

# **Monopolistic Trend Analysis in the Context of Efficient Entrepreneurial Decision Making**

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**Abstract.** The research “Monopolistic trend analysis in the context of efficient entrepreneurial decision making” provides a multi – perspective description of the nature, the occurrence sources, the development procedure and the internal conjuncture specifics of the present day monopolisation process as well as providing an example of modern econometrical method application within a unified framework of market competition analysis for the purpose of conducting a quantitative competition evaluation on an industry – level, resulting in applicable outcomes, suited for both private and public actors in terms of investment/entrepreneurial activity strategic analysis for the former and policy/regulatory action planning for the latter. The main scope of the aforementioned research is devoted to developing and consequential further enhancement of monopolistic tendencies’ detecting and quantitative analysis practices, while simultaneously considering the broader context of market power phenomenon, its specifics, influence and effects. The introduced methodology shall be structured in a coherently – comprehensive manner, enabling a constituent analytical basis for detecting a possibly monopolistic market trend through both quantitative and qualitative evaluation of individual market power distribution between the suppliers, involved in economic activities within a defined relevant market.

**Keywords:** monopolisation process, market power distribution, competition level analysis, market conjuncture, industry development trends.

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## **1. Introduction**

With the vast development of modern business practices and the advent of the globalized trade system, numerous formerly unquestioned and unchallenged

visions of the economy functioning paradigms, market mechanisms and conformity of natural laws had already been and still find themselves in a stage of productive transformation, re-evaluated and positively – critical analysis from various scholarly as well as practical perspectives. Based on the classic Adam Smith's theory (Smith, 2007), John Maynard Keynes (Keynes, 2011) alternative approach and works of Paul Samuelson (Samuelson, 1939), economic research is further developing along with the endlessly flexible socially – economic agenda, causally following and quickly reacting to newly emerging global and regional challenges. As it had been stated in “An Inquiry into the Nature and Causes of the Wealth of Nations” Book IV, Chapter VIII: “Consumption is the sole end and purpose of all production and the interest of the producer ought to be attended to, only so far as it may be necessary for promoting that of the consumer”. Thus, the father of the “invisible hand of the market” concept underlines that no form of competition, regardless of its specifics and market conjuncture composition, is free from or can neglect the maximum level of consumption capacity, made available by the current demand amount (Smith, 2007).

Complementary, it is argued by Samuelson: “Every good cause is worth some inefficiency”. Thus, it may be argued that for the sake of economic stability maintenance and social utility maximization, a shift from perfect or near – perfect competition can and to some extent, may be considered tolerable if economically suboptimal. (Samuelson, 1939)

It is further explained in “The General Theory of Employment, Interest, and Money” that “the difficulty lays not so much in developing new ideas as in escaping from old ones”. Consequentially, the undoubtedly widely respected author suggests the employing of a non – conventional approach to implementing new elements into the modern economic theory while being able to take a fresh, innovative look at many seemingly common aspects of market interactions (Keynes, 2011).

While considering the previously mentioned quotations by some of the most notable scholars of modern day founding economic theory, one may reasonably argue that certain aspect of market interaction are justly defined as empirically – fundamental and thus may not be subjected to any sort of revisionary agendas, which do find their way and are widely accepted in the modern economist community. Without prejudice to acknowledging certain areas of economic analysis, such as the demand – supply based market equilibrium or the law of diminishing returns, as indubitably empirical, a certain area of market functioning is indeed being addressed diversely by various scholars, professionals and

interest group representatives due to the structural controversy, imbedded in the very essence of the relevant phenomenon. The issue in point is the process of monopolisation, taking place in an open market economy and seemingly contradicting with both the economic reasoning for competition – bases resource utilization, product distribution as well as means of production allocation, and the core benefit to society, brought by consumer choice possibilities, namely, need satisfaction in the context of market functioning efficiency.

As it had been argued previously, while the presence of a full monopoly undoubtedly bring unrecoverable (deadweight) losses to the society, the process of monopolisation is a natural state of affairs, based on both resource limitations and enterprise struggle for profitability, with the mentioned tendencies becoming excessively persistent and particularly visible in time of economic downslide and external shock occurrences'. (Skoruks, 2013) The first deviation from the situation of competition, sufficient in terms of intensity and efficiency, is the obtaining of a dominant market position, which is recognized by the European Union Competition Law as not an infringement per se, but rather as a potentially risky situation of possible future negative market trend development. As defined in the Article 102 of the Treaty on the Functioning of the European Union, "any abuse by one or more undertakings of a dominant position within the common market or in a substantial part of it shall be prohibited as incompatible with the common market insofar as it may affect trade between Member States". (TFEU, 1958) Therefore, it may be concluded that monopolisation tendencies are a potentially negative development, however, in certain circumstances, such state of affairs may be "the least of two evils" in regards to the only other economically efficient option being a public body interference or even nationalization, the latter being highly uncompliant with the current developments in the European single market. (Stucke, 2013)

The question arises in defining the limits of monopolisation process remaining an economically natural and mostly tolerable, in terms of market functioning efficiency, development, adjusted by the consideration of the present stage of business cycle evolutionary maturity and the correspondently generated economic shocks, both internal and external, and defining a boundary, which, if crossed, leads the industry down the path of excessive market power concentration and counterproductive entrepreneurial practices, creating a sufficient basis for public competition monitoring bodies to interfere with the goal of deterring further escalation of unfavorable monopolisation process.

