

Effect of discounting on climate change



Introduction

Climate change can be termed as the single largest problem that we as a humanity are facing at present. Since the 1960's- when for the first time the perils of greenhouse gas emissions on climate were reported- the gravity associated with demand for action on climate change has only been increasing. Though the impacts of climate change are already being felt in terms of increased frequency of disasters and changing weather patterns, a majority of the impacts are to affect future generations only. This raises many questions on whether to act on climate change now or later. The role ethics has to play in tackling such an issue is immense. Individual perceptions, their choices and what defines morality for them all come in to light while determining action on climate change.

Since the formation of UNFCCC, under which international negotiations on climate change are being held, the weightage on acting against climate change has been catapulted to a global level. The framework has seen many international agreements on cutting down the global emissions of greenhouse gases and building resilience among communities to tackle climate change. But the costs involved in acting against climate change and arresting the global temperature change to such a level so that it doesn't prove catastrophic to the future generation is huge. Nicholas Stern, an economist, had published a report- The Stern Review on the Economics of Climate Change- in 2006 for the British Government which had given an estimate of one percent of global GDP that is required to arrest the impacts of climate change. This estimate was revised in 2008 to two percent of the global GDP accounting for faster than expected climate change. To put

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things in perspective two percent of global GDP accounts for close to US\$1.5 trillion when the World Bank estimate of the total global gross domestic product of US\$74.9 trillion is taken into consideration. Such values aren't small and require enormous funding from countries world over to act against the impacts. Hence action on climate change, though ethical, has huge implications on the global economy. This economic implication of acting on climate change becomes more precarious when we take into consideration the fact that climate change is set to have its worst impacts on the generations to come. This leaves us with the question of whether to act now or leave it to the future generations to tackle the issue of climate change. Corporations and for that matter countries in itself would act only if they see some incentives in acting now, else one wouldn't want to sacrifice their economic growth which transcribes into well being in the present.

What drives international climate negotiations in formulating policies for climate change mitigation is something called as the social cost of carbon (SCC). SCC helps us in estimating the benefits (climate) of decision making. Social cost of carbon can be termed as the the economic damages associated with a small increase in carbon dioxide. This dollar figure also represents the value of damages avoided for a small emission reduction. Hence such an economic value is what drives nations to act on climate change. Higher the value of SCC, higher is the perceived threat from climate change, which in turn increases the urgency required to act on climate change. Higher values also indicate a negative impact of climate change on the future GDP projections of nation states, hence acting on climate change is incentivising nations by insuring their future GDP against the perils of

climate change. But for arriving at a social cost of carbon we need to consider what is called an optimal ‘rate of discount.’ Arriving at a rate of discount is based on what ethical stand one takes, hence this value might hugely vary from person to person. Aspects such as how much you value intergenerational equity, how much are you ready to sacrifice in the present, how do you expect technology to improve in the future and what do you expect to happen to economic growth in the future all come into play while arriving upon a discount rate.

This paper would aim to look at the ethics of discounting taking into consideration the various values for discount rates proposed by economists and the implications that these values have on the policy measures we adopt. Existing literature in this area would be reviewed, shedding light on the various arguments/viewpoints centered around choosing different discount rates for climate change action. This process of reviewing literature in itself might be a limitation as the paper would rely on the arguments put forth by authors of respective papers for choosing a certain discount rate.

This paper would initially discuss about the evolution of discounting and its relation to climate change and then move onto reviewing existing literature in this field and finally concluding the discussion by stating the author’s viewpoint.

Literature Survey

Discounting is a financial term that which means a debtor has obtained a right to delay the payment to a person who has lended the amount, a creditor, for a defined period of time by paying a certain fee. This discount is <https://assignbuster.com/effect-of-discounting-on-climate-change/>

usually associated with something called a discount rate. In simple terms discount rate can be defined as the rate at which the amount owed must be raised to delay payment for one year. A discount rate is what what determines the discount rate and not vice versa. Discounting Factor is another term that is used in context to discounting. Discount factor is the percentage rate required to calculate the present value of future cash flow. What these values mean in terms of climate change and their implications on climate policy shall be discussed in the next few paragraphs.

With the basics of discounting know lets move onto the role discounting has to play on climate change mitigation decisions. To figure this out let us look at some questions that economists seem to be in love with while determining the amount we should spend to fight climate change: How much will you be willing to spend to make your child richer by certain amount in the future? And what about the amount that you would be willing to spend to make your grandchild, or your great- great-great grandchild in the distant future richer by the same amount? The answers to these questions might shed light on the future of the planet. Most economic analyses of climate change have concluded that we should be spending only small amounts to combat climate change now, ramping up slowly over time. This conclusion is argued against by climate scientists who say that immediate action is the only way to arrest the serious ramifications of climate change. And the disagreement arises from the above mentioned questions, on how much do you value the future generations' welfare in terms of a monetary value. The worst consequences of climate change, as mentioned earlier in the introduction, are likely to unfold only over decades or centuries. This means that the present

generation is only set to see the beginning of what might be the worst consequences of climate change, with the future generations bearing the maximum brunt of it. Hence, the decision of how much to spend now to arrest climate change in the future weighs itself on assessing how much it is worth to us now to prevent that future damage. As driven by human tendency we would prefer money now over money later, and hence economists typically figure that our willingness to pay for preventing a dollar worth of damage in a year, or in a decade is less than a dollar. This percentage less is called the “social discount rate.”

