DETERMINATION OF THE ECONOMIC GROWTH RATES BY THE GROWTH QUALITY

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Each specific economic growth rate indicates relevant characteristics of current development, but also reflects the chances for achieving satisfactory future growth rate. Therefore, it is about a general interdependence and law of growth rate convergence. The main objective of this paper is to show that substandard growth could, sooner or later, result in the economic slowdown, and that the temporary growth acceleration can be achieved at the expense of the long-term growth rate. Scientific instruments applicable for achieving this research goal are the method of scientific analysis, historical method and the method of comparative analysis, as well as a number of techniques in the form of modern information resources. A key result of this paper is that all growth rates of endogenous production factors, without increasing the efficiency of resource use, are converging to the arithmetic mean of exogenous production factors growth rates. Therefore, the growth rate can be significantly increased at the expense of its quality and the substandard growth contains the „germs of its own limiting".

Keywords: growth rate, convergence, efficiency, growth quality, growth rates interdependence

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INTRODUCTION

The view of economic development as an extremely complex and multidimensional phenomenon seems standard and somewhat trivial. Attempts to measure it face major conceptual and methodological difficulties and differences in application and interpretation (Average Annual Growth Rate: www.investinganswers. com). Some aspects of the development are completely immeasurable, others are partially measurable, whereas some of them allow so much freedom and arbitrariness that in some cases they would be better if left unmeasured. Certainly, an important element of economic development is economic growth. Economic growth means the growth of production, production capacities, and all other segments of an economy. Economic growth is an increase in the total output of an economy. The pace of economic growth is mainly measured and expressed by a growth rate. However, growth rates, as development indicators, contain a number of limitations:

- they are calculated on the basis of initial data of a varying quality and authenticity;

- they are sensitive to the range and depth of structural changes;

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- statistics offer plenty of opportunities for the manipulation and modification of officially presented data, based on which growth rates are calculated;

- empirical results point to a link between the level and pace of growth, so that growth rates are not comparable when considering countries with different levels of development;

- different technological solutions and the experience of some countries make growth rates incomparable;

- some countries may have relatively high growth rates, which points to the fact that development reserves are depleted;

- growth rates, as figures, do not point to the quality of growth, so that quality, as an enormous, but immeasurable area, remains in the shadow, although it stands for an important aspect, as much as quantity does.

The main objective of this paper is to show that extensive growth (based on labour and natural resources) contains germs of its own limitation, reflected in the depletion of exogenous sources of growth. Therefore, the quality of growth must also be taken into consideration (Denison, Jorgenson & Grilichers, 1972, 157). An analysis of the quality of growth is particularly important in conditions of a rapid economic expansion, when favourable conclusions are easily drawn. However, a high rate of growth is not a guarantee of its quality. The second objective of this analysis is to show that substandard growth is expressed as a limiting factor to the growth of production in the future, because of the temporal interdependence of growth rates. Nevertheless, if an economy achieves rapid growth in the long run, there are grounds for assuming that such growth is of a high quality (Mawson, 2002, 432). In addition, an analysis of economic growth is long-term by nature, so that in the course of analyses of shorter periods, the temporal interdependence of growth rates must be taken into account.

Based on the methodology of calculating growth rates and the above limitations, two hypotheses can be established:

H1: Growth rates observed in different periods are temporally interdependent, and determined by the quality of growth;

H2: In conditions of extensive growth, there is convergence of growth rates.

The hypotheses, seemingly indisputable, become quite acceptable when taking into consideration explanations based on economic theory and some practical results. Moreover, the hypotheses raise a number of issues relevant to the institutional solutions and economic policy measures of virtually every economy, and in some areas they have become part of the fundamental economic knowledge. Since the defined hypotheses have a theoretical and methodological character, this study relies on a number of scientific methods. However, the subject of the research predominantly focuses on the application of the methods of a scientific analysis, the historical methods, and the methods of a comparative analysis, as well as a number of techniques in the form of modern information resources.