The objective of the current research is, while taking into consideration the persistent modern day economic challenges and the previously described prob-

lematic, to conduct a full – scale study on the nature of monopolisation process, the role of market power concentration in monopolisation tendencies’ progressive evolution and define the degree of external factor influence in acceleration the mentioned occurrences’, contextualized within the existing business cycle theories, with the use of analytical, comparatively – economical, coherently – logical and economic index analysis methodologies.

The hypothesis of the current research may be defined as follows: monopolisation tendencies in modern open markets may be defined as driven by excessive individual market power concentration and consequentially quantitatively detected by evaluating the relevant competition environment.

The object of the current research may be defined as market power, perceived as an economic phenomenon, its concentration forming trend, their structuring factors and relevant quantitative assessment methods as well as business cycle influence on competition conjuncture in the context of multi – factorial interdependence of industries in a modern open market economy.

The main goals of the current research may be defined as follows:

- description and assessment of the existing substantiations, causes and consequences of monopolisation process;
- evaluation and explanation of the role, taken by market power as an economic phenomenon, in the development and evolution of the monopolisation process;
- definition of the existing market power concentration evaluation methods;
- development of a monopolisation process quantitative assessment methodology, which considers both market power concentration and redistribution trends.

The following assessment methods shall be used in order to conduct the current research: monographic analysis, graphic analysis, econometrical modelling, mathematical criteria analysis, quantitative economic pattern analysis, qualitative resulting interval range analysis and data grouping method.

In order to establish a scientifically clarified field of analysis, the following assumptions are being established and further taken into consideration, while conducting the current research:

- All market participants, especially ones operating on the supply side of the established equilibrium, tend to maximize their profits. (Dierker, Grodal, 1996)
- A crisis situation, both structural and shock – triggered in its essence,

does not trigger a significant shift of economic activity from the legally established and clearly defined fiscal field to the realm of “shadow businesses”.

## **2. Theoretical background of the conducted research**

Monopoly (from Greek  $\mu\omicron\nu\omicron$  (mono) – one and  $\pi\omega\lambda\acute{\epsilon}\omega$  (poleo) – to sell) is a unique advantage situation in any state, industry, organization or branch that allows acquiring benefits from such position. In terms of economic evaluation, a monopoly is defined as a special market situation, ensuring a higher level of profitability on the behalf of price growth and production cost cutting with the use of the so-called monopoly position advantages. (Friedman, 1962)

Such position is favorable to an enterprise, legally not obliged to perform public good deliverance and thus remaining outside the control area of the responsible supervisory authorities, due to the possibility of neglecting the normally present competition risks, growing marginal costs, sale amount fluctuations as well as the ability to influence both pricing and social preferences through instrumenting changes in the current supply amount (Hayek, 1944).

The main preconditions for emerging, evolution and successful functioning of an absolute monopoly are several objective economic factors, which may be defined as follows:

- a sole active supplier is present in the relevant market;
- the sole market supplier is a rational market actor;
- there are no replacement products (goods or services) available;
- existence of significant, externally non – removable barriers for new suppliers to enter the monopolizes relevant market;
- monopoly’s supply amounts are equal to those of an entire industry, which can be interpreted as a down-lined linear chart (Robinson 2012).

It would be worthwhile to describe the main barriers, implemented by monopolizing entities in order fully outline the existing monopolistic advantages, which hamper efficient competition:

- 1) legal – laws, governmental decision, service of general economic interest conduction entrustments;
- 2) economic – lack of capital or any other type of resources, excessive means of production single – based concentration, cost cutting abilities, information, legally obtained as well as of insider nature, or any other market influence tool due to their concentration in the hands of

the monopoly;

- 3) Physical – geographical distinctions or other natural factors, ranging from geodesic peculiarities to good individual utility periods, disable alternative supplier and/or distributor entrance/establishing in a certain geographical market;
- 4) technology – experience, specifics methods of efficient business conduction or manufacturing protected as commercial secrets or individualized know – how (Chamberlin, 2010);

A vast variety of singularized methods of monopolisation level assessment currently exist and are widely used, such as, for example, the Lerner Index (Lerner, 1934), the Herfindal – Hirshman Index (U.S. Department of Justice...,2010) or the evaluation of price flexibility. However, the above mentioned methods are either concentrated on a single legal equity individual monopoly power measurement or are aimed on a zero – momentum, “time – frozen” market cluster analysis, which, in both cases, is inappropriate for a medium – term industry – level monopolisation trend evaluation. These methods, however are mutually incoherent and lack integrational synergetic capacities, while remaining highly useful in terms of individual application (Skoruks, 2013).

Consequentially, it may be stated that a position of full monopoly is the exact opposite of a perfect competition scenario and therefore the conduct of competition in the former case would contradict the relevant process in the latter. The main problematic at this point may be defined as reality risks assessment in comparison with those of strictly hypothetically – theoretical origins: an enterprise, if its actions are left unchecked by the authorized competition situation monitoring public bodies, may firstly reach for a dominant position in the market and, if successful, push for a full economic monopoly through the abuse of its leader status generated advantages, while the situation of perfect competition is a descriptive model, used for empirical research conduction.

Therefore, the process of monopolisation may be described as a tendency or push towards obtaining a de facto full monopoly status by consolidating market power on behalf of the existing competitors and accumulating a necessary amount of the mentioned market power to gain a dominant position in the market in order to create internal barriers for potential new competitor entry blocking. Such process, while generally being lengthy and, in a sense, incremental, commonly occurs under normal economic conditions in contrast to industry – level shock occurrence scenario, in which case the process of monopolisation may accelerate and conduct in a rather swift pace.

