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Investigating the Impact of Natural Resource Rent and Political Stability on the Environmental Degradation Index in Selected Developing Countries Using a Combined Data Approach

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Abstract

Environmental degradation has become a significant topic in the realm of economic development in recent years. Therefore, the main objective of the present research is to examine the influence of natural resource rent and political stability on the environmental degradation index in selected developing countries between the years 2006 and 2020. This study aims to achieve practical objectives and adopts an analytical-inferential approach methodologically. The research methodology is of a correlational nature based on its essence and content. The statistical population includes all developing countries. In this study, a random sampling method is employed to determine the sample size, and it involves a case study spanning the years from 2006 to 2020, with a sample of 20 developing countries. Data collection is facilitated through the utilization of databases. For data analysis and result derivation, Eviews 9 and Excel 2010 software have been utilized. The findings of the current research indicate a significant relationship between the impact of natural resource rent and political stability on the environmental degradation index in the selected developing countries using a combined data approach. Furthermore, the results demonstrate that natural resource rent, energy intensity, and urban population have a positive and meaningful impact on the environmental degradation index in the developing countries.

Keywords: Environmental Degradation Index, Natural Resource Rent, Political Stability, Combined Data Approach

Introduction

One of the most pressing environmental issues today that humanity faces is climate change and global warming. The primary cause of climate change is the emission of greenhouse gases resulting from the combustion of fossil fuels. The profound concern is that the environmental balance has been disrupted, and if this trend continues, it will undoubtedly jeopardize human existence. The ultimate goal of environmental protection in relation to social development is to enhance awareness of environmental issues within the community,

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reinforce the environmental culture across various administrative levels, and promote sustainability (Haghighatian et al., 2012).

The world, particularly developing countries, is confronted with ecological pressures despite efforts to achieve sustainable economic development. Since the United Nations' Conference on Environment and Development in 1992, population growth and increasing consumption have escalated the ecological footprint on Earth. This occurs while the Earth's capacity to regenerate and absorb waste is diminishing (Mohammadi and Farbod, 2021).

In developing countries, due to their reliance on income from the sale of natural resources, economic rent arises. The presence of abundant resources in these countries, coupled with governance weaknesses, attributes unrealistic economic and political power to the government, transforming it into a distributor of benefits derived from these resources. This action leads to increased imports, neglect of domestic production, and instability in government revenues, ultimately resulting in a reverse relationship between economic growth and environmental resources (Alizadeh and Bayat, 2016).

Mitigating environmental risks arising from economic activities in the course of development necessitates the government's supervisory and regulatory role in this area. In other words, governments should not only enact laws and policies but also play a role in monitoring and properly enforcing the established laws. Only in this way can an appropriate framework for optimal resource allocation be established, effectively reducing the negative impacts of environmental degradation on achieving higher economic growth (Lin et al., 2016).

Another influential factor in environmental performance is political instability. In general terms, political instability can be initiated by a demand for political changes. This demand has two aspects to consider. Firstly, the need for changes originates from within the political governance structure, which can be due to various factors such as emerging conflicts among policymakers. Secondly, the sense of the need for changes is imposed externally on the political system's structure. Political instability, through social unrest, coups, urban riots, disrupts the necessary focus on properly managing natural resources and can lead to confrontations and societal challenges such as strikes that may negatively impact the environment (Arab Mazari Yazdi et al., 2017).

Therefore, it can be asserted that one of the necessary and effective tools and factors for a country's economic development is a healthy environment. Any effort to improve and enhance the environmental quality will lead to an improvement in economic flow and resource allocation, allowing potential capabilities dispersed and hidden in developing countries to be employed for progress and public welfare. Moreover, the effects of natural resource rent and political stability on the environmental degradation index cannot be disregarded. These factors themselves are a form of political factors and can have different impacts on the environment. Accordingly, the objective of this research is to investigate the impact of natural resource rent and political stability on the environmental degradation index in

selected developing countries using a combined data approach, which will be elaborated in the following sections of the article, including theoretical foundations, research background, methodology, findings, and conclusion.

