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The Role of Economic Stability in Climate Adaptation Readiness and Vulnerability

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ABSTRACT

This study examines the correlation between economic stability indicators, climate adaptation readiness, and vulnerability to climate change. By analyzing an extensive dataset of 192 countries and employing regression analysis, we determine which macroeconomic factors play a significant role in the readiness and vulnerability of countries to climate risk. Our findings generally show that stable economies are better prepared for climate change, while less stable ones are more vulnerable. We also highlight the role of AI readiness in enhancing adaptation efforts. Our findings help policymakers and economists understand climate risk determinants and better allocate resources towards climate change adaptation.

Keywords: Climate change, economic stability, vulnerability, readiness, sustainability, AI readiness

Introduction

Climate change refers to long term shifts in temperatures and weather patterns caused by global warming[1]. The ramifications of these processes are not only present for the ecological stability and sustainability of ecosystems worldwide but also have long lasting damage inducing impacts on economies worldwide. Researchers from all over the world have thoroughly investigated climate change (Pecl et al., 2017; Wheeler and Braun, 2013; Stern, 2007). Several papers highlight the significant impact of climate change on global economies and their stability (Carleton and Hsiang, 2016). According to Bilal and Känzig (2024), a 1°C rise in temperature results in a 12% decline in global GDP. Due to the urgency and seriousness of this global climate change issue, we planned an extensive study to investigate ways to reduce climate risk by identifying potential negative impacts on economies, societies, and ecosystems.

[1] United Nations Webpage

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Recognizing the urgent and serious nature of the climate change problem, we conducted a comprehensive study to identify the determinants of climate risk and develop strategies for reducing it. Understanding the link between economic stability, climate adaptation, and vulnerability is crucial because climate change can cause economic damage, financial uncertainty, infrastructure problems, delays in the supply chain, and higher costs for businesses.

It is becoming more important to ensure that countries are prepared to adapt to climate change. Therefore, examining these relationships is essential for developing effective strategies and policies that enhance economic resilience and ensure long-term economic stability and sustainability.

Thus, the present paper examines the relationship between climate adaptation readiness, vulnerability, and various macroeconomic variables as a proxy of economic stability. Using the extensive data for 192 countries, our empirical findings emphasize that many macroeconomic factors such as GDP per capita growth, inflation, unemployment, stocks, trade, population density, GDP growth, rule of law, control of corruption, exchange rate, FDI, political stability, and AI-readiness have a statistically significant effect on the readiness and vulnerability levels of countries.

As a result, we have developed a comprehensive set of guidelines for policymakers to ensure climate adaptation readiness. We believe these guidelines will help policymakers tackle climate change and reduce the risk of potential crises.

This paper makes several significant contributions to the existing literature. First, it expands upon previous research by integrating a comprehensive set of macroeconomic variables. This provides a deeper understanding of how economic stability influences adaptation to climate change.

Second, the study introduces the concept of AI readiness to climate adaptation assessment. By highlighting the role of AI technology, this paper offers insights into how technological readiness can influence climate resilience. The paper also distinguishes itself by analyzing an extensive dataset covering 192 countries. This large-scale approach extends beyond regional or single-country studies, providing more comprehensive evidence. Furthermore, the empirical findings of this study support and extend existing research, such as Bilal and Känzig (2024) and Carleton and Hsiang (2016).

This paper proceeds as follows: Section 2 provides background information on the existing literature; Section 3 highlights the empirical findings; and Section 4 concludes the paper.

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Literature Review

Comprehensive research has been conducted on the effect of climate change on economic growth and adaptation strategies, providing valuable insights into the impact on various regions and sectors. Adom and Amoani (2021) show that adaptation capacity is a crucial component in reducing the negative effect of climate change on Africa's economic growth. The results show that having a higher adaptation capacity can protect against rising temperatures, while having a lower adaptation capacity can cause major economic problems. These findings are consistent with the Ferreira et al. (2020) study, which argues that integrating environmental technologies into national policies may improve climate change adaptation. In contrast, Ahmed et al. (2024) specifically examine the United Kingdom and demonstrate that climate risk has a direct impact on stock market performance. They highlight the idea that shocks related to climate can also affect the corresponding markets, which aligns with the findings of Bertinelli et al. (2012). Additionally, they look into the connection between pollution and economic growth, stressing how important it is for sustainable development to adapt to new technologies. Eisenstadt et al. (2021) also stress the importance of distribution funding around the world. Their results show that funding for adaptation has a statistically positive effect on how vulnerable people are to climate change. The Serdeczny et al. (2024) paper enhances these findings by highlighting the need for a realistic assessment of adaptive capacity in sectoral climate risk evaluation. They stressed the importance of considering an accurate risk assessment. Micale et al. (2018) highlight adaptation financing shortfalls and recommend policy reforms and private sector engagement. Their findings support Tol's (2009) global perspective on climate change's economic implications. Bilal and Känzig (2024) calculate the economic impact of climate change on a global scale. They find that a 1°C increase in temperature leads to a 12% reduction in the world's gross domestic product (GDP). The World Economic Forum (2014) also supports this empirical evidence. Furthermore, Carter et. al. (2017) and Carter et al. (2018) offer valuable perspectives on the effects of climate change on agriculture. They determine that climate change represents a substantial threat to agricultural productivity. Dellink et al. (2017) have also supported these findings. Both Heal (2009) and Dietz et al. (2010) recommend strong climate action to protect natural capital. Heal (2009) emphasizes the need for accounting for natural capital in climate policy, while Dietz et al. (2010) recommend immediate action to avoid severe economic costs. Similarly, Farmer et al. (2015) examine the impact of climate policy on technological innovation and economic growth, emphasizing the significance of taking proactive actions.

