Economic Evaluation of Commodity Promotion Programs in the Current Legal and Political Environment

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The Relationship Between Price and Advertising in Two-Stage Demand Models: Discussion

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The paper Henry Kinnucan wrote, entitled "The Relationship Between Price and Advertising in Two-Stage Demand Models," analyzes an interesting and important problem related to the effects of advertising on prices in two-stage demand systems. Two-stage, or conditional, demand systems are popular because the framework allows the researcher to concentrate on only one stage of the consumer behavior process without having to worry too much about the effects of changes in prices and expenditures in some other group of commodities on the commodities under investigation (a concept that will be made more precise below).

The paper addresses several scenarios including the cases of both generic and specific (branded) advertising, fixed and upward-sloping supply responses, and situations of marketing and no marketing expansion. Some of the key findings are: (1) the relationship between generic advertising and second-stage prices is always positive as long as the first stage demand is inelastic; (2) specific advertising aimed at product differentiation need not disadvantage substitute goods, nor need it necessarily increase the price of the advertised good; and (3) relaxing the assumption of a completely inelastic supply function only softens the price effects of advertising but does not alter any of the basic conclusions drawn from fixed supply cases.

I will not comment on specific cases, but rather address some concerns about the general, overall approach. The comments about the paper primarily relate to clarifications and extension of the results presented.

First, the mathematical models throughout the paper consist of logarithmic differentiated forms of total expenditure, price, and second-stage demand functions. While the math is relatively simple, the models need to be better motivated for readers who may only be interested in the policy implications of the paper. This is particularly true on the second page when the reader is first exposed to the structural model.

Second, the widespread use of two-stage demand systems stems from making complicated demand models tractable, but this simplification comes with a cost. For example, several authors have estimated meat demand subsystems. Researchers can model quantities demanded in the meat group as a function of only the prices of other meats in the subgroup and total expenditures of meat. Prices of other commodities and total expenditures devoted to other groups can essentially be ignored if the focus is only on the second stage commodities. However, given the weak separability assumption in order for a two-stage demand system to be consistent with the usual (one-stage) utility optimization process, the subutility functions of the goods in the second stage must be homothetic. This implies that the expenditure elasticities in the second stage are all unity, which is too restrictive for most applications. On page 156 of his book, Consumer Theory, H.A. Green stated a less restrictive condition than homotheticity that relates to an adjustment of the budget constraint or to the concept of strong separability. Nevertheless, a two-stage budgeting procedure invokes strong restrictions if one is also interested in obtaining price indexes for the aggregate commodities in the first stage. The paper needs to address these issues before the mathematical models can be used to answer policy questions related to the effects of advertising (both generic and specific) on prices.

Third, how does advertising enter into the models? Does the author assume a variable utility function such as the one Basmann proposed in his 1956 *Econometrica* paper which allowed for advertising effects to change consumers' tastes? If the assumption of weak separability holds, which is a necessary and sufficient condition for the second stage demand system, then quantity demanded of second-stage commodities only depends upon other prices within the group and total expenditures devoted to that particular group. However, in some cases advertising explicitly enters as a variable in the second stage demand functions. What type of separability assumptions associated with advertising are required for this to be valid?

Fourth, advertising is treated throughout the paper as an exogenous variable. There have been some studies which suggest that advertising is an endogenous variable, see for example, Schmalensee, et al. If quantities demanded of commodities are a function of advertising and advertising increases as sales of

a particular commodity increases, then the models need to be modified to account for this phenomenon.

In conclusion, Professor Kinnucan should be commended for addressing some important issues related to generic and specific advertising effects on prices. However, I would like to see some of the issues mentioned above explicitly incorporated into the economic models in order for the reader to have more confidence in the policy implications of the paper.

References

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