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**Article**

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## Review Of Theories And Models Of Economic Growth

### Abstract

*The subject of this article is a review of the theories and models of economic growth. In the first section, the author analyzes the theories of economic growth, such as Schumpeter's, Lewis's and Rostow's theory. In the second part there is a review of the models of economic growth. In this part the author divides models into two groups: exogenous models and endogenous models. The article finishes with conclusions concerning the issues discussed. The method used in writing the article is an analysis of the English and Polish literature on the subject.*

**Keywords:** *economic growth, theories of economic growth, models of economic growth, balanced growth*

### 1. Introduction

Economic growth is one of the most important notions in the global economy. Despite the criticism that the level and rate of growth does not always reflect the real level of a population's living standards, it remains the primary measure of prosperity. However, as a measure describing the dynamics of

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economic processes in the country it has some drawbacks. First, it does not record the volume of production obtained from the informal market, known as the "*black market*", which means that not all economic transactions are included in the total volume of generated output. In addition, economic growth does not take into account changes in the amount of time spent on work, which obviously affects the welfare of society. Also the measure of economic growth does not include the negative processes associated with economic activities, such as environmental pollution, its progressive degradation, or noise pollution. However, despite all these drawbacks economic growth remains the primary measure of the socio-economic conditions of the citizens of a country.

## **2. Economic growth in the historical perspective**

In terms of sustainable development, a turning point took place in the late 1980's, when for first time a definition for it was given, emphasizing that development had to meet present needs without the risk that future generations will not be able to meet their needs. In 1992, at the United Nations Conference on "*Environment and Development*" in Rio de Janeiro, representatives from 176 countries signed Agenda 21, which determined the principles of sustainable development and laid out a strategy for its achievement (Bokajto 2008).

In the economic literature one can find also the notion of harmonious growth. According to Adam Smith, there are natural harmonies in economic life. Smith describes them as the force of the invisible hand, which stabilizes the market (Smith 1954, p. 46). On the other hand according to Frederic Bastiat, in spite of the conflicts of interest, God created a harmony in the world, which the intellect can not discover (Bastiat 1850). Pierre Proudhon points to the economic contradictions that may contribute to the destruction of production or cause tension in the process of its formation (Proudhon 1846).

The problem of economic growth raises the question of the driving forces that determine growth and economic development. If economic growth is a dynamic process, will the same factors in the same proportions determine its strength in the future? Classic economists saw the determinants of economic growth in investments and improving productive capacity. In the first half of the twentieth century neoclassical economics identified three factors of economic growth: land, capital and labor. This was enough to explain the causes of economic growth in capitalist countries. The more these factors were utilized, the greater was the economic growth.

In 1957, Robert M. Solow demonstrated, in his article, the insignificant share of land, capital and labor in the economic growth of the United States, and pointed to the technical progress as a source of growth in the U.S. economy (Solow 1957). On the other hand, professor Xavier Sala-i-Martin distinguished the following elements that determine the economic growth (Sala-i-Martin 2001):

1. accumulation of physical capital, human capital and education,
2. diversity of institutions favorable to the economy,
3. free movement of capital, technology, ideas, foreign investment and the free flow of information.

Thus, based on the above opinions regarding the factors of economic growth reflect, disagreement can be observed. X. Sala-i-Martin pointed to several factors, while Solow narrowed the problem to technical development.

The main works on economic growth are from the twentieth century. In the era of bullionism and mercantilism the problem was unexplored; the wealth of a nation was identified with ores and the volume of them owned (Cameron 2004, pp. 144-151). After mercantilism came the physiocrats. They glorified agriculture as the sector of the economy which gave the "pure" product. The physiocrat Quesnay created an economic table that described socio-economic relations, and it showed the essence of the pure product. (Quesnay 1928, p. 303). The words "*laissez faire, laissez passer*" (let me work, let me go ahead), spoken at one of the meetings of Physiocrats, gave birth to economic liberalism, represented by Adam Smith, David Ricardo, Thomas Malthus and Karl Marx (Smith 1954; Ricardo 1957; Malthus 1925; Marks 1951). Common views on economic growth can be extracted from among the classics. For example, Smith and Ricardo determined economic growth by production, sharing the "*Law of markets*" developed by Jean-Baptiste Say (Say 1960, p. 211). According to Smith, an increase of production will affect the size of the market, more specifically its enlargement (Smith 1954, p. 304). On the other hand, Ricardo considered money as merely a medium of exchange used in the process of buying and selling goods and services (Ricardo 1957, pp. 335-336).

