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EMPIRICAL PAPER

A Systematic Review of Inclusive Economic Growth Through a Sustainable Model for Climate Action Among Member States of the United Nations

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Abstract

Purpose: Economic literacy, the ability to comprehend and apply economic concepts for informed decision-making, plays a pivotal role in enhancing a firm's dynamic capability to navigate a volatile business environment and acquire a competitive edge.

Purpose: Climate change poses a global challenge with wide-ranging economic, social, and environmental impacts. As nations confront its effects, they also aim to achieve inclusive and sustainable growth that benefits all. This study identifies sustainable models and strategies to balance climate change mitigation with equitable, resilient, and environmentally responsible economic development.

Method: To investigate the topic, the study uses a systematic literature review following the PRISMA guidelines, analysing articles published between 2010 and 2023. It also draws on secondary data from the IMF, UN, and World Bank to provide a comprehensive global perspective.

Result: The study advocates for enhanced international cooperation, technology transfer, the establishment of comprehensive climate metrics, the implementation of carbon taxation that is commensurate with the economic capacity of each country or region, and an emphasis on immediate climate action rather than solely relying on long-term projections.

Novelty and contribution: This study presents a novel integrative framework that unites climate change mitigation policies with inclusive economic development paradigms, domains that are often treated separately in the existing literature. Synthesising multi-institutional data and systematically reviewing over a decade of evidence, it provides actionable insights for bridging policy and practice.

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Practical and social implications: The study provides clear policy guidance for integrating climate goals with inclusive growth. Its proposed models promote sustainable, equitable, and socially responsive climate action, ensuring that environmental policies also strengthen economic resilience and enhance social welfare.

Keywords: Inclusive Economic Growth, Sustainable Climate Action, United Nations, Climate Change, SDG

1 Introduction

In response to Member States' increasing recognition of the importance of a development model that fosters equitable and sustainable economic growth, employment, and decent work for all, the UN introduced its Sustainable Development Agenda in 2015. The updated Goals acknowledge that combating climate change is essential to sustainable development and the eradication of poverty (United Nations [UN] , 2023).

The climatic changes resulting from human social output and activities have been recognised as one of the world's most pressing challenges. Global politics are shifting focus to shared governance of climate change as nations transition to a carbon-neutral future (Zhao & Liu, 2023). Since the 20th century, global attention on climate change has intensified, resulting in numerous accords aimed at reducing greenhouse gas emissions and protecting the environment, including the United Nations Framework Convention on Climate Change (UNFCCC 2022), the Kyoto Protocol, and the Paris Agreement. These international conventions have been instrumental in slowing down climate change. Ironically, the unique exogenous nature of climate change gives rise to free-rider, cost, and inefficiency problems (Stern, 2008). Several climate geopolitics and geo-economics issues exist between nations worldwide (Dalby, 2013).

Climate change constitutes a primary obstacle to social advancement and economic growth (Stern, 2022). Financial stability has already been affected by climate change; for example, the cost of debt in the V20 (Vulnerable 20) countries has increased by $40 billion over the past ten years (Buhr et al., 2018). Studies suggest that the main causes of reduced agricultural production and increased food risks may be climate change (FAO, 2019), increasing prevalence of disease (WHO, 2021), as well as wealth disparity (Hallegatte, 2016). The need to highlight the fundamental issues associated with climate change is becoming more apparent. If climate variables continue to change, it may have an impact on output levels (for instance, by altering agricultural yields) or an economy's capacity to grow over time through decreased investment and labour productivity across most economic sectors (Kahn et al., 2021). Over 2.9 trillion US dollars were lost directly due to natural disasters worldwide between 1998 and 2017, with disasters linked to climate change making up 77% of this total (United Nations Office for Disaster Risk Reduction, 2017).

Sustainable development encompasses the social, technological, ecological, and economic foundations (Palazzo et al., 2022; Apostu et al., 2022). Economic growth places significant strain on the environment resulting in pollution and environmental degradation ('O'Neil et al., 2018). There exists a prevailing notion that tackling climate change will incur substantial cost, and an excessive focus on the issue may jeopardise people's long-term wellbeing and prosperity. There is even an undercurrent reasoning suggesting that undermining growth can be as detrimental as neglecting the issue. This view is held by some members of the political right in industrialised countries, but it is also present in developing countries (Stern & Stiglitz, 2023). Sustainable climate action can address three key sustainable development challenges: emissions, waste, and energy usage. Sustainable development priotises social welfare and environmental sustainability over GDP growth. However, not every nation in the world meets its citizens' demands sustainably, including the sustainable use of resources (O'Neil et al., 2018).

1.1 Economic Analysis of Climate Change

The term "economic analysis of climate change" refers to a broad category of studies that examines financial costs associated with mitigating or preventing the effects of climate change. To understand the economic impacts of climate change, mitigation, and adaptation, a variety of economic methodologies are employed. For instance, in certain areas, actions taken to combat climate change may also contribute to the achievements of other SDGs, such as eliminating fossil fuel subsidies, which would reduce air pollution and save lives (Shindell et al., 2018). When indirect costs, such as those from air pollution are considered, global fossil fuel subsidies totalled $5.2 trillion in 2017,

while $319 billion was spent on direct subsidies (Watts et al., 2018). Other areas where the costs of climate change mitigation may divert funding from other environmentally and socially beneficial endeavours are referred to as the opportunity costs of climate change policy (Intergovernmental Panel on Climate Change, 2007).

According to a 2019 modelling study, global economic disparity has been exacerbated by climate change. Rich countries in colder climates have likely benefited from climate change overall, while poorer countries in hotter climates have most likely experienced slower growth than they would have in the absence of global warming (Diffenbaugh & Burke, 2019). The fact that high-income nations are largely to blame for the greenhouse gas emissions that harm low-income nations helps to explain this phenomenon (Tol, 2018).

1.2 The Paris Climate Accord

Several international initiatives and agreements have been made over the last 20 years with the goal of stabilising greenhouse gas (GHG) emissions in order to lessen the effects of climate change. The UNFCCC, which was first established in 1992 to limit the increase in average global temperatures, is an example of such an endeavour. The UNFCCC is one of three interrelated accords known as the Rio Accords, which were ratified at the 1992 Rio Earth Summit. The other two accords are the UN Convention on Biological Diversity and the Convention to Combat Desertification (UNFCCC, 2015). Since then, several important international frameworks have been created to combat climate change, such as the Copenhagen Accord (2009), the Kyoto Protocol (1997), and the Durban Platform for Enhanced Action.

The Paris Agreement is a legally binding accord that addresses climate change on a global scale. On 12 December 2015, at the United Nations Climate Change Conference (COP21) in Paris, France, 196 participating countries signed this historic agreement, which became operative on 4 November 2016. The main goal of the Paris Agreement is to limit the increase in the average global temperature to less than 2.0 degrees Celsius above preindustrial levels, with further efforts aimed at limiting to a 1.5-degree Celsius increase. (UN, 2015). Following this agreement, UN members have committed to their "intended nationally determined contributions" (INDCs), which specify their anticipated total greenhouse gas (GHG) emissions for 2025 and 2030. The agreement stipulates that these planned nationally determined contributions must be gradually updated every five years, follow rules that will be decided upon later, and take into account the results of frequent global stocktakes (every five years, assessments of the Agreement's implementation and progress towards reaching its long-term goals will be conducted) (Kuh, 2018). Implementing these INDCs will reduce global emissions compared to the emissions trajectory prior to these commitments (United Nations, 2016). The agreement also aims to strengthen countries' ability to deal with the consequences of climate change (UNFCCC, 2018). It is widely regarded as a crucial blueprint for humanity's response to lowering emissions and bolstering resilience in the face of climate change.