Therefore, a quantitative analysis of the researched problematic shall require both an empirical model, capable of detecting monopolistic tendencies under normal economic conditions or, simply put, a situation of consistent yet commensurate economic growth, and a specialized input data leveraging derivative algorithm, which, when applied, will reflect the current business cycle imposed market correction in the context of nominal competition conjuncture effective reconfiguration.

Before elaborating on the above mentioned issue, it would be productive and rational to outline the used terminology and define the key concepts, employed for the conduction of the current research.

European Union Competition Law in the form of European Commission Regulations and European Court of Justice Decisions, address the issue of competition enhancements and, as a counterfactual, monopolisation process defined as market consolidation, via the prism of the relevant market definition as the area of geographical and relevant product market overlapping (European Commission, 1997).

In order to fully reflect the scope of European practices in competition policy analysis, the following definitions had been officially introduced:

- 1) A relevant product market comprises all the products and/or services which are regarded as interchangeable or substitutable by the consumer by reason of the products' characteristics, their prices and their intended use (European Commission, 1997);
- 2) A relevant geographic market comprises the physical or digital area in which the enterprises concerned are involved in a remunerated product or services supplying and in which the conditions of competition are sufficiently homogeneous (European Commission, 1997);
- 3) A relevant market consists of an area in which a particular product or service is sold, alternatively defined as intersection of a relevant product market and a relevant geographic market. (European Commission, 1997)
- 4) A dominant economic position in a relevant market of an undertaking or a group of undertaking occurs there is sufficient capacity to significantly hinder, restrict or distort competition in any relevant market for a sufficient period of time by acting with full or partial independence from competitors, clients, suppliers or consumers (European Commission, 1997).
- 5) An abuse of dominant market position may be manifested as:

- a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions;
- b) limiting production, markets or technical development to the prejudice of consumers;
- c) applying dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage;
- d) making the conclusion of contracts subject to acceptance by the other parties of supplementary obligations which, by their nature or according to commercial usage, have no connection with the subject of such contracts. (TFEU, 1958)

As it may be deduced from the previously stated information and additionally conducted legal text analysis (The Council of the European Union, 2004) the main emphasis in the European Union competition law is based on the fact of effective and/or potential competition distortion, which is strictly prohibited as incompliant with the conditions of the Treaty on Functioning of The European Union (TFEU, 1958) and the conditionality of the Single Market functioning. However, it is crucially important to underline the fact that even a case of *de facto* dominant position acquisition by a private organization is not a *per se* violation of the legislation in place – only the proven abuse of such position generated advantages form a legal basis for public body interference. Therefore, it may be concluded that certain market imperfection are considered less harmful that direct administrative action caused distortion of naturally – economic processes by the European Commission (The Council of the European Union, 2003). Consequentially, a European context defines the necessity of quantitatively analyzing monopolisation tendencies within relevant market with a notion of tolerance for minor and, more importantly, economic by nature competition levering development, to an extent to accepting a dominant market position, obtained via good willed and fair competition, compliant with the rules, regulating the functioning of the Single Market.

Considering that the only simultaneous economically rational and legally expectable way to pursuit a competitive advantage of expanding supplier influence is to increase an enterprises market power to a level, which enable such pricing policy and supply amount deliverance implementation that may disregard both rival entities pressure and consumer reaction, while laying the foundation for future dominant position establishing, the developed methodology must focus of the relevant influence factors and their interaction causality in order to determine both monopolisation tendency detection and their objective comparison to



business cycle imposed market realities in terms of consumption capacity, market maximum efficient concentration and related industry's development trend.

If addressing monopolisation tendency quantitative detection through the prism of market power distribution, concentration and reconfiguration, one must first define the relevant phenomenon and describe it's crucial, influence shaping characteristics.

The definition of market power varies among scholars and professionals, being interpreted according to individual commentators' experience, background and affiliation. (White, 2012; The Council of the European Union, 2004; OECD, 1993) However, several parallels may be drawn, in particular, regarding market power phenomenon's descriptive features and structural component of its economic essence. The Organization of Economic Cooperation and Development (OECD) Glossary of Statistical Terms explicitly states that "market power refers to the ability of a firm (or group of firms) to raise and maintain price[s] above the level that would prevail under competition is referred to as market or monopoly power (OECD, 1993). Simultaneously, several other authors define market power as "the extent to which the firm has discretion over the price that it charges" (White, 2012) and "the ability of a firm to profitably raise the market price of a good or service over marginal cost, granting firms the ability to engage in unilateral anti-competitive behavior". (Vatiero, 2010) The mentioned definition, while reflecting on the relevant problematic through the prism of antitrust regulation enforcement, nevertheless provide a robust insight into the economic essence of the addressed phenomenon, leading to an empirical conclusion that market power enables enterprises to grow their presence in the market and, to an extent, which is directly proportionate to the market power volume in point, unilaterally alter price levels.

Therefore, it may be concluded that market power is preset in case of deviations from a unified, industry – wide average price level, which cannot be affected by action of an individual enterprise, thus undermining the distinctive characteristic of a perfect competition market, namely, singularized market level pricing. Consequentially, its prices differ by the suppliers, the next logical step is to differentiate in order to distinguish oneself and enhance market representability, further undermining the notion of perfect competition and, as a result, marginal – based assessment methods, such as the Lerner index, which are empirically applicable only in cases of absolutely homogeneous products. Furthermore, "the baseline of zero market power is set by the individual firm that produces and sells a homogeneous product" (White, 2012). Therefore, heterogeneous or differentiated product cases are best addressed through implementa-

tion of significant market power notion, such position remaining without prejudice to the concept of every enterprise having a certain, if variable in scale and effect, market power and being supplementary to dominant position analysis, as significant market power indicates a certain degree of prevalence over the influence of nearest competitors. J. Robinson and E. Chamberlin, while taking a margin evaluation approach, both acknowledged the dispersion of market power, proportionate to the deviation of the perfect competition market structure, dubbing such occurrences as “imperfect competition” and “monopolistic competition” respectfully, arguing that the more imperfect of monopolistic the competition becomes, the more its conjuncture distances itself from the most optimal situation that is perfect competition between homogeneous product vending suppliers (Robinson, 2012; Chamberline 2010).