Guest (2010) and Balint et al. (2017) examine the impact of technological progress and the effectiveness of policies on economic growth. They demonstrate how technological policy and innovation may support climate adaptation. In addition, Auffhammer et al. (2013) and Eboli et al. (2010) provide additional evidence of the economic effects of climate change on agriculture and

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income distribution, emphasizing the importance of implementing specific adaptation techniques.

The literature shows how climate change affects economic growth and adaptation in several ways. It stresses the relevance of adaptability capacity, technological innovation, and effective policies in economic damage mitigation and sustainable development. The results emphasize how important it is to find comprehensive answers to all of climate change's problems.

Empirical Findings

Data

The appendix presents various macroeconomics, climate adaptation readiness, and vulnerability variables sourced from World Bank World Development Indicators, ND-gain[2], and Oxford Insights[3] datasets.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std, dev,	Min	Max
Readiness	192	0,429	0,143	0,138	0,805
Vulnerability	185	0,431	0,093	0,244	0,678
Ndgain	185	49,614	10,811	26,951	75,023
Inflation	165	8,696	31,403	-0,773	359,093
Unemployment	112	7,521	5,516	0,140	35,707
Rule of Law	192	-0,068	0,987	-2,300	2,013
Control of corruption	192	-0,057	0,999	-1,798	2,334
Political Stability	192	-0,068	0,975	-2,727	1,595
Foreign direct investment	157	5,980	11,059	-26,454	90,317
GDP per capita growth	186	0,005	0,012	-0,023	0,150
Population density	192	0,294	1,389	0,002	17,604
Stocks traded	71	0,030	0,056	0,000	0,308
Trade	165	0,089	0,058	0,004	0,393
Official exchange rate	183	0,843	3,868	0,000	42,000
GDPgrowth	187	0,006	0,012	-0,021	0,153
AI Readiness	159	47,264	16,610	17,929	88,160

[2] https://gain.nd.edu/our-work/country-index/

[3] https://oxfordinsights.com/ai-readiness/ai-readiness-index/

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Table 1 shows descriptive statistics for different economic stability variables as well as climate adaptation readiness and vulnerability.

Climate adaptation readiness has 192 observations with a mean of.4293448 and a standard deviation of.1426045, ranging from a minimum of.1375591 to a maximum of.8053609.

Vulnerability has 185 observations with a mean of.4314258 and a standard deviation of.0925815, ranging from a minimum of.2441857 to a maximum of.6781529.

Inflation is consumer price change, as the annual percentage has 165 observations with a mean of 8.695623 and a standard deviation of 31.40255, ranging from a minimum of -.7728444 to a maximum of 359.093.

Unemployment as a percentage of the total labor force has 112 observations with a mean of 7.520884 and a standard deviation of 5.515558, ranging from a minimum of.14 to a maximum of 35.707.

Rule of Law has 192 observations with a mean of -.068237 and a standard deviation of.9871237, ranging from a minimum of -2.299958 to a maximum of 2.013482.

Control of corruption has 192 observations with a mean of -.0574426 and a standard deviation of.9986051, ranging from a minimum of -1.7984 to a maximum of 2.333753.

Political stability has 192 observations with a mean of -.0684294 and a standard deviation of.9749604, ranging from a minimum of -2.727176 to a maximum of 1.595492.

Foreign direct investment is the sum of net inflows and outflows as a percentage of GDP. There have been 157 observations with a mean of 5.980131 and a standard deviation of 11.05918, ranging from a minimum of -26.45383 to a maximum of 90.3168.

GDP per capita growth as an annual percentage change has 186 observations with a mean of.0051562 and a standard deviation of.0122487, ranging from a minimum of-.0229669 to a maximum of.1504315.

Population density as a number of people per square kilometer has 192 observations with a mean of.2944916 and a standard deviation of 1.38946, ranging from a minimum of.0021494 to a maximum of 17.60365.

Stocks traded as a percentage of GDP have 71 observations with a mean of 49.6138 and a standard deviation of.0560803, ranging from a minimum of 0.00000267 to a maximum of.3079584.