Theoretical Foundations

According to all theorists, excessive energy consumption, especially fossil fuels, due to the type of government governance and economic inequalities to achieve economic growth goals, along with inadequate efficiency in its consumption, leads to increased environmental pollution. One of the significant factors in air pollution is the emission of carbon dioxide, which is one of the most critical types of greenhouse gases. The result of fossil fuel consumption in industrial, commercial, service, and household sectors contributes to this pollution (Alam et al., 2008).

Mayr and Kent proposed that after the industrial revolution, capital owners and producers, through increased energy consumption, experienced both an increase in labor force productivity and a rise in environmental degradation. Consequently, democratic policies in the energy and environmental sectors have a close relationship, and the energy sector plays the most critical role in changing environmental conditions (Yang et al., 2012).

With the advancement of human civilization, technological development, and a growing population, the world is currently facing the issue of air and land pollution, threatening the lives of Earth's inhabitants. In every country, environmental protection has become a serious concern for policymakers. The environmental situation has reached a point where the residents of one city or even one country are not safe from the effects of pollution in another city or country (AliShiri, 2011). Recent studies aimed at identifying and controlling the most significant environmental threats indicate that global warming is not the primary threat to the Earth's inhabitants; instead, the most critical and deadly environmental issue today is "indoor air pollution." (AliShiri, 2011).

Concept of Environmental Pollutants

Environmental pollution refers to the presence of one or more pollutants in the environment to an extent and duration that alters the quality or natural cycle in a way that is harmful to human health, animals, plants, structures, or the environment itself. In simpler terms, when foreign substances enter the environmental elements with a specific concentration and disrupt their natural balance, it is referred to as pollution. Environmental pollution originates from various sources. With the advancement of human civilization, technological development, and a growing population, the world is currently facing the issue of air and land pollution, threatening the lives of Earth's inhabitants. In every country, environmental protection has become a serious concern for policymakers (AliShiri, 2011).

Types of Environmental Pollutants

Pollution comes in various forms and threatens the environment differently based on the consumption culture of different societies (Liddle, 2013). Among the major

types of pollution, air pollution, water pollution, soil pollution, environmental crises, and the emergence of greenhouse gases can be mentioned.

Factors Influencing Environmental Degradation

Gross Domestic Product (GDP): Economic growth is one of the essential factors regarding the source and origin of environmental effects since economic growth leads to both increased utilization of natural and environmental resources and the rise of undesirable outputs and pollutants that contribute to environmental degradation. Economic growth has both harmful and beneficial effects on environmental quality. As a general principle, harmful effects come through the impact of industrial scale, and beneficial effects arise from shifting towards cleaner sectors and cleaner production methods (Frankel, 2009). Additionally, Kuznets hypothesizes about the relationship between economic growth and environmental quality, predicting that in the early stages of economic growth, higher growth rates are accompanied by increased pollution. However, with time, due to the adoption of environmentally friendly technologies, pollution decreases with continued growth (Hosseini, 2013). Another significant variable in the discussion of environmental pollution is income inequality. A common viewpoint, proposed by Torras and Boyce, is that income inequality leads to environmental degradation. The reason behind this is that individuals with higher incomes have an interest in production, and since environmentally friendly activities usually reduce their production capabilities, they lack personal motivation to abide by environmental regulations. However, researchers like McAslan argue that the impact depends on factors such as the type of ownership and the openness of the country. If the owners of the capacity for cleaner production belong to the wealthy group of society, pollution can be reduced through income inequality. Income inequality can influence the environmental quality by affecting the preferences of both the rich and poor groups towards the environment. The impact of economic inequality on environmental quality depends on factors such as the level of income in countries, the extent of participation in cooperative agreements, the ultimate inclination towards pollution, and political decisions regarding environmental protection (Beck & Gies, 2013).

Urban population: Regarding the relationship between urbanization and environmental pollution, there are two distinct perspectives. The first perspective suggests a positive impact of urban population growth on environmental pollution. It argues that as urbanization increases, the use of infrastructure, transportation, and energy also rises. Additionally, the shift from agriculture to industry contributes to higher levels of environmental pollution. The second perspective emphasizes that urban culture leads to more efficient energy consumption in cities compared to rural areas, resulting in a reduction in pollution. Consequently, the relationship between urban population growth and environmental pollution can be

either positive or negative (Pahlavani et al., 2014).