The defined hypotheses make up the structure of this work in accordance with the basic objectives: the first part indicates the temporal interdependence of growth rates, whereas the second part points to the convergence of growth rates. Both parts of the analysis point to the conclusion on the importance of efficiency, which stands for a key economic problem.

TEMPORAL INTERDEPENDENCE OF GROWTH RATES

The efficiency of economic development is mainly viewed through levels and changes in the pace of growth. However, if an analysis includes changes in the pace of growth, in addition to the level of growth, the overall process is relativized and the resulting scores are ambiguous. It means that the same growth rate can differently be assessed, depending on whether it is preceded by high or low growth rates. It should be noted that any specifically observed rate reflects the relevant characteristics of the current development, but also affects the development conditions and chances of achieving a satisfactory growth rate in the future.

The extent to which a given growth rate is seen as successful depends on the complex overall configuration of growth rates recorded in the previous period. In addition, the output of one period is assessed not only on the basis of the immediate results registered within this period, but also on the basis of the dynamic potential to be transferred to the next period (Growth Rates and Terminal Value: www.stern. nyu.edu/.../growthandtermvalue.pdf). Therefore, it is necessary to assess it on the basis of the extent to which it has prepared the ground for the realisation of favourable future growth rates.

In a specific period, a set of institutional solutions can generate good results, while containing (as a tendency or ability) elements that may reduce future growth rates (Denison & Poullier, 1967, 132-137). Such a set of institutional solutions enables the achievement of high growth rates, but also has a potential to create new solutions that will significantly reduce future rates. At some period, a rapid growth can be forced, while inevitably and drastically reducing development opportunities in the forthcoming period, or even preventing any development. The situation is reversed if the current period inherits favourable development opportunities from the previous period (Denison, 1984, 82). Then, the growth rate from the previous period, if taken as an indicator of success, must be reduced by as much as the development process reduced the chances of achieving a satisfactory rate in the current period. The same logic applies to the future. This interdependence is particularly characteristic of economies characterised by periods of low growth rates, economic stagnation, and a period of relatively (or especially) high growth rates (Komazec i Ristić, 2011, 133).

It often happens that a development policy must for some time turn to difficult, painful and laborious structural and other modifications. To the extent that low growth rates, resulting from such a modification, really set the stage for a successful future development, such growth rates can, despite a moderate level, be interpreted as a significant result of the economic policy. Therefore, the successful development of one period is not independent of the development trends and performance in the past and in the future. It is the „phenomenon of the temporal interdependence of the growth rates achieved in the successive intervals

of the observed period" (Madžar, 1981, 38). Due to general interdependence, each specifically observed growth rate reflects the relevant characteristics of the development processes in the past, and affects the conditions of development and a pace of growth in the future. Low growth rates recorded in some period, among other things, may be the result of high indebtedness, whereas relatively high growth rates recorded in previous periods would be lower if they did not increase at the expense of the current (low) rates.

It is possible to imagine the development process in which growth rates are the sole result of the measures and steps taken in that period only as an ideal and hypothetical model, but under highly restrictive assumptions. In that case, under highly unrealistic assumptions, growth indicators would be obtained in a form of growth rates, which would be interpreted as indicators of the development in the observed period, regardless of the period preceding and following it. In reality, there are no such cases, especially not in the economies exposed to a number of exogenous shocks, sudden and numerous political reversals, and an arduous process of institution building.

The mechanism of the temporal interdependence of growth rates is very complex, and acts through specific (sometimes independent) loops of macroeconomic aggregates. The following can be determined as the basic mechanisms:

- foreign debt,

- import dependence,

- change in the structure of investments,

- erosion of capital in inflationary conditions,

- costs of exploitation of natural resources and depletion of stocks, and

- interdependence of institutional solutions.

