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CASE STUDY ALBANIA

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ABSTRACT

Gross Domestic Product (GDP) or Gross National Product (GNP), are commonly used to determine the economic performance of a whole country or region, to make international comparisons and to measure the produced output but they ignore the ingredients needed to generate such output like water and air. So, there is a general consensus that these indicators, according to the concepts of sustainable development and green growth, appear to be poor measurements. Nowadays we can see the big impact that environment is having in our lives and especially on economic activity, so economic policies should be focused on the sustainable development of the environment, as part of economic growth in general. Green GDP is an Index, an alternative indicator of economic growth that incorporates environmental consequences of that growth by including the depletion of natural resources and degradation of the environment, so it takes into consideration the environmental impacts on the productivity of the country.

Considering that the main purposes of Green GDP accounting are used to provide a more accurate measure of welfare and to examine the sustainability of the economy, to give our opinion for the importance of calculating Green GDP in the economic growth of Albania, we use the general scheme of calculating Green GDP, (see Stjepanovic et al., 2017), by calculating all the damages that are caused by economic activity in each studied year. Comparing the behavior of these two indicators (GDP growth and Green GDP growth) during the selected period of the study for Albania, we try to give the reasons about the difference between them, in order the government to take the necessary measures to narrow and even eliminate it. In the paper, we not only tell about the damages of economic activity on environment, but also, will identify which factor is determinant in Albania case.

Keywords: *Green GDP, Economic Growth, Environmental Damage, Sustainable Development, Albania.*

INTRODUCTION

Gross domestic product (GDP) is a monetary measure of the market value of all the final goods and services produced in a specific time period (Wikipedia). William Petty came up with a basic concept of GDP to attack landlords against unfair taxation during warfare between the Dutch and the English during the period 1654 and 1676¹. As we can see, this concept has more than three centuries, and even it has been developed time after time, still, it has shortcomings.

Many economists have long argued that GDP (Gross Domestic Product) is an inaccurate measure of economic development and social welfare, and therefore is needed to correct, and some others, even, think to find a new measure.

The environment and the great problems that are being caused by the neglect of its role in every aspect of life have caused environmental problems to grow rapidly, so it is time that in the whole world to give due importance to these problems and the effect they have in the sustainable development of a country, moving away from the traditional forms of measuring GDP, which exclude the environmental impact to this indicator. Many environmentalists argue that GDP is a poor measure of social progress because it does not take into account harm to the environment². The reason is that GDP is not regulated for pollution costs. If two economies have the same GDP per capita, but one has both air and water polluted while the other does not, welfare will be different, and GDP per capita does not reflect this.

From the environmental point of view, real GDP fails to consider depletion of natural resources and pollution damages. Green GDP gives value to the cost of environmental losses and therefore adjusts GDP to reflect the environmental costs (Vaghefi et al., 2015). Environmental sustainability of economic growth has come to be recognized as one of the most important pillars of sustainable growth and development (Stjepanovic et al., 2017). Also Alfsen et al., 2006, have noted that as part of the move towards a new sustainable model of growth and development, many governments have sought to assess, and some of them to establish, Green GDP as one of the key indicators in assessing national progress. Moreover, according to Everett et al., 2010, measures of economic activity, such as GDP, do not capture the full benefits provided to us by the natural environment, nor do they reflect the extent to which environmental resources have been depleted or degraded.

Green GDP, in contrast, takes into account the consumption of natural resources and the degradation of the environment associated with the economic activities, and measures both the quantity and the quality of the economic aggregate. The concept of Green GDP was initially developed in the West in the 1960s (Pearce, Markandya, & Barbier, 1989), but China is the first country in the world actually implementing the Green GDP concept in the measurement of its economic activities, because China is one of the most polluted countries in the world. According to the World Bank, in 2000 China had 16 of the world's 20 most polluted cities. According to the International Energy Agency (IEA) forecasts, the increase of greenhouse emissions from 2000-2030 from China alone will nearly equal the increase from the entire industrialized world. China's emissions of sulfur dioxide were the highest in the world in 2004. Acid rain caused by coal-burning plants induced "striking damage to agriculture, buildings, and public health." (SEPA 2006). In 1993, the United Nations de facto paved the way for the development of the Green GDP concept.