Energy Intensity : Energy, as one of the crucial factors of production, holds a significant position in the economic development of any country. The limitation of energy resources globally highlights the necessity of optimal utilization of energy sources in the process of economic growth. In the pursuit of optimization and improvement of resource utilization methods, processing procedures, energy conversion, and transmission, as well as comparing the state of countries in terms of energy consumption patterns and the effectiveness of this production factor on economic development, energy-related macroeconomic indicators are employed. Among the most important of these indicators are per capita energy consumption, energy intensity, energy coefficient, and energy efficiency. Among them, energy intensity stands out with its comprehensiveness and higher significance among the macroeconomic energy indicators. Energy intensity measures the amount of energy consumed per unit of goods or services produced.

Rent of Natural Resources: The value of extracted natural resources is often calculated as a unit rent, which is the difference between the production price and the final extraction cost, multiplied by the amount of the last unit of resource extraction. Energy rent includes: oil rent, gas rent, and coal rent. In most studies conducted to assess the abundance of natural resources, the criterion of the share or percentage of raw material exports to total exports has been employed. However, it might not necessarily be the best criterion for assessing the distortions caused by resource creation. Firstly, this criterion mostly indicates countries' dependence on resources rather than their abundance. Secondly, for the purpose of evaluating the region's capacity, rents created concerning exports present a more comprehensive measure of the economic importance of natural resources. Due to the significant rent creation associated with natural resources, they can be detrimental to the region's capacity. Therefore, it's better to obtain them directly through rents rather than indirectly through export data measurements. Consequently, this study employs the variables of natural resource rents, which are almost unrelated to export structures. Considering the structure of the examined countries, the focus is on oil and mineral rents. The data for oil and mineral rents are expressed as percentages of gross domestic production and have been derived from the World Bank dataset.

Political Stability: Political stability refers to the consistent patterns of specific political behavior, separate from the employment of illegal violence, that are accompanied by a general expectation among the public and remain relatively untouched in foreseeable futures. To measure political stability, the Political Stability Index, measured by the World Governance Indicators database, is used, with values oscillating between zero and 100.

The impact of the distribution of political power on environmental quality is multifaceted. Political stability can influence environmental quality through various channels, such as the level of utilization of communication technologies (like the internet), social capital and population density, administrative corruption, age

structure of the population, education, urbanization, the extent of social participation, market size, market-friendly policies, and the extent of countries' participation in multilateral environmental agreements. Moreover, fossil energy consumption, as the most significant source of pollution, and the level of human development and environmental preferences of economic units (producers and consumers) also have an impact on environmental quality. It is expected that along with improvements in human development status and increased environmental importance among producers and consumers, environmental quality will improve as well (Harati et al., 2016).

In contrast to authoritarian or autocratic regimes, democratic governments are less likely to exploit environmental rights or disregard environmental concerns. As a result, they provide information freely and transparently to the public and contribute more to political discussions. The connection between environmental protection and the observance of strong civil and political rights is robust. As a general rule, political and civil freedoms serve as powerful instruments for safeguarding environmental resources, at least when compared to countries lacking such freedoms and characterized by power-centric regimes (Agheli et al., 2014).

Based on the conducted studies and in accordance with the research by Agboola et al. (2021), the conceptual model of the current study is as follows.

