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A definition of the concept of economic effectiveness

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Abstract: The concept of economic effectiveness has often been interpreted in an ambiguous manner. There is no clear definition of it in the literature. Individual authors place stress on different elements of this concept. There are also different measures of effectiveness. This article aims to make the concept of economic effectiveness more precise.

Keywords: Effectiveness, rationality, efficiency, productivity.
JEL: D2, H21

1. Introduction

Many academic disciplines are concerned with the idea of effectiveness, e.g. cybernetics, praxeology, the theory of organisation and management, political economics and industrial economics. The concept of effectiveness is often used in economics to describe phenomena occurring in the process of managing limited resources. Effectiveness is not an unambiguous concept, since there exist words with very similar meanings to the term “effective”, such as: rational, efficient, productive, economic, economical or optimal (Czechowski 1997: 11). This obviously applies to many languages. This article attempts to give a clear definition of economic effectiveness.

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2. Effectiveness

The word effectiveness is derived from the Latin word *effectivus,* meaning efficacy. The Polish dictionary of terms adopted from foreign languages describes the word *efektywność* as a synonym of the following terms: positive result, efficiency, efficacy, functionality (*Słownik Wyrazów Obcych* [Polish Dictionary of Foreign Terms], 1995: 269). One can also meet many definitions in various Encyclopaedias e.g. in *Encyklopedia Popularna PWN* (The Household Encyclopaedia) (http://encyklopedia.pwn.pl/haslo/efektywnosc-ekonomiczna;3896625.html, 29-09-2014), where (economic) effectiveness is defined as: "*the effect relative to the input of a production factor or set of production factors".* A similar definition can be found in *Słownik Języka Polskiego* (Polish Language Dictionary) (1996: 484), where effectiveness is defined as follows: *"Economic effectiveness is the result of business activity, determined by the ratio between the output obtained and the inputs"*. One can find a somewhat expanded description in *Popularna Encyklopedia Powszechna* (The General Household Encyclopaedia) (1995: 21): *"Economic effectiveness is a means of measuring the efficacy and purposefulness of a given business activity given by the comparison (ratio) of the value of the obtained effects to the factors invested in order to achieve them".*

In the specialist economics literature, the definitions of effectiveness have a similar character. The book „*Ekonomika i analiza działalności przedsiębiorstwa"* (Economics and the Analysis of Business Activities) by L. Pasieczny and J. Więckowcki (1987: 14) describes effectiveness as: „*...the ratio between outputs obtained and the necessary inputs used to achieve those outputs"*. On the other hand, A. Melich (1980: 17) defines it as: „*...the ratio of effects to inputs"*. J. Penc gives a more extensive definition of this concept in „Leksykon Biznesu" (The Business Lexicon) (1997: 100): „*economic efficiency – the result of the activities of a given business or enterprise which is given by the ratio of the output obtained to the inputs used. In its broader meaning, effectiveness means obtaining the best possible results in production, i.e. the distribution of goods and/or services at the lowest possible cost"*. In other words, an enterprise exhibits economic effectiveness by optimising the process of selecting inputs and acting in such a way as to achieve optimal results given the market prices of both products and inputs (Ćwiąkała-Małys, Nowak 2009: 169).

The definitions of effectiveness presented above stress the ratio between inputs and the outputs obtained by using these inputs. Effectiveness is most commonly understood as a firm acting in such a way as to maximise the output given certain (constant) inputs – this is the so called productivity formulation. In addition, there is the cost formulation, where a given output is achieved at the lowest possible cost (Blaik 1998: 29-32, Matwiejczuk 2000: 27). From the definitions of the concept of effectiveness given above, one may conclude that certain conditions must be satisfied in order to state that a business activity or phenomenon is positive, namely (Czechowski 1997: 13):

- both the inputs and outputs must be measurable,
- there must be a "common denominator", i.e. both the input and output must be expressible in terms of a single unit, e.g. in monetary terms.

This problem is often ignored by many authors when trying to make an academic definition of the concept of effectiveness. They concentrate purely on the relation between inputs and outputs, while passing over the problem of measuring them both.

One can measure effectiveness both *ex ante* and *ex post*. *Ex ante* effectiveness is based on identifying and estimating both the output achieved and input required in a given time period in the future. This analysis, however, relates to an uncertain future and therefore is subject to a high degree of inaccuracy. *Ex post* analysis of effectiveness is based on estimating the input and output from activities carried out in the past. The accuracy of this approach is much greater, since it refers to activities which have already been carried out (Penc 1997: 100).

One may distinguish between two concepts of effectiveness in the literature: goal-based and systemic. The difference between these two approaches is given in Table 1.

