



NONRENEWABLE ENERGY PERFORMANCE WITH PRESENCE OF INSTITUTIONS AND ECONOMY OF SUB-SAHARAN AFRICA.

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Abstract

This study examines the influence of the interaction of nonrenewable energy performance with institutional quality on economic growth of 31 sampled Sub-Sahara African nations from 2002-2020 using Fully Modified Ordinary Least Square technique of analysis. The findings of the work are in line with past studies that nonrenewable energy use and good institutional quality promote economic growth. However, the interaction of nonrenewable energy and institutional quality shows that in the presence of good institutional quality nonrenewable energy use not only promote economic growth but is the back bone or engine of growth in the Sub-Sahara African countries. In addition, the result indicates that renewable energy consumption and financial sector performance accelerate the capacity of economic progress, while trade adversely affects economic performance in SSA nation. Therefore the study suggest that, governments of Sub-Sahara Africa should focus towards refining the quality of their institutions through formulating and implementing policies that will promote and enforce rule of law and embarking in good governance and taking anti-corruption measures.

Keywords: nonrenewable energy, institutional quality, Sub-Sahara Africa, FMOLS, economic growth.

Introduction

Over the past decade the global economic growth has been in a deteriorating shape with annual growth rate of 4.32% in 2010 to 3.14% in 2017 (WDI, 2019). However, Asia remains the strongest in term of regional economic performance and the African continent with the lowest economic prospect (World Bank, 2019). It has been acknowledge that since the period of the global financial catastrophe the capacity of trade, investment and other macro-economic factors are in decelerating condition. Similarly the situation of economic performance and prospect in emerging nations remain the same with the exclusion of China and India which they maintain positive trend in economic performance (WDI, 2019). In this regard population growth, weak productivity, improper management and utilization of energy resources also remain the contributing factor of slow rate of the global economic performance. Thus, the effect of low economic growth and productivity has taken much attention in the recent years. Earlier studies have strongly emphasis that energy resources, financial performance and foreign investment are linked to economic growth and development of various nations of the world (Bhattacharya, Churchill, & Paramati, 2017; Destek & Aslan, 2017; Salim, Hassan, & Shafiei, 2014). Hence, international institutions have encourage both developed and developing countries on a way to explore various avenues and capabilities inform of utilization of energy resources, financial reforms, bilateral agreement and agendas between countries towards promoting economic growth and development as well as attaining sustainable development.

In sub Saharan Africa (SSA) economic performance has been reduced over the years the growth performance decline by 0.3% from 2016 to 2018 (WDI, 2019). According to World Bank, the rate of economic performance in the region is lower than expected which has reflect the global uncertainty but directly from domestic problem such as higher population growth, political and regulatory uncertainty, inefficiency in the utilization of energy resources such as nonrenewable energy resource use, and financial capabilities. For instance Nigeria and South African growth rate were downgraded to 0.8% from 2016-2018, while countries like Angola, Congo, Niger, Zambia and Liberia were remain totally in recession (WDI, 2019). However the backward nature of human development, extreme poverty, unfavorable growth outlook coupled with agitation by various international agencies have made it possible for sub Saharan Africa reengage its effort towards improving energy utilization and efficiency, financial resources international investment that facilitate various investment opportunities for economic growth and development. Therefore nonrenewable energy consumptions are given priority because they have direct link with growth performance (Salim et al., 2014). Various studies have analyze the extent to which nonrenewable energy use influence the level of GDP growth in both industrialized and emerging nations (Destek & Aslan, 2017; Salim et al., 2014; Bhattacharya, Reddy, Ozturk, & Bhattacharya, 2016). This shows that energy consumption may influence economic growth and development. Given this evidence nonrenewable energy consumption may likely be the factors that influence economic growth. Despite many studies, inadequate empirical evidences were found with regard to the nonrenewable energy utilization and GDP performance especially in SSA.

Similarly, the WDI, (2019) stated that energy use in SSA economies possess an increasing trend from 2002-2020. Therefore, this situation indicates that energy use may have direct link to economic growth performance in these nations. In African nations,

there is lack of institutional quality, good governance prevalence of law and order. Accordingly, institutional quality can stimulate economic growth performance (Ibrahim & Law, 2016). In other words, there is backwardness in the quality of institutions which may deteriorate the level of economic growth.

