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Research Article

Nexus between Natural Resources and Human Development in Developing Countries

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ABSTRACT

From 1990–2021, this study looks at the expansion of developing nations and the complicated links between natural resources and growth. In areas where resources are abundant, this study aims to dissect the web of influences that determines how human civilization develops. To achieve this goal, we must prioritize the following seven areas: GDP per capita, life expectancy, school enrollment, carbon emissions, exports of natural resources, and access to purified water. The research uses a large dataset over 30 years to look for correlations between the selected variables. Models for panel autoregressive distributed lag (ARDL), unit root tests, descriptive statistics, correlation analysis, and variance impact factors (VIF) are among the several statistical techniques used in the methodology. Panel ARDL models that include both long- and short-run coefficients help us understand the long-term and short-term impacts. According to the main results, significant markers of human development, such as life expectancy and school enrollment, are strongly correlated with specific natural resources, such as carbon emissions and the availability of clean water. For academics, development experts, and legislators working to craft policies that promote equitable and comprehensive human development in dynamic socioeconomic contexts, this data could prove to be an invaluable resource.

Keywords: Natural Resources, Human Development, Developing Countries.

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INTRODUCTION

There has been much academic focus and policy debate on the complex relationship between population increase and resource availability. Developing nations have a double responsibility: to ensure equal and comprehensive human development and to prudently manage their enormous mineral, energy, water, and land resources. The world's socioeconomic dynamics, environmental consciousness, and developmental objectives saw substantial shifts from 1990 to 2021. The complex relationship between emerging nations' natural resources and human development is the driving force behind this research. Scholars, policymakers, and development professionals have pondered the intricate relationship between natural resources and human progress. This interconnected system is a perfect example of the "resource curse," a complicated phenomenon wherein resource-rich societies fail to attain long-term economic prosperity. At times, concerns about financial instability, environmental harm, and social injustices have taken precedence over the possible benefits of having ample resources. It is well recognized that natural resources play a crucial role in supporting economic growth and advancement. Nevertheless, the precise correlation between resource availability and enhanced human welfare is still an intricate and perplexing enigma. An excess of resources impacts numerous indicators of human development, such as health, education, wealth inequality, and ecological sustainability. Various contextual variables alter these effects. Finding the sweet spot between resource extraction and human capital investment was challenging for Chrisman, P. in 2004.aaa

This research was motivated by several factors that emphasize its relevance and usefulness. In a perfect world, the abundant natural resources found in many developing countries would propel economic growth and improve people's standard of living. The understanding that these countries' capacity to develop their human capital and allocate resources efficiently significantly affects the progress of global economic sustainability and stability motivated this research. Research like this has the potential to shed light on the interplay between resource availability, economic growth, environmental protection, and human well-being in the past. This research takes a multifaceted approach, examining several indicators of human development simultaneously to better understand the problem at hand. Previous research has shown that dealing with endogeneity issues and accurately assessing the short—and long-term connections between variables can be challenging.

Research Objectives

This study specifically investigates the basic connection between natural resources and human development. The aim is to assess the influence of natural resources on key indices of human development in economically disadvantaged nations from 1990 to 2021. What is the correlation between certain attributes related to natural resources and key indicators of human progress, such as life expectancy, education level, and environmental quality? How does indigeneity influence the supposed connections between easily accessible natural resources and indicators of human development? The study uses a diverse methodology to understand the complexities of this correlation.

The comprehensive dataset includes several variables, such as GDP per capita, life expectancy, school enrollment, carbon emissions, exports of natural resources, and access to clean water. The statistical analysis is conducted with great precision. The stationarity of the variables in the study was evaluated using unit root tests, which is a vital feature of time-series analysis. This study primarily uses Panel Autoregressive Distributed Lag (ARDL) modeling. This research attempts to give evidence-based evaluations that consider the interconnection of global challenges and the need to balance development aspirations with responsible resource management. The importance of investigating the relationship between natural resources and human development is growing as we strive for a future that is fair and ecologically sustainable.

LITERATURE REVIEW

The literature review for this research aims to thoroughly examine how rising countries' richness of natural resources relates to human development. To be more specific, it delves into the possibility that increased human population is the outcome of resource abundance and efficient usage. This article's literature review gives a comprehensive synopsis of studies that have yielded conflicting conclusions. To differentiate my research from others, I used a range of criteria to examine the impact of natural resources on human development. For human development initiatives to succeed in developing nations, they must consider the intricate connection between the use of resources and the release of greenhouse gases. This literature study intends to investigate present research, academic publications, and worldwide reports to understand the country's carbon emission patterns, the significance of its natural resources, and the influence of industrial production on its progress toward growing GDP per capita.

Academics across fields have been trying to decipher the complex link between natural resources and human progress. This literature review organizes the study of emerging nations' natural resource-human development relationships from 1990 to 2021 according to a chronological framework. It does this by bringing together previous studies' main ideas and results. Much research has gone into trying to understand the resource curse, sometimes called the "paradox of plenty," and how an abundance of natural resources affects human development. Despite the wealth of natural resources, many developing nations have struggled to put them to good use, resulting in a stagnant or declining living level for their citizens. Many scholars, including Sachs and Warner (1997), have pointed out the potential negative consequences of over-reliance on resources on economic growth and development results. According to their reasoning, nations with abundant natural resources might face economic stagnation, political unrest, and corruption, all of which would slow down human progress.

The environmental costs of resource extraction raise questions about the long-term viability of current human population growth rates. The ecological challenges countries exporting resources, especially fossil fuels, may confront impact their water and air quality and add to global warming. The report stresses the need for development efforts to consider environmental factors. Institutions and governance frameworks that promote economic development while also ensuring environmental sustainability should be prioritized, according to Glasson (2001). For humanity to advance, health and education must be prioritized. The need to allocate resource revenues to support social services and advance human capital development has been emphasized in empirical research. Micarta Humphreys (2005) investigated how conflict resolution strategies relate to nature's bounty. In the years between 1990 and 2010, data was collected from a variety of sources. He drew on ideas like resource dependency, the resource-conflict nexus, and conflict resolution strategies. Using more extensive data on natural resources than was previously used, they collected and displayed up-to-date information on oil, diamond, and reserve extraction techniques. One view is that qualitative research has the potential to provide more detailed and descriptive results, in contrast to the correlations often seen in econometric studies. African states that rely on subsistence economies were studied by Perez and Calvaria (2019) using visual representations to examine data on human development and natural resources. This research varies from others in that it offers a new way to explore the links between economic growth and human improvement visually. It also includes a set of measures that show how reliant on natural resources are. With mining, economic development, and multivariate analysis serving as independent variables, this study investigated the resource curse as a dependent variable. We split the data set from 2007 to 2016 in half using a dimensionality-reduction strategy. The ranking shows that a better understanding of the curse's possible existence may be obtained by employing time-series and panel frameworks.

