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## **ECONOMIC LONG-RUN UNCERTAINTIES IN THE EVALUATION OF CHOSEN INVESTMENT VARIANT**

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**Abstract:** *Investment variants as an established way of proposing feasible as well as technically and economically justified solutions always refer to scarcity, i.e. rarity of necessary resources and their substitution, but also to cost efficiency of the investment decision, which is, as it is known, made in the present for an anticipated and, quite surely, uncertain economic future. Economic uncertainty is directly proportional to the length of term because the area of certainty is constantly narrowed with the extension of the planning time horizon. Under such conditions, almost all engineering-investment methods of evaluation of investment projects must seriously take into account the economic uncertainties resulting from the long-run variability of production input. This paper sets the elements of cost theory in the long run, which always represent the starting point in the evaluation of a chosen investment variant, but some economic uncertainties which, as it is supposed, can significantly derogate assumed and anticipated investment solutions are also analysed. The theoretical aspect of analysed solutions only shows that there is no specific long-run cost theory, but the costs are always regarded as dynamic values in establishing optimum production and optimum exploitation of capacities in a company.*

**Key words:** *investment variant, economic uncertainty, cost efficiency, economic effectiveness*

### **INTRODUCTION**

In business decision-making there are no valid economic decisions without a planning process. It is known that planning is preceded by the process of economic forecasting. Economic forecasting refers to forecasting uncertain and unknown future events, forecasting future and actual economic values, which are of importance for planning the activities of economic subjects. Economic forecasting is a cognitive process of collecting data, their analysis and planning of the activities that may lead to improvement of economic values and efficiency of business operations. So, economic forecasting is not foretelling future economic events, but a scientific and methodological procedure used for planning economic development and

development of an economic unit. The result of the economic forecasting process is assumptions, and the result of the planning process is planning decisions. The assumptions are not subjective evaluations of researchers, but standardised information serving to the process of business decision-making. Business decisions are decisions on objectives, policies, plans and methods (strategies and tactics) of achieving the planned objectives.

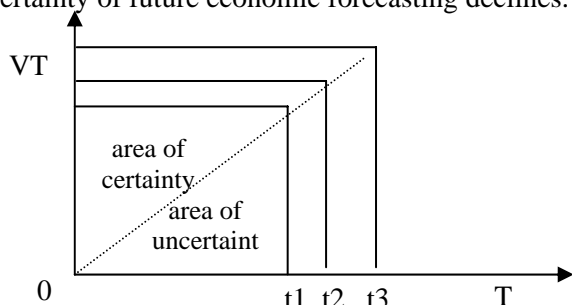
Such a process, however, is not without restrictions. The restrictiveness of the planning process and economic forecasting is seen in the fact that they aspire to consistency, and they are actually defined for the conditions of economic uncertainty. This especially refers to the process of investment decision-making, which, as it is

known, has far-reaching effects on economic growth and economic development.

## 1. GENERAL DETERMINATIONS

The certainty of economic forecasting, and hence of planning itself, relates to limiting the time horizon to which those processes refer. Basically, the future is composed of two components: uncertainty and certainty. The demarcation line between these two components is very flexible and depends on time flow, i.e. the time horizon to which economic forecasting refers [1].

Uncertainty is the function of time flow (T) and time horizon (VT) (Figure 1.1). Time horizon can be bounded by zero (momentary) (0), short (t1), medium (t2) and long run (t3). The biggest certainty of forecasting future events is within the zero run, in which the area of certainty of economic forecasting is biggest; in short, medium and long run, the area of uncertainty approximatively grows bigger, and the area of certainty of future economic forecasting declines.



**Figure 1.1: Structure of future and certainty of economic forecasting**

In the short run, there are a large number of product inputs that are given and fixed. They are: working and technical possibilities of the installed equipment and engaged workers, then, the competitive position of the company on the market, which is determined by its individual conditions of production, the projected product and its modalities, the factors of macroenvironment and economic ambience, the market price of the product offered by the company on the market, etc. That is why the economic models of short run are very simple: a fixed input is chosen, and then, by varying other production inputs, appropriate economic conclusions on the degree of elasticity (response) and influence of an economic value on another one are made.

Long-run assumptions in economic theory are not at all indefinite as it can be wrongly concluded at first sight. The long-run conditions are defined at the moment when the decision on intended production, on capacity building, on expansion of the existing production possibilities or on introduction of new products, etc. is made. The mentioned decisions are of investment character; they presume the use of accumulation, depreciation and credits for achieving any of projected long-run goals of the company. They «choose» some of fixed production inputs (construction buildings, machines and equipment), thus defining future production capacity of the company.