On the inaugural day when the Paris Agreement became available for signature, a remarkable 174 parties affixed their signatures. By the conclusion of the Paris talks, 186 out of the 195 UNFCCC member nations, including the United States, submitted their intended nationally determined contributions (INDCs). This collective effort represented a substantial 96% of global emissions. Once at least 55 nations, accounting for at least 55% of global greenhouse gas emissions, ratify, accept, or accede to the accord, the Paris accord will go into effect. With regular progress reports and incentives for increasing pledges and ambition over time, the Paris Agreement is anticipated to create an open reporting and review system. However, it is important to note that achieving emission reductions as outlined in the Paris Agreement hinges on voluntary national actions. Nations have the autonomy to determine their contributions, which are not legally binding. Furthermore, if a nation breaches the agreement, there is no mechanism for enforcement (Kuh, 2018).

1.3 Rationale

Annually, natural disasters have a major negative impact on both the environment and human health. The estimated total direct damages from these kinds of disasters over the past ten years have been around US$1.3 trillion, or around 0.2 percent of global GDP annually. Direct damage from climate disasters was $1.3 trillion over the last decade (Suntheim & Vandenbussche, 2020).

The World Economic Forum (2021) warns that uncontrolled greenhouse gas emissions could result in an 18% global economic loss by 2050. The key to reducing the effects of climate change is achieving net-zero emissions, reducing substantial financial risks, and advancing Sustainable Development Goals. Immediate investments in climate action are crucial for equitable economic growth, long-term prosperity, and societal well-being (United Nations, 2023). This emphasises how urgent it is to take immediate action in the fields of energy, finance, and the environment in order to fight climate change and promote sustainable development, forming this research's basis and seeking to answer the following questions.

i. What are the economic impacts of climate change among UN member states?
ii. What are the practical strategies and policies directed at promoting inclusive economic growth through sustainable climate action among member states?
iii. How can the impacts of climate change be mitigated and adapted to promote inclusive economic growth?

2 Methodology

The evaluation adhered to the PRISMA protocol for Preferred Reporting Items for Systematic Reviews and Meta-Analyses. As highlighted by Sierra et al. (2015), PRISMA provides three distinct advantages. First, it facilitates the formulation of precise research inquiries, enabling systematic investigation. Second, it assists in the identification of inclusion and exclusion criteria. Third, it seeks to examine a large body of scientific material in a predetermined amount of time. We conducted a comprehensive search for studies using terms related to promoting inclusive economic growth through sustainable climate action, and systematically coded data on strategies and policies aimed at reducing the economic impacts of climate change, in accordance with the PRISMA guidelines.

2.1 Databases

Journal databases such as Taylor and Francis, Scopus, and Google Scholar were used in the review. Additional information was also obtained from institutions, including the World Bank, the United Nations (UN), the International Monetary Fund (IMF), and Climate Action Tracker.

2.2 Search Process

The search process comprised four distinct stages. In the initial phase, we ascertained relevant keywords for our search, drawing upon insights from prior research to identify terms associated with climate and inclusive economic growth. During this phase, a meticulous review led to the elimination of seven duplicate articles. The subsequent stage involved a screening process, during which 75 of the 177 articles initially considered for review were excluded. The third stage, referred to as the eligibility assessment, involved accessing and reviewing the full-text articles. After a comprehensive examination, we excluded 67 articles for reasons such as lack of alignment with the focus on climate action and inclusive economic growth, absence of peer review, and a disregard for adaption techniques.

The final stage of our review yielded 35 articles that formed the basis for our qualitative analysis.

Table 1 Search string.

Main Search	"Climate action" AND "Economic growth"
Subsequent search 1	"Climate change" OR "Global warming" OR "Greenhouse gas emission" OR "Global climate policy" OR "Climatic strategy" OR "Climate mitigation" AND "Economic growth" OR "Economy" OR "Economic change"
Subsequent search 2	"Blue economy" OR "Carbon tax" OR "Environmental Tax" OR "Green tax" OR "Green economy" OR "Carbon pricing" OR Emission trading scheme" OR "Renewable energy" AND "Economy" OR "Economic change"

2.3 Eligibility and Exclusion Criteria

A number of exclusion and eligibility requirements have been set. First off, only peer-reviewed journal articles were included in the literature types category; conference proceedings, book series, novels, and book chapters were all left out. Second, non-English publications were not included to ensure clarity and facilitate translation, and the focus was solely on English-language articles. Third, about the time frame, a span of 14 years was chosen (from 2010 to 2023), giving enough time to track the development of research and related publications. Last, only articles addressing the intersection of climate initiatives and economic growth were considered to align with its primary objective, centred on sustainable climate action.

Table 2 Inclusion and Exclusion Criteria.

Criterion	Eligibility	Exclusion
Literature type	peer-reviewed literature	Book series, book, chapter in book, conference proceeding
Language	English	Non-English
Timeline	Between 2010-2023	Before 2010

2.4 Extraction and Analysis of Data

The search process involved assessing and analysing the remaining 35 articles, concentrating on particular research that answered the formulated research questions. In order to locate pertinent topics and findings for this study, data extraction started by first going over the abstracts and then exploring the complete papers. Additionally, data about climate and the economy were gathered from various sources, such as the UN, IMF, Climate Action Tracker, and the World Bank. In light of the ongoing climatic issues, this data was evaluated to offer a thorough knowledge of the necessity and encouragement of inclusive economic growth.

A narrative synthesis approach was employed to compile the results concerning the components of sustainable climate action and their relationship with inclusive economic growth. Critical information extracted from each study included the year of publication, research methodology, authors' affiliations, the study's location, different economic metrics, and the models employed to calculate how climate change would affect economic growth.

