

## Exercise I Pork-barrel spending

This exercise is based on Dixit and Londregan (1996). A government has an exogenous revenue  $B$ , which is to be distributed among a number of groups  $g = 1, \dots, G$ . There are  $N_g$  members of group  $g$ . There are two parties L and R, who both propose platforms. A platform is a set of transfer schedules  $T_g^L$  and  $T_g^R$  which gives the party's promise to each member of group  $g$ . The sum of transfers cannot be larger than the revenue  $B$ . Hence the budget constraint is

$$\sum_g N_g T_g^L = B \text{ and } \sum_g N_g T_g^R = B$$

Voters in group  $g$  have an income  $y_g$  before the transfer, and value consumption by a concave utility function  $U$ . Voter  $i$  will vote for party  $L$  if

$$U(y_g + T_g^L) > U(y_g + T_g^R) + \sigma_i + \delta$$

where  $\sigma_i$  is some individual specific stochastic variable with a uniform distribution on the interval  $\left[-\frac{1}{2\phi_g}, \frac{1}{2\phi_g}\right]$  and  $\delta$  is an aggregate popularity shock uniformly distributed on  $\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right]$ . Notice that  $\phi_g$  need not be the same for all groups.

1. Interpret  $\sigma_i$  and  $\delta$ . Is this a reasonable model of voting behaviour?
2. Assume both parties propose platforms to maximize their probability of winning the election. Which platforms will they choose. How does this depend on  $\phi_g$ , and why?
3. Do large groups get smaller or larger transfers per person than small groups?
4. Do poor groups get smaller or larger transfers than rich groups, other things equal?

## Exercise II Redistribution

1. Explain what the median voter model predicts on the relationship between income inequality and the magnitude of redistribution.
2. What would a model of probabilistic voting say on the same relationship? To answer the question you may either have a continuous distribution of income and hence an infinite number of groups, or focus on a given number of groups. You may (at least initially) assume that the number of swing voters is the same in all income groups.
3. Can probabilistic voting models give the opposite conclusion than the median voter model?
4. What are the data required to test such for the presence of a positive relationship between income inequality and redistribution? Pay particular attention to how inequality should be measured. Which regressions should we run? What would you expect to find?
5. There may be reasons to believe that there are variables affecting both the income distribution and political preferences. Give some examples of why this may be so. What are the consequences for findings from OLS regressions as explored in the question above?
6. Barth and Moene (JEEA 2015) suggest using wage bargaining regime as an instrument for inequality to study the impact of inequality on redistribution. Explain what an instrument is and what requirements have to be satisfied for an instrument to be valid. Discuss whether Barth and Moene's instrument is valid.