Identical views on the role of supply in the process of economic growth were presented by Marx, who recognized its crucial role in an economy. However, in contrast to Smith and Ricardo, he did not agree with Say's "*Law of markets*". According to Marx, if the capitalist economy is experiencing regular crises of overproduction, the conviction that supply would supposedly generate demand had no logical justification (Marks 1951).

Different views on the determinants of economic growth were presented by Malthus, who made dependent it on effective demand. Therefore, he shared the views of Keynes (Stankiewicz 2000, pp. 176-177).

In addition, the classics had different views on the productivity of production factors. For example, Smith differed from Ricardo and Malthus. He was optimistic and assumed increasing returns of private inputs (Bronfenbrenner, Sichel 1987, p. 63). Malthus and Ricardo were pessimists (Czuma 2007, p. 168). They assumed decreasing returns of the factors involved in the production process. A similar opinion was presented by Marx, who saw the process of increasing capital's organic composition as a cause of decline profit rates.

However, Smith's assumption of increasing productivity of inputs is not consistent with the rules of a competitive market. Conditions of perfect competition require equality between the price level and marginal cost. Alfred Marshall attempted to explain the incompatibility proposed by Smith. He introduced the differentiation between internal economies and external economies. According to Marshall, reduction of production costs is the result of both extending the size of the company itself, as well as the overall development of the industry. Thus, the presence of external economies allows for the reconciliation of perfect competition with the increasing productivity of production factors. (Marshall 1925, pp. 312-321).

The problem of the presence of external economies was undertaken by other economists. R. Nurkse examined the impact of industry's development on other sectors of the economy (Nurkse 1962, pp. 27-33). Niels Hansen linked the opportunity of private entrepreneurs with the presence of external economies (Hansen 1968, p. 8). On the other hand, in the opinion of Maurice Dobb a primary analysis of static equilibrium showed a tendency to treat the external economies as benefits accruing to some companies that work in a determined industry (Dobb 1963, pp. 14-15).

The name of Adam Smith is associated with the concept of division of labor as the main factor of economic growth. According to Smith, the division of labor is a result of capital accumulation and gradual expansion of the market (Smith 1957, p. 304). Moreover, Smith appreciates the role of technological innovation in the process of economic growth. However, as noted by Brewer, technical progress in Smith's concept is not independent and only passively follows the accumulation of capital (Brewer 1991). On the other hand, according to Lionel Robbins, it is owing to Smith that, for the first time in the history of economic thought, product *per capita* and not the total production volume was considered as a criterion of welfare (Robbins 1969, p. 28).

Smith also recognized the negative consequences of division of labour. He pointed to the psychological and human costs associated with production (Smith 1957, T. 2, p. 782). J.S. Mill spoke in a similar vein. According to him, dealing with only one thing has a bad effect on intelligence, and the real losses caused by that situation outweigh the gains (Mill 1909, p. 133). One hundred

years later, a different opinion on the division of labor was presented by Alfred Marshall. In his opinion, performing the same work does not have a negative impact on the mental development of the employee, and the damages caused by the mechanical performance of work are neutralized by the social atmosphere at the workplace (Marshall 1935, p. 255).

While the classical thought on economic growth was linked with supply, Keynes considered demand to be the most important. The experience of the Great Crisis of 1929 did not confirm the existence of an autonomous strength that helped an economy to achieve a stable state. The Great Depression of the 1930s led to a dramatic economic collapse in world. John Steinbeck, in his book "*The Grapes of Wrath*" described the situation in the United States, ruined by the crisis of 1929 (Steinbeck 1971, pp. 43, 194-195, 291, 285, 348-349). The biggest collapse took place there, where industrial production decreased by 44.7% and gross domestic product decreased by 28%. The countries affected by the deep recession also included Austria, Germany, Italy, Czechoslovakia and Poland. The crisis least affected countries such as The Netherlands, Romania, United Kingdom and Scandinavian countries (Snowdon 1998, p. 16)

The experience of the Great Depression influenced Keynes. He said that capitalism by its nature tended to imbalance. In his work he openly criticized classical economics (Keynes 1985, pp. 42-43). Keynes did not accept Say's "*law of markets*", comparing such reasoning to the natural economy of Robinson Crusoe (Keynes 1985, p. 46). In addition, he considered classical economy's assumption that an economy achieved a steady state in the long run as unrealistic. According to Keynes, the economic mechanism by its nature tends towards imbalances and unemployment (Keynes 1985, p. 60).

