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DETERMINANTS OF CONTEMPORARY ECONOMIC DEVELOPMENT

Summary: Contemporary economic development is not only a function of classic factors of development, such as land, labour and capital, but also (and above all) the so-called new factors of development, such as intellectual capital, knowledge, education, technology spillover, as well as formal and legal systems on national level, institution (in terms of procedures of behaviour), cultural determinants, and so forth.

The article presents the influence of "new" factors on economic development with particular attention paid to the role of work, culture and institution understood as rules of conduct in economic development.

Key words: economic development, determinants of economic development, cultural determinants, institutions.

1. Introduction

Economic growth is typically considered the most synthetic measure of economic activity in a given period. Economic development is a much wider term, comprising not only the economic growth indexes, but also certain immeasurable effects of civilizational progress. Some authors use those two terms interchangeably. This approach is viable on presumption that science offers increasingly larger potential for measuring hitherto immeasurable phenomena. The approach is also valid from the viewpoint of new instruments that may be used in economic analyses, such as chaos theory, catastrophe theory, multi-factor analysis, Wrocław taxonomy and others.

However, the most interesting issue in the analysis of economic growth is a fundamental question: why certain countries get rich, while others remain poor? Why some countries show consistent tempo of economic growth, while others lag behind? Why the determinants of economic growth display varied effects in different settings? Why some growth factors lose their impact, while others emerge or show increased effects?

The above questions are addressed in this paper. The terms 'economic development' and 'economic growth' are examined, followed by the analysis of economic growth

and development theory and problems in measuring economic growth. Key issue in addressing the main problem of this paper is the analysis of economic growth determinants as used throughout the history of economic studies.

2. Growth vs. development. Theory and practice of economic growth

As mentioned above, the terms 'economic growth' and 'economic development', as used in modern economy, are typically differentiated. Economic growth is a process of increasing the amount of goods and services produced by an economy, measured by such indexes as gross domestic product (GDP), gross national product (GNP), net national product (NNP) and gross national income (GNI). With all the above growth indexes, only the measurable, quantitative changes over time are recorded[1].

Economic development, on the other hand, is a long-lasting process of changes in the economy, expressed not only in terms of GDP index, but also through other measurement instruments and evaluations of some not readily measurable qualitative features, such as transformations of economic structure. In other words, economic development may be presented as a set that combines economic growth with civilizational progress, as expressed in certain immeasurable qualitative changes in the economy[2].

Interesting definitions of economic development can be found in the works of economic geography specialists. For example, in 'The Dictionary of Human Geography', M. Watts defines 'Development' as a set of four interconnected feature subsets typically used to describe national economy development:

1) changes in production, consumption and technology of production,

2) general technological changes,

3) transformations on social, cultural and political level resulting from changes in technology,

4) distribution of costs and benefits of production and consumption[3].

Williamson and Milner define economic development as a process of economic transformation from a traditional society that uses primitive technology to satisfy the most basic needs to one that employs modern technology and offers increased income. This process involves, among others, substituting labour-intensive economy with capital-intensive one that employs modern technology, skilled labour and knowledge to produce a variety of goods and commodities of modern consumption[4].

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[1] J. Gardawski, L. Gilejko, J. Siewierski, R. Towalski, *Socjologia gospodarki, w*yd. 2, Difin, Warszawa 2008.

[2] M. Noga, *Makroekonomia*, Wyd. Akademii Ekonomicznej, Wrocław 2000.

[3] M. Watts, *Development,* [in:] *The Dictionary of Human Geography,* Blackwell, Oxford 2003.

[4] J. Williamson, Ch. Milner, *The World Economy. A Textbook in International Economics*, 2nd ed., New York-London 1991.

In this author's opinion, there are no contradictions between definitions of economic development presented herein. However, they clearly show that this particular category of science is multidimensional one, and as such can be studied from many perspectives. Professional literature presents also many theories of economic growth, with the classic examples being:

– the neoclassic theory of economic growth,
– the NeoAustrian theory of growth,
– M. Kalecki's model of economic growth.

Contemporary macroeconomic thought is divided between proponents of monetarian and Keynesian approach to economic growth. There are also some examples of eclectic approach to reconcile these two macroeconomic concepts[5].

Apart from the aforementioned theories of economic growth, scientific divagations include also the following:

- theory of real business cycle, describing changes in economy as a result of supply or demand shocks,
- theory of sustainable development – accentuating ecological determinants of economic growth and interdependence between economic, social and environmental objectives of economic growth,
- the so-called 'long wave' theory – seeking long-term correlations between dynamics of innovation and economic growth,
- the 'new institutional economy' – stressing the significance of institutions (in the widest sense of the term, covering also such aspects as property rights) and transaction costs in economic growth dynamics,
- the 'new political economy' – identifying economic and social mechanisms for shaping and acceptance of particular solutions in economic policy – both macroeconomic and sectoral – and public regulation in market economy[6].

