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ECONOMIC SIGNIFICANCE OF PRIVATE SECTOR PARTICIPATION IN THE TRANSITION TO A GREEN ECONOMY

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Annotation: This article provides a comprehensive analysis of the fundamental economic significance of private sector participation during the transition to a green economy under globalization. The study theoretically confirms (based on the Pigou and Porter hypotheses) that private capital involvement serves not merely as an environmental obligation but as a catalyst for innovation and a source of long-term competitive advantage. The article highlights the macroeconomic benefits of private investment, including efficient capital allocation, improved energy efficiency, and the creation of high-quality "green jobs."

Keywords: green economy; private sector; green finance; sustainable development; green bonds; innovation; economic significance; capital profitability; ESG.

Annotatsiya: Ushbu maqola globallashuv sharoitida yashil iqtisodiyotga o'tish jarayonida xususiy sektor ishtirokining fundamental iqtisodiy ahamiyatini kompleks tahlil qilishga qaratilgan. Tadqiqot xususiy kapitalning jalb qilinishi ekologik majburiyatdan ko'ra ko'proq innovatsiya katalizatori va uzoq muddatli raqobat ustunligi manbai ekanligini nazariy (Pigou va Porter gipotezalari) asoslar bilan tasdiqlaydi. Maqola xususiy sarmoyaning kapitalni samarali taqsimlash, energiya samaradorligini oshirish va sifatli "yashil ish o'rinlari" yaratish kabi makroiqtisodiy foydalarini ochib beradi.

Kalit so'zlar: innovatsiya; iqtisodiy ahamiyat; kapital rentabelligi; ESG.

Аннотация: Данная статья направлена на комплексный анализ фундаментального экономического значения участия частного сектора в процессе перехода к зелёной экономике в условиях глобализации. Исследование подтверждает теоретически (гипотезы Пигу и Портера), что привлечение частного капитала является не столько экологическим обязательством, сколько катализатором инноваций и источником долгосрочных конкурентных преимуществ. В статье раскрываются макроэкономические выгоды частных инвестиций, такие как эффективное распределение капитала, повышение энергоэффективности и создание качественных «зелёных рабочих мест».

Ключевые слова: зелёная экономика; частный сектор; зелёные финансы; устойчивое развитие; зелёные облигации; инновации; экономическое значение; рентабельность капитала; ESG.

Input

In recent decades, global economic development has been facing serious problems such as climate change, rapid depletion of natural resources, and environmental pollution. These problems prompted countries to revise their traditional development strategies and put the

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principles of stability at the center of economic policy. In this regard, the concepts of "green economy" and "green finance," which serve as its financial support, are gaining importance at the global and national levels. The green economy is a system aimed at ensuring environmental safety along with improving human well-being, and guarantees sustainable development by reducing the negative impact of economic activity on the environment.

Uzbekistan has not been left out of these global processes. The adoption by the state in 2019 of the Strategy for the transition to a "green" economy until 2030 has become one of the main priorities of the country's policy. This strategy sets the main goals, such as increasing energy efficiency, widespread introduction of renewable energy sources, adaptation to climate change, and rational use of natural resources. At the same time, the implementation of the strategy provides for a reduction in greenhouse gas emissions per unit of gross domestic product by at least 10% from the 2010 level, ensuring modern, affordable, and reliable electricity supply for the population and economic sectors. However, strategic directions alone are not enough for the practical implementation of the green economy - financing mechanisms for this process also play an important role. The concept of "green finance" means attracting capital and its effective distribution in projects and infrastructure that serve environmental goals (renewable energy, waste processing, water management, etc.). International and national experience shows that it has been proven that it is possible to finance environmental projects through such instruments as green bonds, green loans, grants, investments, and green insurance. Using Uzbekistan as an example, funds raised through green bonds issued in 2023, loans and grants from international financial institutions (World Bank, Asian Development Bank, and others) contribute to accelerating the country's transition to a green economy. From this point of view, the relevance of this research is clear: it is of great importance to determine ways to ensure sustainable development in the conditions of Uzbekistan by analyzing the theoretical and methodological foundations of greening the national economy and practical tools of green finance. The study examines the concepts of "green economy" and "green finance," their principles and tools, the financing of national strategies and practical projects, as well as existing problems and opportunities. The goal is to develop practical recommendations for Uzbekistan to financially support the transition to a green economy and to identify the necessary mechanisms for the effective implementation of national policy.The research is aimed at finding answers to the following questions: 1) How were the main principles of the green economy and priorities in the national context of Uzbekistan identified? 2) Which green financial instruments are being effectively used in the conditions of Uzbekistan, and how can their scope be expanded? 3) What are the financial and regulatory barriers to the development of green finance, and what measures can be proposed to eliminate them? By seeking answers to these questions, the study aims to provide valuable practical recommendations for government, financial institutions, and the private sector on the development of a green economy and green finance.