Keynes, in contrast to the classics, was convinced of the unbalanced nature of economic growth. In his short-run model the main factor of growth is investments. However, the model developed by Keynes does not take into account the passage of time. His successors, in the persons of Harrod and Domar, tried to dynamise the so-called keynesian model, seeking a balance in the long run.

### **3. Theories of economic growth**

Analysis of the theory of economic growth begins with the name Joseph Schumpeter. Contrary to the classics, Schumpeter did not consider the accumulation of capital as the main driving force of economic growth. He assigned great importance to the concept of the entrepreneur-innovator, calling

him a "*hero of development*". In his opinion, the innovation and creativity of entrepreneurs determined economic development. Schumpeter was convinced of the unbalanced nature of economic growth, and he attributed that process to the nature of the 'jump'. (Schumpeter 1934, p. 65). Following the introduction of an innovation an entrepreneur receives great profits, but over time the competition copies the invention and the profits begin to decline.

The theory of economic growth proposed by Schumpeter is based on the assumptions of private property, a competitive market, and the efficiency of financial markets that could support the production of new inventions. However, in countries lacking a democratic system, these conditions frequently are not fulfilled. Thus, Schumpeter's theory is addressed to the democratic and economically developed countries.

Another theory of economic growth was developed by Arthur Lewis. In his work he dealt with the problem of poor countries, but with a rich labor force (Lewis 1954, p. 3). Lewis shared the overall vision of classical economists, but did not always agree with their diagnoses and methods. The model proposed by Lewis assumes maintaining a low level of life in the short run. The savings thus obtained will increase the stock of capital, which in the long run will lead to the appearance of income growth. Thus, Lewis's model implies enlargement of the differences between countries in the short run as a condition for equalization of income levels in the long run (Lewis 1956, pp. 7-22).

Simon Kuznets developed a theoretical support for the Lewis's theory called "*Kuznets's curve*" (Kuznets 1955, pp. 1-28). Empirical studies confirmed the existence of economic disparities in the early stages of growth. Initially, when labor began to abandon agriculture for industry, the differences were the greatest. However, as the concentration of factors of production took place in industrial centers, the differences tended to disappear. In addition, Kuznets noticed a positive association between the dynamics of economic growth and the increasing share of urban population in the total population (Kuznets 1976, p. 32).

Nonetheless Lewis's theory contains assumptions which are difficult to accept. The problem of poverty can not be postponed until an unspecified future. After all, the increased accumulation of capital would be achieved by reducing consumption, and this would most affect the poorest people.

A few years later, Walt Rostow created another theory of economic growth. Rostow, like Lewis, made economic development dependent on the accumulation of capital, and distinguished five stages of development (Rostow 1960, pp. 4-16). According to Rostow, the biggest problem for poor countries is to achieve the third stage, called "*take off*". Poor countries have a problem with the interruption of the "*vicious circle*" established through the years. Rostow proposed to break it by accumulating capital. However he realized that in cases

where there was an absence of opportunities to increase internal accumulation, external support would be necessary. Also, according to Rostow, reconstruction of the economy from agricultural to industrial would allow for the diffusion of economic growth over the entire country. In 1971 Rostow added a sixth stage of economic development, called “*quality*” - characterized by the continuous improvement in the quality of goods and services (Rostow 1971).

#### 4. Models of economic growth

Since the process of economic growth is based on great variety of factors that change over time, models of economic growth necessarily apply some simplifications. These simplifications consist in classification and aggregation of the causes of economic growth. Mostly, in models of economic growth a depreciation rate for capital and growth of population are exogenous. In the case of the savings rate, the models can be divided into two groups. In the first group, the savings rate is exogenous, for example in the Harrod and Domar model, models that use the production function AK, and the neoclassical models of Solow and Uzawa.

The second group includes models with an endogenous savings rate, like the neoclassical model of Ramsey and the models of Kaldor and Pasinetti, which are based on the scientific achievements of Keynes. Models can be also divided according to the capital ratio. The Models of Harrod–Domar and the AK models assume its constant value. In turn, the ratio of capital/production in neoclassical models can change over time.

