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Sokolovskyi, Dmytro

Khmelnytskyi National University

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Abstract

The problem of identification of efficient economic conditions, arising from the «horizontal» agents' relationship, is considered. It's shown that the application of classical concept of market failure is insufficient. The alternative concept of disbalances are examined. The greater universality and convenience of the "quantitative" concept of disbalances for identifying the effectiveness of states formed in the process of mutual activity of economic subjects, compared to the concepts of market failure, was substantiated. In particular, it allows us to evaluate the effectiveness of the market relationship of agents according.

Keywords: *efficiency, economic agents' relationship, market failure, disbalance*

JEL code: C02; C62; H30

Introduction

Currently, the main concept that describes the inability of the market to self-regulate and offers objective criteria for making decisions about state intervention in market processes is the concept of "market failure", which contains a list of conditions (situations) under which the market is unable to ensure effective use available resources, i.e., a Pareto non-optimal allocation of resources and distribution of benefits is observed. The actual essence of the concept of market failure is as follows.

In fact, competitive markets in the distribution of limited resources do not lead to the implementation of the Pareto principle.

We select a number of typical situations namely factors that testify to a market imperfection, i.e., market failures, which cause the possibility of inefficient distribution of benefits by market mechanism. That is, we mean market failures a set of such situations, specific market conditions, connections, and relations, as a result of which the market is unable to provide a Pareto-efficient distribution of limited economic resources, and market competition does not determine the achievement of the economic optimum.

The presence of market failures leads to a violation of the market equilibrium, a decrease in economic efficiency, an increase in costs, a worsening of the distribution of production factors, as well as the appearance of side effects that violate public interests.

Different authors indicate different sets of these reasons in number, usually from 3 to 6. The following 3 reasons are considered to be the main ones: market power (causing imperfect competition, ultimately a monopoly); externalities; public goods. In addition, some authors also pay attention to information asymmetry, agency problems, and protection of contracts (transaction cost).

Analysis of recent research or publications

In particular, this is emphasized by Paul Krugman and Robin Wells, who argue that three of the many possible causes of market failures deserve special attention: externalities, public goods, and a lack of competition (Krugman, 2006), as well as economies of scale, inflation, and cyclical unemployment.

Eric Maingard (2012) indicates the other 3: public goods, imperfect competition, and asymmetric information.

The works of Joseph Stiglitz (1989; 1999) made some intermediate conclusions with this research. They present, among other things, a classification of market failures, the list of ones included: ineffective competition; public goods; external effects

(externalities); incomplete markets; cognitive limitations (imperfect information); unemployment, and inflation.

In the future, other scientists made attempts to edit and supplement the list of market failures, introducing to it, e.g., the factor of social inequality (Borooah, 2003); collective ownership, market power, lack of markets, distortions in capital markets (Morey, 2010); cyclical fluctuations of economic growth, adverse selection, moral hazard, market entry barrier; supply and demand disbalances, economies of scale and high discount rates (Gillingham, 2010).

The analysis of the proposed classifications shows a number of their inherent defects.

Firstly, this concerns the non-correspondence of many “candidates” for market failure to its definition. E.g., opportunistic behavior or moral risk in no way can lead to market failure, at least because they relate not to classical market, but to direct relations between economic agents. Except, they lead to redistribution between said agents of a fixed value of the good, therefore unable to improve the Pareto efficiency of this distribution.

Also, many authors do not take into account the fact that market failures are by definition the causes (factors, prerequisites) of market inability, including in their classifications its manifestations, such as distortions in capital or labor markets, or even consequences, such as unemployment, inflation, etc.

There are market failures that in no way relate not only to the inefficiency of markets but also to markets in general, e.g., social inequality, which, at most, we can position as a consequence of market failure.

