NATURAL RESOURCES JOURNAL

Volume 20
Issue 3 *Summer 1980*

Summer 1980

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Recommended Citation
David E. Ervin & James B. Fitch, *Evaluating Alternative Compensation and Recapture Techniques for Expanded Public Control of Land Use: A Reply to Dr. Scholvinck*, 20 Nat. Resources J. 551 (1980).
Available at: https://digitalrepository.unm.edu/nrj/vol20/iss3/8

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EVALUATING ALTERNATIVE COMPENSATION AND RECAPTURE TECHNIQUES FOR EXPANDED PUBLIC CONTROL OF LAND USE: A REPLY TO DR. SCHÖLVINCK

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Professor Schölvinck's comment on our article first is concerned with the appropriate zoning auction (ZA) criterion to determine if a zoning change represents an efficiency improvement.[1] He also argues that the most serious problem with ZAs may be the excessive transaction costs for recording bids. This note discusses those concerns in turn, and clarifies the issues raised.

Following Mishan,[2] Schölvinck argues correctly that, assuming the opponents hold legal rights to the status quo land uses, the proper theoretical efficiency criterion is whether the maximum amounts the proponents would bid for the zoning change exceed the minimum amounts the opponents would accept to endure the change (hereafter referred to as the S criterion). Under the assumed legal conditions, this is a comparison of the compensating variations (CVs) of both groups, a correct procedure to determine if the zoning change represents a Pareto improvement.

The S criterion varies from the criterion proposed by Wiseman[3] (hereinafter referred to as the WEF criterion) with which we concurred. Under the WEF criterion, a ZA would sanction a zoning change if "the total bids favoring the change exceed the total bids against."[4] This procedure compares the proponents' CVs with the opponents' equivalent variations (EVs) under the assumed legal conditions. The EVS are understatements of the true losses of the opponents if the good in question is "normal," i.e., a positive income effect exists. Therefore the WEF criterion is not a correct test of a potential Pareto efficiency improvement in this case. We appreciate Professor Schölvinck's clarification of this point.

The primary implication of this result is that *some* zoning change

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1. Schölvinck, *Evaluating Alternative Compensation and Recapture Techniques for Expanded Public Control of Land Use: A Comment*, 20 NAT. RES. J. 153 (1980).

2. E. MISHAN, COST BENEFIT ANALYSIS 125-31 (1975).

3. Wiseman, *Rezoning by Auction–A New Approach to Land Use Decisions*, UTAH SCI. 86 (1974).

4. Ervin & Fitch, *Evaluating Alternative Compensation and Recapture Techniques for Expanded Public Control of Land Use*, 19 NAT. RES. J. 21, 29 (1979).

decisions sanctioned under the WEF criterion would not represent potential Pareto improvements. When the opponents' EVs exceed the proponents' CVs, or when the proponents' CVs exceed the opponents' EVs *or* CVs, the criteria lead to the same result, i.e., WEF is consistent with Pareto improvement calculations. Only when the proponents' CVs exceed the opponents' EVs but not the opponents' CVs do the criteria conflict. However, in all cases, the opponents would not receive full compensation for their losses under the WEF procedure assuming they hold legal rights to the status quo land uses.

Schölvinck argues that the ZA bidding and compensation procedures should be based on the proponents' maximum values and opponents' minimum values consistent with the S criterion. Before discussing the conceptual and practical merits of this recommendation, the role of legal rights to the status quo land uses in determining the appropriate maximum and minimum values to be considered should be clarified. Schölvinck notes that determination of the existing legal rights is crucial to measuring the efficiency of zoning changes.[5] As stated above, if the opponents' legal rights are assumed well defined (e.g., a rezoning proposal under a legal master zoning plan), then comparison of the theoretical maximum amounts bid by the proponents with the theoretical minimum acceptable values to the opponents yields a correct efficiency determination.[6] What about situations in which the legal rights are not well defined? These circumstances seem to characterize many, if not most, proposed land use changes, including the zoning of land not previously regulated and zoning regulations subject to change from political and/or economic pressures. In the latter instance, rights to the status quo land uses do not appear to be well defined since compensation is not paid for zoning changes that decrease property values. For situations without well defined status quo legal rights, determination of a Pareto improvement would require comparison of the maximum values bid by proponents *and* opponents, i.e., the WEF criterion. As explained in our previous article, these situations would require alteration of the compensation procedure such that either the opponents *or* proponents would receive compensation if they lose.[7] Thus, without

5. Schölvinck, *supra* note 1, at 156.

6. Note that when legal rights are assumed well defined, the definition of proponents and opponents is dependent on the initial assignment of legal rights. That is, proponents of a zoning change are assumed not to hold the legal rights to the proposed land uses–otherwise, they would be bidding for rights they already hold. Thus, the maximum and minimum CV values always are associated with the proponents and opponents respectively. Scholvinck's discussion is a bit confusing in this regard. *See* Schölvinck, *supra* note 1, at 155.