Table 1. Interpretations of goal-based and systemic effectiveness

Fundamental characteristics	Goal-based approach	Systemic approach
Proposers of given approach	T. Kotarbiński, L. Krzyżanowski, J. Zieleniewski	O. Katz, R. Kahn, D. Yuchtman, R. Seashore
Basic assumptions	- achieving goals is the starting point of the activities of a firm, - management should make decisions so as to achieve the stated goals at the lowest possible cost.	- the resources (understood in a wide sense) required by a firm to survive and develop are limited, - firms are open to the surrounding environment, striving to maintain the identity, while at the same time aiming to develop and optimise the processes for obtaining and using resources, in order to gain and maintain a competitive position

		with respect to other players in the market.
The essence of effectiveness	- effectiveness is measured by the efficacy of a firm (in achieving its goals) and efficiency in using resources (achieving a given ratio of outputs to inputs) - the essence of effectiveness is understood from the point of view of three elements: goals, effects, inputs	- effectiveness is measured by the ability of a firm to overcome difficulties resulting from variability in the firm's situation and to shape characteristics of the market to both favour the organisation and improve its ability to gain and utilise the necessary resources - the essence of effectiveness is understood from the point of view of three elements: inputs, the transformation process and effects
Procedure for assessing effectiveness	Stage I- determining the degree to which the firm's goals have been achieved Stage II- determining the level of utilisation of resources (efficiency)	Stage I- determining the ability to obtain the appropriate resources Stage II- determining the level of utilisation of resources
Criteria for measuring effectiveness	- efficacy: achievement of the firm's goals to the highest possible degree - efficiency of resource use based on: a) profit margin – maximizing the absolute difference between outputs and inputs b) profitability – maximizing the ratio between outputs and inputs	- ability to obtain the maximum (required) amount of resources, measured in absolute or relative terms (compared to the largest competitors) - internal efficiency of the firm (inverse of the transformation costs, loss of energy at the output of the system relative to the energy at the start of the system)
Examples of efficiency measures	- degree of achievement of the set goal (assuming that it can be achieved in degrees) - profit - efficiency, productivity, profitability	- obtaining a set amount of resources compared to other players in the market (including competitors) - maximising the income from the utilisation of resources

Source: (Matwiejczuk 2000:28 cited in Bielski 1997:103- 112; Blaik 1977, 1998: 29- 32, Grzesiak 1996: 56- 62).

The fundamental difference between the goal-based and systemic interpretations of efficiency is that the first accentuates the goal of the actions carried out (utilisation of resources) within a firm/organisation, whereas the second treats the firm/organisation as a system with similar properties to a living organism. According to this second approach, effectiveness is understood as the ability of such an organism to obtain resources from the environment and utilise them in order to function and develop. According to the goal-based interpretation, effectiveness is understood from the point of view of achieving goals (efficacy) and the way in which resources are used (efficiency).

The criterion for assessing effectiveness using the goal-based interpretation is the efficacy of a firm's activities in the sense of maximising the level of agreement between the effects and the firm's goals and the rationality of the utilisation of resources according to two measures: profit and profitability. Profit should be understood as: *"...the difference between the value of the* *output (of the firm's activities) and the inputs used"* (Bielski 1997: 105). Profitability should be understood as the: *„...ratio of the output to input"* (Bielski 1997: 105). On the other hand, under the systemic approach, the criterion for assessing effectiveness is the ability of a system (organisation) to obtain the maximum level of resources in relation to the industrial sector as a whole or to the largest competitors, as well as the internal efficiency of the organisation , interpreted as the inverse of the transformation costs. These costs may be understood as follows:*"...a loss of energy resulting from the fact that the energy at the outputs is always lower than the energy inputted into the system"* (Bielski 1997: 110). Effectiveness understood in this way is related to the realisation of the (long-term) goals of a firm, namely survival and development, and not the degree to which goals, often difficult to precisely define, are realised (the goal-based approach).

Z. Sadowski points out that effectiveness can be an appropriate measure for human activity only at the microeconomic level. This is due to the fact that at the macroeconomic level there are multiple goals, of which only a certain proportion can be expressed in material form, i.e. both inputs and outputs can be measured numerically. In addition, it is not possible to objectively compare inputs and outputs in non-profit organisations, e.g. in education, as well as foundations and societies of various types (Sadowski 1980: 88).

The problem of defining effectiveness is not a purely theoretical one. It relates to real world situations – activities carried out in a defined place based on a given technology and within a given time period. Effectiveness measures thus describe individual organisations (the microeconomic effectiveness of an institution) or certain processes within an organisation e.g. logistics (the effectiveness of a process), or even a defined group of firms (mezzo- and macroeconomic effectiveness) (Czechowski 1997: 15). The relation between the effectiveness of individual firms and macroeconomic effectiveness, e.g. of a society, is of particular interest. What is effective at the level of an individual firm (profit making) is not necessarily effective at the level of a society. The activities of a given firm may cause large external costs, e.g. via environmental pollution having negative effects on local inhabitants. Hence, it is difficult to describe the effectiveness of a society. From this point of view, the effectiveness of a firm can be measured objectively, the efficiency of a society can only be measured subjectively (Czechowski 1997:16).