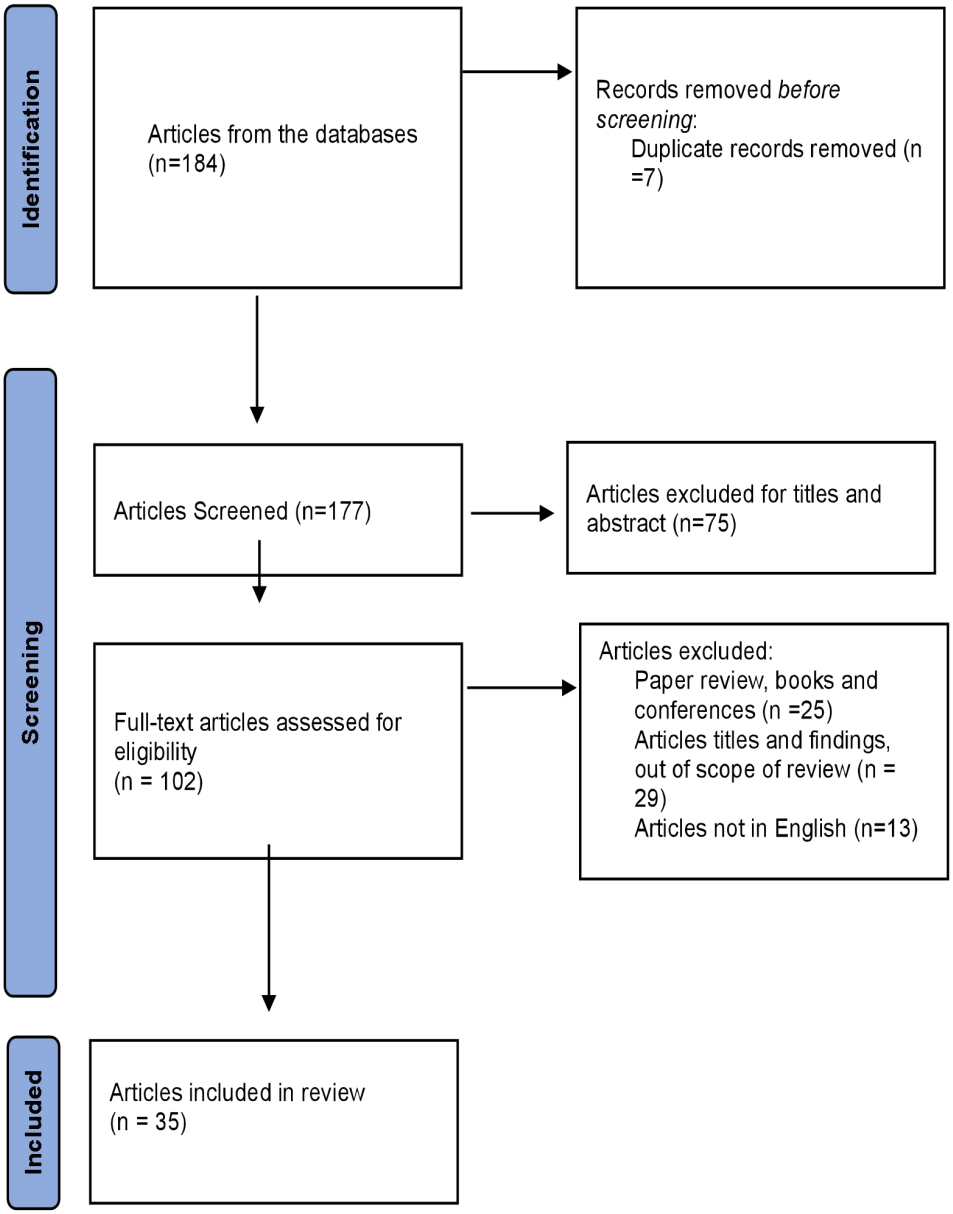

Figure 1 PRISMA flow diagram

3 Results

The findings presented in this study are derived from a comprehensive review, encompassing 35 articles published from 2010 to 2023 and incorporating data gathered from databases such as the UN, IMF, and World Bank.

3.1 Study Features

Figure 2 shows the annual distribution of review articles from 2010 through 2023. In 2021, there was a peak in publications, with ten papers. This was closely followed by 2018 and 2022, which had five articles each. In 2015, 2020, and 2023, there were three articles in each of those years. In 2019, there were two articles, while in 2010, 2014, 2016, and 2017, only one article was published in each of those years.

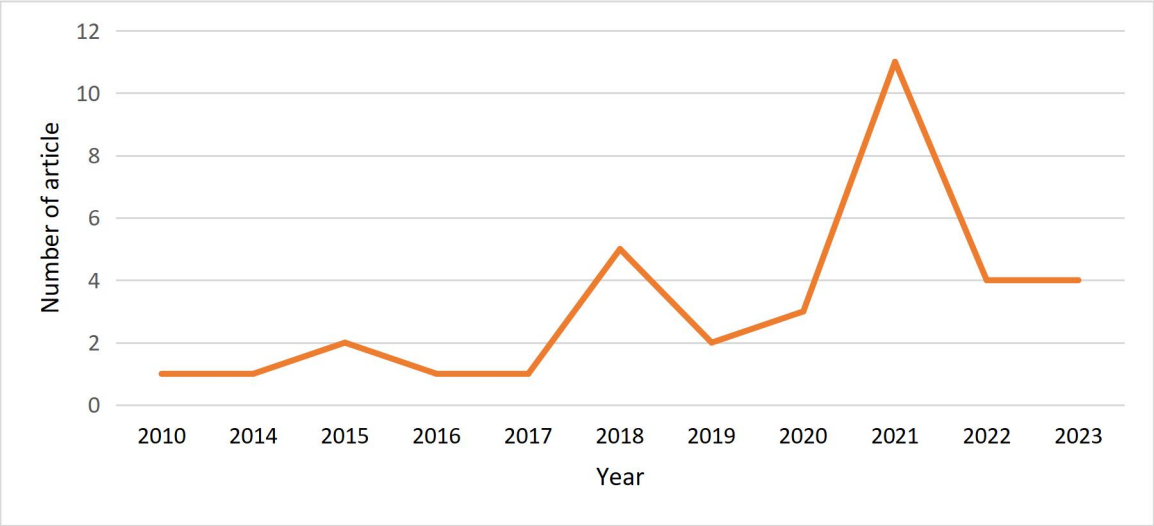

Figure 2 Yearly publication of reviewed articles from 2010 to 2023.

Both qualitative and quantitative research methodologies were used in the evaluated publications. In particular, 80% of the publications used quantitative tools to examine the relationship between economic growth and attempts to mitigate climate change, while the remaining 20% used qualitative approaches.

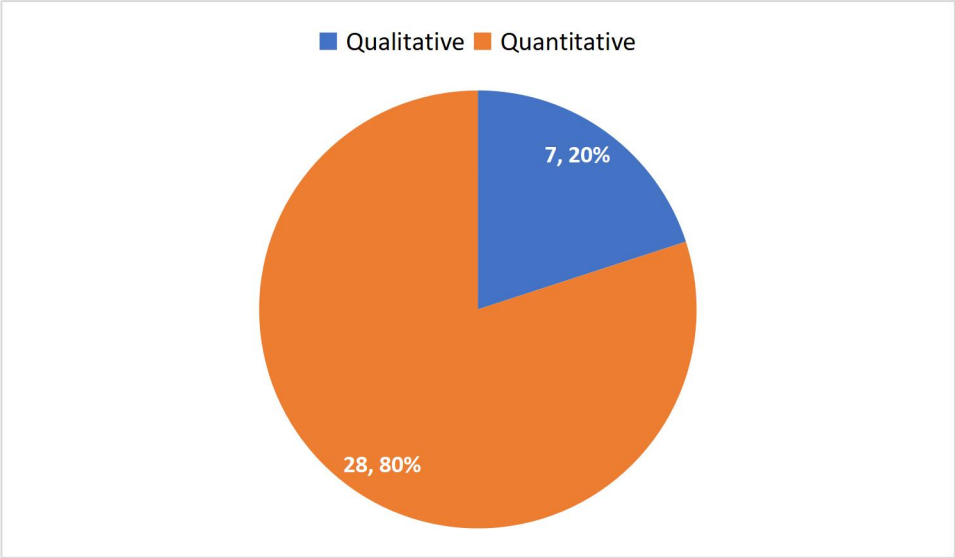

Figure 3 Distribution by Research Methodology.