Consequentially, it may be concluded that the following logic applies quantitative evaluation of monopolistic tendencies and their possible presence detection in heterogeneous and differentiated product relevant markets: the more deviant a situation is from the state of perfect competition, the larger scale disproportion of market power may be observed; the higher the disproportion of market power in an industry, the higher level influence concentration is accumulated by a supplier; the higher market concentration in a supplier cluster, the wider price imposing opportunities a supplier has; the higher influence a supplier has over prices, the larger market share may be acquired; and the larger market share is acquired, the more deviation from perfect competition further arises in context of market power concentration enhancing.

The described logic suggests that enterprise market size as a statistical notion must be addressed through the prism of its market presence and influence in a specific field of economic activity, leading to a logical conclusion that monopolisation tendencies in fact may and can be detected and consequentially evaluated by applying market power distribution analyzing methods in the context of market current competition situation deviation from the state of a perfect competition structure.

As argued by Fisher (Fisher, 2008) and Vatiero (Vatiero, 2010), at least a relative market power threshold may be established to evaluate a possible dominant position existence. By going further and taking the next step forward, it might be possible to reach beyond dominant position existence by analyzing the competitive structure of the market and concluding the empirical tendency of the mentioned situation emergence, while evaluation macroeconomic justifications for the relevant development in the context of business cycle evolutionary conduct.

Consequentially, it may be concluded that the currently existing scientific literature provides a solid basis for development of a quantitative analysis of competition structural composition in various heterogeneous product relevant markets and the establishment of a conceptual methodology for the previously mentioned evaluation conduction seems empirically possible. The conceptual composition, econometrical structure and analytical functionality of monopolistic tendency quantitative assessment methodology, developed in the process of the presented research conduction shall be described in the following Section 2 of the current paper.

### **3. Concept of the developed monopolisation process evaluation methodology**

Reiterating the empirically – theoretical concept mentioned in the first section of the current research, individual market power of an enterprise consists of its ability to unilaterally implement an independently – favorable pricing policy and its current market share, defined as a fraction of the market total short – term equilibrium consumption capacity, composing of the corresponding supplier’s economic activities within the mentioned relevant market. Therefore, an in – depth analysis of the two crucial factors would greatly benefit the incorporation of market power phenomenon assessment in the addressed broader problematic of monopolisation tendency detection in modern globalized markets.

An important development in the context of the conducted analysis may be expressed in the form of previously defined factor mutual economic influence and the causality of the relevant process. Considering both prices and market capacity structural compositions, it is imperative to acknowledge that, while focusing on supplier’s market power, the most logical perception of the situation would be achieved through the prism of demand – side analysis. If, as argued Christopher and Shughart II (White, 2012) an enterprises’ market power is proportionate to its size, the measurement of that very aspect shall deliver a precise answer to the addressed question of monopolistic tendency dependence on disproportionate market influence concentration in certain supplier clusters, thus leading to the need of defining an enterprises’ size in an analyzed relevant market.

It would be quite illogical to consider the individual market size of a private enterprise by the gross sum of available assets to each subsidiary group or, in case of holding companies, the total financial capacity of the decision making entity. Such approach would not only constitute a Type I error, rooting from the assumption of each subsidiary being of equal economic importance to the

mother company, but, more importantly, assign additional market power to larger companies, while considering only their nominal capabilities without considering the existing liabilities, strategic managerial priorities and the interconnectedness of the affected financial pool. While standing on the grounds of the relevant market in the context of European Union Competition Law, the most suitable manner of quantitatively measuring existing market power distribution lays within the conjuncture analysis of a defined relevant market. Consequentially, if the general analytical focus is concentrated in the relevant boundaries of relevant product and geographical market mutual overlapping sector, the size of the enterprise may be correctly measured by each enterprises involvement in short – term equilibrium formation by delivering individual supply amount to the relevant market, thus affecting its core competitive structural composition.

Individual supply amount is critically affected by the existing or potential demand amount, with both of the mentioned fundamental economic factors being equalized or, econometrically speaking, mutually balances by the common denominator of competitive price. Therefore, it may be concluded that the effective size of an enterprise, measured by its presence in a market, is determined by the symbiosis of its individual supply amount and the corresponding sale price. Taking the next step forward, it may be deduced that the individual supply amount multiplied by the relevant existing sale price would equal the turnover of the mentioned enterprise over a defined timeframe. Consequentially, it may be concluded that, if an industry level market power distribution analysis is being conducted or the required perspective dictates an evaluation, only focusing on a certain product type or non – supplementary market structures, the turnover of the supply – constituting enterprises shall deliver the required accurate and objective results. (Dieker, Grodal, 1996)

It is important to note that, in terms of harmonizing the used quantitative data, it would be advisable to use the net turnover parameter as the main input element of econometric modeling due to the nature of the mentioned information and the unification of value added tax, excise and other duty rates within the context of a relevant market that is usually the existing state of affairs in most if not all of the modern developed economies. In quantitative terms, dividend the net turnover of an enterprise by the total market consumption capacity, defined as the sum of all involved supplier individual turnover, expressed in per cent measurements, constitutes an adequate method of individual market share calculation. As a side note, the European Commission takes a similar approach to the problem of enterprise individual market share definition (European Com-

mission, 1997).