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Trade as a proxy of economic stability has 165 observations with a mean of.0890344 and a standard deviation of.0577107, ranging from a minimum of.0041275 to a maximum of.3931412.

The official exchange rate per US dollar as a period average has 183 observations with a mean of.8430742 and a standard deviation of 3.868375, ranging from a minimum of.0003016 to a maximum of 42.

GDP growth as an annual percentage change has 187 observations with a mean of.0061292 and a standard deviation of.0122096, ranging from a minimum of -.0207388 to a maximum of.1534926.

AI readiness, as an index of efficient adaptation of AI for the public good, has 159 observations with a mean of 47.26387 and a standard deviation of 16.60957, ranging from a minimum of 17.92941 to a maximum of 88.15961.

Figure 1a: Scatterplot for climate adaptation readiness vs. economics stability

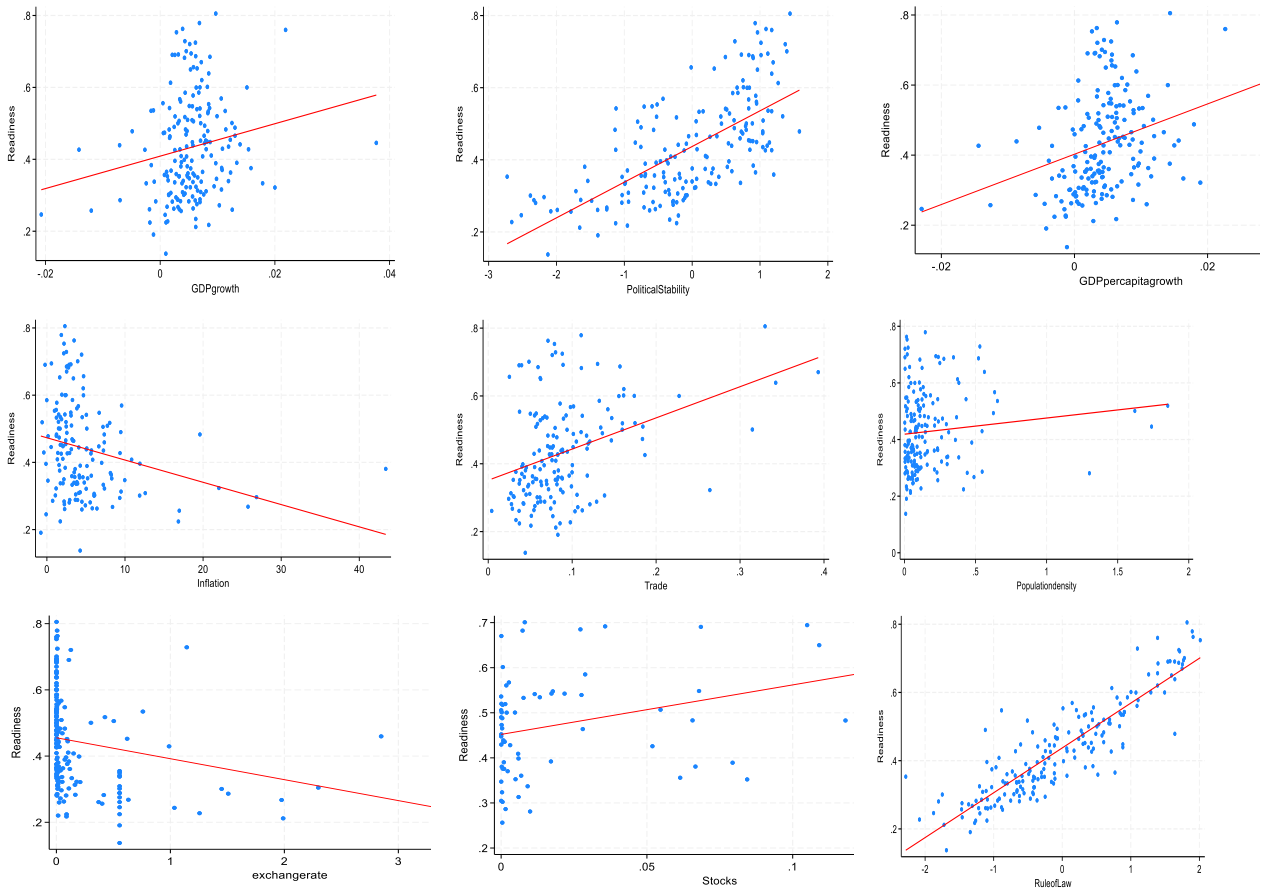

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Figure 1b: Scatterplot for climate adaptation readiness vs. economics stability

