The Damage Caused by Anticompetitive Practices. Effective Methods and Techniques of Quantification

Victor Lașcov
Constanța Tiuhtii
"Lucian Blaga" University of Sibiu, Doctoral School, Romania
lascovvictor@gmail.com
connsta@gmail.com

Abstract

Analyzing the impact of competition policy, the effects of anti-competitive practices and the decisions of competition authorities is a constant concern. Thus, public authorities, and especially competition authorities seek to justify the use of public resources to promote competition policy. Business representatives and international bodies seek to standardize competition rules so that they do not harm business development and others.

In this regard, there are several methods and techniques applied to quantify the harm caused by anti-competitive practices, the economic effects of competition policy and the intervention of competition authorities proposed by the European Commission, the OECD, competition authorities in several countries, and the academic environment. The efficient analysis and quantification of the impact of anti-competitive practices are crucial in the regulatory process, being the premise of making the right decisions. The paper presents the classification and application of assessing methods for anti-competitive practices to determine the damage caused by them.

Key words: anticompetitive practices, damage quantification, competition policy
J.E.L. classification: D6, D7, C1

1. Introduction

The identification and assessment of the effects of anti-competitive practices on the economic environment start from the presumption that these actions of the undertakings restrict competition or affect the benefits that can be brought to the economy through competition. Anti-competitive practices have as an object or effect the restriction of competition, so the effects generated by anti-competitive practices are opposite to those generated by competition.

Competition is a process that has tangents with multiple sides of economic and social life, respectively its restriction has multiple and complex repercussions. The beneficial role of competition for the economy is accepted by economists, and free competition is accepted as a fundamental principle of the market economy. At present, it is impossible to imagine the economic policy of a state in the absence of a competition policy. The application of competition rules, including combating anti-competitive practices (anti-competitive agreements and abuse of a dominant position) aims to protect and support competition. This can ensure improved economic performance. This includes promoting economic growth; using business competition as a way to stimulate the development of new products and services; increasing productivity and reducing costs so that firms and individual sectors and the economy as a whole work more efficiently, to stimulate innovation and, ultimately, to benefit consumers, both intermediate consumers and end-users.

The effective application of competition policy and its development concerning market conditions require the application of analytical tools and their evaluation. Quantifying the negative effects of anti-competitive practices in this context is very important. Several studies have been carried out in this direction and efficient methods of quantification have been established, with a high level of informativity. In the following, a synthesis of methods and techniques for quantifying anti-competitive practices is presented.

2. Theoretical background

The European Commission, the OECD, competition authorities in several countries and academia have proposed several methods and techniques that would quantify the damage caused by anti-competitive practices, the economic effects of competition policy and the intervention of competition authorities.

The study on assessing the impact that competition policy has generated in the Romanian economy in the period 1995-2015 (CC, 2017) conducted within the project coordinated by Professor Eduard Dinu was the first national research conducted in Romania and was a real methodological challenge. The impact assessment of competition policy was carried out both on a microeconomic scale and a macroeconomic scale. The study presented and analyzed the benefits of competition in terms of consumer welfare, increasing productivity and competitiveness of Romanian enterprises, stimulating efficiency and innovation.

3. Research methodology

The study used combinations of both quantitative and qualitative methodologies, which ensured a higher level of relevance of the determinant data. The following quantitative methods were used in the study: determining the savings generated to consumers both on the microeconomic path, but also at the macroeconomic level, regression analysis, and macroeconomic modelling to capture the impact of competition policy at the macro level.

The benefits brought to the society justifies the competition policy implementation, consecutively the limitation or restriction of the competition brings prejudices, which are to be analysed to quantify their effect. The study conducted for the European Commission by the consulting firm OXERA (OXERA, 2009) presents a classification of methods and models for assessing the bias of anti-competitive practices by dividing them into three main groups: comparison-based approach, financial performance-based approach and approach based on the market structure. This classification makes clear distinctions between counterfactual basis and estimation technique in each method.

