

Putting a Price on Nature: Does the Increased Protection of Natural Capital Positively Influence GDP?

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Introduction

As climate change continues to worsen throughout the world, effects are seen through increasingly unpredictable weather patterns, rising sea levels, and stress to all ecosystems. When faced with these challenges, the preservation of our rapidly declining environment is imperative. Different countries place differing values on emphasizing the protection of natural resources; this study will analyze how national GDP relates to the natural capital protection policies set forth in each country.

Literature Review

- Researchers of environmental economics state that the protection of natural capital is imperative for two reasons:
 - Providing goods such as food, water and energy.
 - Providing services that humans rely on every day, such as climate regulation (Acosta et al, 2020).
- Establishing protected areas has become a fundamental strategy to bolster biodiversity conservation and protect ecosystems that offer a variety of important services to human existence; food security, disaster risk reduction, and clean water (Acosta et al).
- Another set of indicators incorporated into the study is the annual growth of CO2 emissions; this measure looks at the removal of carbon dioxide from the atmosphere in attempts to address climate change.

Variables and Empirical Framework

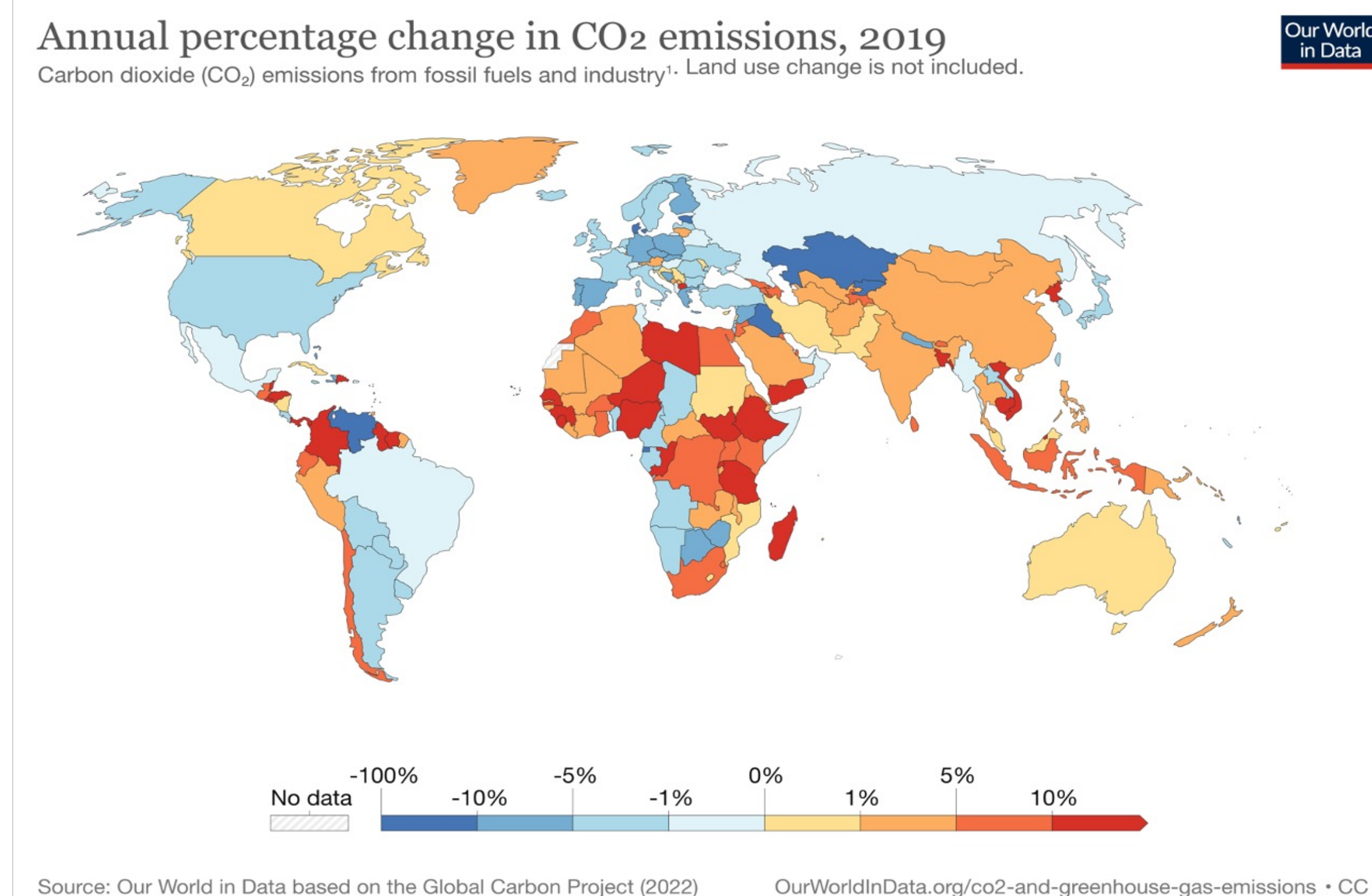


Variable	Definition
GDP	Monetary value of goods and services produced
Protected Areas	Terrestrial / marine protected areas (as a % of total territorial area)
CO2 Change	Yearly growth rate of CO2
Consumption	Household final consumption expenditure (% of GDP)
Government Spending	Government expenditure (% of GDP)
Investments (Net Inflows)	Investment, net inflows (% of GDP)
Investments (Net Outflows)	Investment, net outflows (% of GDP)
Net Exports	Exports of goods and services (% of GDP)
Population	Total country population

Source: World Development Indicator, 2019



- Hypothesis: An increased protection of natural capital will increase the GDP of a country.
- Countries that uphold the strictest regulations on preserving the environment are more sustainable, as the degradation of the natural resources, which much of the economy is dependent on, will be at a slower rate.
- Natural capital is a significant input of production; when natural resources are utilized conservatively, economic development will increase over time.
- Variables used to reflect natural capital protection:
 - Terrestrial and Marine Protected Areas show how much of a country's natural resources are being protected through governmental regulations.
 - The Annual Change in CO2 Emissions considers if countries are prioritizing the removal of carbon dioxide from the atmosphere.
- Variables that naturally influence GDP are included as control measures.



This graph shows the percentage change in CO2 emissions in 2019 by country, showing where in the world CO2 emissions rates are rising, and where they are falling.

The regression estimation used:

$$\text{Country}(GDP) = B_0 + B_1\text{ProtectedAreas}_i + B_2\text{CO2Change}_i + B_3\text{Consumption}_i + B_4\text{GovernmentSpending}_i + B_5\text{InvestmentInflows}_i + B_6\text{InvestmentOutflows}_i + B_7\text{NetExports}_i + B_8\text{Population}_i + E_i$$

Regression Results

VARIABLES	GDP
Protected Areas	2,912*
CO2 Change	(1,690) -1,774*
Consumption	(1,067) -1,232*
Government Spending	(657.2) 551.2
Investment Inflows	(780.2) 325.6
Investment Outflows	(1,187) -160.3
Net Exports	(1,109) -917.5
Population	(669.5) 723.8**
Constant	(306.5) 91,490
Observations	154
R-squared	0.362

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Results and Conclusion

- An increase in protected areas is associated with a \$2912 increase in national GDP.
- An increase in CO2 emissions is associated with a \$1774 decrease in national GDP.
- This shows that countries with more emphasis on conserving the environment, are generating more GDP.
- Therefore, results support the hypothesis.
- Protected Areas and CO2 Change are both significant at the 10% level.
- A policy suggestion going forward is to increase education investment for companies to realize the financial benefits of protecting natural capital.



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