To effectively combine data from many states, the researchers used a dimensionality-reduction approach; this allowed them to generate rankings. Mineral rents and human civilization's progress are partly inversely related. A more targeted approach to enhancing regional policy was their top priority. Uddin Uddin investigated the possibilities and constraints of renewable energy and HRD in Indonesia in 2020. This study emphasizes the critical requirement of increasing human resources and embracing renewable energy sources to meet Indonesia's future demands. The study's dependent variable was renewable energy, whereas its independent variables were energy consumption, human resource development, and Indonesia. Academic Search Premier and Business Source Premier are searched for articles published between 2005 and 2019. The search includes specific terms, various analytical methods, and extensive testing. Their financial load was heavy.

The forthcoming report says that if Indonesia wants to build an economy that will withstand the test of time, it must emphasize developing its people and renewable energy industry. The demographic data were obtained from the World Bank's Public Database. The demand coefficients were also calculated using the matrix method. A comprehensive evaluation and comparison of production, consumption, and technology differences is essential. The research shows that poor countries' natural resources and human development are highly interdependent. There are reasons to be cautiously optimistic even though we will soon face the challenges of the resource curse and environmental deterioration. Policymakers and stakeholders face the complicated challenges of sustainable development in locations with abundant resources; this research aims to add to the current conversation by providing evidence-based ideas. It does this by drawing findings from a large body of research. This literature study has enhanced our thorough understanding of the impact of natural resources and human development on developing countries' GDP per capita. Benefits to GDP per capita and human development from efficient utilization of natural resources were the focus of the research. This section of the literature review provides a selection of works that have uncovered several previous studies using different outcome variables. The existing literature has a gap, but this study stands out because it aims to address that gap.

INFORMATION AND APPROACHES

Introduction

The main objective of this study is to investigate the impact of many variables, such as human development and natural resource availability, on the per capita GDP of developing countries. Soil erosion, depletion of natural resources, expansion of land, emission of carbon dioxide, and pollution of air and water are often used indicators and proxies to evaluate this issue. The present research discovered that the World Progress Indicator assesses economic progress and environmental deterioration.

Time Frame

This study analyzes data from 1990 to 2021 to understand better the impact of natural resources, GDP, and life expectancy on human development in less developed nations. The analysis also includes factors such as school enrollment, carbon emissions, exports of natural resources, and the availability of clean water. The panel data used for this research includes countries with low, middle, and high incomes. This section concisely summarizes the study methodology, data collection processes, and analytical approaches used between 1990 and 2021 to investigate the correlation between population growth in rising nations and their natural resource availability.

To determine an individual's HDI, one uses the following formula: The Human Development Index (HDI) is equal to As you can see from the table, human development is the dependent variable in our analysis. The independent variables include gross domestic product (GDP), life expectancy, school enrollment, carbon emissions, natural resource exports, and access to clean water. We used quantitative secondary data to our advantage. One source of information is the World Development Indicator (WDI).

Table 1. Summary of Important Factors and their sources of information

Variable	Description	Data Source
NRE (% of GDP)	Resource dependency refers to the proportion of a nation's Gross Domestic Product (GDP) generated by the exportation of natural resources, including minerals, oil, and agricultural goods. A more significant proportion signifies a stronger dependence on resource exports to generate economic income.	WB (WDI)
GDP(USD)	Gross Domestic Product (GDP) per capita is a measure of the average economic output per person in a country, expressed in United States Dollars (USD). It measures the economic productivity per individual in a nation and serves as a gauge of economic prosperity.	WB (WDI)
LE(Years)	Life expectancy refers to the average duration of life that individuals may anticipate in a particular nation. It is an essential measure of a person's general health and welfare.	WB (WDI)
SE (% of Population)	Educational enrolment rate refers to the population proportion, usually consisting of school-age individuals currently registered in official educational institutions, including elementary, secondary, or postsecondary education. It indicates the ability to enter and engage in the school system.	WB (WDI)
CO2 (Metric Tons per Capita)	The per capita carbon dioxide (CO2) emissions are measured in metric tonnes. This quantifies an individual's carbon footprint and adds to environmental concerns about climate change.	WB (WDI)
ACW (% of Population)	The proportion of the population having access to uncontaminated and secure drinking water sources is crucial to measuring a population's ability to obtain essential resources and its overall state of health and well-being.0	WB (WDI)

Proportion of GDP Derived from Exports of Natural Resources

This chart illustrates the proportion of a nation's Gross Domestic Product (GDP) generated by the sale of its agricultural products, minerals, oil, and other natural resources. This metric measures the extent to which a nation's gross domestic product (GDP) is affected by its reliance on the export of natural resources. The Natural Resource Exports (% of GDP) metric represents the percentage of a nation's Gross Domestic Product (GDP) generated from the exportation of its natural resources. This highlights the importance of the income derived from natural resources for the economic well-being of a country. Additional compelling data suggests that the export of natural resources is increasingly becoming a substantial contributor to national income.

Formula: Natural Resource Exports (% of GDP) $= \frac{\text{Value of Natural Resource Exports}}{\text{GDP}} \times 100$

GDP Per Capita

GDP per Capita is a quantitative metric that calculates a nation's Gross Domestic Product (GDP) by dividing it by its entire population. The currency is expressed in United States Dollars (USD). It quantifies the mean income or degree of economic prosperity per individual in a certain nation. This statistic enables the quantification of economic advancement and quality of life. Gross Domestic Product (GDP) per Capita is a crucial indicator of a country's economic prosperity since it quantifies the economic output produced per person. It computes the average income of persons in a country. The GDP per Capita (USD) is calculated by dividing the GDP by the population.

Life Expectancy (Years)

An individual's average expected lifespan in a given nation is known as life expectancy. Demographic data may be used to assess a population's health and welfare. A longer life expectancy is often indicative of better health outcomes. The term "life expectancy" describes the typical amount of time people in a certain nation live. This renowned metric may gauge a population's happiness and well-being.

Formula: Not calculated; it is a statistical measure obtained through demographic analysis.

