

Voting Behavior When Public Spending Affects Property Value

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Economic theory can help to explain voting behavior in elections in which public expenditures are determined. Consider the case of a referendum on raising a school district's property tax rate. Voters understand that extra revenue generated would be used to raise teacher salaries, reduce class sizes, and upgrade facilities and instructional materials. In deciding whether to vote in favor of the referendum, each local household must evaluate whether the benefit that it would receive from such spending justifies the higher property tax payment that would result. But how should the benefit be measured?

Researchers studying voting behavior in the past theorized that a household casts an affirmative vote in such a referendum if the expected *direct* benefit (the dollar value of the improvement in its children's education) exceeds the tax increase, and a negative vote otherwise. For example, several years ago some economists attempted to explain demand for education spending by relating voting behavior to household characteristics (size, age, income, and education). They considered responses to survey questions on the degree to which voters felt local school expenditure levels were appropriate (results appear in a 1982 *Econometrica* article by Bergstrom, Rubinfeld, and Shapiro), along with information on pre-referendum tax burdens.

Although such survey responses might initially appear to provide a good picture of the degree to which different types of households value education spending, the approach contains some anomalies. For example, the findings show that voters over 65 years of age have a *higher* demand for school spending than do

younger voters with similar incomes and educational backgrounds. Since elderly voters do not have school-age children, and therefore would receive little direct benefit from added education spending, a finding that the elderly support high education expenditure cannot be explained by a theory based on direct benefits alone. What could explain this result?

The Impact of Wealth

The answer to the puzzle may lie in a critical omission in the standard theory of voting. The theory fails to recognize that when the voter's wealth (rather than simply the receipt of government services) is affected by the level of public expenditures, the usual view of voting behavior must be modified. How are voter wealth and public spending connected? At the local level, the connection is obvious: the resale value of the voter's house is determined, in part, by the quality of local public services, particularly education.

In deciding how to vote in a school spending referendum, the voter therefore considers three effects. The first and second, as standard theory would suggest, are the direct benefit that the household receives from the spending and the detriment that it suffers from increased property tax. A third consideration, however, should be the expected change in house value caused by improved schools. The household's own receipt of education services, then, is not the only benefit that it considers; the analysis should also include a house value, or wealth, effect. The answer to the over-65 puzzle thereby becomes clear: while the typical elderly household has no need for the services of public schools, concern about impacts on property value might lead older owners to cast affirmative votes in school spending referenda (and to indicate high demand for spending in survey responses).

Benefits and Costs

The purpose of our research is to develop a theoretical model that captures the influence of house value considerations

on voting behavior. The first step is to determine conceptually the extent to which home values depend on the level of education spending. We make this determination by considering the preferences of the family most likely to buy the house in the future. The future buyer's marginal benefit from school spending (that is, the direct benefit provided by an extra dollar of spending) depends on the nature of the buyer's household; if it has young children, then its marginal benefit from added education spending is high. (For simplicity, we assume that buyers in all future transactions would share the characteristics of a "most likely" buyer; we therefore need not consider the buyer's evaluation of the preferences of households to whom he might later sell.)

As school spending rises, however, the future buyer must also pay additional property taxes, which represent the marginal cost. As long as marginal benefit exceeds the marginal cost, extra school spending enhances the attractiveness of the house to the future buyer, raising its value. However, once education outlays become so high that the marginal benefit of extra spending falls below marginal cost, then the higher tax that finances the extra spending *lowers* the attractiveness of the house to the future buyer, reducing its value. As a result, there is some intermediate "value-maximizing" level of school spending that is most attractive to the most likely buyer and, thereby, yields the highest possible value in the market if the house is sold.

If the future buyer would receive substantial direct benefits from school spending (as would be the case if the most likely buyer were a household with many children), then the house would be most attractive (its value maximized) if the community's school spending level were high. If direct benefits to the future buyer were low (the most likely buyer would be a household with children approaching college age), then the house would be most attractive (and its value highest) if

school spending were relatively low.

