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CLIMATE CHANGE

Stern Review

The dodgy numbers behind the latest warming scare.

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The report on climate change by Nicholas Stern and the U.K. government has sparked publicity and scary headlines around the world. Much attention has been devoted to Mr. Stern's core argument that the price of inaction would be extraordinary and the cost of action modest.

Unfortunately, this claim falls apart when one actually reads the 700-page tome. Despite using many good references, the Stern Review on the Economics of Climate Change is selective and its conclusion flawed. Its fear-mongering arguments have been sensationalized, which is ultimately only likely to make the world worse off.

The review correctly points out that climate change is a real problem, and that it is caused by human greenhouse-gas emissions. Little else is right, however, and the report seems hastily put-together, with many sloppy errors. As an example, the cost of hurricanes in the U.S. is said to be both 0.13% of U.S. GDP and 10 times that figure.

The review is also one-sided, focusing almost exclusively on carbon-emission cuts as the solution to the problem of climate change. Mr. Stern sees increasing hurricane damage in the U.S. as a powerful argument for carbon controls. However, hurricane damage is increasing predominantly because there are more people with more goods to be damaged, settling in ever more risky habitats. Even if global warming does significantly increase the power of hurricanes, it is estimated that 95% to 98% of the increased damage will be due to demographics. The review acknowledges that simple initiatives like bracing and securing roof trusses and walls can cheaply reduce damage by more than 80%; yet its policy recommendations on expensive carbon reductions promise to cut the damages by 1% to 2% at best. That is a bad deal.

Mr. Stern is also selective, often seeming to cherry-pick statistics to fit an argument. This is demonstrated most clearly in the review's examination of the social damage costs of CO2--essentially the environmental cost of emitting each extra ton of CO2. The most well-recognized climate economist in the world is probably Yale University's William Nordhaus, whose "approach is perhaps closest in spirit to ours," according to the Stern review. Mr. Nordhaus finds that the social cost of CO2 is $2.50 per ton. Mr. Stern, however, uses a figure of $85 per ton. Picking a rate even higher than the official U.K. estimates--that have themselves been criticized for being over the top--speaks volumes.

Mr. Stern tells us that the cost of U.K. flooding will quadruple to 0.4% from 0.1% of GDP due to climate change. However, we are not told that these alarming figures only hold true if one assumes that the U.K. will take no additional measures--essentially doing absolutely nothing and allowing itself to get flooded, perhaps time and again. In contrast, the U.K. government's own assumptions take into account a modest increase in flood prevention, finding that the cost will actually *decline* sharply to 0.04% of U.K. GDP, in spite of climate change. Why does Mr. Stern not share that information?

But nowhere is the imbalance clearer than in Mr. Stern's central argument about the costs and benefits of action on climate change. The review tells us that we should make significant cuts in carbon emissions to stabilize the concentration of atmospheric carbon dioxide at 550 ppm (parts per million). Yet such a stark recommendation is not matched by an explicit explanation of what this would mean in terms of temperature.

The U.N. Climate Panel estimates that stabilizing at 550 ppm would mean an increase in temperature of about 2.3 degrees Celsius in the year 2100. This might be several degrees below what would otherwise happen, but it might also be *higher*. Mr. Nordhaus estimates that the stabilization policy would reduce the rise in temperature from 2.53 degrees Celsius to just 2.42 degrees Celsius. One can understand the reluctance of the Stern review to advertise such a puny effect.

Most economists were surprised by Mr. Stern's large economic estimates of damage from global warming. Mr. Nordhaus's model, for example, anticipates 3% will be wiped off global GDP if nothing is done over the coming century, taking into account the risk for catastrophes. The Stern review purports to show that the cost is "larger than many earlier studies suggested."

On the face of it, Mr. Stern actually accepts Mr. Nordhaus's figure: Even including risks of catastrophe and non-market costs, he agrees that an increase of four degrees Celsius will cost about 3% of GDP. But he assumes that we will continue to pump out carbon far into the 22nd century--a rather unlikely scenario given the falling cost of alternative fuels, and especially if some of his predictions become clear to us toward the end of this century. Thus he estimates that the higher temperatures of eight degrees Celsius in the 2180s will be very damaging, costing 11% to 14% of GDP.

The Stern review then analyzes what the cost would be if everyone in the present and the future paid equally. Suddenly the cost estimate is not 0% now and 3% in 2100--but 11% of GDP right now and forever. If this seems like a trick, it is certainly underscored by the fact that the Stern review picks an extremely low discount rate, which makes the cost look much more ominous now.

But even 11% is not the last word. Mr. Stern suggests that there is a risk that the cost of global warming will be higher than the top end of the U.N. climate panel's estimates, inventing, in effect, a "worst-case scenario" even worse than any others on the table. Therefore, the estimated damage to GDP jumps to 15% from 11%. Moreover, Mr. Stern admonishes that poor people count for less in the economic calculus, so he then inflates 15% to 20%.