In addition, many market failures are similar to each other or follow from each other (e.g., market power is a direct consequence of not enough competition, and barriers to entry and exit on the market are related to this factor too).

regardless of the choice of one or another classification of market failures, despite its positive qualities, has a number of disadvantages:

- 1) it does not cover all possible inefficient states, because its subject is only horizontal market relations, for vertical, in particular, government failures, we have to use other concepts and theories;
- 2) it discovers no basics of market failures, as a result of which there is a certain unsystematic nature of their classifications; in addition, some market failures are interdependent;
- 3) the presence of market failures does not always lead to market inability; the presence of market inability does not always indicate a specific market failure; the complicity of market failures, even with the identification of market inability, makes it difficult, if not impossible, to fix market failures.

Task setting

Therefore, we set the following research tasks:

- 1) to systematize market failures by structure, relationships, and factors of their formation.
- 2) to justify the “quantitative” concept of the relations of economic agents in market conditions.
- 3) outline inefficient equilibrium states that do not fall under the definition of market failures; check the feasibility of applying the proposed concept to such conditions.
- 4) outline the logic of the formation of ineffective norms due to the repeated interaction of economic agents in ineffective situations.

Presentation of the main research material

The traditional concept of market failure

The concept of market failure is based on the above approach by Joseph Stiglitz (1999), which we will consider in more detail.

Classic examples of inefficient interaction in the market are known in economic theory under the name market failure. Formally, market failure is a state of Pareto non-optimal distribution of resources among economic agents. The reasons for the formation of such situations are generally recognized as the imperfection of the market: a lack of sellers, a limited assortment of goods, external influences caused by the actual non-uniformity of goods properties, and cognitive limitations of economic agents. A theoretic-game model of market failure can be considered a ‘prisoner’s dilemma’ game, in which the rational behavior of the players provides a Pareto non-optimal (and sometimes simply unsatisfactory) solution for one of the agents.

Stiglitz identifies a few conditions of market failure, namely the following:

- 1) ineffective competition;
- 2) public goods;
- 3) external effects (externalities);
- 4) incomplete markets;
- 5) cognitive limitations (imperfect information);
- 6) unemployment and inflation.

Incomplete markets are markets in which there is a lack of supply.

In the end, all market failures result in an incomplete market, rather, in the lack of a supply that could satisfy demand, but these situations are a direct consequence of market failure. However, the reason for the formation of incomplete markets is other conditions of market failure.

Imperfect competition (monopoly, oligopoly) occurs in the absence of a sufficient number of sellers in the market, which causes the impossibility of preventing a decrease in supply/quality (“quantity of quality”). It, in turn, leads to a lack of goods. It is believed that an enough number of sellers in a market segment is necessary to prevent inefficient competition. The reason can be an increasing positive effect or serialization, and the result is often a monopoly.

Collective (public) goods are goods that are fundamentally impossible to divide between the individuals who use them. Collective goods have the following properties: the product is necessary (useful) for the community; the number of consumers does not significantly (or at all) affect the total value of the collective good (in accordance, it significantly affects its normalized value, per a person); if this good is used by a certain number of people, then it is impossible or very difficult to prevent another person from using it without additional costs on his part, i.e., it is difficult to control (limit) consumption by users of the collective good. We note separately the remark for fundamental indivisibility since there are pseudo-collective goods, namely, goods that can either be divided into components, and so that different members of the community need different shares of the good and, in fact, sell it individually in these shares, or it is possible to measure the degree of necessity of the good for each member of the community and normatively fix the distribution between individuals when buying a good.

Externalities – side effects – positive or negative effects of the activities of one person (group of persons) on the position of another person (group). In particular, positive externalities are public goods. In other words, externalities are the presence of positive or negative side effects when purchasing a product (for the analysis of market failures, only negative side effects are significant). Externalities are the phenomenon with which the study of the problem of market failure began (Pigou, 1932). Although, according to the classical view, collective goods are a special case of externalities (Stiglitz, 1999), one may not agree with this point of view.

One of the kinds of externalities is itself a special case of pseudo-collective goods. If we consider a good as a set of properties, then the side effects of the good will be manifestations of its properties other than those for which it was decided to buy it. So, one buys not the whole good or its separate property, but a set of properties, each of one own functions and capabilities. Such a formulation excludes side effects because all the properties caused by them are integral components of the acquired good. So,

they must be taken into account in the price of the good that makes impossible any inadequacy of the price. In this case, market inability may be caused not by externalities but by another factor, namely, cognitive limitations, a lack of information, or, alternatively, incomplete specifications.