A total of 116 authors from around the globe contributed to the reviewed articles. These authors hail from different institutions in their respective countries. The United States has the greatest proportion of authors connected to institutions, highlighting their significant contributions to climate action and economic growth. The United Kingdom followed with 13 authors affiliated with its national institutions, while Pakistan had 11 authors. China and Romania had nine authors, and South Africa and Canada each had eight authors. Australia had five authors, France and Kenya had four each, and Spain and India had three authors. Italy, the Netherlands, Mexico, and Saudi Arabia each had two authors, while Greece, Taiwan, Germany, Zimbabwe, the United Arab Emirates, Turkey, Cote d'Ivoire, and Malaysia each had one author. Figure 4 shows the region and countries of research. 13 articles do not specify a region or country of study. Hence, they were classified as global.

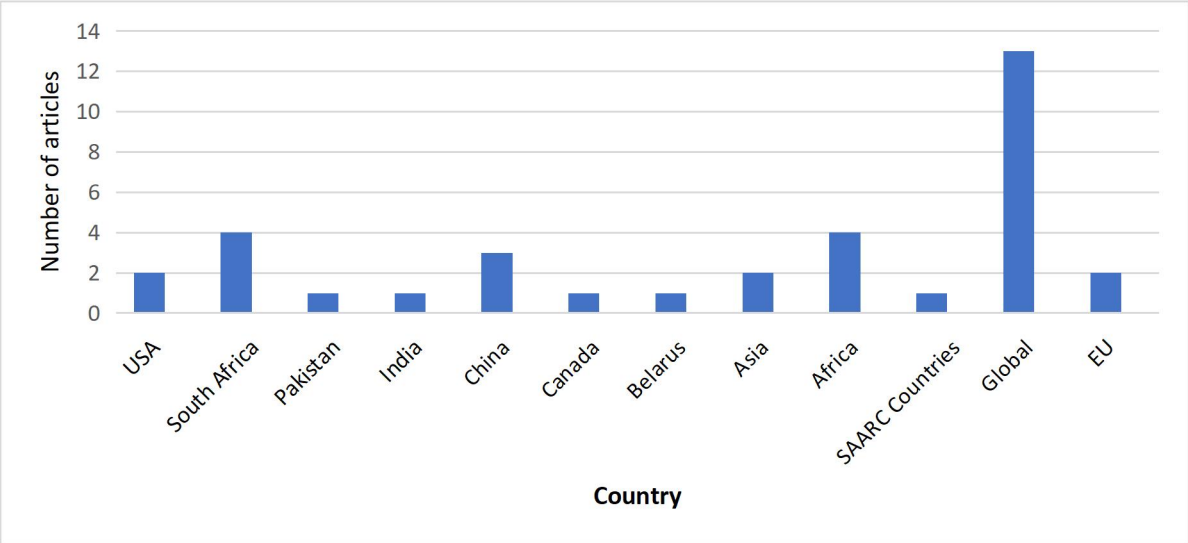

Figure 4 Distribution of Articles by Country/Region of Study.

NOTE USA: United States of America; SAAR: South Asian Association for Regional Cooperation; EU: European Union

Of the articles under review, 23 employed an economic simulation model to investigate the interplay between economic factors and climate-related elements. The prevalent choice among these models was the Computable General Equilibrium (CGE) model, which was utilised in 13 of the reviewed articles. Figure 5 graphically shows the distribution of publications according to the models they used.

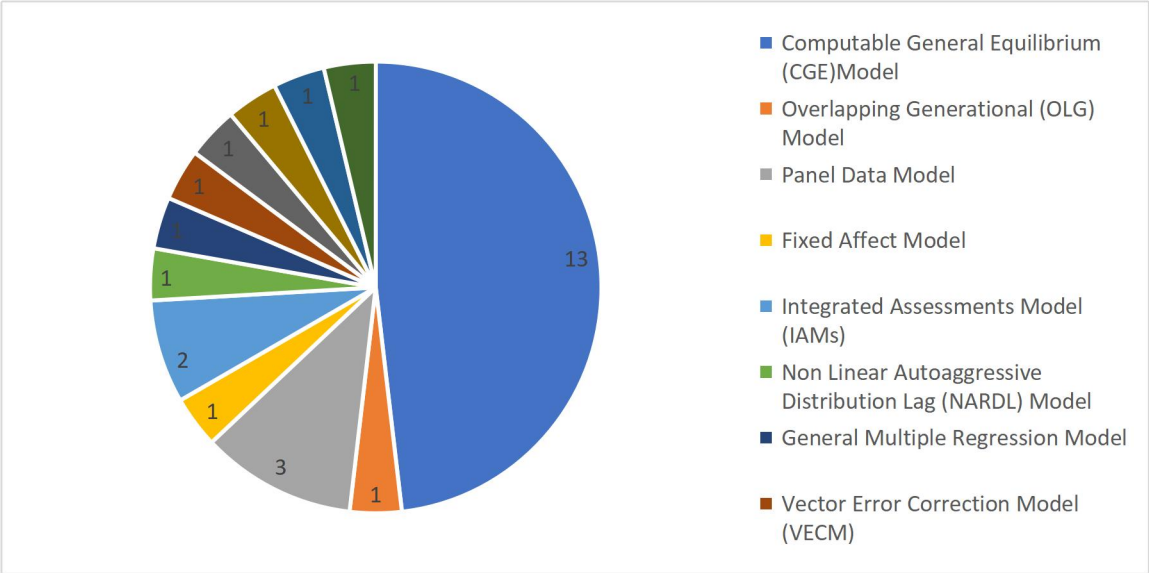

Figure 5 Economic simulation models.

3.2 Promoting Inclusive Economic Growth through Global Climate Action Measures

The analysis of the articles under review has revealed six critical measures for global climate action. The United Nations has seamlessly integrated these measures into its overarching initiatives to combat climate change and advance sustainable development, as multiple international agreements and initiatives exemplify. Tackling climate change at a global level necessitates the unified dedication of nations, and these measures serve as pivotal elements within the strategies devised to alleviate the consequences of climate change and nurture more inclusive economic

growth. UN member states derive their policies and mitigation strategies from these measures, tailoring them to their specific circumstances. The measures include:

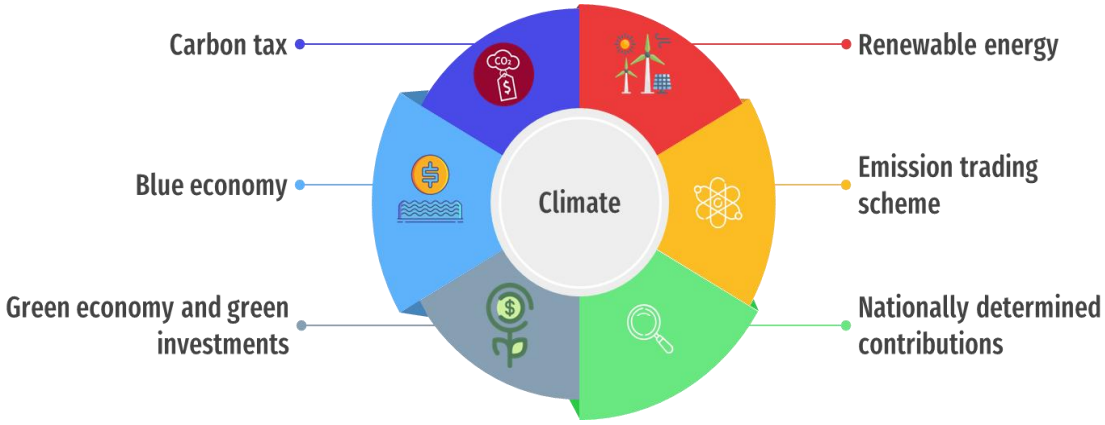

Figure 6 Global Climate Action Measures.