Foreign debt

In a certain period, investments can rapidly increase if the economic policy is focused on the strategy of intensive borrowing. In view of the growth of

production, growth rates would increase, but this is not a sign of a successful economic policy. That growth of production is a result of the resources coming from other economies. When the inflow of foreign funds is exhausted, and there is a phase of debt repayment, the investment potential of the economy decreases rapidly, and growth deceleration occurs, as a result of the contrived and foreign funded (previous) acceleration or the reduction of a future development potential (Relative Rates of Growth: www.math.psu.edu/files/141rates1.pdf.

If, in addition, the borrowed funds are badly used, it further reduces the overall effects. To illustrate these effects, neither the model nor imagination is needed, but rather an insight into what is happening in our economy (The Statistical Office of the Republic of Serbia, 2013, Current Growth Indicators). The conclusion is that a low growth rate is affected by excessive indebtedness, and that growth rates in some prior periods could have been far below if they had not increased at the expense of the current, low rates.

Import dependence

Empirical data show that some economies have been highly dependent on import for decades. In such conditions, the volume of production and the growth rate significantly depend on the level of import. In that case, the acceleration of growth is achieved due to the improvement of the supply of imported goods, which is provided by the depletion of foreign exchange reserves. It usually happens that a decrease in foreign exchange reserves coincides with an increase in inventories of imported raw materials. However, such a depletion of foreign exchange reserves creates assumptions for an inevitable slowdown in the pace of growth in the future. A possible revival of growth dynamics in such circumstances has to wait for the renewal of reserves.

Change in the structure of investments

Various investment projects have different sets of actual and expected results. Some projects produce results in the current year, while the majority of others have small effects in the current year, with larger positive effects in a three-year or five-year period. It is clear that a number of different sets of projects can occur in any given period, with the same volume of investments, resulting in a different growth of production, which implies different growth rates in different periods.

In order to illustrate the idea of the temporal interdependence of growth rates, all investment projects can be classified into two groups: the first group includes projects that generate most of its results in the current year and years around the current year; the second group includes projects whose maximum effects are achieved over a relatively long period of time. It is clear that many different combinations of projects with a different volume of investments and different results are possible, and in certain periods, different combinations of projects with the same volume of investments provide significantly different results (Gligorić, 2013, 112). Results can range from practical stagnation to a sudden increase in production in the same or different time intervals. It will, of course, affect the growth rate in other periods, more or less remote from the observed period.

A special form of temporal interdependence in the pace of growth are the differences in the activation periods of individual projects, as well as a varying number of unfinished projects continuing from one period to another. If there is a great mass of unfinished projects that the given period inherits from the previous one, and if the distribution of the time of the completion and the time of the generation of results is favourable, it is likely that high growth rates will be achieved in the observed period. However, such growth rates are not the result of the efforts and policies of the given period, but rather a kind of inheritance or a gift, carried forward from the past. Nevertheless, a reverse situation is possible as well: investments in the current period and an increase in the mass of unfinished projects, in order to increase a future growth potential. In that case, the current growth rate will be reduced to some extent, but the measures and steps taken will be valorised in the future through higher growth rates in the period to come.

In addition, some investments do not provide high current effects. Moreover, in respect of investments in the infrastructure, there are no direct effects at all.

These investments, however, generate a multitude of indirect effects in the long run, particularly by increasing possibilities for doing more efficient business (cheaper and faster transportation, better communication, developed and reliable information systems...). Moreover, they reduce the cost of a wide range of economic activities as well as the economy as a whole. When these investments result in „savings", future operating costs are much higher than they could reasonably be expected, and the economy, through increased running costs, pays a high interest on the funds „borrowed" from the infrastructure activities and invested in direct production activities with fast and short-term effects. In addition, the costs of the inefficient functioning of the system are always high, but largely invisible and immeasurable in operational terms. They exhaust the economy and the population, and thus reduce the economic potential, practically reducing the available funds and preventing the effective use of the decreased investment potential.

