REJOINDER ON THE NERLOVE-WAUGH ADVERTISING THEOREM

Clem Tisdell*

In commenting on my discussion of the Nerlove-Waugh theorem [2], Professor Schrimper [1] does not contradict my main conclusion that advertising *can* lead to a greater rise in the quasi-rents of industry when the demand for its product is elastic rather than inelastic. This conclusion has not been commonly drawn from the Nerlove-Waugh analysis.

Schrimper suggests that my analysis depends upon the evaluation of the elasticities at alternative points along the displaced demand curves. This is not so. I evaluate the elasticities at the original equilibrium point, e. The demand curve $\overline{D}_1$ is more elastic than the demand curve D_1 at the point e. I specifically say in my text that "this gain [in quasi-rents] can be compared with the gains for an "equivalent" shift in the demand curve *when the initial demand curve is more elastic as measured at e*" [2, p. 104]. Schrimper is therefore confusing the issue when he says "a subtle point associated with the result [the Nerlove-Waugh result] is that it is elasticities at the initial equilibrium that are relevant for this evaluation and not elasticities at alternative points along the displaced curves" [1, p. 187].

Schrimper correctly emphasizes that the Nerlove-Waugh result is based upon the use of the differential calculus. Schrimper says, "Ordinarily one would not be concerned with possible changes in elasticities for marginal analysis in a comparative static setting since the limiting processes involved with the differential calculus as employed by N-W implicitly assume constant elasticities" [1, p. 187]. I am not certain what is meant by this statement but I believe that it points to possible serious limitations being imposed upon conclusions if the differential calculus is used as a tool of analysis. It is a dangerous tool to use when other than *very* small changes are being considered, and we need to consider other than very small changes in evaluating advertising strategies. It was for this reason that I preferred to use geometric analysis rather than the differential calculus in discussing the possible impact of advertising on quasi-rents and had doubts about some policy conclusions drawn from the Nerlove-Waugh analysis.

Coming to Schrimper's last point, he maintains that differences in the α's account for differences in the profitability of advertising. *If* one interprets[1] α as the increase in *equilibrium* gross revenue resulting from a

---

* Professor of Economics, University of Newcastle, N.S.W. 2308.

[1] This is a slightly different interpretation to that of Schrimper and of Nerlove-Waugh but leads to more general results because of its use of equilibrium values.

shift in demand (the positively shaped supply curve unchanged), it is true that quasi-rents in the industry can be expressed as a positive function of α. Whenever an industry's gross revenue in equilibrium increases, the equilibrium level of the price of its product rises and so quasi-rents go up. This is a generalization and my analysis is quite consistent with it. My contribution was to point out that quasi-rent *may* rise by more when demand in initial equilibrium is elastic than when it is inelastic, depending upon how the shift in demand is defined. Different shifts in the demand curve give rise to different α-values which in turn imply differences in quasi-rents. Those factors which give rise to differences in the α's are ultimately responsible for changes in profitability. Thus Schrimper's conclusion that "it is the difference in α's that is responsible for the increased profitability rather than how the shift in demand is measured or the difference in elasticities" [1, p. 188] is misleading. The α's result from more basic factors or conditions which in some cases can be related to initial elasticities and shift elements. We cannot presume that advertising is more profitable when demand in initial equilibrium is more inelastic. The Nerlove-Waugh theorem cannot and should not be mechanically applied to decisions about promotion. Schrimper's comment would seem to reinforce the validity of this point of view.

REFERENCES

[1] SCHRIMPER, R. A., "Comments on Tisdell's Critique of Nerlove-Waugh Theorem Concerning Optimal Advertising", this *Review*, this issue.

[2] TISDELL, C., "The Promotion of Wool and Synthetic Fibre Blends: Some Alternative Strategies for the Wool Industry", this *Review*, Vol. 44, No. 3 (September, 1976), pp. 101–113.