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COMMENT

Glenn Blomquist, Illinois State University

The primary purpose of the study titled "Energy Demand Elasticity Estimates: A Case Study of the Household Sector" by Butler, Gale and Jambekar [1, 1979] is to provide more information about the price elasticity of demand for energy. Such information is important since regulation of energy prices is typically based on a critical presumption that the demand by households is quite inelastic. The work is partly a reaction to the Parhizgari [2, 1978] study which finds a long-run elasticity of -0.13, a value of which the authors and this discussant are skeptical. Essentially the authors point out that another substitution possiblity exists for households--burning wood. For the region studied, where there are many heating degree days in a year and where wood is abundant, they report that wood is an important source of energy in that 20 percent of the households use wood as the secondary heating fuel and 3 percent use it as the primary heating fuel. In the region they report that households responded to the changing energy market conditions with 73 percent undertaking some energy conservation measure and 30 percent changing their primary heating fuel. The authors go on to estimate the price elasticity of demand for conventional energy for residential space heating in a rather clever way. In contrast to traditional econometric studies, households are queried to get their perceived percentage changes in the price of their primary heating fuels and the percentage changes in the use of that fuel, each from 1973 to 1978. The average (mean) calculated price elasticity is -0.47. These results are the contribution of the paper and the authors are to be commended for their resourcefulness and effort in gathering the necessary data.

However, two matters do deserve more attention. First is the impact of changes in income, weather and other determinants of demand over the 5 year period. If such changes occured the calculated elasticity represents a gross rather than partial effect analogous to econometric misspecification of demand. While the changes are a potential source of error, they are not too troublesome if respondents figured energy savings taking these other factors into account.

Second is the price used to estimate the elasticity. While the authors are careful to distinguish between nominal and relative price changes throughout most of their work, they have apparently used nominal price changes in the calculation of the elasticity by simply taking the price changes perceived by households. Unless the question asked was carefully and forcefully worded to elicit perceived changes in the relative price of a fuel, it seems highly likely that what was reported was the perceived change in the nominal price. The authors summary remarks and the reasonably good match between the actual changes in the nominal prices of fuel oil (+135%), natural gas (+53%) and electricity (84%) and the reported, perceived changes (+124%, +42% and +119%, respectively) indicate the reported changes are for nominal prices. Since there was considerable inflation over the period, the perceived percentage increase in the relative price of fuel is less than the perceived percentage increase in the nominal price of fuel and the elasticity estimate is biased downward. However, we can get some idea of the elasticity of conventional fuel with respect to its relative price. Using the market shares of the three fuels as weights, we find that the weighted, or composite, nominal price of energy was perceived to increase 83 percent (.45 x 124 + .48 x 42 + .06 x 119 = 83). From 1973 to July 1978 the CPI increased 48 percent. If inflation was accurately perceived, then the perceived increase in the relative price of energy was approximately 35 percent. It follows that the elasticity based on the change in the relative price is approximately 2.37 times (83/35 = 2.37) that based on the change in the nominal price and that the mean of the elasticities reported by the authors is approximately 1.11 (2.37 x .47 = 1.11). Such an adjustment strengthens the authors' finding that the price elasticity of demand for energy by households is not highly inelastic, e.g., -0.13. On the contrary, it suggests that the demand is elastic. As the authors noted at the outset, an elastic demand implies that the case for energy policy based on unresponsive demand is inappropriate.

Considerable caution must be taken in drawing implications for national energy policy from this study. As duly noted the area studied is atypically cold and well-endowed with wood. Are similar unconventional energy sources as readily available at low cost elsewhere? One wonders how accurate the survey data is. The perceived, reported change in the nominal price was 8 percent ((135 - 124)/135 = .08) lower than the actual change for fuel oil, 21 percent lower than actual for natural gas and 42 percent higher than actual for electricity. How accurate is the consumption data? These questions notwithstanding, the authors have provided useful information on a seldom-studied response of households to the higher price of energy.

REFERENCES

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2. PARHIZGARI, ALI M. "The Regional Demand Forecasting Model: 1977." Washington, D.C.: Department of Energy, 1978.