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COMPETITION POLICY AND THE IMPACT OF MARKET STRUCTURE ON COMPANIES' PROFITABILITY

Politika zaštite konkurencije i uticaj tržišne strukture na profitabilnost preduzeća

Abstract

Competition policy has a role to ensure equal conditions for all market participants. This policy enables the realization of effective competition, which is a prerequisite for economic and broader social progress. To make competition policy be of a good quality it must be based on the findings of economic science, in particular the one concerning industrial organizations and relationships among market structure, conduct and performance of companies (SCP). The analysis of these relationships is the way for identifying market imperfections and the consequences that these imperfections have on society as a whole. The paper promotes economic analysis in the field of competition through empirical evaluation of industrial organization findings. Empirical research has shown a statistically significant positive impact of the change in market share on the change of the profit margin of companies operating in the Serbian beer market. Given that this market is highly concentrated, any increase in market share increases profit margin, and vice versa. Empirical research conducted in the paper is a sound basis for the professional and economics-founded application of modern competition policy measures aimed at preventing and punishing anti-competitive behaviour.

Key words: *competition policy, market structure, market share, non-competitive behaviour, profit rate*

Sažetak

Politika zaštite konkurencije ima ulogu da obezbedi jednake uslove za sve tržišne aktere. Takva politika vodi ostvarivanju efektivne konkurencije koja je preduslov ekonomskog i šireg društvenog napretka. Da bi politika zaštite konkurencije bila efikasna, mora da se bazira na nalazima ekonomske nauke, posebno industrijske organizacije i veze struktura-ponašanje-performanse kompanija (SCP). Analiza ovih relacija je način za identifikovanje tržišnih ograničenja i posledica koje ta ograničenja prouzrokuju za društvo u celini. Rad afirmiše ekonomsku analizu u sferi zaštite konkurencije kroz empirijsku evaluaciju nalaza industrijske organizacije. Empirijsko istraživanje je pokazalo statistički značajan pozitivan uticaj promene tržišnog učešća na promenu stopu poslovnog dobitka kompanija koje posluju na tržištu piva Srbije. S obzirom na to da je ovo tržište visoko koncentrisano, svako povećanje tržišnog učešća povećava i stopu poslovnog dobitka, i obrnuto. Empirijsko istraživanje sprovedeno u radu predstavlja osnovu za stručnu i ekonomski fundiranu primenu savremenih mera politike zaštite konkurencije usmerenih na prevenciju i kažnjavanje nekonkurentnog ponašanja.

Ključne reči: *politika zaštite konkurencije, tržišna sturktura, tržišno učešće, nekonkurentno ponašanje, profitna stopa*

Introduction

The state defines the complex of regulatory and system measures which create the environment for the expression and fulfilment of individual and collective interests. The state, acting in various spheres of life, defines and achieves goals of economic and social development. Therefore, important task of the creator of this development is to find an optimal combination of different policies (*policy mix*).

One of the most important spheres of state's direct and indirect actions is the economy. The complexity of economic relations and interactions of economic agents produces the complexity of the regulation of this field. Therefore, economic policy has a task, within its system orientation, to define the goals of economic growth, determine the position and role of business entities, to develop methods, and implement appropriate means to achieve these goals.

Modern economies have commercial character. The market as a regulator of economic trends arises in them, as well as the state whose actions should allow unhindered expression of economic participants' interest. There are many modalities of the relation of the state towards the market. Excessive interference of the state has a direct impact on limiting the role of the market. It follows that the state should create a favourable environment for the expression of preferences of individuals and society as a whole, so that the market is left to ensure economic efficiency with its operation.

Pragmatic orientation related to the issue of free market is often limited to the withdrawal of the state from the economic flows regulation. This pragmatism involves the selective approach and inclusion only in cases when economic freedom of economic entities is threatened. The state, in this way, occasionally participates in business events when it is considered that these are activities that distort free competition, such as the fusion of certain companies, acquisitions, or mutual share in the capital of firms in the same field. On the other hand, the state itself is a monopoly and it must regulate monopolistic position of the public sector and achieve higher level of social welfare.

Efficient state easily removes visible defects and adapts to the demands of a modern economy. It should introduce methods of decentralized decision-making in the public sector and gradual deregulation. Along with deregulation it needs to create a powerful and efficient economic system as a prerequisite for achieving the maximum social welfare.

In designing the objectives and methods of transforming the economy, it is often started from the norms of liberal market economy, i.e. the existence of an integral market and the universality of market mechanism activities. Glorification of market power in regulating economic flows does have its limits. The market alone does not always work satisfactorily. There are fields, branches, and activities in which the functioning of the market does not give good results from the standpoint of economic entities and society as a whole. In such cases, the state with its economic role appears as a substitute for the market or as a supplement to the activities of the market mechanism.[1]

A much larger dilemma is related to the need for intervention in the case of limited competition and high concentration in certain markets. Often, the question arises of whether the strengthening of market position results from its corporate efficiency and its competence, or non-competitive practice of the corporation and the state [11, p. 121]. Monopolistic and oligopolistic structures can be the outcome of spontaneous strengthening of the market power of economic entities through competitive bidding. If it is a fair competition with no artificial advantages, the process can be useful to society. However, the problem occurs if the market situation changes based on state's activities that favour only some market participants through, for example, legal acts and subordinate regulations, privatizations, tenders, etc. The problem also arises when the improvement of economic entities' performance occurs from the lack of state response in the case of the abuse of already created dominant position. The reason for this is most often the ineffective competition policy.