Figure no. 1. Classification of methods for assessing the damage caused by anti-competitive practices

<table>
<tr><th rowspan="2">Approach</th><th colspan="3">Comparison-based approach</th><th colspan="2">Approach based on financial analysis</th><th>Approach based on market structure</th></tr>
<tr><th>Transversal</th><th>Time series</th><th>Difference in differences</th><th>Financial performance</th><th>Financial instruments</th><th>Models of industrial organization theory</th></tr>
<tr><td rowspan="5">The counterfactual basis</td><td>Markets</td><td>Before and after</td><td rowspan="5">Enterprise, market or country before and after</td><td colspan="2">Comparison of enterprises and branches</td><td>Oligopol Cournot</td></tr>
<tr><td>Enterprises</td><td>Ongoing and after</td><td colspan="2">The cost of capital</td><td>Oligopol Bertrand</td></tr>
<tr><td rowspan="3">Countries</td><td rowspan="3">Before, ongoing and after</td><td rowspan="3">Plus cost</td><td rowspan="3"></td><td>Monopolistic competition</td></tr>
<tr><td>Perfect competition</td></tr>
<tr><td>Auctions</td></tr>
<tr><td rowspan="4">Technique</td><td rowspan="3">Compared to the average</td><td rowspan="2">Compared to the average</td><td rowspan="3">Compared to the average</td><td>Profitability</td><td rowspan="3">Update</td><td rowspan="4">Elaboration of the structural model of the competition and estimation of the parameters</td></tr>
<tr><td>Event studies</td></tr>
<tr><td>Interpolation</td><td>Evaluation</td></tr>
<tr><td>Intersectional econometric analysis</td><td>Econometric analysis of time series</td><td>Regress ion analysis</td><td>Bottom-up product cost analysis</td><td>Discounting</td></tr>
</table>

Source: (Oxera, 2009, 44)

Each of the three approaches in the classification can be used to quantify damages for any type of antitrust infringement. They are not mutually exclusive and can be completed.

- Comparison-based approaches. They use data from sources outside the infringement to estimate the counterfactual. Broadly speaking, there are three different ways to do this:

1. Through cross-sectional comparisons (comparing diverse geographic or product markets);
2. Comparisons between time series (analysis of prices before, during and/ or after a breach); and
3. Combining the above two in the "difference in difference" models (e.g., analysing the price variation for a cartelized market over time and comparing it with the price variation in a non-cartelized market over the same time). To analyse these comparative data, one uses various techniques from comparison media to regression analysis.

- Approaches based on financial analysis. These models have been developed in the theory and practice of finance. They use financial information about the compared companies and industries, benchmarks for profitability rates and cost information to estimate the counterfactual. There are two types of approaches to use this information. First are those who examine financial performance. These include assessing the profitability of companies that have committed anti-competitive practices and those that have suffered and comparing them with a benchmark; event studies on how stock markets react to information; and bottom-up product cost analysis to estimate a counterfactual price for them. A second type is a group of more general financial instruments, such as discounting, updating and evaluation.

- Approaches based on market structure. Based on the theory of industrial organization, using a combination of theoretical models, hypotheses and empirical estimations (rather than comparisons on markets or overtime) to arrive at an assessment of the counterfactual situation. This approach involves identifying the best suitable models for the relevant market and using them to provide insight into how competition works in the relevant market and to estimate the counterfactual price (or volumes).

4. Results

4.1. Methods and techniques used to assess the impact of decisions on anti-competitive practices

In the opinion of OECD experts, the methods and techniques used to assess the impact of competition authorities' decisions on anti-competitive practices can be divide into methods:

- based on the comparison;
- based on market structure;
- qualitative methods: surveys and interviews (OECD, 2016)

Comparison-based methods

Comparison-based methods use data from actual market transactions or periods when not affected by the decision under review to construct the counterfactual scenario and to compare it with actual market developments affected by the anti-competitive practice. These methods can be based on:

•'before and after' approach - comparisons of changes in the affected market before and after the competition authority's decision;

• transverse approach - comparisons of changes in the affected market after the decision with the changes that took place in a comparable geographic or product market, which were not influenced by the decision;

• differences perspective- comparisons of changes in the affected market before and after the decision with changes that took place during the same period in a comparable market, which is not influenced by the decision.

