

## **Economic Growth Theories: A Literature Review**

### **Théories de la croissance économique : Une revue de littérature**

**EL YAMANI Kaboul**

Phd Student

Faculty of Law, Economics and Social Sciences-Kenitra  
Ibn Tofail University  
Economics, Management and Organizational Development laboratory  
Morocco  
**[kaboul.elyamani@gmail.com](mailto:kaboul.elyamani@gmail.com)**

**QAFAS Ahlam**

Research Professor

National School of Commerce and Management (ENCG)-Kenitra  
Ibn Tofail University  
Economics, Management and Organizational Development laboratory  
**[ahlam.qafas@gmail.com](mailto:ahlam.qafas@gmail.com)**

**CHAREF Fatima**

Research Professor

Faculty of Law, Economics and Social Sciences-Kenitra  
Ibn Tofail University  
Economics, Management and Organizational Development laboratory  
Morocco  
**[facharef@gmail.com](mailto:facharef@gmail.com)**

**JERRY Mounir**

Research Professor

Faculty of Law, Economics and Social Sciences - Kenitra  
Ibn Tofail University  
Economics, Management and Organizational Development laboratory  
Morocco  
**[jemounir@yahoo.fr](mailto:jemounir@yahoo.fr)**

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## Résumé

La croissance économique a été toujours au centre d'intérêt des chercheurs depuis plusieurs siècles. Ainsi, l'étude des facteurs qui la génère et qui l'impact ne cessent de se développer jusqu'à nos jours. Les théories de la croissance économique se sont développées au fil du temps par plusieurs auteurs qui ont marqué l'histoire. Parmi lesquels on cite : Smith, Ricardo, Malthus, Marx, Schumpeter, Keynes, Harrod, Domar, Solow, Romer, Lucas et Barro. Le présent article essaie de présenter une revue de littérature synthétique qui présente les théories de croissance économique. Ces dernières, se classent généralement sous deux groupes, à savoir : Les théories traditionnelles (les théories classiques, la théorie de Schumpeter, la théorie de Keynes, les théories post-Keynésiennes et les théories néoclassiques) et les théories endogènes de la croissance. Ces nouvelles théories de la croissance, sont caractérisées par une grande diversité des sources de croissance, dont principalement : le capital physique et l'innovation technologique, le capital humain et le capital public.

**Mots clés :** Croissance économique ; Théories traditionnelles de la croissance ; Nouvelles théories de la croissance; Croissance exogène ; Croissance endogène.

## Abstract

Economic growth has always been the focus of researchers for several centuries. Thus, the study of the factors that generate it and its impact continues to develop to this day. The theories of economic growth have been developed over time by several authors who have left their mark on history, such as: Smith, Ricardo, Malthus, Marx, Schumpeter, Keynes, Harrod, Domar, Solow, Romer, Lucas and Barro. This article attempts to present a synthetic literature review that introduces the theories of economic growth, which generally fall into two groups, namely: Traditional theories (the classical theories, Schumpeter's theory, Keynes' theory, post-Keynesian theories and neoclassical theories) and endogenous theories of growth. These new theories of growth are characterized by a great diversity of growth sources, mainly: physical capital, technological innovations, human capital and public capital.

**Keywords:** Economic growth; Traditional growth theories; New growth theories; Exogenous growth; Endogenous growth.

## Introduction:

Theories of economic growth have developed considerably over time. These theories attempt to clarify the necessary conditions that lead to growth and identify its general determinants. These theories have been established by groups of authors with different orientations and ideologies.

The classical school's authors represented mainly by Smith, Ricardo, Maltus and Marx contributed to the formation of the first associated reflections of the theory of economic growth. They mainly cite those related to the division of labor, capital accumulation and the law of diminishing returns.

Classical theory was followed by other approaches, including that presented by Schumpeter in 1911. The latter introduced the term "innovation" into the economy and examined in a new way the importance of the entrepreneur in terms of economic growth. In the aftermath of the 1929 crisis, many economists, inspired by Keynes' work, questioned the possibilities of balanced growth. Domar and Harrod's models sought to account for the essential conditions and characteristics of the equilibrium of a growing capitalist economy. With a long-term perspective, Solow produced the first neoclassical growth model in 1956. Solow's model highlights the importance of technical progress for long-term growth. However, technical progress was considered to be exogenous. To compensate for this deficiency, new theories were developed in the mid-1980s under the name of endogenous growth theories. These modern theories will try to explain the endogenous character of the technical progress that Solow initiated.

In this sense, the present article aims at giving a general overview of economic growth theories, based on a synthetic presentation of growth theories that have most marked economic history, by trying to answer the following central question:

According to the different established theories, how can a country achieve economic growth?

