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## Economic Degrowth and Ecological Sustainability



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### Synonyms

Decoupling; Degrowth movement; Ecological economics; Environmental justice

### Definitions

Degrowth is an equitable downscaling of production and consumption is considered in such a way that it increases human welfare and also leads to the improvement of ecological conditions at the regional and global levels in the long term. The idea of degrowth arose in response to three environmental, social, and economic crises.

### Introduction

Economic growth is an increase in the market value of goods and services produced by an economy over time, which is contractually measured as the percent rate of increase in real gross domestic product, or real GDP, or the growth of the ratio of GDP to population (per capita GDP). The economic growth is a critical macroeconomic goal. Since it improves living standards, reduces absolute poverty, creates new jobs, and solves other social problems through increasing the country's wealth. That is why high levels of economic growth have always been one of the main aims of economic policy in many countries around the world (Brad et al. 2016; Poliduts and Kapkaev 2015).

In the late 1960s and early 1970s, a number of researchers identified the economic growth as a major cause of environmental challenges. In this way, higher levels of economic activity (both production and consumption) always require higher amounts of energy and raw materials which lead to more waste products (Ehrlich 1971). In this regard, researchers described that future growth will be restricted due to the depletion of natural resources and the reduced capacity to absorb pollution by the environment. Of course, this claim was refuted by leading economic growth theorists, including Solow (Kerschner and O'Neill 2015). Continuation of this trend has caused to increase the social, economic, and environmental problems disproportionately with the growth of the

global economy. Such a worrying trend has been elaborated in many studies conducted by many researchers. Until today, both the sustainable growth and green growth have become the main discourse in many societies (OECD 2011; UNEP 2011).

The occurrence of these problems led to the emergence of sustainable movement and inclusive economic growth (Khoshnava et al. 2019). Accordingly, a set of 17 Sustainable Development Goals (SDGs) for 2015–2030 were approved in September 2015 with the participation of 193 United Nations (UN) member countries (UN 2016). The SDGs illustrate the world's inclusive strategy for social inclusion, environmental sustainability, and economic development (Allen et al. 2017). SDGs form a global roadmap that countries are expected to take into account their national development agenda (UN 2016). Indeed, the SDGs include 17 goals, 169 targets, and 232 indicators that provide the basis for a sustainable future by maintaining stability among the economic, social, and environmental aspects of all policies and programs (Costanza et al. 2014; Allen et al. 2017). Achieving the goals of SDGs depends on the cooperation of governmental and non-governmental organizations (Allen et al. 2017). While the SDGs represent a global agenda, achieving them requires local action. The participation of all countries in this global consensus is expected to reduce inequality, protect the environment, and eradicate poverty (Khoshnava et al. 2019). In the view of the SDGs to end poverty, economic growth must be inclusive to provide sustainable jobs and promote equality (United Nations 2017). Of course, it should be mentioned that many critics consider both the growth and sustainability as fundamentally incompatible together, based on which they have opposing approaches of proponents of degrowth and steady-state economy (SSE) (Jackson 2009; Latouche 2009). As such, in the present research, first, the historical course of growth theories and models is investigated. After that, the processes of how to achieve degrowth and steady-state economy is described by exploring the existing theories in the field of ecological sustainability and economic growth.

## The Concept of Economic Growth

The economic growth is a complex and long-term phenomenon that is affected by several factors such as population growth, available resources, infrastructure quality, resource utilization methods, government interventions, and institutional and cultural patterns (Haller 2012). In the overall sense, the economic growth can be considered as a change in potential production due to changes in labor supply and capital (namely the production factors) as well as an increase in productivity of these production factors. It is worth mentioning that the quantitative increase in production over a certain period compared to the same period is called economic growth (Moroianu and Moroianu 2012). From another point of view, economic growth is characterized as the long-term increase in production capacity to increase total supply to satisfy the needs of the population. Moreover, the economic growth is often associated with both innovation growth and technological change. The economic growth can be measured in two ways:

1. Increasing in real GNP at full employment over time; this method is employed to show the increase in community production.
2. Increasing in real GDP per capita over time. This criterion is applied to indicate the standard of living of people in the community and compare it with other countries (Poliduts and Kapkaev 2015).