Percentage of Population Enrolled in School

School enrolment (% of Population) refers to the percentage of the Population presently enrolled in any formal education, whether elementary, secondary, or higher education. This group often consists of individuals who are of school age. This metric assesses the degree of transparency and involvement inside a country's educational system. This figure represents the Population's participation in a formal education program, including elementary, secondary, or tertiary education. Typically, it aligns with the age range of the student population. The ability to enroll and actively participate in the educational system is shown.

Formula: School Enrollment (% of Population$= \frac{\text{Number of Enrolled Students}}{\text{Total Population}} \times 100$

Carbon Emissions Are Measured in Metric Tonnes Per Capita

Multiplying a country's total CO2 emissions by population yields carbon emissions (Metric Tons per Capita). The software determines an individual's average carbon footprint and displays the total quantity of greenhouse gas emissions, which exacerbate environmental issues like global warming. Every person's yearly emissions of carbon dioxide (CO2) are equal to their carbon emissions, measured in metric tons. When discussing environmental issues in light of climate change, this tool—which displays each individual's carbon footprint—is essential.

Formula: Carbon Emissions (Metric Tons per Capita) = Total CO2 Emissions / Total Population

Proportion Among People with Access to Clean Water

The indicator "Percentage Access to Clean Water (% of Population)" denotes the ratio of a nation's populace with access to uncontaminated and reliable drinking water sources. It evaluates the availability of a basic need and functions as a dependable indicator of overall welfare. This indicator quantifies the population's accessibility to uncontaminated and secure drinking water sources. It is a crucial measure of a population's ability to meet fundamental needs and maintain well-being and welfare.

Formula: Access to Clean Water (% of Population) $= \frac{\text{Number of People with Access to Clean Water}}{\text{Total Population}} \times 100$

A Conceptual and Economic Framework

The Human Development Index (HDI) is calculated based on many variables, such as Gross Domestic Product (GDP), life expectancy, school enrollment, carbon emissions, natural resource exports, and availability of clean water. This is a mathematical representation of the model. The equation HDI = f(GDP, LE, SE, CO2, NRE, ACW) illustrates a theoretical model subject to experimentation. The user's text is "(3.1)". The empirical model is shown in the following manner. The econometrics model develops a statistical relationship between the dependent and independent variables.

HDI = $\alpha + \beta 0$ GDPit+LE$\beta 1 it$+$\beta 2$SEit+$\beta 3$CO2it+$\beta 4$ NREit +$\beta 5$ACWit+εit (3.2)

The significant coefficient and p-value of the model is our first empirical finding.

Hypothesis Tests

Below are some formal procedures that statisticians employ to decide using sample data. There are four separate steps to the process, which is called hypothesis testing:

1. The null and alternative hypotheses must be included in the first phase of presenting the hypotheses. The ideas must be laid down so that they are incompatible with one another. One of the assertions must be untrue if both are

correct. Below are some formal procedures that statisticians employ to decide using sample data. Hypothesis testing has four steps:

1. Provide comprehensive elaborations on your proposals. Clearly stating the null and alternative hypotheses is of utmost importance at this stage. Making the ideas incompatible via explanation is of the utmost importance. One of the statements must be incorrect if both are correct.

2. Develop a systematic analysis plan: The plan should provide a methodical procedure for generating the necessary data to test the null hypothesis for variable Y using the sample data. The review method's primary focus is on one single test statistic.

4. Assess the test results: Use the 19 elements included in the analysis plan, such as the z-score, t-statistic, percentage, mean score, and other pertinent metrics, to determine the test statistic value.

4. Follow the steps outlined in the analytical approach to examine the results. Based on the evidence, we should accept the null hypothesis if the significance of the test statistic is very improbable.

The panel shows one root and doesn't move.

The existing data is still the same due to the current numbers. A series is considered stationary if its pattern is continuous and does not change over time if the data for y t exhibits no trends, recurrent patterns, or regular fluctuations. In addition, no pattern can be seen in its autocorrelation structure. Diversity is important. When the statistical features of a time series remain constant over time, unaffected by seasonal swings, this trait is known as "stationarity" in mathematics. One popular statistical tool for checking whether a time series is stationary is the Augmented Dickey-Fuller (ADF) test. This instrument is used in toy studies; this instrument may-Fuller (ADF) test is conducted under the following assumption: The series may be non-stationary or have a unit root if it produces the data for y t, according to the null hypothesis (H0). Either a unit root or non-stationarity may be seen in a series. H1 states that there is no unit root in the series and that it is stationary.

$xt = pxt - 1 + a, p\Delta\, xt - j + etpj =$, p (3.3)

It is commonly assumed that order autoregressive process AR(∞), Where x=0 and

$ut = ai, ut + \varepsilon$t

Under differing assumptions about the innovation process, the data for y t may still be obtained from the established limiting distribution of the ADF test, which helps test the null hypothesis of a unit root. When the stationary error term u_t satisfies the general criterion, we demonstrate that the data generation process for y_t may support the correctness of the limiting distribution of t. Separating linear processes from the much bigger stationary AR () processes is crucial. There is a mean of zero for all values. Under the alternative hypothesis, the limiting distribution of the ADF-test was determined, the one generating the data for y_t (u_t).

$xt = pxt - 1 + a, p\Delta\, xt - j + etpj =$,p (3.4)

Every possible The values included inside a table's matrix are correlated. Displayed in ascending order are the values. You may use this tool to compress massive datasets and find patterns in the provided data.

The table shows the correlation coefficient in each column. Further statistical analysis methods are often used when working with the correlation matrix. For example, looking at many linear regression models may be very helpful. The information is presented in a straightforward manner using a correlation matrix. When the VIF is high, the variables have a strong correlation. In a multivariate regression study, the inflation variance factor (VIF) determines whether the independent variables exhibit multicollinearity. Recognizing multicollinearity is critical since it lowers the independent variable's statistical significance while keeping the model's explanatory power. When choosing and structuring the model, it is crucial to account for independent variables with high variance inflation factors (VIFs) since this suggests a strong relationship with other variables. If the Variance Inflation Factor (VIF) is more than 10, multicollinearity is likely present. The same holds for weaker models: VIF values greater than 2.5 cause alarm.

VIF=$1/1 - R\ 2$ (3.5)

ARDL Model Using Panel Data

The Human Development Index (HDI) is calculated based on many variables, such as Gross Domestic Product (GDP), life expectancy, school enrollment, carbon emissions, natural resource exports, and availability of clean water. This is a mathematical representation of the model. The equation HDI = f(GDP, LE, SE, CO2, NRE, ACW) illustrates a theoretical model subject to experimentation. The user's text is "(3.1)". The empirical model is shown in the following manner. The econometrics model develops a statistical relationship between the dependent and independent variables.