Having established the notion that the market share of an enterprise, defined on the basis of its net turnover in a relevant market, determines the existing individual market power in control of the mentioned enterprise, it would be logical to consequentially deduce that the proportionality of market shares is directly proportionate to the extent of market power concentration specifics within that market. Therefore, in order to detect an existing monopolisation tendency or the probability of the relevant process actual occurrence in the analyzed relevant market, an assessment of market share allocation patterns and conjuncture reformatting would provide the necessary quantitative basis for monopolistic tendency existence evaluation.

As argued by various authors (Fisher, 2012), including Chamberlin (Chamberlin, 2010) and Robinson (Robinson, 2012), in a situation of perfect competition no enterprise possesses any market power at all, therefore, by applying the same logic as done previously, it may be concluded that the market shares in the mentioned situation should be evenly distributed between the involved suppliers, thus constituting a mutually proportionate involvement in the aggregate supply amount creation. If an enterprise increases its individual supply amount in order to maximize its profit, the marginal revenue sealing, determined by the constantly fixed, industry level unified price will quickly set a maximum financially profitable individual supply amount, which, *ceteris paribus*, shall be common for all the involved suppliers. Therefore, a situation of perfect competition not only constitutes a completely equal market share distribution, it simultaneously creates a situation of equivalence between the aggregate quantitative measurement of common average market shares and the cumulative individual market power interactional output.

Consequentially, for the purpose of further conduction of the current research, the theorem of perfect competition as a structural market conjuncture type creating a situation of non – existent individual market power, based of equal market share distribution, deriving from objective economic limitations to individual supply amount profitable delivering, shall be perceived as having been rationally proven in the above described empirical causality rationalizing experiment, conducted with full accordance to Austrian economic school's tradition (Schumpeter, 1954).

While considering the quantitative methods, which may be useful in detecting individual market power, while being economically objective in terms of implementation universality, it may be stated that the situation of perfect competition may be perceived as the counterfactual to the *de facto* competition con-

juncture in an analyzed market of imperfect competition. If the only economically accessible and financially justified tool of market share increasing is the adjustment of individual supply amount, limited by the marginal equilibrium balance, it may be stated that in the case of perfect competition the supplier have some market power vis – a – vis the consumers, which are affected by the aggregate supply which may over or under satisfy the existing aggregate demand. However, the mentioned situation establishes a virtually nonexistent market power distribution irregularities between the suppliers, which is the precondition for the fierce competition, occurring in the case of relevant scenario, benefitting the consumers in terms of contracting conditions, variety of alternative choice and constantly favorable common pricing.

Therefore, in case of imperfect or, as defined by Chamberlin (Chamberlin, 2010), monopolistic competition, which is the source of monopolisation process development and monopolistic tendency emergence, market power is distributed unevenly between the suppliers, active in a relevant market, and the trend of exercising the available influence derives precisely from the ability to either neglect or predetermine the retaliation actions of the effective competitors, which consequentially leads to monopolistic tendency strengthening and potential dominant position establishing.

Following such logic, the ratio of cumulative individual market power distribution in case of the existing monopolistic competition to the equivalent value in situation of perfect competition would objectively and rationally reflect on the current state of monopolistic tendency development and, if a dynamic trend is analyzed, enable the calculation of such occurrence future emergence probability. The mentioned concept may be graphically interpreted as a deviation interval, reflected in Figure 1:

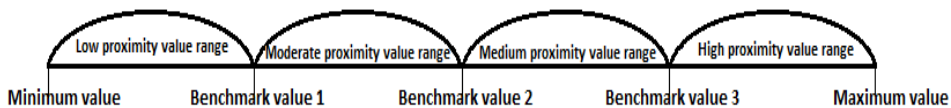


Fig 1. Empirical concept of market power distribution reflecting indicators

As it may be seen from figure 1, the cumulative distribution of market power is reflected in terms of the relevant values' proximity to the conditionality of perfect competition situation, thus establishing an experimental reference framework, enabling the analytical definition of the assessed market to shift from the field of theoretical description to the area of applicable characterizing and practical quantitative analysis of the detected peculiarities.

The next logical step in the structuring of the current evaluator research would comprise of an easy – to – use, transparent and unbiased tool, aimed on flexible display of monopolistic if any tendencies, uncovered by the implemented market power distribution analytical methodology, while simultaneously adjusting the acquired numerical results by the relevant influence factors, emerging from the competitive conduct within the analyzed market. The mentioned transportation of expected outputs into objective and applicable outcomes is the key element of the devoted methodology and must not be neglected in terms of resulting value intuitive evaluation. In order to avoid such occurrences, the interpretation of the acquired results shall comprise of both a quantitative value, expressed as a percentage proximity of the de facto situation to that of perfect competition, and a qualitative explanatory characteristic of each acquired analytical values, stratified by the previously described value ranges, which shall be experimentally established by performing an ex post historical data analysis, comprising of previously encountered competition disturbance case evaluation, using the developed methodology with consequential resulting output comparison to formerly established actual situation progression scenarios, deriving from available data retrospective evaluation.

The proposed composition of the developed analytical framework shall enable a higher level of monopolisation tendency analysis precision, especially in situation of quantitative results falling explicitly short or imperceptibly exceeding a benchmark value between two successive qualitative interpretation proximity ranges as described in Figure 1. The concept of internally generated resulting outcome adjusting by supplier – related competition conduction influencing factor imposed adjustment is reflected in Figure 2.