Simple graphical analyses makes these comparisons or, in a more sophisticated way, the regression techniques. Graphical comparisons do not allow the concomitant analysis of other factors that could have contributed to the determination of the identified changes. Regression techniques, on the other hand, have more accurately identified causal effects. Similarly, graphical comparisons do not allow accurate estimation of effect size, while regression techniques can provide results that are more accurate. At the same time, this accuracy depends on the quality of the analysis performed.

Therefore, any analysis based on these methods, graphical or quantitative, should be better accompanied by other qualitative analyses that help to identify all possible explanatory factors that should be included in the analysis and confirm that these changes in the effects of practices anti-competitive law and the decision of the competition authority.

The *'before and after'* method consists of comparing one or more variables on the affected market before and after an event, committing anti-competitive practice and taking the decision of the competition authority. The basic assumption is that if the event had not occurred, the situation on the affected market would have remained the same in both periods.

Similarly, a *cross-sectional approach* compares variables after the event in two geographic or product markets, assuming that any shock, other than anti-competitive practice that could have affected one market, would have affected the other in the same way.

These approaches implements' by simply comparing the average value of the relevant variables between the two periods or on the two markets.

The "before and after" method is widely used to assess the impact of cartels on prices. The time used can be:

- the period in which the cartel took place and the previous period (practically "before and during");
- the period during the cartel and the period after (practically "during and after");
- all three periods ("before, during and after")

The selection and use of the method depend on the availability of data and resources and the period that ensures a better approximation of the long-term competitive balance in the market. It is often difficult to determine precisely when the cartel started and when it stopped. The end date can be particularly problematic because, even when discovering and fine the cartel, businesses can continue tacitly coordinate behaviour. Therefore, for an accurate estimate of the effect of a cartel on price, it is important to use as a reference to the period in which the price considered competitive.

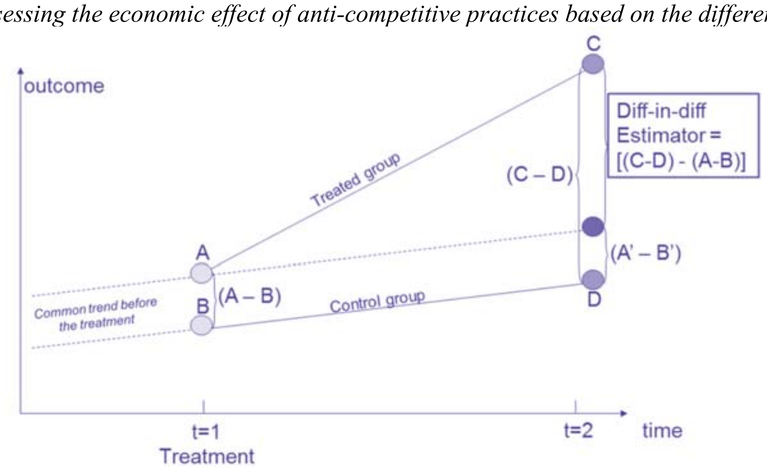
The difference method determines the effect of anti-competitive practice and competition authority decisions by comparing how the key market variable changed in the market affected by anti-competitive practice concerning the same variable in a market not affected by anti-competitive practice ("control" market).

The effect of the anti-competitive practices and the decisions of the competition authority derives from:

- The average difference between the behaviour of the affected market, before and after the intervention, and
- The average difference between the control market behaviour, before and after the decision.

Therefore, the Difference Method approach involves a crosscutting dimension (Affected Market vs. Control Market) and a time-varying dimension (before infringement vs. after finding anti-competitive practice). The presence of these two dimensions leads to a double difference, which allows only the changes caused, by the anti-competitive practice and the decision of the competition authority to be identified, if the control market has been properly selected.