Economic growth can lead to shifting the production–possibility frontier to outward. This shift is either due to an increase in the amount of society's productive resources or the technological advances.

## Review of Theories and Models of Economic Growth

The economic growth patterns are theories to interpret and demonstrate the observed realities of growth in the world such as high per capita income differences, high growth rates among

countries, unstable growth rates over time, and the close relationship between production growth and the growth of global trade volume, and finally the low growth rate of poor countries. Here, distinguishing the causes and factors leading to these realities, identifying the factors improving the economic growth of countries, as well as their inclusion in the policy decision-making process, has led to the growth patterns and theories become very important (Romer 1996).

These patterns can provide a tool to estimate and predict the economic growth sources of the community and the future economic growth. In this way, several growth patterns include a logic that helps us predict the middle-term and long-term periods of economic growth.

The recent studies conducted in the field of economic growth include various trends that are historically and methodologically different with each other.

### The Classical Theory of Economic Growth

The most famous and outstanding representatives of classical schools of thought are Adam Smith (1723–1790), David Ricardo (1772–1823), Thomas Malthus (1766–1834), Karl Marx (1818–1883), John Stuart Mill (1808–1873), Jean-Baptiste Say (1767–1832), and others. Adam Smith (1723–1790) introduced the classical theory of economic growth for the first time (Sharipov 2005). Of course, it must be mentioned that mercantile system (fifteenth to seventeenth centuries) and physiocrats (in the second half of the eighteenth century) had been proposed before Adam Smith's theories (McDermott 1999). Mercantilists were in favor of surplus trade and believed that by restricting imports and encouraging exports, the country's wealth will increase. However, physiocrats established the principle of "natural order." Physiocrats opposed to state's intervention in economic processes (Osipian 2007).

In the Smith's approach, the main driver of economic activity is "self-interest." He believed that in foreign trade, if the two countries trade freely, both profit and wealth will increase. The classical economists believe that without any intervention, markets will usually adjust and

move toward natural balance. Adam Smith refers to this issue as the "invisible hand" (Sharipov 2005). Of course, if there exist some obstacles to free competition, this invisible hand cannot properly perform its job. Indeed, Smith emphasized the importance of competition and considered monopoly dangerous.

Adam Smith highlighted the importance of increase in society wealth to improve the productivity of production factors (including labor, land, and capital) and argued that the growth in labor productivity would lead to increasing the capital performance. Furthermore, the division of labor and improvement of technology is the main driving forces to increase productivity (Smith 2010). In other words, from the Smith perspective, labor is the main source of wealth creation. However, the most significant determinant of wealth and welfare of a country is "division of labor." In this regard, the share of the labor force is expected to increase in production via the population growth. Meanwhile, the capital is an endogenous variable that depends on the savings of capitalists, in which it should be considered not only for personal consumption but also for industrial purposes (Reid 1989). A growth in land production will also be possible by increasing the area under cultivation and advanced technology that affects the fertility of the land.

From Malthus (1766–1834) point of view, population growth is potentially exponential while the growth of the food supply or other resources is linear. He considered the land to be an essential factor in food production. Based on this assumption, he argued that food production will decrease due to the law of diminishing returns of production factors, and consequently reducing the quality and productivity of land. As such, the population growth exceeds the growth of food production, which will increase the conflict over limited resources, wars, unemployment, epidemics, and hunger. In this context, Malthus proposed that in addition to natural control (war, disease, and etc.), the population growth should be restricted by moral pressures and family planning programs (Lavrov and Kapoguzov 2006). Regarding that Malthus did not pay attention to technology and the important role of technology

in economic growth and the progress of society, his calculations were not entirely correct in practice. Nevertheless, his implicit introduction of the law of diminishing marginal returns on production factors still plays a critical role in economic analysis (Lavrov and Kapoguzov 2006).