Sources UN (2016) and UNFCCC (2022)

Table 3 Global Climate Action Measures

S/N	Measures	Brief description
1	Carbon Tax	By charging for emissions and offering a financial incentive to emit less as a result of the changed patterns of investment and consumption brought about by the price signal, carbon pricing lowers greenhouse gas emissions; economic growth and climate protection may coexist.
2	Blue economy	Because the price signal changes investment and consumption patterns, carbon pricing lowers greenhouse gas emissions by charging for emissions and offering a financial incentive to emit less. This allows both economic growth and climate protection to coexist.
3	Green economy and green investment	The green economy's macroeconomic strategy for sustainable economic growth strongly emphasises jobs, investments, and skill development.
4	Renewable Energy Promotion	Effective and reliable renewable technologies can improve resilience and energy security while lowering a system's susceptibility to market shocks by diversifying power supply options.
5	Emission trading scheme	According to Article 17 of the Kyoto Protocol, countries with spare emission units, meaning emissions that are permitted but not "used," may engage in emissions trading by selling their excess capacity to nations that have surpassed their target.
6	National determined contributions	The Nationally Determined Contributions (NDC) are the cornerstone on which nations build their efforts to fulfil the goals of the Paris Agreement. They provide details on goals, regulations, and actions aimed at cutting down on national emissions and preparing for the effects of climate change. The demand for, or availability of, funding, technology, and capacity building for these activities is also covered in NDCs.

Sources UN (2016) a1nd UNFCCC (2022)

4 Discussions

4.1 The Economic Impact of Climate Change

Climate change's economic impacts include negative effects on economies. These include direct losses brought on by severe weather, damages to agriculture, higher medical costs, and interruptions in sectors like banking and electricity. Understanding how climate change affects the economy is essential to developing long-term mitigation strategies.

Notable findings from the examined studies show that climate change can have both direct and indirect effects on the economy. Research by Day et al. (2019), Shayegh et al. (2021), and Kahn et al. (2021) has shown that the effect of rising temperatures on labour productivity is one indirect economic consequence of climate change. According to Day et al. (2021), the impact of heat stress on labour productivity is one of the primary economic consequences of climate change that may affect workers' earnings and the output of the country. Solutions for heat stress adaptation are very context-specific and must be evaluated as such. For instance, if working schedules are sufficiently flexible, rearranging the hours of operation may be a helpful strategy for mitigating the impact of high temperatures. Furthermore, Shayegh et al. (2021) used nationally representative micro-survey data from South Africa to support this claim. The marginal impacts of rising temperatures on South African workers' employment availability are examined in their study. Their econometric study shows that various sectors have different ideal circumstances for maximising weekly labour supply. In order to investigate the long-term effects of upcoming socioeconomic and climatic changes on labour supply and wellbeing, they created an analytical model that involved overlapping generations. Their study emphasises how the availability of low-skilled labour is diminished as a result of increased exposure to climate change and rising temperatures. Consequently, the salary disparity between high-skilled and low-skilled workers is reduced.. However, compared to a baseline scenario without climate change, the overall effects of climate change on the economy continue to be negative, leading to a 20% drop in welfare as measured by production per adult. A counterfactual analysis suggests that a consistent annual increase in global temperature of 0.04°C, without mitigation, could reduce world real GDP per capita by over 7% by 2100. Kahn et al. (2021) used a stochastic growth model with data from 174 countries from 1960 to 2014 and found that persistent temperature deviations from historical norms significantly affect per-capita real economic growth, while changes in precipitation did not have statistically significant effects. These findings underscore the significance of temperature as a critical climate variable and an essential component of climate change, given its pronounced influence on economic wellbeing. Dellink et al. (2019) discovered that the biggest predicted adverse economic effects will come from labour productivity and agriculture, with output losses estimated to reach 1.0–3.3 per cent by 2060.

The study's findings also pointed to CO2 as one factor causing climate change. It is crucial to emphasise that CO2 emissions and mean temperature have different impacts on economic growth in the short and long run, according the study of Khurshid et al. (2022). They made use of the annual time series data collection that was carried out in Pakistan between 1980 and 2021. According to their findings, CO2 has an uneven effect on economic growth. CO2 emissions have a detrimental long-term impact on GDP growth, but precipitation has a long-term benefit.

Another noteworthy discovery from this research is that climate change exerts variable pressure on the economy, depending on the region and the time frame. This suggests that the economic effects of climate change vary significantly across regions and time periods. According to a study by Hsiang et al. (2012), the value of market and nonmarket damage across the sectors examined agriculture, crime, coastal storms, energy, human mortality, and labour increases quadratically with global mean temperature. The average increase in damage is approximately 1.2 percent of GDP. Crucially, the uneven distribution of risk across an area caused a significant value transfer from north to west, exacerbating economic inequality. According to projections, under business-as-usual emissions, the poorest third of US counties would suffer damages between 2 and 20 per cent of county revenue (90 per cent possibility) by the late 21st century (Representative Concentration Pathway 8.5). Furthermore, the research conducted by Zhao and Liu. (2023) revealed that climate change influences economic growth. It was observed that the various climate zones in Africa are subject to varying degrees of climate change impact, leading to distinct economic consequences in each zone.

According to Estrada et al. (2015), climate change may have longer-lasting and more significant economic effects than previously thought, challenging the assumptions of current economic models. The study of Kompas et al. (2018), climate change's economic impact was measured using the Global Trade Analysis Project (GTAP-INT). No matter how accurate or incomplete the information, estimates based on his findings point to significant losses in national revenue

and damages from global warming. This at least allows for comparisons between different countries and temperature ranges. Even within this constrained framework, the GDP benefits and losses from adhering to the Paris Accord are significant. Perhaps even more concerning is the fact that the GDP decline as a percentage varies globally and is most excellent in several of the world's poorest nations. Table 4 provides a detailed breakdown of the long-term GDP losses under various global warming scenarios through the year 2100.

Table 4 Estimation of Long-Term GDP Loss per Year under Global Warming Scenarios (US$ Billion/Year) by 2100.

	4o	3o	2o
World total	−23,149.18	−9,593.7	−5,659.47
Sub-Saharan Africa	−8,073.68	−2,889.66	−1,927.78
India	−4,484.96	−2,070.06	−1,149.36
Southeast Asia	−4,158.88	−2,073.09	−1,166.23
China	−1,716.91	−701.75	−394.59
Latin America	−1,371.81	−576.65	−259.82
Rest of South Asia	−1,157.92	−469.98	−283.78
Middle East and North Africa	−1,032.27	−451.96	−241.12
United States of America	−697.77	−223.83	−168.48
Japan	−253.18	−54.43	−23.02
Mexico	−127.70	−55.79	−20.88
Australia	−117.42	−36.87	−23.72
South Korea	−81.44	−14.72	−7.86
Rest of Oceania	−39.65	−14.97	−6.96
Russian Federation	−24.49	−10.88	−6.53
Rest of the Former Soviet Union	−9.93	−5.31	−3.85
European Free Trade Association	−8.72	−3.01	−2.16
New Zealand	−4.19	−0.77	−0.09
East Asia −0.78	−3.35	−1.27	−0.78
Rest of Eastern Europe	1.49	1.28	0.18
Rest of Europe	3.15	1.38	0.63
United Kingdom	17.78	4.06	0.35
Germany	23.85	5.38	2.46
France	26.92	7.11	1.80
Italy	32.42	12.20	7.26
Canada	45.29	11.40	5.20
Rest of EU25	64.19	18.47	9.68

Source Kompas et al. (2018).