To answer this question, this paper is divided into two parts. In the first part, we will present the traditional theories of economic growth. Namely: the classical theory, Schumpeter's theory, the Keynesian and post-Keynesian theories and neoclassical theories. In the second part, we will present the new growth theories that seek to explain growth, mainly by physical capital, technological innovations, human capital and public capital.

## 1. Traditional theories of economic growth

### 1.1. The classical theory

The classical theory of economic growth includes the contributions of several authors, the most famous of which are: Smith, Ricardo, Malthus and Marx.

Adam Smith generally marks the beginning of classical economics with his famous book “The Wealth of Nations”. He considered that the markets were reorganizing themselves once again, through an “invisible hand” that helped to move their wheels in order to achieve a natural balance for them, in particular, when they are free of any constraint. When competition is perfect, buyers can choose between different suppliers, leading non-competitive firms to fail. This is why Smith stressed the importance of competition and warned against the dangers of monopoly (Smith, 2007).

Economic growth, for many classical authors, is the result of the accumulation of capital, i.e., the quantity of the means of production available to the workers. The increase in *per capita* wealth comes from that of capital *per capita*. The improvement in the production of the factors of production (land, labor and capital), results in a growth of labor productivity and an increase in the size of capital in operation.

Classical authors have considered that population growth is endogenous and depends on the available means of subsistence. Investment was also recognized as endogenous and depended on the work and savings of capitalists. Profit is the motive for capital accumulation: it must exceed a certain level for capitalists to decide to invest. Profit is also the source of investment. Savings, which finance investment, are essentially the business of capitalists, while wage earners consume all their income. The accumulation of capital is thus represented by the classics as resulting from the investment of the surplus, the unconsumed fraction of the product. Also, the growth of land production was related to geographical discoveries and technological improvements in the fertility of existing land (Lavrov & Kapoguzov, 2006).

Division of labor and technological improvements were the main drivers of productivity growth according to Smith. Smith saw competition as central to the national economy as a whole, and believed that the economy could grow rapidly as a result of technological advances<sup>1</sup>, of which the division of labor is a part (Reid, 1989). Smith put forward the idea that the division of labor is a source of productivity gains: through savings in the time it takes

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<sup>1</sup> Technical progress is present in the thinking of the classics, but it is not integrated into the overall analysis of growth and is not invoked to remove the prospect of a steady state.

the same individual to change operations, and above all through the increase in expertise resulting from specialization. It is not only the ability to carry out a given operation, but also the ability to invent more specialized and, therefore, more efficient techniques and tools. It is not only the division of labor within the firm that is invoked, but also the division of labor between firms, bound by the market, which has similar consequences.

In his theory of comparative advantage, Ricardo suggests that a nation should concentrate its resources only in those industries where it is most internationally competitive and establish trade links with other countries to obtain products that are no longer produced domestically. Ricardo's point of view associated with mechanization illustrates that machinery is seen as a destroyer of employment, substituting capital for labor, and not as a source of productivity gains. The introduction of new technologies leads to a decrease in the demand for labor, based on special forms of technological innovation (Ricardo, 1817).

However, the classics share a rather pessimistic view of long-termism, they considered that growth is destined to disappear gradually, to cancel itself out in a "steady state". The reason for this lies in the evolution of the distribution of national income induced by the accumulation of factors<sup>2</sup> and the decrease in marginal yields in agriculture.

Like Ricardo, Malthus considered that economic growth tends to slow down and that the economy converges towards a stationary state. He was very pessimistic about the long-term sustainability of growth. Malthus considered that the population of this planet will grow at a rate far exceeding the world's capacity to feed its own population. In fact, Malthus was unable to grasp the power of technological change to increase crops and food (Malthus, 1798).

Marx's conclusions are similar to those of the classics. Economic growth is not a sustainable phenomenon. On the one hand, the inevitable decline in growth is due to declining returns to scale in industry, not agriculture. On the other hand, Marx identifies and analyzes technical progress as a factor of productivity. But this is not sufficient to counteract the exhaustion of growth. Finally, Marx emphasizes the role of political, social and economic institutions. This is a theme to which recent theories return, albeit from a different perspective (Guellec & Ralle, 2003).

However, the theory of the classical school has received a number of criticisms, mainly concerning the pessimism associated with the decreasing returns of capital and the steady state of long-term growth; the misperception of wages and profits: In fact, wages have not

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<sup>2</sup> The factors labor, capital and land.

reached subsistence level, and developed countries do not reach the level of permanent depression. This interpretation is not a convincing explanation of the economic process as it is today.

