## REFERENCES

# Polluters' Profits and Political Response: Direct Control Versus Taxes: Comment

## By Gary W. Yohe*

In a recent issue of this *Review*, James Buchanan and Gordon Tullock (B-T) sought to present a positive theory in explanation of the frequency with which direct controls of an externality are imposed in lieu of punitive taxation. They argue that this frequency is observed despite the preference of most economists for price controls, because those economic actors whose production or consumption is to be regulated not only prefer direct quantity control, but also possess the means with which to press their will upon the political decision maker. It has been the point of recent work in the theory of regulation under uncertainty that the economists' general preference is not entirely well-founded (see for example Marc Roberts and Michael Spence, Martin Weitzman, and the author). There do exist many quite plausible situations in which both economists and the Buchanan-Tullock regulatees should prefer quotas. It is not, however, the purpose of this comment to characterize these situations; I will, instead, work within the certainty model of B-T to demonstrate that their arguments depend crucially upon the structures of their quantity control alternatives. For example, I will show that in the production section of their paper, the quantity scheme is not economically equivalent to the alternative taxation system, and that it distributes the gains of this difference to the regulatees. When the equivalent quantity control is properly specified, both the economists' general preference for taxation and the regulatees' general preference for quotas will disappear. The difficulty, therefore, does not lie in the specification of the tax structures, as B-T suggest, p. 147, but rather in the specification of the quota schemes.

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Consider then the control of a production activity as proposed by B-T. Recall that they postulate $n$ identical, perfectly competitive firms that are originally producing the same product in long-run equilibrium. An output restricting tax is compared to a quota system that allows each firm an equal fraction of its former output. Economists should, then, certainly favor the taxation alternative on efficiency grounds, in addition to their relative ease in enforcement. To see this point, observe that under the proposed quantity controls, none of the firms is producing at the minimum of its long-run average cost curve. Each is therefore an inefficient production unit that is experiencing pressure to increase profits by increasing output. The regulatees, meanwhile, favor the quotas because the potentially positive stream of losses under quotas would be less than the corresponding losses created by the industry's adjustment to the after-tax long-run equilibrium (p. 140). The B-T conclusions then follow from the political power wielded by these regulatees.

The quantity controls suggested by B-T, however, are not economically equivalent to the price control alternative. The taxation scheme would clearly result in fewer than $n$ firms (say $m$) producing at the minimum of their long-run average cost curves. Suppose that quantity restrictions were structured so that the $n$ regulatees would bid for $m$ separate licenses to produce the quantity $q_1$ for one production period (see Figure 1, reproduced from the original article). In equilibrium, this scheme creates the same long-run situation as the tax alternative; there would be no inefficiencies and no pressure for anyone to increase output and thereby violate the quota. The equilibrium revenue generated by the sale of the quotas can, in addition, be shown to be precisely equal to the equilibrium tax revenues. Economists should,
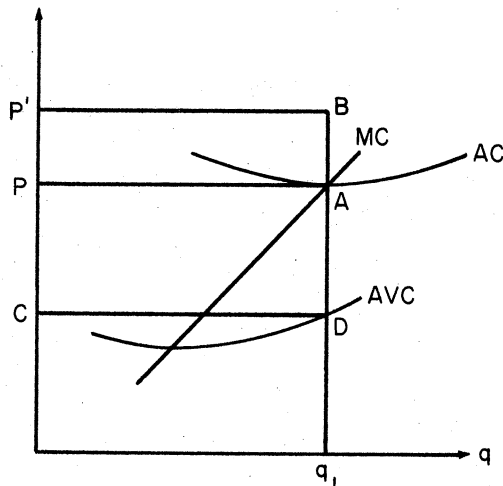
FIGURE 1

therefore, be indifferent between these two possible modes of control.

But how will the individual firms, the regulatees, view this second comparison? To answer this question, one must consider not only the final equilibrium situation, but also the sequence of events that leads to that equilibrium. The maximum bid that each firm would consider as the licenses are auctioned must be determined. Just as the firms would accept temporary losses in an attempt to stay in business after a price change, they would also accept temporary losses caused by overbidding for a license; all that is required is that variable costs be covered. As a result, if the licenses allow $q_1$ to be produced, the firms would make a maximum bid equal to the area $CDBP'$ in Figure 1. This bid would initiate a sequence of bids that would converge to the equilibrium, area $PABP'$, and to zero profits. Notice that this sequence defines a stream of losses that the regulatees must compare, in discounted value, to the tax-created losses. Their preference, and the analog of the Buchanan-Tullock conclusion, is therefore ambiguous when the quantity control alternative is tax equivalent.

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