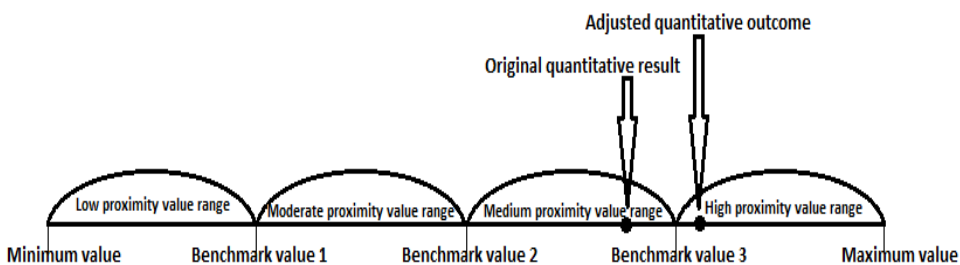


Fig 2. The concept of generated result adjustment by prevalent competition trend

As it may be seen from Figure 2, the adjusted quantitative outcome differs from the original quantitative result by a numerical fraction, which places it at a more favorable proximity value range, suggesting that, although the internal market situation resembles that of a medium competition intensity, the supple-

mentary interaction between the involved suppliers on the individually targeted niche level reshape in a manner, which transforms it into a stage of monopolistic competition, divergent from state of perfect competition by a smaller margin then seen from the perspective of the addressed relevant market. In other words, the objective economic reality disables the relevant market from tending to transform into a state of perfect competition, thus limiting the maximum value of dispersed market power concentration, decreasing the actual high end value of optimal cumulative market power distribution, which, while taking into account the dynamic value of the originally generates quantitative result, causes it to proportionately shift between the quantitative interpretation of the mentioned value, expressed as the proximity value ranges.

Having described the concept of the developed methodology and its empirical composition as well as the employed analytical methods, contextualized in terms of mutual positive synergetic assessment framework, it would be scientifically beneficial to further describe the quantitative structure and the corresponding qualitative interpretation principles of the developed methodology. The relevant mentioned information had been made available in Section 3 of the current research.

#### **4. The quantitative structure and functioning principles of the developed methodology**

In order to incorporate an indicator, reflecting the role and magnitude of individual market power distribution between suppliers, involved in economic activities on a relevant market level, into the econometrical structure of the developed methodology, while taking into account the previously established theoretical and conceptual basis, an understanding of cumulative market power amount and its disproportionate allocation within a market must be reformatted to suit the declared purpose.

The number of enterprises in the relevant industry, their net turnover amounts and the corresponding divergence from the state of perfect competition may be branded as the necessary contributors to the composition of the relevant indicator. Assuming, that in a situation of perfect competition all no market actor, engaged in economic activity on the supply – side of the existing consumption equilibrium, has any market power vis – a – vis its direct competitors, the individual market shares must be equal for all of the mentioned supplier in terms of their percentage proportion of the cumulative market consumption maximum level. Therefore, the relative market share of a supply, operating in a conjuncture of perfect competition, is inversely proportionate to the number of suppliers,



involved in economic activities with a fixed common sale price and no entrance or exit barriers to be found. Consequentially, individual market shares, while being mutually equal and, therefore, constant if the total number of suppliers does not change, may be calculated as shown in the authentic, author developed Formula 1:

$$TMCCMSH_e = N^2 = \sum_{i=1}^N MSH_i \quad MSH_e = N^2 = N^2 \quad (1)$$

where

MSH<sub>e</sub> – constant individual market share in perfect competition markets, %;

MSH<sub>a</sub> – simple average of individual market shares in perfect competition markets, %;

N – number of suppliers in the analyzed relevant market.

As it had been previously described in detail, an indicator of market power concentration distribution is based on measuring the state of de facto market condition being divergent to those of a perfect competition situation in the context of enterprise mutual interconnectedness in the context of supply – side of the general market equilibrium. Therefore, an element of individual market power mutual compensation arises, meaning that competing entities, both exercising their respective market influence with profit maximization goal, simultaneously engage each other in a struggle for and of market power, with the results of the mentioned competition collision being determined by the difference in employed market power. While presuming that each enterprise is rationally motivated to exploit their maximum market power on a largest possible scale and that every enterprise in a competitive environment theoretically engages every other opponent with the synergetic effect of market power being a holistic economic phenomenon, the aggregated disproportionality of market power distribution in a relevant market may be determined as the opposite of simultaneous individual market power cumulative mutual compensation, to be more precise, its excessive amount, which is not being cancelled out by a pro rata competitors influence.

Therefore, mutual cumulative individual market power compensation may be reflected by what for the purpose of the current research shall further referred to as the mutual compensation index, which may be calculated in the quantitative fashion, described in the authentic, author developed Formula 2:

$$MSH_1MSH_e + MSH_2MSH_e + MSH_3MSH_e + \dots + MSH_nMSH_e = ? = \sum_{i=1}^n MSH_iMSH_e \quad (2)$$

where

MSHi – de facto individual market share of a supplier, %;

MSHe – nominal individual market share of a supplier if the relevant market has in a state of perfect competition, %;

MCI – mutual compensation index, % or natural values.