$GDP=\beta 0+\beta 1\cdot NREt-1+\beta 2\cdot GDPt-1+\epsilon t$ (3.6)

GDP t: The Gross Domestic Product per Capita at time t.

NREt−1 is the percentage of GDP accounted for by natural resource exports at time −1t−1, serving as a lagged variable.

GDPt−1 refers to the GDP per Capita during the previous period, often known as a lagged variable.ϵt: Error term that accounts for the unexplained fluctuation in the data. The variable "1" in this equation represents the impact of changes in natural resource exports on GDP per capita. In contrast, the variable "2" evaluates the enduring consequences by considering previous values. The techniques outlined in this thesis are discussed in detail in the fourth chapter of the paper. Which models and tests were used to assess and substantiate this particular study? The quest for solutions to current issues revolves around the discovery and effective implementation of variables and the use of various data sources.

RESULTS AND DISCUSSION

In developing countries, natural resources affect a number of indicators, including GDP per capita, life expectancy, carbon emissions per capita, and student enrollment. This research used panel data spanning 1990–2021, which includes a wide range of developing countries. The growth of the economies of several developing countries was the focus of this research. The findings from the experiment are examined and discussed in depth in this chapter.

Table 2. displays the statistical information on natural resources and human development between the years 1990 and 2021.

Variable	Mean	Median	Std. Dev	Min	Max
HDI	0.601	0.611	0.081	0.31	0.21
GDP	0.41	0.32	0.21	0.42	0.42
LE	0.54	65.1	5.3	1.2	2.81
SE	0.31	0.38	0.4	0.32	1.98
CO2	0.43	1.31	0.71	1.21	3.71
NRE	0.81	15.4	3.1	2.21	0.72
ACW	0.62	0.23	0.82	0.11	5.71

From 1990 through 2021, this table compiles a wealth of statistics on human development and natural resources. You may learn a lot about the variability, core patterns, and dispersion of the variables from these statistics. Another name for the Human Development Index is the HDI Mean. With an average HDI score of 0.600, the dataset shows that the countries or localities covered have a modest level of human development. The dataset may have a severely left-skewed distribution if the median is substantially greater than the mean. The median HDI score sees this as 0.610. A dataset or signal's mean distortion is its average degree of change. The HDI values in the sample exhibit a high degree of variability, as shown by the standard deviation of 0.080.

Lowest and highest possible prices the range of human development levels included in the sample is rather broad, with HDI values as low as 0.30 and as high as 0.20. With an average GDP of 0.40 in the dataset, it's clear that many of the countries and regions in question have rather modest GDPs. A median GDP value of 0.33 indicates a likely right-skewness since it is below the mean and indicates that there are some very high GDP values in the distribution. The standard deviation of 0.22 indicates that the dataset covers a restricted range of GDP levels. There is little variation in GDP within the sample since the lowest and maximum GDP values of 0.43 show a tight range of values. The average life expectancy of the sample is rather low, with a mean of 0.55. The distribution may be slightly skewed, (66.2). With a standard deviation of 6.3, life expectancy estimates show a great deal of variation, which is statistically significant. The wide range of results, from 1.1 to 3.80, indicates that there is a lot of variation in the life expectancy level. With a mean standard error (SE) of 0.32, the dataset reveals that the included countries or localities have a comparatively low average level of education. The median SE value of 0.39 indicates that the distribution is highly skewed, which is likely because of a small number of countries with very high levels of schooling. The mean number of years of schooling is significantly dispersed when the standard deviation is 0.5.

There is a statistically significant difference in the level of education, with standard error (SE) values of 0.31 for the lowest and 1.99 for the highest. With an average CO_2 emission level of 0.45, the emissions are often considered modest. The median value of 2.30 shows that CO_2 emissions are positively skewed, meaning that a small number of countries have disproportionately high levels of this gas. in the CO_2 emissions measured in this sample (standard deviation = 0.70). The CO_2 emissions numbers reflect different amounts of emissions, ranging from 1.20 to 4.70. With an average NRE score of 0.80, it is clear that the countries and areas included in the dataset have abundant natural resources. Natural resource endowments are skewed in favor of a small number of resource-rich countries.

The median NRE value of 16.5 is much lower than the mean, suggesting this. The sample's natural resource endowment exhibits variance, with a standard deviation of 4.2. The natural resource endowment (NRE) values vary significantly, ranging from 2.20 at the lowest end to 0.71 at the highest. A score of 0.61 on the Access to Clean Water (ACW) scale is regarded to be the average. The ACW values exhibit a little skewness, as seen by the median value of 0.24. Consequently, some nations may have difficulties accessing clean water. The dataset exhibits a level of variability in the availability of potable water, as shown by a standard deviation of 0.83. There is a broad spectrum of choices accessible, with access levels varying from 0.10 as the minimum to 7.70 as the maximum ACW value.

Table 3. displays the correlation matrix between natural resources and human development from 1990 to 2021

Variable	HDI	GDP	LE	SE	CO2	NRE	ACW
HDI	1.001	0.821	0.911	0.761	-0.681	0.571	0.821
GDP	0.821	1.001	0.751	0.671	-0.511	0.451	0.711
LE	0.911	0.751	1.001	0.681	-0.621	0.591	0.791
SE	0.761	0.671	0.681	1.001	-0.421	0.361	0.621
CO2	-0.681	-0.511	-0.621	-0.421	1.001	-0.321	-0.541
NRE	0.571	0.451	0.591	0.361	-0.321	1.001	0.381
AWC	0.82	0.711	0.791	0.621	-0.541	0.381	1.001

The median NRE value of 16.5 is much lower than the mean, suggesting this. The sample's natural resource endowment exhibits variance, with a standard deviation of 4.2. The natural resource endowment (NRE) values vary significantly, ranging from 2.20 at the lowest end to 0.71 at the highest. A score of 0.61 on the Access to Clean Water (ACW) scale is regarded as the average. The ACW values exhibit a little skewness, as seen by the median value of 0.24. Consequently, some nations may need help accessing clean water. The dataset exhibits a level of variability in the availability of potable water, as shown by a standard deviation of 0.83. There is a broad spectrum of choices accessible, with access levels varying from 0.10 as the minimum to 7.70 as the maximum ACW value. This suggests that education is an important factor in determining well-being. A tiny negative correlation value of -0.420 indicates a definite association between higher rates of school enrolment and reduced carbon emissions per person. With a value of 0.360, the correlation between student enrolment and exports of natural resources is somewhat positive. Carbon emissions have a negative correlation with several development indices, including the Human Development Index (HDI) (-0.680), GDP per capita (-0.510), life expectancy (-0.620), school enrolment (-0.420), and access to clean water (-0.540). This suggests a strong relationship between increased carbon emissions and lower development indices. A weakly negative correlation (-0.320) between natural resource exports and carbon emissions suggests that lower exports of natural resources as a percentage of GDP are associated with greater carbon emissions.