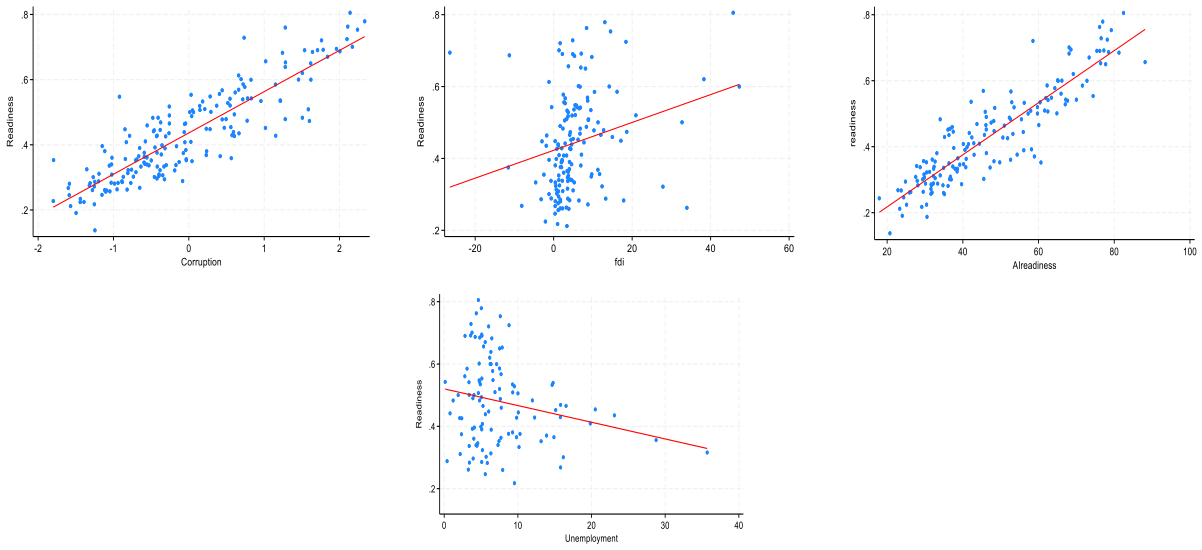

Figure 2a: Scatterplot for vulnerability in front of climate change vs. economics stability