It is worth noting here that the neoclassic models of economic growth based on the Cobb-Douglas functional form of production and Solow model were in fact models of exogeneous impact of technological progress upon economic growth via work output. Criticism of these models allowed for the evolution of the endogeneous economic growth proposed by R.E. Lukas, R.J. Barro and P. M. Romer. These models demonstrate that economic growth is determined not only by external effects of technological progress but also, and for the most part, by endogeneously understood human capital investment (knowledge, technology, innovations) in the long run. Other external effects of importance here include knowledge and technology spillovers and learning-by-doing processes[7].

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[5] B. Fiedor, *Polski wzrost gospodarczy w kontekście współczesnych kontrowersji wokół teorii i polityki wzrostu*, [in:] *Polityka ekonomiczna. Współczesne wyzwania*, ed. M. Klamut, Wyd. Nauk. PWN, Warszawa 2007.

[6] Ibidem.

[7] T. Tokarski, *Teoretyczne podstawy przyczyn zróżnicowania rozwoju gospodarczego*, [in:] *Ekonomia rozwoju,* ed. R. Piasecki, PWE, Warszawa 2007.

Theories of economic development were a subject of many analyses in professional literature. For various reasons, theories of A. Smith, K. Marx, W. Rostow, J.K. Galbraith and D. Bell were the most widely discussed[8]. Of particular interest are the theories of economic development postulated by W. Rostow and D. Bell, as the ones based on economic development of the US, with explicit conclusions that all countries should follow the American path of development. This notion is highly controversial, despite the fact that some modern economic concepts, such as knowledge-based economy as a tool for building the new information society, are also centered around 'the American way' and do not raise as much criticism[9].

Economic development may also be approached from the viewpoint of catastrophe theory (morphogenetic theory). This method is an example of mathematical modelling, formulated by R. Thom. Catastrophe theory attempts to clarify why slow and steady changes of parameters induce sudden and abrupt qualitative changes in the system under study. The very term 'catastrophe', typically associated with harmful and dangerous effects, should not be perceived in negative terms – it is used here only to depict the explosive character of transition from one system state to another.

Catastrophe theory emerged as a result of recent progress in such fields of learning and thought as philosophy, mathematics and research, an effect of increased demand for a **scientific method** that concentrates on **researching (as opposed to disregarding) the non-linear qualities** of various phenomena and processes[10]. It seems that the catastrophe theory should find its use in researching the economic processes, as ones that feature 'impossible' phenomena and a large number of qualitative changes over time.

In his classification of the principles of contemporary science, A. Smoluk distinguishes two groups:

- principles that shape the instruments and the language of science;
- principles that describe the nature of the world[11].

The first group incorporates two elements: the postulate of infinity and the axiom of numerical description of natural states (also called the parameterization principle). The second group consists only of one general law of science – the symmetry principle.

A. Smoluk gives the following definitions of the above principles of modern science:

A. Axiom of infinity asserts the existence of an infinite set. Fundamentally, there are only finite set models in nature. Therefore, one cannot indisputably designate a

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[8] M. Noga, op. cit.

[9] J. Woroniecki, *Luka rozwojowa i jej nowy wymiar – luka cyfrowa wyzwaniem XXI wieku,* [in:] *Ekonomia rozwoju,* ed. R. Piasecki, PWE, Warszawa 2007.

[10] A. Jakimowicz, *Od Keynesa do teorii chaosu. Ewolucja teorii wahań koniunkturalnych*, Wyd. Nauk. PWN, Warszawa 2005.

[11] A. Smoluk, *Matematyka. Nauka. Ekonomia*, Wyd. Akademii Ekonomicznej, Wrocław 1993.

model for an infinite set. Hypotheses on existence of infinite sets may thus be verified only indirectly.

B. Axiom of numerical description of nature states – also called the parameterization principle – pronounces that each nature state is a certain cybernetic system, and as such it may be described using a numeric progression, i.e. a vector. This postulate is a logical continuation of the former axiom and represents a generalization of the Cartesian system of coordinates on all science.

