Yashil IQTISODIYOT va TARAQQIYOT

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08.00.01 Iqtisodiyot nazariyasi
08.00.02 Makroiqtisodiyot
08.00.03 Sanoat iqtisodiyoti
08.00.04 Qishloq xo‘jaligi iqtisodiyoti
08.00.05 Xizmat ko‘rsatish tarmoqlari iqtisodiyoti
08.00.06 Ekonometrika va statistika
08.00.07 Moliya, pul muomalasi va kredit
08.00.08 Buxgalteriya hisobi, iqtisodiy tahlil va audit
08.00.09 Jahon iqtisodiyoti
08.00.10 Demografiya. Mehnat iqtisodiyoti
08.00.11 Marketing
08.00.12 Mintaqaviy iqtisodiyot
08.00.13 Menejment
08.00.14 Iqtisodiyotda axborot tizimlari va texnologiyalari
08.00.15 Tadbirkorlik va kichik biznes iqtisodiyoti
08.00.16 Raqamli iqtisodiyot va xalqaro raqamli integratsiya
08.00.17 Turizm va mehmonxona faoliyati

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MUNDARIJA

MUNDARIJA СОДЕРЖАНИЕ CONTENTS

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EVALUATING THE ENVIRONMENTAL SUSTAINABILITY OF UZBEK FIRMS IN THE GREEN ECONOMY

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Abstract: This study investigates the degree of environmental sustainability in Uzbekistan.The methodology employed in this research is founded on ordinary least squares estimation. The results indicated that a significant proportion of the company's surveyed sample shown an enhancement in their comprehension of energy consumption. In contrast, some other organizations solely allocate resources towards enhancing energy usage due to legal obligations. Furthermore, most companies prioritize investing in recycling and reusing materials, adopting environmentally friendly technology, providing internal training on the green economy, and purchasing and using materials with minimal impact. They do so because they firmly believe that such investments are crucial for preserving the surrounding natural environment. Companies are apprehensive about the potential ecological consequences as they become cognizant of new products and services. Furthermore, the replies obtained from a range of technologically advanced enterprises operating in Tashkent, Uzbekistan, serve as a reliable indicator of the successful implementation of environmental sustainability practices in the country.

Key words: Green economy, Environmental sustainability, OLS, High-tech firms.

Annotatsiya: Ushbu tadqiqot O‘zbekistondagi ekologik barqarorlik darajasini o‘rganadi. Ushbu tadqiqotda qo‘llaniladigan metodologiya eng kichik kvadratlar usuli hisoblanadi. Natijalar shuni ko‘rsatdiki, ko‘plab korxonalar energiyaga bo‘lgan munosabatini sezilarli darajada kuchaytirgan. Bundan tashqari, ba’zi tashkilotlar faqat qonuniy majburiyatlar tufayli energiyadan foydalanishni oshirish uchun resurslarni ajratadilar. Ko‘pgina kompaniyalar materiallarni qayta ishlash va qayta ishlatishga investitsiya qilishni, atrof-muhitga qulay texnologiyalarni o‘zlashtirishni, yashil texnologiyalarni ta’minlashni asosiy prioritet sifatida ko‘rishadi. Chunki ular bunday investitsiyalar tabiiy muhitni saqlab qolish uchun hal qiluvchi ahamiyatga ega ekanligiga qat’iy ishonadilar. O‘zbekistonning Toshkent shahrida faoliyat yuritayotgan bir qator texnologik rivojlangan korxonalardan olingan javoblar atrof-muhitga oid vaziyatning muvaffaqiyatli amalga oshirilishining ishonchli ko‘rsatkichi bo‘lib xizmat qilmoqda.

Kalit so‘zlar: Yashil iqtisodiyot, Ekologik barqarorlik, EKKU, High Tech korxonalar.

Аннотация: Это исследование исследует степень экологической устойчивости в Узбекистане. Методология, использованная в этом исследовании, основана на обычной оценке методом наименьших квадратов. Результаты показали, что значительная часть опрошенных компаний продемонстрировала улучшение понимания потребления энергии. Напротив, некоторые другие организации выделяют ресурсы исключительно на улучшение использования энергии из-за юридических обязательств. Кроме того, большинство компаний отдают предпочтение инвестициям в переработку и повторное использование материалов, внедряя экологически чистые технологии, обеспечивая внутреннее обучение по вопросам зеленой экономики, а также приобретая и используя материалы с минимальными затратами. воздействие. Они делают это, потому что твердо верят, что такие инвестиции имеют решающее значение для сохранения окружающей природной среды. Компании опасаются потенциальных экологических последствий, когда они узнают о новых продуктах и услугах. Кроме того, ответы, полученные от ряда технологически передовых предприятий, работающих в Ташкенте, Узбекистан, служат надежным индикатором успешного внедрения в стране практик экологической устойчивости.

