



Course:

Economics II (macroeconomics)

Chapter 7

7.2 Long Run Economic Growth, Part II

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Introduction

The aim of the lecture is to analyze the nature of the endogenous theory of economic growth and to explain its origin as a response to the findings of non-confirmation theory of exogenous growth models (neoclassical model) during economic development in all countries of the world, thereby enhancing the understanding of economic theory as a theory of a constantly evolving in line with the needs of practice life.

Since the second half of the eighties of the last century the "new" theory of endogenous economic growth has started to form, in which long-term economic growth is determined by factors within the model. Mr. *Paul M. Romer* is considered as the main author of this "new" theory.

1 Endogenous theory of economic growth

In characterizing the Solow model and analyzing the determinants of economic growth rate, we drew from the reigning opinion that the contribution of capital growth by 1% leads to an increase in production by 0.25%, i.e. the ratio of capital on increasing the product (at unchanged levels of technological methods) is 0.25.

Later research in this growth theory, however, showed that the share capital, including human growth, is likely to be higher than in a standard Solow neoclassical model.

a) Positive externalities of capital investment in physical and human capital

P. M. Romer: *"... investing in knowledge represents a natural externality"*.

Investments in new technology (machinery, equipment) and investment in people (education, training, etc.) will not only increase the productive capacity of the investing firms and workers, but also the productive capacity of other firms and other workers, i.e. there are *positive externalities*.

Increasing returns to scale play a role in the increasing potential output.

P. M. Romer: *... knowledge may be increasing marginal product. In contrast to models in which capital shows a decreasing marginal productivity, knowledge can grow without borders "*.

Externalities of investment in fixed capital (physical) and human capital represent increasing returns to scale that enable to achieve a higher growth rate of the product than the sum of the rate of population growth and the growth rate of technological progress, i.e. two exogenous factors (see previous lecture).

Positive externalities of capital investments in fixed capital (realized "embodied" knowledge, innovation) generate productive business environment and the economic environment in general, and it avoids the "negative impact of diminishing returns on

capital. The consequence is that the increase in the savings rate could result in a permanent increase in the rate of growth of average labor productivity (compared with the conclusions of the Solow model, where a higher savings rate - after reaching a new steady-state has no effect on the average growth rate of labor productivity).

R. E. Lucas submitted the concept of positive externalities in the area of human capital: investment in education, science and research, increase in overall higher educational and cultural level of the country's population will "produce" significant positive externalities that lead to increasing returns to scale.

Increasing returns to scale as a result of positive externalities are one of the supporting pillars, one of the foundations of the "new" theory of endogenous long-term economic growth. The consequence of increasing returns to scale is that the increase in the savings rate could result in the continual growth of average labor productivity, respectively creation of new ideas and their application on the market in the form of new or improved products, processes and services, thus innovation requires a high level of national savings (the share).

The theory of endogenous economic growth is based on knowledge of the existence of a permanent connection between the level of national savings and the rate of economic growth.

Note briefly on controversial theoretical and practical implications of the concepts increasing returns to scale in the theory of endogenous economic growth: the richer countries are becoming richer (have an economic advantage), while poorer countries have an economic disadvantage because there is a problem for them to achieve faster growth in output per capita.

b) The theory of endogenous economic growth, technological progress and population growth

The theory of endogenous economic growth explains technological progress as a result of market activity that is a response to economic incentives coming from the market environment, i.e. the technological advances are conceived as endogenous factors (Solow technological progress is "coming" from outside of the model).

Technological progress is realized through innovation, i.e. the market uptake of new or improved products, processes (technology) or services.

The fundamental problem of endogenous growth is to stimulate creative invention, i.e. stimulating the creation of new ideas, in both, the private sector and the public (state) sector, in all other forms - science, development and education.

Impulses for economic growth acceleration resulting from endogenous growth theory:

1. creating tax incentives for expenditure on research and development of new technologies;

2. to promote investment in human capital, increase in spending on education and science;
3. to increase infrastructure spending: investment in the construction of schools, roads, airports, water networks, telecommunications, but also in education are highly effective (positive externalities) and increase the rate of return on private investment, bringing benefits to consumers and are an important factor in raising potential growth;
4. to reduce the budget deficits that crowd out private investment.
5. to reduce excessive regulation of economic processes.

Outline of selected other aspects of economic development

a) Economic growth, natural resources and environment

Fast, dynamic economic growth and high levels of economic development have led to concern about whether there is a depletion of natural resources, particularly resources unreproducible, and scarcity of natural resources began to be regarded as one of the possible limits of economic growth (Club of Rome).

Interventions economic growth in the balance of natural and biological processes:

- 1) economic growth (development) draws on elements of natural resources and transforms them in the production of goods and services;
- 2) simultaneously, a byproduct of economic growth (development) is a constant issue various elements that pollute or even devastating nature.

Under the pressure of these factors this results in disturbing the balance of natural processes. Natural regenerative processes of nature are often unable to secure a satisfactory reproduction of the environment.

Environmental protection requires additional resources. Their spending may lead to slower economic growth (development).

Based on the above considerations, the concept began to take shape called *sustainable economic development* (growth). This means a level and intensity of economic growth and development companies that do not harm or worsen the quality of the environment.

Great hopes are placed in technological progress that should make economic growth less dependent on natural, especially unreproducible resources and create new materials and develop new sources of energy.

Sustainable economic development = the development that meets the needs of the present generation to meet the needs of future generations.

b) Political, legal and other institutional conditions of economic growth

In recent years, an intense attention has been paid to examining the political, legal and other institutional conditions under which the economic growth (development) takes place. One of these streams has led to the emergence of institutional economics, which is currently engaged in the study of the legal, political and other institutional conditions in which the market mechanism works, and operators implement its decisions regarding the allocation of scarce resources.

Research confirms that the institutional framework has a significant impact on the efficiency of the economy of the country, on the pace of its growth and development.

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