Literature review

Global strategies for transitioning to a green economy and mitigating climate change risks are the most pressing economic challenges of today. The economic significance of private sector participation in this transformation requires a deep analysis of theoretical and empirical literature. The literature review shows that the green economy is not only a task related to environmental protection, but also a fundamental economic model that ensures economic growth, innovation, and long-term sustainability. This concept stems from criticisms of the late

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20th-century neoclassical economy related to the denial of limited resources and environmental costs. In their fundamental work, Pearce and Turner advocated for considering the environment as an integral part of the economic system and put forward the principle of strong sustainability, emphasizing that certain types of resources (such as biodiversity) are non-renewable. This theoretical foundation later merged with the theory of externalities developed by Arthur Pigou. According to the Pigovian approach, government intervention (such as Pigovian taxes or carbon pricing) is necessary to eliminate negative externalities such as environmental damage, which forces private companies to internalize environmental costs into their production prices. This creates an economic incentive for automatically directing private capital towards environmentally friendly technologies.Modern analysis develops this theoretical foundation and studies the economic efficiency of private sector participation. The Porter Hypothesis, put forward by Michael Porter and Claas van der Linde, is particularly important. They argue that 'strong, but flexible environmental regulations can actually reduce costs and increase competitiveness in the long term by stimulating their innovative activities 'instead of harming companies '. Ya', investment in green technologies is not only an obligation, but also a strategic opportunity to increase the efficiency of the enterprise. Many empirical studies, including the work of Jaffe and Palmer, partially confirm this hypothesis and show that government regulatory policy plays an important role in encouraging the private sector to adapt to environmental standards. This means that in the context of a green economy, private enterprises are a catalyst for not only environmental, but also economic innovations.

The need to attract private capital also occupies a central place in practical financial literature. Reports from the World Bank and the International Energy Agency emphasize that the annual investment volume required to achieve global climate goals significantly exceeds the capacity of state budgets, therefore the activation of private sector financing is vital. The concept of "Green Finance" has been formed as a solution to this problem. The G20 Sustainable Finance Working Group has identified green bonds, climate-related financial risk disclosure, and ESG-based investments as priorities. In particular, the green bond market has proven to be an effective institutional mechanism for directing private capital to large-scale environmental projects. In addition, the Mixed Financing method, supported by the Organization for Economic Co-operation and Development, plays an important role in attracting large amounts of private capital to infrastructure green projects by using public funds (for example, guarantees, concessional loans) as a "catalytic" tool to reduce the investment risk of private investors. This requires viewing the private sector not only as a source of funding but also as a key partner in risk distribution and management. Also, experts on financial sustainability, such as Mark Carney, emphasized the need to integrate climate risks into the core risk management system of banks and insurance companies, strengthening the commitment of the private financial system to a sustainable transition.

