Does the Rebound Effect Matter? It Depends. . .

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Date: June 21, 2011

In the remarks that follow, I draw from my experience as President George W. Bush's OMB-OIRA Administrator (2001-2006), when I led an interagency team that (1) revived the Corporate Average Fuel Economy program for "light trucks" (SUVs, minivans and pick-up trucks) and (2) performed one of the first regulatory impact analyses (RIAs) that included a "rebound effect" as part of a benefit-cost analysis of stricter fuel-efficiency standards.

Basically, the analysis assumed that when manufacturers, under a regulatory constraint, offered for sale light trucks that were more fuel efficient, purchasers of these vehicles would respond by increasing their annual number of vehicle miles of travel compared to the number of miles they would have traveled with a less fuel-efficient vehicle. The logic was that mobility can be considered a "good", and more fuel efficiency acts to reduce the "price" of mobility. Economics teaches us that when the price of a good declines, consumers generally consume more of it. Despite numerous meetings with multiple federal and state agencies and stakeholders, I do not recall anyone arguing that the rebound effect should be zero. However, there was considerable debate about how large the rebound effect was likely to be.

My recollection is that a rebound effect of 20% was included by DOT/NHTSA in the RIAs for both the proposed and final CAFÉ rules governing model years 2005-2007. From the staff briefings I received at the time, my understanding was that the published literature could have supported an estimate anywhere in the range from 10-30%. I do not recall whether a sensitivity analysis was published but, as I shall explain below, the magnitude of the rebound effect is important in regulatory decision making only if you make certain plausible and classical (yet stringent) assumptions about which benefits and costs should be counted in an RIA. The 20% figure was selected by career staff at NHTSA and DOT, and cleared by OMB-OIRA.

For model years 2008-2011, President Bush approved a sustained increase in the fuel-efficiency standards for light trucks (as proposed by DOT/NHTSA and supported by OMB-OIRA), despite opposition from several White House offices. In the RIA that supported this ambitious rulemaking, a rebound effect was again included in the RIA but I believe it was reduced from 20% to 15%. I do not recall whether the change was attributable to a new study published in the peer-reviewed literature or to the comments from environmental and consumer advocacy groups or both. I do recall a briefing from competent analysts at the Environmental Defense Fund where they advocated use of a rebound effect smaller than 20%. While I do not believe that OMB-OIRA insisted on the 15% figure, my recollection is that we did not object when the DOT/NHTSA submitted

the analysis with a smaller rebound effect.

Either in the 2005-2007 rulemaking or the 2008-2011 rulemaking, I noticed an error in the way DOT/NHTSA analysts were handling the rebound effect in benefit-cost analysis. The rebound effect was used to (1) reduce the magnitude of the fuel savings (due to the mileage offset), and (2) increase the external social costs of the rule (due to increased pollution, congestion, traffic crashes and other adverse consequences of enhanced mobility). However, the agency analysts had neglected to include any estimate of the benefits (private or social) from enhanced mobility. I instructed OIRA career staff that this flaw in the analysis needed to be corrected, since by definition (via revealed preference) the motorists are telling us that they prefer the extra miles of travel to the foregone fuel savings. My understanding is that some form of modification was made to account for the benefits – at least the private benefits – of enhanced mobility. There may be a research need here to make sure that the full benefits of enhanced mobility due to the rebound effect are understood and computed.

Was the rebound effect important to regulatory decision making? I did not think so, since regardless of the assumed magnitude of the rebound effect, the benefits of the rule (private plus external) were far greater than the costs of the rule (technology costs plus external costs from the rebound effect). Prior to DOT's publication of the proposed rule (model years 2008-2011), the Office of the Vice President and the Council of Economic Advisors objected to the rulemaking package on cost-benefit grounds. They argued that (1) high gas prices may accomplish fuel savings (and the private benefits) without the need for regulation, and (2) any external (social) benefits of the rule are matched or exceeded by the external effects of the rebound effect (i.e., the extra pollution, congestion and traffic crashes from more miles of travel). During this period, there was also considerable concern about the massive financial losses at the Big Three, and the possibility that one or more of the Detroit-based companies might enter Chapter 11 bankruptcy proceedings. To make a long story short, President Bush sided with OMB-OIRA and DOT, and approved the rulemaking. Notice that, if one accepts the approach to benefit-cost analysis advocated by the Vice President and CEA, it is only the external benefits of the rule that should be counted and, if one accepts that plausible, classical (yet stringent) assumption, then the rebound effect may take on a more important role in the decision. (Even this claim is not entirely clear because a rebound effect could occur without regulation, as manufacturers responded to the private demand for fuel-efficient vehicles induced by higher fuel prices).

More recently, in the Obama administration, the CAFÉ rulemaking for model years 2012-2016 again included a rebound effect in the supporting RIA. Apparently, the magnitude of the rebound effect was reduced again to 10%. The change may be attributable to a change in the published literature and public comments, or it may be attributable to the fact that this rulemaking, for the first time, was a joint enterprise of DOT/NHTSA, EPA and the California Air Resources Board (CARB). I am told that in some analyses prepared to support CARB rules, the rebound effect was pegged at 3%.

I trust that these observations, even if subject to some error in recollection, will be of interest to conference participants.