Models of economic growth also can be divided according to the criterion of time. Long-term models are primarily used to determine the path of sustainable growth. They characterize a pattern according to which the economy should grow (Woźniak 2008, pp. 145-146).

Short-term models refer to the scientific achievements of Keynes. Their main purpose is to identify the possibility of having the level of actual production approach the level of potential output (Woźniak 2008, pp. 145-146).

Roy Harrod and Evsey Domar developed a model that sought the possibility for sustainable growth. They extended the short-term Keynesian model, that assumes the instability of the capitalist economy (Harrod 1939; Domar 1946).

In the model of Harrod-Domar growth is sustainable if three growth rates are equal: the actual growth rate, guaranteed growth rate, and natural growth rate. Harrod called such a situation the “*golden age*”, whereby the achieved macroeconomic balance ensures the full use of capital and labor. However,



equilibrium requires equalization of savings, which are dependent on households and investments that are in the hands of the capitalists. Hence, that is difficult to fulfill. The savings rate is exogenous, i.e. established outside the model, and the same applies to growth of population, dependent on its natural dynamics. In addition, the model assumes a constant ratio of capital to labor, implying no possibility of substitution of factors of production. Thus, there is no mechanism to balance the three growth rates. Hence, the model of Harrod - Domar reveals two problems. Firstly, the growth of a capitalist economy at the guaranteed rate of growth with full employment is not possible. The process of economic growth is always accompanied by involuntary unemployment. Second, in a capitalist economy there is no convergence towards equilibrium. Thus, Harrod and Domar, by perversely seeking a dynamic equilibrium path, proved the unsustainable character of economic growth.

The economists grouped around Cambridge school of Economics tried to remedy the pessimistic vision flowing from model of Harrod - Domar. N. Kaldor and L. Pasinetti introduced the functional distribution of income between profits and wages into their models, and they proved the possibility of economic growth with full employment of labor. They maintained the assumption of a constant ratio of capital, but at the same time they abandoned the assumption of a constant savings rate. In addition, Kaldor and Pasinetti introduced different levels of the saving rate, which characterized every social group. The savings of the capitalists was greater than the savings realized by employees. The endogenous nature of the savings rate allowed for finding the path of sustainable development, which they found did not run on a "*knife-edge*". In Kaldor's model, if the savings rate of the employees is zero, the national economic growth depends on the profit rate of the capitalists (Kaldor 1963).

In 1962, Italian economist Luigi Pasinetti further developed Kaldor's model. According to Pasinetti, if savings appear in the economy, their possession is associated with the rate of profit. This means that savings of employees generate interest, which is their income. In Pasinetti's model, as in the case of Kaldor's model, the economic growth depends on the profit reached by the capitalists. However, while Kaldor obtained this by introducing an assumption of zero savings of workers, Pasinetti did not have to make that assumption (Pasinetti 1962).

A good summary of the reflections on the models of Kaldor and Pasinetti can be found in Kaldor's statement that 'capitalists earn what they spend, and employees spend what they earn' (Kaldor 1955-1956).

In turn, in Kalecki's model the major role in the growth process is played by investments, not the level of realized savings. This is why Kalecki's model is

called "*investment*", because according to him investments decide on economic growth in the long run (Kalecki 1956).

Analysis of the neoclassical models of economic growth begins with the model of Solow - Swan. Robert Solow proposed a long term economic growth model in response to the unsatisfactory results derived from the model of the Harrod - Domar (Solow 1956). In the same year, American economist Trevor Swan presented a similar model (Swan 1956), which is why the discussed model is called the Solow – Swan model. Its main aim was to show that in the long run, an economy achieved sustainable growth. Then, the growth rate of income *per capita* was equal to rate of population growth. The two problems identified by the Harrod – Domar model - instability of the economy and the impossibility of full use of the labor – were solved in the Solow – Swan model by introducing the assumption of substitution of factors of production, which in turn removed the assumption of a constant ratio of capital/production.

In the early 1960s Japanese economist Hirofumi Uzawa presented a model of economy composed of two sectors (Uzawa 1963). The first sector produces consumer goods, and the other capital goods. The model is stable when the ratio of capital/labor in the branch producing consumer goods is higher than in the branches producing capital goods.