It is also important to differentiate and compare the concepts of effectiveness in resource utilisation, effectiveness of production and labour effectiveness. Effectiveness in resource utilisation is the widest of these concepts, since it relates to the process of utilisation in its wide sense in various dimensions: the national economy, an industrial sector or a given firm. It also involves assessing the processes occurring in various functional departments of an organisation, e.g. the effectiveness of logistics, management, marketing, supplies. On the other hand, aggregating the concept of economic effectiveness to a set of processes simply involves the relationships existing between the outputs (i.e. total production) and the inputs involved in their production. Labour effectiveness is the narrowest of these concepts, since it is given simply by the ratio of output (according to various measures) to the inputs used to produce them using human and capital assets (Czechowski 1997: 16).

Many concepts in the literature have a similar definition to the idea of effectiveness, such as: utilisation of limited resources, rationality, efficacy, profitability, productivity. These concepts require a more precise description and interpretation. Resource utilisation involves the process of producing goods and services in its widest sense. This covers decision making regarding the definition of goals, as well as the means and conditions in which they are realised. These decisions relate to material, human and financial resources understood in their widest sense. Hence, the following are crucial elements of this concept: goals, the resources required for their utilisation and the appropriate distribution of resources among these goals (Czechowski 1997: 12).

„Nowy Leksykon PWN (A Modern Lexicon)" (1998: 1439) gives the following definition of rationality: *„rationality: a trait of conscious human activity based on choosing the appropriate means to achieve set goals"*. T. Kotarbiński (1973: 139) gives a somewhat different definition of this concept – it is an ideal towards which organisations can strive, but its realisation is almost impossible. In turn, in „Ekonomia Polityczna" (1978: 140) O. Lange states that rationality is economic activity based on logical thinking (necessary to make appropriate decisions). He differentiates between practical and methodological rationality. Practical rationality occurs when: *„...the choice of the means used is appropriate to the real, objectively existing situation, i.e. to real facts, laws and relations"*. On the other hand, methodological rationality means that: *„...actions are rational from the point of view of the actor, that is to say that the logic used to decide on the means of production is correct from the point of view of the* *current knowledge of the actor, regardless of whether his/her knowledge is itself correct”* (Lange 1978: 140). The difference between practical rationality and methodological rationality lies in the fact that in the real world we normally deal with methodological rationality based on a subjective feeling regarding the correctness of a decision, whereas practical rationality is rationality *„…appropriate to the information that the decision is based on”* (Lange, 1978: 140). The rationality of an action is thus based on one’s knowledge about the real world. Rationality has the following properties (Czechowski 1997: 12):

- the rationality of a decision depends on the decision-maker,
- an action that is perceived to be rational by one individual may be perceived as irrational by another individual.

The individualisation of rationality results from the actor making a decision, who is always a single person, even the group’s actions are the “sums” of the actions (decisions) of particular individuals.

Another term which requires a more precise definition is an economically rational action. In „Leksykon Biznesu” (1997: 104), J. Penc describes it as: „...*the quality of an action assessed by comparing the income obtained by achieving some goal with the costs of those actions”*. On the other hand, T. Kotarbiński defines economic rationality purely in terms of a decision being economical and efficient.

A very important question in praxeology – the theory of effective actions, is the association between productivity and effectiveness. O. Lange (1965:24) states that productivity is ga relationship defined by natural measures. J. Penc (1997: 341) has a similar approach, defining productivity as: *„…the ratio between a measure of production and a measure describing one or more factors used in the production process”*. From this point of view, effectiveness is a wider concept, because it covers the relation between numerical measures of production and the inputs, but also wider concepts such as service and finance (Czechowski 1997: 140).

Another important problem in this area is to describe the relations between the concepts of effectiveness and optimality. A state is said to be optimal when: „...*the objective function achieves an extreme point (either minimum or maximum as appropriate) given the current constraints”* (Czechowski 1997: 141). Hence, optimality refers to processes that are the most advantageous in the given conditions. On the other hand, effectiveness only compares outputs and inputs, without any assessment of the value of a solution, as in the case of optimality. It thus seems that the concept of effectiveness should be understood as the ratio of outputs to the inputs (costs) incurred in their production. One clear advantage of such a definition is the wide range of its applications, e.g. to compare the effectiveness of various firms active in an ever changing market.

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EFEKTYWNOŚĆ EKONOMICZNA – PRÓBA ZDEFINIOWANIA POJĘCIA

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Słowa kluczowe: efektywność, racjonalność, wydajność, produktywność.
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