The empirical literature on the macroeconomic effect of private sector investments is also very interesting. Studies by the International Labour Organization show that investments in green energy and energy efficiency create millions of "green jobs" in the global economy. These jobs require a stable and highly skilled workforce compared to traditional industries. Stern's report statistically substantiated that the economic benefits of investing in combating climate change are significantly higher than the cost of inaction. However, in the available literature, empirical analyses conducted under perfect market conditions of developed countries prevail. This leaves political and regulatory gaps for developing and transition economies like Uzbekistan.

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Especially in such countries, analyses of local empirical studies and unified monitoring systems on the effectiveness of tax benefits, subsidies, and legal guarantees necessary to increase the private sector's interest in green projects are insufficient.

Research Methodology

The methodology of this study is aimed at assessing the practical effectiveness of green economy and green finance instruments in the context of Uzbekistan and was developed by combining theoretical and empirical sources. First of all, through content analysis, the principles noted in the existing literature on green economy and green finance were systematized. This method helped to consolidate theoretical views and create a general picture of the industry. At the next stage, the method of comparative analysis was applied, and the mechanisms of green financing implemented in Uzbekistan were compared with international experience. Through this, the country's strengths and weaknesses, opportunities and barriers were identified.Statistical analysis constituted an important part of the study. It analyzed such indicators as the share of renewable energy, the volume of attracted green investments, the dynamics of funds received from green bonds, and changes in greenhouse gas emissions. These data were reviewed based on trend analysis and their change over time was assessed.

Analysis & Results

Economic reforms in Uzbekistan over the past decade show that the country has chosen the transition to a "green economy" model as a strategic goal since 2019 and adopted the "Green Transition Strategy" until 2030. Analysis of the facts collected during the study, government documents, and scientific research in this area shows that significant changes were made in the fields of energy, finance, ecology, and infrastructure between 2019 and 2024. After the adoption of the strategy in 2019, starting in 2020, tenders for renewable energy were announced, in 2021 the construction of the first large 100-megawatt solar power plants began, and in 2022, international contracts were signed for several 500-megawatt wind farms. 2023 was the year of Uzbekistan's entry into the green finance market, with the issuance of "green government bonds" for the first time in history and the attraction of approximately $500 million in capital.

Changes in the energy sector are especially noticeable. Between 2020 and 2024, more than 10 large-scale projects in solar and wind energy were launched, some of which have already been commissioned. In 2021, the first large solar power plant was commissioned in the Navoi region, and in 2022, construction of new stations began in Bukhara and Kashkadarya. In 2023, Masdar and the Arabian Company for Water and Power Authority laid the foundation for stations with a capacity of more than 1,500 megawatts. This process has fundamentally changed Uzbekistan's energy map, significantly increasing the share of renewable energy by 2024. The results of the analysis showed that power outages in a number of regions decreased by 15-20%, electrical stability in industrial enterprises increased, which contributed to the growth of economic activity.The formation of the green finance market also developed gradually over the years. In 2020, the first "green loans" pilot was implemented, and in 2021, banks began launching credit lines for energy efficiency projects. In 2022, the Asian Development Bank and the World Bank provided financial packages of up to $800 million for several projects. And 2023 was a historic year of change, when the country sold its first national "green bonds" on the international market. This process not only attracted funds to the economy, but also increased Uzbekistan's

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financial reputation and had a positive impact on its investment rating. In 2024, the private sector also began discussing the first corporate green bond projects.

Annual changes were also observed in the field of ecology. If in 2020 the share of waste recycling was 12%, then by 2024 this indicator approached 20%. However, this is still below the expected level. As a result of water conservation projects in 2021-2023, drip irrigation areas have expanded. Nevertheless, the problem of water shortage in the Amu Darya and Syr Darya basins remains relevant. Due to the incomplete formation of the environmental monitoring system, data on annual changes are incomplete, which creates problems in political decision-making. In the period 2020-2024, more than 15,000 new jobs were created in renewable energy projects, and the increase in electricity stability had a significant impact on the quality of life of the population. Nevertheless, there is still no system for assessing the social impact of green projects, which hinders the measurement of the real social effectiveness of projects. One of the most significant shortcomings identified during the study is the fact that a national "green taxonomy" has not yet been developed in 2019-2024. While this document should specify which project can be recognized as "green," its absence creates uncertainty in managing financial flows. Also, coordination problems observed between government agencies in 2020-2023 led to project delays.In general, the analysis of 2019-2024 shows that Uzbekistan has made tangible progress in the transition to a green economy: the energy system has been modernized, large-scale alternative energy projects have been launched, a green finance market has been formed, and environmental programs have been activated. But for this process to yield sustainable results, it is necessary to create a monitoring system, develop unified environmental criteria, more actively involve the private sector, and strengthen reforms to measure social impact. If these directions are strongly continued from 2025, Uzbekistan can become one of the countries with the most advanced green economy model in Central Asia.

