How Does Political Accountability Affect Public Spending

(based on work with J. Tirole)

E. Maskin
Institute for Advanced Study

Zvi Griliches Memorial Lectures
May, 2010

- In yesterday's lecture, assumed (for most part) electorate *homogeneous*
  - except for single minority group
- in reality, officials elected by *coalition of interest groups*
  - e.g., in U.S., Republicans elected by union of

    anti-abortion advocates

    anti-government advocates

    pro-business advocates
  - some overlap, but not much

- today, will assume official must assemble such a coalition to get *re-elected*
  - i.e., must *pander* to these interest groups
  - pandering takes form of (“pork barrel”) *public spending*
- interested in
  - how re-election motive affects spending
  - how awareness of official’s inherent spending propensity matters
  - how “transparency” or “opaqueness” of spending itself matters

Model

- two dates
  - official chooses spending policy at date 1
  - stands for reelection at date 2
- electorate = continuum of interest groups [0,1]
- for each group *i*, politician chooses spending level $y_i \in \{0,1\}$
  - group *i* enjoys benefit *B*
  - social cost = *L*
  - assume, for now, $L > B > L/2$ (spending wasteful - - i.e., it is *pork*)

- interest group i's payoff

$$y_i B - yL, \text{ where } y = \int_0^1 y_j \, dj$$

  - if i observes y - - - *transparency*
  - if i doesn't observe y - - - *opaqueness*
- politician puts weight $\alpha_i > 0$ on minority i
  - α_i increasing in i
  - α_i known only to politician
  - $\int_0^1 \alpha_i \, di = 1$
  - $F(\alpha_i)$ c.d.f. of α_i
- official's payoff from spending policy $y_{\square} = \{y_i\}$

$$U(y_{\square}) = \int_0^1 \alpha_i [y_i B - yL] \, di = \left(\int_0^1 \alpha_i y_i \, di \right) B - yL$$

- can write

$U(y)$ because $y_i \geq 1$ for all i above some cut-off i^*

- Let $\alpha^* B = L$
  - if official were *unaccountable*, would spend on interest group y_i provided that
  - $\alpha_i > \alpha^*$
  - so spending would equal

    $$x \equiv 1 - F\left(\alpha^*\right) = \text{ spending propensity}$$

  - payoff $U\left(x\right)$
- Assume $x < \frac{1}{2}$
  - if unaccountable, official won't assemble majority

Official chooses y to maximize

$$U(y) + p(y) R$$

where

$p(y)$ = probability of being re-elected with policy y

and

R = payoff from re-election

Assume first that everyone *knows* officials spending propensity x

- whether or not y observed (transparency or opaqueness) *doesn't matter*
  - everyone can *predict* y, and so y provides no information
- indeed, to be re-elected, official will choose $y = \frac{1}{2}(+\varepsilon)$
  - if $y_i = 1$, then prob official will spend on i if re-elected is

$$\frac{x}{\frac{1}{2}} = 2x$$

  - so by voting for official, i gets

$$2xB - xL$$

rather than

$$xB - xL \quad \text{(payoff from new official)}$$

  - so if $y_i = 1$, i votes for official, and so official re-elected because $y = \frac{1}{2}$

Proposition 1: If $U\left(\frac{1}{2}\right)+R>U\left(x\right),$ then accountability *increases* public spending over nonaccountable government $\left(\text{nonaccountable offical spends only } x\right)$

- So far, assumed that minority *i* votes "pocketbook"
  - wants to maximize expectation of second-period y_i
- Now assume

  fraction v_i of group *i* vote *pocketbook*

  fraction $1 - v_i$ of *i* vote *ideologically*

  - random fraction ϕ of idealogues vote for incumbent
  - fraction $1 - \phi$ vote for challenger
  - H is c.d.f. for ϕ

- Then, incumbent re-elected if

$$E\left[v_i y_i\right]+(1-v)\phi \geq E\left[v_i\left(1-y_i\right)\right]+(1-v)(1-\phi), \text{ where } v=Ev_i$$

- That is

$$p\left(y_{\cdot}\right)=1-H\left(\tfrac{1}{2}+\frac{E\left[v_i\left(1-2y_i\right)\right]}{2(1-v)}\right)$$

- optimal policy solves

$$\max_{y_{\cdot}} E\left[\alpha_i\left(y_i B-yL\right)\right]+p\left(y_{\cdot}\right)R$$

- Thus interest group *i* gets pork if

$$\alpha_i B+\frac{H'v_i}{1-v_i}R \geq L$$

$$\alpha_i B + \frac{H' v_i}{1 - v_i} R \geq L$$

Proposition 2:

- spending increases with rent from office $\left(R\right)$ and intensity of political competition $\left(H'\right)$
- as ideology falls $\left(v_i \text{ rises}\right)$, spending on $i\left(y_i\right)$ rises