Erosion of capital in inflationary conditions

The erosion of capital in inflationary conditions is an interesting mechanism of the interdependence of the pace of growth. As practice unequivocally shows, an invisible erosion of capital occurs in inflationary conditions, non-observed in terms of accounting.

In inflationary conditions, the reported domestic product is overrated because an invisible decrease in social capital is expressed as a supplement to the domestic product (Komazec i Ristić, 2009, 118). This is how growth rates are deformed. For example, the calculation of depreciation, which does not allow for the maintenance of the net value of capital, contributes to the overrated value added at the expense of social wealth. An underrated price index contributes to an overrated quantity index, and thus, ultimately, to an overrated growth rate.

The erosion of working capital is very characteristic. Under inflationary conditions, the logic of the calculation and maintenance of the nominal value directly results in the insufficiency of the same or greater financial resources for the reconstruction of real working capital, required for the smooth flow of reproduction.

Costs of exploitation of natural resources and depletion of stocks

It is a well-known fact that natural resources are virtually not measured and expressed through the existing system of accounting. The reported domestic product does not reflect the quantity of irreversibly consumed non-renewable resources. Over time, for example, certain ore deposits are depleted, while less accessible and expensive deposits are exploited, which reduces the domestic product and the pace of its growth. This especially applies to the quality of investment goods, where cost savings, achieved at the expense of quality (in a negative sense), are several times compensated by higher operating costs. Poor quality raw materials and production materials also mean higher costs, as production is more difficult, delays in production are more frequent and longer, and there are possible technological complications. At the same time, the previously reported gross domestic product and the pace of its growth would obviously be overrated because of ignoring the cost of the exploitation of scarce resources. Of course, these deviations are entered in the calculation of growth rates.

The impact of this mechanism on the growth rate could be eliminated if there were a bookkeeping way to determine the costs of non-renewable natural resources and to reduce the calculated added value by their amount.

Furthermore, if deposits discovered in the past are used, without investing in the discovery of new deposits, investments are reduced and realised effects are obtained at the cost of reducing a development potential in the future, when the economy finds itself in a situation that it cannot replace depleted deposits. This means that the allocation of investment funds in exploration and exploitation directly affects the choice of the time profile of the growth rate in certain periods (Hansen & Hodrick, 1980, 829-853).

For an analysis of short-term fluctuations in growth rates, the level of capacity exploitation is relevant

as well. When production is at its full speed, in the upward phase of the cycle, an increase in the degree of capacity exploitation is evident. However, such an increase cannot be extended indefinitely if reserves become depleted. The same effect occurs in the case of the depletion of stocks.

Interdependence of institutional solutions

The development performance of an economy in different periods is interrelated. Links between them are established through institutional changes, and the way in which one set of institutional solutions derives from another, previous set. Interactions between individual institutional solutions are very complex and not suitable for an accurate analysis, so that their strict propositions cannot be identified (Petrović, Bajec, Živković, Arandarenko, Arsić, i drugi, 2010, 98). However, their existence and the significant consequences of their actions are verified.

The principle that stands for the basis of institutional interdependence is very simple. A particular set of institutional solutions can in a given time period be very functional and generate very good results. However, it can contain in itself (as a possibility or tendency) the elements of new solutions that, once enshrined in the regulatory system, can significantly reduce development performance, even the performance expressed through the growth rate. The topicality of this issue is further increased by the fact that, in a given period, some economies reached growth rates that were (at the time) among the highest in the world, which economies, in recent decades, have faced stagnation and a crisis of growth (Rikalović, 2010, 128). Growth faces a slowdown, growth rates at times enter the zone of negative values and the qualitative indicators of development processes show an increasing inferiority compared to developed economies.

The questions which ought to be answered are: How could it happen that essentially the same systems were successful in certain periods and then very unsuccessful? Is it possible that almost the same institutional mechanism shows high efficiency in one and a very poor performance in another period? How much can a set of institutional solutions and

instruments be regarded as successful if it enables the achievement of high growth rates and also has a potential or a tendency to produce solutions that inevitably lead to a future reduction in the growth rate? Institutional interdependence, as the basis for successful development in a given period, can condemn future development efforts to failure.