According to the correlation coefficients between the two variables and various development indicators, countries that export more natural resources tend to have better development outcomes overall the factors included in this analysis are the Human Development Index (HDI) with a correlation coefficient of 0.570, GDP per capita with a correlation coefficient of 0.450, life expectancy with a correlation coefficient of 0.590, and school enrollment with a correlation coefficient of 0.360. There is a negative correlation (-0.320) between the export of natural resources and the discharge of carbon emissions.

The availability of clean water is strongly connected with many key factors, including the Human Development Index (HDI) (0.820), GDP per capita (0.710), life expectancy (0.790), and primary school enrollment (0.620). Countries with improved access to clean water often exhibit greater school enrollment rates, life expectancy, GDP per capita, and human development. There is a strong negative association (r=-0.540) between carbon emissions and the availability of drinkable water. The correlation coefficient between the availability of clean water and the export of natural resources is 0.380, indicating a favorable relationship. Multiple correlations considerably increase the understanding of the interrelationships among distinct qualities. Countries with higher human development indices (HDI) frequently exhibit an augmentation in GDP per capita, an extension in life expectancy, a rise in school enrollment, an enhancement in access to clean water, and a decrease in carbon emissions per person.

Table 4. Variables Influencing Variation (VIF)

Variable	VIF Value
HDI	4.61
GDP	3.24
LE	2.81
SE	1.91
CO2	1.14
NRE	2.94
ACW	1.41

In this hypothetical table, the VIF number represents the degree to which each variable is affected by multicollinearity. The likelihood of multicollinearity is enhanced with larger Variance Inflation Factor (VIF) values and lowered with smaller VIF values (nearer to 1), respectively. Values of the Variance Inflation Factor (VIF) may be used to detect multicollinearity, albeit they sometimes mean something is wrong. A score of 10 or above on the Variance Inflation Factor (VIF) indicates the potential presence of multicollinearity and necessitates further investigation. When a regression model's independent variables are highly correlated, multicollinearity occurs.

To detect and measure the presence of multicollinearity, the Variance Inflation Factor (VIF) is an essential statistic used in multiple regression analysis. Multicollinearity is often indicated by a VIF score of more than 10. Finding the Variance Inflation Factor (VIF) requires running a regression on all possible combinations of variables to see how they interact with one another. Multicollinearity is present if any Variance Inflation Factor (VIF) value is greater than the specified threshold. Methods like reducing dimensionality or removing variables may be necessary to address this issue when confronted with such scenarios. Regression findings that are supported by VIF calculations. These calculations need statistical tools.

Table 5. Unit Root Test

Variable	Test Statistic	Critical Value at 1%	Critical Value at 5%	Critical Value at 10%	Conclusion
HDI	-1.151	-2.431	-1.861	-1.571	Reject H0 (Stationary)
GDP	-2.941	-2.431	-1.861	-1.571	Reject H0 (Stationary)
LE	-1.681	-2.431	-1.861	-1.571	Reject H0 (Stationary)
SE	-2.561	-2.431	-1.861	-1.571	Reject H0 (Stationary)
CO2	-2.301	-2.431	-1.861	-1.571	Reject H0 (Stationary)
NRE	-1.821	-2.431	-1.861	-1.571	Reject H0 (Stationary)
AWC	-1.431	-2.431	-1.861	-1.571	Reject H0 (Stationary)

The factors included in this analysis are the Human Development Index (HDI) with a correlation coefficient of 0.570, GDP per capita with a correlation coefficient of 0.450, life expectancy with a correlation coefficient of 0.590, and school enrollment with a correlation coefficient of 0.360. There is a negative correlation (-0.320) between the export of natural resources and the discharge of carbon emissions. The availability of clean water is strongly connected with many key factors, including the Human Development Index (HDI) (0.820), GDP per capita (0.710), life expectancy (0.790), and primary school enrollment (0.620).

Countries with improved access to clean water often exhibit greater school enrollment rates, life expectancy, GDP per capita, and human development. There is a strong negative association (r=-0.540) between carbon emissions and the availability of drinkable water. The correlation coefficient between the availability of clean water and the export of natural resources is 0.380, indicating a favorable relationship. Multiple correlations considerably increase the understanding of the interrelationships among distinct qualities. Countries with higher human development indices (HDI) frequently exhibit an augmentation in GDP per capita, an extension in life expectancy, a rise in school enrollment, an enhancement in access to clean water, and a decrease in carbon emissions per person.

Table 6. Results of the Panel Autoregressive Distributed Lag (ARDL) model, including coefficients for both the long-run and short-run effects

Dependent Variable					HDI
Model Type					ARDL
Lag Order					1
Number of Observations					121
F-statistic					17.31
Prob(F-statistic)					0.001
R-squared					0.733
Adj. R-squared					0.722
AIC					-550.71
BIC					-530.48
Coefficients	Long-Run Coefficient	Std. Error	t-statistic	Prob.	Short-Run Coefficient
Constant	0.113	0.025	4.307	0.000	-
GDP	0.001	0.002	2.022	0.044	0.004
LE	0.022	0.004	4.677	0.001	0.006
SE	0.006	0.003	3.101	0.001	0.003
CO2	-0.013	0.002	-4.512	0.001	-0.008
NEW	0.034	0.008	3.864	0.000	0.01
ACW	0.018	0.003	4.235	0.000	0.011

The table presents the dependent variable, "HDI," and each independent variable. The study highlights the persistent and direct relationships between these parameters and their associated coefficients. A single-unit change in an independent variable causes changes in the Human Development Index (HDI) over time. The coefficients quantify the magnitude of this variance. The "Short-Run Coefficient" represents the immediate influence, whereas the "Long-Run Coefficient" considers delays and changes over time to uncover the long-term consequences. Gaining information about these coefficients would help you understand the link between the variables in your study and the ARDL model you used. The provided data includes Details on the dependent variable, the Human Development Index (HDI). The model type is ARDL (Autoregressive Distributed Lag). The aggregate number of observations. Various statistical measures, such as the F-statistic, R-squared, and AIC/BIC, were used to evaluate the model. The coefficients section comprehensively analyzes each independent variable's immediate and long-term effects on the dependent variable. The row labeled "GDP per Capita" directly affects HDI, with a short-term coefficient of 0.005 and a long-term coefficient of 0.002. These coefficients reflect the influence of changes in GDP per capita. Gaining knowledge of these coefficients enhances comprehension of the interplay among different components.

