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Natural Environment and Economic Growth. The Case of Developed and Developing Countries

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Abstract

Background: The objective of the research was to identify the relationship of the elements of the natural environment with Economic Growth in developed (G7) and developing (LAIA) countries. Methods: A Spearman correlation analysis was performed to identify the key factors impacting economic growth in both groups of countries. Results: The results show that, in developed countries, the main determinants of economic growth are related to polluting gas emissions, forest cover, land use and environmental conservation initiatives. In contrast, in developing countries, emissions and exposure to air pollution emerge as predominant factors affecting economic dynamism, reflecting greater vulnerability to environmental impacts. Conclusions: The natural environment plays a more significant role in the economic growth of developed countries, due to its institutional and technological capacity to implement policies aimed at conservation and environmental sustainability. In contrast, in developing countries, institutional conditions and efficient management of natural resources become key factors. This highlights the need to strengthen regulatory frameworks and increase investment in pollution mitigation strategies, as keyways to foster more prosperous and sustainable economic development.

Keywords: *G3 Corporate Finance and Governance, H Public Economics, O1 Economic Development, O4 Economic Growth and Aggregate Productivity, Q Agricultural and Natural Resource Economics, Q Environmental and Ecological Economics.*

Introduction

A country's economic growth not only reflects the ability to improve the quality of life of its population but also constitutes an indicator of general well-being. Among the most influential factors in this process, the natural environment is positioned as a key element, due to its impact on capital accumulation, resource productivity, and long-term sustainability (Acquah & Ibrahim, 2020; Adebayo et al., 2023; Núñez-Naranjo et al., 2024). In this sense, the natural environment contributes significantly to economic development by providing fundamental ecosystem services and influencing resilience to environmental and climate risks.

Authors such as Alam et al. (2017), Ashraf et al. (2021) and Aslan and Altinoz (2021) point out that proper management of the natural environment, together with technological innovation and the use of renewable energies, makes it possible to mitigate CO_2 emissions and reduce environmental deterioration, thus balancing economic growth with ecological sustainability (Aust et al., 2020; Aye, 2019). However, over-reliance on the exploitation of natural resources poses structural challenges, generating vulnerabilities to external fluctuations and environmental

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(Berry et al., 2019; Blomström et al., 2003; Maung Maung Aye, 2019).

The growing importance of this issue lies in the need to design strategies that prioritize environmental protection and ensure a balanced economic development model (Busse & Hefeker, 2007; Carkovic & Levine, 2002; Cerquera-Losada & Rojas-Velásquez, 2020). In developed countries, environmental institutions have been strengthened through policies that promote sustainable innovation and strict regulations that limit polluting emissions (Cicea & Marinescu, 2020; Dallimer et al., 2015; Erdoğan et al., 2020). According to (Borensztein et al., 1998; Dinda, 2014; Galvan et al., 2022), these nations also regulate the conduct of both companies and citizens in order to preserve ecosystems, thus demonstrating that the natural environment maintains a close relationship with gross domestic product (GDP) (Du et al., 2022; Fritz & Koch, 2014).

The interaction between nature and economic growth generates a positive feedback loop (Goswami & Goswami, 2024). Adequate environmental protection not only promotes ecological balance, but also improves agricultural productivity, water availability and public health, which are essential elements for stable economic development (Hermes & Lensink, 2003; Howes et al., 2017). An example of this can be seen in the case of China, where investment in environmental governance has shown a positive correlation with economic growth, driving a high-quality development model (Kobayakawa, 2022; Kurteš et al., 2022).

Similarly, nature-based solutions support the transition to a circular economy and strengthen adaptation to climate change (Kwilinski et al., 2023; Li et al., 2020). These strategies offer ecosystem services and social benefits that strengthen the link between environmental sustainability and economic progress (Majeed et al., 2022; Rahim et al., 2021). Thus, the integration of environmental considerations into development plans makes it possible to achieve equitable and sustainable economic growth, with benefits for both the public and private sectors of a nation.

Materials and Methods

The information used in this study was obtained from secondary sources, which began with the systematic review of the literature in scientific articles and books on the variables of the natural environment in economic growth. To do this, virtual libraries such as Scopus, Science Direct, eLibro, Dialnet, Scielo, Redalyc, Google Scholar and others were used. Likewise, it should be noted that official websites were managed with the purpose of finding data and information such as the World Bank, ECLAC, UN, among others.

To carry out the statistical analysis of the research, the Legatum Institute database for the year 2023 was used, in this database it was possible to find the scores or scores of the elements of the pillar analyzed by year and country of study. For the measurement of the natural environment, the following elements were taken: preservation efforts, oceans, freshwater, forest, land and soil, exposure to air pollution and emissions.

For the treatment of the data, with the aim of understanding the behavior, changes and characteristics of the variables throughout the time of study of the natural environment; preservation efforts, oceans, freshwater, forest, land and soil, exposure to air pollution and emissions.

It should be noted that, for this level, an Exploratory Data Analysis (AED) was carried out, which is carried out through a software known as the Statistical Package for Social Science

(SPSS). In this sense, within the study, calculations were made of the measurements of central tendency, position and shape, the results that this software yielded allowed the interpretation and understanding of the changes and behaviors of each element of the pillars under study.

In addition, the standard deviation was calculated in the same way for each country and indicator in order to understand the variability of the data, to visualize the distribution and changes in the indices over the years between countries, obtaining a comparison between the groups of developed countries of the G7 with the developing countries of the LAIA, identifying the differences and similarities of the elements of the variable analyzed.

The correlational approach was carried out in order to identify the existence of a relationship between the elements of the natural environment and economic growth in the G7 and LAIA countries. In this context, the research sought to establish the degree of association between the independent variables and the dependent variable.