The system learns within time and over time (Madžar, 1990, 153). The process of adaptation to new institutional conditions also requires time and involves a sufficiently long transitional regime, within which regime efficiency falls far below the usual and standard levels. In fact, in this case, there appears to be one additional mechanism of the temporal interdependence of growth rates: delayed changes prevent disruptions and the slowdown of growth, but the system as a whole becomes more ossified and sinks more into the current institutional framework. Practically, delayed changes close a long-term perspective of development. It is yet another mechanism by which the long-term growth rate is sacrificed in order to preserve its relatively high level in the short term (Publishing OECD, 2012, 326). Partial and/or incomplete changes leave room for future disruptions and new iterations of institutional adjustment. Serious changes are only approached when they become unavoidable and urgent, and as such, they do not reach the final causes – they rather remain on the surface, at the level of the perceived problems. Material trends are the result of institutional mechanisms, so that institutional determinants have a character of the fundamental and, for economists, final causes, whereas material factors have a character of derived factors. In addition, the institutional framework can only be evaluated by the results generated by the economic system as a whole, and the institutional framework is only one of the determinants of the total economic output, so that it is almost impossible to distinguish the contribution of the system from the contribution of other determinants.

Therefore, there is a number of resources and reserves of growth that can be depleted in a given period, at the expense of the future (Chan, Karceski, & Lakonishok, 2002, 108). Therefore, it can be concluded that the perception of growth rates (as development indicators) depends on the general constellation of developmental performance, especially on the rates achieved

immediately after the observed period, which proves Hypothesis H1. The perception of growth rate (and other indicators to which the same arguments apply) depends on the general constellation of developmental performance, especially on the rates achieved before and immediately after the observed period. It is obvious that among growth rates at different times there is a very complex, subtle, but realistic and influential relationship of interdependence, which makes it inappropriate to treat any growth rate in isolation. It also means that development processes require an integrated approach and a comprehensive analysis.

Therefore, the success of economic growth in any period cannot be measured by the growth rate reached only during this period, given the temporal interdependence of growth rates. Growth rates and other development indicators achieved in a period should be very carefully treated and with a lot of qualifiers, as a result of development and institutional efforts from the observed period. Because of the temporal interdependence of growth rates, each of them has deep roots not only in the immediate but in a distant past as well (Definition of 'Economic Growth Rate': www.investopedia.com/.../Economicgrowthrate. as...).

CONVERGENCE OF GROWTH RATES

The past practice has shown that extensive growth contains mechanisms for own limitation, which are based on the depletion of the exogenous sources of growth (Madžar, 1990, 307). Once these resources are depleted, growth faces a slowdown, with a tendency towards economic stagnation. Extensive growth is based on depletable sources, and once they are depleted, a growth crisis is imminent. This points to the aspect of the interdependence of the individual components of extensive growth, which sooner or later lead to its slowdown. This interdependence arises in the sphere of a purely physical relationshi This means that the systems unable to generate an increase in efficiency (global productivity) can only achieve lower capital growth rates and, due to convergence, a lower output growth rate (Madžar, 1990, 152).

As a consequence of convergence, in the long run, the growth rate of the domestic product is equal to the capital growth rate. As a result, the incremental capital-output ratio ($\bar{k}$) has a constant value. In the short term, these rates may differ from the marginal capital-output ratio (k). It can easily be proved by the simple Harrod-Domar growth model.