In both cases, the increase in profitability is the result of the limitations of market structure. It is therefore essential to record and analyse the external sources of market participants' performance improvement, among which we can distinguish the market structure, especially its element – the market share. As a proof of this claim, the paper will show that there is a connection between the increase in market share and companies' profitability

1 The public sector has traditionally been under the strong, often exclusive influence of the state regulation. Products and services of the sector meet mainly essential, individual, and general social needs, which is why the state is engaged in the organization of production and provision of products and services, as well as the control of their quality and quantity. Industries with significant external effects, are also the area of state regulation, especially if ecological conditions for survival and sustainable growth are threatened. Also, industries with the so-called stagnant technology, such as mining or parts of agricultural production, due to their importance, require state protection. There is also a need for state intervention in the markets of products with inelastic demand because of the protection of the living standards of population.

growth in the market with a high concentration, such as the Serbian beer market. The intention of the empirical analysis is to show economic policy makers, including competition policy, that there is the need for *ex ante* effect on the competitive conditions in the industries, and the need for vigorous action in cases of abuse of monopoly position.

The impact of economic policy on the character of market structures

The economy is a subsystem that has parallel relationships with other segments of society. It takes care that human activities are used in the most efficient manner with the least expenditure of limited resources. However, economic freedom contains the latent danger of self-destruction. Economic trends have an inherent tendency toward growth and merging to create a dominant position and provide the highest possible profit. Such activities typically result in limiting the freedom of other market participants. These tendencies, unfavourable for society as a whole, should be disabled with preventive measures and legal sanctions.

Competitive rivalry includes the forms of competition within the existing markets, taking into account the barriers to these markets entry. This includes rivalry in prices, but also the change and improvement of production and sales techniques. All these forms of rivalry have implications of the level of technical efficiency of production, consumption standards, allocation of resources between sectors, and the evolution of market structure.

Economic policy seeks to provide an optimal balance of different objectives. All objectives should promote effective competition and the optimal allocation of limited resources. Economic efficiency, which is achieved through the optimal allocation of limited resources, is compatible with other economic objectives, such as: (1) the integration of markets; (2) consumer welfare, which increases with the increase of the level of competitiveness; (3) the protection of consumers in the context of individuals' general protection; (4) the distribution of income (wealth) and the dispersion of the wealth to a greater number of individuals, in proportion to their contribution to the achievement of joint income; (5) the protection of small and medium-sized companies by increasing the number of competitors (without the protection of incompetent economic entities); (6) regional, structural, and social balance, which is reflected in state interventions targeted at the area of balanced regional and industrial development and increase of employment.

The above objectives are very different, and difficult to achieve simultaneously. Therefore, some measures of economic policy are oriented towards the realization of a certain goal, without realization of or even with a negative impact on other objectives. The goals are not fixed and immutable. Depending on the circumstances in a particular market, some of them will be more important than the others. At some point in time some of the goals may be the focus of economic policy makers, and at some other point some other goals. Also, the intensity of the implementation of measures will be different at different times and for different purposes. In all of this, political commitment to solving specific problems has a significant role and the hierarchy of these objectives depends on the constellation of actors' power in the political scene. Regardless of all of these controversies, economic policy should lead to prosperity, freedom, equality, and social justice.

In the case of small number of large companies in a market, the potential abuse of market power affects the reduction in output and increase in price compared to the market with no such abuse. The reason for this behaviour is the realization of monopoly extra profits, which reduces consumer welfare. The loss of consumer welfare motivates the state to intervene to prevent the abuse of monopoly position and affirm healthy competition. State interventionism aimed at fostering effective competition can be made through the following activities:

1. Preventing connection of corporations and division of large corporations to smaller ones. This measure influences that the market is less concentrated.
2. Direct impact on corporations' conduct by limiting the increase of product sales prices, in order to prevent pricing at socially unacceptable level. Also, the state sanctions any agreement between corporations that threatens free competition, whether it is common pricing, production volume, etc.
3. The state affects the conditions of competition with

other various measures. These measures are related to fiscal policy, employment policy, environmental policy, etc.

When it comes to state interventionism, the key question is related to the two perspectives of the need for state interference in economic developments. The first perspective is against any kind of intervention, while the latter one requires significant interventionism in order to eliminate market failures. The most important representatives of the first perspective are members of the Chicago School. Supporters of the school felt that some firms are large because they are more effective than the others and that the efficiency allows them to be more profitable than the competition. It follows that punishing large corporations actually means punishing success. Any deviation from the anti-competitive conduct is only a short-term phenomenon, as economic activity tends to return to a state of natural balance, i.e. effective competition. Large profits encourage other economic entities to be more efficient and become equal competitors to large corporations so that the market returns to competitive conditions without the need for any intervention or assistance by the government [10, p. 15]. [2] The prevailing opinion is that economic entities should be left to organize themselves in a way that suits them in order to be more efficient [3, p. 690]. Advocates of interventionism see economic problems, including those in the sphere of competition, in the shortcomings of the market. Correcting the shortcomings allows better working conditions for both competitors and consumers. Advocates of this approach are the supporters of the Harvard School of economic thought.