## **1.2. Schumpeter: Innovation**

An important contribution to the theory of growth was introduced by Schumpeter, mainly through his book "The Theory of Economic Development", published in 1911. Schumpeter introduced the term "innovation" into the economy and examined in a new way the importance of the entrepreneur in terms of economic growth (Lavrov & Kapoguzov, 2006). Innovation is thus at the heart of the growth process. Schumpeter distinguishes five types of innovation: new products, processes, markets (outlets), sources of new raw materials, and changes in the organization of firms. The result of an innovative company is to escape from the competition. The innovator is in a monopoly position in the market he or she has invented. He can thus set a selling price higher than his marginal cost (which would be the price in a perfectly competitive situation), and thereby extract a rent from his customers. This rent is only temporary: the innovator is then subject to imitation. Competitors enter the path he has traced, offering similar goods, forcing him to reduce his price or to innovate again in order to differentiate himself again. The race for income is thus the driving force behind economic progress and especially technical progress (Guellec & Ralle, 2003).

## **1.3. Keynesian and post-Keynesian theories**

### **1.3.1. Keynesian theory of growth**

Keynesian theory focuses on the importance of employment and returns to capital (Keynes, 1939), because Keynesian theory considers effective demand as one of the main factors and believes that an increase in effective demand should stimulate economic growth, and Keynesian theory aims to explain the fluctuations that occur in economic activity. Keynes proved that consumption, savings, and investment decline in recessions due to high unemployment and low income. He argues that treatment of the severe recession is to stimulate investment through the use of monetary policy, i.e., lower interest rates. When the Central Bank reduces interest rates, commercial banks reduce interest rates on that basis.

On the other hand, through the use of fiscal policy; using measures such as tax cuts or increases in public spending and government investment in public infrastructure, will lead to job creation and increased income and demand.

The limitations of the Keynesian approach is the failure to take into account other factors of production, such as increased employment, the degree of equipment utilization, and better

organization of production. Thus, this approach only takes into account short-term periods and the specific situation of an economy in depression.

### 1.3.2. Post-Keynesian theories: Harrod-Domar Model

At the end of the 1930s and during the 1940s, several authors, mainly Domar and Harrod, extended Keynes' analyses over the long term, introducing the accumulation of capital and labor factors (Harrod, 1939 & Domar, 1946). The mechanisms invoked by Keynes concern the short-termism, which is defined by the fact that production capacities are fixed. Harrod and Domar extend the analysis, asking more about the stability of growth than about its sources.

Domar and Harrod are very pessimistic about the possibility of sustainable growth with full employment. However, they do not attribute this to technical factors (diminishing returns to scale), but to the problems of rigidity<sup>3</sup> and coordination identified by Keynes. In particular, there is no place where agents can communicate their investment projects to each other and coordinate their demand expectations. They are therefore far removed from the new theories that focus on technology.

The limits of the Harrod-Domar theory can be explained by historical conditions. This theory could adequately describe the real processes of economic growth in the 1930s and the post-war period, when economic growth actually depended mainly on growth in the use of production capacity. However, in the 1950s to 1970s, the prospects for production development depended mainly on qualitative and technological changes, which are reflected in neoclassical theories of economic growth.

### 1.4. Solow's Neoclassical Theory: Exogenous Technical Progress

The representation of growth offered by Solow, following the classics, can be summarized as follows: the return on investment, and thus the rate of growth of the capital stock *per capita*, declines when the stock becomes higher. Capital has diminishing returns that set a limit to the accumulation process and as a result spontaneously leads growth to cancel itself out. Only technical progress allows the rate of return on capital to be maintained, counteracting the tendency to stagnation. But this technical progress is exogenous: it is given to agents, in the sense that its level is fixed outside their intervention. The equilibrium in such a model consists of a rate of growth of the economy (*per capita*) equal to the rate of technical progress, which

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<sup>3</sup> According to Keynes, the spontaneous functioning of market economies almost inevitably leads to unemployment. There are two reasons for this: nominal rigidities that prevent wages and prices from adjusting; coordination failures that lead agents to have expenditure expectations whose sum (effective demand) will not allow full use of supply capacities, and in particular of labor.



is itself fixed outside the model. This model therefore does not explain growth. It accounts for the adjustments of variables (capital, production, savings) around a growth path that is fixed (Solow, 1956). The scope of the model is therefore singularly limited. It is not possible with such a tool to account for long-term trends in economies.

## **2. Endogenous growth Theories**

The inadequacy of the neoclassical theory of growth has given rise to the so-called theories of endogenous growth. However, the group of endogenous growth models is so heterogeneous that one cannot speak of a uniform theory. All the approaches try to explain growth, without resorting to exogenous parameters. Endogenous growth theories have as a starting point the neoclassical approach, where theorists have tried to determine technological progress endogenously rather than exogenously. In these approaches, it is explicitly taken into account that technical progress results from the concrete activities of individuals. All approaches to endogenous growth have in common the rejection of the classical postulate of a long-term decline in the productivity of capital.

Contrary to neo-classical theory, which considers the accumulation of physical capital as the only source of growth<sup>4</sup>, the models of endogenous growth are characterized by a great diversity of the sources retained, including mainly: physical capital and technological innovation, human capital and public capital.