If the investment I(t) equals the accumulation S(t), and if S(t) = s • Y(t), it follows:

$$r_K = \frac{I(t)}{K(t)} = \frac{s \cdot Y(t)}{K(t)} = \frac{S}{\bar{k}(t)} \qquad \text{and} \qquad (1)$$

$$r_Y = \frac{Y(t)}{Y(t)} = \frac{Y(t)}{I(t)} \cdot \frac{I(t)}{Y(t)} = \frac{S}{k(t)} \qquad (2)$$

If the rate of accumulation (s) is given and constant, the capital growth rate equals the quotient of the rate of accumulation and the incremental capital-output ratio $\bar{k}$ (1). At the same time, the growth rate of the national income is equal to the quotient of the same rate of accumulation (s) and the marginal capital-output ratio (k) (2). By comparing these equations, it is possible to:

$$r_K > r_Y \qquad \bar{k}(t) < k(t)$$

$$r_K = r_Y \quad i \qquad \bar{k}(t) = k(t) \qquad (3)$$

$$r_K < r_Y \qquad \bar{k}(t) > k(t)$$

If the marginal capital-output ratio (k) is greater than the average $\bar{k}$ [k > $\bar{k}$], the incremental capital-output ratio ($\bar{k}$) increases.

Proof: If k > $\bar{k}$, then (bearing in mind (1) and (2), the growth rate of the domestic product r_Y is lower than the capital growth rate r_K [$r_Y < r_K$]. Since the incremental capital-output ratio $\bar{k}$ = K(t)/Y(t), and the numerator grows faster than the denominator, $\bar{k}$ is increased, and *vice versa*. The same result can be confirmed by the standard ratio of incremental and marginal values.

At a constant rate of accumulation (s), the capital growth rate (r_K) cannot in the long term remain higher (or lower) than the growth rate of the domestic product (r_Y).

Proof: Since $r_K = s \cdot Y(t) / K(t)$, if $r_K > r_Y$, the denominator grows faster than the numerator, and r_K must fall, approaching r_Y. In an analogous way, the convergence of rate r_K towards rate r_Y is achieved, when $r_K < r_Y$, at the constant rate of accumulation (s). This proves convergence at a constant rate (s).

Furthermore, it is necessary to show a tendency of the decreasing of rate r_K, where $r_K > r_Y$, in conditions when the rate of accumulation (s) is variable.

Proof: If: $r_K = \dfrac{S(t) \cdot Y(t)}{K(t)}$,

then: $r(r_K) = r_s + (r_Y - r_K)$ (4)

When $r_K > r_Y$, in the expression $r(r_K)$ there will be a negative component ($r_Y - r_K < 0$) and a downtrend of r_K. This decline may partially be compensated by the growth of the rate of accumulation ($r_s > 0$). However, this compensation cannot be complete, because the definitional upper limit for s is 1. The possible effect of the relationship $r_s > 0$ will sooner or later be overcome and ($r_Y - r_K < 0$). This negates the effect of the $r_s > 0$ rate, and the $r(r_K) < 0$ rate. That means that the capital growth rate will approach the rate of the growth of the domestic product from above.

In circumstances where $r_K < r_Y$, it cannot permanently be compensated by a possible reduction in the rate of accumulation ($r_s < 0$).

Proof: If $r_K < r_Y$, then $r_Y - r_K > 0$. This can be compensated by reducing the rate s ($r_s < 0$). However, since the rate of accumulation (s) has a zero as its definitional limit, it means that sooner or later there will be convergence $r_K \rightarrow r_Y$. This proves convergence $r_K \rightarrow r_Y$ in the case of the constant and variable rate of accumulation (s).

From the long-term standpoint, the only relevant case is the case of constant rate s, because its possible increase may only be temporary. At a constant rate s, it is possible for r_K to grow, thus partially compensating for a decline in labour and the efficiency growth rate. That compensatory growth may only be temporary.