Recent data gives an alarm about the problems that are being caused especially in highly developed countries as a result of the lack of indicators that present the impact of economic activity on the environment, making it necessary to use a new indicator. Countries such as China, USA or Germany are among the most industrialized countries that calculate this index in their economies and are taking measures to reduce the enormous impact that has had and actually has rampant industrialization.

1 "Petty impressive". The Economist. 2013-12-21. Retrieved August 1, 2015.

2 Van den Bergh, Jeroen (April 13, 2010). "The Virtues of Ignoring GDP". The Broker.

On the conclusion paragraph in their paper Li and Lang, 2009, point out that it is essential some form of environmental accounting, for estimating the sustainability of an economy and, as a tool for assessing the real consequences of economic growth. In Albania, environmental economic accounts data are important for understanding the situation of the Environment sector. These data are using to analyze and evaluate different economic instruments related to the environment. The strategic objective is the production of the Environmental Economic Accounts (EEA) indicators in accordance with international standards. In Albania, EEA are divided into two main areas: Physical Environmental Accounts; Environmental Monetary Accounts. The main variables of “Monetary Environmental Accounts” are: Environmental protection expenditure, Environmental Taxes and Environmental goods and services sector; and for “Physical Environmental Accounts”, are: Air and water emissions Accounts, Physical Energy flow Accounts in the Environment and Material Flow Accounts. The reports are annual and the methodology used for the calculation complies with the Regulation (EU) No. 691/2011 on Material Flow Accounts and Eurostat manuals (INSTAT 2019).

The model of growth and development pursued in the last decades has not delivered the inclusive growth and sustainable development aspired to by people around the World. (Jarvis and al, 2011). The global economic and financial crisis of the year 2008 created sufficient numbers of decent and productive jobs. On the other hand, the high environmental costs of ordinary businesses, as well as the threats to climate change are becoming increasingly clear and urgent, affecting the progress made in reducing poverty. In these conditions, sustainable development which includes economic growth, social inclusion, and environmental protection is necessary.

Green growth is a function of social efforts to put in place, prevent, monitor, compensate, manage, and improve natural resources³. Green growth is a dynamic concept, so a number of parameters must be included in its calculation. The measurement of this concept should be related to the relevant sustainable development, which is not merely a statistical or technical indicator but includes a concept of consensus assessment in such sensitive areas for all societies and human, social and natural development. It is an indicator of reconciliation and strengthening of various aspects and of economic, environmental, and social policies. This is achieved by considering the full value of natural capital and recognizing its essential role in economic growth. A green growth model promotes a cost-effective and resource-efficient way driven by a steady state of production and consumption.

MATERIAL AND METHOD

The data used in this study are taken from the database of World Bank; OECD.Stat (Non-OECD Economies), European Environment Agency reports and statistics. The time span of the data is from 2007 to 2017.

The traditional formula for calculating Green GDP is: GDP indicator minus the cost of natural resource consumption minus the costs of environmental depletion.

Green GDP = NDP - Imputed Environmental Costs

Where NDP = GDP - the depreciation of man-made capital.

In order to calculate the value of Green GDP indicator, we have used basic formula, used before from Negin Vaghefi et al, 2015 in their paper:

Green GDP= Gross Domestic Product - Natural Resources Depletion - Pollution Damage

This paper aims to make a description of the importance of using Green GDP as a key indicator of sustainable economic growth, regardless of the environmental effects as a result of economic activity and to show what a difference exist between these two indicators.

3 Common, M., and Stagl, S. 2005. Ecological Economics: An Introduction. New York: Cambridge University Press.

RESULTS

The Albanian economy's performance exposes extreme events in the decades of transition, especially in the period 1990-2000. As a result of the collapse of centralized and dictatorship economic regime in the early 1990s, the economy fell by about 30% and inflation went to 240%. Ten years later, in the early 2000s, the economy returned the growth rate to the level of over 6% per annum and, on the other hand, inflation stabilized by 3% per year. During 2010-2018 (and expected 2019), the economy entered a new standard with a stable economic growth, between 3-4% with some fluctuations.

As we mentioned before, the measures of Green GDP (Green Gross Domestic Product) have long been the subject of research in western countries since the 1960s, but it has never been practically used in measuring economic outputs. In Albania, this concept is relatively new. Since the necessary data to calculate Green GDP are not available before the year 2007, to achieve our goal we have taken in analyze the period 2007-2017.