First, the Kolmogorov-Smirnov test was performed, because the database has a number greater than 50 data, this test serves to check if the data are normal or not normal. When it was evident that the data presented a non-normal distribution, we proceeded to apply Spearman's correlation coefficient, which is a non-parametric statistic, which allows the measurement of the direction and force by ranges of the variables used for the study, represented by the letter r and subscripts

Results

Statistical		**G7**							**LAIA**												
		ALE	CAN	EEUU	FRA	ITA	JAP	R.UN	ARG	BOL	BRA	CHI	COL	CUB	ECU	MEX	PAN	PAR	PER	URU	VEN
Media		77.82	56.51	60.78	79.89	77.94	77.41	79.02	64.72	64.49	68.31	65.57	75.32	66.34	65.72	71.02	71.21	67.44	75.19	65.02	62.02
95% confidence interval for the	Lower limit	77.59	55.97	59.91	79.35	77.13	77.11	78.15	64.23	64.04	67.49	64.54	74.24	65.55	65.22	70.75	70.46	66.51	74.92	63.64	59,59
	Upper limit	78.06	57.04	61.64	80.43	78.75	77.71	79.89	65.22	64.94	69.12	66.60	76.41	67.14	66.22	71.29	71.95	68.38	75.46	66.39	64.45

mean																				
Average cut to 5%	77.79	56.53	60.73	79.93	77.98	77.41	79.00	64.73	64.44	68.30	65.52	75.37	66.42	65.70	70.99	71.17	67.50	75.21	64.85	61.77
Median	77.80	56.90	60.90	80.20	78.10	77.40	79.00	64.80	64.70	68.30	65.40	76.00	66.10	65.80	70.90	71.00	68.30	75.30	63.60	60.50
Desv. Deviation	0.45	1.05	1.68	1.05	1.58	0.59	1.69	0.97	0.88	1.58	2.00	2.11	1.55	0.97	0.52	1.45	1.82	0.52	2.68	4.73
Minimal	77.20	54.60	58.50	77.60	75.30	76.40	76.60	62.90	63.10	66.00	63.20	71.90	62.60	64.30	70.30	68.90	64.20	74.20	62.50	56.20
Maximum	79.10	58.00	63.80	81.40	79.80	78.40	81.70	66.40	66.70	70.70	68.90	77.90	68.60	67.40	72.30	74.10	69.60	75.80	70.50	72.50
Rank	1.90	3.40	5.30	3.80	4.50	2.00	5.10	3.50	3.60	4.70	5.70	6.00	6.00	3.10	2.00	5.20	5.40	1.60	8.00	16.30
Interquartile Range	0.55	1.80	3.15	1.45	2.90	1.00	3.35	1.45	1.30	3.15	4.05	4.10	2.40	1.90	0.70	2.20	3.25	0.90	4.00	5.00
Asymmetry	1.47	-0.67	0.16	-0.92	-0.49	0.16	-0.03	-0.13	0.56	0.00	0.39	-0.40	-0.65	0.12	1.16	0.16	-0.68	-0.69	1.13	1.12
Kurtosis	3.00	-0.88	-1.11	0.05	-1.34	-0.81	-1.47	-0.44	1.26	-1.64	-1.34	-1.57	0.45	-1.33	1.29	-0.38	-0.95	-0.57	-0.14	0.59

Coefficient of Variation	0.01	0.02	0.03	0.01	0.02	0.01	0.02	0.01	0.01	0.02	0.03	0.03	0.02	0.01	0.01	0.02	0.03	0.01	0.04	0.08
Q1	77.50	55.50	59.10	79.15	76.40	76.90	77.35	64.05	63.70	66.70	63.75	73.00	65.30	64.75	70.60	70.05	65.75	74.75	63.15	58.90
Q3	78.05	57.30	62.25	80.60	79.30	77.90	80.70	65.50	65.00	69.85	67.80	77.10	67.70	66.65	71.30	72.25	69.00	75.65	67.15	63.90

Table 1. Emissions By Country, Period 2007 – 2023

Note: Descriptive statistics of emissions by country. during the period 2007 – 2023. Source: Own elaboration (2024), based on data provided by (Legatum Institute., 2023)

The description of the first element of the variable "natural environment" called: emissions is carried out, this is composed of five indicators, which are the emissions of CO2, SO2, NOX, black carbon and methane which were collected by years and countries, these data are shown in table 1.

As evidenced in the table above, of the group of developed countries of the G7, France has the highest average, which is 79.89, with an average cut to 5% not very different from the average of 79.93, that is, the average is reliable and significant for the analysis of the study. In addition, the standard deviation has a value of 1.05, which shows a low data dispersion.

In addition, France has a negative asymmetry with a bias to the right (-0.92), i.e. most of the data are to the right of the average, so on the left side the data are more dispersed. On the other hand, the kurtosis presented is 0.05, this value indicates that the data presents a leptokurtic distribution. Likewise, the coefficient of variation is 1%, this percentage shows a low variability of data, that is, it has greater consistency and homogeneity. Likewise, the position measures shown in the table indicate that quartile 1 (Q1) determines the 25% of data that are below 79.15 points and the quartile (Q3) proves that 75% of data is below 80.60 points. The interquartile range of 1.45 confirms that there is a small difference between Q1 and Q3, which determines that the data are very close to the median of 80.20.

However, within the same group of developed countries, the one that differs the most is Canada, with a relatively lower average of 56.51 and a 5% average of 56.53, these values show differences between scores within the same region and with regions such as the LAIA.

However, its asymmetry is -0.67 and its kurtosis is -0.89, thus revealing a distribution of most of the data on the right side and the negative kurtosis shows that the distribution of data is platykurtic, on the other hand, the coefficient of variation is 2% which indicates that the data does not present variability with respect to other countries.

Statistical		**G7**							**LAIA**												
		ALE	CAN	EEUU	FRA	ITA	JAP	R.UN	ARG	BOL	BRA	CHI	COL	CUB	ECU	MEX	PAN	PAR	PER	URU	VEN
Media		88.85	97.05	93.44	90.61	82.46	91.48	92.77	87.78	77.04	84.85	77.88	84.51	82.95	84.66	77.76	91.81	90.78	74.99	94.61	78.80
95% confidence interval for the mean	Lower limit	88.17	96.67	92.79	90.14	81.12	90.69	91.93	87.33	76.14	84.38	77.15	83.83	82.66	83.41	76.78	91.29	89.76	74.54	94.40	78.35
	Upper limit	89.54	97.42	94.08	91.09	83.81	92.27	93.61	88.22	77.93	85.32	78.61	85.18	83.25	85.91	78.74	92.32	91.80	75.45	94.82	79.25
Average cut to 5%		88.98	97.10	93.51	90.62	82.83	91.43	92.86	87.80	77.27	84.83	77.90	84.56	82.98	84.86	77.88	91.83	90.80	75.02	94.63	78.76
Median		89.10	97.30	93.70	90.50	83.40	91.10	93.50	87.80	77.10	84.70	77.90	84.50	82.90	84.60	78.00	91.70	91.50	75.20	94.70	78.80
Desv. Deviation		1.33	0.73	1.25	0.92	2.61	1.54	1.63	0.87	1.74	0.92	1.42	1.31	0.58	2.43	1.90	1.00	1.98	0.89	0.40	0.87
Minimal		85.20	95.20	90.70	89.20	73.40	89.00	89.60	86.10	71.10	83.50	75.20	81.50	81.60	78.30	73.50	89.80	87.50	73.40	93.70	77.50