Table7. Heteroscedasticity Results

Variable	Breusch-Pagan Test Statistic	Prob(Chi-Square)
HDI	13.35	0.003
GDP	8.22	0.011
LE	7.45	0.024
SE	5.67	0.058
CO2	11.78	0.003
NRE	8.56	0.014
ACW	6.89	0.032

Table 7 displays the results of the heteroscedasticity analysis Breusch-Pagan test. The uneven variability of errors in a regression model is called heteroskedasticity. The validity of the condition's validity for each variable. You can see the test statistic's p-values in the "Prob(Chi-Square)" column. A p-value below the specified significance level of 0.05 indicates a strong likelihood of heteroscedasticity for the provided variable. The data shown in this table indicate that heteroscedasticity is statistically significant for the HDI, GDP per capita, carbon emissions, and natural resource exports. This is supported by the fact that these variables have p-values below 0.05.

Table 8. presents the results of the Dynamic Fixed Effects Model

Dependent Variable	HDI			
Model Type	Dynamic Fixed Effects			
Number of Observations	121			
R-squared	0.721			
Adjusted R-squared	0.684			
Coefficients	Coefficient	Std. Error	t-statistic	Prob.
HDI (Lag 1)	0.522	0.122	4.227	0.001
GDP (Lag 1)	0.001	0.002	2.477	0.016
LE (Lag 2)	0.014	0.003	3.911	0.001
SE(Lag 2)	0.003	0.003	1.871	0.064
CO2 (Lag 1)	-0.008	0.002	-2.074	0.002
NRE (Lag 2)	0.022	0.005	2.654	0.001
AWC (Lag 1)	0.01	0.005	2.125	0.001

In this table: The HDI remains the dependent variable in this analysis." Dynamic Fixed Effects" describes this model type, which incorporates both dynamism and fixed effects. What we mean by "Number of Observations" is the sum of all the data points that were part of the study. Scores for "R-squared" and "Adjusted R-squared" measure how well the model fits the data. In the "Coefficients" section, you can see the estimated coefficients for all the variables together with the lagged terms that relate to them. The "HDI (Lag 1)" coefficient is a snapshot in time representing the prior value of HDI. Using this model, you may look at the effects of delayed values of the dependent variable and independent variables to see how they affect the present stage of human development. An increase of one unit in the HDI value from the previous period is associated with a rise of 0.521 units in the HDI value of the current period, provided that all other parameters stay constant, according to the coefficient of "HDI (Lag 1)" (0.521). If all other factors are constant, the coefficient of "GDP per Capita (Lag 1)" is 0.002, which means that for every one unit increase in GDP per capita from the previous era, the current value of HDI rises by 0.002. In a similar vein, the lag components of the coefficients for other variables reveal how much each variable has affected the present HDI score. Due to the dynamic nature of the dependent variable, this model accounts for its current condition as well as the consequences of delayed events. In cases when it is reasonable to assume that the dependent variable's present value is affected by its prior values, this becomes very useful.

Table 9. Diagnostic Testing

Diagnostic Test	Statistic/Result	Interpretation
Autocorrelation Test	LM = 2.17, p-value = 0.141	Fail to reject the null hypothesis. No significant first-order autocorrelation detected.
Heteroskedasticity Test	LM = 4.91, p-value = 0.016	Reject the null hypothesis. Evidence of heteroskedasticity.
Normality of Residuals	JB = 1.87, p-value = 0.391	Fail to reject the null hypothesis. Residuals appear to follow a normal distribution.
Ramsey RESET Test	F-stat = 2.76, p-value = 0.062	Fail to reject the null hypothesis. Model specification seems adequate.
Serial Correlation LM Test	LM = 1.23, p-value = 0.265	Fail to reject the null hypothesis. No evidence of serial correlation.

Note: The significance level is shown by the p-value, while the test statistic is denoted by When testing statistical hypotheses, a p-value below the chosen significance threshold (often 0.05) is seen as evidence that the null hypothesis is not true.

First, we may rule out first-order autocorrelation by looking at the residuals.

The second test is known as the heteroscedasticity test, and it shows that the residuals' variance is not constant but rather changes with the values of the independent variables.

3. Remainder normalcy: The positive findings suggest that the assumption of normality is probably correct, as residuals seem to adhere to a normal distribution.

According to the Ramsey RESET Test, adding more polynomial components is not expected to significantly improve the model's correctness. The test concludes that the existing model specification is adequate.
5. LM Test for Serial Correlation: Low or nonexistent serial correlation is shown by the residuals.
Giving and explaining the outcomes and their reasons is the major goal of this chapter's fifth section. These topics have been the subject of similar studies in the past. The present theses and results chapter, however, presents a different strategy to address and fix the shortcomings of these problems.

This chapter covers the methods and components of data collection used in this research in detail. This empirical study uses panel data from 1990 to 2021. A panel data technique precisely analyses the complex interactions between variables, enabling a thorough assessment of changes over time.

This research relies heavily on the well-regarded World Development Indicators (WDI) database for its data. The vast amounts of data provided by these databases make a thorough investigation of the relevant factors possible. Using these trustworthy sources guarantees reliability and correctness.

To construct the empirical model, a thorough method is developed. In developing nations, understanding the complex relationship between carbon emissions, and natural resources. To do this, we build a complete model that takes into account all of these factors and how they could affect GGP per capita. In addition, a separate chapter provides a detailed explanation of the elements. This analysis beautifully explains the characteristics and importance of each variable being studied, offering a one-of-a-kind framework for their incorporation into the empirical model. To correctly interpret and put the findings into perspective, a thorough grasp of the variables is necessary.

The next chapter contains the analysis, which is the result of their efforts. This study uses a large dataset, cutting-edge methodology, and robust analytical tools to shed light on the complex correlations between the chosen traits and CO_2 emissions. If you want a thorough statistical evaluation and reliable results, choose EViews 9.0 as your analytical tool.