In the graph is compared the performance between GDP growth and Green GDP growth in a period of ten years (2007-2017). The graph shows a steady growth rate of GDP growth over the years, while in terms of Green GDP Growth, are seen fluctuations. As we can see, the lowest value of Green GDP Growth is in 2014 (0.9 %), while the highest value is in 2008 (3.9%).

The situation presented in the graph for Green GDP Growth during these years shows that in Albania does not exist a specific strategy to reduce environmental damage. From the calculations, it is noticed that in the years with lower values of Green GDP Growth the indicators that negatively affect it are in large values.

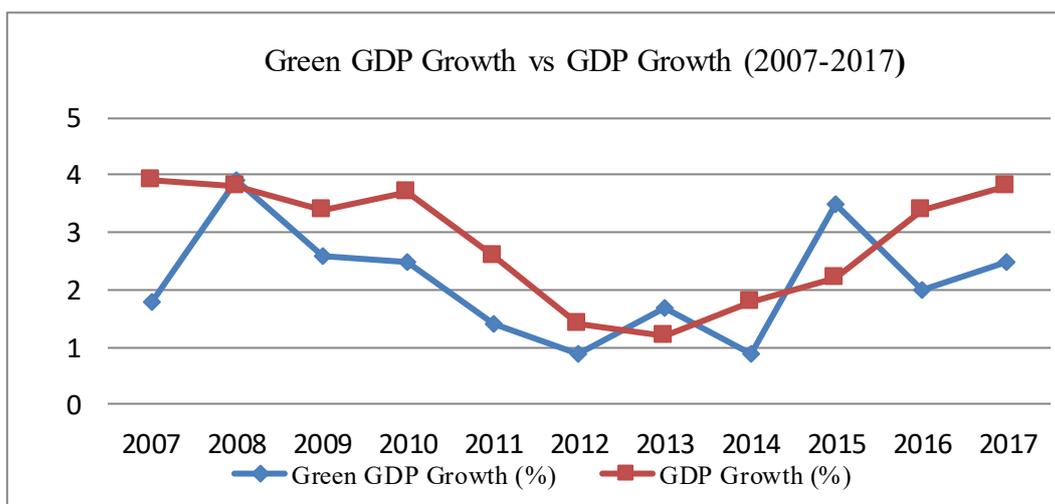


Figure 1. Comparison and trend of GDP Growth and Green GDP Growth in Albania (period 2007-2017)
Source: World Bank 2018

The analyze of the chart also shows that the growth of Green GDP is more the result of growth of the economic growth indicator than of the reduction of environmental damage and the emissions of waste. So, there are two possibilities to improve Green GDP: GDP value, which according to the formula has a positive effect on the Green GDP indicator, and the second one is the reduction of all indicators that have a negative impact on it. Observing the almost uniform trend of economic growth, we can say that the main way to improve the Green GDP indicator is to reduce the amount of waste and CO₂ emissions. Sustainable environmental strategies would significantly improve the performance of the Green GDP and reduce the negative values of this indicator towards its equilibrium with GDP.

Further analysis are made for the contribution that each of the components of the Green GDP calculation formula, has in its value.

In the table are presented the basic components included in the calculation of the Green GDP indicator according to the formula presented above. All components play an important role in the calculation of Green GDP, but key indicators are CO₂ emissions and damage to forest areas as expressed by the Natural Resource Depletion (NRD) as a percentage of Gross National Income (GNI). To better understand the impact of each component on the Green GDP and consequently on Green GDP Growth indicator, we compare its lowest and highest value.

As we see, the year with the lowest value of Green GDP Growth is 2014 (0.9 %). This year results in a significant value of CO₂ emissions, respectively 5,717 kilotons, and an increase of NRD value to 311 million \$. These are the reasons that this year has the lowest value of Green GDP Growth.