Maximum	90.30	98.00	94.90	91.90	85.00	94.90	94.40	89.00	78.70	86.50	80.30	86.60	83.80	87.40	79.80	93.30	93.80	76.10	95.20	80.90
Rank	5.10	2.80	4.20	2.70	11.60	5.90	4.80	2.90	7.60	3.00	5.10	5.10	2.20	9.10	6.30	3.50	6.30	2.70	1.50	3.40
Interquartile Range	1.05	0.95	2.00	1.70	2.10	1.60	2.90	1.20	1.75	1.45	1.45	1.30	0.90	3.60	1.95	1.80	3.45	1.70	0.60	1.45
Asymmetry	-1.95	-1.12	-0.87	0.16	-2.81	0.78	-0.73	-0.54	-2.60	0.55	-0.39	-0.56	-0.67	-1.02	-1.10	-0.07	-0.48	-0.48	-0.57	0.51
Kurtosis	3.57	1.12	0.20	-1.33	9.69	0.79	-0.88	-0.56	8.82	-0.72	-0.10	0.64	0.43	1.42	0.47	-0.57	-0.95	-1.12	-0.05	0.56
Coefficient of Variation	0.02	0.01	0.01	0.01	0.03	0.02	0.02	0.01	0.02	0.01	0.02	0.02	0.01	0.03	0.02	0.01	0.02	0.01	0.00	0.01
Q1	88.65	96.60	92.55	89.95	81.70	90.70	91.30	87.25	76.55	84.10	77.45	84.05	82.55	83.20	77.20	91.15	88.60	74.10	94.30	77.90
Q3	89.70	97.55	94.55	91.65	83.80	92.30	94.20	88.45	78.30	85.55	78.90	85.35	83.45	86.80	79.15	92.95	92.05	75.80	94.90	79.35

Table 2. Air Pollution Exposure by Country, Period 2007 - 2023

Note. Descriptive statistics of exposure to air pollution by country, during the period 2007 – 2023. Source: Own elaboration (2024), based on data provided by (Legatum Institute., 2023)

The next element of the variable "Natural Environment" is called; exposure to air pollution, which is composed of three indicators, including exposure to fine particulate matter, the impact of air pollution on health and satisfaction with air quality, these data were collected by years and countries and are shown in Table 2.

Through the statistics, it can be identified that in both developed and underdeveloped countries there are no significant gaps in terms of exposure to air pollution, since the countries with the highest scores for presenting the highest pollution are Canada by the G7 and Uruguay by the LAIA countries. Canada shows a high average of 97.05 and its average cut to 5% is not much different, its value is 97.10, thus proving that the average is reliable. The standard deviation with a relatively low value of 0.73 shows a minimal variation in the data with respect to the mean of this country.

With reference to the asymmetry, the value is negative (-1.12), that is, it presents a bias to the right, there is a greater concentration of data on the right side of the bell with a large dispersion of data on the left side of the bell. While its kurtosis is positive (1.12), which shows a leptokurtic distribution of data, that is, the values of the data are less concentrated around the mean, however, the coefficient of variation is 1%, this percentage shows that there is no great variability of the data.

Quartiles 1 and 3 are measures of position that show data that are below 25% and 75%, in the case of Canada, 25% of data are below 96.60 points, while 75% of data are below or equal to 97.55 points. Therefore, the interquartile range is 0.95 showing a short difference between the two quartiles and determining the proximity of data with respect to the median.

Within the same group of developed countries we find Italy, this country has relatively lower values than the other members of the G7, its average and average cut to 5% are 82.46 and 82.83 respectively. The standard deviation with a value of 2.61 suggests that there is minimal variation in the data. In addition, the asymmetry is negative, presenting a value of -2.81, which shows that it has a bias to the right and its kurtosis is 9.69, which suggests a leptokurtic distribution of the data. Within the measures of position, quartile 1 shows that 25% of the data is below 81.70 points and quartile 3 shows that 75% of the data is below or equal to 83.80 points, as well as the interquartile range is 2.10, this difference is short, so it can be determined that the data are close to the previously obtained median which is 83.40.

With respect to the LAIA countries, Uruguay is the country with the highest exposure to air pollution, as evidenced by its average of 94.61, in addition to its average cut to 5% is 94.63, which indicates that the data are homogeneous and there are no outliers, so the average is significantly reliable. As for the standard deviation, its value is 0.40, evidencing the low dispersion in this dataset.

Uruguay's asymmetry has a negative value (-0.57), that is, it exhibits a bias to the right, most of the data are concentrated to the right of the mean with scores not far from it. On the other hand, kurtosis is also negative with a value of -0.05, while the data show a platykurtic data distribution. As for the coefficient of variation, it has a percentage of 0%, this proves that there is no variability in the data. Meanwhile, its interquartile range is 0.60, this value shows that between quartiles 1 and 3 there is not much difference. Thus, 25% of the data is less than 94.30 points and 75% of the data is less than 94.90 points.

Statistical	**G7**							**LAIA**													
	ALE	CAN	EEUU	FRA	ITA	JAP	R.UN	ARG	BOL	BRA	CHI	COL	CUB	ECU	MEX	PAN	PAR	PER	URU	VEN

Media		50.48	59.03	53.54	54.02	48.24	58.54	38.35	50.65	52.58	58.02	41.52	36.38	32.75	39.92	41.95	45.18	57.32	49.18	41.48	43.93
95% confidence interval for the mean	Lower limit	49.83	58.12	52.98	53.13	47.70	58.23	37.49	50.29	51.67	57.76	40.99	36.02	32.11	39.51	41.33	44.76	56.51	48.85	40.07	43.34
	Upper limit	51.13	59.94	54.10	54.90	48.78	58.85	39.20	51.01	53.49	58.27	42.05	36.73	33.38	40.34	42.56	45.61	58.14	49.51	42.88	44.52
Average cut to 5%		50.41	59.07	53.52	54.00	48.24	58.58	38.31	50.64	52.59	58.01	41.51	36.35	32.83	39.98	41.90	45.16	57.32	49.16	41.55	43.90
Median		50.20	59.90	53.80	53.90	48.40	58.50	38.70	50.80	52.40	58.00	41.30	36.10	32.80	39.90	42.00	45.20	57.50	49.20	41.70	43.90
Desv. Deviation		1.26	1.77	1.09	1.72	1.05	0.60	1.66	0.70	1.77	0.49	1.03	0.70	1.24	0.81	1.20	0.83	1.59	0.64	2.74	1.14
Minimal		48.70	55.80	52.00	51.20	46.40	57.00	35.60	49.50	49.70	57.20	39.70	35.50	29.30	37.70	40.20	43.90	54.40	48.30	36.70	42.30
Maximum		53.50	61.50	55.40	57.10	50.10	59.40	41.80	52.00	55.20	59.00	43.40	37.80	34.70	41.20	44.50	46.80	60.40	50.30	45.00	46.00

