

Electoral Institutions and the National Provision of Local Public Goods

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Appendix: Rent-extraction environment

In this appendix I show how the general policy environment in the model can be expressed in terms of a division by the politician of tax revenues between public-goods production and private rent extraction. The formalization is an adaptation of that in Persson and Tabellini (2000), differing primarily in that here I derive a public-goods production function in which competence enters as an additive shock, which facilitates solution of the model when considering national elections.

In each period t the politician responsible for public-goods production in locality λ chooses the extraction of rents (unobservable by voters) from the budget for public goods in that locality. The politician derives utility $v(r_{\lambda t})$ from this activity, with $v'(\cdot) > 0$. I assume that there is an upper bound on the level of rents that may be extracted, so that $r_{\lambda t} \in [0, \bar{r}_\lambda]$, with \bar{r}_λ less than total revenues available for public-goods expenditures in locality λ (derived below). Then I can define a new variable $e_{\lambda t}$ (effort) as rents forgone, i.e. $e_{\lambda t} \equiv (\bar{r}_\lambda - r_{\lambda t}) \in [0, \bar{r}_\lambda]$. Further defining $\bar{e}_\lambda \equiv \bar{r}_\lambda$ gives $e_{\lambda t} \in [0, \bar{e}_\lambda]$, as assumed in the general model.

Since forgoing rents entails an opportunity cost, I may then define a cost function $c(e_{\lambda t})$. The convexity of this function (assumed in the general model) may be rationalized by assuming either that the politician's utility from rent extraction $v(r_{\lambda t})$ is concave or that there is some convex cost of rent extraction.

Assume that public goods are financed through a fixed tax rate $\bar{\tau}$ imposed on all citizens, who

have a common per-capita income of y , and let the funds available for public-goods production in locality λ when the maximum possible rents \bar{r}_λ have been extracted be $k_{\lambda t}$. In a decentralized system with no interjurisdictional transfers, $k_{\lambda t} = (\bar{v}_{\frac{y}{2}} - \bar{r}_\lambda)$, where I use the assumption that the population of voters in each locality has mass $\frac{1}{2}$. (Note that here $k_{\lambda t}$ is independent of t , although this is not necessary in the more general setup.) In a centralized system, the distribution of tax revenues across localities may depend on the allocation of bargaining power among the regions or preexisting constitutional arrangements. All that is required in the case of a centralized system is that the distribution of revenues be set according to a fixed and publicly known formula so that voters in any locality can impute the competence θ_λ of the incumbent in providing public goods for their jurisdiction. Then in either a centralized or decentralized system, the total expenditure on public-goods production in locality λ is $(k_{\lambda t} + e_{\lambda t})$. If I then assume that the politician's competence enters as an additive shock to the funds available for public-goods production, $g_{\lambda t}$ becomes:

$$g_{\lambda t} = k_{\lambda t} + e_{\lambda t} + \theta_\lambda$$

which is the functional form for $g_{\lambda t}$ assumed in the general model.

Finally, the exogenous payoff to holding power in each period can be defined as the total possible utility from rent extraction. For a locally elected politician responsible for public-goods production in locality λ , $R = v(\bar{r}_\lambda)$, while for nationally elected politicians with authority over local public-goods production, $R = \sum_{\Lambda} v(\bar{r}_\lambda)$, where Λ is the set of all localities.