PUBLIC PREFERENCES FOR ECONOMIC POLICIES *

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The paper describes a method by which the intensity of preferences for different economic policies can be estimated. The model is based on revealed choice through voting behavior, and permits its transformation into measures of preference by taking into account the abstentions from voting and their frequency. It is then possible to derive both the elasticities of intensities and the absolute valuation of these preferences. In the empirical analysis it is found that economic policies do not seem to generate the strong preferences that could have been expected. It is also found that the upper income group have no particular inclination towards laissez-faire type economic policies and prefer many interventions by the government.

1. Introduction

This paper reports a method of measuring the intensity of public preferences for different economic policies and of estimating the factors that influence these preferences. It proceeds by describing a model that permits the transformation of voting data into measures of group preference. This method of measuring group preferences can be applied to a variety of other questions as well (Noam 1980); it is therefore of interest beyond the present illustrative application.

The difficulty of estimating the preference intensities for public policies is a problem for public decision-makers. A number of attempts

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have been made in this direction (Mueller et al. 1975; Pommerehne 1974; Bergstrom and Goodman 1973; Borcherding and Deacon 1972). One method is simply to survey people, by way of a questionnaire or a controlled experiment (Bohm 1972). The difficulty with this approach is that its application is time consuming and expensive, and its reliability is inversely related to the subjects' fondness for strategy. A related approach is therefore to refine the survey questions (Green and Laffont 1976) in a complex way that eliminates the incentive for such strategy, but also makes the operational use of this method extremely difficult.

A third approach is to look at a mechanism available to register public preferences, namely voting results. In particular, the results of referenda are a valuable source of information because they reveal the preferences of voters who are confronted with real and publicly discussed policy questions rather than with hypothetical and only dimly understood issues. There is also normally no reason to believe that voters would vote contrary to their preferences for some strategic purpose. Recognizing these advantages, several studies of referenda on public finance issues had been undertaken, but they involved a limited number of issues only and restricted themselves to state-wide referenda (Deacon and Shapiro 1975; Birdsaal 1965). And where local issues were analyzed, the studies are not concerned with preference functions but with the correlations of income with approval rates (Wilson and Banfield 1965; Frey and Kohn 1970).

In these studies an important problem remains unresolved: voting results indicate the direction of public preference, but do not necessarily reflect its intensity. An issue may be mildly preferred or passionately desired by the same percentage of people; this will not be obvious from the voting results.

2. The model

Let us assume an identifiable and observable group of voters. Within the group, it is assumed that the net benefits $B$ that would accrue due to a referendum decision on economic policy are distributed as a random variable with a normal distribution (Hinich et al. 1972), whose variance and mean are both unknown. $B$ is defined so that if the benefits of a policy are positive about some indifference threshold $S$ a person votes "yes", and that if his perceived benefit is less than $-S$ he votes "no".
Those whose benefits lie between $S$ and $-S$ are the abstainers, defined to exclude habitual non-voters. Formally,

<table>
<thead>
<tr>
<th>Vote Yes</th>
<th>if $B &gt; S$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vote No</td>
<td>if $B &lt; -S$</td>
</tr>
<tr>
<td>Abstain</td>
<td>if $S \leq B \leq -S$</td>
</tr>
</tbody>
</table>

This distribution is represented in fig. 1, where abscissa points to the right of 0 represent positive benefits, and, beyond $S$, "yes" voting. Points to the left of 0 represent negative benefits, and left of $-S$, "no" voting. People in between are abstainers. The percentage of "yes" voters is $Y$, the percentage of "no" voters is $N$, and the percentage of abstentions is $A$ (Noam 1980).

We want to find the mean benefit for the group. This amounts to determining the unknown mean $\mu$ of a normal distribution whose variance $\sigma$ is also not given, but where some areas $Y$, $N$, and $A$ are known to exist, respectively, right of $S$, left of $-S$, and between $S$ and $-S$. Therefore

$$P[B \leq -S] = N \quad P[B \leq S] = N + A \quad (1)$$

Standardizing these equations, one has

$$P \left[ Z \leq \frac{-S - \mu}{\sigma} \right] = N \quad P \left[ Z \leq \frac{S - \mu}{\sigma} \right] = N + A \quad (2)$$

Fig. 1.
In terms of \( Z \), the cumulative distribution function of the standardized normal distribution,

\[
\frac{-S - \mu}{\sigma} = Z_N \quad \frac{S - \mu}{\sigma} = Z_{N + A}
\]

so that the variance can be expressed as

\[
\sigma = \frac{-2S}{Z_N - Z_{N + A}}
\]

The mean of the distribution is therefore, after substitution,

\[
\mu = -S - Z_N \sigma = S \left( \frac{Z_N + Z_{N + A}}{Z_N - Z_{N + A}} \right)
\]

If the magnitudes of \( N \), and \( A \) are known, and with \( Z_N \) and \( Z_{N + A} \) that can be found from the tables, the value for the mean benefit \( \mu \) can be readily calculated as a multiple of \( S \).