But, such mentioned and simplified treatment of the long run in economic theory is not so easy to apply in concrete economic analyses. Namely, between an investment decision and the completion of realisation (activation) of investment, there must always, regardless of personal engagement of the investor and the contractor, pass a certain time period or investment activation period, which significantly derogates the fixedness and variability of the inputs which have been taken into account in the economic analysis. For example, the effects of procurement of new production inputs, which are shown to be subsequently needed, cannot be known at the moment of making the previous decision on investment, and it, quite understandably, increases the costs and decreases the projected economic effects of the investment. Or, during investment activation, there may arise the costs which cannot be changed in relation to the projected scope of production as well as the costs which can significantly change that scope of production.

## 2. CERTAIN ELEMENTS OF LONG-RUN COST THEORY IN INVESTMENT ACTIVITY

So, in the long economic run, not only the costs but other significant economic categories as well gain quite different treatment. One can be reminded that in the short run the predominant number of production inputs has a fixed character, while in the long run their fixedness is relativised, so that the predominant number of production inputs is treated as a variable value.

The investment decision chooses the investment variant, i.e. the solution of a production task in the company, which is realised with the projected quantity of fixed inputs and with appropriate variable inputs. The fixed input here is the capacity, and it produces certain costs. If it is assumed that there are three possible variants in future capacity building, then it is obvious that the effects of those variants can be measured by average total costs, which are obtained when the total (calculated) costs of capacities (in different variants) are divided by the assumed scope of production enabled by those variants. The graphical presentation of such an illustration is given in Figure 2.1 [2]:

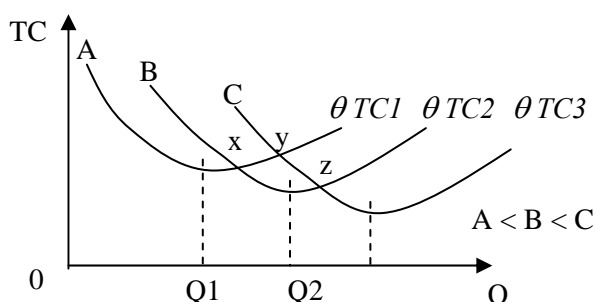


Figure 2.1: Selection among different production capacities (on the basis of average total costs of capacity building)

The three curves of average total costs ( $\theta TC1$ ,  $\theta TC2$  and  $\theta TC3$ ) for the three production capacities A, B and C show three possible investment variants: the capacity A is smallest, B is bigger, and C is biggest, which is shown by the realised scopes of production. But, practically, there may occur mutual coinciding of average total costs of the mentioned three capacities at the points x, y and z. The possible scopes of product sale are defined by Q1, Q2 and Q3. If Q2 is the selection of possible scope of sale, then it is obvious that the most favourable investment variant from the aspect of average total costs is the variant B, because it has the lowest average total costs for the selected scope Q2. The variant A has somewhat higher average costs, and the variant C has considerably higher average costs for the selected scope of sale Q2.

The graphical presentation 2.1 really represents a «set» of short-run average total costs. But, if the lowest points of each curve of average total costs are graphically linked, the «common» long-run average total cost curve term will be obtained. It can be well presented by Figure 2.2.

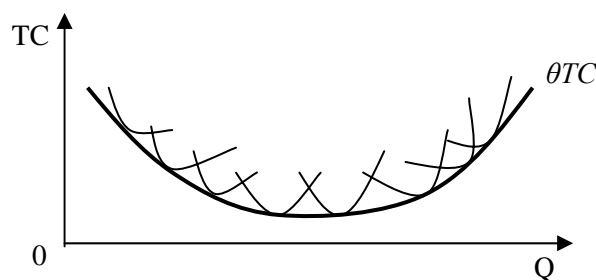


Figure 2.2 Long-run average total cost curve

The obtained long-run average total cost curve [3] shows all positive and negative effects of capacity exploitation. As it is seen, the long-run average total cost curve shows a downward tendency up to a certain point, and after that it shows the upward tendency. In the first part of the long-run average total cost curve there occur positive effects of increasing the degree of capacity exploitation or positive effects of economics of scale. This happens because the investment expenditures do not increase proportionally with the increase in capacity, and therefore fixed costs for bigger capacities will not increase proportionally with the increase in the scope of production, but they will decrease. In addition to this, savings in variable costs due to better exploitation of material and work is achieved in bigger capacities, because modern technique and technology are applied in bigger, not in smaller capacities. Big capacities also have specialisation of production, which altogether contributes to reduction of average total costs in them.