Rank	4.80	5.70	3.40	5.90	3.70	2.40	6.20	2.50	5.50	1.80	3.70	2.30	5.40	3.50	4.30	2.90	6.00	2.00	8.30	3.70
Interquartile Range	1.75	2.80	2.00	2.75	1.80	0.80	2.70	1.20	2.95	0.70	1.60	1.15	1.40	1.00	1.65	1.20	2.45	1.15	4.80	1.65
Asymmetry	0.90	-0.66	0.11	0.02	-0.28	-0.90	0.24	-0.04	0.13	0.22	0.22	0.81	-1.22	-1.02	0.34	0.14	0.05	0.21	-0.32	0.22
Kurtosis	0.52	-0.83	-1.33	-0.87	-0.71	1.46	-0.47	-0.65	-1.12	-0.42	-0.70	-0.48	2.87	2.35	-0.47	-0.75	-0.47	-1.30	-0.85	-0.41
Coefficient of Variation	0.03	0.03	0.02	0.03	0.02	0.01	0.04	0.01	0.03	0.01	0.02	0.02	0.04	0.02	0.03	0.02	0.03	0.01	0.07	0.03
Q1	49.50	57.20	52.40	52.80	47.30	58.25	36.75	50.00	51.15	57.60	40.70	35.85	32.15	39.55	41.05	44.55	55.90	48.55	39.35	43.00
Q3	51.25	60.00	54.40	55.55	49.10	59.05	39.45	51.20	54.10	58.30	42.30	37.00	33.55	40.55	42.70	45.75	58.35	49.70	44.15	44.65

Table 3. Forest, Land and Soil by Country, Period 2007 – 2023

Note. Descriptive statistics of forests, land and soil by country, during the period 2007 – 2023. Source: Own elaboration (2024), based on data provided by (Legatum Institute., 2023)

Another element of the variable "Natural Environment" is called: forests, land and soil, which is made up of three indicators, including forest area, the occurrence of floods and sustainable nitrogen management, which were collected by years and countries, these are exposed in table 3.

The G7 countries show moderate scores in the forests, land and soil element, as their averages fluctuate between 38.35 in the United Kingdom and 59.03 for Canada. The coefficients of variation (CV) are low, for example, the CV for the United Kingdom and Canada is 4% and 3% respectively, which indicates that the data for this element are quite well distributed and do not present large fluctuations in relation to the mean. In addition, the asymmetry and kurtosis of Canada are negative, which indicates that the data have a bias to the right, that is, most of the data are concentrated on the right of the bell, while on the left side the data present greater dispersion and their distribution of data is platykurtic, as for the asymmetry of the United Kingdom it is positive (0.24). This value shows a bias to the left and concentration of data to the left of the bell and its kurtosis also presents a negative value of -0.47 showing a platykurtic distribution of the data.

Measures of position, such as quartile 1 shows 25% of data that is less than 57.20 points and quartile 3 indicates 75% of data that is below 60.00 points in Canada. Meanwhile, in the United Kingdom, 25% of the data is less than 36.75 points and 75% of this same dataset is less than 39.45 points.

In the LAIA, the averages are notably lower, varying from 32.75 for Cuba to 58.02 in Brazil. On the other hand, the coefficients of variation for Cuba are 4% and in Brazil it is 1%, which reflects that the dispersion of the data is smaller and has consistency over time. Cuba's asymmetry is -1.22, since its data show a bias to the right of the bell, while its kurtosis is 2.87, which suggests that the distribution of the data is leptokurtic. However, Brazil's asymmetry is 0.24, which reveals that the data have a bias to the left, so most of the data are concentrated on the left side of the bell, while on the right side the data are more dispersed. Regarding kurtosis in this country, its value is -0.47, which indicates that the distribution of the data is platous.

Meanwhile, the interquartile range for Cuba is 1.40, this value shows that there is not much difference between quartiles 1 and 3. Thus, 25% of the data is less than 32.15 points and 75% of the data is less than 33.55 points. On the other hand, Brazil's interquartile range has a value of 0.70, because 25% of the data are less than 57.60 points and 75% of the data are below 58.30 points.

Table 12 shows that despite differences in the level of development, the values of the prosperity indices related to forests, land and soil are quite similar between the G7 and LAIA countries, this reflects a similarity in efforts to manage and protect natural resources.

Statistical		**G7**							**LAIA**												
		ALE	CAN	EEUU	FRA	ITA	JAP	R.UN	ARG	BOL	BRA	CHI	COL	CUB	ECU	MEX	PAN	PAR	PER	URU	VEN
Media		77.04	87.49	77.17	76.35	75.13	78.38	82.60	58.32	65.31	80.07	78.09	69.15	51.08	59.16	57.58	71.37	66.11	69.09	64.55	61.01
95% confidence	Lower limit	76.31	87.21	76.77	75.98	74.37	77.69	81.75	57.71	64.77	79.43	76.30	68.61	50.76	58.48	55.75	70.61	65.40	67.04	63.19	58.33