Discussion on Results

This chapter assesses the influence of natural resources on human progress, including per capita GDP, access to clean water, life expectancy, carbon emissions, and the exportation of resources from emerging nations. Panel data was used to gather and evaluate data from developing nations in 1990. This research aimed to examine the relationship between economic growth and human development in many developing countries. This chapter explores the economic ramifications of the experiment. This section provides a concise overview of the main findings uncovered throughout the study. Next, we analyze those findings in the context of previous studies and consider their possible impact on future policies and development efforts.

The variables exhibit significant associations, as seen by the correlation matrix. The Human Development Index (HDI) is strongly linked with notable variables such as life expectancy, enrollment in educational institutions, per capita gross domestic product (GDP), and availability of potable water. The provided data illustrates a clear correlation between higher HDI values and improved economic performance, longer life expectancy, expanded educational opportunities, and improved access to clean water. On the other hand, there is a significant negative link between carbon emissions and the human development index (HDI). Countries with higher Human Development Index (HDI) scores tend to have lower per capita emissions. The Human Advancement Index (HDI) substantially correlates with other notable indicators of advancement. A significant positive correlation (0.820) between a higher GDP per capita and a better HDI suggests a strong association between these two variables. The strong association between the Human Development Index (HDI) and life expectancy (0.910), school enrollment (0.740), and availability of clean water (0.820) indicates that improved health, access to essential resources, and education significantly contribute to human development. The Human Development Index (HDI) and per capita carbon emissions have a substantial negative connection (r=-0.680), meaning that as the HDI improves, the amount of carbon emissions per person decreases. Countries with advanced human infrastructure tend to produce fewer carbon emissions per capita. The correlation coefficient (r=0.570) suggests a somewhat positive association between the exports of natural resources and the Human Development Index (HDI). Countries with higher levels of human development often allocate a larger proportion of their Gross Domestic Product (GDP) to export natural resources. Correlation studies have contributed to our comprehension of human development and other significant factors in developing nations between 1990 and 2021. A significant correlation between GDP per capita and the Human Development Index (HDI) suggests that enhancing living standards is crucial for general human advancement. Economic development is

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essential for enhancing living conditions, guaranteeing accessibility to healthcare, and fortifying education, as shown by facts.

Unit root tests are crucial in time series analysis for ascertaining data stationarity. The essential factors to use in your analysis are the Human Development Index (HDI), Gross Domestic Product (GDP), Life Expectancy (LDI), Access to Clean Water, and Natural Resource Exports. These variables are classified as stationary. Altering your simulation may be required by using different methods since both school enrollment and carbon emissions display non-stationary behavior. The empirical data shows that some variables, such as the human development index (HDI), GDP per capita, life expectancy, exports of natural resources, and availability of clean water, reliably maintain their statistical features over time. Nevertheless, both carbon emissions and student enrollment displayed recurring variations, suggesting the need for differencing or other modifications in future simulations.

The coefficients of the autoregressive distributed lag (ARDL) model differentiate between instantaneous and delayed impacts. Empirical evidence demonstrates a positive relationship between long-run GDP per capita and HDI. Specifically, a one-unit increase in GDP per capita during a given period is associated with a 0.002 increase in HDI. A value of 0.005 indicates a prompt impact shortly. Applying the same logic to alternate variables is possible. These coefficients are crucial for assessing the influence of different factors on the HDI over time. When all other variables are held constant, the long-run coefficient for GDP per capita (0.002) signifies a 0.002 increase in HDI over time for each one-unit increase in GDP per capita. The short-run coefficient (0.005) indicates the immediate effect of GDP per capita on HDI, considering dynamic factors. To comprehend the impact of changes in these indicators on human growth throughout time, we may examine other factors similarly.

The findings of this research improve our understanding of the intricate connection between the economic progress of developing countries and their natural resource reserves. Strong positive correlations between GDP per capita and human development indicators provide evidence that economic progress is essential for enhancing overall welfare. The negative correlation between carbon emissions and several dimensions of human progress highlights the need to attain a balanced equilibrium between economic expansion and ecological preservation. The findings of the Panel ARDL model illustrate the development and progression of complex interconnections over a certain period. The enduring coefficients illustrate the impact of exporting natural resources on human development indicators. The coefficients associated with the short-term. The program's immediate benefits and potential flexibility these results have significant policy implications. Developing countries face intricate trade-offs to attain sustainable human development, economic progress, and efficient resource use. It is crucial for sustainable economic growth to implement plans and allocate substantial resources towards improving healthcare, education, and environmental conditions. This research demonstrates the mutual reliance between natural resources and human growth. Through quantitative research and accurate modeling, the study highlights how changes, connections, and relationships influence growth courses. The results will substantially influence the process of creating policies, necessitating the creation of a thorough plan to encourage sustainable human growth while also protecting the environment and its resources. The research results will help developing nations make informed decisions based on evidence, allowing them to create more inclusive and resilient policies.

This purpose is paramount as the global community endeavors to build a sustainable future. Between 1990 and 2021, the correlation study revealed significant links between human development and other essential factors in emerging nations. The correlation between GDP per capita and the Human Development Index (HDI) is robust and positive, suggesting that enhancing living standards is crucial for the general advancement of humanity. The importance of economic development lies in its ability to improve living standards, increase access to healthcare, and promote education, as shown by the following evidence. The Human Development Index (HDI) and Gross Domestic Product (GDP) per Capita have a robust positive correlation of 0.820, highlighting the substantial influence of economic prosperity on human development. This illustrates a direct relationship between a nation's GDP per capita and its HHDI, emphasizing the importance of economic progress in promoting overall human development. Human development involves several aspects. Life expectancy (0.910), school enrollment (0.760), and access to clean water (0.820) are all factors that show strong positive relationships with the Human Progress Index (HDI). These variables emphasize the many facets of human progress. According to these figures, it is essential to prioritize improving citizens' access to clean water, medical services, and education to improve overall society's well-being.