In analysing the impact of the state on economy one should be careful. The role of the state is important, but it certainly should not be over-emphasized. The state influence on market environment and, through it, on the conduct of economic entities is justified if it ensures the development of free competition and corporate governance in accordance with their evolving capacities, potentials, and market characteristics.

2 This uncompromising attitude of the Chicago School encountered a criticism by other authors, including a claim that the school, with its attitudes, promotes ideology rather than science. For more details see in [4, pp. 37-48].

Competition policy

One of the primary intentions of the market-oriented economy is the provision of competitive market conditions, i.e. the development of a competitive market structure. Competition is seen as a process of constant changes in which the profit and usefulness are the main motives of economic activity. In an open market economy there is an increase of social welfare only with discreet and selective control and intervention by the state over the conduct of economic entities.

No matter what market is in question, we can expect that the firms with the lowest costs, regardless of the market price, will have the greatest chance of success. Starting from the rational conduct of firms, their pricing policies are expected to establish a price that can attract customers and ensure maximum profits. Under these conditions, low cost and rapid growth cause transfer of market shares from less efficient to more efficient companies. The mechanism of transfer can have the effect of feedback on the efficiency in terms that less efficient company gets motivated – if it wants to restore or increase market share it must reduce costs and innovate business. In this way, transfer and innovative market mechanisms have a positive effect on allocative efficiency, because the reallocation of output and resources occurs towards the most efficient and most profitable investments.

However, the outcome of this process can be market position strengthening of a small number of successful companies. Repeated success from the past and high profit, achieved by the actions of economy of scale or increased innovative capacity, can result in a small number of large firms winning the market. This process can theoretically lead to the elimination of all competitors and the absolute dominance of a company. Then we talk about pure monopoly. If, in practice, there is such a tendency, the process is spontaneously finished in the dominant form of monopolistic or oligopolistic structure.

Monopoly position significantly changes the conditions of competition in the market. It reduces the pressure to increase efficiency. The market price is higher, and the offer is lower than in conditions of effective competition. High fixed costs and reduced economic efficiency of large companies cause the retention and strengthening of the existing positions, primarily through a policy of high (monopoly) prices. Thus, the motivation to improve products and production reduces. The result is a decrease in efficiency in this type of market and limitation of new market players to enter.

In an open market economy, there is a need for defining and implementing economic policy which needs to support the effective functioning of production and exchange. The term efficiency in this sense means the likelihood to meet domestic demand for goods and services, to implement sufficient amount of personal products abroad, and to enable the accomplishment of the target functions of market participants. In analysing the impact of economic policy we will confine ourselves on competition policy as an important segment of economic policy, which determines general conditions for economic entities' conduct in the market [21, p. 38]. It is assumed that the regulation of economic conduct should ensure achieving efficiency of the economy and society. This means that competitive behaviour should be stimulated and monopolies and other restrictions regulated to ensure the production of products and services of sufficiently high quality at an affordable price and low costs. Effective competition is therefore a desirable state. If it does not exist, it should be established by the measures of competition policy.

The mission of the competition policy is to level the conditions of competition in all market segments. The openness of individual markets is the condition to encourage enterprises to cost-efficiency, innovation, and inventiveness. Increasing welfare in companies increases the overall welfare. Undisturbed competition, which includes free movement of goods, services, capital, and people, creates space for synergy between different factors.

The main task of competition policy is to establish and preserve competition by eliminating activities of companies or the state which affect the weakening of competition, as well as to improve conditions for free trade. Competition policy seeks to provide a delicate balance of different goals to promote effective competition. One of the most important is to protect market participants from excessive market power of companies and the misuses that can arise from this. In this way, the social task is assumed which is essentially to protect individuals and companies. Another important goal is to improve the business capabilities of company, particularly the provision of technical and technological progress. These goals lead to the raising of living standards and overall social progress.

Of course, there is no guarantee that protection of competition would meet the overall goal to raise the level of operational efficiency of manufacturers. Frequently, there is a possibility of conflict of various economic policy measures, which can threaten competition. This happens when there is a gap between the promotion of competitive conduct through competition policy, on the one hand, and the reduction of competitive conduct induced by other aspects of state policy, on the other hand. These other aspects are mainly related to the maintenance of the "national" interest through providing assistance to certain industries (agriculture, shipbuilding, new technologies), mainly due to an increase in employment. It is even more drastic if the aid is intended for specific market actors, which leads to unfair favouritism of several over other actors. This activity is especially risky if implemented without clear and transparent rules and procedures.

In the relevant literature in this sphere the emphasis is on welfare loss due to integrations, the increased power of monopolies, and restriction on free trade. That is why, in light of current economic and political relations, it should be pointed to the necessity of direct and indirect regulation of the conditions of competition applying adequate measures of competition policy, which must take into account the conclusions of the economic profession especially those related to industrial organization and the relationship that exists between the market structure, conduct, and performance of market participants. Relationship that exists between the market structure, conduct, and success of corporations is the key for identifying market imperfections and the consequences that these imperfections have on society as a whole. It is one of the reasons that competition policy focuses on the relationship so that *ex ante* would impact mitigating or completely eliminating the factors that create or enhance non-competitive behaviour.