Proof: If $r_K = s \cdot Y(t) / K(t)$, an increase in the capital growth rate $r(r_K) > 0$ implies that $r_Y > r_K$. Taking into account (1) and (2), this means that $k < \bar{k}$, implying a decline of $\bar{k}$. The declining incremental capital-output ratio $\bar{k}$ will begin to approach limit k, because the latter cannot constantly be reduced. This means that the distance between them will decrease ($\bar{k} - k) \rightarrow 0$, i.e. will tend to zero. (1) and (2) show that in this case the difference between the growth rates r_Y and r_K is reduced, so it follows that the difference between growth rates will tend to zero: ($r_Y - r_K) \rightarrow 0$. This means that the capital growth rate $[r(r_K)]$ will stay in the zone of positive values, and become smaller, i.e. its growth rate is negative. This means that the capital growth continues to accelerate, but that the pace of the acceleration is smaller. This phenomenon of acceleration gradually disappears and the growth rate r_K tends to a constant value.

The empirical results of some studies are consistent with these theoretical postulates (Gavrilović-Jovanović, 1989; Madžar, 1990). Specifically, the results show that some economies intensify their investment activity by trying to compensate for the unfavourable impact of certain factors (primarily low efficiency) by the growth of capital. However, the effects of such an increased investment activity, in an effort to compensate for the unfavourable impact of certain factors (low efficiency) by the growth of capital, are limited and relatively quickly depleted.

An increase in the investment activity in an attempt to compensate for the depressing impact of unfavourable factors by the growth of capital is limited and relatively quickly depleted. Experience has shown that, in economies following a strategy of extensive growth, the incremental capital-output ratio increases (Chan, Karceski & Lakonishok, 2002). Therefore, the marginal capital-output ratio is higher than the average, and the capital growth rate (r_K) is greater than the growth rate of the domestic product (r_Y). Therefore, the capital growth rate (r_K) is reduced, and this decline is pressing down on the rate r_Y. It is easy to prove that an increase in the investment rate, when it exceeds a certain limit, leads to a decrease rather than an increase in the growth rate: $r(r_Y) = r_s - r_K$. When k starts to grow faster than s, the growth rate r_Y begins to decrease, due to the efforts to increase investments.

Specifically, an increase in the incremental capital-output ratio ($\bar{k}$) implies that $r_K > r_Y$. Since $r(r_K) = r_s + r_Y - r_K$ and since r_s typically equals zero (it

equals zero if, in order to mitigate the slowdown of growth, the strategy to increase the rate of accumulation is approached), it follows that $r(r_K) < 0$, i.e. the capital growth rate (r_K) decreases. The speed of a decrease is dependent on whether the gap between $\bar{k}$ and k decreases. This is precisely the reason why the capital growth rate decreases. The decrease of r_K exerts pressure on the decrease of the growth rate r_Y. That means that, as long as the incremental capital-output ratio ($\bar{k}$) increases, the limit is higher than the average, so, sooner or later, that the latter has to grow, implying an impact on the decrease of the rate r_Y.

The typical reaction of some economies is to compensate a decrease in efficiency, manifested by an increase in the incremental capital-output ratio, by increasing the rate of accumulation (Ristić i Tanasković, 2013, 88). It may temporarily postpone and partially mitigate the observed effect, but cannot prevent it until the relationship between the domestic product and capital (Y/K – productivity or the efficiency of capital) deteriorates, which proves Hypothesis H2. Certain interventions can mitigate, but not reverse the fundamental and exogenously determined trends. It can, therefore, be concluded that these are mechanisms that cannot lead to a permanent increase in economic efficiency.

The convergence of rates r_K and r_Y can be realised in many different ways. It can be achieved through high or low growth rates, the system can quickly be lowered to low equilibrium rates or it can approach them slowly and gradually (Lawrence & Williamson, 2014, 215). If a decline in the capital growth rate is inevitable in the long run as a result of declining and low efficiency (technical progress), there is an additional short-term mechanism in which the causal relationship goes in the opposite direction. A slowdown in the capital growth implies less chance for technical progress. That means that the long-term capital growth slowdown caused by poor technical progress (efficiency) contains a short feedback loop in which a slowdown in capital adversely affects the rate of technical progress.