Figure no. 2 Assessing the economic effect of anti-competitive practices based on the differences method



Source: (OECD, 2016,48)

The figure above shows that the method used compares the difference between the variables analysed in the affected market (A) and the control market before intervention (B), with the difference between the same two markets after the intervention (C-D). This difference [(C - D) - (A - B)] reflects the effect of the change in the variable because of anti-competitive practice. This result relies on the assumption that in the absence of anti-competitive practice, the difference would have remained constant over time (A'-B '= A-B).

The Differences Approach allows measuring the effect of an anti-competitive practice and the competition authority's decision with more certainty than an approach based only on a before and after analysis or on cross-sectional examination.

The essential condition for using the Differences Method is the existence of an adequate control market. This condition meets when:

- The differences between the affected market and the control market are stable over time,
- Both markets are equally affected by the same supply and demand shocks (not only the same distresses, but to the same extent) - the so-called "common trend hypothesis", and
- Anti-competitive practices did not influence the control market.

A way to check whether a control market meets the requirements is to check how the two markets behaved - meaning what the trends were - one or even two periods before the one used in the analysis.

The main obstacle to face when using comparison-based models is the need to find an appropriate control group, as the reliability of the results depends on the fact of correctly selecting. In the case of the "before and after" approach, the affected market before the anti-competitive practice and after the intervention of the competition authority to stop it represent the control group. This choice is valid if it can reasonably be assumed that, in the absence of anti-competitive practice, market conditions would have remained the same. For the difference-based approach, we need to identify a comparable geographic or product market that is not influenced by anti-competitive practice and the decision of the authority.

These approaches can be used to assess the impact of anti-competitive practices and decisions of competition authorities that lead to a change in market conditions: without a change, a comparison is not possible and the effects cannot be assessed. Therefore, they can be used to evaluate economic concentrations (with or without corrective action), cartels and decisions to put an end to abusive practices or anti-competitive agreements.

4.2. Methods based on market structure (economic simulation)

Market-based methods are grounded on a model of market competition, which structurally reflects both the demand and supply side of the market, as well as a concept of equilibrium, namely the type of competitive conditions governing the markets concerned. Once the structural parameters of the model - in general, the elasticity of prices from the perspective of demand and the costs / technological parameters from the perspective of supply - are identified and measured, they can be used to simulate alternative market scenarios.

The three main elements of the simulation are:

- Specifying the relevant economic model: demand, supply and equilibrium conditions;
- Estimation of structural parameters: demand elasticity and cost parameters;
- Calculating the counterfactual balance based on the chosen economic model and the estimated structural parameters.

These steps may involve a different level of complexity. The business model can range from a straightforward structure. For example, a simple static model with a homogeneous and linear demand in which companies compete after Cournot - to a more complex and sophisticated model with differentiated goods and dynamic elements, such as inertia/consumer dependence or supplier change costs, as well as, in terms of supply, dynamic business decisions on investment, innovation or learning.

The balance concept can also vary. The estimation of important parameters relevant for these theoretical models can be done by different methods: from surveys and interviews conducted by major market players, from calibrations based on other studies analysing similar markets, from econometric estimates of a complete structural economic model of demand, and offer, based on market-specific data.

The last step is to simulate counterfactual scenarios. Here, one needs to identify what alternative decision could have been made. The accuracy of this ultimate step strongly depends on the quality and complexity of the first two steps. Only a rich economic model allows the simulation of complex counterfactual scenarios.

The data requirements for the use of simulation methods vary and depend, in particular, on the specific choice in the estimation stage. The necessary data, especially quantity data, are not always easily accessible for all types of markets. Therefore, the availability of the required information may be a significant constraint for the application of this method.

Most existing studies assume that the products sold on the relevant market are differentiated. According to this assumption, two main approaches have been developed to provide a microeconomic basis for *market demand analysis:* 1) random models of definite utility, or 2) the model of representative consumers.

The first approach places the goods in the space of characteristics. Therefore, consumers consider a good as a package of features. Heterogeneous consumers may appreciate these characteristics differently and could gain a specific benefit from consuming each of them. The parameters that weigh how each consumer assesses each detail are the main parameters of the model that determine how consumers substitute between goods, meaning the elasticity of their demand and the cross-elasticity of request.