Based on the concept of opportunity cost, David Ricardo (1772–1823) developed the theory of comparative advantage. According to this theory, not only having an absolute advantage but also having a comparative advantage can provide a good opportunity for countries in the field of foreign trade. Based on this theory, free trade between countries increases the amount of global production. As a matter of fact, if a country produces particular goods at lower comparative cost (in comparison with other partners and competitors), that country will be able to produce some of that goods at a lower cost and exchange its' products with other goods that are being produced in other economies. He believed that if the countries allocate their production resources to the production of goods (in which they have comparative advantage), and then try to import other goods through the benefits of exporting those goods, the world community would benefit from the free trade. Meanwhile, Ricardo believed that differences in labor productivity between countries determine the competitive advantage (Rostow and Kennedy 1990).

John Stuart Mill (1808–1873) completed the theory of the classics by emphasizing the constant accumulation of capital to realize the process of long-term economic growth. Based on this theory, an increase in capital may lead to an increase in the demand for labor, which will stimulate long-term population growth by increasing real wages. If the capital accumulation is faster than the growth of the labor force, the number of the labor force will increase as well; so that it would lead to an increase in the demand for consumer goods, especially food. However, food production that is mainly carried out in agriculture can be faced with decreasing return to scale. Therefore, there will be some challenges about the decreasing the marginal productivity, increasing capital, and declining investment incentives (Sharipov 2005).

### **Innovative Growth Theory of Schumpeter**

Schumpeter (1883–1950) believed in a relationship between economic and innovation. His name in economics is associated with “Entrepreneurship.” He believed that entrepreneurial innovation plays a dominant role in economic growth and development, in addition to discovering new resources (Schumpeter 1934). According to Schumpeter, the prosperity of capitalism will be accomplished with the emergence of innovative and creative entrepreneurs and businessmen. From Schumpeter’s point of view, the monopoly was positive, and it was believed that the use of new combinations of production factors, fundamental changes in production technology, introducing some new goods, and entering into new markets could create economic change or growth and development (Maddison 1982; Lavrov and Kapoguzov 2006).

### **Keynesian and Post-Keynesian (Neo-Keynesian) Growth Theories**

Keynesian and neo-Keynesian growth theories have a considerable list of representatives, which includes John Maynard Keynes (1893–1946), Roy Harrod (1900–1978), Evsey Domar (1914–1997), Joan Robinson (1903–1983), Nicholas Kaldor (1908–1986), Luigi Pasinetti (1930 – till now), and James Meade (1907–1995). In this context, Keynes reacted critically to the market economy and believed that government intervening in the economy is necessary. Keynes, in contrast to the classics, was assured of the unbalanced nature of economic growth. Indeed, he considered the classical economy’s assumption referring to achievement of a steady state in the long run as an unrealistic assumption.

The Keynesian model was formed based on an aggregate demand. It was believed that increasing the aggregate demand would lead to achieving the economic growth. In other word, as demand increases, all production factors are employed to disappear the unemployment. Besides, Keynes said that during the recession and rising unemployment, declining incomes would reduce consumption, savings, and investment. As such, the government can play a significant role in such circumstances to increase the demand by

implementing expansionary fiscal policies (reducing taxes or increasing in government spending). Keynes considered the lowering interest rates (monetary policy) and government investment in infrastructure (fiscal policy) as the exit strategies for recession (UN 2011). Furthermore, he highlighted the investment as a key driver of both economic growth and revenue growth in terms of multiplier effect.

The neo-Keynesian economic growth model, known as the Harrod–Domar model theory, referred the investment not only as a factor in income growth, but also as a factor in creating production capacity and increasing production and supply of goods. Based on the Harrod–Domar model, capital accumulation or investment growth provides a dynamic balance between aggregate demand and aggregate supply. Besides, the economic growth depends on the rate of savings, the ratio of capital to production, and the rate of depreciation. In such circumstance, the government can affect the share of savings in either the national income or the rate of technological progress that determines the capital productivity in order to preserve the balanced growth of the investment. Here, it should be mentioned that the Harrod–Domar was the first growth model to investigate long-term economic behavior. Harrod–Domar model describes the mechanism of balanced growth based on the principle of acceleration (the ratio of investment growth to income growth) as well as entrepreneurial expectations by introducing the concept of the path of economic growth (Sharipov 2005).