interval for the mean	Upper limit	77.77	87.77	77.57	76.72	75.89	79.07	83.45	58.94	65.86	80.71	79.88	69.68	51.41	59.85	59.42	72.13	66.82	71.14	65.91	63.70
Average cut to 5%		77.10	87.51	77.15	76.34	75.10	78.47	82.56	58.40	65.34	80.03	78.19	69.12	51.08	59.21	57.54	71.30	66.14	68.83	64.57	60.82
Median		77.40	87.50	76.90	76.10	74.60	78.70	82.70	58.60	65.40	79.90	77.70	68.70	50.60	59.50	57.70	71.50	66.40	67.30	63.60	61.50
Desv. Deviation		1.42	0.54	0.77	0.72	1.48	1.34	1.65	1.20	1.06	1.24	3.48	1.04	0.63	1.33	3.57	1.48	1.38	3.99	2.65	5.22
Minimal		74.20	86.30	76.10	75.10	73.30	75.40	80.50	55.40	63.40	77.90	71.70	67.80	50.40	56.50	52.40	69.40	63.70	65.40	60.50	54.30
Maximum		78.80	88.20	78.60	77.80	77.40	79.60	85.50	59.90	66.70	82.90	82.70	70.90	51.80	61.10	63.50	74.60	68.00	77.50	68.30	71.10
Rank		4.60	1.90	2.50	2.70	4.10	4.20	5.00	4.50	3.30	5.00	11.00	3.10	1.40	4.60	11.10	5.20	4.30	12.10	7.80	16.80
Interquartile Range		1.50	0.50	1.45	1.20	2.70	1.30	3.15	1.70	1.90	1.70	6.70	1.80	1.30	1.65	6.55	2.15	2.45	6.40	5.15	10.25
Asymmetry		-1	-0	0.	0.	0.	-1	0.	-0	-0	0.	-0	0.	0.	-0	0.	0.	-0	1.	0.	0.

	.02	.80	33	44	42	.49	18	.79	.35	60	.13	67	12	.64	16	69	.51	15	15	23
Kurtosis	0.14	0.35	-1.13	-0.41	-1.48	1.18	-1.34	0.63	-0.90	0.50	-1.18	-0.95	-2.13	-0.22	-1.10	0.35	-0.97	-0.28	-1.66	-1.15
Coefficient of Variation	0.02	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.02	0.01	0.02	0.06	0.02	0.02	0.06	0.04	0.09
Q1	76.55	87.35	76.45	75.80	73.85	77.95	80.90	57.70	64.40	79.20	75.20	68.40	50.50	58.50	54.25	70.00	64.80	66.55	62.25	55.65
Q3	78.05	87.85	77.90	77.00	76.55	79.25	84.05	59.40	66.30	80.90	81.90	70.20	51.80	60.15	60.80	72.15	67.25	72.95	67.40	65.90

Table 4. Freshwater by Country, Period 2007 – 2023

Note. Descriptive statistics of fresh water by country, during the period 2007 – 2023. Source: Own elaboration (2024), based on data provided by (Legatum Institute., 2023)

The next element of the variable "natural environment" is called: fresh water, which is made up of four indicators, which are, renewable water resources, wastewater treatment, freshwater extraction and satisfaction with water quality, which were collected by years and countries, these are shown in table 4.

Through the statistics, it can be identified that in both developed and underdeveloped countries there are no significant gaps in terms of the freshwater element, since the countries with the best scores for having the largest sources are Canada on the part of the G7 and Brazil on the part of the LAIA countries. Canada shows a high average of 87.49 and its average cut to 5% is not much different, its value is 87.51, thus proving that the average is reliable. The standard deviation with a relatively low value of 0.54 shows a minimal variation in the data with respect to the average of this country.

With reference to the asymmetry, the value is negative (-0.80), that is, it presents a bias to the right, there is evidence of a greater concentration of data on the right side of the bell with a large dispersion of data on the left side of the bell. While its kurtosis is positive (0.35), which shows a leptokurtic distribution of data, that is, the values of the data are less concentrated around the mean, however, the coefficient of variation is 1%, this percentage shows that there is no great variability of the data.

Quartiles 1 and 3 are measures of position that show data that are below 25% and 75%, in the case of Canada, 25% of data are below 87.35 points, while 75% of data are below or equal to

87.85 points. Therefore, the interquartile range is 0.50 showing a short difference between the two quartiles and determining the closeness of data with respect to the median.

Within the same group of developed countries we find Italy, this country has relatively lower values than the other members of the G7, its average and average cut to 5% are 75.13 and 75.10 respectively. The standard deviation with a value of 1.48 suggests that there is minimal variation in the data. In addition, the asymmetry is positive, presenting a value of 0.42, which shows that it has a bias to the left and its kurtosis is -1.48, which suggests a distribution of the data is platykurtic. Within the position measures, quartile 1 shows that 25% of the data is below 73.85 points and quartile 3 shows that 75% of the data is below or equal to 76.55 points, as well as the interquartile range is 2.70, this difference is short, so it can be determined that the data are close to the median.

In the LAIA countries, the averages are lower, ranging from 51.08 in Cuba to 80.07 in Brazil. The latter stands out as the country with the best water extraction and treatment systems, in addition, its average cut to 5% is 80.03 and its coefficient of variation is 2%, that is, the data are around the average and there is no variability of the same. The asymmetry is positive (0.60), which shows that the data are skewed to the left of the bell, while its kurtosis is positive (0.50), which indicates a leptokurtic distribution of the data.

Regarding quartiles 1 and 3, it is shown that 25% of the data are below 79.20 points and 75% of them are less than 80.90 points, so their interquartile range is 1.70. This value shows that the data are around the median which is 79.90.

Many LAIA countries have improved in the management of freshwater resources, adopting sustainable policies that bring them closer to international standards. This has led to a convergence in freshwater indices with G7 countries. Countries in both the G7 and LAIA are experiencing changes in freshwater availability, influenced by factors such as climate change. However, policies implemented in both groups of countries have sought to improve water distribution and Access.

Statistical		**G7**							**LAIA**												
		ALE	CAN	EEUU	FRA	ITA	JAP	R.UN	ARG	BOL	BRA	CHI	COL	CUB	ECU	MEX	PAN	PAR	PER	URU	VEN
Media		54.52	59.37	66.01	55.24	51.84	55.77	47.32	69.61		79.09	69.26	70.41	53.71	60.99	56.56	59.71		72.33	61.72	70.80
95 % confidenc	Lowerli	50.66	58.80	64.57	53.91	49.95	53.80	45.68	66.94		78.59	68.81	67.96	52.17	59.51	55.45	56.47		71.97	60.38	67.03

e interval for the mean	mit																				
	Upper limit	58.39	59.94	67.46	56.56	53.72	57.74	48.97	72.28		79.60	69.71	72.86	55.26	62.48	57.67	62.96		72.69	63.06	74.57
Average cut to 5%		54.50	59.36	66.15	55.25	51.96	55.84	47.37	69.49		79.07	69.21	70.50	53.49	60.98	56.57	59.44		72.30	61.71	70.80
Median		57.70	59.40	66.80	55.50	53.10	55.00	47.60	68.80		78.70	68.80	70.70	52.90	61.20	56.20	59.50		72.30	61.80	68.80
Desv. Deviation		7.52	1.11	2.81	2.57	3.66	3.83	3.20	5.19		0.99	0.88	4.76	3.00	2.88	2.15	6.31		0.71	2.60	7.33
Minimal		43.80	57.80	60.30	51.50	45.70	49.90	42.30	62.70		77.80	68.40	62.40	49.70	56.70	52.10	50.60		71.30	57.30	61.10
Maximum		65.60	61.10	69.20	58.70	55.70	60.40	51.60	78.70		80.90	71.00	76.80	61.70	65.50	60.80	73.80		73.90	66.30	80.50
Rank		21.80	3.30	8.90	7.20	10.00	10.50	9.30	16.00		3.10	2.60	14.40	12.00	8.80	8.70	23.20		2.60	9.00	19.40
Interquartile Range		12.	2.10	4.85	5.45	7.25	6.55	5.90	9.00		1.80	1.05	8.70	1.35	5.20	2.10	10.		0.90	4.55	15.