Relationship between market structure, conduct, and performance of companies

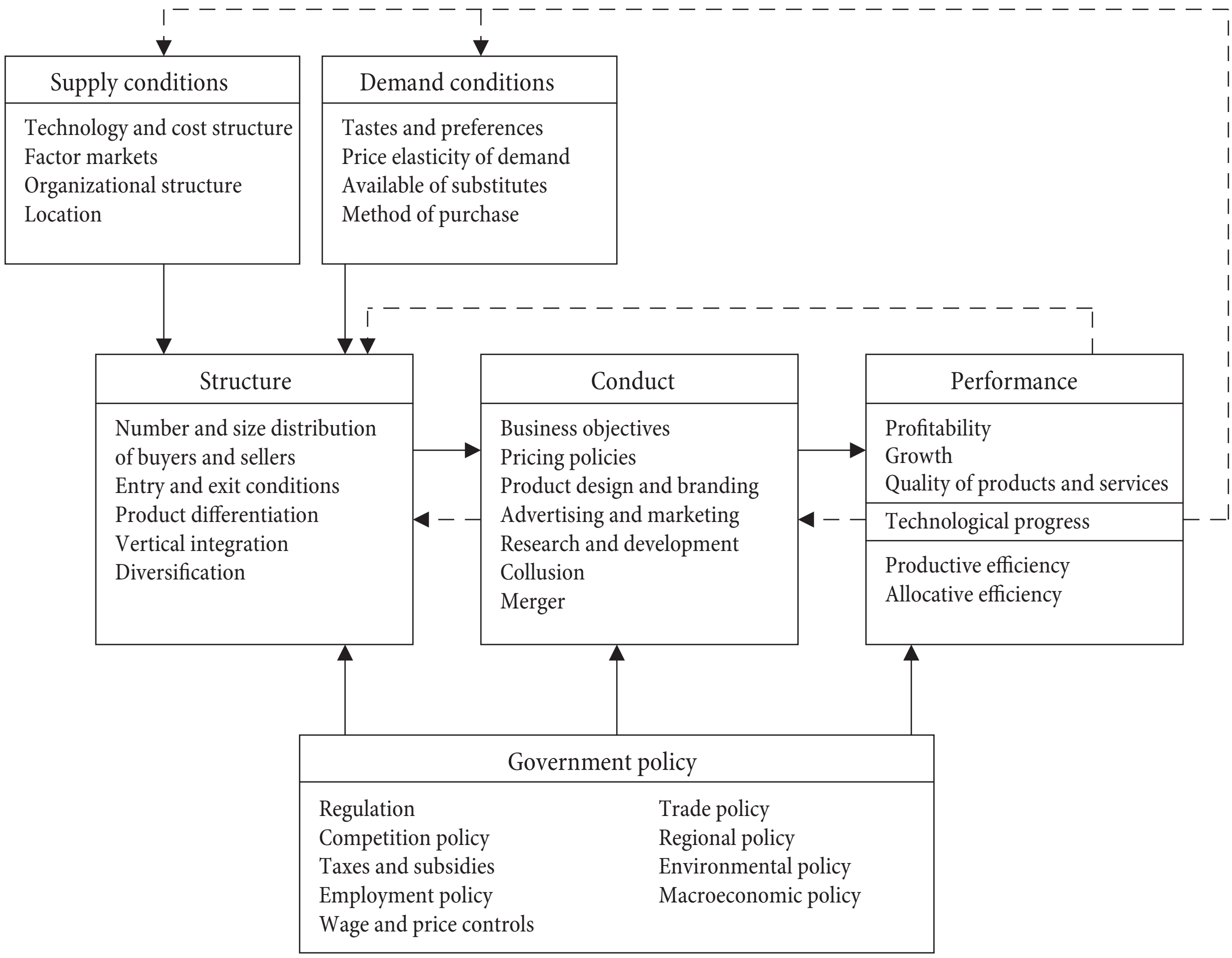
In order to estimate the degree of market imperfections, market participants' conduct, and the abuse of monopoly position it is important to analyse the relationships that exist between market conditions, conduct, and performance of economic entities. The first works in the field called industrial organization were related to the so-called structure-conduct-performance paradigm.[3] This paradigm was created with the aim of developing a theory that would explain the conduct and performance of corporations through the analysis of empirical data [10, p. 6]. A number of studies within this approach have shown that there is a positive correlation between the concentration of supply and the average profit rate in the industry. In industries where the level of supply concentration is higher the average rate of profit in the industry is higher as well [2, p. 323]. The thesis of this approach is that market structure affects the conduct of companies, which affects their performance i.e. profitability as the most important and most frequently mentioned performance [9, p. 133]. Market structure and market share of individual corporations are seen as the main sources of non-competitive conduct. They largely determine corporate conduct and thus affect their performance.

Figure 1 presents the influences and relationships that exist between market structure, conduct, and performance of corporations, i.e. the logic of SCP paradigm.

As shown in Figure 1, in the model, the main relationship is between market structure, conduct, and performance of individual economic entities. This relationship explains the logic of the model and the main direction of influence in it.

3 The structure-conduct-performance paradigm (SCP paradigm) was created in the mid-twentieth century, in the works of Bain and Mason. Information see in [2, pp. 293-324] and [14, pp. 1265-1285].