In the Harrod–Domar theory, the real growth rate (determined by the savings ratio and the ratio of capital to production) is determined by the rate of productivity growth of labor and capital. In this context, if the real growth rate corresponds to the guaranteed growth rate (growth rate that is achieved through the full use of available capital resources), the economy will experience the sustainable continuous development. At the end, the dynamic stability equilibrium of the economic system will be established by equalizing the guaranteed and natural growth rate (growth rate in full employment conditions). In addition, considering that the dynamic balance in the market

system is inherently unstable, it is critical for the government to implement some active and intentional measures to save the full employment (Sato 1964). Gradually, the neoclassicists criticized this economic model. One of the main criticisms was that this model could not explain a real economic growth. Besides, the requirements of this model include focusing on only one of the production factors (i.e., accumulation of capital) and ignoring other factors, especially technology-related factors (growth of education, skills, improving the production organization), the market mechanism, substitution of capital and labor, and the relationship between the economic growth and the growth of labor use (Sharipov 2005).

### Neoclassical Growth Theories

In the 1950s and 1970s, with the advent of neoclassical economic growth theories, both the quality and technological change were considered as the economic growth and development criteria. Based on this theory, economic growth can be achieved by introducing new technologies, improving productivity, and enhancing the organization of production in a competitive market. In 1956 and 1957, Robert Merton Solow (1924 – present) developed the neoclassical growth model, represented as the Solow–Swan neoclassical growth model. The Solow growth model represents the neoclassical growth models. The production function used in this growth pattern is a homogeneous linear production function with a constant return to scale, which has a special shape of the Cobb–Douglas production function (Solow 1956).

The Solow model consisted of four key variables including production, capital, labor, and technology. This theory indicates the internal relationships between economic growth and three sources of investment, labor, and technological advancement. This theory describes that the savings rate is an important factor to specify the level of capital; so that the higher saving rate can generate a higher level of production through providing more capital (investment growth). Meanwhile, Solow emphasized the population growth as one of the main reasons for continued economic growth. He then argued that population growth

should be accompanied by capital growth per unit of labor. From Solow's perspective, the third source of economic growth was technical progress, which was considered exogenous (Romer 1996).

This technological progress does not mean replacing the machine with the human, but qualitative changes in production (increasing the level of training of the workforce, improving the production organization, increasing the production scale, etc.). Moreover, it was believed that technological progress would be the engine of sustainable growth in the long-term. Solow also proposed "the golden rule of accumulation," which determines the optimal level of capital intensity. This rule states that by achieving an optimal saving, the per capita consumption will be maximized over time (Solow 1957). Solow also believed that the limitations of natural resources might also affect the continuity of growth, in which the assumptions of the elasticity of substitution between capital and natural resources are very important.

### Theory of Endogenous Economic Growth

In the late 1980s and early 1990s, along with the theories of Paul Romer (1986), and Robert Lucas (1988), the theory of growth was progressed. They developed the endogenous growth theory which included a mathematical explanation of technological progress. The basis of this theory was that knowledge and technological progress was endogenous. In this regard, the economic growth was mainly obtained by the internal factors. Indeed, the most important factor in the growth of investment-based technology innovations is the simultaneous development of technology and human capital. In this way, the endogenous growth models are similar to neoclassical models. However, it should be kept in mind that they differ significantly in their initial assumptions and results (UN 2011).

It is believed that the endogenous growth theory has corrected some of the shortcomings of neoclassical theories. In this regard, the following issues can be mentioned.

In neoclassical theory, the assumption of diminishing marginal productivity of capital is

prevailed. Nevertheless, the endogenous growth theory holds that the scale of production can affect the economy, external effects, and the positive impacts of externalities on the growth of investment profitability. In the Solow model, it is believed that the government is unable to influence long-term economic growth through monetary and fiscal policies. In other words, the government role in economic growth is only limited to the impact on the savings rate. However, the endogenous growth theory assumes that the government might be effective to generate growth through supporting the development of science and technology, creating a favorable investment condition, and supplying new technologies. In fact, it supports the government intervention in the development process.

