



THE IMPACT OF ENVIRONMENTAL PERFORMANCE AND THE PER CAPITA GROSS DOMESTIC PRODUCT ON GREEN ECONOMY: AN EMPIRICAL INVESTIGATION

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ABSTRACT

An inclusive green economy is an alternative to today's dominant economic model. Over the past decade, the concept of green economy has emerged as a strategic priority for many governments. However, 62% of world countries have not yet attained a considerable green economic performance. Because of this inadequate green economic performance, most of countries are still unable to reach green economic targets and to implement effective and efficient policies that direct to environmental and economical sustainability. Theoretically, the balanced growth of economic, environmental and social sectors is required to attain a considerable green economic performance. This study attempts to examine the overall influence of environmental performance and the per capita gross domestic product on green economy. Research was based on the cross-sectional data for the year 2018, covering 128 countries. Data were extracted from the World Bank, Centre for Environmental Law and Policy and Dual Citizen LLC databases. The operational methodology adopted is a multiple regression model on the variables such as Green Economy Index, Environmental Performance Index and Per Capita Gross Domestic Product. Multicollinearity, Heteroscedasticity and the Normal Distribution of the residuals have been checked in diagnostics tests. The findings of the study reveal the significant positive relationship between the green economic performance and the independent variables. Although, there is a statistically significance influence from the independent variables, the overall impact is not in a considerable level. Thus, the Environmental Performance and the Per Capita Gross Domestic Product of the countries must be improved more. Further, research highlighted the necessity of delivering balanced attention to the development of economic, environmental and social sectors. Research suggests policy makers to promote the social market economic policies which target the sensible enhancement of those sectors.

KEY WORDS: *Environmental Performance, Green Economy, Per Capita Gross Domestic Product*

INTRODUCTION

The green economy is put forward as an effective solution to both economic crisis and ecological devastation. Green economy is a tool aiming at the development of society, prosperity without draining resources, a return on investment without neglecting the protection of the environment, long term economic growth, social inclusion and institutional actions towards human well-being (Baronio, 2018). International Chamber of Commerce describes the green economy as an economy in which economic growth and environmental responsibility work together in a

mutually reinforcing fashion while supporting progress on social development.

Accomplishing the global green economic targets varies on the green economic performance of the countries. An index measuring green economic performance is important to support policy makers and the private sector in making smart decisions about policies and investments to accelerate the transition to a greener economy (dualcitizeninc.com, 2019). The Global Green Economy Index (GGEI) is the world recognized tool that measures the green economic performance of 130 countries. This index has been developed by the Dual Citizen LLC, a private U.S-based consultancy. GGEI uses



quantitative and qualitative indicators to measure how well each country performs on four key dimensions: leadership and climate change, efficiency sectors, markets and investments and the environment. According to the results of the GGEI in 2018, Sweden has marked the best green economic performance by scoring 0.7608 marks. Bahrain has the lowest green economic performance among the world countries. GGEI 2018 highlights the lower green economic performance of the developing countries. Therefore, effective policies must be formulated to uplift the green economic performance of the countries.

When devising policies that drive countries to green economies, discovering the concepts of green economy in depth is much needed. Confusion of the concepts and the inefficient policies may cause inadequate green economic performance. Although theoretical background confirms the necessity of balanced development of economic, environmental and social sectors to attain a considerable green economic performance, the social sector development and making social inclusiveness have been mostly eliminated from the policy formulation of the least developed countries. This research has empirically verified the incapacity of accomplishing a substantial green economic performance without formulating balanced economic policies. Based on the findings, research implies policy makers to formulate social market economic policies that are vital for attaining a steady sector development.

LITERATURE REVIEW

Theoretical Background

Sustainable development has been the principal goal of the international community since the United Nations Conference on Environment and Development (UNCED) in 1992. Among numerous commitments, the conference called upon governments to develop national strategies for sustainable development, incorporating policy measures outlined in the Rio Declaration. Despite the effort of many governments to implement such strategies as well as international cooperation to support national governments, there are continuing concerns over global economic and environmental developments in many countries. These have been strengthened by recent prolonged global energy, food and financial crises, and emphasised by continued warnings from global scientists that society is in danger of misbehaving a number of planetary boundaries or ecological limits (Rockstrom, 2009).

Whilst considering these ecological limits, green economy has been proposed as a means for catalysing renewed national policy development and international cooperation and support for sustainable development. The concept has received significant international attention over the past few years and it

has resulted in a rapidly expanding literature including new publications on a green economy.