### **2.1. Physical capital and technological innovations**

Private investment in physical capital is a common source of both old and new theory, but the new theory treats it differently. The founding model of endogenous growth presented by Romer is based on externalities between firms: each firm's investment not only increases its output, but also increases the productivity of other firms because of the existence of technological externalities. Investment is a source of learning by doing, and this knowledge cannot be appropriated by the firm that produces it: it inevitably spreads to other firms. Investment causes growth directly and through its effects on technical progress<sup>5</sup> (Romer, 1986).

Romer's approach is based on the consideration of a specialized sector in the production of knowledge. This research and development activity uses human capital as well as existing

<sup>4</sup> Theorists obviously do not ignore the other sources, but they do not integrate them explicitly into the models, considering that the exogenous variable called "technical progress" captures all these effects.

<sup>5</sup> Technology can be defined as "a body of knowledge relating to certain types of events and activities associated with the production and transformation of materials". Technical progress thus refers to an increase in the capacity of humans to master nature, in the form of greater productivity or new products.



knowledge to generate new knowledge. Romer considers knowledge as a production factor characterized by the non-rivalry of its use. Positive technological externalities mean, therefore, that the knowledge of a research institution is generally made freely available to other researchers (Romer, 1990).

## **2.2. Human capital**

Lucas emphasizes the importance of human capital<sup>6</sup> for the growth process. Human capital is created both through experience in the production process (Learnig by doing) and through formal education (Trainings, ...).

Lucas considers the accumulation of human capital as a source of growth (Lucas, 1988). The growth rate of human capital acquisition for an individual is proportional to the time of training and especially to the stock of human capital of this individual (the more one is trained, the easier it is to progress in one's training). The firm's output depends on the physical and human capital it employs, but also on the average level of human capital in the economy. This last feature, explained by Lucas, is described as follows: the efficiency of human capital depends on its level in the economy. An individual being more efficient if the level of human capital in the economy is high, that is, if he or she is surrounded by efficient people. This explanation reflects the spillover effects that skilled individuals exert on each other (D'Autume, 1994).

## **2.3. Public capital**

To the models of endogenous growth cited above, BARRO (1990) introduces public capital as a mechanism of endogenous growth. It corresponds to communication and transport infrastructure. In theory, public capital is only a form of physical capital. It results from investments made by the state and local governments. Public capital also includes investment in education and research (Dejardin and al., 1998).

Guellec points out those different sources of endogenous growth interact. According to him, the improvement of the productivity of production factors, and the resulting growth, depend closely on investment decisions in endogenous growth factors and in the production of positive externalities. The source of growth is no longer exogenous. It is determined by resource allocation choices.

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<sup>6</sup> Human capital refers to the stock of economically valuable knowledge incorporated into individuals. It includes not only skills, but also health, nutrition and hygiene.

Investment in basic research, for example (public capital), cannot do without impact on investment in research and development, appropriable by private agents (technical capital). The schooling efforts generally supported by the government contribute to the improvement of human capital. We can expect the effects of this improvement on the innovative capacity of the various agents. Innovation is gradually incorporated into physical capital. Investment in this capital leads to new learning and the emergence of new skills that benefit the entire productive system (Guellec, 1995). From these considerations, we can conclude that the pace of economic growth may, on this basis, be different from one economy to another.

### **Conclusion:**

After reviewing the main theories that have been developed throughout history, we can conclude that the theoretical analysis of economic growth is mainly grouped in the following theories: Classical, post-Keynesian, neoclassical and endogenous.

Economic growth, for many classical authors, is the result of capital accumulation. The improvement in the production of the factors of production (land, labor and capital), results in a growth of labor productivity and an increase in the size of capital in operation. The division of labor has been one of the main drivers of productivity growth, according to Smith. Smith saw competition as central to the national economy as a whole. However, the classics share a rather pessimistic view of the long-termism, they considered that growth is destined to disappear gradually, to cancel itself out in a "stationary state".

The post-Keynesian theory of growth emerged on the theoretical and methodological basis of Keynes' teachings of macroeconomic equilibrium. It is characterized by an approach based on growth driven by the share of aggregate demand, the key role of investment in economic growth and the active role of economic policy. In the neo-Keynesian orientation, Harrod-Domar's theory of growth stands out in particular.

The neo-classical theories of growth are based on the principle of stable equilibrium without government interference. Solow's exogenous theory emphasizes that technological progress is the only basis for a sustainable growth. However, in Solow's theory, technological progress is considered as an exogenous factor.

In the 80-90s new growth theories began to emerge. These are endogenous growth theories. In these theories, technological progress was considered an endogenous factor of economic growth, generated by internal causes. For the first time, economists such as Romer, Lucas and Barro put forward the hypothesis of the endogenous character of technical progress, based on investment in human and public physical capital.

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