Table 1. The contribution of each component on the value of Green GDP

Year	CO ₂ (kilotons)	Co2 damage value (ton*20\$) million \$	NRD Value (\$) Million dollar	NRD (% GNI)	GDP (Billion \$)	Green GDP (Billion \$)	GDP Growth (%)	Green GDP Growth (%)
2007	3,927	78.5	76.9	0,693	11,10	10,94	3,9	1,8
2008	4,075	81.5	59.6	0,518	11,52	11,37	3,8	3,9
2009	4,978	99.5	43.0	0,364	11,82	11,67	3,4	2,6
2010	4,998	99.9	114.9	0,946	12,15	11,97	3,7	2,5
2011	4,740	94.8	228.0	1,829	12,47	12,14	2,6	1,4
2012	6,910	138.2	258.4	2,043	12,65	12,25	1,4	1,0
2013	5,064	101.2	314.2	2,244	12,88	12,46	1,2	1,7
2014	5,717	114.3	311.4	2,394	13,01	12,58	1,8	0,9
2015	4,892	97.8	151.7	1,143	13,28	13,03	2,2	3,5
2016	4,244	84.8	82.7	0,611	13,54	13,30	3,4	2,0
2017	4,026	80.5	139.0	1,003	13,86	13,64	3,8	2,5

While year with the highest value of Green Growth GDP is 2008 (3.9%). Analyzing the data in the table results that in 2009 all components are in favor of improving Green GDP. So, CO₂ emissions are at average levels and also NRD at the minimal levels. A big positive impact on the value of Green GDP Growth for this year has given economic growth by roughly 3.8% and the low level of NRD.

Analyzing the table, it is important to emphasize that the data show significant fluctuations in general for all influencing factors, except electricity prices and economic growth. Albanians do not have the right culture in terms of environmental issues and only in recent years, the government is working hard on legislation. Based on the data of the responsible institutions results that currently in Albania, all waste which is generated within the country ends up in landfills, in the streets, rivers, or in the seas as well as in the unlicensed accumulation points which do not fulfill any minimal technical criteria, damaging seriously environment and people's health. (Merko F. 2017). According to the World Economic Forum (2012), Albania is rated the fifth from the ten most polluted countries in the world. Albania has 171.4 deaths per 100,000 populations and 44% of greenhouse gas emissions come from the energy sector, and these figures are alarming. Government policies should be focused on processing and recycling of waste, which would bring environmental improvements and significant financial benefits.

What is positive, are the figures in forest cutting as a consequence of the moratorium, which gives its influence in reducing environmental damage. Although its implementation is not being done properly, table indicators show the first improvements to the situation, though in small amounts. So, is good to recommend use of forest resources steadily and in function of the development of the country by optimizing its use and value, balancing the different uses to the maximum value that can take against the opportunities that the forests have to give without compromising the continuity of life and forest cycle, and also the future of generations (Merko F. 2019).

CONCLUSIONS

Increased consumption, transportation, solid urban wastes, discharge of sewage into seas and rivers, deforestation, erosion of river bases, burning of tires, erosion of mountains, uncontrolled construction, etc., are just a few of the impacts that occurred on the environment. It is necessary to implement the appropriate laws, and even further, the will to complete the initiatives undertaken for the protection of the environment. In order to reflect all the problems that the environment is facing nowadays, there is still a lot of work to be done in drafting strategies and also in their implementation. The Albanian government has drafted national environmental strategies, but its implementation isn't done properly.

The main conclusion of this paper is that economic growth is largely influenced by environmental factors; therefore, it is better to achieve a new interaction between economic and environmental concepts in order that government and organizations to make right assessments related the real national progress and well-being in the future of Albania.

We noticed a big difference between GDP and Green GDP, which mean that environmental damages are at large levels. GDP Growth is stable but Green GDP Growth changes, which mean that environmental politics are not stable. The difference between the average GDP Growth and Green GDP growth, in Albania as a developing and ex-communist country, is high.

The growth of industrialization, urbanization, and changes in the pattern of life, factors associated with the economic growth process, are indicators that the amount of waste will increase by leaps and bounds. In the most developed countries, especially in EU countries, new technologies for the recovery of energy from urban waste are being adopted, aimed at reducing the amount of waste, reducing environmental pollution and producing a significant amount of renewable energy. In Albania, waste recovery treatment initiative with energy recovery has not yet become a reality. Waste management in Albania is at a very low level. Although the level of waste generation is below average, in comparison to other European countries, the systems of collection and disposal are poor. The current level of SUW (Solid Urban Wastes) recycling is very low and there is a complete lack of separate collection of the generated waste. (Merko F. 2017). Sustainable development of integrated waste management requires that natural resources be used efficiently, promoting the reduction of waste generation, reuse of recyclable materials, the use of renewable energy sources, causing the least impact on the environment. Draft National Strategy for Integrated Waste Management 2018-2033 and also the Document for Forestry Policies in Albania, 2019-2030, will help to improve the bad environmental situation and will bring a very positive impact on Green GDP indicators of Albania.