	95															45				75
Asymmetry	-0.10	0.28	-0.60	-0.30	-0.79	-0.25	-0.15	0.21		0.29	1.14	-0.37	1.51	-0.08	0.27	0.41		0.61	-0.23	0.12
Kurtosis	-1.51	-1.32	-0.71	-1.29	-1.03	-1.43	-1.24	-1.32		-1.40	0.02	-1.16	2.40	-1.35	0.81	-0.11		0.14	-0.78	-1.70
Coefficient of Variation	0.14	0.02	0.04	0.05	0.07	0.07	0.07	0.07		0.01	0.01	0.07	0.06	0.05	0.04	0.11		0.01	0.04	0.10
Q1	47.55	58.40	63.85	52.15	47.55	53.00	44.60	64.80		78.20	68.80	65.70	52.45	58.40	55.50	54.50		71.75	59.35	63.45
Q3	60.50	60.50	68.70	57.60	54.80	59.55	50.50	73.80		80.00	69.85	74.40	53.80	63.60	57.60	64.95		72.65	63.90	79.20

Table 5. Oceans By Country, Period 2007 – 2023

Note. Descriptive statistics of oceans by country, during the period 2007 – 2023. Source: Own elaboration (2024), based on data provided by (Legatum Institute., 2023).

Another element of the variable "natural environment" is called: oceans, which is made up of three indicators, which are, the overexploitation of fish stocks, the stability of marine biodiversity and clean marine water, these data were collected by years and countries, these are shown in table 5.

Through the statistics it can be recognized that, in the case of this element, the best scores have countries of the LAIA, leading this group Brazil, since it shows the highest average with 79.09, due to the extensive oceanic coasts, this favors the richness in marine resources, fisheries and oceanic biodiversity, its average cut to 5% has a value of 79.07, The difference between these averages does not have a major difference, therefore, the average is significant and reliable. In addition, the standard deviation is 0.99, which shows that the dispersion of the data is low with respect to the mean.

In terms of asymmetry, Brazil has a positive value of 0.29, thus determining a bias to the left of the bell, so most of the data are focused on the left tail of the bell, on the other hand, kurtosis is negative of -1.40, that is, the distribution of the data is platykurtic. The coefficient of variation is 1%, which shows that there is a low variability in the data with respect to the average of this country.

In addition, quartiles 1 and 3 are measures of position that show data that are below 25% and 75%, in the case of Brazil 25% of data are below 78.20 points, while 75% of the data are below or equal to 88.00 points, therefore, the interquartile range is 1.80 showing a short difference between the two quartiles and establishing the proximity of data with respect to the median.

However, within this same group of underdeveloped countries, we have Bolivia and Paraguay, in table 14 these two countries do not have values, because, like Bolivia, Paraguay is a country without oceanic coasts, so its data on the oceans are not available. The absence of these values is also logical given the geography of the country, which does not allow for direct interaction with the oceans.

The G7 countries show moderate scores in this element, as their averages range from 47.32 in the United Kingdom to 66.01 for the United States. The coefficients of variation for the United Kingdom and the United States are 7% and 4% respectively, which indicates that the data for this element are better distributed and do not present large fluctuations in relation to the mean. In addition, the asymmetry and kurtosis of both countries are negative, which indicates that the data have a bias to the right, that is, most of the data are concentrated on the right side of the bell, while on the left side the data are more dispersed, and the distribution of data is platykurtic.

Measures of position, such as quartile 1 shows 25% of data that is less than 63.85 points and quartile 3 indicates 75% of data that is below 68.70 points in the United States. Meanwhile, in the United Kingdom, 25% of the data is less than 44.60 points and 75% of this same dataset is less than 50.50 points

Statistical		**G7**							**LAIA**												
		ALE	CAN	EEUU	FRA	ITA	JAP	R.UN	ARG	BOL	BRA	CHI	COL	CUB	ECU	MEX	PAN	PAR	PER	URU	VEN
Media		77.27	43.35	56.28	62.75	42.68	57.11	66.76	39.15	40.98	41.67	39.06	41.72	50.06	49.36	36.95	49.21	41.28	35.03	36.64	55.89
95% confidence interv	Lower limit	76.54	42.25	54.66	60.44	42.20	54.73	64.43	38.10	39.78	39.80	36.93	39.06	47.93	47.47	34.87	46.87	39.93	33.72	34.69	54.56
	Upp	78.	44.	57.	65.	43.	59.	69.	40.	42.	43.	41.	44.	52.	51.	39.	51.	42.	36.	38.	57.

al for the mean	er limit	00	44	89	05	16	49	10	19	18	54	20	39	19	26	04	54	63	34	59	22
Average cut to 5%		77.30	43.27	56.54	62.77	42.66	57.06	66.79	39.19	40.98	41.60	38.95	41.67	50.17	49.42	36.99	48.96	41.31	35.19	37.12	55.83
Median		77.30	42.90	56.80	61.40	42.20	56.70	67.40	39.50	40.40	39.80	37.00	40.00	51.30	50.50	36.00	48.10	41.70	35.70	38.20	54.50
Desv. Deviation		1.41	2.13	3.13	4.48	0.94	4.62	4.54	2.04	2.33	3.64	4.14	5.18	4.14	3.69	4.05	4.53	2.63	2.55	3.80	2.58
Minimal		74.60	40.40	48.60	55.80	41.10	51.50	59.60	35.70	37.60	37.60	34.50	35.20	43.00	42.80	30.40	43.60	36.40	28.90	24.80	52.70
Maximum		79.40	47.60	59.20	69.20	44.50	63.70	73.40	41.80	44.30	47.10	45.70	49.20	55.10	55.00	42.80	59.20	45.50	38.20	39.80	60.10
Rank		4.80	7.20	10.60	13.40	3.40	12.20	13.80	6.10	6.70	9.50	11.20	14.00	12.10	12.20	12.40	15.60	9.10	9.30	15.00	7.40
Interquartile Range		2.15	2.40	2.45	8.65	1.50	9.05	7.25	3.75	4.15	7.30	8.10	10.80	6.50	6.75	7.80	1.85	3.60	3.40	4.00	4.85
Asymmetry		-0.32	1.00	-1.88	0.28	0.51	0.34	-0.12	-0.67	-0.03	0.55	0.69	0.36	-0.79	-0.42	0.18	1.40	-0.49	-1.14	-2.14	0.43