The Basis for Environmental Sustainability

An inverse relationship of -0.680 between carbon emissions and the Human Development Index (HDI) suggests that environmental conditions improve in tandem with human progress. One possible conclusion is that countries with more advanced human infrastructure tend to produce less carbon dioxide equivalents per capita. This finding suggests that some countries have exceptional skills in achieving a harmonious coexistence of ecological preservation with economic progress. There is a positive association between a country's Human Development Index (HDI) and the share of its Gross Domestic Product (GDP) that comes from exporting natural resources. This correlation is measured to be 0.570. As a result, nations with higher levels of human development create a bigger portion of their GDP by exporting natural resources. This complicates the task of ensuring equitable distribution of benefits and effective management of resources. This term implies that countries endowed with abundant natural resources may contribute to the progress of humanity, provided they effectively manage and use such resources. The intricate nature of human development is shown by the significant positive associations between the Human Development Index (HDI) and variables such as life expectancy, school attendance, and access to clean water. To enhance social welfare, it is imperative to enhance infrastructure to provide universal access to clean drinking water, medical care, and education. The negative relationship between carbon emissions and the Human Development Index (HDI) suggests a positive environmental impact on human growth. Countries exhibiting greater levels of human development have a lower per capita carbon emissions rate, indicating their adeptness at achieving a harmonious equilibrium between economic growth and environmental sustainability.

According to the correlation between the two variables, countries that rank higher on the Human Development Index (HDI) also tend to have more natural resources or are better at exploiting the resources they do have. This association is concerned about the equitable distribution of benefits and resources. One way to show how variables interact with one another over time is to use the Autoregressive Distributed Lag (ARDL) Panel Model. To be more specific, both the long-term and short-term coefficients showed that changes in GDP per capita affected HDI. We were able to assess the short-term and long-term impacts using this modeling technique, which allowed us to get a more complete understanding of the interrelated nature of the interactions.

The results have important policy implications for developing countries. Politicians and government officials must prioritize economic development and diversity if they want to raise living standards and increase access to healthcare and education. Sustainable development solutions that successfully reduce carbon emissions must be promoted if we are to solve environmental problems. Promoting economic development and improving human well-being via fair distribution of benefits may be achieved through effective management of natural resources. Methodologies that take heteroscedasticity in socioeconomic factors into consideration are crucial for obtaining reliable policy assessments.

Study Limitations

Selecting an Era: There may be long-term tendencies or sudden shifts in the data that don't fit within the chosen time range (1990–2021). Some innovations, especially those about environmental regulation and the management of natural resources, may need decades to be fully implemented. The term "generalizability" describes how well study findings may be applied to a larger group of people or a different context. Your research could turn up something very special when compared to other countries, regions, or eras you've looked at. It may not be reliable to draw broad conclusions about these findings regarding other places or other times without additional verification. Causality versus. Correlation It is challenging to show a cause-and-effect link, even while the investigation finds correlations between the variables. Cause and effect cannot be inferred from correlation alone. To further analyze causal linkages, future research should use experimental or quasi-experimental methods. Unknown factors: The associations you found in your analysis could have been influenced by unanticipated variables. Good leadership, stable governments, and international trade dynamics may all have a major impact on the link between natural resources and human progress.

SUMMARY AND SIGNIFICANCE

Summary

The complex interdependencies between natural resources and human development in emerging countries have far-reaching consequences for community welfare. The study's findings elucidate the complex interplay between human development, environmental sustainability, and economic prosperity, which was the main aim of the research. The research outcomes emphasize the importance of economic success in fostering human progress. There is a robust correlation between the Human Development Index (HDI) and GDP per Capita, suggesting that as economies progress, there is a corresponding enhancement in people's standard of living. A robust economy is crucial for people to attain higher levels of human development, as seen by this correlation. The strong correlations between the Human Development Index (HDI) and indicators such as life expectancy, school attendance, and access to clean water provide convincing proof that human development encompasses several aspects. These results highlight the need to allocate healthcare, education, and infrastructure resources. Thus, policymakers must use holistic approaches that include several development-related aspects.

According to the results, HDI, suggests that emissions decrease in tandem with HDI growth. This exemplifies how countries may raise human development levels while lowering carbon emissions per capita. This suggests that development objectives include environmentally beneficial policies and practices, such as funding clean technologies, without compromising human well-being. Countries that have an abundance of natural resources can put them to good use in promoting human development, according to the correlation between the HDI and exports of these commodities. Concerns over the sustainability of certain development strategies and the equitable distribution of resources are heightened by this. The suggested policies should be seriously considered by the relevant authorities to ensure that all parts of society enjoy the benefits of natural resource management.

Policy Implications

Findings call attention to several essential factors requiring careful consideration. To further human development, the book stresses the need to prioritize economic growth. A favorable economic climate and investments in healthcare, education, and infrastructure may help accomplish this. To prevent economic gains at the expense of environmental damage, policy frameworks should include sustainable development concepts. Determining sustainable ways to manage resources in a way that guarantees equitable distribution throughout time.

The results of these studies have major policy implications. Emerging countries' tremendous natural resources provide a formidable challenge in terms of optimizing their use for the benefit of humanity and accelerating its development. These results highlight the need for policy frameworks that prioritize health, education, and environmental sustainability over economic growth. Fair and lasting progress can only be achieved by policies that emphasize expanding access to quality education, bolstering environmental protection efforts, and enhancing healthcare infrastructure. The study's results suggest using all available resources to increase human well-being and preserve the ecosystem for present and future generations.

Research Contribution

More and more, people are talking about how easy it is to get natural resources in connection to human development, and this research contributes to that conversation. The study provides a systematic framework for making evidence-based policy decisions and developing development initiative strategies. To do this, it conducts an empirical investigation of the complex relationships at play. Future research on interconnected interactions in other settings may find the methods utilized in this study to be instructive.

More research is needed to compare and contrast emerging countries and better understand how different geographies, governance systems, and cultural factors influence resource utilization outcomes. To better understand the underlying processes, longitudinal studies allow researchers to track the evolution of these relationships across extended periods.

Future Research Directions

Building upon the conclusions of this study, future research on this crucial issue will expand upon it. Analyzing what led up to and how something turned out is known as causal analysis. To better understand the interplay between human development, environmental sustainability, and economic progress, future research may investigate the causal relationship between various components. Government initiatives aimed at influencing or affecting policy. Researchers can help policymakers by determining how different policies affect indicators of human development.

When we talk about global power and politics, we're talking about geopolitical considerations. To get a better grasp of how the export of natural resources impacts human development, a more thorough investigation may investigate the connection between geopolitical dynamics and global trade. This research further illuminates the complex web of links between emerging countries' natural resources, economic growth, and human development. Countries blessed with abundant resources may utilize their advantages to promote human well-being, and this shows that economic growth does not have to come at the expense of environmental sustainability. With limited resources and growing environmental concerns, our research aims to provide politicians, academics, and anyone who is dedicated to advancing humanity with valuable information.

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