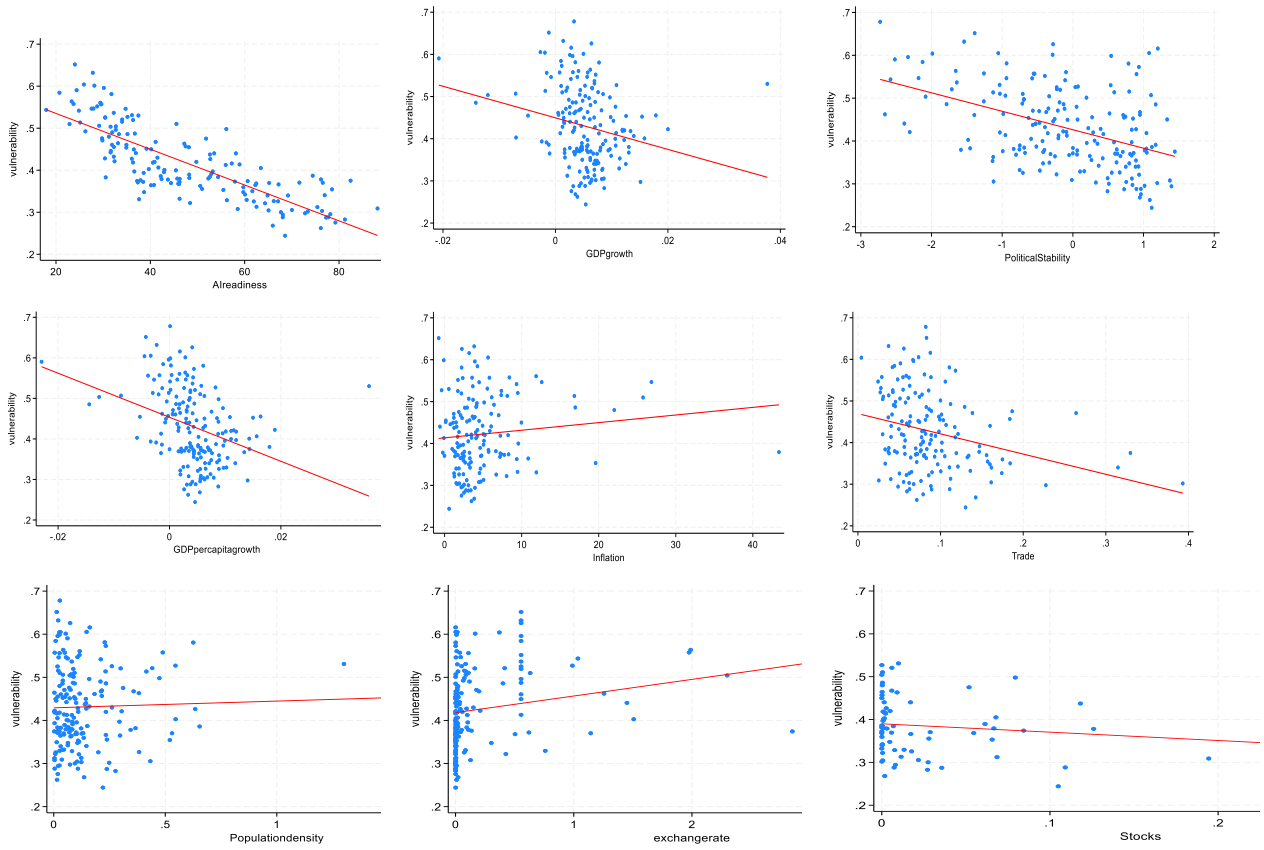

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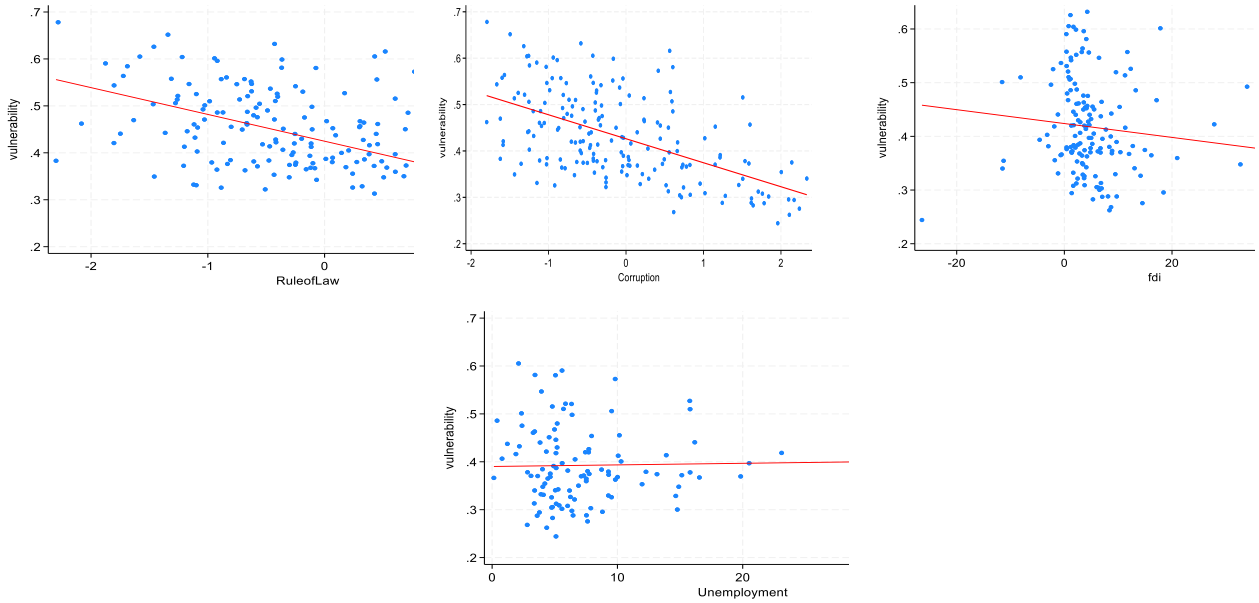
Figure 2b: Scatterplot for climate risk vs. economics stability



The scatterplots illustrate the relationships between economic stability indicators, countries' readiness for climate change adaptation, and their vulnerability to climate change, highlighting key correlations.

Readiness positively correlates with political stability, suggesting that higher levels of climate adaptation readiness contribute to higher political stability.

There is a positive relationship between readiness and Rule of Law where higher values of Rule of Law are associated with higher values of readiness.

The graph highlights a similar dependency of readiness on control of corruption, meaning that higher levels of control of corruption linked to larger climate adaptation readiness.

The correlation between readiness and trade is a bit lower, though it shows that increased volumes of trade are slightly causing higher readiness.

Comparable positive levels of correlation can be noted between climate adaptation readiness and GDP per capita growth; where GDP per capita growth is higher, readiness is also higher.

There is a positive relationship between readiness and FDI where higher values of FDI are associated with higher values of readiness.

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Nonetheless, there is a weaker positive correlation between readiness and GDP growth, which implies that GDP growth does not have a significant impact on readiness.

The correlation between stocks trading and readiness is positive but weaker. This means that higher stock trading percentages are associated with readiness.

There is a very little positive correlation (almost no correlation) between population density and readiness. Still, it can be noted that countries with higher population density liked to have slightly higher level of readiness to climate adaptation.

In states with higher inflation rates, climate adaptation readiness tends to be lower. This is due to a negative correlation between the two variables, meaning that as inflation rates increase, climate adaptation readiness decreases.