In this capacity the study asks the question “Does the interaction effect of nonrenewable energy use with institutional quality influence the economy of SSA nations? Therefore the objective of this study is to examine the influence of the interaction effect of nonrenewable energy use with institutional quality on economic growth in SSA economies.

Conceptual Issues and Definitions

Under this section, consideration is given to the definition of terms relating to Economic growth, institutional quality and energy consumption as well as their measurements.

Economic growth

Increase in the level of production and economic activities within a particular boundary over period influences the country's economic growth. World Bank (2017) defines economic growth as a general increase in production of goods and services in an economy over a given period. It involves a rise in capital goods, labor force, technology and human capital that result from changes in income and output in a given economy. According to IMF (2017), economic growth refers to the upsurge in the market value of goods and services produced by an economy for a particular time, which term as a percentage rate of increase in the real gross domestic product (GDP) or per capita GDP.

Non-renewable Energy

It termed as a natural form of energy resources such as fuel, coal and natural gas. Non-renewable energy is classified into two that include fossil and nuclear energy resources.

Fossils fuel: these are energy resources that were found as a result of heating organic matter.

Nuclear energy: it is formed as a result of mining of uranium ore.

Institutional quality

Institutional quality refers to the quality of governance for a nation and its institutions. It is also define as the ability of government of a nation to produce enhanced governmental and institutional framework for better economic performance (World Bank, 2016). This involves good indicatives and idea in developing framework of good governance. Several measurement of institutional quality have been identify in the literature such as political stability, rule of law, government effectiveness, control of corruption as well as transparency and accountability (Dike, 2011; Werlin, 2005).

Fully Modified Ordinary Least Squares (FMOLS): is an econometric estimation technique primarily used in the context of cointegrated time series regressions. It was developed by Phillips and Hansen (1990) to provide optimal estimates of cointegrating relationships, addressing limitations of standard Ordinary Least Squares (OLS) when dealing with non-stationary data that are cointegrated.

Theoretical Background

Endogenous growth theory

Many theories of economic growth since the classical perspective to endogenous growth theories were proposed to recognize and explain several variables influencing growth. According to neoclassical growth theory proposed by Solow (1956), economic growth is influenced by technological changes. Therefore, the theory considers technology as an exogenous variable, assumes constant output and capital stock per capita at steady state of the economy. It also states that savings rate is influenced by country's effect on productivity. The fundamental problem of the theory is that given technological change exogenously, the long-run growth is uncertain. Secondly the theory was unable to ascertain the long-run growth path in the case of cross countries differences. That is in a condition where different nations are assumed to have the same preference and technology is determined exogenously but their endowments are allowed to be differ. The solution to this problem is to endogenize the process of technical change (Scheinkman, 1976).

Romer (1986) suggested new growth theory that incorporates the role of human capital and is term as endogenous growth theory. The theory considers technological changes as an endogenous factor that determines level of economic growth. He argued that no convergence in income as against the view of neoclassical growth theory. It further demonstrated that technology can be influence by physical capital, human capital, financial reform, trade liberalization and availability of resource (Adeel-Farooq et al., 2017; Ahmed, 2010). It implies that financial sector reform, lifting trade restrictions, influx of foreign investment upsurses the level of technology and determine level of economic performance. Another proponent of endogenous growth model, Rebelo (1991) also emphasized on convex model of endogenous growth. He focusses on a distinct preferences and technologies that

emerge to the optimum constant rates of growth. This necessitate an assumption that fixed factor do not enter the production function for investment goods. Similarly, he argued on the contribution of policy in influencing long run growth.

Lucas (1988) assume constant return to a broad concept of reproducible capital which include human capital and policy variables. The model emphasized that the growth rate of percapita product is independent of starting level of percapita product. Similarly, Barro (1990) argued that the main element behind the endogenous growth is an extension of factors of production in terms of reproducible factors which can be accumulated over time, such as physical, human capital and the influence of a change in the economy structure. Other proponents of endogenous growth model include, Jones and Manuelli (1990) model, have emphasized that policy variables can stimulate long-term economic growth. The role of energy in stimulating output has yielded rising interest by researchers succeeding the work of Schurr (1982, 1984), that assumed electrification significantly strengthens the growth of labour and multifactor productivity in the U.S. economy in the early 20th century.

In line with the above this paper is backed by the Endogenous Growth Theory.