The government needs to develop and implement appropriate policies and strategies for green development, which will impact development in an environmentally sustainable manner of our country, based on the concepts of green development, creating conditions for future generations to benefit and gain in the long-term, increasing the participation and involvement of citizens as well as businesses in this process. Also government policies should be focused on processing and recycling of waste, which would bring significant financial benefits.

REFERENCES

1. Alfsen, K.H.; Hass, J.L.; Tao, H.; and You, W.; 2006. International experiences with “Green GDP”. *Reports 2006/32*, Statistics Norway.
2. Draft National Strategy for Integrated Waste Management (02 of December 2018)
3. Everett T, Ishwaran M, Ansaloni GP, Rubin A, “Economic Growth and the Environment”, Defra Evidence and Analysis Series, Paper 2, March 2010, pp 14.
4. Hahnel, R. (2004), *Green Economics: Confronting the Ecological Crisis*. New York: M. E. Sharpe.
5. https://stats.oecd.org/Index.aspx?DataSetCode=GREEN_GROWTH
6. INEGI, July 2011, “Economic and environmental accounting and green growth”.
7. Jarvis, A; Varma, A; Ram, J; Assessing green jobs potential in developing countries: A practitioner`s guide. Geneva, International Labour Office, 2011, ISBN 978-92-2-124571-1, V 1, 03.01.2013.
8. Jeroen van den Bergh, “Ecological Economics and Sustainable Development”, 1996
9. Joseph Stiglitz, Amartya Sen and Jean-Paul Fitoussi, “Report by the Commission on the Measurement of Economic Performance and Social Progress”, “Commission on the Measurement of Economic Performance and Social Progress”, 2004.
10. Li, Vic and Lang, Graeme (2010) ‘China’s “Green GDP” Experiment and the Struggle for Ecological Modernisation’, *Journal of Contemporary Asia*, 40: 1, 44 - 62.
11. Merko, F; Dursun, S; Merko, F; “Environmental taxation - the effects on environmental effectiveness and economic efficiency”, *International Journal of Ecosystems and Ecology Science (IJEES)* Vol. 8 (3): 739-746 (2018), <https://doi.org/10.31407/ijeess84>.
12. Merko, F, “The impact of good urban solid waste management in Albania`s economic development” *IJEES*, Volume 7/4, 2017, page 683-690; July 2017.
13. Merko, F; Kalaj, E; Merko, F; <https://iseser.com/> International Symposium for Environmental Science and Engineering Research, 25-27 May 2019, Konya. Turkey, <https://iseser.com/doc/2019/ISESER2019-ABSTRACT-BOOK.pdf>. “How economic growth does affect deforestation: evidence from Albania”.
14. Millimet, Daniel. “Four New Empirical Tests of the Pollution Haven Hypothesis When Environmental Regulation is Endogenous”.
15. National Environment Agency, 2017, Report on the state of environment 2016, page 58-98
16. Pearce, D.W., Markandya, A., & Barbier, E.B. (1989). *Blueprint for a green economy*. London: Earthscan Publications Limited.
17. Rauch, J.N; Chi, Y.F. 2010. The Plight of Green GDP in China. *Consilience: The Journal of Sustainable Development*, Vol. 3, No. 1, pp. 102-116.
18. Saša Stjepanovi S., Tomi D, Škare M, the International Journal “Entrepreneurship and sustainability issues” ISSN 2345-0282 (online) <http://jssidoi.org/jesi/> 2017 Volume 4 Number 4 (June), “A new approach to measuring green GDP: a cross-country analysis”.
19. Taberth J, Bohara Alok K, *Ecological Economics* 58 (2006) 743- 758, “Economic openness and green GDP”.
20. The document for forestry policies in Albania, 2019-2030
21. United Nations Economic Commission for Europe, 2018, *Environmental Performance Reviews, Albania*. Third review, page 24, 82.
22. Vaghefi N, Siwar C, Aziz S. A. A. G. *Green GDP and Sustainable Development in Malaysia*. *Curr World Environ* 2015;10(1) DOI:<http://dx.doi.org/10.12944/CWE.10.1.01>
23. Web site of Ministry of Environment Forest and Water Administration. <http://www.moe.gov.al>
24. Web site of National Environmental Agency. akm.gov.al
25. www.INSTAT.gov.al