The correlation between exchange rate and readiness is also negative, indicating that countries with a weaker local currency, and likely a weaker economy, have significantly lower climate adaptation readiness than those with a lower exchange rate.

The scatterplot indicates that countries with higher unemployment rates exhibit lower levels of climate adaptation readiness, suggesting a negative correlation between unemployment and readiness to adapt to climate change.

There is a strong positive correlation between readiness and readiness to adopt AI technologies. This means that as countries become more prepared to use AI technologies at the government level, their climate adaptation readiness also increases.

Vulnerability negatively correlates with GDP growth, suggesting that countries that grow at a higher speed are less vulnerable in the face of climate change.

Vulnerability negatively correlates with political stability, suggesting that in more stable countries, vulnerability levels are significantly lower.

There is a strong negative correlation between vulnerability and GDP growth per capita, which implies that in countries with lower figures of GDP per capita growth, vulnerability is higher.

There is almost no correlation between climate change vulnerability and inflation, suggesting that countries with higher inflation face a slightly greater threat from climate change.

Vulnerability levels strongly negatively correlate with trade volumes, meaning that in countries with higher trade levels, the vulnerability is lower.

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There is almost no correlation between population density and vulnerability, meaning that these are independent variables.

There is a weak positive correlation between vulnerability and exchange rate. This means that in countries with weaker local currencies, vulnerability tends to be slightly higher.

There is a weak negative correlation between vulnerability and stocks trading. This means that in countries with larger capital markets, vulnerability tends to be lower.

There is a strong negative correlation between vulnerability and rule of law. This suggests that in countries with a stronger rule of law, vulnerability is lower.

There is a negative correlation between vulnerability and control of corruption, suggesting that in states with better control over corruption, vulnerability level is lower.

There is a stronger negative correlation between vulnerability and AI implementation readiness, meaning that states that are more prepared for the introduction of AI are less vulnerable.

There is no significant correlation between unemployment and vulnerability, suggesting the independent nature of these variables.

Model

$$Y_i=\beta_0+\beta_1X_{1i}+\beta_1X_{2i}+\ldots+\beta_nX_{ni}+\epsilon_i$$

Where Y_i is the dependent variable for observation i, which refers to readiness and vulnerability. β_0 is the constant term, representing the expected value of the dependent variable when all independent variables are zero. β_1 to β_n are the coefficients for the independent variables, which include GDP per capita growth, inflation, unemployment, stocks, trade, population density, GDP growth, rule of law, corruption, exchange rate, foreign direct investment (FDI), political stability, and AI readiness. While keeping all other variables constant, each coefficient shows how much the dependent variable changes when the corresponding independent variable changes by one unit. ϵ_i is the error term, which represents the difference between the actual value and the predicted value from the model.

Findings

The paper uses regression analysis. Regression analysis helps to produce some valuable insights that can be utilized by decision making authorities when measures to improve climate adaptation readiness are being introduced. The regression analysis stresses the impact of various macroeconomic variables on climate adaptation readiness and vulnerability. The paper uses a t-

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value for defining the significance level of all estimated parameters. We indicate the statistical significance of the results at the 1% level (***), the 5% level (**), and the 10% level (*). The sign in front of the β (beta) coefficient suggests whether an explanatory variable has a statistically positive or negative impact on the dependent variable. "-" represents negative impact, while "+" represents positive impact on dependent variable such as readiness and vulnerability.

Table 2. Regression analysis table for climate adaptation readiness and various macroeconomic variables

VARIABLES	(1) readiness	(2) readiness	(3) readiness	(4) readiness	(5) readiness
GDPpercapitagrowth	-0.0727				
	(3.8007)				
Inflation	-0.0048***				
	(0.0016)				
Unemployment	-0.0045**				
	(0.0019)				
Stocks	0.8367***			0.8250***	
	(0.1930)			(0.1182)	
Trade	0.5498***				
	(0.1886)				
Populationdensity	-0.0761*				
	(0.0415)				
GDPgrowth		0.8121***			
		(0.2610)			
RuleofLaw		0.0892***	0.0786***		
		(0.0155)	(0.0143)		
Corruption		0.0496***	0.0533***		0.0624***
		(0.0139)	(0.0132)		(0.0077)
exchangerate		0.0019***			
		(0.0005)			
fdi				0.0010**	
				(0.0004)	
PoliticalStability				0.0927***	0.0146***
				(0.0114)	(0.0056)
AIreadiness					0.0045***
					(0.0004)
Constant	0.4909***	0.4299***	0.4378***	0.4562***	0.2260***
	(0.0451)	(0.0050)	(0.0044)	(0.0113)	(0.0174)
Observations	57	180	192	69	159
R-squared	0.3827	0.8263	0.8167	0.6057	0.9127

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

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Table 2 presents the results of five different regression models, where the dependent variable is readiness to adapt to climate change. Each column corresponds to a distinct model with varying explanatory variables.