Empirical Literature Review

Numerous studies have evaluated the association among renewable, nonrenewable energy consumption, and economic performance for example,

Kalu, Nwafor, Okoyeuzu, and Onodugo (2020) Investigate the link among energy use, industrial value and economic performance in 48 SSA nations from 1976 to 2016 used panel ARDL method, Proves the existence of positive influence of nonrenewable energy resources on economic performance. Banday and Aneja, (2018) Analyze the linkage among the energy resource and GDP in G7 economies from 1971 to 2014 using ARDL technique, the result shows that Nonrenewable energy use cause economic progress. Hassan, Danmaraya, and Danlami, (2018) examine the link among renewable and nonrenewable energy resources use and industrial performance in SSA from 1995 to 2013, the study use FMOLS technique, the outcome shows that nonrenewable energy use enhance industrial value. Almulali (2015) Investigated the influence of renewable and nonrenewable energy on GDP in 82 emerging nations from 1990 to 2009 using FMOLS approach, the study reveals that Nonrenewable energy resources promote the capacity of economic progress. Kalu et al. (2019) Analyze the influence of energy resources and industrial value on GDP performance in Nigeria from 1971 to 2014 using ARDL technique, the result indicated that energy resources and industrial value accelerates the level of economic progress. Kahia et al. (2016) examine the effect of energy use, capital and labour on growth performance in MENA nations from 1980 to 2012 the study use FMOLS and co integration, the result indicate that renewable, non-renewable energy, capital and labour positively influence growth.

Hassan, Meyer, and Kot (2019) investigated the influence of institutional quality on GDP in 35 oil exporting emerging nations from 1984 to 2016 using ARDL approach, the outcome shows that all the variables are co integrated. It also shows that institutional quality reduce the performance of economic growth. Kacho (2017) assess the influence of institutions and financial progress indices on economic performance in MENA nations from 2002 to 2014 using GMM dynamic panel data, the empirical analysis suggests that financial progress and institutional quality have a negative and statistically significant effect on GDP in MENA countries. Sehrawat and Giri (2018) analyze the influence of quality of institutions, financial performance and globalization on GDP in India from 1982 to 2016 applying ARDL technique The outcome indicates that quality of institutions and globalization enhance the level of GDP growth. Bhattacharya (2017) studied the effect of renewable energy utilization and institution on GDP performance in 84 industrialized and emerging economies from 1991 to 2012 using system GMM and FMOLS approaches, the outcome indicate that Quality of institutions positively influence GDP performance and decelerates the capacity of CO₂. Nawaz, Iqbal, and Khan (2014) examines the performance of institutional quality on GDP in Asian nations from 1996 to 2012 using GMM technique Institutional quality enhance economic performance. Salman, Long, Dauda, and Mensah (2019) Studied influence of institutional quality, energy resources and trade in East Asian nations from 1990 to 2016, using FMOLS, DOLS and VECM techniques Institutional quality reduce the capacity of CO₂ explosion and also enhance economic performance.

From the reviewed literature it is reveals that link among nonrenewable energy resource, financial sector progress, trade, institutional quality and economic performance has been studied. However, the interaction effect of nonrenewable energy utilization and institutional quality on economic performance has not been investigated. Furthermore, the effect of institutional quality on the economy of SSA nations has left uninvestigated in the literature. Hence, this study examine the interaction effect of nonrenewable energy use and institutional quality on economic growth of the SSA economies.

Methodology of the Research

Data

The data of this estimate was based on 31 SSA economies yearly data for economic progress (current USD), fossils energy utilization (quad btu), financial sector performance (credit to public sector percent of GDP), trade (total exports + total imports), institutional quality (rule of law) from 2002–2020. The data were obtained from World Development Indicators (WDI) and

World Governmental Indicators (WGI) of the World Bank data base and the Energy Information Administration (EIA) of the United States of America data base.

Analytical specification of the model

The study applied reviewed model by Sulaiman and Abdul-Rahman (2017) to estimate the long run association among the variables and it is illustrated in equation 1

$$GDP = f(NREC, FD, TO, INS, NRC*INS) \quad (3.1)$$

Econometrically, the model is specifying as:

$$GDP_{it} = \alpha + \beta_1 NRC_{it} + \beta_2 FD_{it} + \beta_3 TO_{it} + \beta_4 INS_{it} + \beta_5 NRC * INS_{it} + \varepsilon_t \quad (3.2)$$

In equation 3.2, GDP represent economic growth, NRC denotes nonrenewable energy utilization, FD is financial performance, TO indicate trade, INS represents institutional quality and NRC*INS represents interaction variable, α β represent coefficients, t is the time and ε indicates the disturbance term.

