

“Shadow” Carbon Prices Could Make the Real Thing Easier to Swallow

Christopher Ragan
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Several recent news stories, including one in the latest *Corporate Knights* magazine, have reported that large companies including Walt Disney Co., Google Inc., Exxon Mobil Corp. and Suncor Energy Inc. are now using “shadow” carbon prices when analyzing their investment options. Three obvious questions come to mind. What does this actually mean? Why are firms doing this? And what does this practice imply for any future carbon-pricing policy?

Most North American governments don’t require firms to pay for their emissions of greenhouse gases. Some firms are nonetheless analyzing their potential long-term investment projects *as if* they were required to make such payments. This increases the assumed future costs for any given investment project and thus reduces its expected profitability.

If firms take this exercise seriously, it will alter their investment decisions. Some marginal projects will now be avoided – projects that would have been undertaken if future carbon prices were assumed to be zero.

Firms are doing this for two reasons. First, it is prudent. When evaluating long-term investment projects, costs and revenues need to be forecast far into the future. It is sensible to use conservative assumptions in order to ensure that only the most profitable investments are pursued. So firms often use higher-than-expected future interest rates or lower-than-expected future revenues when evaluating a potential investment. Assuming a moderate price for carbon emissions, in a world where those prices are actually very low (or non-existent), is just another way to build prudence into the decision-making process.

A second, related reason is that firms are increasingly coming to believe that *actual* carbon prices will eventually appear. Probably no firm in North America believes that the U.S. or Canadian government will introduce a significant carbon price in the very near future, but these firms are taking the long view. Their investment projects will last several decades. As the problem of climate change becomes more widely understood and less controversial, they are making the sensible bet that policy makers will eventually introduce significant carbon-pricing policies.

Some might argue that if firms are building these shadow prices into their investment decisions, there is no need for governments to actually do anything. This is wrong. If the leaders of the major political parties were to hold a joint press conference today and credibly commit to introducing no carbon prices over the foreseeable future, firms would change their behaviour immediately. Shadow prices are used because firms believe actual carbon prices will eventually come, and anything that undermines this belief will put an end to the practise.

The more interesting implication of the use of shadow prices relates to the likely economic effects of a carbon-pricing policy when it eventually does appear. Most economic analyses of this are

based on complex models in which the introduction of the policy immediately changes the incentives faced by firms, who then respond by adjusting their production and investment behaviour. The result is that the introduction of a carbon tax or a cap-and-trade system leads to less production and investment, especially in carbon-intensive industries. These models naturally predict a small reduction in the economy's overall growth rate as a consequence.

As is usually the case, however, the real world is even more complex than the economic models, and the detailed modelling of firms' *expectations* is crucial. Suppose Canada introduces no legal carbon price until 2020, but firms increasingly come to believe that one is coming. If the *belief* of a future carbon price leads firms to gradually adjust their investment decisions, there will be less adjustment when the policy finally arrives.

So, as the practice of using shadow carbon prices becomes more and more widespread among North American firms, the logical implication is that the economic adjustment when the policy is actually introduced becomes smaller and smaller. This doesn't mean there will be no economic effect from the overall policy – only that it might be so gradual as to be hard to detect in the data.

Christopher Ragan is an associate professor of economics at McGill University and a research fellow at the C.D. Howe Institute.