This table details the expected economic impacts of global warming, including continuous GDP reductions annually and the predicted effects of climate change on various economic sectors or commodity groups by 2100 under different climate scenarios.

4.2 Effective Strategies and Policies Directed at Promoting Inclusive Economic Growth through Sustainable Climate Action among Member States

Table 3 presents a comprehensive overview of worldwide sustainable climate action initiatives to foster inclusive economic growth. When developing context-specific policies and strategies to meet the difficulties posed by climate change, these projects serve as a model for UN member states. Crucially, these actions are in line with the Sustainable Development Goals of the UN. We examine how well these policies contribute to the goal of inclusive economic growth.

4.2.1 The National Determined Contributions

By implementing Nationally Determined Contributions (NDCs), the world strives for the first time to meet the Paris Agreement's goal of keeping the increase in global temperature well below 2 °C and aiming for 1.5 °C. There is no data on how successfully these suggested mitigation strategies would work to lower the risks and monetary losses brought on by continuing climate change, as well as the possible repercussions of large emitters pulling out of Paris (Estrada & Botzen, 2021). In order to lessen the effects of climate change and promote a sustainable economic system, several UN member nations have implemented a range of measures and policies. NDCs are essential to the Paris Agreement and the accomplishment of its long-term objectives because they represent each nation's efforts to cut national emissions and prepare for the effects of climate change.

According to the Paris Agreement, nations are committed to updating their contributions regularly, through an iterative process every five years, guided by assessments of the current state of these contributions (a global stocktake) (UNFCCC, 2015). Long before COP26 in 2021, countries were supposed to draft and submit updated long-term development plans and NDCs. 156 nations, including 27 EU members, had revised their NDC submissions by the end of January 2022 (Climate Watch, 2022; UNFCCC, 2022). Including emissions and removals from land use, land-use change, and forestry (LULUCF), these nations accounted for approximately 84% of global GHG emissions in 2019 (FAO, 2020; Olivier & Peters, 2020).

4.2.2 Carbon Tax and Emission Trading Scheme

Across the studies reviewed, the establishment of a carbon tax emerged as a widely recognized strategy. The carbon tax policy aims to reduce emission levels (e.g., tonne of CO2) by requiring polluters to pay a certain price per unit of emissions. Polluters seek to reduce emissions to minimise production costs, as emissions incur additional financial charges. By taking these steps, national emissions are reduced (Nong et al., 2021).

Various research studies have emphasized the substantial adverse effects of CO2 on greenhouse gas emissions, resulting in an unfavourable economic influence. The results of the Nong et al. (2021) study showed that the impacts differ more pronouncedly across industrialised and developing nations when non-CO2 emissions are considered. Furthermore, Ojha et al. (2020) asserted that the carbon price can remarkably reduce carbon emissions. To assure GDP growth, they did, however, propose recycling carbon tax funds into more investments across the board.

CO2 emissions and other traditional pollutants are significantly reduced due to carbon prices, with the electrical industry accounting for the great bulk of these reductions. Crucially, the reduction of emissions is not highly reliant on the tax cut or refund utilised to replenish the economy's revenue (Barron et al., 2018). Knight et al. (2014) however, contend that the carbon tax system's negative GDP impact is tolerable and won't exceed 0.5 percent in the worst case. Even with a relatively high carbon tax rate, the effect on carbon emissions is similarly minimal when energy-intensive businesses are subject to carbon taxes (Lu et al., 2010). Policymakers benefit from a carbon tax since it can reduce carbon emissions with just a slight negative effect on economic growth (Lu et al., 2010; Liu et al., 2018).

4.2.3 Green Economy or Green Investment

A green economy is a sustainable method of boosting the economy that minimises adverse environmental effects while fostering inclusive economic development. Adopting resource-efficient technologies, renewable energy sources, and green investment-friendly regulations can help create a green economy (Mikhno et al., 2021).

Wang & Wang et al. (2020) looked at panel data covering 31 provinces in China between 2005 and 2019. To find out how green finance affects inclusive economic growth, they used a spatial econometric model. The results of this study showed that different regions had different effects of green finance on inclusive economic growth. Interestingly, compared to the eastern regions, the middle and western regions show a more noticeable influence from green finance. Green finance constitutes a significant driver of inclusive economic growth within national economies. This implies that properly supporting green finance initiatives is essential to boosting inclusive economic growth.

Furthermore, the study of Mpofu (2021) showed that green taxes could increase revenue mobilisation and offer a chance for policy reforms related to green transformation, promoting equitable and sustainable growth and the recovery of the economy from the COVID-19-induced slump. SDGs 1 and 7 (access to clean energy and poverty reduction, respectively) will be at risk due to a lack of cost and accessibility.

Figure 7 displays the green bond issuance by the world's top five nations between 2016 and 2022. Fixed-income instruments called "green bonds" or "sustainability-linked bonds" are made expressly to fund environmental and climate change initiatives. They are essential to "green finance," which use market-based tactics to lower the societal and financial costs of climate change (IMF, 2022).

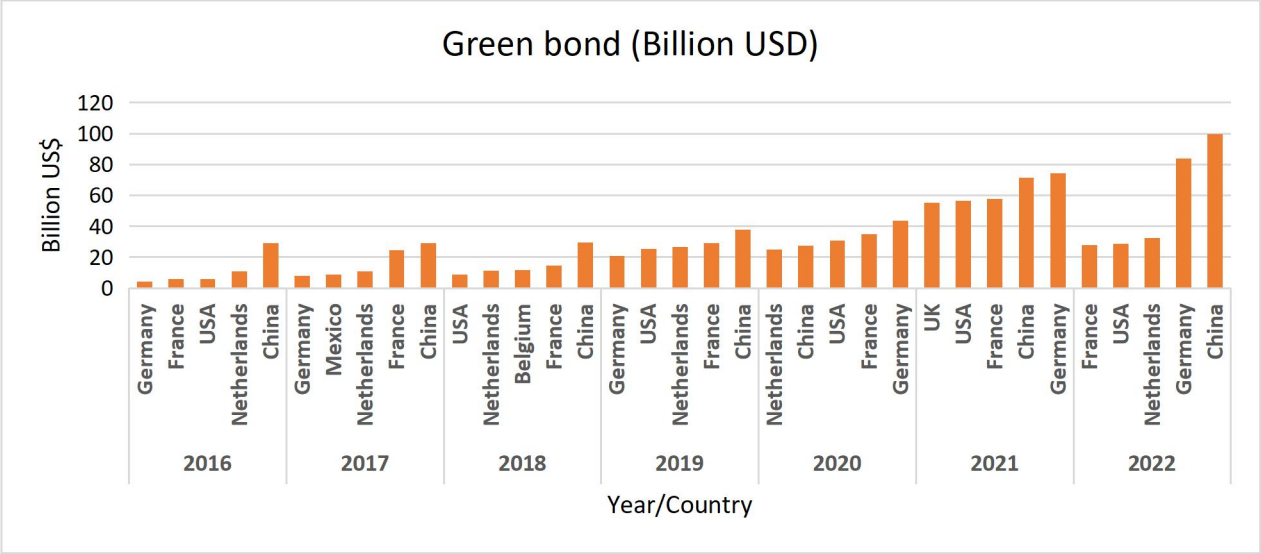

Figure 7 Green Bond Issuance by the World's Top Five Nations between 2016 and 2022.