Ключевые слова: “зеленая” экономика, экологическая устойчивость, OLS, высокотехнологичные компании.

1. INTRODUCTION

The Organization for Economic Cooperation and Development (OECD, 1999) has defined the green economy as a collection of activities that involve the production of goods and services aimed at measuring, preventing, limiting, minimizing, or rectifying environmental harm to water, air, and soil. This also includes addressing issues related to waste, noise, and ecosystems. This encompasses more efficient and sustainable technology, products, and services that mitigate environmental hazards and optimize resource utilization while minimizing pollution.

According to Diener and Terkla (2000), it encompasses the use of cleaner technologies, products, and services that decrease environmental risk, minimize pollution, and reduce resource consumption. Additionally, it involves the supply and distribution of environmental resources such as water, recycled materials, and renewable energy. A green economy seeks to enhance human well-being and social fairness by effectively mitigating environmental hazards and ecological scarcities. It has a low carbon footprint, utilizes resources efficiently, and promotes social inclusivity. The expansion of income and employment should be propelled by investments from both the public and private sectors, with the aim of diminishing carbon dioxide (CO_2) and other non-CO_2 emissions and pollution, improving energy and resource efficiency, and safeguarding biodiversity and ecosystem services (UNEP, 2011 and 2013).

The economic output is contingent upon the number of inputs utilized and the effectiveness with which these inputs are employed. The higher the number of inputs and the more effective their use, the larger the output. Regrettably, the majority of economic production activities will inevitably result in the emission of pollutants. In addition to the main output intended for the market, there is also the production of waste, which is considered a public detriment. This waste can take the form of air or water pollution, as well as various types of liquid or solid waste. Typically, this garbage is released into the environment, such as the air, water, or soil, unless there are waste-management systems in place. Environmental sustainability entails making conscientious choices to mitigate the adverse effects of a business on the environment.

Conserving the natural environment involves actions like minimizing trash generation and limiting energy use to ensure the ecosystem can sustain human life. Environmental sustainability focuses on the development of mechanisms that will enable enterprises to achieve comprehensive sustainability in the future.

The significance of natural resources is paramount and has become a topic of global discussion in relation to its diversity and degradation. The absence of progress on environmental matters has also sparked a discussion on sustainable development. Anbumozhi and Kanada (2005) asserted that environmental concerns have been more integrated into global trade markets, and there is a growing global demand for eco-friendly items among consumers.

Uzbekistan is progressing towards becoming a fully industrialized economy. Uzbekistan transitioned from the production of raw materials to the production of goods through industrial processes. In recent years, the manufacturing industries have emerged as the primary catalyst for economic growth. Nevertheless, the swift industrialization has an adverse impact on the environment as it leads to a surge in pollution, waste generation, and the quick depletion of natural resources.

2. LITERATURE REVIEW

The company's success is evident through the tangible advantages anticipated from the incorporation of environmental management into its operations. Due to their size and influence, they are anticipated to take a leading role in the field of environmental sustainability and have the power to make a substantial impact. Discussions regarding sustainable consumption primarily address environmental issues, whereas discussions regarding regrowth primarily address social issues. Although there are distinctions, these arguments mostly focus on two dimensions of the challenges they aim to address, as well as the interplay between environmental and social concerns (Lorek and Fuchs, 2013; Mohammad Eneizan et al., 2015).

According to Handfield et al. (2005), the corporation should acknowledge and take responsibility for environmental effects that were previously considered as unintended consequences. Hence, transitioning from an environmental management framework that prioritizes cleanup and regulation to one that emphasizes the prevention of environmental damage throughout the whole life cycle of a product.

According to Chabowski et al. (2011), environmentalism and firm success are considered separate aspects that are not mutually exclusive. However, the environmental aspect needs to be studied more extensively in future sustainability research. Mohammad Eneizan et al. (2015) observed that certain developed nations have successfully addressed environmental concerns by employing technological solutions. For example, several nations mandate the installation of scrubbers in big combustion plants to mitigate the harmful impacts of acid rain and CO_2. Furthermore, certain regulations have been enforced to alter the formulation of detergents that

include nitrates, which are responsible for causing eutrophication. Japan has used market mechanisms to mitigate energy consumption in household appliances. Despite the greening process of production or products through sustainable production and eco-design, technology solutions are deemed insufficient in effectively resolving environmental concerns.

