Testimony Before the Senate Finance Committee on the The Role of Tax Incentives in Energy Policy

By
Kevin A. Hassett
Resident Scholar
American Enterprise Institute

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Chairman Baucus, ranking member Grassley, and Members of the Committee:

It is a great honor to be afforded the opportunity to speak with you today about the economics of tax credits. I have studied the impact of tax credits on the behavior of firms and individuals for many years, and recently coauthored a survey of the academic literature in this area prepared for inclusion in the *Handbook of Public Economics*, a text that is relied upon by most graduate economics programs to teach tax policy to aspiring economists. I believe that there are a number of important lessons from my research and the literature as a whole that this committee should be aware of.

Let me begin by focusing on what we know about the impact of tax credits that intend to encourage energy conservation by individuals. Tax incentives to stimulate conservation investment existed in many forms during the 1970s and 1980s. In addition to a federal credit, nine states also offered conservation incentives. The Federal Energy Tax Act of 1978 provided homeowners with tax credits to encourage conservation investment activities such as insulating walls and ceilings, replacing furnace burners and

ignition systems, installing clock thermostats and weather-stripping. These investments received a credit of 15 percent, with a credit ceiling of $300. The Act also encouraged investment in solar, wind, and geothermal energy equipment. These investments received a higher credit of about 30 percent, which was raised to 40 percent by the Crude Oil Windfall Profits Tax Act of 1980. The credits expired in 1985.

Several years ago, my colleague Gilbert Metcalf of Tufts University and I gathered data to study the impact of the federal and state credit programs in research that was funded by the National Science Foundation.[1] We found that the credits were fairly successful at stimulating conservation activity. While the federal credit was in effect, for example, we found that between 3 and 7 percent of tax returns claimed the credit in any given year. Cumulatively, between 1978 and 1985, more than 30 million tax returns likely claimed the credit.

Of course, a natural concern one might have is that taxpayers were going to invest in conservation anyway, and that the credit had little effect at the margin. Professor Metcalf and I used econometric techniques to investigate whether the credits had a statistically significant impact at the margin once we controlled for a number of other important factors such as energy prices. After the dust settled, we found that the credits did contribute significantly to conservation activity, and that a 10 percentage point credit would likely increase the probability of investing by about 24 percent.

As a final note, since the credit was so generous, we also explored whether it was fraudulently claimed. Using IRS audit data, we found that this was not a concern. Of the

[1] "Energy Tax Credits and Residential Conservation Investment: Evidence From Panel Data." *Journal of Public Economics*, 57 (1995) 201-217

$560 million in credits claimed in the 1986 TCMP audit data, $531 million were found to be legitimate.

The literature on the impact of investment credits on firm behavior also suggests that credits induce a significant response. While the exact numerical response will clearly depend on the particular circumstances, there is very strong evidence that firms tilt their investments in response to tax incentives.

Typical of the literature is a study I coauthored with UC Berkeley economist Alan Auerbach several years ago.[2] Back in 1986, tax incentives for purchases of equipment and structures were changed dramatically as part of the Tax Reform Act of 1986. Professor Auerbach and I found that the mix of investments responded sharply to the changing tax code. Investment dropped the most in those assets that received the harshest tax treatment in the Tax Act. Subsequent studies have confirmed the finding that tax credits often have large effects.

That said, it is important to add that the impact of a tax policy is not a reasonable metric of its quality. Indeed, we need to be especially cautious about the application of credits precisely because they are so powerful. Economics teaches us that targeted tax credits are very often a bad idea. An efficient tax code should have as low a rate and as broad a base as possible. When the tax code plays favorites, it introduces distortions that can have a very high cost to society. This is particularly a concern today, when the numerous tax incentive programs that have been folded into the personal income tax, combined with their various phase-outs, have made the marginal tax rate structure bizarrely complex, and an efficiency nightmare.

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[2] "Recent U.S. Investment Behavior and the Tax Reform Act of 1986: A Disaggregate View," *Carnegie Rochester Conference Series on Public Policy* 35, 185-215 (1991).

With this warning in mind, it is nonetheless useful, especially at this hearing, to entertain the question, under what circumstances is it advisable to ignore the general result that the tax code should not play favorites? I believe that there is agreement in the profession that those circumstances are limited to the case where there is a clear externality associated with the activity. For example, if the use of a particular piece of machinery produces pollution as a byproduct, then it may be optimal for society to tax its use. Such circumstances arise whenever an economic decision by an individual agent has a secondary and important impact on others, and the optimal tax can be a subsidy if the external effect is positive. This is why a tax credit for conservation, as was in effect in the 1970s and 1980s, can be sensible policy. There are other examples as well outside of the energy area. There are several proposals being considered now that would subsidize investments in broadband network backbone equipment. Since the benefit to the network as a whole of new connections is high (the so-called "network externality") a subsidy may be advisable.

Tax legislation that favors investment in one type of asset over another likely has big effects. This means that the direct economic cost—or deadweight loss—of such policies is likely fairly large. On the other hand, if the benefits to society of the favored investments are high enough, the policy may still be a good idea. The benefit of lower pollution may outway the cost of higher distortion. In closing, I encourage this committee to weigh carefully and precisely these costs and benefits as it considers new tax credit policies.