This figure, 20%, was the number that rocketed around the world, although it is simply a much-massaged reworking of the standard 3% GDP cost in 2100--a figure accepted among most economists to be a reasonable estimate.

Likewise, Mr. Stern readjusts the cost of dealing with climate change. The U.N. found that the cost of 550 ppm stabilization would be somewhere around 0.2% to 3.2% of GDP today; he reports that costs could lie between -4% and 15% of GDP. The -4% is based on the suggestion that cutting carbon emissions could make us *richer* because revenue recycling could address inefficiencies in taxation--but the alleged inefficiencies, if correct, should be addressed no matter what the policies about climate change. The reason Mr. Stern nevertheless finds a very low cost estimate is because he only considers models with so-called Induced Technological Change. These models are known to reduce costs by about two percentage points because carbon cuts lead to an increase in research and development, which again makes further cuts cheaper. Thus Mr. Stern concludes that the costs are on average 1% of GDP, and in the summary actually claims that this is a maximum cost.

The Stern review's cornerstone argument for immediate and strong action now is based on the suggestion that doing nothing about climate change costs 20% of GDP now, and doing something only

costs 1%. However, this argument hinges on three very problematic assumptions.

First, it assumes that if we act, we will not still have to pay. But this is not so--Mr. Stern actually tells us that his solution is "already associated with significant risks." Second, it requires the cost of action to be as cheap as he tells us--and on this front his numbers are at best overly optimistic. Third, and most importantly, it requires the cost of doing nothing to be a realistic assumption: But the 20% of GDP figure is inflated by an unrealistically pessimistic vision of the 22nd century, and by an extreme and unrealistically low discount rate. According to the background numbers in Mr. Stern's own report, climate change will cost us 0% now and 3% of GDP in 2100, a much more informative number than the 20% now and forever.

In other words: Given reasonable inputs, most cost-benefit models show that dramatic and early carbon reductions cost more than the good they do. Mr. Stern's attempt to challenge that understanding is based on a chain of unlikely assumptions.

Moreover, there is a fourth major problem in Mr. Stern's argument that has received very little attention. It seems naive to believe that the world's 192 nations can flawlessly implement Mr. Stern's multitrillion-dollar, century-long policy proposal. Will nobody try to avoid its obligations? Why would China and India even participate? And even if China got on board, would it be able to implement the policies? In 2002, China decided to cut sulfur dioxide (SO2) emissions by 10%--they are now 27% *higher* despite SO2 being nationally a much bigger health and environmental problem than climate change.

Why does all this matter? It matters because, with clever marketing and sensationalist headlines, the Stern review is about to edge its way into our collective consciousness. The suggestion that flooding will overwhelm us has already been picked up by commentators, yet going back to the background reports properly shows *declining* costs from flooding and fewer people at risk. The media is now quoting Mr. Stern's suggestion that climate change will wreak financial devastation that will wipe 20% off GDP, explicitly evoking memories of past financial catastrophes such as the Great Depression or World War II; yet the review clearly tells us that costs will be 0% now and just 3% in 2100.

It matters because Gordon Brown, Tony Blair and Nicholas Stern all profess that one of the major reasons that they want to do something about climate change is because it will hit the world's poor the hardest. Using a worse-than-worst-case scenario, Mr. Stern warns that the wealth of South Asia and Sub-Saharan Africa will be reduced by 10% to 13% in 2100 and suggests that effect would lead to 145 million more poor people.

Faced with such alarmist suggestions, spending just 1% of GDP or $450 billion each year to cut carbon emissions seems on the surface like a sound investment. In fact, it is one of the least attractive options. Spending just a fraction of this figure--$75 billion--the U.N. estimates that we could solve all the world's major basic problems. We could give everyone clean drinking water, sanitation, basic health care and education right now. Is that not better?

We know from economic models that dealing just with malaria could provide economic boosts to the order of 1% extra GDP growth per capita per year. Even making a very conservative estimate that solving *all* the major basic issues would induce just 2% extra growth, 100 years from now each individual in the developing world would be more than 700% richer. That truly trivializes Mr. Stern's 10% to 13% estimates for South Asia and Sub-Saharan Africa.

Last weekend in New York, I asked 24 U.N. ambassadors--from nations including China, India and the U.S.--to prioritize the best solutions for the world's greatest challenges, in a project known as Copenhagen Consensus. They looked at what spending money to combat climate change and other major problems could achieve. They found that the world should prioritize the need for better health, nutrition, water, sanitation and education, long before we turn our attention to the costly mitigation of global warning.

We all want a better world. But we must not let ourselves be swept up in making a bad investment, simply because we have been scared by sensationalist headlines.

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