- Next consider *limits on public spending*
  - constitutional
  - statutory
- in practice, strict limits difficult to enforce
  - government can “hide” spending off balance sheet
  - sanctioning mechanisms not perfectly enforceable

So, assume that if yL is cost of pork

- only $y\hat{L}$ actually "counts", where
  - $\hat{L} \leq L$
  - actual cost $= \hat{L} + D_1\left(L - \hat{L}\right)$,
    with $D_1\left(0\right) = 0, D_1'\left(0\right) = 1, D_1' > 0, D'' > 0$
- Idea: hiding spending *inefficient*

- So far, public spending completely wasteful (pork)
  - so optimal spending limit zero
- Thus, introduce beneficial public spending g (public good)
  - generates surplus

$$W - D_2\left(g_0 - g\right), \text{ where}$$

$$g_0 = \text{optimal level}$$

$$D_2 = \text{deadweight loss of deviating from } g_0$$

$$D_2\left(0\right) = 0, D_2'\left(0\right) = 1, D_2' > 0, D_2'' > 0$$

- So, official maximizes

$$E\left[\alpha_i y_i B - y\left(\hat{L} + D_1\left(L - \hat{L}\right)\right)\right] + g - D_2\left(g_0 - g\right)$$

$$+ \quad \left(1 - H\left(\frac{1-2vy}{2(1-v)}\right)\right)R$$

subject to $g + y\hat{L} \leq G$

- First-order conditions

(1) $D_1'\left(L - \hat{L}\right) = D_2'\left(g_0 - g\right) = 1 + \mu,$

where μ Lagrange multiplier

(2) $y_i = 1 \Leftrightarrow \alpha_i B + \frac{hv}{1-v} R \geq L + D_1 + \mu\hat{L}$

(1) $$D_1'\left(L-\hat{L}\right)=D_2'\left(g_0-g\right)=1+\mu,$$

(2) $$y_i=1\Leftrightarrow \alpha_i B+\tfrac{hv}{1-v}R\geq L+D_1+\mu\hat{L}$$

Proposition 3: stricter deficit cap

- reduces pork
  - stricter cap raises μ
  - raises *RHS* of (2)
  - makes $y_i=0$ more likely
- reduces public good spending g
  - *RHS* of (1) rises
  - g decreases
- increases off-balance-sheet spending $L-\hat{L}$
  - *RHS* of (1) rises
  - $\hat{L}$ falls

$$(2) \qquad y_i = 1 \Leftrightarrow \alpha_i B + \tfrac{hv}{1-v} R \geq L + D_1 + \mu \hat{L}$$

Proposition 4: As accountability increases (*R* rises), pork increases (*y* rises) and optimal spending cap *G* increases

- as *R* rises, *LHS* of (2) rises
- more likely that $y_i = 1$
- *G* must rise to accommodate greater proportion of pork

- empirically, accountable officials have bigger budgets
  - here, it is because they spend higher proportion on pork

- So far, assumed official's spending propensity *x known*
- Now, assume 2 types
  - x_L with prob ρ
  - x_H with prob $1-\rho$
  - $x_L < x_H$
- $F_L(\alpha), F_H(\alpha)$ c.d.f. of α
- $E_L(\alpha) = E_H(\alpha) = 1$
- $F_H(\alpha) < F_L(\alpha)$ if $\frac{1}{2} \leq F_L(\alpha) < 1$
- $x_L = 1 - F_L(\alpha^*) < x_H = 1 - F_H(\alpha^*) < \frac{1}{2}$

If *y not observable* - - spending *opaque*

Proposition 5: Two possible equilibria

- generalization of equilibrium with x known:
  - $y_L = y_H = \frac{1}{2}$
  - group i votes for incumbent provided receives pork
  - equilibrium always exists
- if $\frac{B}{L}$ small enough, also have equilibrium
  - $y_H = x_H, y_L = x_L$
  - group i votes for incumbent only if *not* beneficiary
  - idea: being beneficiary is *bad* news

    increases probability $x = x_H$
  - if L big enough, i votes against incumbent even though beneficiary

If *y observable* - - spending transparent

Proposition 6:

- if $\frac{B}{L}$ small,
  - $y_H = x_H$
  - $y_L < x_L$
  - group *i* doesn't vote for type *H* incumbent
  - so, *less* spending than if official nonaccountable

- if $\frac{B}{L}$ medium
  - $y_H = \frac{1}{2}$
  - $y_L = x_L$ or $y_L < x_L$ (if H's incentive constraint binding)
  - group i votes for incumbent if beneficiary
- if $\frac{B}{L}$ big
  - $y_H = y_L = \frac{1}{2}$
  - group i votes for incumbent if beneficiary

- Desire to appear fiscally conservative limits pork
- Transparency reduces pork