Figure 1: Structure-conduct-performance paradigm



Source: [10, p. 7]

The market structure consists of its characteristics and morphology, so that the classification goes from perfectly competitive, monopolistic and oligopolistic competitive market, to pure monopoly. The aforementioned market structures in reality are rarely seen in their original form. Real market structures are usually somewhere between the basic versions, where indicators of its concentration and inequality have the greatest impact on the recognition of market structure [6, p. 63]. The number of criteria used for classification is different. Some authors use only one criterion, while others use a combination of criteria to determine to which market structure belongs some market [22, pp. 142-145], [12, pp. 111-114]. Characteristics of the markets are subject to slow and periodic changes, so that in a short run they are considered to be fixed categories. Some of the criteria used to classify market structures are: the number of buyers and sellers and the distribution of their market share; the conditions of entry and exit from the market; cross price elasticity of demand; product differentiation, and vertical integration and diversification.

Conduct of corporations and strategic actions taken depend primarily on the characteristics of the market itself in which these corporations operate. The market structure affects the definition of corporations' business goals and the implementation of their pricing and non-pricing policy [9, pp. 135-136]. Some of the major components that define the conduct of corporations are [10, p. 8]: corporate business objectives; pricing policy; design, branding, and advertising of the product; research and development; agreements among corporations and corporate connectivity. A company has at its disposal a number of options, and the choice of one or more of them largely depends on market conditions.

Performances are the final outcome, the results of corporations' operations. They are significantly influenced by the market structure and corporations' conduct. Important performance indicators are [10, p. 10]: profitability; growth; quality of products and services; technical progress, and production and allocative efficiency. These indicators represent a wide range of success measures. Profit is a target function of a company when it comes to the interest of the owner, and in the case of managers growth is its target function. When it comes to society, the goal is to achieve productive and allocative efficiency.

Figure 1 displays some feedbacks in the relations performance-conduct, conduct-market structure, and performance-market structure. The feedback performance-market structure is particularly interesting, which indicates that there is an impact of performance on market structure. This means that, as structure directly determines the success of the corporation, so does the success directly affect the structure. Large profits that are the product of a limited market motivate economic entities to further limit the market so the profits would be even higher. On the other hand, large profits motivate new companies to enter the market which can reduce its concentration. From the feedback connections from the performance and conduct towards the structure, it can be concluded that economic entities are not passive actors whose conduct and performance depend on the environment in which they operate, but are active participants that affect the business environment.

In all these correlations the influence of economic policy of the government is very important, which is achieved through legislation and a number of different policies, such as: competition policy, regional development policy, tax policy, trade policy, etc. The government impact is focused on market structure and directly on the conduct and performance of corporations.

The impact of companies' conduct on the character of market structures

The analysed impact of market conditions on business policy and the results of corporate actions is facing significant problems. Among them we can distinguish the impossibility to precisely determine which variables belong to the structure, which to the conduct, and which belong to the performance of corporations. Thus, for example, product differentiation, vertical integration, or diversification are considered structural (market) variables. In fact they are, but since these are the variables whose level of achievement is defined by the corporations themselves, they can be classified in conduct.

Defining performance as a measure of the success of corporate activities is also very questionable. The question is whether it is possible to have a single measure of performance. Profit rate is often used as a measure of success, although it could happen that investors who prefer less risk invest money in a business that makes less profit. From this it follows that measuring success according to the short-term profit is not necessarily a good indicator of success. Profitability should be put in the context of investment risk and time frame in which profitable business is expected.

Many of the variables used for characterizing the structure, conduct, and performance of corporations are hard to measure. The question is how to measure the level of vertical integration, or to determine the existence of an agreement between corporations. Measurement problem also occurs in determining the degree of limitation of the market. Mistakes are often made in the exclusive use of concentration indicators. This is done primarily because they are relatively easy to calculate. The use of only these indicators overemphasizes their importance, which is not good because other factors are not taken into account such as barriers to entry, history of market development, corporate culture and the like [10, p. 16]. Large restriction in the use of concentration indicators is the fact that most of today's companies have a differentiated product range which makes the use of conventional concentration indicators very complex [7, p. 103].

The problem of the researches is also the fact that they most often study the relationship that exists between structure and performance of corporations, while conduct is taken as a given variable. An additional problem is the absence of dynamic analysis since the short-term equilibrium is explored. There is no explanation of the structural variables evolution and impact of current conduct and performance on the future structure. From this it follows that the SCP paradigm is suitable only for the current (static) assessment of the situation and impact that this situation has on economic entities, their conduct, and performance.

These critics point to a number of shortcomings and limitations of the analysed paradigm. What dominantly prevails through all the criticism is overly passive role of corporations, which is manifested by the fact that they adapt to market conditions in order to maximize their performance, and if they affect them it is sporadic and weak. It follows that paradigm should be improved by understanding that the relationship between structure, conduct, and performance is a two-way process, so there is no assumption that the market structure is the most important component. There is also an active influence of a company on market conditions.

Alternative to the researches is the analysis of the impact of economic entities' conduct on the market structure [10, p. 298]. [4] As a result of this approach, a number of authors tried to analyse the competitive conditions by monitoring corporate conduct. This approach is firmly established on the basis of microeconomic theory, especially the theory of oligopoly. It answers the question of how firm's conduct affects the structure of the market. This creates space for a wider variety of possible outcomes, because it suggests that the market structure, among other things, is the result of a strategic conduct and interactions of economic entities that operate in it [8, pp. 6-7].