Table 2.

Descriptive Statistical nature of the variables

	<i>FD</i>	<i>GDP</i>	<i>NRC*INS</i>	<i>INS</i>	<i>NRC</i>	<i>TO</i>
Mean	22.47877	1903.591	4.327677	13.48065	0.269738	68.47563
Median	14.50092	793.4523	0.635320	14.00000	0.045573	61.96943
Maximum	160.1248	10795.50	105.3841	19.00000	5.546531	175.7980
Minimum	0.491388	113.5674	0.009947	6.000000	0.001243	19.10080
Std. Dev.	27.45080	2326.595	16.05534	2.695638	0.946363	28.51371
Observations	491	491	491	491	491	491

Note: FD is domestic credit provided to public sector percent of GDP, GDP is economic growth, NRC*INS is the interaction effect of nonrenewable energy use, INS is the institutional quality rule of law; number of sources, NRC is nonrenewable energy use and TO is the sum of exports and imports and Std. Dev. is standard deviation.

Table 2 presents a brief description of the statistical nature of the variables employed in the study. The Jarque-Bera test reveals that all variables are normally distributed.

Results

In this part the outcome for the model estimates are discuss. For a noble estimation it is essential to ascertain stationarity condition for the variables. Hence, stationarity test was conducted for such purpose. Table 3 shows the stationarity test outcome. It indicates that the outcome from the PP and ADF tests reveals that the stationarity level of the variables of the models found in first difference stationarity.

Table 3.

Panel stationarity outcome

<i>Variables</i>	<i>Level</i>		<i>First Diff.</i>	
	<i>PP</i>	<i>ADF</i>	<i>PP</i>	<i>ADF</i>
GDP	2.84158 (0.9978)	2.03343 (0.9790)	-11.0748*** (0.0000)	-6.79220*** (0.0000)
NRC	0.82940 (0.7966)	0.83907 (0.7993)	-7.66581*** (0.0000)	-1.63081** (0.0515)
INS	8.29846 (1.0000)	9.41940 (1.0000)	-17.4125*** (0.0000)	4.04718*** (0.0000)
FD	0.57875 (0.7186)	0.10680 (0.5425)	-6.34882*** (0.0000)	3.86019*** (0.0001)
TO	0.01584 (0.5063)	-0.40463 (0.3429)	-9.58502*** (0.0000)	6.54179*** (0.0000)

NRC*INS	3.99738	(1.0000)	4.31872	(1.0000)	-8.72743***	(0.0000)	-1.91434***	(0.0278)
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Note: ***and ** represent 1 percent and 5 percent level of significance. Figure in parenthesis represent probability. GDP is economic growth, NRC is nonrenewable energy use, INS is the institutional quality rule of law, FD is domestic credit provided to public sector percent GDP and TO is the sum of exports and imports, while NRC*INS are interaction variables.

In order to study the presence of a cointegrating relationship, evidence was established from the studies of Kao as well as the works Pedroni (1999; 2000; 2004), whose null hypothesis is to test the absence of cointegration based on unit root tests on residuals estimated. Pedroni has developed seven cointegration tests on panel data. These tests take into account the heterogeneity at the level of the cointegrating relationship, i.e., for each individual there exists one or more cointegration relationships which are not necessarily identical for each of the individuals of the panel.

From the results of the Kao (ADF t statistics -5.510402 with prob. 0.0000) and Pedroni cointegration tests, we notice that the set of statistics (panel: PP statistics -8.233759 with prob. 0.0000, as well as the weighted statistics -4.056286 prob. 0.0000 and ADF statistics -5.475305 with prob. 0.0000 as well as weighted statistics -5.045225 with prob. 0.0000, group: PP statistics -16.84033 with prob. 0.0000 and ADF statistics -9.189114 with prob. 0.0000) are below the critical value of the normal distribution for a threshold of 5%. Therefore, all of these tests confirm the existence of a cointegration relationship.