In Model 1, both stocks and trade are positively associated with readiness, with coefficients of 0.8367 and 0.5498, respectively. Conversely, inflation, unemployment, and population density are negatively associated with readiness. The findings suggest that higher levels of stocks and trade are linked to greater climate readiness in countries, while higher inflation, unemployment, and population density are associated with lower readiness.

In Model 2, all examined variables positively correlate and have high statistical significance for readiness. The model suggests that higher levels of GDP growth, rule of law, control of corruption, and exchange rate, if increased, would raise the levels of climate adaptation readiness.

In model 3, Rule of Law and Control of Corruption have high significance for the climate adaptation readiness. They positively correlate with climate adaptation readiness with coefficients of 0.0786 and 0.0533, respectively, suggesting that an increase in them would lead to an increase in readiness.

In model 4, stocks traded, net FDI, and political stability positively correlate with readiness with coefficients of 0.8250, 0.0010, and 0.0927, respectively. Improvements in these variables, which are highly statistically significant, would stimulate the rise of climate adaptation readiness levels.

In model 5, control of corruption, political stability, and readiness to implement AI technologies have high positive significance for climate adaptation readiness. The coefficients highlighting their significance are 0.0624, 0.0146, and 0.0045, respectively. The findings suggest that higher levels of the aforementioned variables correspond with greater values of readiness.

Table 3. Regression analysis table for climate adaptation readiness and various macroeconomic variable

VARIABLES	(1) vulnerability	(2) vulnerability	(3) vulnerability	(4) vulnerability	(5) vulnerability
GDP percapita growth	-1.997			-2.117	
	(2.186)			(1.859)	
Unemployment	0.001				
	(0.001)				
Stocks	-0.244**				
	(0.120)			(0.115)	
Trade	-0.454***		-0.283***	-0.432***	
	(0.160)		(0.097)	(0.131)	

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Population density	0.092**	0.013***	0.020***	0.069***	
	(0.039)	(0.004)	(0.005)	(0.019)	
GDP growth		-1.160***			-1.987**
		(0.427)			(0.783)
Rule of Law		-0.064***			
		(0.006)			
Exchange rate		-0.001			
		(0.001)			
fdi		0.000			0.001*
		(0.000)			(0.000)
Corruption			-0.049***		
			(0.006)		
AI readiness					-0.003***
					(0.000)
Political Stability					-0.022***
					(0.006)
Constant	0.414***	0.421***	0.445***	0.426***	0.582***
	(0.026)	(0.007)	(0.011)	(0.017)	(0.017)
Observations	58	151	163	68	140
R-squared	0.202	0.427	0.332	0.234	0.673

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Similar to Table 2, we indicate statistical significance at the 1% level (***), the 5% level (**), and the 10% level (*) if the results are significant. Population density in model 1 is positively associated with vulnerability to climate change. Conversely, stocks traded and trade negatively correlate with vulnerability with coefficients of -0.244 and -0.454, respectively. The model suggests that while an increase in population density will raise vulnerability, an increase in either stocks traded or trade will lead to a fall in vulnerability.

Population density, GDP growth, and Rule of Law are highly statistically significant for vulnerability variables in model 2. However, unlike GDP growth and Rule of Law, population density positively correlates with vulnerability. Increasing values of the Rule of Law while decreasing population density could be helpful to decrease countries' levels of vulnerability.

In model 3, trade and control of corruption are negatively associated with levels of countries' vulnerability, suggesting that an increase in any of these variables is likely to cause a decrease in vulnerability. Population density, as in previous models, positively correlates with vulnerability.

In Model 4, both trade and population density significantly affect vulnerability. Trade has a coefficient of -0.432, indicating a negative correlation with vulnerability. This means that as trade increases, vulnerability decreases. Population density, with a coefficient of 0.069, shows a positive correlation with vulnerability, meaning that as population density increases, vulnerability also increases.

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In model 5, GDP growth, AI readiness, and political stability are negatively associated with vulnerability, with coefficients of -1.987, -0.003, and -0.022, respectively. However, a positive correlation exists between net FDI and vulnerability, implying that an increase in FDI would result from a rise in vulnerability.

We advise prioritizing investments to reduce inflation, boost trade, increase stock market activity, enhance GDP growth, improve the Rule of Law and control of corruption, stabilize exchange rates, ensure political stability, and enhance readiness for AI technology adoption. Secondly, we also recommend reducing unemployment rates and population density. Table 2's conclusions align with those in Table 3.

Conclusion

In conclusion, the study makes important progress in our understanding of how to adapt to climate change. We demonstrate that several macroeconomic variables have a statistically significant effect on countries readiness and vulnerability to climate change. By examining a comprehensive dataset of 192 countries, the present paper demonstrates how macroeconomic factors and technological preparedness influence climate adaptation readiness and vulnerability. The findings offer practical insights for policymakers, emphasizing the importance of economic stability and technological innovation in enhancing climate resilience. This study not only fills gaps in the literature but also provides practical guidelines to support effective climate policy development.