C. The law of symmetry, equivalent to the principle of equilibrium, is a statement on the state of the universe. According to this principle, for any given object there is another object of symmetrical qualities. If a state of a cybernetic system is described by X vector, one may always find such Y vector that adds to X forming a zero-value vector. From the principle of equilibrium all known laws of nature may be derived. This principle also implies that all natural processes run optimally and that the world we live in is the best of all possible. **Symmetry** is the term applying to static systems, while equilibrium refers to dynamic processes[12]. Economy is described in terms of equilibrium as a state that contributes to stability of the system but does not necessarily equal the most effective use of all production factors. This is not equivalent with the state of optimal equilibrium. Wastage of production factors and incomplete knowledge on economic processes set the system in motion and result in new equilibrium states. **Economic development occurs only if the new state of equilibrium results in loss decrease**.

It must be noted here that the neoclassic economy concepts, such as the optimum consumer sovereignty proposed by J.R. Hicks, technological optimum of a company or Pareto equilibrium, do satisfy the postulate of optimal equilibrium. Economic processes are dynamic, hence the state of these processes may be described using the principle of equilibrium. However, equilibrium in this context has to be optimal to satisfy the requirements of economic development.

To provide a complete analysis of economic growth covering quantitative and measurable changes, it is necessary to characterize some of the measurement problems involved. In 1934, the U.S. Department of Commerce postulated the System of National Accounts. In this concept, the economic growth may be measured using the following set of macroeconomic aggregate measures (in terms of their monetary value):

- Gross National Product – GNP
- Net National Product – NNP
- Gross Domestic Product – GDP
- Gross National Income – GNI
- Total Personal Income – TPI
- Disposable Personal Income – DPI

[12] A. Smoluk, *Pomiar jakości i grupowy wybór*, „Rector's Lectures" 2000, No. 47.

Up to mid 1970s, Gross National Product (GNP) was considered the basic measure of economic growth. Recently, it has been replaced by Gross Domestic Product (GDP)[13].

In its most rudimentary definition, Gross Domestic Product is a sum of current values of goods and services produced by domestic and foreign enterprises operating in a given country over time. Another approach is to define GDP as a sum of satisfied demands in consumption, investment and foreign trade[14].

Central statistical offices are generally well-equipped to calculate GDP. The problem in this respect lies in comparing the calculated GDP on an international level. To compare GNP across countries, it is necessary to:

– firstly, calculate GDP per capita,
– secondly, select a common currency denominator for comparison. For this purpose, typically the U.S. dollar is used. It must be noted, however, that the change-over from domestic currency to USD may be done in two ways: either based on currency rate or through the purchasing power parity (PPP). Those two approaches yield different results, therefore the comparison must be accompanied by a precise statement of the approach employed for comparison. It must also precise whether the data sets used for comparisons were calculated using the same method.

In 1990, UNDP (United Nations for Development Programme), specialized UN agency, recommended a new measure of economic growth: HDI (Human Development Index). Some authors refer to it as a measure of 'humane economy'. This measure is a mathematical construct that combines GDP per capita and weighted averages of life expectancy and literacy, with the latter expressed by two subsets: combined gross enrollment ratio and literacy ratio. HDI reports are published annually (autumn) for each UN country (with the index reflecting previous year data). The HDI for Poland fluctuates in the range of 850 to 880 (maximum HDI value is 1000), placing our country around rank 40 on the international scale[15].

3. Determinants of economic growth

What determinants and factors decide on economic growth? Which of them play crucial role? A. Smith, in his classic 1776 work 'An Inquiry into the Nature and Causes of the Wealth of Nations' mentions only two factors that directly affect economic growth, namely: division of labour and work productivity. Fixed capital is regarded as an indirect factor[16].

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[13] M. Noga, op.cit.

[14] M. Burda, Ch. Wyplosz, *Makroekonomia, Podręcznik europejski*, PWE, Warszawa 1995.

[15] M. Czerny, *Globalizacja a rozwój. Wybrane zagadnienia geografii społeczno-gospodarczej świata*, Wyd. Nauk. PWN, Warszawa 2005.

[16] M. Blaugie, *Teoria ekonomii. Ujęcie retrospektywne*, Wyd. Nauk. PWN, Warszawa 1994.

As C. Józefiak observes: 'The value of annual domestic product per capita may be presented as a product of three factors: average work output per one working hour, the number of working hours per year and the share of workforce as percentage of total number of population'[17]. These are considered as factors of economic growth *expressis verbis*.

L. Zienkowski presents growth factors in terms of determinants of growth rate, introducing the following distinction:

1. Direct determinants – short-term effect

Capital, labour, independent technological and organizational progress expressed through Total Factor Productivity (TFP).

2. Indirect determinants – mid-term effect

Conditions of business operation

Economic and social policy.

