Impact of Climate Change on the Growth of an Economy – A Review

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I. INTRODUCTION

Growth is what allows world economy to avoid the kind of zero sum game in which beggaring ones neighbour is the only way to improve a nation's material wellbeing. There is always a debate over the extent to which the government should try to shape growth that can be a generator of human wellbeing. The 2018 noble prize winners for economics William Nordhaus and Romer especially Nordhaus brought economics to climate change. He built models that quantified the costs of action and inaction, making an irresistible case for effective climate change policy. This opened the way to contemplate solutions such as a carbon tax – a policy that Nordhaus has long advocated.

II. OBJECTIVES

- To know the effects of climate changes.
- To understand the relation between growth and climate changes.
- To review the solutions.
- To analyse the viability of solutions.

The present article is an attempt to analyse the impact of climatic change on various sectors of the economy, economic inequality and human life as a whole. There is an attempt to look into some of the global and innovative solutions to climatic change also.

Climate change is a scourge of our time and it's effects will be devastating if urgent measures are not taken. The Impact of climate change is already noticeable. Global temperatures are increasing, sea levels are rising and ice caps are melting. The economic and social impacts like impoverished health, reduced food production, droughts and extreme weather events are no less serious. Accordingly, climate change is a global problem from environmental, political, economic and social perspectives. As such it demands swift action. Climate change and sustainability climate change caused by the global increase in temperature triggers multiple negative effects on the planet. These effects interrelate with each other and increase their violence, putting at risk the species that inhabit the earth, including the humans. Three main levels of climate change in back can be explained in the following way.

1. Variations in the physical systems of the planet can be observed in the melting of poles, which at the same time cause glacial regression, snow melting, warming and thawing of permafrost, flooding in rivers and lakes, droughts, coastal erosion, sea level rise and extreme natural phenomena.
2. In the biological systems, there is death of flora and fauna in terrestrial and marine ecosystems, wildfire and flora and fauna displacement searching for better life conditions.
3. In human systems climate change effects and destroys crops and food production, causes disease and death, destruction and loss of economic livelihoods and migration of climate refugees. These negative consequences feed each other back and increase their magnitudes.

III. ECONOMIC IMPACT

Despite the physical, biological, environmental impact and impact on human Systems, the economic impact which can be considered the most important one from the viewpoint of development needs a special mention. Climate change impacts can be measured as an economic cost. This is particularly well suited to market impacts, that are impacts linked to market transaction and directly affect GDP. Monetary measures of non-market impacts for example impacts on human health and eco-systems are more difficult to calculate.

The climate change is probably going to affect farming. The most places where crops are grown become too arid or too wet. The location of where humans grow things will be places closer to the poles which have been too cold to

have decent growing season will become more arable. Places that used to be the right temperature for a crop become too hot.

Most animals that have symbiotic relationship with humans will persist most likely where they are. However, wild animals will have to move out. There may be no habitat left for some wild animals. Polar bears might capture the human imagination, but there will be many others the people don't know about or don't care about.

In terms of economic impact, people are probably going to migrate. This means a lot of new home construction, deconstruction depending on how humans feel about letting the oceans destroy things or about cleaning up after ourselves. City on the shore will have to invest heavily on dikes and other water management systems the way Venice and Netherlands have already done. In fact the places that have been dealing with water issues already and many companies that have the technologies to deal with these issues are probably the companies to invest in for the long run. In any case humans will migrate or protect their existing investments will create demand for new construction. It will also increase competition for poverty in desirable areas but new desirable areas will open up global warming.

Humans productivity has been constantly increasing over human history. It means that we have been able to make more using less resources the lesser use of fossil fuels will put more pressure on industry to become more energy efficient this will be true if we can find a way to the industry to pay for the cost of energy profligacy up front, instead of socializing the cost at the back end. As the world heats up, there will be more demand for air conditioning. This will use more energy and it could drive up the use of fossil fuels.

The climatic change in the form of global warming may create a demand for new technology. Recently in Siberia there is abundant amount of methane that will start out gassing as the planet warms. Methane is more effective in keeping warmth in carbon dioxide, so once the methane starts out gassing, we may start warming even faster.

This will lead to the development of technologies that capture more out gassing methane, since it will be a valuable resource. So global warming will make energy from fossil fuels even cheaper. Energy producing renewable resources such as wind, tides and geothermal sources. Migration will cause political conflicts but it won't be stopped.

If anyone tries to keep people out, people will either sneak around or attack if the desire to migrate is strong enough.

With birth rates slowing around the world, there may be under population instead of over population. Global warming will have a catastrophic effect, making it impossible for humankind to survive. Some parts of the world will become less desirable if not uninhabitable. But other parts of the world will become more desirable and people will move to these areas.