It should be mentioned that the knowledge variable is an important factor in Romer endogenous growth theory. Romer believes that new knowledge or information will facilitate the creation of research-based technology. As such, the technological changes may cause to grow the capital accumulation, in which both of these factors can lead to the production growth (Romer 1994). It should be kept in mind that the economic growth rate depends directly on the amount of human capital and the focus on acquiring new knowledge. In other words, technological innovation affects scientific resources in terms of the human capital as well as research and development (R&D). It should be noted that the scientific resources are utilized to produce the final goods and increase the production growth rate. According to Romer, countries can achieve higher economic growth rates via higher human capital accumulation. In addition, the development of free trade by increasing the growth would lead to an increase in the total human capital (Romer 1989). Therefore, making the necessary conditions to protect property rights in the face of both imperfect competition and weakness of law in the field of intellectual property can also be effective to enrich the economic growth.

In this context, Lucas also believes that the community's choice to participate in production in the current context or to accumulate human capital is of the opportunity cost (the loss of

potential gain from other alternatives when one alternative is chosen). Correspondingly, reducing the time spent on production would lead to a reduction in the production of the current product. Nevertheless, investing in human resources increases product growth at the same time. Overall, the factors education and human capital are included in the production function in these aforementioned models.

Some researchers such as Grossman (1953 – till now) and Helpman (1946 – till now) have introduced the “research and development” as the main driver of growth, based on which they considered the variable endogenous effect of innovation on the economic growth rate. According to the researchers, in a country that enjoys a relatively good condition in terms of scientific and technology, subsidies for research and development may increase the economic growth of the rate. In contrast, in a country with lower levels of research and development, taking the trade support policies can help the economic growth. Of course, this policy is not suitable for countries which have high technical and scientific potentials. In other words, technological progress is the driver of economic growth which ensures the acquisition and accumulation of new knowledge of the production growth in long-term periods. Of course, the realization of this process requires the exclusive use of innovation by the firms. As a result, based on the endogenous growth theories, the difference in growth rates of different countries is mainly resulted from the effectiveness of various government measures in the field of scientific, technical, and industrial policies, as well as the impact of the processes of international integration and trade.

## **Environmental Sustainability**

Investigating the implications of economic growth on environmental degradation has been emphasized for more than two decades. The relationship between the economic growth and the environment has always been controversial. Hence, higher levels of economic activity (both production and consumption) always require

higher amounts of energy and raw materials which lead to more waste products (Ehrlich 1971; Jansson 1994). In other words, the uncontrolled extraction of natural resources, despite an increase in income, will lead to the destruction of the quality of the environment and reduction of human welfare (Daly 1992). Consequently, the natural resources destruction can expose the economic activity at risk (Jansson 1994). Therefore, some researchers believed that the economic growth must be stopped to protect the environment, so that the economy can move toward sustainability. However, some scientists did not believe in the natural resources limitations to decrease the economic growth. They considered sustainable growth as an indefensible and impractical concept (Beckerman 1992). From the group point of view, there is no evidence that environmental quality is continuously declining with the economic growth (Grossman and Krueger 1994).

This depth relationship between the environment and economic growth has led to paying attention to the relationship between per capita income and pollution. In fact, by introducing the theory of extraction and discharge of natural resources and economic growth in the 1960s and 1970s, along with endogenous growth theories in the 1990s, exploring the relationship between pollution and national income was expanded. Kuznets (1901–1985) concluded that in the initial stages of economic growth, environmental quality declined; however, once income exceeded a certain threshold, the environmental quality began to increase (Panayotou 2000). In other words, this phenomenon creates an inverse U-shape relationship between the economic growth and environmental degradation which has been called in the economic literature as “environmental Kuznets curve (EKC).” The emergence of this theory pushed the researchers to perceive the economic growth as the most significant and safest way to preserve and improve the environment in the long-term period. Of course, this hypothesis has not been confirmed in many countries. Moreover, the low productivity of basic production factors (natural and human resources) in developing and emerging economies is known as a major

challenge in this context which has doubt achieving the environmental protection at a certain level of economic welfare.