Our study emphasizes the very high dependence of political stability, GDP per capita growth, control of corruption, and readiness to implement AI technologies on countries' readiness to adapt to climate change. We also highlight the high correlation between preparedness to implement AI technologies, GDP per capita growth, trade, rule of law, and control of corruption.

By carefully examining multiple macroeconomic variables, we identify ways to allocate finance more efficiently, fostering preparedness for climate change and thereby reducing countries' vulnerability to it. We emphasize the state's need to carefully track and manage inflation in order to ensure its decline. Appropriate monetary policy could help to control the "money market" via interest rates, leading to the smallest possible inflation. In light of the dangers posed by the changing climate, a country should also address unemployment to enhance its stability. The government should control the labor market to ensure minimum levels of unemployment and create additional work places as needed. An increase in the proportion of stocks traded as a proportion of GDP could also help to improve climate adaptation readiness. In essence, fostering the development of financial markets and increasing their size could be one way to reduce vulnerability to climate change. Our findinds also suggest expanding trade to significantly boost

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import and export volumes. We recommend reducing population density to enhance our readiness for climate change. Appropriate government policies as well as nudges could help to create the right incentives for the population and allow decision making authorities to manage birth rates. GDP growth, i.e., the rate of progression and expansion of the countries' economies, is linked to the readiness to take measures to meet the challenges proposed by climate change. We recommend strategically investing finances to promote economic growth. Implementing government policies to strengthen the rule of law can elevate countries' readiness for climate change adaptation. Enhancing control of corruption through governmental policies is crucial for reducing vulnerability to climate change. Increasing net foreign direct investment has a positive impact on countries' readiness for climate change adaptation. Creating a business-friendly environment or reducing taxes within a country can attract more foreign investments. A rise in government spending on security could help to bolster political stability and thus eliminate or lower the potential negative impact from climate change. Increased funding of AI research and development projects can enhance the readiness to implement these technologies, reducing vulnerability and enhancing climate change readiness, while also encouraging the emergence of private companies and non-governmental organizations. As previously mentioned, our analysis of the data showed that GDP per capita growth is statistically insignificant for any of the variables in both cases. We are certain that fdi is statistically significant, but we are uncertain about whether to increase or decrease it. The models suggest depreciating local currency to enhance readiness, given the statistical significance of the exchange rate.

Future research can enhance the robustness and applicability of the findings by using the panel data method. Additionally, incorporating qualitative data from case studies could further enhance the reliability of the evidence. It can also be useful to develop more specific guidelines to improve each of the macroeconomic variables.

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Appendix

Indicator Name	Definition	Source
GDP growth (annual %)*10^3	Annual percentage growth rate of GDP at market prices based on constant local currency.	World Bank: WDI
GDP per capita growth (annual %) *10^3	Annual percentage growth rate of GDP per capita based on constant local currency.	World Bank: WDI
Inflation, consumer prices (annual %)	Inflation as measured by the consumer price index.	World Bank: WDI
Official exchange rate (LCU per US$, period average) *$10^3$	Official exchange rate refers to the exchange rate determined by national authorities	World Bank: WDI
Unemployment, total (% of total labor force) (national estimate)	Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of labor force and unemployment differ by country.	World Bank: WDI
Stocks traded, total value (% of GDP) *10^3	The value of shares traded is the total number of shares traded, both domestic and foreign, multiplied by their respective matching prices.	World Bank: WDI
Foreign direct investment, net outflows (% of GDP)	Foreign direct investment refers to direct investment equity flows in an economy.	World Bank: WDI
Population density (people per sq. km of land area) *10^3	Population density is midyear population divided by land area in square kilometers.	World Bank: WDI
Trade (% of GDP) *10^3	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	World Bank: WDI
Rule of Law: Estimate	Rule of Law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.	World Bank: WDI

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Control of corruption	Control of corruption captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. This table lists the individual variables from each data source used to construct this measure in the Worldwide Governance Indicators.	World Bank: WDI
Political Stability and Absence of Violence/Terrorism: Estimate	Political Stability and Absence of Violence/Terrorism measures perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism. Estimate gives the country's score on the aggregate indicator, in units of a standard normal distribution, i.e. ranging from approximately -2.5 to 2.5.	World Bank: WDI
Vulnerability	Vulnerability measures a country's exposure, sensitivity and capacity to adapt to the negative effects of climate change.	ND-GAIN
AI readiness	AI readiness defines the degree to which a company is prepared to adopt, integrate, and build value from AI initiatives.	OXFORD INSIGHTS
Readiness	Readiness measures a country's ability to leverage investments and convert them to adaptation actions. ND-GAIN measures overall readiness by considering three components: economic readiness, governance readiness and social readiness	ND-GAIN