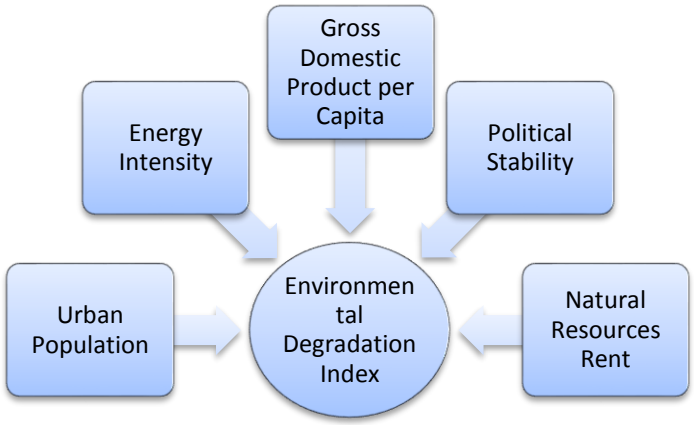

Figure 1. Conceptual Research Model

Literature review

Agbola et al. (2021) conducted a study to investigate the effects of natural resource rent, energy consumption, economic growth, and government governance on carbon dioxide emissions in Saudi Arabia during the years 1971 to 2016. They employed the Autoregressive Distributed Lag (ARDL) bounds testing approach and examined the causality relationship using the Toda-Yamamoto causality test. The results revealed that both in the short and long run, energy consumption and natural resource rent have a significant negative impact on environmental degradation, while economic growth and government governance have a significant positive impact.

Ahmad et al. (2020) examined the relationship between human capital, urbanization, natural resources, and ecological footprint using the ARDL method during the period 1970 to 2016. The findings indicated that natural resource rent, urbanization, and economic growth contribute to an increase in ecological footprint, while human capital and the interactive effect of human capital and urbanization decrease the ecological footprint. Furthermore, a unidirectional causality exists from urbanization, natural resource rent, and economic growth to the ecological footprint.

Wang et al. (2020) investigated the impact of government corruption and uneven resource allocation on ecological efficiency in China from 2006 to 2015. Using the Generalized Method of Moments (GMM) approach, their estimated results demonstrated that corruption and inappropriate resource allocation negatively affect ecological efficiency.

Danshia and Wang (2019) examined the effects of energy consumption, urbanization, and economic growth on ecological footprint in emerging economies during the years 1971 to 2014. The estimated model results through the mean group common correlated effects estimator showed that urbanization and energy consumption have a positive impact, but the moderating effects of economic growth and urbanization reduce the ecological footprint.

Begum et al. (2015) investigated the dynamic effects of gross domestic product growth, energy consumption, and population growth on carbon dioxide emissions for Malaysia. Their regression vector auto regression model results indicated that the environmental Kuznets hypothesis was not supported, and an important finding was the long-term adverse impact of economic growth on carbon dioxide emissions.

Akpan and Abang (2014) studied the relationship between environmental quality and economic growth in 47 countries using panel data from 1970 to 2008. Their findings revealed that economic growth, energy prices, the export-to-GDP ratio, and energy consumption have a positive and significant effect on carbon dioxide emissions, while population growth rate and the import-to-GDP ratio have a negative and significant impact on pollution.

Mohammadi and Farbod (2021) conducted a study to examine the effects of natural resource rent and energy consumption on the environmental degradation index. The research hypotheses for the MENA region (Middle East and North Africa) were tested

using the Generalized Method of Moments (GMM) approach based on the latest available data during the period 2003-2017. The research findings confirmed the hypotheses and the determinant role of natural resource rent and energy consumption on the environmental degradation index. The study results indicated that the independent effects of natural resource rent on environmental degradation are positive. Moreover, through interactive effects, the positive impact of natural resource rent on environmental degradation is attenuated in the presence of energy consumption, and it can even be strengthened when interacting with natural resource rent, highlighting the fundamental role of natural resource rent in the environmental degradation index.

Fallahi and Mahdavian (2021) investigated the causality relationships among industrial carbon emissions, gross domestic product, energy consumption, and energy intensity using the Error Correction Vector Model and time series data for Iran during the years 1996-2018. Granger causality results demonstrated a unidirectional causality from energy consumption to carbon emissions in the short run, from carbon emissions to industrial output, and from energy consumption and carbon emissions to energy intensity. In the long run, bidirectional causality existed between carbon emissions, industrial output, and energy intensity with energy consumption and between carbon emissions, industrial output, energy consumption, and energy intensity with energy intensity. Given the impact of industrial growth on carbon dioxide emissions, it is suggested that the country promotes resource-efficient technologies to improve its environmental performance.

Ghaderi and Shahraki (2019) explored the relationship between urban population growth, economic growth, and the environmental performance index in Iran from 2011 to 2018 using the Autoregressive Distributed Lag (ARDL) approach. The results showed that in Iran, economic growth, urban population growth, and an increase in per capita energy consumption, except for trade liberalization, led to environmental degradation or reduced environmental quality. Therefore, the country requires supportive measures from both the public and private sectors to enhance environmental performance.