But, the mentioned effects of economics of scale are not eternal. Restrictiveness of effects of the economics of scale result from the quite practical fact that better exploitation of capacities will really reduce average total costs, but only up to a certain limit, and after that, any further increase in exploitation of capacities will lead to negative effects of the economic of scale (diseconomies of scale), i.e. to the increase in average total costs. It is unambiguously proved by the graphical presentation 2.2.

#### 4.CERTAIN CONCLUSIONS FOR THE CONDITIONS OF ECONOMIC UNCERTAINTY

Under conditions of economic uncertainty, cost theory, as it could be concluded, is not static or quantitative-statistical summing up of costs of

production in a company, although that effect of cost theory should not be neglected at all. Modern cost theory has the following economic tasks [4], which make it significantly different from simple recording and calculation of costs.

Firstly, in its cost analysis and cost management, a company, regardless of its size, is not treated as a single and inseparable whole. On the contrary, every part of the company is treated as a separate unit, and each part of the capacities (plant, work post) as an independent cost place (point). This allows easier and faster recording, calculation and elimination of certain costs, thus reducing the product cost price. Secondly, modern cost theory does not explain cost dynamics only from the position of degree of capacity engagement, which was the subject of the traditional theory. Really, an economic value (capacity), regardless of its significance for economic theory and economic practice, cannot in any case be sufficient for considering the complete cost dynamics. Each element of the total costs of a company and each element of the cost price have the potentials for increasing the quality of business economy, so it should be analysed in that way. [5]. Thirdly, the amount of costs in a company is not just an objectively given value, but it depends on other, subjective and seemingly distant factors as well, which apparently do not have any close relations with the costs. The amount of costs is significantly influenced by: the quality of all production inputs, the engagement of technical and working input and their purchase price, then the size of the company and its production programme. The quality of production inputs understood in the sense of acquired technical characteristics and qualification capabilities significantly contributes to decrease of costs: the better the quality of production inputs, the bigger their production capability, and hence, the lower the material costs realised by their use. Engagement of production inputs also determines the amount of costs. Some inputs must be entirely engaged regardless of the outcome of the production result. Increase in the quality of business economy (read: achieving of a better

financial result of a company) by complete exploitation of production capacities is one of the most important elements in modern cost theory. This is even more stressed if the purchase prices of production inputs are high.

The size of a company is not always constant, and especially not in cost dynamics. But, the size of a company considerably determines the amount of costs and their structure, and hence their dynamics. Namely, cost dynamics is different in big, medium and small production companies. The production programme, selection and differentiation of products significantly determine that dynamics, scope and structure of costs.

Modern cost theory represents one of the most important fields of activity of a company management. Management of processes, information, people, capital and time is possible in different ways. Modern cost theory suggests the following economic criteria to the management of a company [6]: adaptation to the law of returns, time adaptation of processes, quantitative adaptation of inputs, and intensity adaptation of labour. Behind each mentioned economic criterion there «lies» the economics of costs – its dynamics and cost management.

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## ДЪЛГОСРОЧНА ИКОНОМИЧЕСКА НЕСИГУРНОСТ ПРИ ОЦЕНКАТА НА ОПРЕДЕЛЕН ИНВЕСТИЦИОНЕН ВАРИАНТ

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**СЪРБИЯ**

**Резюме:** Като един от установените начини за предлагане инвестиционните варианти, прилагани и като техникоикономически обосновани решения, винаги са насочени към недостига, т.е. към недостига на необходими ресурси и тяхното замаяна, а също така и към ефективността на инвестициите. Както е известно, тези решения се вземат в настоящето, но се отнасят до очакването и в значителна степен несигурно икономическо бъдеще. Икономическата несигурност е право пропорционална на продължителността на периода, тъй като зоната на сигурността постоянно се стеснява при удължаване на планираното време. При такива условия почти всички инженерно-инвестиционни методи за оценка на инвестиционните проекти трябва значително да бъдат съобразени с икономическата несигурност в резултат на дългосрочните промени на влаганата продукция. Докладът разглежда елементи от теорията за производствените разходи в дългосрочен план, които винаги представляват отправна точка при оценката на определен инвестиционен вариант. Анализира се и икономическата несигурност, за която се предполага, че може значително да накърни предвидените и очаквани инвестиционни решения. Теоретичният аспект на анализиранияте решения показва, че няма специфична дългосрочна теория за производствените разходи, а те се разглеждат винаги като динамични стойности при определяне на максималната продукция и максималния експлоатационен капацитет на компанията.

**Ключови думи:** инвестиционен вариант, икономическа несигурност, рентабилност, икономическа ефективност.