3. Indirect determinants – long-term effect

Knowledge, expertise, innovation (scientific knowledge capital)

Education and knowledge across society (social knowledge capital)

The level of civilizational and cultural development – social mentality[18].

OECD in 'Understanding Economic Growth' (2004, Polish translation 2005) propose the following basic determinants of economic growth:

1. Education (level of education and spread of technology).

2. Innovations (number of patents, R&D expenditure, complementarity and substitution of research and development expenditure from public and private sources.

3. Market deregulation and investments.

4. Inflation (low inflation rate).

5. Fiscal policy (low taxes).

6. Foreign trade.

7. Financial system (transparency of financial system)[19].

Economic development, examined as a system, depends on the development of three subsystems, namely the geographic environment, politics and culture. The impact of those three subsystems varied from country to country, and this variance is the factor responsible for large diversity of economic development across countries in the contemporary world[20].

The diversity of economic development levels is a result of not only geographic, political and cultural environment, but also the ability to employ resources available in a given country.

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[17] C. Józefiak, *Warunki rozwoju gospodarczego,* [in:] *Ekonomia rozwoju,* ed. R. Piasecki, PWE, Warszawa 2007.

[18] *Co sprzyja rozwojowi gospodarczemu*, ed. L. Zienkowski, Wyd. Nauk. SCHOLAR, Warszawa 2005.

[19] *Zrozumieć wzrost gospodarczy. Analiza na poziomie makroekonomicznym, poziomie branży i poziomie firmy,* preface by J. Ph. Cotis, OECD-Oficyna Ekonomiczna, Kraków 2005.

[20] J. Gardawski, L. Gilejko, J. Siewierski, R. Towalski, op.cit.

M. Fairbanks distinguishes seven types of such resources for optimal use. These can also be referred to as types of capital:

1. Natural conditions: location, natural deposits, forests, beaches, climate.
2. Financial resources: savings, state reserves.
3. Human-made capital: constructions, roads, bridges, telecommunication infrastructure.
4. Institutional capital: legal protection of material and immaterial copyrights, efficiency of the administration authorities and companies.
5. Knowledge resources: patents, scientific and expert powerbase.
6. Human capital: skills, creativity.
7. Cultural capital: attitudes and values associated with innovation[21].

Optimal use of the above resources (types of capital) will shape the level of the country's economic development.

One additional factor of contemporary economic development must be noted here, namely the 'catch-up effect'. This term refers to the tendency for per capita GDP to grow faster in less developed countries, partially due to the overspill in work practices, equipment and technology from countries at more advanced stages of technological development. Economies that display lower level of education will profit from increased rate of return on education and training. This process should lead to the trend where less advanced countries will display rapid development at the onset, with the tempo of development gradually decreasing as the economy approaches the advanced level[22]. The catch-up effect can be illustrated by data on China's development, with its per capita GDP 11 times lower than Luxembourg, and as much as 5 times quicker tempo of GDP growth. The catch-up effect can be observed practically in all the emerging economies, including Poland.

4. Conclusions

Contemporary economic development is not only a function of classic factors of development, such as land, labour and capital, but also (and above all) the so-called new factors of development, such as intellectual capital, knowledge, education, technology spillover, as well as formal and legal systems on national level, institutions (in terms of procedures of behaviour), cultural determinants, and so forth.

Contemporary economy is a knowledge-based one; contemporary society is a society of information. Through the effect of globalization, this path of development is accepted and practiced by virtually all the countries of the modern world. And despite the fact that globalization is often criticized and opposed, proper awareness

[21] M. Fairbanks, *Zasoby (kapitały) środowiska,* [in:] *Kultura ma znaczenia. Jak wartości wpływają na rozwój społeczeństw*, ed. L.E. Harrison, S. Huntington, Poznań-Kraków 2004.

[22] *Zrozumieć wzrost gospodarczy...*

of the social needs on the one hand and the desire to preserve cultural identity on the other should form the base for shaping the pro-development strategies and policies on national scale.

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DETERMINANTY WSPÓŁCZESNEGO ROZWOJU GOSPODARCZEGO

Streszczenie: Współczesny rozwój gospodarczy jest funkcją nie tylko klasycznych czynników rozwoju, takich jak: praca, ziemia i kapitał, lecz również tzw. nowych czynników rozwoju, takich jak: kapitał intelektualny, wiedza, edukacja, efekty *technology spillover*, kultura itp. W artykule przedstawiono wpływ „nowych" czynników na rozwój gospodarczy, ze szczególnym uwzględnieniem roli pracy, kultury i instytucji, rozumianych jako reguły postępowania w rozwoju gospodarczym.