Empirical researches within this approach try to explain companies' conduct when they determine the equilibrium level of output and prices. However, in practice the standard equality between marginal revenues and costs is not usable due to lack of data, which requires a model which based on the available data finds the equilibrium price and quantity. The models, which represent practical realization of this idea, are Rosse-Panzar revenue test and Bresnahan-Lau's mark-up test, which due to the volume of work we are unable to to present on this occasion. We shall focus primarily on the relationship between market structure and performance of corporations, seeking to clarify the interaction that exists between the market structure, conduct, and performance in a specific market of Serbian economy.

The impact of market share on companies' profitability: Example of Serbian beer market

In accordance with all of the above on the role of the state in the relationship between the market structure, conduct, and performance of corporations we have started empirical

4 Approach which analyzes the conditions of competition through the prism of the companies' conduct and by which they are not treated as passive elements, but rather as active agents that affect the market structure, is called the new empirical industrial organization (NEIO).

research of specific market of Serbian economy. The aim of this section of the paper is to examine the impact of market share on the profit rate, and to shed light on the conduct which is between the two analysed components of the relationship structure-conduct-performance of companies. Due to the relatively short time series of data at our disposal, we have not been able to measure the impact of concentration indicators, but we decided to measure the impact of market share degree on the profit rate. Of course, we have started from the assumption that the market share is an important component of the market structure, and that the profit rate is an important element of successful business corporations. The starting assumption and also the hypothesis of this study is that *changes in the market share have a positive impact on the profitability of corporations*. To support this view and the definition of initial hypothesis, we can distinguish the works of foreign authors who have studied the relationship between market share and profit rate: *Shepherd* [20], *Szymanski*, *Bharadwaj*, *Varadarajan* [24], *Ailawadi*, *Farris*, *Parry* [1] and *Sungwook*, *Wolfinbarger* [23].

Methodology and data sources

According to the defined objective the paper investigates the effect of the market share degree on the profit margin, as a measure of corporations' profitability. This impact is measured on the example of Serbian beer market. Market share is determined using the income from the sale of individual economic entities from the beer production (business code 11.05) [15, p. 24] for which we can say with great certainty that they are engaged in the production and sale of beer, while the profit margin is determined by calculating the ratio of operating profit or loss of individual companies and their operating income. Incomes from the sale were used for measuring market share, since they represent the real sales value during the financial year regardless of when the product was created. On the other hand, using the category of operating profit (loss) in measuring the profitability, the effect of other incomes and expenses (financial and extraordinary), which are not the result of the main business activity of analysed corporations, was eliminated. The analysis was based on data obtained by the Business Registers Agency of Serbia [16], [17], and the data that are available on the website of the agency [18].

Before moving to the study of the analysed market and relationships between market share and profit margin, economic entities whose principal business activity is the production of beer are carefully selected (business code 11.05) in order to reach those entities for which we can truly say that are engaged in the production of beer. Within the company with business activity 11.05, the companies that are not engaged in production but the sale of beer were also included; then there are beer houses whose inclusion in the analysis is meaningless because of the insignificant market share considering they sell their products in a single facility. There are also associated persons whose incomes blur the realistic assessment of producer's market position, so we omitted them from the analysis. After a thorough examination of data obtained from the BRA, we came up with a list of 18 economic entities for which we can say with great certainty that are engaged in the production of beer of which 12 are "large" breweries with a long tradition, and 6 are local breweries whose combined market share does not exceed 0.04% so we did not include them into the analysis. The sample included all corporations, beer manufacturers, whose market share in 2007 was 1 per cent or more. That meant the inclusion of 9 out of 12 "large" breweries, which at the time of the commencement of the research were active. The data were collected only for the years in which the breweries actually operated, or for which we had credible information. The research covered the period between 2007 and 2011.

On the basis of the obtained data a preliminary assessment of the beer market, which contains the characterization of market structure and estimation of the level of its limitations, was performed first. This was followed by the panel data analysis in order to assess the relationship between market share and profit margin.

The following indicators of concentration and inequality were used for determining the limitations of the market:

1. Concentration ratio of the four largest corporations [26, p. 95]: $CR = \sum_{i=1}^{4} s_i$;

2. Herfindahl-Hirschman index of concentration [13, p. 336]: $HHI = \sum_{i=1}^{n} w_i s_i = \sum_{i=1}^{n} (s_i^2)$;

3. Gini coefficient [10, p. 203]:

$$G = \left\{ \frac{\sum_{n=1}^{N} \sum_{i=1}^{n} x_i}{0,5(N+1)\sum_{i=1}^{N} x_i} \right\} - 1 \text{ ; and}$$

4. The index of relative entropy [10, p. 203]:

$$RE = \frac{E}{\log_e(n)} = \left[\frac{1}{\log_e(n)} \right] \sum_{i=1}^{n} s_i \log_e\left(\frac{1}{s_i} \right),$$

which was used in this form for the comparability of results between different periods.

In addition to this analysis the panel analysis was performed as well, which involves observation and analysis of the conduct of a number of entities over time. Specifically, this analysis involves repeated measures on the same entities over time, in order to examine the relationship between the observed phenomena [25, p. 2]. This analysis constitutes the central part of the research. Data analysis was performed in the statistical program *EViwes7*.

