Investing in nature: analysis of the relationship between environmental capital and economic growth

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Abstract. This paper analyzes an important and urgent problem that is the relationship between investments in nature, represented by environmental capital and economic growth. In the context of sustainable development and environmental conservation, interest in this topic is becoming increasingly significant. The paper examines the main theoretical concepts related to the impact of environmental capital on the economy, as well as presents the results of empirical studies confirming or refuting hypotheses about the positive impact of investments in nature on economic growth. This analysis allows us to identify key aspects of the interaction between environmental capital and economic development, which can serve as a basis for the development of effective strategies and policies in the field of sustainable development. The article also analyzes various approaches to measuring environmental capital and its impact on economic growth, taking into account the specifics of different regions and countries. Examples of successful investment strategies in nature are discussed, as well as obstacles and challenges facing the adoption of such measures.

1 Introduction

Investments in nature and the preservation of ecological capital are becoming more and more a priority in the context of the modern world, where sustainable development and environmental conservation are becoming increasingly important [1]. Ecological capital is a set of natural resources, including soils, water basins, biodiversity, as well as functional ecosystems that provide humans with a range of ecosystem services necessary for life and economic activity.

The issue of the relationship between investments in nature and economic growth is becoming the subject of increasing research in both academic and practical circles [2]. The relationship between environmental capital and economic development is complex and

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multidimensional, and understanding these relationships is key to developing effective sustainable development strategies.

The purpose of this work is to analyze the impact of investments in nature on economic growth, taking into account modern theoretical and empirical research in this area. Within the framework of this study, the importance of environmental capital for the economy is analyzed, the main mechanisms and factors determining the relationship between investments in nature and economic growth are identified, and examples of successful practices and challenges facing the implementation of investment strategies in this area are considered.

Understanding these issues will make it possible to develop recommendations for environmental capital management that contribute to more sustainable economic development and conservation of natural resources in the long term.

2 Materials and methods

In preparing the work, previous studies and theoretical concepts related to the impact of environmental capital on the economy were analyzed. A variety of data were considered, including information on the state of natural resources, investments in nature, economic growth, and other relevant variables. These methods and materials make it possible to analyze the relationship between investments in nature and economic growth from a scientific point of view, which in turn can lead to the development of recommendations for policy and practical solutions in this area.

3 Results

The analysis of an important and urgent problem of the relationship between investments in nature, represented by environmental capital, and economic growth is an integral part of modern scientific and practical work in the field of sustainable development [3]. This problem is becoming increasingly important in the context of the need to balance economic progress with environmental protection and conservation of natural resources for future generations.

Investments in nature, or environmental capital, include various measures aimed at preserving and restoring ecosystems, biodiversity, clean air and water, as well as the sustainable use of natural resources [4].

These investments may include both government programs and policies, as well as private initiatives and investments from businesses.

There is an increasing recognition that environmental capital plays an important role in maintaining economic well-being and ensuring sustainable growth [5]. Healthy ecosystems and a clean environment contribute to increased productivity, lower health costs, reduce the risks of environmental disasters, and create new opportunities for innovation and economic development in sectors related to environmental technologies and services.

However, the problem of the relationship between investments in nature and economic growth remains complex and multifaceted. Further research and analysis are needed to better understand the specific mechanisms and effects of such a relationship, as well as to develop effective strategies and policies to achieve sustainable development [6].

Thus, analyzing the relationship between investments in nature and economic growth is a key step towards building a more sustainable and prosperous future economy.

There are several basic theoretical concepts that explain the impact of environmental capital on the economy [7].
1. The hypothesis of "Green Growth". This concept assumes that environmental investments and sustainable management of natural resources can stimulate economic growth, while ensuring the preservation of the environment and reducing negative impacts on it. It is based on the idea that economic growth and environmental protection can complement each other, not contradict each other.

2. The theory of environmental efficiency (Environmental Kuznets Curve). This theory suggests that at the initial stage of economic development, economic growth can lead to an increase in environmental pollution. However, with an increase in household incomes and the development of technology, economic activity becomes more efficient in terms of resource use and pollution reduction.

3. The theory of "natural capital" (Natural Capital Theory). According to this theory, environmental capital is the basis for economic activity and well-being. Maintaining and increasing environmental capital can contribute to long-term economic growth and social stability.

Empirical research on the relationship between investments in nature and economic growth provides a variety of results [8]. Some studies have found a positive correlation between the level of investment in nature and the pace of economic growth. They point out that effective management of environmental capital can contribute to increased productivity and innovation in the economy [9].

Other studies may not find an unambiguous link between investments in nature and economic growth, or point to negative impacts in the case of an incorrect approach to environmental protection, for example, if investments in nature are ineffective or insufficient.

The general conclusion from these studies is that proper management of environmental capital can contribute to sustainable economic development, however, further analysis and development of strategies that take into account the specifics of regional and national conditions are required [10].

A study conducted within the framework of the World Resources Institute has found that effective management of forest resources can lead to significant economic growth in developing countries. For example, in the case of Brazil, investments in the conservation and restoration of the Amazonian rain forest contribute not only to the conservation of biodiversity, but also stimulate the development of ecotourism, biotechnology and pharmaceutical industries, as well as agriculture.

A study conducted within the framework of the Organization for Economic Cooperation and Development (OECD) did not reveal a clear link between the level of investment in environmental capital and the pace of economic growth in a number of developed countries. The authors note that the impact of investments in nature on economic growth may not be significant enough due to the complexity of many factors affecting the economy [11].