Aghaei and colleagues (2018) investigated the impact of financial system stability, renewable and non-renewable energy consumption, and economic growth on environmental quality (carbon dioxide emissions) in Iran. Short-term and long-term relationships among these variables were estimated within the framework of the Vector Error Correction Model using data from 1980 to 2016. The research findings indicated that financial stability had no significant effect on improving environmental quality in the long run. However, economic growth, population density, and non-renewable energy consumption had significant negative impacts on environmental quality. Additionally, based on these results, renewable energy consumption had a positive and significant effect on improving environmental quality in Iran.

Tamizi (2016) investigated the factors influencing carbon dioxide emissions in

developing countries using Bayesian econometric approach during the years 1992 to 2014. The results showed an inverted U-shaped relationship between economic growth and environmental quality, and a positive and significant relationship between energy consumption, electricity consumption, industrialization, and carbon dioxide emissions. However, there was a negative relationship between literacy rate and income inequality with the level of carbon dioxide emissions.

Darayani (2015) conducted a study to investigate the effects of economic and demographic factors on environmental pollution in OPEC member countries during the years 1990 to 2012. The results indicate that using simultaneous equations, energy consumption leads to an increase in carbon dioxide emissions, while population growth does not have a significant impact on it.

Aghaali and colleagues (2014) examined the impact of democracy on environmental pollution in selected oil-exporting countries during the years 1996 to 2013. Using a panel model, they concluded that the democracy index has a negative and significant relationship with carbon dioxide emissions for countries with high human development index, but a positive and significant relationship for countries with moderate human development index.

Bahrami and colleagues (2014) investigated the influence of economic growth on environmental pollution for 21 oil-producing countries, including Iran, during the time period 1980 to 2004. The results of their study, using both linear and logarithmic models, demonstrated the confirmation of the environmental Kuznets hypothesis for the examined sample.

Methods and Methodology

The present study aims to achieve practical objectives and, in terms of methodology, adopts an analytical-inferential approach. The research method used in this study is correlational in nature and content. The statistical population includes all developing countries. In this research, a random sampling method is used to determine the sample size, and the study covers the years 2006 to 2020. The research sample consists of 20 selected developing countries. Data collection tools involve utilizing databases, particularly from the World Bank's electronic archive and various internet sources.

Based on the primary research objective, which is to examine the impact of natural resource rents and political stability on the environmental resource degradation index in selected developing countries, variables such as natural resource rents, political stability, per capita gross domestic product (GDP), energy intensity, and urban population are considered as influencing factors on the environmental resource degradation index. Furthermore, an attempt has been made to define the research model based on these variables. The following model can be considered for the research based on theoretical foundations and empirical studies, including Agbola et al. (2021):

$$\text{Log}(CO2it) = \beta0 + \beta1 \text{ Log}(RNTit) + \beta2 \text{ Log}(PLTit) + \beta3 \text{ Log}(GDPit) + \beta4 \text{ Log}(ENG)\,it + \beta5 \text{ Log}(POP)\,it + \varepsilon it \quad (1)$$

Dependent Variable:

CO2: Environmental resource degradation index; obtained from World Bank data.
Independent Variables: RNT: Natural resource rents; obtained from World Bank data.
PLT: Political stability; obtained from World Bank data.
Control Variables: GDP: Per capita gross domestic product (GDP); obtained from World Bank data.
ENG: Energy intensity; obtained from World Bank data. POP: Urban population; obtained from World Bank data.
ε: Error term.

For data analysis and obtaining results, Eviews 9 and Excel 2010 software have been utilized.

Results

Prior to estimating the research model, it is essential to subject the variables to a test of stationarity. Since the stationarity of variables for panel data is examined using unit root tests, such as the Levin-Lin-Chu test, the null hypothesis of this test implies non-stationarity of the variable, and its statistic follows a t-distribution. The results of the Levin-Lin-Chu unit root test are provided in Table 1:

Table 1. Results of Unit Root (Stationarity) Test for Model Variables

Result	Levin-Lin-Chu Statistic	Variable Name
Non-stationarity at 1% significance level	-2.77	Log(Environmental Degradation)
Non-stationarity at 1% significance level	-6.50	Log(Natural Resource Rent)
Non-stationarity at 1% significance level	-3.46	Log(Political Stability)
Non-stationarity at 1% significance level	-3.88	Log(GDP per capita)
Non-stationarity at 1% significance level	-0.67	Log(Energy Intensity)
Non-stationarity at 1% significance level	-5.08	Log(Urban Population)

Source: Research Findings

Considering the computed values against the critical value from Table (1), it is observed that the variable of Natural Resource Rent becomes stationary with a first-order difference at a 99% confidence level. The other variables in the study remain stationary. Therefore, the argument of the Levin-Lin-Chu test indicates that employing the unit root test for variable stationarity prior to regression estimation prevents the occurrence of spurious regression in panel data. Furthermore, using the unit root test for data integration provides greater power compared to using the unit root test for each segment separately.

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Table 2. Results of the F-Lamer Test for the Research Model

Probability	Test Statistic	Test Statistic Under Investigation
0.0000	20.67	F-Lamer Test Statistic
0.0000	38.39	Housman Test Statistic

Source: Research Findings

According to Table (2), the null hypothesis of the F-Lamer test at a significance level of less than one percent, which suggests the collinearity of the data, is rejected. This result indicates the choice of fitting the model using panel data approach. The null hypothesis of the Housman test at a significance level of less than one percent, which implies the randomness of effects in the panel model, is rejected. The alternative hypothesis confirms the presence of fixed effects in the research model. Therefore, the research model has constant effects that do not change over time.

Table 3. Results of Cross-Sectional Dependence and Heteroscedasticity Tests for the Research Model

Probability	Test Statistic	Test Statistic
0.0000	65.68	Breusch-Pagan Test
0.0000	8.15	Wooldridge Test

Source: Research Findings

The results of the estimation in Table (3) demonstrate that the null hypothesis of the Breusch-Pagan test, which suggests the presence of homoscedasticity in both groups, is rejected. This indicates that the research model is affected by heteroscedasticity of variances. Furthermore, the null hypothesis of Wooldridge's test, implying the absence of cross-sectional dependence among residuals, is also rejected. This suggests the presence of cross-sectional dependence among the residuals of the research model. Considering the aforementioned outcomes and the existence of heteroscedasticity and cross-sectional dependence, the Generalized Least Squares (GLS) method can be employed to estimate the coefficients of the model.

The results obtained from the model estimation for developing countries can be observed in Table (4). Based on these findings, the coefficients of the model are statistically significant. This implies that both natural resource rent and political stability will have a meaningful impact on the environmental degradation index in developing countries.

Table 4. Results of the Research Model Estimation using the GLS Method for Developing Countries

Probability	t-statistic	Coefficients	Explanatory Variables
0.0000	0.0045*	0.015	Intercept
0.0014	4.10*	0.42	Logarithm of Natural Resource Rent
0.0028	3.88-*	0.82-	Logarithm of Political Stability
0.0009	2.63-*	0.01-	Logarithm of GDP per Capita
0.0000	0.49*	0.63	Logarithm of Energy Intensity
0.0000	5.50*	0.39	Logarithm of Urban Population

*Indicates coefficients are statistically significant at the 1% level or lower.

As observed, natural resource rent, energy intensity, and urban population have a positive and significant impact on the environmental degradation index in developing countries. This is because an increase in natural resource rent and energy consumption in developing countries leads to higher pollution and environmental degradation. Additionally, the rise in urban population and migration from rural to urban areas contributes to increased vehicular congestion, resulting in higher pollution levels. Moreover, with population growth, it is expected that consumption expenditures rise, leading to increased waste and the degradation of the environment due to waste from consumer goods. Consequently, the increase in natural resource rent, energy intensity, and urban population accelerates environmental degradation in these countries. Table (4) illustrates that an increase in natural resource rent and fossil fuel energy consumption leads to an escalation in environmental degradation. This finding indicates the prevalent use of fossil fuel energy in developing countries, which intensifies energy consumption and consequently results in environmental degradation. Therefore, both natural resource rent and energy intensity have a significant and positive influence on environmental degradation in developing countries.

In light of the research findings, all outcomes are confirmed, which are also examined in Table (5).