Besides, people awareness of environmental issues is increased at high levels of economic growth, and therefore the environmental maintenance is considered as a value in society. In such circumstances, the government is expected to apply some strict environmental standards as well as to force the environmental pollutants to implement environmental standards to improve the environmental quality (Arrow et al. 1995). However, one of the most important challenges in this context is that increasing per capita income does not necessarily mean increasing the income of the middle class of the society. Therefore, if there is no proper distribution of income, economic growth may even lead to a decline in demand for environmental protection. In any case, the economic growth is not a complete replacement for environmental policies, but environmental protection requires the adoption of desirable environmental policies. From another perspective, the environmental problems are temporary phenomena, as the economic growth and technological innovation solve these problems over time (Brad et al. 2016).

Despite these conclusions, it is worth mentioning that if there is no coordination between industrial growth, environment, and resources, there will be a great imbalance among different parties (Zhengge 2008). This denotes that the economic growth must be seriously accomplished using a proper and balanced structure. The technological progress of industrial sectors can be effective in lowering the environmental footprint. This is because there is more concern about air quality, global warming, and greenhouse gas emissions from industrial production. That is, adopting a sustainable industrial growth strategy should be undertaken based on a combination of both ecological and economic considerations (Andreoni and Levinson 2001). It should be mentioned that more pollution could lead to reducing the absorption capacity of the environment, because we know that the absorption capacity of the environment is quite limited. As a result, limiting environmental pollution is emphasized for controlling

economic growth. Indeed, as long as the economic productions are not favorable and generate undesirable environmental pollution, improving the productivity of production resources and controlling economic growth are inevitable from an environmental perspective. Thus, the development of environmentally friendly innovations is substantial for social growth and welfare (Xepapadeas 2005; Brock and Taylor 2005).

The emergence of these aforementioned issues gave rise to the concept of sustainable economic growth. Nowadays, the sustainable economic growth is smart and environmentally friendly. In this way, some critical issues including climate change, depletion of resources, and environmental degradation need to be addressed as the economic growth continues. To achieve sustainable growth, a threshold effect of protecting the environment is essential. In other words, the effect of ultimate environmental protection must be large enough to hold the economic growth on a sustainable path (Rozmahela et al. 2014; Brad et al. 2016).

There are several definitions for the sustainable economic growth. One of the most comprehensive definitions is that human needs can be satisfied without destroying the ability of future generations to meet their needs (Nyambuu et al. 2014). From an environmental standpoint, the sustainable growth is fulfilled by both the availability of natural resources (especially scarce resources) for future generations and by considering the environmental impacts of current decisions on future activities. It is mainly said that a combination of technological advances effective on decreasing the intensity of emissions, changing the composition of national production, and the resulting innovation are efficient to accomplish the sustainable growth.

### **Steady-State Economy**

The term “stationary state” was first mentioned by Adam Smith. This term has been the focus of most classical economists, including Malthus, Mill, Keynes, and Schumpeter. Of course, the theories of classical economists on this issue were distinct



with each other. In any circumstance, the classical economists believed that the steady state would eventually develop in any economy, by itself, without any government intervention (Kerschner 2010). Since the 1970s, Herman Daly, an ecological economist, investigated the concept of SSE. Unlike the classical economists, Daly believed that to generate a steady-state economy, government policy implementations were essential to enhance the permanent restrictions on the use of available resources. Daly defines the SSE as:

We might define the SSE in terms of a constant flow of throughput at a sustainable (low) level, with population and capital stock free to adjust to whatever size can be maintained by the constant throughput beginning with depletion and ending with pollution. (Daly 2008)

In an economy, the aim of SSE is to maintain a stable level of resource consumption and population so that in an economy, the consumption of material and energy is reduced to a level that is in the ecological range. Moreover, the goal of increasing GDP should be replaced to improve the life quality (Dietz and O'Neill 2013). Furthermore, from Dolly's point of view, in order to accomplish the SSE more realistically, it is important to adopt some social policies such as reducing income inequality, reforming the monetary system, keeping full employment, changing consumer behavior, and thus improving the life quality. (O'Neill et al. 2010).

