *Review of Industrial Organization*, 39(1-2), 69-93. doi: 10.1007/s11151-011-9302-z
- Massey, P (2000). Market Definition and Market Power in Competition Analysis: Some Practical Issues. *The Economic and Social Review*, 31(4), 309-328.
- Motta, M (2008). *Competition Policy: Theory and Practice*. Cambridge, UK: Cambridge University Press.
- Republički zavod za statistiku Srbije (1995-2013). *Statistički* godišnjaci od 1994-2012. Beograd: Republički zavod za statistiku Srbije.
- Republika Srbija (2009). *Zakon o zaštiti konkurencije*. Službeni glasnik Republike Srbije br. 51/09.
- Slade, M. E (1986). Exogeneity Tests of Market Boundaries Applied to Petroleum Products. *Journal of Industrial Economics*, 34(3), 291-303.

- Stadler, S. K (2009). Relevant Markets for Copyrighted Works Journal of Corporation Law. *Journal of Corporation Law*, 34(4), 1059-182.
- Stigler, G. J., & Sherwin, R. A (1985). The Extent of the Market. *Journal of Law and Economics*, 28(3), 555-585.
- The Observatory of Economic Complexity (n.d.). Preuzeto 06.10.2012. sa http://atlas.media.mit.edu
- Vuković, B. D (2013). Korelaciona analiza indikatora regionalne konkurentnosti: Primer Republike Srbije. *Ekonomski* horizonti, 15(3), 197-211. doi: 10.5937/ekonhor1303197V
- Werden, G. J (1992). The History of Antitrust Market Delineation. *Marquette Law Review*, 76 (1), 123-215.
- Xianlin, W (2008). On Defining Relevant Markets in Implementing the Antimonopoly Low of China. *Frontiers of Law in China*, 3 (4), 540-555. doi: 10.1007/s11463-008-0026-4

Received on 3<sup>th</sup> March 2014, after revision, accepted for publication on 17<sup>th</sup> April 2014.

*Milan Kostic* is an assistant professor in the area of expertise of General Economics and Economic Development at the Faculty of Economics in Kragujevac. He teaches Price Theory and Policy. He holds a PhD in the scientific field of Microeconomics – Industrial Organization at the Faculty of Economics, University of Kragujevac. He is currently engaged in a research in the field of the protection of competition, the relevant market boundaries definition, the degree of the market limitation, consumer ethnocentrism and privatization.

#### **APPENDIX**

**Table 1** The movement in the current average prices, the inflation of the adjusted prices of edible oils and lard in the period between 1994 and 2012 in Serbia

Godina	Prosečna cena na malo jestivog ulja od 1l	Prosečna cena na malo sv. masti od 1 kg	Godišnja inflacija u %	Prosečna cena na malo jestivog ulja od 1l u cenama iz 1994.	Prosečna cena na malo sv. masti od 1 kg u cenama iz 1994.
1994.	1,93	3,90	-	1,93	3,90
1995.	4,26	5,61	78,60	2,39	3,14
1996.	7,78	8,25	94,30	2,24	2,38
1997.	8,85	9,84	18,30	2,16	2,40
1998.	10,89	14,50	30,00	2,04	2,72
1999.	11,53	19,10	41,10	1,53	2,54
2000.	22,12	32,18	70,00	1,73	2,51
2001.	53,65	75,63	91,80	2,19	3,08
2002.	69,23	93,21	19,50	2,36	3,18
2003.	61,65	65,39	11,70	1,88	2,00
2004.	61,14	54,50	10,10	1,69	1,51
2005.	74,30	80,06	16,50	1,77	1,90
2006.	85,13	101,13	12,70	1,80	2,13
2007.	84,36	83,15	6,50	1,67	1,65
2008.	127,03	92,32	12,40	2,24	1,63
2009.	107,14	140,18	8,10	1,75	2,29
2010.	104,65	138,31	5,70	1,61	2,13
2011.	143,94	130,69	11,10	2,00	1,82
2012.	143,34	167,06	7,30	1,86	2,16

Source: The table has been made on the basis of the data obtained from the Statistical Yearbooks of the Republic of Serbia between 1994 and 2012; the http://www.ebrd.com/pages/research/economics/data/macro.shtml#macrosite, downloaded on 16/10/2011, the http://www.ebrd.com/downloads/research/REP/rep-may-2013.pdf site, downloaded on 30/03/2014 and the http://www.ebrd.com/downloads/research/REP/regional-economic-prospects1210.pdf site, downloaded on 30/03/2014