Preferences of the Most Likely Buyer

Imagine that the voter plans to sell the house in the near future (for example, the voter might be an elderly person retiring to Florida), and that the voter knows the relevant characteristics of the most likely buyer. As a result, the voter knows the level of education spending that maximizes the value of the house. Furthermore, imagine that the voter can borrow against the future resale value of the house (through a second mortgage or a home equity line of credit). Initially, we might also assume that the voter can borrow against future income (amounts that

influence the voting behavior of current community residents. As a result, political power is exerted by people who do not yet reside in the community.

Optimal Spending Redefined

The modified rule for determining the voter's ideal spending level is a simple one that reflects the above considerations. Education spending is best from the voter's point of view when a weighted average of the marginal benefits to the seller and the buyer is equal to marginal cost. For example, spending might be ideal when $2/3$ times the current owner's marginal benefit plus $1/3$ times the most like-

cussed above, we can show that unless the voter plans to move immediately (in which case buyer preferences receive 100% of the weight), the owner will not vote simply to maximize house value.

The voter's preferred spending level falls short of the value-maximizing level if the voter's marginal direct benefit from school spending is less than the buyer's. This would be true, for example, in the case of an elderly voter, whose demand for education services is low relative to that of a buyer with children. The relationship is reversed if the voter's demand for school services is higher than that of the buyer; the voter's ideal spending level then lies above the value-maximizing level.

A Useful Framework

There are a number of additional questions that can be addressed using our framework. One concerns the effect of a borrowing constraint. Suppose that the borrower can realistically borrow against the value of the house but cannot borrow against future income. How does the presence of this constraint affect the ideal school spending level? The answer is that a voter who is constrained by the borrowing rule (after consuming all his housing equity, he would like to borrow more but cannot) will prefer a spending level closer to the value-maximizing level than will a borrower who is not constrained. In effect, a voter who wants high current consumption will try to extract more money from his house than will a more patient individual. He does so by voting for school spending closer to the value-maximizing level (in order to increase the home's collateral value), thereby eliminating the need to borrow against future income.

The results of this research should improve our understanding of voting behavior in local spending referenda. However, more work needs to be done, especially at the empirical level, to explain the role of property value considerations.

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can be borrowed under this type of arrangement, of course, are limited for most households). Incorporating all of these assumptions, we then ask how the voter's ideal spending level is determined.

If we were to ignore house value effects, the answer would be that the voter's most preferred spending level is the level at which the marginal direct benefit from an extra dollar of spending is just equal to the marginal cost in the form of higher property taxes. How does the answer change when house value effects are taken into account? The first factor to consider is that an increase in the value of the house represents an extra benefit over and above the direct benefit (improved education), while a decrease in house value represents an extra cost. These benefits and costs must be taken into account in determining the voter's ideal spending level.

We must also remember that spending's impact on a home's value depends on the marginal benefit of spending *from the future buyer's point of view*, not from the seller's. Therefore, in taking into account house value impacts of the school spending level, the voter ultimately takes into account the preferences of the most likely buyer. The buyer's preferences thus

ly buyer's marginal benefit equals marginal cost. The weights applied in this averaging process reflect, in part, the expected date of sale of the house. If the voter plans to sell the house shortly after the referendum is held, then the buyer's preference receives a large weight relative to that of the voter. The construction of this weighted average would explain, for example, the apparently anomalous behavior of the elderly voter. If such a voter were planning to sell within a short time horizon, the buyer's preferences would play a big role in determining the ideal spending level; the elderly seller would favor increased school spending if the most likely buyer would be a household with children.

Some economists contend that a rational voter should be concerned *only* with the house value effect, and should ignore direct benefits. These observers contend that if the direct benefit to the voter's household is not adequate, the house is sold and the voter moves to another community. Such an assumption is clearly unrealistic, given that job and family ties restrict most people's mobility. Our analysis shows how the incentive for property value maximization is altered under conditions of restricted mobility. Using the formula dis-