From the viewpoint of ecological economics, economics is rooted in the laws of thermodynamics as a subsystem of the environment. Accordingly, the first law describes that any material that enters the economy must either be added to the stock of human-made capital or dumped as waste in the environment. The second law denotes that in any isolated system, the entropy increases over time. On the other hand, from a thermodynamic point of view, economics is a system that converts raw materials with low entropy into high entropy wastes (Daly and Farley 2011). As such, Nicolas Georgescu-Roegen (1971) described that an unlimited economic growth is not physically possible because material and energy sources with low entropy are limited. Besides, although the first law preserves the amount of energy in

physical processes, the second law decreases the useful power of energy during production. In addition, according to the second law, a complete and 100% recycling of materials is not possible. In this matter, performance improvements are expected to be effective to decrease both energy and material consumption, but this will not occur if there is a "rebound effect." It should be noted that a rebound might occur when money or resources saved from efficiency improvements are spent more, leading to a reduction in initial resource savings. In other words, improving technology may not lead to resource conservation (Giampietro and Mayumi 2008).

Referring to Dolly's biophysical arguments in the SSE, Georgescu-Roegen states that from a thermodynamic point of view, the resource consumption will be decreased due to the lack of complete material recycling. Thus, the concept of SSE should be reconsidered through the emerging degrowth economics movement because they are two complementary concepts (Kerschner 2010).

## Economic Degrowth

The degrowth movement emerged in France and then obtained some advocators in other European countries. Degrowth followed the global recession in 2008 and the Paris Conference in April 2008 (Flipo and Schneider 2008; Martinez-Alier 2009). According to researchers, the 2008 depression in Western economies was not only an economic or financial crisis but also a multidimensional crisis of social and environmental problems. Therefore, the idea of degrowth arose in response to three environmental, social, and economic crises. Indeed, in the sustainable degrowth, a fair reduction of production and consumption is considered in such a way that it increases human welfare and also leads to the improvement of environmental conditions at the regional and global levels in the long term (Schneider et al. 2010).

While Dolly's definition of SSE is purely biophysical, the concept of degrowth is much broader than it (Daly 2008). Degrowth should not be

interpreted as negative growth or confused with depression and austerity (Latouche 2010). By accepting the biophysical purpose, degrowth theories support the expansion of human relations rather than market relations (Kallis 2011). Defending the ecosystem, helping to reduce inequality in the distribution of wealth, democracy deepening, and in general, trying to find easier ways of life are among the major objectives of the degrowth movement. Indeed, degrowth combines problems in the areas of ecology, well-being, bio-economics, democracy, and justice (Demaria et al. 2013). Ecological critique of economics and critique of development thinking based on cultural critique have been two main sources of degrowth (Latouche 2009).

Nicholas Georgescu-Roegen (1971) was a substantial role in the emergence of ecological critique of economics. In this regard, the environmental justice movements in the south are major supporters of the degrowth movement in the north. These movements protest the disproportion of pollution under both locally and globally, the export of waste from north to south, the unequal ecological exchange, and the destruction of the nature and human livelihoods in commodity frontiers (Latouche 2004; Martinez-Alier 2002). “Environmental load displacement” from the North to the South has been observed and analyzed in many studies (Muradian et al. 2002; Giljum and Eisenmenger 2004). In this way, the industrial countries shift their environmental impacts to southern or less developed regions, in order to accomplish the decoupling (refers to an economy that grows without any increased pressure on the environment) (Cañellas et al. 2004; Giljum 2004).

In this context, one of the most important theories to explain the effects of environmental legislation and policies is the pollution haven hypothesis. In some developing countries, the polluting industries have been transferred to these countries, following the applying of soft environmental laws, or the lack of strict enforcement of the relevant laws, making them a shelter for the world’s polluting industries (Cheng et al. 2017). In other words, trade liberalization and environmental regulation stringency make

developed countries specialize to produce clean goods, whereas developing countries specialize to produce polluting goods, which become then a shelter for the world’s polluting industries (Lau et al. 2014; He 2006). This hypothesis may occur through both foreign investment and transferring polluting industries from developed countries to developing countries, or through the expansion and development of polluting industries in developing countries. In other words, developing countries obtain a comparative advantage in the polluting industries (Cheng et al. 2017).