The introduced mutual compensation index, as any other economic parameter, delivers quantitative outputs that fall under a certain numerical threshold, enabling the according interpretation of the acquired results on a conceptually – qualitative level. In order to understand the meaning and significant of the detected market power distribution conjuncture signals, the experimentally determined output value ranges and their corresponding interpretations are summarizes in Table 1:

Table 1. Mutual compensation index quantitative value ranges and their respective interpretation

Value range	[0]	(0;0.25]	(0.25;0.47]	(0.47;0.63]	(0.63;1]
Level of individual marker power mutual compensation	Absent	Insufficient	Fractionally sufficient	Sufficient	Fully sufficient
Economic characteristics	<i>De facto</i> full monopoly	Dominant market position or oligopoly	Cross – niche competition	Differentiated monopolistic competition	Classic monopolistic competition
Competitive situation	Absence of efficient competition	Uncompetitive environment	Fractionally competitive environment	Competitive environment	Sustainable competitive environment

As it may be seen from Table 1, the mutual compensation index reflects both the specifics of analyzed relevant market’s conjuncture structuring and the state of competition within the mentioned economic unit, thus enabling a multi – scale assessment of business processes from a dual, private and public actor, perspective, the former comprising of market entry attractiveness and the required penetration effort evaluation, while the latter focusing on the health of the existing competition environment in the context of regulatory intervention necessity in – line with the established competition policy enforcement.

While taking into account the information, made available in Section 2 of the current research and more specifically outlined in Figure 1 and Figure 2, it

would be beneficial in terms of raising the cumulative efficiency of the conducted analysis to incorporate the according conditions and influence factors into the composition of the proposed methodology.

In order to further enhance the developed quantitative market power distribution assessment model and reconfigure it in a manner, suitable for instant performance of plausible monopolisation tendency detection test, the configuration of supplier diversification within the analyzed relevant market needs to be taken into consideration. While acknowledging the mutual compensation index simultaneously reflecting both the state of multilateral competitive effort in the relevant market and the economically justified possibilities of new potential market entrants actually opting for participation in the currently existing competition conjuncture, it may be concluded that the number of suppliers, involved in economic activity, is reversely proportionate to the irregularities in individual market power distribution. In other words, if there are no barriers for market entry or exit in the situation of perfect competition, the deviation from such situation reflects disproportionalities in competitive structure of the mentioned market. Therefore, the detection of existing or potential monopolisation tendencies in a given relevant market comprises from both individual market power distribution and the actual number of suppliers, willing to financially able and strategically willing to compete for redistribution of the relevant economic asset in the context of business cycle constituent conduct. Consequentially, monopolisation tendency presence in a relevant market may be quantitatively detected by employing the method, for the purpose of the current paper further referred to as the competition level indicator, which is econometrically described in the authentic, author developed Formula 3:

$$N^2 \cdot MCI = N^2 \cdot X \cdot N^2 \quad (3)$$

where

CLI – competition level indicator, %;

N – number of suppliers in the market within the analytical period, scalar values;

MCI – mutual compensation index, scalar values;

$\alpha$  – compensation  $\alpha$  – factor: the quotient of N and MCI, scalar values.

The competition level indicator is expressed in percentage form in order to enhance intuitive acknowledgement of the acquired results as the proposed methodology represents the proximity of the actual competitive situation in the

relevant market to that of perfect competition, while not being limited to just the linear correlation function, rather reflecting the situation as either a positive competitive trend of convergence or a negative monopolistic tendency of divergence. In order to elaborately describe the qualitative interpretation of the competition level indicator generated quantitative results, it would be rational to create a summary of the proposed methodology's functionality and applicability. The mentioned description had been made available in the form of Table 2:

Table 2. Mutual compensation index quantitative value ranges and their respective interpretation

Value range	$(-\infty; -75\%)$	$[-75\%; -35\%]$	$[-30\%; 0)$	$[0]$	$(0; 35\%)$	$[35\%; 75\%]$	$(75\%; 100\%)$
Type of competition	Regressive competition			Point of divergence	Progressive competition		
Form of competition	Excessively regressive competition	Stably regressive competition	Increasingly regressive competition	Stagnant competition	Declining progressive competition	Volatile progressive competition	Sufficiently progressive competition
Monopolistic tendency endurance	Powerful	Strong	Moderate	Struggling	Weak	Emerging	Non-existent
Probability of monopolistic tendency development	Certain	Very high	High	Medium	Low	Dubious	Insignificant

As it may be seen from Table 2, the value ranges of the competition level indicator, which had been experimentally determined by running a simulation test on a qualitatively selected, various industry describing aggregated data set, take values from negative to positive infinity due to the logic of deviation from a defines position, which may be defined as absolute proximity or indefinite distance, measured in the context of the existing convergence trends.

In the mentioned respect, the type of competition may be described as either tending towards individual market power mutual compensation on a level, enabling further market entry barrier elimination and existing supplier intensified

multilateral engagement or, on the contrary, showing a trend of enhancing market structure stagnation and further individual market power disproportionate consolidation, the former case obtaining the title of progressive competition, while the latter being dubbed regressive competition.

Regressive competition may be defined as the situation of monopolistic tendency already occurring and consequentially, if left unchallenged, has the potential or further expanding its negative influence over the entire market structure via continues individual market power disproportionate concentration in a certain supplier cluster or influence field of an individual supplier. The mentioned development has a tendency of internal momentum, meaning that the longer such irregularities are left unaltered, the stronger they grow in influence and the more damage to “natural competitive environment” shall be done. Regressive competition point out a high possibility of a dominant position presence in the market and, of its higher development levels, may even directly indicate abuse of such position. Simultaneously, if the number of suppliers is limited and the market structure is in a state of de facto oligopoly of quasi – oligopoly, low values of competition level indicator in the regressive competition range reflect a clustered concentration of market power, meaning that a high probability of prohibited (cartel) agreement is present.