Preliminary assessment of the situation in Serbian beer market

Serbian beer market can be characterized as a typical oligopoly market in which there is one dominant firm with a market share of about 50%, that is Apatin brewery from Apatin, one firm – a great follower with a market share of around 25%, Carlsberg Serbia from Čelarevo, one firm – a mediocre follower with a market share of around 15%, the United Serbian breweries, which are currently two active breweries (Brewery Novi Sad and Brewery Zaječar) and a small number of followers with great potential, among them the BIP from Belgrade with a market share of 4 to 5%. In this group with BIP are Jagodina brewery, Niš brewery, and Valjevo brewery, whose aggregate share is in the range up to a maximum of 10%. There is a group of once great but now breweries in decay which, due to poor privatization, completely disappeared or are in bankruptcy proceedings. These are Vršac brewery, Bečej brewery, and Zrenjanin brewery. There is a small number of local breweries in the market that have been established in recent years whose combined market share is below 0.04%, which therefore have no impact on Serbian beer market [17], [18]. Their market share is so small that they have insignificant impact on the relevant local beer market, and are not the subject of our analysis. Based on these above data it can be concluded that the beer market is characterized by high concentration and inequality in the distribution of supply, as displayed in Table 1.

Table 1: Selected indicators of concentration and inequality in the Serbian beer market

Year	CR4	HHI	G	RE
2007	90.05	3033.06	0.633	0.626
2008	95.97	3792.13	0.667	0.543
2009	96.45	3680.92	0.664	0.550
2010	97.00	3581.69	0.665	0.546
2011	97.20	3554.95	0.633	0.569

Source: Authors' calculations based on [16] and [17]

As can be seen, the beer market is a very limited market according to all indicators of concentration and inequality. What is characteristic for all parameters (except CR_4, which is constantly growing) is that they are relatively stable at a high level. The high level of concentration and inequality affects the operations of all corporations in the industry. The effect is positive for those with large and negative for those with small market share.

Research results

Analysis of data on the impact of market share on the profit margin of corporations in the Serbian beer market gave the results shown in Table 2 and Table 3.

Table 2: Descriptive statistics of the sample

	Profit margin (pm)	Market share (ms)
Mean	-0.195776	0.118934
Median	-0.143400	0.045400
Maximum	0.335700	0.537900
Minimum	-1.104100	0.005500
Std. Dev.	0.346095	0.168641
Skewness	-0.948103	1.576726
Kurtosis	3.385732	4.029303
Jarque-Bera	6.396662	18.79804
Probability	0.040830	0.000083
Sum	-8.026800	4.876300
Sum Sq. Dev.	4.791256	1.137591
Observations	41	41

As shown in Table 2 the sample consists of 9 companies whose market share and profit margin were analysed in the period between 2007 and 2011. The largest market share in the sample is 53.79%, and the smallest 0.55%, and the average market share 11.89%. As far as profit margin, the highest rate was 33.57% and the lowest -110.41%. The average rate of operating profit (loss) was -14.34%.

As it can be seen from Table 3, there is a statistically significant positive impact of market share on the profit margin. Namely, research has shown that in the observed sample of corporations in Serbian beer production, one per cent of change in market share leads to a change in profit margin of 4.44% in the same direction. When the market share of the corporations increases its profit margin also increases, and vice versa. It is important to note that 79.51% of variations in profit margin can be explained by changes in market share, or the relation given in Table 3. *In this way, our claim is proven (research hypothesis), i.e. the change in market share has a positive effect on the profitability of corporations in the sector of Serbian beer production.*

Based on the analyses presented in Table 3, the impact of market share on the profit margin can be displayed through the regression equation in the form [25, p. 10]:

$$Y_{it} = c + \beta_1 X_{it} + \alpha_i + u_{it} \qquad i = 1,2,...n \qquad (1)$$

where Y_{it} is the dependent variable of the i entity (company) in year t, X_{it} is an independent variable of the i entity in year t, β_1 is the coefficient before independent variable, α_i is an unknown segment for each entity, and u_{it} is the residual, or statistical error. It follows that we have the following regression line for the analysed sample that shows the impact of the change in market share on the profit margin:

$$pm = -0{,}72 + 4{,}44ms + \alpha_i \qquad (2)$$

where pm is the profit margin, and ms the market share.

Concluding remarks regarding the research and recommendations for future researches

Based on the obtained results it can be concluded that the Serbian beer market, which does a high level of concentration characterize and inequality in the distribution of market share there is a statistically significant positive impact of market share on profit margin. The increase in market share of 1% leads to an increase in profit margin of more than 4%, as the decrease of 1% decreases this rate by more than 4%. The connection between these two phenomena is very strong, which is indicated by the value of p ($p = 0.0267$). Statistical significance would probably be even greater if we had longer time series and greater number of data.