Another type of externalities, in contrast to the disregard of the additional effect of the realized good, is caused by the use of an unevaluated (most often, public) good, namely, a resource. Of course, in this case, the externalities can lead to market failure, increasing the latent cost of the good for a potential buyer. For such a situation, a method of solving the problem has long been known, namely, a more thorough specification of goods, in particular and primarily public goods. As can be seen from the above description, the problem of externalities is a consequence of the presence of collective goods, which in the last case perform the function of resources.

Cognitive limitations usually include insufficient coordination (although Stiglitz considers it a manifestation of an incomplete market, in our opinion, wrongly), lack of information, its unreliability (i.e., no opportunity to evaluate it), and lack of abilities (and time) to process it. However, the definition of cognitive limitations looks too generalized and fuzzy, because really no one can possess comprehensive information. Therefore, it is advisable to specify the specified factor, considering cognitive limitations from the perspective of:

- ✓ “short-sightedness” (non-strategic) behavior of agents;
- ✓ lack of coordination of interaction between agents;
- ✓ asymmetry of information available to agents.

The analysis of market failures allows us to identify a set of quantitative factors, the change in the values of which largely causes the onset of market failures. Moreover, these factors have an end-to-end nature, i.e., the influence of the same indicator is observed in the structure of various market failures, so they can quite rightly be considered basic (Table 1).

Table 1. Basic quantitative factors of market failures

Market failure	Factors of market failure
Incomplete market	The amount of supply that does not satisfy the demand
Imperfect competition	The offer price is over the demand price Short-sightedness (“non-strategic”) of agents
Collective goods	Lack of coordination of agents The offer price is over the demand price
Externalities	The offer price is over the demand price Information asymmetry (incomplete specifications)
Cognitive limitations	Information asymmetry Short-sightedness (“non-strategic”) of agents Lack of coordination of agents

Source: Author’s development

Using the approach of representing the specified quantitative factors as a pair of related scalars, we arrive at the concept of disbalances.

The concept of disbalances

Quantitative deviations, which in the previous case can be seen from the analysis of market failures, here for each factor consist in the difference in the values of 2 indicators, namely:

- ✓ volume of demand, i.e., the level of consumer needs for a certain good, and volume of supply, i.e., the volume of the good that producers are ready to provide;
- ✓ demand price and supply price;
- ✓ the amount of information possessed by one contr-agent, compared to its contr-agent;
- ✓ the value of the total utility function of the independent decisions of a set of interacting agents and the value of the utility function of their coordinated behavior;

- ✓ the value of the utility function of a simple sum of successive decisions of an economic agent and the value of the utility function of a single strategic decision containing a set of the same steps.

That is, it can be assumed that an increase in the discrepancy between the values of the two indicators for any of those listed in the second column of Table 1 factors, increases the chances of market failure and the formation of a state of market inability. Such a mechanism of [non-]occurrence of a certain state of the system, depending on the degree of discrepancy in the value of quantitative indicators, is quite natural to call the balance mechanism and the indicated discrepancies in values as disbalances.

So, the list of disbalances is as follows:

- ✓ incomplete market, supply/demand disbalance;
- ✓ price disbalance – a situation when the price set by sellers of a good is over the price set by demand. Usually, the main factor in the excessive cost of a good is high [conditionally] constant costs for its production and promotion. As a result of the formation of this situation, the good, despite the fact that there is a certain demand for it, ceases to be produced (sold), and disappears from the market, thereby creating a situation of an incomplete market.