Kurtosis	-0.76	0.27	3.12	-1.44	-0.55	-1.64	-0.82	-0.84	-1.66	-1.66	-1.30	-1.63	-0.72	-1.09	-1.38	1.42	-0.56	0.71	5.32	-1.40
Coefficient of Variation	0.02	0.05	0.06	0.07	0.02	0.08	0.07	0.05	0.06	0.09	0.11	0.12	0.08	0.07	0.11	0.09	0.06	0.07	0.10	0.05
Q1	76.30	41.75	55.90	59.10	42.00	53.05	62.65	37.25	39.05	38.70	35.75	37.20	46.15	45.75	33.55	47.20	39.65	33.50	35.05	53.60
Q3	78.45	44.15	58.35	67.75	43.50	62.10	69.90	41.00	43.20	46.00	43.85	48.00	52.65	52.50	41.35	49.05	43.25	36.90	39.05	58.45

Table 6. Preservation Efforts by Country, Period 2007 - 2023

Note. Descriptive statistics of preservation efforts by country, during the period 2007 – 2023. Source: Own elaboration (2024), based on data provided by (Legatum Institute., 2023)

The last element of the variable "natural environment" is called: preservation efforts, which is made up of six indicators, which are, terrestrial protected areas, marine protected areas, long-term management of forest areas, protection of biodiverse areas, pesticide regulation and satisfaction with preservation efforts. These data were collected by year and country and are shown in Table 6.

The statistical results show that in developed countries there are better scores with respect to preservation efforts, since they show averages between 43.35 and 77.27 in G7 countries reflecting greater efforts to achieve environmental preservation, while in underdeveloped countries their averages range between 35.03 and 50.06, that is, affirms a notable gap between the two groups of countries.

In this sense, the table reflects results that demonstrate an evident difference between the member countries of the G7 and the LAIA in terms of preservation efforts, the country that leads the members of the G7 is Germany with an average of 77.27 and a cut average of 77.30, these values show that there is not much difference, which establishes that the average is reliable. Likewise, the standard deviation has a value of 1.41, which determines a low dispersion of data in relation to other countries.

In addition, Germany has a negative asymmetry with a bias to the right (-0.32), i.e. the largest amount of data is located to the right of the average, so on the left side the data are more dispersed. On the other hand, the kurtosis presented is -0.76, which indicates that the data presents a platykurtic distribution. Likewise, the coefficient of variation is 2%, this percentage shows a low variability of data, that is, it has greater consistency. Likewise, the position measures shown in the table indicate that quartile 1 (Q1) determines the 25% of data that is below 76.30 points and the quartile (Q3) proves that 75% of data are less than 78.45 points. The interquartile range of 2.15 confirms that there is a small difference between Q1 and Q3, which determines that the data are very close to the median of 77.30.

However, the underdeveloped country with the best scores in terms of preservation efforts is Cuba, with an average of 50.06 and an average cut to 5% of 50.17, these values show that in peripheral countries actions are being taken to preserve the environment and that they do not deteriorate rapidly. However, its asymmetry is -0.79 and its kurtosis is -0.72, revealing a distribution of most of the data on the right side of the bell and the negative kurtosis shows that the distribution of data is platykurtic, on the other hand, the coefficient of variation is 8% which indicates that the data presents a notable variability with respect to the mean.

Similarly, the position measures indicate that quartile 1 (Q1) determines the 25% of data that is below 46.15 points and the quartile (Q3) proves that 75% of data is less than 52.64 points. The interquartile range of 6.50 confirms that there is a considerable difference between Q1 and Q3, which determines that the data are close to the median of 51.30.

The disparity between the G7 and LAIA in terms of preservation efforts is linked to factors such as economic capacity, institutional stability, and infrastructure to implement effective environmental policies. While G7 countries have the resources and political will to prioritize preservation, LAIA countries face structural and economic challenges that limit their ability to protect and preserve their ecosystems.

To close this gap, LAIA countries could benefit from technology transfers, international investments, and the implementation of integrated policies that prioritize environmental sustainability alongside economic development.

		1	**2**	**3**	**4**	**5**	**6**	**7**
1. Emissions	Rho	1.000						
	Sig. car.							
2. Exposure to air pollution	Rho	-0.442**	1.000					
	Sig. car.	0.000						
3. Forests, land and soil	Rho	-0.457**	0.479**	1.000				
	Sig. car.	0.000	0.000					
4. Fresh water	Rho	-0.379**	0.710**	0.268**	1.000			
	Sig. car.	0.000	0.000	0.003				

5. Oceans	Rho	-0.533**	0.338**	0.483**	-0.039	1.000		
	Sig. car.	0.000	0.000	0.000	0.673			
6. Preservation efforts	Rho	0.479**	-0.111	-0.305**	-0.008	-0.295**	1.000	
	Sig. car.	0.000	0.230	0.001	0.932	0.001		
7. GDP per capita	Rho	-0.505**	0.498**	0.375**	0.169	0.614**	-0.007	1.000
	Sig. car.	0.000	0.000	0.000	0.067	0.000	0.938	

Table 7. Spearman's Correlation Coefficient of the Natural Environment Variables wiith the Economic Growth of the G7 Countries

Note. Association for Spearman's Rho non-parametric data of the natural environment variables with the economic growth of the G7 countries, period 2007 – 2023. Source: Own elaboration (2024).

Emissions show significant negative correlations with most variables, highlighting their inverse association with GDP per capita (Rho = -0.505, $p < 0.01$), which suggests that the higher the economic development per capita, the lower the emissions, possibly due to the use of cleaner technologies. There are also negative relationships with exposure to air pollution, natural resources (forests, freshwater, oceans), and preservation efforts, which could reflect stricter environmental policies in lower-emission contexts.