Another neo-classical growth model is based on the work of Frank Ramsey, which concerned the problem of the optimal level of savings (Ramsey 1928). This was later developed by Cass and Koopmans and therefore is often called the Ramsey - Cass – Koopmans model (Cass 1965; Koopmans 1965). In the Ramsey model, the savings rate is endogenous and depends on the decisions of consumers. In addition, Ramsey does not refer to the economy of "*Robinson Crusoe*", where households are both producers and consumers of production. In the Ramsey - Cass – Koopmans model the results on steady state growth rate are the same as these in the Solow-Swan model.

In another neoclassical model, Diamond introduced analysis of the finite horizons. The life of households is divided into two periods. In the first period households receive wages. They spend them on current consumption and savings. In the second period, households do not earn. Current consumption is financed by accumulated savings from the first period. In the long run an economy reaches a stable state like in the Solow – Swan model (Diamond 1965).

Neoclassical models assume that the economy achieves equilibrium in the long run. In addition, they confirm the existence of convergence, which means faster development of poor countries in comparison with rich ones. The convergence hypothesis says that countries differ from each other only in their of capital/labor ratio, and they have the same steady state. Hence, the economy with a lower level of income *per capita* will obtain a higher rate of growth.

There are a lot of studies and publications on the convergence process between countries. Some of them confirmed the existence of absolute convergence between the selected group of countries, while others confirmed the conditional convergence between countries characterized by similar parameters. The following Table cites the results of selected studies with their various conclusions about convergence.

**Table 1. The existence of the convergence according to selected research**

Author of the study	The scope of research	Absolute convergence	Conditional convergence
Sala-i-Martin (1996)	110 countries	no	yes
Barro (1991)	98 countries	no	yes
Mankiw, Romer, Weill (1992)	98 countries	no	yes
Barro, X. Sala-i-Martin (1992)	48 states of USA	yes	yes
Mankiw, Romer, Weill (1992)	22 countries of OECD	yes	yes

Source: own elaboration.

The opposite of exogenous growth models are models of endogenous growth. They set themselves the objective of explaining phenomena observed in the global economy. First, models of endogenous growth try to answer the question: why do the economies of individual countries produce much larger quantities of goods than they did it a hundred years ago? For example, according to P. Romer, this situation is the result of the increasing return on labor (Romer 1990). Secondly, models of endogenous growth try to explain the role of human capital in economic growth. Thirdly, they try to indicate the reasons for the deepening divergence between countries.

In endogenous models, the main determinants of economic growth are formed inside the model. The technical level of the economy is the result of investment decisions. Returns to factors of production are at least constant. Endogenous models use the AK production function, which is a linear function of technology (Rebelo 1991). In the simple AK model *per capita* variables grow at a fixed rate, regardless of the level of capital. Therefore there is no steady state and the phenomenon of convergence between the economies doesn't exist.

The first models of endogenous growth were developed by Marvin Frankel and Kenneth Arrow. Frankel, in his model, tried to reconcile the neoclassical production function with the AK production function. According to Frankel, the neoclassical production function applies to individual companies. However, the macro economy develops according to the AK function. This assumption is based on the introduction - to the production function - of the

factor of externalities that reflect the level of economic development of the country (Frankel 1962).

On the other hand, Kenneth Arrow questioned the results derived from neoclassical models. According to him, conditioning the economic growth on exogenous variables is not very satisfying. Arrow assumes that the obtained knowledge is the result of a process defined as "*learning by doing*". Although, as Sala-i-Martin noted, Arrow's process would have better been called "*learning by investments*" (Sala-i-Martin 2000). However, despite the use of the production function with increasing returns to scale, Arrow's model does not make long-term growth dependent on the level of savings (Arrow 1962). Similar to the Solow – Swan model, economic growth in a steady state is determined by exogenous variables.

Arrow's views on the importance of human capital in the process of economic growth was shared by T.W. Schultz. In his article, Schultz criticized those economists that reject the problem of investment in human capital as a topic of economic analysis. Moreover, according to Schultz the costs for education, health and professional development are investments in human capital (Schultz 1961).

Another model of endogenous growth was presented by Paul Romer. He introduced capital externalities into the neoclassical production function. Thanks to this operation the production function is characterized by increasing returns to scale of all factors of production and constant returns to scale of capital, and this assumption lays the foundation for the existence of endogenous growth. However, in Romer's model the growth of the economy according to the AK production function requires the fulfillment of certain conditions. First, the size of externalities must be significant, otherwise the economy grows according to the Cobb – Douglas function. Moreover, Romer's model foresees the existence of the "*scale effect*", which is not confirmed by the data flowing from the individual economies (Romer 1986). On the other hand, Lucas defined the value of the "*scale effect*" as capital *per capita*. Therefore, in contrast to Romer, Lucas did not have to make assumptions about the zero increase of labor (Lucas 1988).