One of the factors of the cost disbalance is the institutional barrier to access to the market: if it is not administrative, its essence is, first of all, the undercutting of prices in the market by its sellers to the extent that it becomes unprofitable for a potential new seller to exist in this market. That is, its entry into the market is hindered by a cost disbalance. In addition, for the formation of a cost disbalance, the operation of artificial price undercutting is not mandatory. Compared to the new players, old players are a priori in a more advantageous position due to the establishment of economic ties, possession of information about the current situation (buyers, sellers, resource base, etc.), and therefore, due to smaller transformational and transactional costs. So, other things being equal, there is a good price at which its sale will be profitable for an existing seller, and unprofitable for a potential one;

- ✓ information disbalance – a situation better known as "information asymmetry": different levels of awareness of counterparties (also, as an option, it can characterize not only the level of subjective knowledge of agents but also the level of objective information about goods or their properties (e.g., presence or absence of product specifications));
- ✓ coordination (organizational) disbalance is the problem of coordinating the actions of counterparties, which, clearly, can arise only in an imperfect market, since a perfect market assumes fundamental individuality of behavior. Generalizing, the process of coordinating the actions of subjects can be called the process of organizing their interaction, and the coordination disbalance is organizational. The essence of coordination disbalance lies in the discrepancy between the results of uncoordinated and coordinated actions of counterparties (that is, uncoordinated actions lead, compared to coordinated ones, to a suboptimal result);
- ✓ strategic disbalance (disbalance of short-sightedness) is "short-sightedness", non-strategic behavior of agents, a divergence of short-term, tactical, and strategic optimal solutions: economic subjects, due to their inherent cognitive limitations, are able to assess only the short-term perspective of changing the current situation, which in the future, when a sufficient gap between the agent's cognitive capabilities and needs, contributes to his erroneous choice.

It can be seen that coordination disbalance and strategic disbalance have common principles. If the essence of strategic disbalance is in the potential difference between the sequence of optimal choices at each step from the optimal choice made taking into account all steps at once, then coordination disbalance is discrepancies between the result obtained as a result of the coordinated efforts of all agents and the result achieved by each agent choices the optimal strategy independently from the others. That is, the coordination disbalance in some way can be considered a convolve of the strategic one.

The final list and hierarchy of disbalances is as follows:

Level 0 – incomplete market: supply/demand disbalance

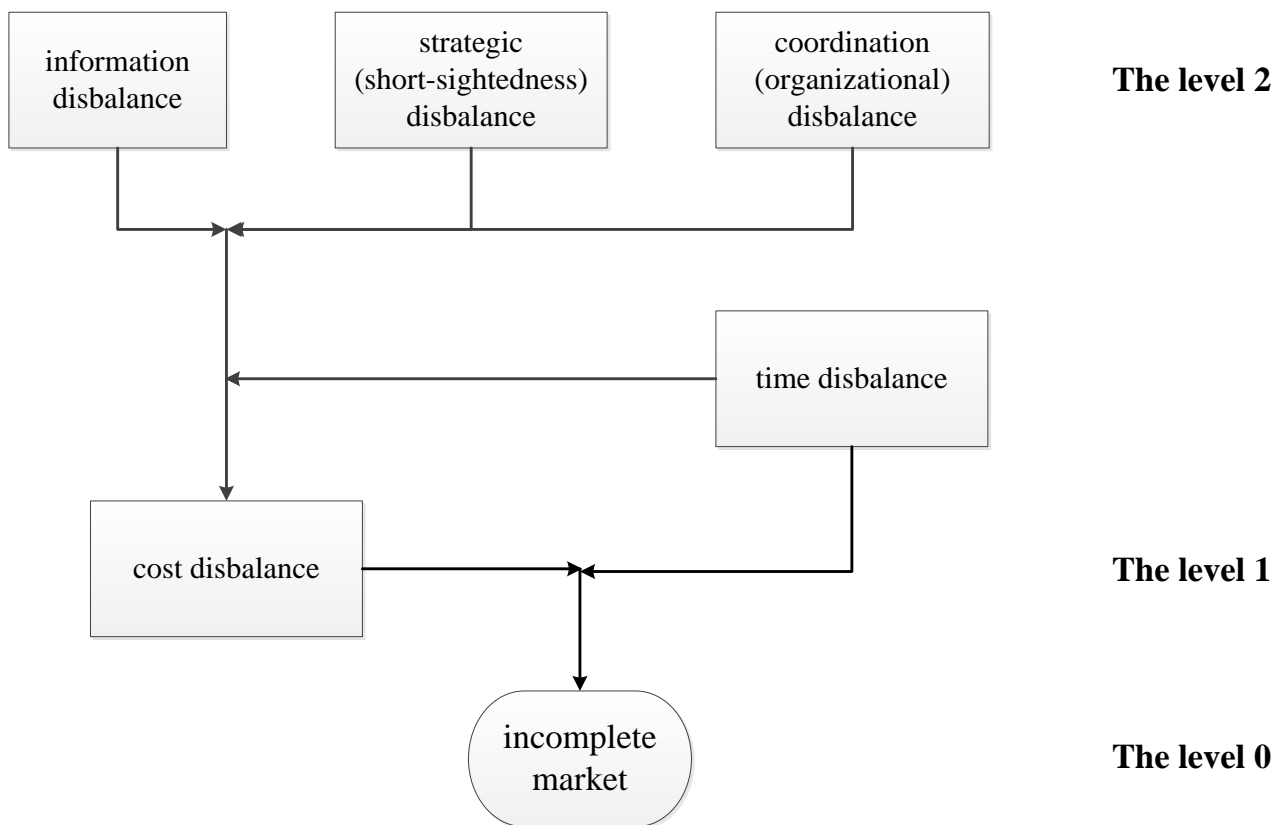
1st level: – cost disbalance

2nd level:

- ✓ 2.1. information disbalance;
- ✓ 2.2. coordination (organizational) disbalance;
- ✓ 2.3. strategic disbalance.

The relationship between the disbalances is shown below (Fig.1):

Fig.1. The relationship between the disbalances



Source: Author's development

Disbalances 2.1-2.3 do not necessarily lead to the formation of inefficient states, in particular, market failures. However, they can lead to the formation of disbalance 1. In turn, disbalance 1 always leads to market incompleteness.

The advantages of the “disbalance” concept of identifying the causes of market failures compared to the classical one are as follows.

1. A more unambiguous mechanism for determining the onset of market failure: since the disbalance is a quantitative scalar indicator, it can be hypothesized that the formation of an incomplete market will lead to their values exceeding a certain limit, i.e., to a discrepancy between the limit values of the balance indicators.

2. Disbalances, fully covering the classic factors of market failures, at the same time allow expanding the range of unfavorable situations, some of which do not fall under the category of market failures, because they are inherent in the vertical relations of the economic agents of the organization.

It follows that the concept of disbalances is a more universal approach that can be applied not only to the identification and evaluation of horizontal Pareto-efficiency that limits any version of the concept of market failure but also to the identification and evaluation of vertical efficiency of the kind that’s different of Pareto.

Conclusion

In the process of the research, the “quantitative” concept was substantiated in the relations of economic agents in market conditions, and the applied value of the proposed concept for the identification of inefficient equilibrium states of economic systems was determined. The conducted research made it possible to draw the following conclusions.

1. The imperfection of the market mechanism of self-regulation is considered a basis for state intervention in market relations. However, the mechanism of intervention is also imperfect, which requires caution, punctuality of regulatory influences, and therefore transparency in the identification of the causes of failure.

2. Among the existing concepts of the formation of norms, institutions, and other equilibrium states, there are few of those whose subject of study is precisely ineffective equilibria. The most famous among them is the concept of market failure. At the same

time, this concept has such disadvantages: incomplete coverage of all possible ineffective states; the complexity of the structure of market failures, which complicates the issue of their regulation.

3. Analysis of the nature and mechanism of action of market failures proved that

- ✓ market failures are interdependent, they have a certain hierarchy;
- ✓ the driving forces of market failures are disbalances in relationships and behavior of economic agents: cost, informational, coordination, strategic and time disbalances;
- ✓ disbalances have a simple quantitative structure, which facilitates possible regulation in order to neutralize market failure.

4. However, numerous issues related to the specifics of formation, identification of inefficient equilibrium states, as well as the need to form an adequate compensatory influence of the state on them in the conditions of a transitional economy, require further theoretical and scientific-practical research.

In particular, the further formalization of the specified behavioral and evaluative characteristics, definitions of efficiency parameters will allow predicting the danger of the formation of similar situations in the real economy, and therefore, prevent this process in advance.

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