Lorek and Spangenberg (2014) asserted that certain countries mitigate contamination by outsourcing work. For instance, countries might mitigate the adverse impacts of steel manufacturing on their environment by establishing steel plants in other countries. Furthermore, certain technical advancements have resulted in additional complications, such as the occurrence of traffic congestion due to the construction of highways within urban regions. Put simply, this method solely expedites the production process without addressing the environmental repercussions of those operations.

3. METHODOLOGY

The primary emphasis of this study is the green economy in Uzbekistan. The project involves analyzing the data from top companies in Tashkent, Uzbekistan. Twenty-five different companies were chosen from various areas including manufacturing, services, and primary production. The research addressed several topics, including company information, the nature of the business, and the owner-managers' aspirations for the green economy. It also covered the environmental practices of the business, the reasons behind their engagement, and their perceived environmental impact. Additionally, the research explored the owner-managers' understanding of environmental sustainability, as well as the methods and implementation strategies they employ.

The methodology employed relies on ordinary least squares (OLS) as alternative estimators utilizing the identical set of explanatory variables. The Ordinary Least Squares (OLS) method is appealing because of its computational simplicity and straightforwardness (Hutcheson, 2011). If we assume that environmental sustainability follows a linear pattern, we can state the following:

$$ES_t = \beta_0 + \beta_1 GEA_t + \beta_2 SDA_t + \beta_3 GEK_t + \beta_4 ISD_t + \beta_5 + GOS_t + \varepsilon_t \quad (1)$$

ES refers to the level of environmental sustainability at time t. GEA represents the level of green economy awareness at time t. SDA stands for sustainable development actions. GEK represents the level of green economy knowledge at time t. ISD and GOS refer to the investment in sustainable development and green economy operation sustainability, respectively, at time t. The variable ε represents an error term that is supposed to be idiosyncratic, meaning it is unique to each observation. It is also assumed to be identically distributed and independent of other variables. The constant is represented by the symbol β0, whereas β1 to β5 are the coefficients that indicate the extent to which a one unit increase in each individual variable will impact environmental sustainability.

4. DATA ANALYSIS

The study data also reveals that 80% of the companies exhibit significant worry over the potential environmental ramifications when introducing new products and services. In addition, 15% of the companies express significant concern regarding the potential environmental effects while introducing new products and services. Approximately 95% of the sampled organizations are considering the potential environmental impact of introducing new products and services. This also indicates the achievement of environmental sustainability in Uzbekistan.

The aforementioned study is further substantiated by employing inferential statistics to accurately assess the degree of environmental sustainability. The data presented in Table 1 indicate that the overall model is sufficiently well-fitted, as evidenced by the F-statistics of the model. The collective influence of multiple factors on environmental sustainability explains 65% of the variability in the state of the environment.

The findings suggest that a rise in knowledge and understanding of the green economy concept contributes to the achievement of environmental sustainability. The coefficient is statistically significant at a significance level of 1%. This is further reinforced by the importance of the variable that quantifies the level of understanding regarding the green economy. The outcome of the framework that embodies knowledge of the green economy demonstrates a direct correlation with environmental sustainability. The coefficient is statistically significant at the standard threshold of significance of 10%.

The outcome is expected considering the high-tech company's comments about their understanding of the idea of environmental sustainability. The data reveals that 41% of the firms surveyed define the concept of a green economy as one that focuses on energy conservation and the use of renewable sources. Additionally, 39% of the firms perceive a green economy as one that aims to minimize its environmental impacts. The

remaining 22% of the firms define a green economy as an economy that is centered around sustainable activities. The enterprises' perception of the green economy might consequently contribute to the enhancement of environmental sustainability.