To estimate cointegrated variable systems on panel data and to release tests on cointegration vectors, it is essential to apply an efficient estimation method. At this level, there are several techniques: Pedroni's FMOLS method, the DOLS method, and the Generalized Method of Moments method. This study employ the more appropriate technique Fully Modified Ordinary Least Square FMOLS method.

Table 4.

FMOLS Estimated Outcome

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>LNRC*INS</i>	0.2570522	6.728033	3.820614	0.0002
<i>LINS</i>	1.309556	6.399221	20.46431	0.0000
<i>LNRC</i>	12.72712	221.0080	5.758666	0.0000
<i>LFD</i>	0.3499775	2.052139	17.05428	0.0000
<i>LTO</i>	-0.1179725	0.899985	-13.10828	0.0000

Note: LNRC is nonrenewable energy use, LINS is the institutional quality rule of law, LFD is domestic credit provided to public sector percent GDP and LTO is the sum of exports and imports, while LNRC*INS are interaction variables.

Table 4 illustrates the estimated outcome of the interaction of nonrenewable energy use and institutional quality. It reveals that the interaction of nonrenewable energy utilization with the institutional quality increase the level of economic growth performance in SSA. This implies that a one percent increase in the interaction of nonrenewable energy resource and institutional quality accelerate economic progress by 0.26 percent. The result implication is that institutional quality and energy performance is linked with the increase in economic performance to the turn of 0.26 percent. Thus, policymakers should emphasize on improving the use of nonrenewable energy resources and enhancing the quality of institutions through embarking in good governance and anti-corruption measures. This outcome is similar with earlier studies (Abid, 2016; Ibrahim & Law, 2016; Ito, 2017). The table further reveals that 1percent upsurge in institutional quality causes economic performance increased by 1.31 percent. Similarly, a percentage rise in nonrenewable energy consumption leads economic progress to accelerate by 12.73 percent. Furthermore, the estimate indicates that a percentage increase in financial development results GDP increased by 0.35 percent. However a one percent upsurge in trade openness lead to 0.12 percent decrease in economic progress. Thus, the study makes the following recommendations to SSA policy makers.

1. SSA governments should formulate and implement policies that will promote and maintain the rule of law through sufficient funding and training the police that will enforce the law on people.
2. SSA governments should engage in a strong campaign that will bring awareness to their population in regards to the benefits of abiding law and consequences of not abiding the rule of law.
3. SSA governments should establish institutions and agencies that will deal with all corruption in those countries.
4. SSA governments should design strict policies and measures that ensure appropriate credit allocation that is devoid of corruption. For example putting EFCC as a watch dog of all banks transactions.

5. SSA governments should redirect financial institutions to give more credit to all mining, agricultural and manufacturing activities those are viable for economic growth in SSA countries.

Conclusion

The study examine the interaction effect of nonrenewable energy use and institutional quality on the economy of SSA nations using FMOLS technique from 2002 to 2020. The estimated outcome reveals that the interaction of nonrenewable energy utilization with institutional quality increase the capacity of economic progress. It further reveals that nonrenewable energy use, institutional quality and financial sector performance accelerate the capacity of economic progress. However, trade adversely affects economic performance in SSA nation. The study suggest that policymakers should emphasize on improving the use of nonrenewable energy resources and increasing the quality of institutions through good governance and anticorruption measures. The limitation of this study may consist that the data used in the analysis ends at the year 2020. Therefore the upcoming studies should include other factors like energy price, bilateral relations in the model to advance the policy analysis.