Thus the results indicate that corporations seek to achieve great market share as a guarantee of successful operation measured through the profit margin. This is strong evidence that the market structure, through one

Table 3: Results of the Panel data analysis

Dependent Variable: Profit margin (pm)
Method: Panel Least Squares
Date: 07/13/13 Time: 06:33
Sample: 2007 2011
Periods included: 5
Cross-sections included: 9
Total panel (unbalanced) observations: 41

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.723568	0.226525	-3.194214	0.0036
Market share (MS)	4.437683	1.893478	2.343668	0.0267

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.861677	Mean dependent var	-0.195776
Adjusted R-squared	0.795077	S.D. dependent var	0.346095
S.E. of regression	0.156672	Akaike info criterion	-0.604137
Sum squared resid	0.662743	Schwarz criterion	-0.019015
Log likelihood	26.38481	Hannan-Quinn criter.	-0.391068
F-statistic	12.93806	Durbin-Watson stat	1.602252
Prob (F-statistic)	0.000000		

of its major elements (market share), affects corporations' conduct that leads to achieving higher profit margins.

Our research has some limitations, which are the basis for some future researches. Limitations can be systematized in the following categories. The first one is the availability of data. The research was performed on the example of 9 breweries in the period of 5 years. Both of these elements are characterized by the lack of data, but the circumstances in which the research was conducted did not allow us to reach a larger number of data, especially if it is known that systematized record of financial statements in the BRA was not kept until 2006. In perspective, the time frame for the analysis will be larger and the research more representative. Another limitation is related to the extrapolation of the regression line obtained. Although the regression line gives conclusions on the impact of change in market share on the profit margin, which can be used for prediction, this is impossible concerning the values that significantly deviate from those included in the sample. It can be concluded that the predictions may be applicable only for values that are within the taken values of market share, as well as for those that are outside the taken values, but at the same time close to the maximum and minimum values of the market share in the sample. All extremely distant values of the independent variable which would be taken have a high probability of erroneous conclusions. Third, in the future researches other indicators of business performance should be analysed as well, not just the profit margin. Profit rate is often used as a measure of success, though it may happen that some companies in the short term sacrifice it in order to achieve better market position, mainly by using the policy of low prices.

Notwithstanding all these limitations, the research showed that there is a strong relationship between market share and profit margin in Serbian beer production, and that this should be a clear signal to the regulatory authorities for additional monitoring of corporate conduct in this market. For this reason, this approach can be a starting point for further research of corporate conduct, in particular the facts of whether the corporations further limit market conditions to improve their performance, measured by profit. This is particularly true in markets that are highly concentrated, and Serbian beer market is one of them.

Conclusion

In the economic literature there are two approaches to the analysis of the mutual influences of market structures on the one hand, and conduct and performance of economic entities on the other hand. The first is based on the market situation and the impact it has on the market participants, i.e. from the premise that performance depends on a factor that is beyond company's influence, while the second approach is based on corporations' conduct and the impact on the market and its structure [5, p. 2]. The first one is static, structural view of the problem, and the other one a dynamic view of the relationship between market structure, conduct, and performance of corporations.

Both approaches assume that the main goal of every company is maximizing the performance, especially profit, and a long-term balance of both market participants and the entire market. The difference between the approaches is in starting assumptions: first approach assumes that the balance has been achieved, while the second approach is aimed at maintaining balance. This leads to a fundamental difference in the two approaches to the treatment of market participants as passive or active factors, which influence the market structure and conditions of competition.

The role of economic policy in the creation of market structures is in accordance with these differences. By reducing the degree of market concentration and eliminating barriers to entry and exit, the state can influence the reduction of individual profits of economic entities. The starting point is that a high concentration influences the non-competitive conduct of economic entities, which provides them with a great profit at the expense of social welfare. [5]

Contrary to the above paragraph, numerous authors from the camp of liberal economists claim that the monopolization is a temporary phenomenon, and positive correlation between concentration and profitability is seen as the result of business efficiency and the size of a company, and not of its monopoly position. Larger firms achieve economy of scale more efficiently, which

5 Because of the claim that the main reason for non-competitive conduct and realization of great profit is the market structure, this approach is named structuralist approach to the study of the relationship between market structure, conduct, and performance of corporations. Information see: [19, pp. 3-16].

allows them greater profit. Starting from the idea that the efficiency of a firm is more important to the evaluation of its performance than the market structure itself, the authors recommend that greater importance should be focused on the conduct of firms and not the characteristics of the industry. Economic entities are not just passive actors whose conduct depends on the market structure, but are active participants in the creation of competitive conditions. This approach suggests that the market structure is the result of strategic interactions between companies, not just the result of external factors influence. From this it follows that studying the relation between market structure, conduct, and performance of a company requires a comprehensive analysis that includes in itself the specificity of the activity itself, but also the individual entities operating in this sector. The key argument of this theory is that the existence of large corporations and high level of concentration do not always have bad implications for social welfare. Competition is also possible in industries where there are few participants if there is a real threat of new competitors' entry [8, pp. 6-7].

In accordance with different approaches to the analysis of the relationship between market structure, conduct, and performance of market participants recommendations for economic policies are different as well, particularly for anti-monopoly policy. Anti-monopoly policy is required to have a proactive approach in which focus will be sectorial analysis of corporations' conduct and the influence of market structures on corporate performance. Policymakers, regardless of the question of whether conduct affects the structure or vice versa, should apply all possible measures that will lead to achieving greater economic efficiency and effective competition. An effective competition policy should, with preventive and repressive actions, contribute to the social welfare, which is also its most important role. Strengthening capacities in the economic analysis is a prerequisite for the successful implementation of that role.

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