Source IMF (2022) Climate change dashboard.

The issuer's pledge to use the proceeds to support environmental or climate-related projects is the sole way green bonds differ from conventional fixed-income instruments. The green bond market has steadily expanded since its launch in 2007. Globally, new offerings reached 230 billion euros (257 billion USD) in 2019, up from 28 billion euros in 2014 and 142 billion in 2018, according to the Climate Bond Initiative (2020). A study by Fatica and Panzica (2021) found that when compared to conventional bond issuers with the same financial characteristics and environmental ratings, green bond issuers exhibit a decrease in the carbon intensity of their assets after borrowing on the green segment. The decrease in emissions was more pronounced, significant, and long-lasting when they stopped using green bonds for refinancing. This is in line with the rise in climate-friendly activities resulting from new initiatives. Furthermore, we discover that green bonds issued following the Paris Agreement and those with an external appraisal considerably lower emissions.

These countries now have an edge in making eco-friendly products because they issued green bonds. Figure 8 illustrates the comparative advantage enjoyed by the top five green bond issuers in environmentally friendly goods from 2016 to 2021 based on IMF data.

Environmental goods are mainly designed to be "cleaner" or more ecologically friendly, as well as those related to environmental protection, such as resource management and pollution control. Environmental goods include

industrial air filters, wastewater treatment systems, and renewable energy sources like solar or wind turbines (IMF, 2022). The chart illustrates whether countries possess a competitive edge or a disadvantage in exporting environmental goods. A value exceeding one signifies a relative advantage in exporting environmental goods, while a value below one suggests a relative disadvantage. As depicted in the graph, nearly all significant issuers of green bonds from 2016 to 2021 exhibited a comparative advantage that was more significant than any other, except France, Belgium, and the Netherlands. However, France's value is relatively close to 1, indicating a reasonably balanced position.

This finding highlights the fact that issuing green bonds to investors in eco-friendly products is a viable way to combat climate change and promote equitable economic development in a nation. This claim is consistent with research by Ning et al. (2023), who argue that green bonds can be used to remove financial obstacles in sustainability and green finance.

4.2.4 Renewable Energy Promotion

Numerous studies have examined the relationship between fostering inclusive economic growth and supporting renewable energy in the reviewed literature. Sahlian et al. (2021) investigated the connections between economic growth, renewable energy, GHG per capita, and GHG intensity per GDP among the EU-28 member states using panel analysis using data from all Member States between 2000 and 2019. Their findings showed that the EU-28 member states' economic growth is positively impacted by the output of renewable energy, GHG per capita, and GHG intensity per GDP.

A crucial discovery highlighted in this review stems from Kouton (2021) research, which concentrated on promoting inclusive growth by expanding the economy and generating job prospects for various societal sectors. The study's main finding is that renewable energy has a significant and positive impact on Africa, particularly in countries with low rates of inclusive growth. Since GDP per employed person is a measure of inclusive growth, Kouton's (2021) findings claim that the positive effects of renewable energy consumption on inclusive growth are directly related to employment.

According to Ghouse et al. (2022), green energy has a positive effect on inclusive growth even if it accounts for a lesser percentage of the total energy consumption in low-income countries. Although green energy is important for achieving equitable growth, they claimed that its importance is stronger in high-income countries than in other groups, suggesting that these countries use it more frequently. However, socio-digital inclusion and green energy encourage fair growth at all socioeconomic levels (poor, middle, and high).

Cui et al. (2022) examined how inclusive growth, renewable energy use, and financial inclusion interact in 40 different nations. Financial inclusion and the use of renewable energy were found to be accelerators for promoting inclusive economic growth both inside a country and in its adjacent countries, indicating a spatial ripple effect in inclusive economic development.

Promoting renewable energy can significantly increase economic growth by lowering carbon footprints, according to other studies on renewable energy and its effects on economic growth (Saqib et al., 2023; Mohsin et al., 2021).

4.2.5 Blue Economy

Besides promoting inclusive economic growth, using the blue economy to combat climate change has the potential to further the Sustainable Development Goal of the UN on life below the ocean. According to Alharthi and Hanif (2020), the blue economy contributes statistically significantly to the economic growth of SAARC nations and aids in the attainment of Goal 14 of the UN's Sustainable Development Goals, which is to conserve and use the oceans, seas, and marine resources sustainably. By making more seafood available in developing South Asian countries, Alharthi and Hanif (2020) highlight how efficient management and utilisation of water resources can promote economic growth and alleviate challenges of food insecurity. According to the study, sustainable management of water resources requires international cooperation. This partnership will make it easier to comprehend the blue economy and how it supports the economic development of developing nations worldwide.

A blue economy can contribute substantially to an economy's growth if its resources are properly mapped and integrated within a strong institutional framework, backed by certain policies and research. As a result, there is space

for infrastructural growth. Furthermore, integrating people from the coast into civilisation will help to eradicate poverty and provide work (Alharthi & Hanif, 2020).

Based on proven causality links, Bădîrcea et al. (2021) found that the Blue Economy significantly affects greenhouse gas emissions over the long run. Both the short-term and long-term economic growth of greenhouse gas emissions point to unidirectional causality relationships, respectively. The findings of their study demonstrated that greenhouse gas emissions are negatively impacted by the blue economy. This outcome may be attributed to governments' significant efforts to curb conventional sources of emissions and remove environmentally harmful gases from the atmosphere, and that economic activity from the seas and oceans is not solely dependent on the use of renewable energy resources.

Garza et al. (2021) examined the perspectives of Spanish fishermen regarding the connections between small-scale fishing and the Blue Growth. The findings indicate a considerably good attitude regarding the potential socioeconomic development benefits of blue growth and a distinctly unfavourable perception of how these activities affect the environment.

4.3 Mitigating and Adapting to the Impacts of Climate Change in a Manner That Promotes Inclusive Economic Growth

The results demonstrate that international organisations and individual countries have implemented various climate measures and actions. However, the complete quantification of the effectiveness of specific measures remains elusive. Consequently, it is crucial to prioritise comprehending potential mitigation and adaptation strategies.

It's crucial to emphasise that achieving inclusive economic growth through sustainable climate action necessitates a comprehensive and efficient strategy. Out of the total reviewed articles, 12 studies explored the potential avenues for reducing the effects of climate change in various ways.

According to research by Stern and Stiglitz (2023), there are eight interrelated driving forces that, when considered, can help to rewrite the story about how to deal with the adverse effects of climate change on the economy and achieve sustainability. These motivating factors may operate separately or in tandem. The first four forces concentrate on increasing productivity via system enhancements, design, and technical breakthroughs; the next two centre on international cooperation in domains such as finance, investment, and standard-setting. The last two variables have to do with behaviour and health. Artificial intelligence (AI) and digitisation might be important in all these areas and how they interact by enabling, empowering, and supporting these efforts.