\( S \) need not be known if one assumes that it is the same for all groups; this assumption may also be relaxed or at least tested. To do so we use the reverse procedure on those issues for which the mean benefit \( \mu \) of the normally distributed random variable \( B \) is known, as well as the percentages \( Y \), \( N \), and \( A \). From equations (3) we have

\[
\sigma = \frac{-2\mu}{Z_N + Z_{N + A}} \quad \text{and}
\]

\[
S = Z_N \frac{2\mu}{Z_N + Z_{N + A}} - \mu = \mu \left( \frac{Z_N - Z_{N + A}}{Z_N + Z_{N + A}} \right)
\]

When \( N \), \( A \), and \( \mu \) are known, \( S \) can be determined. It is now assumed that if \( S \) is found to have relatively similar values for the several issues for which a mean benefit \( \mu \) is known, then it is also similar for those issues for which \( \mu \) is not known.

We have thus obtained a method for calculating the perceived benefits associated with different policies. It is now possible to estimate factors that influence these perceived benefits, such as major demographic characteristics of the individual like income and education. Let
us assume that perceived benefits $B$ are functions of relative income $\frac{Y}{\bar{Y}}$ and education $E$ such that

$$B = f\left(\frac{Y}{\bar{Y}}, E\right) = \Omega \left(\frac{Y}{\bar{Y}}\right)^\delta E^\alpha$$  \hspace{1cm} (7)

This equation can now be subjected to empirical estimations.

3. Data

The empirical analysis is based on data and issues of referenda from Switzerland, since many public issues of even minor significance are decided in that country by the electorate directly. The canton of Basel-City is particularly instructive since its very small size reduces parochial influences of location (Frey and Kohn 1970). Basel, a highly developed middle-sized city with a long civic tradition and an international location could also be illustrative for other western jurisdictions.

The main method of estimation involves a cross-section analysis across polling districts, where the demographic characteristics of the district are the independent variables and the intensity of preference that is found through the model is the dependent variable.

Sources for the data are as follows: voting results for referenda by polling place are available in the official gazette, the Kantonsblatt, on the day after a vote. Demographic information on education is available from the Swiss national census and related publications (Statistisches Amt 1976). Income data is obtained from a market research survey (PROGNOS 1972). $L$, the active electorate, i.e., the electorate excluding habitual non-voters, is defined as the highest number of participants that voted at a polling place in a referendum concerning cantonal matters [1].

To estimate the threshold value for voting $S$, the procedure described earlier in equation (6) is used and issues are chosen for which

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[1] Referendum held October 20, 1974. A number of other definitions for the active electorate $L$ were also investigated. For example, the highest participation in a federal referendum; the highest number of voters at a polling place at any election; the population within a district, minus the lowest abstention rate. The results of the analysis were fairly insensitive to the choice of those alternative definitions.
the average benefits \( \mu_i \) can be estimated independently. The referendum issues that are used are votes on public utility charges and taxation [2]. With the income distribution known (PROGNOS 1972), one can calculate the expected average financial consequences of an adoption of a tax, or of a charge vs. a tax proposal, and use this value as \( \mu_i \) in order to determine \( S_i \) in (6). The resultant \( S_i \) are all relatively similar to each other, with values in a band of 22–33 Sfr in no discernable patterns. An average \( S = 28 \) Sfr is therefore assumed to exist for other issues. A different \( S \) would not change the elasticities.

4. Results

Results for the different preferences follow. The left columns of table I give the preference elasticities for eight different economic policies for which referenda were held in Basel-Stadt.

A first observation is that income elasticities are quite high and normally positive. The results show strong positive income elasticities for many interventionary economic policies and actions, such as wage-price controls, environmental regulations, subsidies, and licensing requirements for trade occupations. It is interesting to observe that high income individuals have a fairly good sized anti laissez-faire tendency. Similarly, we find negative income elasticities for anti-cartel legislation (aimed at large companies). All this demonstrates that despite free-market protestations, government intervention per se is not objectionable to upper-income groups.

Elasticities with respect to education are mostly small and frequently of low statistical significance. But it is interesting to observe that they have nearly always the opposite sign from income elasticity, i.e., they are usually negative. Thus it seems that education is a factor that reduces social polarization on economic policy issues that would occur if income were the only factor for preference. A person’s economic

[2] Referenda held December 11, 1949; January 19, 1950; February 10, 1972; July 12, 1975; April 22, 1976. During the years 1949–1976 the rate of inflation was, on the average 3.1%. All results are expressed in terms of 1975 dollars. The voting on a tax vs. a charge to support public services reduces or eliminates the distortions that may occur when a voter favors a tax for the public services that it finances in general.
status is thus not the only determinant of his economic consciousness, though it is a dominant variable.