What is of importance is figuring out what this discount rate should be. For a short period of time, the easier way is to consider the prevailing market rate of interest. This is similar to a loan that you have taken at a certain interest rate. After all, if you happen to get a bank loan at an interest rate of 7 percent, then getting a dollar in a year is essentially equivalent to getting a tad over 93 cents now. What this essentially implies is that, economically, it would make sense for you to spend 93 cents today if it helps you in avoiding a problem that would otherwise cost you one dollar a year from now. This can be put in other words: a dollar of the projected future impacts has gotten discounted to 93 cents today.

But when this is played over many years the results are very peculiar. The following example is cited from an article published in Science News: “For example, at a 5 percent annual interest rate, a penny that belonged to Julius Caesar would have expanded to the bogglingly huge sum of 3 – 1041 dollars today — more than the entire world economic output over the last 2, 000 years multiplied by the number of stars in the sky.” And what this essentially

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means is that discounting, at a 5 percent social discount rate, would shrink any imaginable catastrophe today to far less than a penny in Caesar's time, and an economist would have therefore recommended that Caesar not spend even so tiny an amount to avoid it.

The mind boggling amount this discounting would result in besides being absurd, would also silence the people wanting action on climate change because of the huge monetary implications. It is very difficult to overlook the effect any constant discount rate (like the 5 percent rate used in the above example) on the future growth potentials which is going to be exponential and explosive. So even considering a moderate social discount rate of say, 2 to 3 percent, economists will have a very hard time trying to justify the amount spent on combating climate change in the present. Instead, economists would suggest to invest this amount in savings and our future generations will be rich enough to live well inspite of all the damages from climate change.

But an exception to this is Nicholas Stern. In 2006, he wrote the *The Economics of Climate Change: The Stern Review* which concluded by suggesting that we should invest one percent of world GDP immediately to combat climate change. Otherwise, he said, the chaos resulting from climate change could cost twenty percent of world GDP per year. But this was arrived at by setting the social discount rate to near zero. The discount rate he had taken into consideration while arriving at the conclusion was severely criticized by many economists. Underlying assumption is that people would prefer a dollar today than a dollar in the next year or a hundred years from now.

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Economists are still at loggerheads over this, on whether to: Either accept an assumption that is argued as economically unjustified (a close to zero social discount rate), or conclude that we should accept climate change without a fight. A third alternative which is more likely to remain unentertained is that the economic valuations fail to shed light on the issue at hand.

Let us now look into the argument put forward by Stern in his “ Economics of Climate Change” report for taking a near zero discount rate.

This paper has already referred to the Stern Review in its earlier sections. The Stern Review on the Economics of Climate Change is probably the most comprehensive survey of the economics of climate change published until thus. The lead author of the review, Sir Nicholas Stern, from besides being a distinguished economist, he has also made important contributions to areas of public and welfare economic theory that are particularly relevant to climate change economics.

His conclusion that we should act now by investing on acting against climate change as it would have more serious implications on the future generations in strongly contended by leading economists. Stern, in his review had said that we should invest one percent, which was revised to two percent in 2008, of the global gross domestic product for acting climate in order to curtail the ravaging impacts of climate change in the future which, otherwise, might lead to huge losses to the tune of 20 percent of global GDP every year in the future.

After the first chapter’s brief summary of the scientific evidence for climate change, the next few chapters have devoted considerable attention to the <https://assignbuster.com/effect-of-discounting-on-climate-change/>

ethical issues revolving around the choice of discount rate. “ This represents the economist’s trade-off between the welfare of different generations and is hence the key to the way that different distributions of consumption over time can be ranked in terms of social welfare.”

The Review states that “ The ethical framework of standard welfare economics looks first only at the consequences of actions (an approach often described as ‘ consequentialism’) and then assess consequences in terms of impacts on ‘ utility’ (an approach often described as ‘ welfarism’). The standard welfare economic approach has no room, for example, for ethical dimensions concerning the processes by which outcomes are reached. Some different notions of ethics, including those based on concepts of rights, justice and freedoms, do consider process” (p. 29). The Review also takes a consequentialist approach, which is in line with standard welfare economics, and makes judgements that are both explicit and implicit concerning the distribution of welfare and of consumption across generations.

Discounting and the Stern Review

It is now well known that in h (i. e. the avoidance of the damage that climate change might otherwise do under what is known as a ‘ business as usual scenario’).