A new Stanford University study shows global warming has increased economic inequality since 1960s. Temperature changes caused by growing concentrations of green house gases in earth's atmosphere have enriched cool countries like Norway and Sweden, while dragging down economic growth in warm countries like India and Nigeria.

An analysis by Noah Deffenbaugh and Marshall Berk shows that warming that already happened -1 degree Celsius or 1.8 degrees Fahrenheit globally above the pre industrial average has increased economic inequality around the world. According to Burke “The historical data clearly show that crops are more productive, people are healthier and we are more productive at work when temperatures are neither too hot nor too cold”.

Moore and Diaz modified a well-known computer model for calculating the economic impact of climate change, known as the integrated assessment model or IAM. Their alternative formulation incorporated recent empirical findings suggesting that climate change could substantially slow economic growth rates, particularly in poor countries. IAM includes both the cost and benefits of reducing emissions, they can inform government about the optimal level of investment in emission reduction. But IAM fails to account the damages associated with climate change, might persist through time. Moore said “For twenty years now models have assumed that climate change can't affect basic growth rate of the economy, but a number of new studies suggest this may not be true. If climate change affects not only a country's economic output but also it's growth, then that has a permanent effect that accumulates overtime, leading to a much higher social cost of carbon”. In the new study, Moore and Diaz took a widely used IAM called the Dynamic Integrated Climate Economy Model and modified it in three ways. They allowed climate change to affect growth rate of the economy, accounted adaptation to climate change, they divided the model into two regions to represent high and low income countries. But this model’s mitigations representation is limited as it does not take into account the fact that clean technologies take time to develop and deploy and it does not factor in the potential for mitigation efforts to also impact growth.

Thus in reality there is likely to be enormous variance in the economic impact, depending on where people live and what kind of jobs they have, so the economic implications of climate change include huge shifts in geography, demographics and technology, with each affecting the other. It is clear that climate change and it's ripple effects are

likely to be a defining challenge in the 21st century economy. But there are wide ranges of possible results that vary on countless assumptions. We should also recognize that the economic backdrop of society is always changing.

IV. SOLUTIONS TO EFFECTS OF CLIMATE CHANGE

The implications of climate change demand a response through changes in technology policy, lifestyle and economics. In terms of human response, the answers to this challenge are unlikely to come from isolated solutions. Instead the global repercussion of the problem also demands global responses that entail the participation and collaboration of different groups and interests. Some solutions that are designed to counter act the effects of climate change have continued to worsen the climate change producing a vicious circle that is difficult to bear. Auffhammer proposes a way of breaking the vicious circle. Potentially Therefore, technological innovation is the most Reliable and effective way of breaking this vicious circle by curbing the severe consequences of climate change.

Alternative technological solution could be applied in the coming years to protect the earth from profound damage that it is currently suffering. But some such alternatives still have to prove their viability and effectiveness because they are risky and expensive. Examples include burying carbon dioxide underground, removing carbon dioxide from the air through giant filters petrifying carbon dioxide through chemical reactions, fertilizing sterile seas with powdered iron to favour the growth of plankton and placing a mirror between the earth and the sun to filter infrared radiation and stabilize the earth's climate. Some of the solutions may be listed in the following way.

1. Increasing the adaptation capacity through information and knowledge management.
2. Interactions of data for climate change solutions to be encouraged.
3. Developing models for green growth and society changes.
4. Socio-technical innovation to address society changes.
5. Action needs to be taken to modify lifestyles.
6. Encouraging valuable entrepreneurship and entrepreneurship management models to face climate change.
7. Developing technology enabled disruptive innovation models.
8. New investments in the power grid could yield long term benefits in energy efficiency and greater reliability.
9. Bringing changes in the field of transportation and infrastructure, according to Nichols Stern in the form of electric cars instead of those with internal combustion engines would mean less pollution in cities.
10. Seeking a base line to devise environmental regulations, The American Government during Obama's administration set out to calculate “Social Cost of Carbon” the amount of each ton of carbon emissions will cause in decades ahead.
11. Spending today to reduce carbon emissions tomorrow is like insurance against some of the most costly effects of a hotter planet.

V. CONCLUSION

Despite the preventive measures, studies show that rebuilding after disasters strike is likely to prove even more costly than these preventive measures. And these costs do not include those stemming from lives lost and other irreversible consequences of allowing heat – trapping gases to accumulate unchecked in our atmosphere. Changes in how people live, and the technology they use, could both mitigate the impact of climate change and ensure that the costs are less, about a pure economic loss and more about rewiring the way civilization works. But to conclude it can be said that the humanity tends to be adaptable.

VI. REFERENCES

[1] Climate change and its imapacts, Essayas-bartleby.
[2] Global worming defination causes and effects, britannica.com.
[3] Climate change and human health- John balbus and L Gamble.
[4] Global worming and climate change by Chirs Woodford.
[5] Climate change evidance and causes, Royal Society.