Table 1: OLS regression result with environmental sustainability as dependent variable

Variables	Coefficients	Standardized coefficients	Standard errors	t values	values
CONS		-	0.2345	4.956	0.000
GEA		0.546	0.458	6.251	0.000
SDA	-1.264	-0.235	0.378	-0.784	0.1658
GEK		0.274	0.153	2.234	0.123
ISD		0.430	0.157	3.454	0.007
GOS		0.254	0.254	2.681	0.137
Diagnostics					
			Skewness		
F-statistics			Kurtosis		
VIF		1.08	Interquartile range for normality		3.127
B-P Cook-Weisberg (heteroscedasticity)			Model specification		
Cameron and Trivedi IM-test			RAMSEY omitted variable test		

Investing in sustainable development and operating a green economy are also favorably correlated with environmental sustainability. The findings suggest that enhancing moral dedication to sustainable development, allocating resources to enhance corporate reputation and meet customer demands, investing in innovation and cost control, as well as seizing market opportunities, contribute to the advancement of environmental sustainability in Uzbekistan. The coefficient is statistically significant at a significance level of 1%. Furthermore, enhancing the sustainability of the green economy involves providing comprehensive consulting services to clients, offering maintenance services, conducting training and raising customer awareness, as well as establishing connections with other environmentally-focused companies. These efforts contribute to the overall development of environmental sustainability. The claim is likewise statistically significant at a significance level of 10%.

Nevertheless, the steps recommended for policy makers to support sustainable development have a negative correlation with environmental sustainability. The measures encompassed facilitating bank loan accessibility, providing incentives, fostering increased collaboration among the different social players in the region, reducing bureaucratic processes, implementing market regulations, and enhancing control mechanisms for improved efficiency. This could be attributed to the insufficiency of bank loans, excessive bureaucracy, and poor market regulation and control in effectively supporting domestic businesses, particularly small and medium-sized enterprises, especially in rising and developing countries. This viewpoint is also supported by Brau and Woller (2004), Gregori et al. (2014), and other researchers. Wilson et al. (2011) and Fairman and Yapp (2005) examined the impact of bureaucracy, as discussed by Abdullah et al. (2017).

Table 2: Multicollinearity analysis

Variables	VIF	
GEA	1.33	0.75188
SDA	1.45	0.689655
GEK	1.07	0.934579
ISD	1.19	0.840336
GOS	1.20	0.833333

The findings demonstrate a high degree of reliability and effectiveness in assessing the degree of environmental sustainability in Uzbekistan. The lower section of Table 1 demonstrates that the model is not influenced by misspecification, non-normality of residuals, heteroscedasticity, or multicollinearity. Table 2 presents the variance inflation factor and its tolerance for the multicollinearity test. The individual statistics in the table indicate that they are much below the threshold level for severe multicollinearity. Hence, the lack of multicollinearity suggests that the predictors are not interrelated when explaining the changes in environmental sustainability.

The diagnostic test findings presented in Table 1 reveal the presence of omitted variable bias in the model. This phenomenon may be present in a study that aims to assess the degree of environmental sustainability in Uzbekistan. However, the model is deemed satisfactory based on both the F-statistics and the model specification test. Hence, the coefficients of the model are both effective and reliable in assessing environmental sustainability.

5. CONCLUSION

This study examines the degree of environmental sustainability. The results indicate that a larger percentage of the surveyed organizations invest in enhancing energy use due to their belief in its importance, whereas other companies simply invest in energy efficiency improvements as a legal obligation. Moreover, most companies allocate resources towards recycling and reusing materials, adopting environmentally-friendly technologies, providing internal training on the green economy, implementing selective waste management, and procuring and using materials with minimal environmental impact. These investments are made with the belief that they will contribute to ensuring long-term environmental sustainability. Companies are highly worried about the potential environmental implications when they introduce new products and services. This statement indicates that the successful environmental sustainability in Uzbekistan can be inferred from the evaluated reactions of high technology enterprises operating in Tashkent, Uzbekistan.

Moreover, the awareness and understanding of the green economy result in enhanced environmental sustainability. Given the high technology oriented firm's replies about their understanding of the idea of environmental sustainability, this finding is expected. Hence, the enterprises' perception of the green economy can result in enhanced environmental sustainability. Furthermore, investing in sustainable development by increasing moral dedication to sustainable development, investing in order to enhance the reputation of companies and meet customer demands, investing in innovation and cost control, as well as investing in market opportunities, all contribute to the advancement of environmental sustainability. Moreover, the enhancement of the green economy's operational sustainability, which includes providing consultancy services, maintenance services, training, and raising customer awareness, as well as establishing connections with other environmentally-focused companies, contributes to the advancement of environmental sustainability.

Nevertheless, the study revealed that the lack of sufficient bank loans, excessive bureaucracy, and inadequate market regulation and control hinder the promotion of indigenous enterprises, particularly small and medium-scale industries, hence impeding environmental sustainability in Uzbekistan. This is typically the situation in the majority of developing and emerging economies.

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