The term green economy was first coined in a pioneering 1989 report for the Government of the United Kingdom by a group of leading environmental economists, entitled *Blueprint for a Green Economy*. In 1991 and 1994 the authors released sequels to the first report entitled *Blueprint 2: Greening the world economy* and *Blueprint 3: Measuring Sustainable Development*. In June 2009, in the lead up to the UN Climate Change Conference in Copenhagen, the UN released an interagency statement supporting the green economy as a transformation to address multiple crises. In March 2010, the General Assembly agreed that green economy in the context of sustainable development and poverty eradication would form one of the two specific themes for Rio+20 (resolution 64/236). This led to a great deal of international attention on green economy and related concepts and the publication of numerous reports and other literature aiming to further define and demystify the concept. One of the key reports was the flagship *Green Economy Report* released by UNEP in November 2011 under its Green Economy Initiative. In December 2011, the UN Environment Management Group (a system wide coordination body of over 40 specialized agencies, programmes and organs of the United Nations) also released its system-wide perspective on green economy – *Working Towards a Balanced and Inclusive Green Economy* – which identifies and clarifies the use of green economy and other related terms (Allen & Clouth, August, 2012).

Theoretically this research was based on the Green Economy Report released by the United Nations Environmental Programme (UNEP) in November 2011. Based on the UNEP report in 2011, green economy is one that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities. It is low carbon, resource efficient, and socially inclusive. In a green economy, growth in income and employment should be driven by public

and private investments that reduce carbon emissions and pollution, enhance energy and resource efficiency, and prevent the loss of biodiversity and ecosystem services. Theoretical background underlines the requirement of steady growth of social, economic and environmental dimensions to attain a substantial green economic performance and a green growth. Human well-being; social equity; socially inclusive; reduced inequalities; better quality of life; social development; equitable access; addressing needs of women and youth are required in social dimension to attain green economy. Growth in income and employment; public and private investments; resilient economy; economic growth; new economic activities are concerned in



economic dimension to attain a green economy. Reducing environmental risks and ecological scarcities; low carbon; resource efficient; reduce carbon emissions and pollution; enhance energy and resource efficiency; prevent loss of biodiversity and ecosystem services; within ecological limits of the planet; environmental responsibility; finite carrying capacity are essential in environmental dimension to grasp a green economy.

Empirical Literature

There are several researches that examine the factors determining the green economy. There are main two group of factors that determine the green economic development. These two universal factors are: eco innovation and corporate social responsibility (Sulich, December 2018). Although several policies have been formulated to accelerate the green economy, expected outcomes have not yet been formed. The theory of green growth cannot determine the question of whether any green growth strategy or path will achieve the claims made for it. That will be an empirical matter. It is quite plausible that some environmental policies will be growth-enhancing, but others will act as a constraint. The difference could arise from the nature of the environmental problem being addressed, the stringency of the objective, or the efficiency of the policy instruments being used (Jacobs, October 2012). However, the policies implemented to attain a green economy have contributed to poverty eradication objectives in least developed countries. Those countries are well positioned in the transition to a green economy given their low carbon profile and rich natural capital assets. Key sectors for greening economies include energy access, waste, ecotourism, agriculture, sustainable urbanization and forestry (UNEP, 2011). Green growth is a tool for achieving the broader goal of sustainable development, and implies a medium- to long-term policy strategy that understands and addresses potential poverty and resource scarcity gaps; provides opportunities for fostering alternate

economic, production and livelihood models; and intends to shield development and growth prospects from future resource price volatility, as well as the impacts of environmental degradation. Green growth that is inclusive can help to implement social and sustainable development goals. However, it is highly recommended to implement broader social policies for social sector enhancement (OECD, World Bank, & United Nations, 2012). Reviewing existing literature confirms that most of countries have already formulated policies for economic empowerment and environmental conservation. Yet, most of countries have not yet focused substantial consideration to attain social development by

reducing disparities and making socially inclusiveness.