It is very instructive to observe the valuation that upper middle and working class people put on these economic policies. This can be seen in the following table 2. The results were obtained by substituting the values of income and education that exist in upper class and working class neighborhoods into equation (7).

For upper middle-class people, land use controls and environmental regulations are by far the most valued issues. Other economic issues, whether positively or negatively regarded, are much less important. Negative values are associated with anti-cartel laws, job programs, and subsidies.

Working-class individuals also favor environmental and land use controls, although by much less. Opposition is strong to wage-price controls and licenses to enter trades. Neither group favors antitrust legislation, agricultural protectionism (as city-dwellers) and direct economic subsidies to failing businesses.

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Table 1
Demand elasticities for economic policies.

<table>
<thead>
<tr>
<th>Economic Policy</th>
<th>Income elasticity $\delta_1$</th>
<th>Education elasticity $\delta_2$</th>
<th>$R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price-wage control authority</td>
<td>1.2236 (5.8476) $^a$</td>
<td>-0.0053 (0.1108)</td>
<td>0.914</td>
</tr>
<tr>
<td>Direct economic subsidies to failing enterprise</td>
<td>0.1692 (2.1442) $^b$</td>
<td>-0.0580 (0.17675) $^b$</td>
<td>0.5429</td>
</tr>
<tr>
<td>Agricultural subsidies</td>
<td>0.4364 (2.2552) $^b$</td>
<td>-0.0139 (0.8346)</td>
<td>0.5845</td>
</tr>
<tr>
<td>Environmental controls</td>
<td>1.4243 (2.2552) $^b$</td>
<td>-0.0565 (0.8346)</td>
<td>0.5878</td>
</tr>
<tr>
<td>Land use controls</td>
<td>1.2782 (2.8735) $^a$</td>
<td>-0.0154 (0.1510)</td>
<td>0.7367</td>
</tr>
<tr>
<td>Licensing requirement in trades</td>
<td>0.4678 (1.8060) $^b$</td>
<td>-0.0175 (0.1126)</td>
<td>0.4979</td>
</tr>
<tr>
<td>Anti-cartel legislation</td>
<td>-0.5175 (2.3774) $^b$</td>
<td>0.2538 (1.1097)</td>
<td>0.5920</td>
</tr>
<tr>
<td>Job programs</td>
<td>-0.3381 (1.4250)</td>
<td>-0.0061 (0.1015)</td>
<td>0.5065</td>
</tr>
</tbody>
</table>

Note: t-statistics in parentheses.

$^a$ Significant at the 0.99 level.

$^b$ Significant at the 0.95 level.
Table 2

Valuation (in 1975 Sfr) of the adoption of different economic policies.

<table>
<thead>
<tr>
<th>Upper middle-class</th>
<th>Working-class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land use controls</td>
<td>25.12</td>
</tr>
<tr>
<td>Environmental control authority</td>
<td>14.40</td>
</tr>
<tr>
<td>Price-wage controls</td>
<td>7.02</td>
</tr>
<tr>
<td>Licensing in trades</td>
<td>0.54</td>
</tr>
<tr>
<td>Subsidies to agriculture</td>
<td>-1.62</td>
</tr>
<tr>
<td>Job programs</td>
<td>-5.04</td>
</tr>
<tr>
<td>Economic subsidies to failing enterprise</td>
<td>-6.28</td>
</tr>
<tr>
<td>Anti-cartel legislation</td>
<td>-8.70</td>
</tr>
</tbody>
</table>

A final observation is that people tend to attach a relatively small value to most economic policies, though it is also noticeable that upper middle-class people tend to feel stronger about them than working-class people.

Because these results are based on one Swiss jurisdiction, their general applicability would benefit from similar studies in other countries. However, no other country has a referendum system which is as developed as Switzerland's.

5. Summary

This paper describes a method to derive measures of the preferences for different public policies. It uses the results of referenda, incorporates variations in non-voting into the model, and calculates both the elasticities of the preference intensities and the absolute valuation of these preferences. The information that is gained by this procedure permits an estimation of the intensity of preferences; as such it goes beyond previous studies of voting behavior which had to rely on percentages of approval, even though such numbers may not distinguish between mild and strong preferences. The empirical results for the jurisdiction that was investigated show that economic policies do not seem to generate the strong intensities of preference that could have been expected. It was also found that the upper middle-class has no apparent inclination
towards a *laissez-faire* type of policy and welcomes many interventionary policies of government.

References