Development failure in the South, growing local community protests against “ever-growing commodity,” and environmental degradation have led to creating a better economic system and achieving a fair life for the southern economic downscaling in the north of the world, to prevent a reduction in environmental liabilities (Latouche 2004). At this time, thinkers questioned the concepts of growth, progress, and development, and also argued that the sustainable development is not a proper alternative for these approaches because this approach focuses only on environmentally friendly economic growth, which is a weak concept. In this regard, degrowth is a way to achieve SSE in the global North, as well as reducing the gap with southern growth (Latouche 2010; Schneider et al. 2010). Indeed, poor economies in the south still require materials and energy to increase throughput, whereas degrowth is necessary for rich countries to free up resources for poor countries (Kerschner 2010). It should be mentioned that many non-biophysical dimensions of degrowth, such as the social and political dimensions, can be beneficial to the less industrial countries of the South (Latouche 2009).

### **Economic Degrowth Versus Steady-State Economy**

Degrowth is well known as the way to achieve the biophysical goal of a steady-state global economy. Hence, achieving this aim requires a balance between the consumption of natural resources and the stock of human-made capital in the rich north and the poor south. In other words, the

productive capacity of capital must be preserved at a stable level. Furthermore, balancing an equitable steady-state world economy at the agreed power level will ensure environmental, social, and economic sustainability (Kerschner 2010). Although the concepts of degrowth and SSE can be considered complementary, there are some signs of divergence between these two concepts (Kerschner and O'Neill 2015). In this regard, the following points can be mentioned:

1. Degrowth theorists support the extension of human relationships but do not have a positive view of the extension of market relationships.
2. Degrowth explains the possibility of down-scaling the stock of built capital, which is not an issue for steady-state economists.
3. There are inconsistencies between degrowth researchers and the fundamental institutions of the market economy, as well as the purpose of the transition from degrowth to SSE.

At the meantime, some advocators of degrowth doubt about the possibility of an SSE realization in a capitalist system (Kallis 2011; Latouche 2009). Similar to most economies, the steady-state economy assumes a political or social change as exogenous. Degrowth, on the other hand, discusses the necessity of the sociopolitical dynamics for the transition to stability as well as the fundamental obstacles to the realization of degrowth in the capitalist economic system (D'Alisa et al. 2013; Demaria et al. 2013).

## Conclusions

In this entry, the main discussions on both the economic growth and sustainability are reviewed. There is a perception among researchers that these two concepts are not only incompatible but also the economic growth is a tool for the sustainability. Indeed, researchers described that future growth will be restricted due to the depletion of natural resources and the reduced capacity to absorb pollution by the environment. So that, based on the concept of SDGs to end poverty, economic growth must be inclusive to provide

sustainable jobs and promote equality. The SDGs has focused on issues such as social inclusion, environmental sustainability, and economic development. Thinkers questioned the concepts of growth, progress, and development, and also argued that the sustainable development is not a proper alternative for these approaches because this approach focuses only on environmentally friendly economic growth, which is a weak concept. In this regard, degrowth is a way to achieve SSE in the global North, as well as reducing the gap with southern growth. Based on the laws of thermodynamics and the ecological thinking of systems, ecological economists elaborated the main reasons for the failure of the economic growth to generate the sustainability in the environmental, economic, and social dimensions, as well as the failure of the decoupling strategies.

In the current situation, focusing on GDP growth has not been able to enhance human's life in many countries. In this regard, the lack of attention to the social and political components of the sustainable development has been one of the reasons for the failure of the global economy to supply the sustainability in environmental, social, and economic dimensions. Nevertheless, there is still no widespread discussions about degrowth in the neoclassical economics. However, today's, investigating degrowth in the world is growing in any case. Of course, there are still several challenges to degrowth movement such as the relationship between degrowth adaptation and the capitalist system, the role of democratic institutions to support degrowth, and the role of technology in this process.

## Cross-References

- ▶ [Decoupling of Economic Growth from Environmental Degradation](#)
- ▶ [Degrowth and the Sustainable Development Goals](#)
- ▶ [Environmental Injustice and Economic Growth for Proof Processing](#)

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