

## **Nordhaus - Discounting logic, economic implications**

*Lawrence Solomon, Financial Post*

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If you're the type of person who sets aside money today for the university education of your great-great-grandchildren, even if it means that you may not be able to afford university tuition for your own children, you may think it sensible for society to invest now in major measures to stop global warming.

If you're not this type -- and who in his right mind is -- you should forget about Kyoto-like greenhouse-gas reduction targets and the crash programs that would be required to meet them. Doing so would not only be economically prudent, it would be -- by almost any measure -- the ethical thing to do.

So argues celebrated economist William Nordhaus, author of pathbreaking books and studies on global warming, and generally considered the most authoritative economist in the climate change field. His verdict on global warming alarmism, as exemplified by the UK's Stern review, which demanded drastic measures now to avert climate change calamity later: "Completely absurd."

The Stern review, released last year to banner headlines, argues that the cost of inaction greatly exceeds the cost of action. It has been much criticized for its selective use of data -- Sir Nicholas Stern piles one worst-case scenario upon another to arrive at his fantastical costs, and Dr. Nordhaus is among those who note this failing. In fact, Sir Nicholas uses Nordhaus as a source for global-warming costs that could present themselves well after the year 2100, although Nordhaus characterized that data as particularly unreliable.

But a series of unreliable, worst-case scenarios centuries off, by themselves, still would not warrant the extreme greenhousegas prevention investments that the Stern review recommends. To make an economic case for immediate action, Sir Nicholas adjusted his model to have us paying now for potential damage that could be happening hundreds of years from now.

Sir Nicholas estimates the potential costs of climate change to be so great as to force on us a "20% cut in per-capita consumption, now and forever." Yet his data showed low damages from climate change in the next two centuries. To overcome his data, he applied to his model what economists call a "near-zero social discount rate." Doing so brings forward future expenses -- in the Stern review's case, expenses that might occur in the 23rd and 24th centuries. The Stern review then presents us with a tab that includes these far-out costs, and the invoice is eye-popping indeed.

But the Stern review approach defies logic, as Dr. Nordhaus illustrates by demonstrating just where zero social-discount-rate thinking leads. "Suppose that scientists discover that a wrinkle in the climatic system will cause damages equal to 0.01% of output starting in 2200 and continuing at that rate thereafter," he explains. "How large a onetime investment would be justified today to remove the wrinkle starting after two centuries? The answer is that a payment of 15% of world consumption today (approximately US\$7-trillion) would pass the review's costbenefit test. This seems completely absurd. The bizarre result arises because the value of the future consumption stream is so high with near-zero discounting that we would trade off a large fraction of today's income to increase a far-future income stream by a very tiny fraction."

Moreover, who should be asked to forgo that consumption? It hardly seems fair to keep back poor countries, yet, if paid by the rich countries alone, the decline would far exceed that of the Great

## Depression.

Some climate-change alarmists argue that we should invest in combating climate change now as an insurance policy against the risk of future damage. Sounds prudent, until you consider the premium to be paid.

"Suppose that we suddenly learn that there is a 10% probability of the wrinkle in the climatic system that reduces the post- 2200 income stream by 0.01%," Dr. Nordhaus explains, again to illustrate the Stern review's logic. "What insurance premium would be justified today to reduce that probability to zero? With conventional discount rates, we would probably ignore any tiny wrinkle two or three centuries ahead. If we did a careful calculation using conventional discount rates, we would calculate a break-even 0.0002% insurance premium to remove the year 2200 contingency, and a 0.0000003% premium for the year-2400 contingency. Moreover, these dollar premiums are small whether the probability is large or small.

"With the review's near-zero discount rate, offsetting the low-probability wrinkle would be worth an insurance premium today of almost 2% of current income, or \$1-trillion. We would pay almost the same amount if that threshold were to be crossed in 2400 rather than in 2200."

Dr. Nordhaus's conclusion about such scares: "We are in effect forced to make current decisions about highly uncertain events in the distant future, even though these estimates are highly speculative and are almost sure to be refined over the coming decades."

Dr. Nordhaus discounts climate-change alarmism, but not climate change itself. He advocates research to better understand its consequences and to develop more efficient technologies. He advocates the elimination of subsidies that artificially increase greenhouse- gas emissions, and other "no-regrets" measures that would benefit the environment without harming the economy. The costs of climate change are real, he believes, and society should act. But not overreact.

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## CV OF A DENIER:

William Nordhaus is the Sterling Professor of Economics at Yale University. He is the co-author with Nobel Laureate Paul Samuelson of Economics, the classic textbook, now in its 18th edition. He is a member of the National Academy of Sciences and a Fellow of the American Academy of Arts and Sciences. From 1977 to 1979, he served Jimmy Carter as a member of the President's Council of Economic Advisers. He serves on the Congressional Budget Office Panel of Economic Experts and is chairman of the advisory committee for the Bureau of Economic Analysis. He received his PhD in economics in 1967 from the Massachusetts Institute of Technology.

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