The study's conclusions highlight how crucial it is to consider climatic variables other than temperature when developing measures to combat climate change. Furthermore, greenhouse gases other than carbon dioxide (CO2) must be taken into account when evaluating the economic effects of climate change. The findings of Stan et al. (2021) corroborate this conclusion, indicating that the inclusion of a broader set of climate variables enhances model accuracy by over 20%.. Interestingly, compared to a scenario that solely takes temperature into account, our improved model forecasts an increase in GDP. Additionally, the dynamic nature of climate change poses challenges when developing strategies for mitigation. According to Estrada (2021), the consequences of unchecked climate change may be even more severe than previously thought, especially when accounting for additional warming in urban areas and the prolonged persistence of its effects. A significant portion of the economic damages and risks projected for the upcoming decades falls beyond the scope of mitigation efforts, given the intricate interaction between climate and social systems. As a result, combating climate change necessitates an all-encompassing strategy that takes into account a variety of climatic factors and how this worldwide issue will develop.

The findings presented in this review underscore a significant challenge in mitigating and adapting to the impacts of climate change while fostering inclusive economic growth. Specifically, the majority of articles on carbon taxation indicate that while such a tax system has the potential to reduce carbon emissions effectively, it often places a substantial burden on industries, resulting in a reduction in Gross Domestic Product (GDP). A key study by Nong et al. (2021) highlights that pathways to reduce emissions frequently come with high economic costs, leading to a notable decrease in real GDP. This effect is particularly prominent in developing countries, where production costs are relatively low due to the availability of inexpensive primary inputs and natural resources. As a result, additional emissions costs can significantly impact production and associated emission levels. This effect becomes even more noticeable when all countries implement a universal carbon tax of $15 per tonne of CO2, which dramatically raises

sectoral production prices in these countries. Furthermore, Ojha et al. (2020) highlight the negative effects on GDP while highlighting the efficiency of carbon taxes in lowering carbon emissions. This draws attention to an unfavourable trade-off that occurs when carbon prices are implemented between economic growth and mitigating climate change. Furthermore, according to a study by Van Heerden et al. (2016), carbon taxes have the potential to significantly lower greenhouse gas (GHG) emissions in South Africa. Estimated reductions between 2016 and 2035 range from 1,900 MtCO2-equiv to 2,300 MtCO2-equiv. The manner in which tax exemptions are phased out has a significant impact on the amount of emissions reduction. These results highlight how difficult and complicated it is to strike a balance between equitable economic growth and mitigating climate change, especially when it comes to carbon taxes. There is a sensitive trade-off that policymakers must carefully manage since, although carbon taxes can effectively reduce emissions, they can also impose financial burdens. This suggests that rather than imposing a single tax rate globally, carbon taxes should be customised to the economic strength of each nation and region.

The findings from England et al. (2018) & Rosen and Guenther (2018) stress that solutions for mitigating and adapting to climate change should include thorough, cross-sectoral policy analysis at the country or regional level. While long-term economic considerations are significant in climate change planning, there are substantial uncertainties in predicting economic outcomes over extended periods (e.g., 50 to 100 years). These uncertainties raise doubts about providing policymakers with exact cost-benefit analyses.

However, it is still imperative that climate change adaptation and mitigation be done quickly. Despite the inability to foresee the economic effects, the studies emphasise that the physical effects of climate change are an urgent situation that requires response. In essence, the imperative to address climate change should drive forceful action, prioritising actual and imminent environmental challenges while recognizing the limitations of precise financial forecasting. The overarching goal is to achieve inclusive economic growth while effectively addressing climate change.

Tol (2018) asserts that a more thorough and sophisticated comprehension of the economic and policy ramifications of climate change is required. In order to inform effective climate policies that support inclusive economic growth, they also emphasise the significance of enhancing the evaluation of the social cost of carbon and integrating economic models. In order to solve one of the key concerns of our day, this study agenda is both difficult and extremely pertinent.

5 Conclusion and Recommendations

This systematic review examined the pressing global challenge of climate change, which cuts across economic, social, and environmental dimensions. Faced with these multifaceted impacts, nations worldwide are engaged in a delicate balancing act to combat climate change's effects and ensure that economic growth is all-encompassing and sustainable, leaving no one behind. The study's findings, which were produced by a thorough review of publications published between 2010 and 2023 and supported by information from reputable organisations like the World Bank, UN, and IMF, have shed light on the intricate connection between inclusive economic growth and climate action. These insights have illuminated the current landscape of global climate action measures proposed by international organisations and adopted by UN member states. The study identified six global climate actions and measures adopted by UN member states in promoting inclusive economic growth while adhering to the UN Sustainable Development Goals. This includes a carbon tax, blue economy, green economy and green investment, renewable energy promotion, emission trading scheme and National Determined Contributions. These measures are geared towards reducing the impact of climate change and global warming on the economy. Finding these steps led to important adaptation and strategic actions to lessen the economic impact of climate change. The research findings will be a compass for policymakers and stakeholders as they navigate the intricate terrain of harmonising environmental sustainability with broad-based and equitable economic prosperity. In this context, climate action and economic growth are not mutually exclusive but can and must complement each other for a more resilient, prosperous, and inclusive future. The responsibility to address climate change and promote inclusive economic growth rests on all our shoulders, and our collective efforts will shape the path ahead.

Drawing on the outcomes and observations gleaned from this systematic review, it is recommended that international collaboration in climate action and technology transfer, tailored carbon taxation strategies contingent on economic conditions, expeditious prioritization of climate action, comprehensive climate metrics accounting for broader implications, adaptable policies in response to uncertainties, inclusive growth approaches guaranteeing fair

distribution of benefits, sustained research in the nexus of climate action and economic growth, and public engagement initiatives can bolster heighten awareness regarding the pivotal link between climate action and economic development.

Social and Practical Implications

The study stresses that taking action on climate change is important for both society and the economy. Promoting renewable energy, investing in green businesses, and the blue economy are all sustainable ways to fight poverty, create jobs, and make society fairer. Practically, these efforts push governments and groups to make sure that environmental protection is part of their plans for growth. Climate action can lead to broad-based and resilient economic growth if it focuses on technology transfer, inclusive financing, and fair participation, especially for developing countries.

Implications for Managerial Practice and Policy

The study shows that policymakers need to create personalised carbon taxes, effective systems for trading emissions, and national strategies that include everyone and connect climate goals with economic empowerment. To get fair results, governments need to encourage cooperation between different sectors and between countries. For managers, aligning business goals with sustainability goals, investing in green technologies, and being open about their environmental impact are all important steps towards long-term competitiveness and responsible business practice.

Implications for Theory Development

The research enhances sustainability theory by amalgamating economic growth with environmental and social systems. It advocates for innovative models that incorporate environmental costs and foster inclusive capitalism, positioning sustainability as a catalyst for productivity and equity. The study underscores the interrelationship among climate policy, governance, and economic performance, prompting scholars to investigate how institutional quality and innovation influence the connection between climate action and inclusive growth.

Limitations and Future Research Directions

The study's dependence on secondary data and English-language sources constrains its breadth and regional variety. Additionally, it is still hard to figure out the direct economic effects of global climate initiatives. Future research ought to encompass country-level and sector-specific analyses, formulate integrated climate-economic models, and investigate the influence of digital technologies and green finance in fostering inclusive growth. Evidence from different areas will help us understand better how climate action that is good for the environment leads to fair growth.

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Conflict of Interest

The authors certify that they do not have any competing interests to declare.

Declaration of Use of Generative AI

The author(s) declare that generative AI tools were used only for language editing and formatting, in line with Elicit Publishing Limited's publication ethics. All research content and interpretations remain the sole responsibility of the author(s)

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