The issue of efficiency comes down to effectiveness with which an available economic potential is used. A strategy of a forced increase in quantities cannot permanently replace a lack of motivation, creativity,

and thus based increase in business efficiency. Even with stagnant efficiency, it is not possible to maintain the desirable and for the market economy usual pace of growth.

However, there is no such matter as a perfect measure of efficiency, whereas the standard and commonly used methods of measuring efficiency include not so few and not so negligible analytical limitations. For example, natural resources, because of their diversity, which can be characterised as immeasurability, are usually left out. Then, the influence of foreign funds is generally not taken into account to the fullest. The effects of using additional capital coming from abroad come to the fore only to the extent to which they are expressed through an increased value of production funds, but their impact on an overall increase in efficiency remains largely outside the scope of performance indicators.

CONCLUSION

Economic development in all its complexity cannot be understood if the significant effects of various exogenous circumstances, which typically affect the growth rate, are not considered and taken into account. Pointing to this complex mechanism of interdependence is considered to be the basic contribution of this paper. The above arguments, on the basis of which growth rates, regardless of what kind, do not reflect the development efforts or the efficiency of economic and system solutions in the intervals in which they were recorded, seem to be quite clear and relevant. „The growth rate is a necessary but not sufficient indicator of economic growth" (Gavrilović-Jovanović, 1989, 65). A pace of growth can significantly be increased at the expense of its quality. Sooner or later, substandard growth causes a slowdown of economic growth, which proves that temporary acceleration can be achieved at the expense of future and long-term growth rates. In addition, we have pointed out that the strategy of extensive growth includes the factors that inevitably lead to its slowdown, because it is based on the mechanisms that cannot ensure a permanent increase in economic efficiency. Not even the intensification of investments

can sustain growth at a desirable and necessary level. This means that the deceleration of growth is not a coincidence, but rather a legal consequence of the essential logic of the functioning of such a system.

We believe that the knowledge of the complex mechanism of the interdependence of growth rates is especially beneficial to economic policy holders and makers of development strategies. They in particular have to keep in mind that high growth rates in the current period may represent an exchange of the future for the present, but under adverse circumstances when a future growth is sacrificed for the sake of the current growth. Specifically, without increasing the quality of growth (efficiency), the whole development process is doomed to deceleration and long-term stagnation, and only growing efficiency allows for the sufficient long-term valorisation of the investment activity, as a traditionally abundant source of growth.

However, the measure and indicators of the quality of growth, in theoretical and methodological terms, are not clearly defined, which is the key limitation of this study, but also a relevant issue for future research. The field of efficiency is huge and vast in its truest sense. Therefore, there are no chances for its depletion nor can there be any such chances, not even at the level of the most general components. It should be noted that the quality of growth and efficiency are the key guidelines for further research in economic growth. Insisting on the qualitative aspects of growth, of course, is not aimed at questioning the importance of high growth rates, particularly in economies at a lower level of development. The first task of a quantitative analysis of sources of growth is to identify the factors that affect the pace of the growth of production. In addition, it should be noted that the negligence of the quality of growth is directly linked with costs. Specifically, besides implying difficulties in the measuring of a decline in social welfare, a lower quality implies higher running expenses and other types of costs.

The main contribution of this paper is the identification of the phenomenon of the temporal interdependence of growth rates, achieved in successive intervals of the observed period, as an almost universal system of interdependence. However, the same mechanism of interdependence is very complex in its action, so that

in different situations there are different mechanisms. Generally speaking, the success of economic growth in any period, as a rule, cannot be measured by the rate of growth achieved only during this period. Because of the temporal interdependence of the series of growth rates, any specifically observed rate reflects the relevant characteristics of the development processes in the past and affects the development conditions and chances of achieving a satisfactory pace of growth in the future, too. There are several sources and reserves of growth that can be depleted in a given period, at the expense of (or in favour of) the development potential that remains available for future periods.

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