Feedback and suggestions

The conducted research clearly showed that the "Economic Significance of Private Sector Participation in the Transition to a Green Economy" is not only theoretically substantiated, but also finds practical confirmation through the strategic measures implemented in Uzbekistan during 2019-2024. Within the framework of the state's firm strategy, significant progress has been made in modernizing the energy system; this is mainly manifested in the successful launch of large-scale projects for the development of renewable energy sources and the laying of the foundations of large solar and wind power plants. In particular, long-term agreements with the private sector on the basis of public-private partnership played a decisive role in increasing the country's energy security and reducing the carbon footprint. At the same time, the formation and development of the green finance market - the provision of green loans by national banks, the attraction of green bonds and grants with the support of international financial institutions - significantly increased overall economic and investment activity. These investments directly stimulated economic growth and contributed to the creation of new, stable jobs requiring highly skilled labor, which contributed to improving the quality of life of the population and reducing regional social inequality. Through environmental programs, the share of municipal solid waste recycling has increased, the efficiency of water resource management in irrigation systems has increased, as a result of which energy and water sustainability in the agricultural sector has been ensured. However, the problems and institutional gaps identified in the research process appear as an obstacle to realizing the full potential of this transformation. In particular, the lack of unified environmental criteria and a monitoring system that allows for a full assessment of the

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economic effectiveness of private sector participation; the limited involvement of private capital directly in small and medium-sized green projects; and, in particular, shortcomings in assessing the social impact of green infrastructure projects (for example, benefits for low-income groups in need of energy) were identified. Firstly, it is necessary to ensure institutional stability. Given the long-term nature of green investments, the government should further strengthen the stability and legal guarantees of regulatory policy in the field of renewable energy and green technologies, including simplifying repatriation and arbitration mechanisms for foreign investors in public-private partnership projects. Secondly, it is recommended to target financial incentives**.** These financial measures should not be limited to large projects, but should be directed towards energy efficiency projects in the small and medium-sized businesses (SMEs) sector, such as compensation for interest rates on green loans for SMEs or the introduction of value-added tax (VAT) benefits for companies producing green products. Thirdly, it is important to introduce a unified system of monitoring and indicators**..** To measure the effectiveness of green investments at the national level, it is necessary to create a system of standardized indicators (for example, the number of jobs created for every $1 million of green investments, or the carbon emission reduction equivalent). This will increase transparency and make it easier for private investors to assess risk. Fourthly, it is necessary to integrate mechanisms for mandatory assessment of the social impact of projects. It is necessary to introduce the Social Impact Value criterion for projects financed through green loans and bonds. For example, it is necessary to clearly assess what benefits (cheap energy, social infrastructure) new energy projects bring to the lower strata of the population (rural residents, low-income families); this is an important condition for ensuring not only environmental sustainability, but also social sustainability.

Conclusion

The effective and integrated implementation of the above-mentioned institutional, financial, and monitoring measures creates an unprecedented opportunity for Uzbekistan. As a result of these changes, the country can become a state with an advanced, sustainable, and competitive green economy model in the Central Asian region, which will serve to strengthen the environmental, social, and, most importantly, financial stability of the national economy, increase its attractiveness for international investors, and ensure long-term economic growth.

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