RESEARCH PROBLEM

Although most of countries have formulated several policies, those countries are still unable to attain a substantial green economic performance. According to the results of the Global Green Economic Index in 2018, the percentage of the countries which have attained a significant green economic performance is only 38%. Thus, 62% of world economies have not yet attained a substantial green economic performance. Because of that, those countries have not yet reached the green economic targets. Moreover, effective and efficient policies that direct economies to environmental and economical sustainability have not yet implemented successfully. Further, this circumstance has affected negatively for the accomplishment of the Sustainable Development Goals (SDGs) as well. Existing literature proves that most of countries have not yet focused attention to the steady growth of three dimensions: Social; Economic; Environmental. Formulating balanced policies that combine all three dimensions could be the suitable solution for the inadequate green economic performance of the countries. Thus, the research problem of the current study is “is there a significant influence from the environmental performance and the economic growth to determine the current green economic performance of the world economies”

RESEARCH OBJECTIVES

The primary objective of this research was to examine the overall influence of the environmental performance and the per capita gross domestic product (as a proxy to the economic growth) on the recent green economic performance of the countries. The secondary objective of the research was to provide tools for effective policy formulation which direct world economies to attain a substantial green economic performance.

METHODOLOGY

This study was designed to examine the overall influence of the environmental performance and the per capita gross domestic product (as a proxy to the economic growth) on the recent green economic performance of the countries. Research was based on the deductive approach. Environmental Performance Index (EPI) has been used to measure the environmental performance of the countries. Per capita gross domestic product (GDPP) has been used as a proxy to the economic growth. Dependent variable was the Global Green Economic Index (GGEI) which measure the green economic performance of the world economies. The theoretical



form of the functional econometric model of the study is given below.

$$GGEI_t = \beta_0 + \beta_1 EPI_t + \beta_2 GDPP_t + U_t$$

Where, β_0, \dots, β_2 are coefficients of independent variables; v is error term.

Above model has been estimated using cross sectional secondary data for the year 2018 covering 128 countries. Data were extracted from the Centre for environmental law and policy in Yale University, The Dual Citizen LLC and the World Bank. The operational methodology adopted is a multiple regression model. In the diagnostic tests, heteroscedasticity, multicollinearity and the normal distribution of the residuals have been checked.

RESULTS AND DISCUSSION

According to the regression results, EPI and GDPP are positively and significantly correlated with the recent green economic performance of the countries (Table 1). This relationship can be theoretically accepted because UNEP Green Economic Report in 2011 confirms the same affiliation between those variables. Therefore, an increase in environmental performance and per capita gross domestic product has significantly influenced on recent green economic performance of the

countries. The primary objective of this research was to examine the overall influence of the environmental performance and the per capita gross domestic product on the recent green economic performance. According to the results of the model summary, Adjusted R Square is 0.431. Thus, 43% of the total variance has been explained by the estimated model. Therefore, more than 50% of the total variance of the green economic performance of countries has not been determined by the environmental performance and per capita gross domestic product. It indicates that although there is a statistically significant influence from the selected independent variables, that influence does not determine a considerable green economic performance. Further, results of the Analysis of Variance (ANOVA) confirm the statistical significance of the whole model (Table 1). The normal probability plot indicated the normal distribution of the residuals. VIF values and Tolerance confirmed that data set is out form the Multicollinearity. Heteroscedasticity has been checked by using the graphical method. The plot of squared values of the residuals and the estimated values of the dependent variable indicated a disorganized pattern.

Table 1: Estimated Regression Coefficients

Variable	β Value	Std. Error	t value	sig
EPI	.002	.001	9.824	.000
GDPP	.0000141	.000	.346	.001
(Constant)	.329	.033	9.824	.000
R Square	.440	Adjusted R Square		.431
ANOVA				
F Value	49.042	sig		.000

CONCLUSIONS AND POLICY IMPLICATIONS

This research was set out to examine the overall influence of the environmental performance and the per capita gross domestic product on the recent green economic performance of the world economies. Findings of the study reveal that the overall influence of the environmental performance and the per capita gross domestic product has not make substantial influence on the green economic performance of the world economies. Based on the findings, research concludes that the development of the Environmental, Economic and Social dimensions must be given same and balanced attention in order to attain a substantial green economic performance. Furthermore, environmental performance and the per capita gross domestic product must be improved more to make a significant green economic performance. This research suggests facilitating public and private investment that reduce the carbon

emissions and pollutions and financing more for research and development. Further, research underlines the necessity of fostering the growth of the new entrepreneurial firms and facilitating the transition to green growth in small and medium size enterprises. Moreover, based on the conclusions research recommends implementing social market economic policies that target the balanced development of environmental, economic and social sectors.

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