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Table 5. Findings Analysis

Row	Finding	Result
1	Natural resource rent has a significant impact on the environmental degradation index in selected developing countries.	Confirmed
2	Political stability has a significant impact on the environmental degradation index in selected developing countries.	Confirmed
3	GDP per capita has a significant impact on the environmental degradation index in selected developing countries.	Confirmed
4	Energy intensity has a significant impact on the environmental degradation index in selected developing countries.	Confirmed
5	Urban population has a significant impact on the environmental degradation index in selected developing countries.	Confirmed

Conclusion

The results of this research indicate that natural resource rent, energy intensity, and urban population in selected developing countries have a positive and significant impact on the environmental degradation index. However, GDP per capita and political stability in these countries have a negative and significant effect on the environmental degradation index. This is because political stability, reduced bureaucracy, and democracy lead to increased security and well-being in these countries, prompting environmental concerns. As a result, environmental degradation decreases, leading to environmental restoration. Therefore, higher levels of democracy and people's empowerment imply better government support for the environment and, consequently, a reduction in environmental degradation.

The findings of this study are consistent with the results of studies by Agboola et al. (2021) and Ahmad et al. (2020). Additionally, studies by Mohammadi and Farbod (2021) and Falahati and Mahdavian (2021) have shown that increasing energy intensity and urban population contribute to environmental degradation in developing countries. The results of this research demonstrate that, according to the hypotheses, natural resource rent, energy intensity, and urban population have a positive and significant impact on environmental pollution. Conversely, an increase in gross domestic product in developing countries leads to a decrease in environmental degradation.

In some developing countries, due to high levels of economic and political corruption, lack of law enforcement, mismanagement, and negligence towards environmental issues, environmental concerns have been neglected. These factors, especially in structurally unstable developing countries, play a crucial role in the decision-making process of policymakers and consequently the environment. Therefore, the relative importance of economic and political factors can lead to certain requirements and policies, such as government transparency, accountability, political and economic stability, deregulation, and rule of law, all contributing to improved environmental protection. Governments should establish entities that contribute to reducing severe

environmental damage. Social indicators, including natural resource rent indicators, have been published in recent years. As a result, they lack a long-term time series trend and can only measure the effects of these indicators in the short term.

In every country, there is a national determination to pursue development, which is reflected in the development vision documents. In essence, uncontrolled vehicle use, population density, urban expansion, inefficient government sectors, and increased consumption costs impose additional pressure on the environment and government in developing countries. In this context, environmental expansion can be an optimal solution for various country issues, by combining renovation and improvement processes. Therefore, establishing the following conditions in each country, especially in

Developing countries, is essential for environmental improvement:

- Defining environmental degradation and identifying its harms to increase public awareness of environmental issues
- Reducing political violence to decrease national tension, risks, internal conflicts, and political terrorism in support of the environment
- Embracing the principle of development-oriented governance, empowered and truly representative of the people
- Creating transparency in the legislative process and performance of executive institutions to promote environmental protection
- Focusing on government effectiveness in environmental management
- Ensuring stability in government plans and objectives without frequent policy changes, predicting economic and political futures in terms of the environment

The studies conducted on the indicators of underdeveloped countries show that environmental protection has not been able to play a significant role in these countries.

Therefore, the following policy recommendations are expected:

- Through competitive and accountable mechanisms, governments can support environmental improvement by establishing civil institutions and expanding the environment
- Governments can promote political stability and improve environmental performance by creating coherence and increasing environmental support in government and parliament
- Excessive government laws and regulations with low enforcement limit economic activities in support of the environment, imposing additional costs on policymakers. Therefore, a review of economic and social laws and regulations, including measures to promote environmental protection, is necessary
- Efforts to reform the structure of government organizations, eliminate bureaucracy, depoliticize the administrative system, and facilitate the active participation of non-governmental organizations in civil society, contribute to environmental protection

- Instead of pursuing isolated, short-term goals, support for the environment must be considered as a long-term policy
- An approach must be adopted that considers all executive bodies responsible for the environment. A clear objective for executive agencies regarding environmental improvement should be defined
- Ensure that all executive bodies are fully aware of environmental support objectives and policies that must be pursued, and avoid presenting sporadic environmental improvement programs that are disconnected from each other

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