7. Ervin & Fitch, *supra* note 4, at 30 n. 32.

firm legal rights, the comparison of proponents' maximum values with opponents' minimum values under the S criterion is not applicable.

Even if the opponents' status quo legal rights are well defined, application of bidding and compensation procedures based upon the S criterion is beset with serious conceptual and practical problems. First, since the proponents' bidding procedure is the same under the S and WEF criteria, Schölvinck's recommended procedure suffers from the same valuation problems. That is, proponents will resort to free-riding and other gaming behavior, understating their true willingness to pay, in attempting to gain economic surpluses.[8] For example, a proponent could underbid his or her maximum willingness to pay, in the belief that the other proponents' bids will be sufficient to win the auction, or if he or she mistakenly judges the opposition to be weak.

More serious is the potential for the opponents to overstate the minimum values they would accept for loss of their legal rights. Schölvinck argues incorrectly that the opponents under the S procedure will state the *exact* amount of compensation that will keep their welfare unchanged for loss of the legal rights. A simple examination of opponents' alternative bidding strategies and the potential outcomes reveals the incentive for overstating these minimum values. If an opponent overstates and the bids of the proponents exceed the opponents' expressed minimum values, then the opponent will receive compensation in excess of the value of the lost legal rights, i.e., an improvement in welfare. If the proponents' bids do not exceed the opponents' minimum values and an opponent has overstated, then the proposal is defeated and the opponent's welfare is unchanged. If the opponent's subjective probability of the proponents winning is greater than zero, then the opponent has an obvious incentive to overstate the minimum value. Therefore, contrary to Scholvinck's reasoning, there is no special mechanism in his suggested procedure that will produce exact statements of expected welfare changes by the opponents. Clearly, they must be willing to risk losing their stated minimum values to choose not to overstate those values.

The problems of obtaining true evaluations of potential welfare changes of the proponents or opponents with ZAs represent a classic example of difficulties of determining the values of public goods. The proponents' or opponents' potential benefits, such as reductions

8. This expected behavior prompted our suggestion for meetings of the proponents before bidding, and sequential open bidding or bargaining rather than finalized sealed bidding. Ervin & Fitch, *supra* note 4, at 35-36.

in noise and visual pollution, may exhibit varying degrees of publicness. If those benefits are available to others in the groups without exclusion, the proponents and opponents can be expected to resort to gaming behavior to attempt to gain welfare improvements.[9] The degree of those problems will increase with increases in the size and heterogeneity of the public affected by the zoning change proposal. The effect of gaming behavior on the zoning auction outcome is in general indeterminate. Considering a case where the opponents' legal rights are well defined, the proponents can be expected to understate their maximum bids, the amount depending upon their expectations of other proponents' bids and strength of the opponents. Since the opponents risk losing their reported minimum values, they can be expected to understate if they expect the proponents not to win. However, the opponents will overstate if they feel the proponents are too strong. If the status quo legal rights are assumed not well defined, strategy combinations become more complex because both the proponents and opponents are eligible for compensation if their group does not win.

Schölvinck's final concern is that the transaction costs for recording ZA bids may be prohibitive, especially when large groups are involved. The important point from an efficiency perspective is not to choose a land use control technique that minimizes transaction costs, but one that maximizes efficiency gains from land use control net of administrative and transaction costs. If institutional procedures can be devised to elicit true statements of welfare changes under ZAs, it appears that the efficiency of land use control would be improved over traditional zoning regulations. The administrative and transaction costs of ZAs would have to be subtracted from these efficiency gains and then compared to similar figures for other land use control techniques to determine the most efficient approach. Nevertheless, it does appear that ZAs would result in larger transaction costs than traditional zoning procedures because a wider public would be incorporated into land use planning decisions. As Randall[10] has suggested, researchers interested in market-type solutions to externality problems may have to devise alternative ZA institutional mechanisms that reduce transaction costs, if it is to be considered a viable land use control technique.

9. J. SENECA & M. TAUSSIG, ENVIRONMENTAL ECONOMICS 97-102 (2d ed. 1979).

10. Randall, *Market Solutions to Externality Problems: Theory and Practice*, 54 AM. J. AGRICULTURAL ECON. 183 (1972).