Progressive competition, on the other hand, may be defined a situation of sufficient or positively evolving market environment, based on fair business and efficient trading practices, which enhance both consumer choice options and supplier operationally – financial flexibility. High levels of progressive competition reflect a situation, where the “invisible hand of the market” (Smith, 2007) is indeed efficient and operates on an optimal level, thus ensuring high levels of cumulative society’s surplus and deeming regulatory intervention unnecessary. Low level of progressive competition uncover a struggling market structure that may independently evolve to a sufficient level of functional efficiency, however, especially in case of external economic shocks or internal panic, the situation may deteriorate into the undesirable state of regressive competition and, therefore, requires additional regulatory attention, while this not being the case regarding direct administrative action.

A peculiar case of the competition level indicator quantitative value interpretation arises when it equal zero, meaning that the number of suppliers in the market is equally oppositely proportional to cumulative effect of individual market power mutual compensation effect. The mentioned characteristics point out a situation of market structure, contradicting to the main economic reason for supplier involvement in business activity, namely, profit maximization. Is

market power concentration remains constant, regardless of the number of suppliers involved, there are little options for actually utilizing the existing individual market power as it is immediately compensated for by the comparable influence of direct competitors. Consequentially, the cumulative number of suppliers in the market may not exceed a certain threshold, which tends to be quite low as there is no financial rational for entry into a market, existing in such a decadent state. Therefore, the competition level indicator value equaling zero may occur in only two instances: 1) the analyzed industry is a naturally declining market of obsolete goods in an economy, undergoing a general recession; or 2) it is a public (state – owned) monopoly, distributing goods or providing services of general economic interest on behalf of governmental bodies and not orientated on profit maximization, if generating any.

Regarding forms of competition within a specified stratification type, the following may be noted:

- Excessively regressive competition indicates of a powerful monopolisation tendency presence in the relevant market, with high possibility of a visible dominant market position and the consequent abuse of such position or an oligopoly – based cartel agreement;
- Stably regressive competition indicates a strong monopolisation tendency presence in the relevant market, with high possibility of a de facto dominant market position or a hidden oligopoly market structure, which creates fertile economic ground for possible cartel – type prohibited agreements;
- Increasingly regressive competition indicates a moderate monopolisation tendency presence in the relevant market with a significant probability of dominant market position emergence in the nearest future due to a critically disproportionate individual market power distribution within the analyzes relevant market;
- Stagnant competition describes a situation of either a structural recession in a market that may lead to fundamental shift from progressive competition to its regressive stance, if the situation is left unaddressed by regulatory bodies, et vice versa in case of efficient administrative measure timely implementation, or a subsidized industry, usually a public monopoly, thus raising the question why monopolistic tendency analysis was carried out in a obviously, by its very definition uncompetitive environment;
- Declining progressive competition indicates a situation of diminishing

imperfect competition, which may revert to the struggling stage near the point of divergence or efficiently overcome it internal rigidity and evolve in a more favorable state of healthy competitive environment;

- Volatile progressive competition indicates an efficient competitive conduct in the relevant market, which, however, is quite vulnerable to external shocks, meaning that in the scenario of a healthy growing economy the state of competition shall most likely evolve in a sustainable structure with acceptable if imperfect functionality, while a general recession is likely to trigger market consolidation tendencies, which reflect the redistribution of individual market power, not actual and imminent monopolisation tendencies within the analyzed relevant market;
- Sufficiently progressive competition indicates a situation of efficient, sustainable and generally healthy competition within the analyzed relevant market and therefore is a case of least concerns over illegal and unfair competitive practices.

It is worth mentioning that progressive competition requires to direct actions on the behalf of the relevant regulatory bodies, while situation monitoring may be carried out in the case of declining progressive competition as well as in case of the analyzed market finding itself near the point of divergence, regardless of its positioning in the positive or negative competition level value range, while regressive competition requires direct administrative actions in order to return the market onto the path of efficient competition, especially if the competition level indicator quantitative value exceeds the negative thirty percent benchmark.

As seen from the point of view of private economic actors, progressive competition indicates varying degrees of market consumption capacity saturation and suggests a market entry is possible or, from an internal perspective, reflects relatively equal opportunities for further profit generation on the basis of fair and transparent competition, while regressive competition indicates significant economic market entry barriers, which question the financial rationality of such attempts, simultaneously pointing out an imbalances market structure with possible internal discrimination of the modest by the mighty.

## 5. Conclusions

Taking into account the conduct, results and findings of the previously described research, the following may be concluded:

- Monopolisation process is most likely to develop in situations of dis-

proportionate individual market power distribution between suppliers, conduction economic activities within a defined relevant market;

- Monopolisation process origins may be traced to the disproportionate distribution of individual market power within a defined relevant market, while being closely related to the overall interaction intensity between niche – targeting supplier groups;
- Monopolisation development trend and their magnitude may be evaluated through analysis of individual market power mutual compensation effect in the context of the aforementioned niche – level competition;
- Applying harmonized quantitative analytical methods and their qualitative interpretation algorithms in the context of synergetic econometric modeling proved and efficient methodological approach of monopolisation tendency detection, evaluation and internal dynamics understanding enhancement;
- It would be scientifically rational to further enhance the developed methodology by incorporating external macroeconomic factor influence into its econometrical structure, while concentrating on the effects of business cycle volatility and process of consequent maturing in order to objectively define the possible effects globalized economic activity may have on regional competition development.

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