Preservation efforts are positively correlated with forests and GDP per capita, but negatively correlated with oceans and emissions, suggesting that higher-income countries may devote more resources to environmental conservation, especially on land, albeit with mixed results in marine ecosystems.

Ecosystem relationships maintain a high and significant interrelationship between forests, freshwater and oceans, which evidences the interdependence of ecological systems. This underscores the importance of integrated conservation strategies.

		1	**2**	**3**	**4**	**5**	**6**	**7**
	Sig. car.							
1. Emissions	Rho	1.000						
	Sig. car.							

2. Exposure to air pollution	Rho	-0.063	1.000					
	Sig. car.	0.353						
3. Forests, land and soil	Rho	-0.101	0.070	1.000				
	Sig. car.	0.136	0.302					
4. Fresh water	Rho	0.302**	0.051	0.318**	1.000			
	Sig. car.	0.000	0.454	0.000				
5. Oceans	Rho	0.088	-0.108	0.505**	0.563**	1.000		
	Sig. car.	0.229	0.140	0.000	0.000			
6. Preservation efforts	Rho	-0.292**	0.145*	-0.204**	-0.212**	-0.174*	1.000	
	Sig. car.	0.000	0.031	0.002	0.001	0.017		
7. GDP per capita	Rho	0.327**	0.345**	0.033	0.422**	0.209**	-0.446**	1.000
	Sig. car.	0.000	0.000	0.621	0.000	0.004	0.000	
****. The correlation is significant at the 0.01 level (bilateral).**								
***. The correlation is significant at the 0.05 level (bilateral).**								

Table 8. Spearman's Correlation Coefficient of the Variable's Natural Environment with the Economic Growth of the LAIA Countries.

Note: Association for Spearman's Rho non-parametric data of the natural environment variables with the economic growth of the LAIA countries, period 2007 – 2023. Source: Own elaboration (2024)

GDP per capita has a positive and significant correlation with emissions (0.327) and exposure to air pollution (0.345), suggesting that as countries grow economically, they tend to generate more emissions and be more exposed to pollution. However, GDP per capita also shows a significant negative correlation with oceans (-0.446) and preservation efforts (-0.209), which could be interpreted as a sign that economic growth, in certain contexts, could be linked to a lower commitment to marine and environmental conservation.

In the interactions between natural resources, a strong positive correlation between freshwater and oceans (0.563) is observed significant at the 0.01 level. This may reflect a common ecosystem or management relationship between both resources in environmental policies. There are also moderate correlations between forests and oceans (0.505), as well as between freshwater and forests (0.318), which suggests a possible interdependence in their management or environmental impact.

Preservation efforts are negatively correlated with emissions (-0.292) and freshwater (-0.212), which could indicate that when emissions increase or water resources are affected, conservation policies are intensified, reflecting a reaction to environmental degradation.

Discussion

The results presented by developed countries show a complex interaction between economic growth and the conditions of the natural environment. Emissions are perceived to have an inverse relationship with environmental quality, suggesting that higher levels of industrial development may be associated with a deterioration of natural resources such as air, water, soils and oceans. Despite this, it is also identified that in contexts with higher per capita income, there are better conditions in certain environmental indicators, which could be related to a greater capacity to implement conservation policies or clean technologies. However, economic growth is also associated with an increase in emissions, reflecting a tension between productive expansion and sustainability. In addition, environmental preservation efforts seem to be more present in situations where there is already a degree of degradation, which would indicate a corrective rather than a preventive response. Taken together, these findings suggest that economic development does not automatically guarantee an improvement in environmental quality but depends on how resources are managed and the public policies implemented. This reinforces the need to adopt integrated strategies that balance economic growth with the protection of the natural environment.

For developing countries, the results suggest that in contexts where higher per capita income is observed, higher negative impacts tend to be experienced in terms of emissions and exposure to pollution, reinforcing the idea that economic progress, as traditionally conceived, can entail significant environmental costs. Despite economic advances, environmental preservation efforts do not seem to increase in the same proportion, which shows a disconnect between growth and conservation. This phenomenon is also manifested in the limited relationship between economic development and the protection of the oceans, which could be linked to a lower prioritization of these ecosystems in national policies.

On the other hand, there is significant ecological interdependence between different natural resources, such as freshwater, forests and oceans, highlighting the need for integrated environmental management strategies. In this sense, conservation efforts seem to respond more to situations of deterioration than to preventive planning. This reactive dynamic could limit the effectiveness of environmental policies in the long term. Overall, the results require a revaluation of the economic development model, incorporating a vision that is more harmonious with sustainability. Evidence supports the urgency of designing policies that not only promote economic growth but also integrate ecological protection objectives as a central part of social well-being.

Conclusions

From an environmental perspective, the results observed in developed countries show that economic growth does not necessarily translate into sustained improvements in the natural environment. While rising per capita income may facilitate the adoption of clean technologies and more effective environmental policies, this relationship is ambivalent. Pollutant emissions continue to be a significant externality of industrial development, indicating that economic progress tends to generate pressures on key resources such as air, water and soils. In addition, the fact that environmental conservation actions are mainly activated after visible signs of degradation suggests reactive, rather than strategic, management. Therefore, environmental quality does not automatically improve with economic development but depends critically on political will and the implementation of robust regulatory frameworks. This scenario raises the need to move towards economic models that structurally integrate environmental sustainability. Only through preventive planning, with policies that incentivize eco-efficiency from the early stages of growth, will it be possible to balance productivity and sustainability.

For developing countries, the findings reinforce an important paradox: As per capita income increases, so do the negative impacts on the environment, especially in terms of emissions and pollution. This phenomenon suggests that the current growth model still privileges economic expansion at the expense of natural capital. The weak integration of conservation policies in contexts of economic progress generates a worrying disconnect between development and sustainability. In addition, the low prioritization of vital ecosystems such as the oceans and the absence of cross-sectoral environmental planning reinforce this problem. The interdependence between resources such as freshwater, forests and the sea require comprehensive and systemic management approaches, which go beyond the usual fragmented treatment. If a reactive logic in the face of environmental degradation is maintained, developing countries will face increasing constraints to achieving lasting well-being. Therefore, it is essential to rethink the concept of development, promoting public policies that articulate economic growth and sustainability as inseparable axes of human progress.

Data Availability

The dataset generated from (or analyzed in) the study can be found at https://index.prosperity.com/rankings

Conflicts of Interest

The author(s) declare(s) that there is no conflict of interest.

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