A study conducted by the Environmental Research Center at the University of China has shown that uncontrolled investments in the development of natural resources such as forests and water resources can lead to a deterioration of the environmental situation and reduce the potential for long-term economic growth in the region.

These examples demonstrate that the impact of investments in nature on economic growth depends on many factors, including proper resource management, innovations in environmental technologies, socio-economic conditions and political will [12].

Several key aspects of the interaction between environmental capital and economic development can serve as a basis for the development of effective strategies and policies in the field of sustainable development. The conservation and management of environmental capital should become an integral part of the economic strategy. This includes taking into account the cost of natural resources when making economic decisions and developing mechanisms and tools to stimulate the sustainable use of resources [13].
Investments in research and development in the field of environmental technologies can contribute to the creation of new opportunities for sustainable economic growth, which involves the development of clean energy sources, reducing emissions of pollutants, improving waste management methods, etc.

Policies and support measures aimed at stimulating entrepreneurship in the field of environmental protection can contribute to the development of economic sectors related to environmental technologies, ecotourism, sustainable agriculture and others.

The creation of financial instruments, such as environmental funds, green investment banks, etc., can help attract private and public investment in projects for the conservation and restoration of natural resources.

The involvement of the public, civil society organizations and local communities in the decision-making process and the implementation of environmental protection projects is an important aspect for the successful implementation of sustainable development strategies [14].

Taking into account these aspects of the interaction between environmental capital and economic development, it is possible to develop comprehensive and effective strategies and policies aimed at achieving sustainable development, balancing the interests of the economy and environmental protection, as well as creating conditions for long-term prosperity [15].

Different approaches to measuring environmental capital and its impact on economic growth take into account the specifics of different regions and countries and may include the following methods and tools.

1. Natural Capital. This approach estimates the value of environmental resources such as forests, water resources, soils, and biodiversity. The measurement of natural capital can be carried out through financial assessments, for example, an assessment of ecosystem services, or through physical indicators such as forest area or water reserves.

2. Sustainability Indices. These indices assess the level of sustainable development of countries or regions, including economic, social and environmental aspects. Examples of such indices are the Human Capital Development Index (Human Development Index), the Sustainable Development Index (Sustainable Development Index) and others.

3. National Capital Assets. This approach includes an assessment of not only tangible but also intangible assets of the country, including its natural resources. Such assets may include ecosystems, climatic conditions, access to clean water and air, etc.

4. Environmental Accounting Systems. The presented systems make it possible to take into account environmental aspects in national accounting systems. These include assessing and accounting for the costs and benefits of using natural resources, as well as negative environmental impacts such as pollution.

5. Multi-Criteria Analysis. This method takes into account various criteria when assessing the impact of environmental capital on economic growth, such as economic efficiency, social justice, environmental sustainability, etc. This makes it possible to take into account the diverse interests and needs of different groups of the population [16].

Each of these approaches has its advantages and limitations and can be adapted to the specific conditions and needs of different regions and countries. It is important to choose the most appropriate methods for assessing and accounting for environmental capital for a specific context in order to provide a more accurate and relevant understanding of its impact on economic growth and development [17].

Examples of successful investment strategies in nature include investments in ecosystem restoration such as forests, water basins and marine reefs. This may include programs to slow deforestation, restore deforestation, create reserves and parks, and restore affected natural ecosystems. In addition, investments in environmental infrastructure such as water treatment systems, flood protection and the creation of green areas in cities are successful strategies [18]. Investing in the development and implementation of environmental technologies, such
as alternative energy sources and waste recycling methods, also brings significant results [19].

However, there are obstacles in taking such measures. Financial constraints, political instability, and legal obstacles can make it difficult to invest in nature [20]. A lack of understanding of the importance of natural resources for economic development, social and cultural factors that cause resistance from the local population, as well as a lack of data and scientific knowledge about the state of ecosystems and their impact on the economy can also become obstacles to successful investment strategies in nature [21].

Overcoming these obstacles requires an integrated approach that includes the participation of all stakeholders, the development of an effective legal and regulatory framework, ensuring financial sustainability and increasing public awareness of the importance of conservation and restoration of natural resources.

4 Conclusion

Thus, the following conclusion can be drawn. Investments in nature have the potential to stimulate economic growth, but they are often ignored or underestimated in economic strategies and development policies. It is important to recognize that environmental capital is an integral part of national wealth and economic potential.

There is a growing understanding that caring for nature and economic growth can complement each other. Healthy ecosystems, a clean environment and the sustainable use of natural resources can contribute to increased productivity, innovation and improved quality of life.

There are many approaches and tools that can be used to invest in nature, including ecosystem restoration, development of environmental technologies, creation of environmental infrastructure, etc. Each of them has its advantages and limitations and can be adapted to the specific conditions and needs of a region or country.

However, there are obstacles and challenges facing the adoption of measures to invest in nature, such as financial constraints, political instability, lack of data, etc. Overcoming these obstacles requires the joint efforts of the public and private sectors, as well as public support.

To effectively use the potential of investments in nature, an integrated approach is needed, which includes the development of balanced strategies and policies, taking into account the interests of all stakeholders, strengthening the institutional framework and ensuring sustainability in the long term.

In general, investing in nature is not only a way to ensure the preservation of the environment, but also a strategic opportunity to achieve sustainable economic development, create jobs, improve the quality of life and ensure well-being for future generations.

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