Robert Lucas proposed a model of endogenous growth according to which there are two sectors. According to Lucas, there are two types of capital too - physical capital used in the production process and human capital that affects the growth in productivity of both labor and physical capital. Thus, a certain person with human capital equal  $h$  produces two times more goods than a person with human capital  $h/2$  and two times less than a person with human capital  $2h$ . Lucas also takes into account the existence of increasing returns to scale, and like Romer refers to Arrow's concept of "*learning by doing*". However, in the case of Romer's model, the source of externalities was

the accumulation of physical capital, while in Lucas's model the existence of externalities was based on the accumulation of human capital (Barro, Sala-i Martin 2004). Lucas's model explains the differences in economic development between countries. Countries characterized by a low level of human capital grow more slowly than countries with considerable resources in this respect.

In a further group of endogenous growth models, economic growth is achieved by the endogenisation of technical progress, which is the result of a functioning R&D sector. Endogenous technological progress can manifest itself in two ways. Firstly, it can be expressed by increasing the number of goods used in the production process. Second, endogenous technical progress is reflected by improving the quality of existing goods.

Paul Romer presented the model according to which technical progress, the main determinant of economic growth, is reflected in the increasing supply of intermediate goods. In Romer's model, economic growth is dependent on the level of human capital. Countries rich in human capital can develop very quickly, while the shortage of human capital can lead to economic stagnation. Thus, the model does not confirm the phenomenon of convergence between economies (Romer 1990).

In the model of Aghion - Howitt technical progress is reflected in improvements in the quality of existing goods on the market. In contrast to Romer's model, the appearance of improved goods automatically replaces the "old" goods. Another innovation comes with a certain probability. Also, a country with more resources of educated people will grow faster than a country with a lower level of human capital (Aghion, Howitt 1992).

The further work of Becker, Murphy and Tamura tried to determine the correlations between investments in human capital and population growth. They argued that countries which are poor in human capital are characterized by the presence of large families (Becker, Murphy, Tamura, 1990). Mark Rosenzweig presented similar conclusions in his work. According to him, countries with high income *per capita* are characterized by a low birth rate and a high level of human capital (Rosenzweig 1990).

## 5. Conclusions

1. The analyzed theories of economic growth are based on two convictions. In the case of Schumpeter's theory, the conviction is that economic growth is unbalanced and depends on innovations, which can appear with certain

- probability. On the other hand, the models of Lewis and Rostow predict balanced growth in long run, even if it's unbalanced in short run.
2. Growth models can be divided in many ways. Firstly, we can classify them by extracting one common assumption. For example it could be a constant saving rate. You can also divide the model into two groups: exogenous models and endogenous models. Exogenous models use the neoclassical production function, with decreasing productivity of factors of production. On the other hand, in endogenous models the productivity of factors of production is at least constant.
  3. Neoclassical models predict convergence between countries. The poorer economies grow faster than richer ones. Unlike the neoclassical models, endogenous models do not predict convergence. For example, countries with a large stock of human capital will develop faster in long run than countries with a deficiency in this respect.
  4. Sometimes, the results derived from the models are not supported by empirical data concerning the global economy. For example, the "scale effect" of Romer's model (1986) is not confirmed by the examples of individual countries.

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## Streszczenie

### PRZEGLĄD TEORII I MODELI WZROSTU GOSPODARCZEGO

*Celem artykułu jest przegląd teorii oraz modeli wzrostu gospodarczego. W pierwszej części autor dokonuje analizy teorii wzrostu gospodarczego autorstwa: Schumpetera, Lewisa oraz Rostowa. W drugiej części opracowania zawarty jest przegląd modeli wzrostu gospodarczego. Autor analizowane modele dzieli na dwie grupy; modele egzogeniczne oraz modele endogeniczne. Artykuł kończy lista wniosków dotyczących przeprowadzonych analiz. Autor przygotowując artykuł wykorzystał metodę analizy literatury angielskiej i polskiej.*

**Słowa kluczowe:** *wzrost gospodarczy, teorie wzrostu gospodarczego, modele wzrostu gospodarczego, zrównoważony wzrost gospodarczy*