The model of representative consumers is based on preferences for variety. The demand curve derives from a utility function maximized by the representative consumer and the marginal utility in the consumption of each good. The reason why goods are differentiated is included in the parameters of the utility function, which are the key element in determining the elasticity of own demand and the cross-elasticity of demand.

Typically, these assumptions about the utility function of the consumer are coupled in a multi-budget utility maximization model, in which consumers care about the utility of different groups of goods (e.g., food and clothing) and use a price index (justified) to make choices within the group. The products are then divided into small groups and a flexible functional form is allowed within each group. To apply this type of template, the utility must be separated into groups. At the lowest level (generally the market under consideration), the demand for a good depends on the prices of the goods in the group, conditioned by the total expenses of the group. The applications of this approach are more limited, but they are a valid alternative to discreetly chosen application models.

Structural demand estimation is also essential for supply estimation, as own price elasticity and cross-elasticity are essential elements of any imperfect competition model. In general, in many empirical models, static models of oligopoly competition represent supply. The logic of these models is the following: when the price of a product increases, the demand for all other alternative products increases, so consumers replace the product that has become more expensive with other alternative products.

The new equilibrium prices can be simulated using the estimated parameters related to demand and supply along with the assumed economic model. Market shares, the change in consumer welfare and the profit of producers, would result from a modification in market structure or any other change due to anti-competitive practices and decisions of competition authorities. The economic model provides the equations of demand and conditions for each product, as well as the concept of equilibrium. The estimation step provides values for the key parameters of the business model. The simulation contains an impromptu change of a parameter in the model.

The simulations can be used to assess the economic effects of anti-competitive practices and their decisions by competition authorities.

4.3. Qualitative methods: surveys and interviews

Surveys and interviews represent a way of requesting data from market players and industry experiences on how the market has evolved following a decision of the competition authority on anti-competitive practice.

Surveys and interviews may also be conducted to gather information on market development, as well as the views of informed parties on the impact of the decision. These views can then be verified, analysed and confronted, along with available information, and used to determine the effects of a decision.

Therefore, surveys and interviews can only be used as a source of data or can lead, on their account, to a quantification of the impact of the competition authority's decision, although they cannot provide certainty as to the causal link of the identified effects or the precise quantitative dimension of these effects.

However, surveys and interviews have the advantage of determining the impact of the decision on market variables, which are usually difficult to obtain from the application of quantitative methodologies. For example, they help to determine whether the decision has had an impact on the quality, variety or the level of innovation.

A survey, as a set of interviews, involves collecting data from market players and people who know the relevant market. These may include:

- Companies that merge or commit competitive infringements;
- Buyers of goods or services on the market affected by the decision;
- Competitors of companies that join up or have committed competitive infractions;
- Suppliers of companies that merge or commit competitive infringements;
- Distributors of companies that unite or have committed competitive violations;
- Industry experts.

The choice of these groups to include in the survey/interviews can only be determined on a case-by-case basis, depending on the information and data they wish to obtain, the nature of the decision, the characteristics of the market, as well as many other factors. Often, different information must be requested from each group of respondents.

Some preliminary market information is required to design and administer a survey/interview. The pivotal required information concerns the size, composition and main characteristics (for example geographical distribution) of the target population. This information is necessary for determining whether the entire population can be covered by the survey, or for selecting a representative sample. It is also needed to understand the mechanism of the market and how it has evolved.

Data and information obtained through surveys and interviews should be verified for their internal coherence and correctness in conjunction with the collection of publicly available information. Survey responses are inevitably not as accurate as actual behaviours.

5. Conclusions

The approaches used to assess the impact of competition authorities' decisions on anti-competitive practices bases on different techniques and sources of information but serve the same purpose. Each of the approaches can be used to quantify damages regardless of the type of violation and can supplement each other. The choice of evaluation methods and techniques will depend on the type and quality of data available primarily, but also the specificity of the cases analysed. Thus, based on the primary data held, it will be possible to estimate the used method potential and the quality of the results offered in the end. Selecting the quantification method will also influence the time available, since some methodologies may consume more time than others may.

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