References

- Abid, M. (2016). Impact of economic, Financial, and Institutional factors on CO2 emissions: Evidence from Sub-Saharan Africa economies. *Utilities Policy*, *41*, 85–94. <https://doi.org/10.1016/j.jup.2016.06.009>
- Al-mulali, U. (2015). GDP growth – Energy consumption relationship : revisited. *International Journal of Energy Sector Management*, *8*(3), 356–379. <https://doi.org/10.1108/IJESM-04-2013-0004>
- Banday, U. J., & Aneja, R. (2018). countries Energy consumption , Economic Growth and CO 2 Emissions : evidence from G7 countries. *World Journal of Science, Technology and Sustainable Development*. <https://doi.org/10.1108/WJSTSD-01-2018-0007>
- Bhattacharya, M., Churchill, S. A., & Paramati, S. R. (2017). The dynamic impact of renewable energy and institutions on economic output and CO2 emissions across regions. *Renewable Energy*, *111*, 157–167. <https://doi.org/10.1016/j.renene.2017.03.102>
- Bhattacharya, M., Paramati, R. S., Ozturk, I., & Bhattacharya, S. (2016). The effect of renewable energy consumption on economic growth : Evidence from top 38 countries. *Applied Energy*, *162*, 733–741. <https://doi.org/10.1016/j.apenergy.2015.10.104>
- Destek, M. A., & Aslan, A. (2017). Renewable and non-renewable energy consumption and economic growth in emerging economies: Evidence from bootstrap panel causality. *Renewable Energy*, *111*, 757–763. <https://doi.org/10.1016/j.renene.2017.05.008>
- Hassan, A. S., Meyer, D. F., & Kot, S. (2019). Effect of Institutional Quality and Wealth from Oil Revenue on Economic Growth in Oil-Exporting Developing Countries. *Sustainability*, *11*(13).
- Hassan, S., Danmaraya, I. A., & Danlami, M. R. (2018). Energy Consumption and Manufacturing Performance in Sub-Saharan Africa : Does Income Group Matter ? *International Journal of Energy Economics and Policy*, *8*(1), 175–180.
- Ibrahim, M. H., & Law, S. H. (2016). INSTITUTIONAL QUALITY AND CO 2 EMISSION – TRADE RELATIONS : EVIDENCE FROM SUB-SAHARAN AFRICA. *South African Journal of Economics*, *84*(2), 323–340. <https://doi.org/10.1111/saje.12095>
- Ito, K. (2017). CO2 emissions , renewable and non - renewable energy consumption , and economic growth : evidence from panel data for developing countries. *International Economics*, *151*, 1–6. <https://doi.org/10.1016/j.inteco.2017.02.001>
- Kacho, A. A. (2017). The Effect of Financial Development and Institutional Quality on Economic Growth : Evidence from MENA Countries Nazar DAHMARDEH *. *International Journal of Economics Perspective*, *11*(4), 1498–1505.
- Kahia, M., Ben Aïssa, M. S., & Charfeddine, L. (2016). Impact of renewable and non-renewable energy consumption on economic growth: New evidence from the MENA net oil exporting countries (NOECs). *Energy*, *116*, 102–115. <https://doi.org/10.1016/j.energy.2016.07.126>
- Kalu, E. U., Daniel, P. B., Nwafor, U. F., Okoyeuzu, C. R., Okoro, E. U., & Okechukwu, E. U. (2019). Relating energy consumption to real sector value added and growth in a developing economy. *International Journal of Energy Sector Management*, *13*(1), 166–182. <https://doi.org/10.1108/IJESM-02-2018-0007>
- Kalu, E. U., Nwafor, U. F., Okoyeuzu, C. R., & Onodugo, V. A. (2020). Dynamics of energy consumption , real sector value added and growth in energy deficient economies: Panel analyses of SSA countries. *International Journal of Energy Sector Management*, *14*(5), 1001–1022. <https://doi.org/10.1108/IJESM-09-2019-0012>
- Nawaz, S., Iqbal, N., & Khan, M. A. (2014). The impact of institutional quality on economic growth: The case of developing countries. *The Pakistan Development Review*, *2* (Spring), 805–817.
- Salim, R. A., Hassan, K., & Shafiei, S. (2014). Renewable and non-renewable energy consumption and economic activities: Further evidence from OECD countries. *Energy Economics*, *Volume 44*, 350–360. <https://doi.org/10.1016/j.eneco.2014.05.001>
- Salman, M., Long, X., Dauda, L., & Mensah, C. N. (2019). The impact of institutional quality on economic growth and carbon emissions: Evidence from Indonesia, South Korea and Thailand. *Journal of Cleaner Production*, *241*, 118331. <https://doi.org/10.1016/j.jclepro.2019.118331>
- Sehrawat, M., & Giri, A. K. (2018). Globalization , role of institutions and economic performance in Indian economy Empirical evidence. *Journal of Financial Economic Policy*, *11*(1), 82–100. <https://doi.org/10.1108/JFEP-03-2018-0052>
- The World Bank. (2016). *Poverty and shared prosperity*.
- WDI. World Development Indicators (2019).