P&T, Political Economics: Explaining Economic Policy

I. Ch. 1: Intro – Explain Econ Pols in Modern Dems

A. Roots

1. Thry Macro Policy: since Lucas, emph. of expects & credibility
2. Pub. Choice: since Buchanan & Tullock; Olson, emph. on agency probs & intrst grps
3. Rtl Ch. in P.S.: Arrow, Riker, et al.: a. spatial theory
   b. emph. on institutions

⇒ 4. PE-GE Approach
   a. → cit's as rtl (expect) max'ing pol & econ actors
   b. → self-interested pol.-mkrs
   c. Positive analysis (w/ normative-benchmark background)

B. Framework / Limitations:

1. Instit's given
2. 2-Prty / 2-Cand. Systems
3. Vast institutional simplifications
4. Policy = redist, tax, fisc., mon.; trade & reg. neglected & lmtd local
5. Not much emph. info / info agg.
6. Only scratch surface of ec & pol reform
7. No new empirical work (here)

C. Gov't Spend & Redist: 4 Broad Policy Tools

1. Public-Good Provision
2. (Broadly-Targeted) Redistribution
3. (Narrowly-Targeted) Distribution
4. Rent Extraction (Corruption)

D. 3 Broad Policy-Interest Conflicts

1. General-Interest Politics (C1&2)
2. Special-Interest Politics (C1&3)
3. Delegation & Agency Politics (C1&4)
4. Plus: a. Dynamics & Sequential Policy Choice
   b. Monetary Policy

E. Politics

1. Citizens Vote &/or Lobby, but always Rtl (expects)
2. Pol's Opportunistic &/or Interested (Electoral / Partisan)
3. Distinguish:
   a. Pre-Electoral Politics – credible, binding pre-elect platforms
   b. Post-Electoral Politics – post-elect credibility issues
      ↳ (i) Winner-take-all
      (ii) Legislative Bargaining

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II Ch. 2: Preferences & Institutions:

A. General Policy Problem: Set-up
1. Set of cit's $\{i\}$, w/characteristics $\underset{\sim}{\alpha}^i$
2. Vector of policies, $\underset{\sim}{q}$
3. $u = f(c^i)$
4. Vector of mrkt relations/functions: $\underset{\sim}{p}$ (prices)

⟹ B. General Policy Problem: Specification
1. Indirect Utility: $\tilde{W}(\underset{\sim}{q}, \underset{\sim}{p}; \alpha^i) = \underset{c^i}{\mathrm{Argmax}} \left[U(c^i; \underset{\sim}{q}, \underset{\sim}{p}; \alpha^i) \right] \Big|_{H(c^i; \underset{\sim}{q}, \underset{\sim}{p}; \alpha^i) \geq 0}$
2. Policymaker: $\underset{\underset{\sim}{q}}{\mathrm{Max}} \; \dots \quad \text{s.t. } G(\underset{\sim}{q}, \underset{\sim}{p}) \geq 0$ — self-interested pol's — some constraints (binding)

$$\Longrightarrow \underset{\sim}{p} = P(\underset{\sim}{q})$$

⟹ 3. Reduced-Form Indirect-Utility: $\tilde{W}(\underset{\sim}{q}, P(\underset{\sim}{q}); \alpha^i) \equiv \tilde{W}(\underset{\sim}{q}; \alpha^i)$
⟹ preferred policy/bliss-point: $\underset{\sim}{q}(\alpha^i) = \underset{\underset{\sim}{q}}{\mathrm{Argmax}}\, \tilde{W}(\underset{\sim}{q}; \alpha^i)$

4. Pol-mkng Analysis = specifying instit's [struct. & conditions] that give "...." $\in$ & $\{\alpha^i\}$

C. Option #1: MVT (1D policy & voter het.)
1. If single-peaked pref's, then $\underset{\sim}{q}^m$ = unique eqbm (MVT)
   a. (n.b., if cit action depends on $\underset{\sim}{q}$, then concave $U(\cdot)$ not sufficient for concave $W(\cdot)$. ⟹
   b. Single-Crossing Property:
      if $(q > q' \;\&\; \alpha^{i'} > \alpha^i)$ or $(q < q' \;\&\; \alpha^{i'} < \alpha^i)$,
      then
      $W(q; \alpha^i) \geq W(q'; \alpha^i) \Rightarrow W(q; \alpha^{i'}) \geq W(q'; \alpha^{i'})$
   c. [Meaning: voter heterogeneity (α^i) must preserve ordering when projected to policy space]

2. First Example:

$$\omega^i = c^i + V(x^i)$$

(consumption → c^i; leisure → x^i)

b.c. $c^i \leq (1-q)\ell^i + f$ (policy → q: labor tax & f: lump-sum transfer)

t.c. $1 + \alpha^i \geq x^i + \ell^i$

heterogeneity: some more able/productive/endowed than others

$\mu = \alpha$; $\mathrm{med}(\alpha) = \alpha^m$

③ $\ell^i = L(q) + (\alpha^i - \alpha)$ optimal labor-supply:

$$\underset{c,x}{\text{Max}}\ \omega^i \quad \text{s.t.} \quad c^i \le (1-q)\ell^i + f \ \& \ 1+\alpha^i \ge x^i + \ell^i$$

sub in time const. assume binds

$$\underset{c,\ell}{\text{Max}}\ c^i + V(1+\alpha^i - \ell^i)$$

sub. b.c., assume binds

$$\underset{\ell}{\text{Max}}\ (1-q)\ell^i + f + V(1+\alpha^i - \ell^i)$$

$$\Rightarrow \quad (1-q) - V'(1+\alpha^i - \ell^{i*}) = 0$$

$$(1-q) = V_x(1+\alpha^i - \ell^{i*})$$

$$V_x^{-1}(1-q) = 1+\alpha^i - \ell^{i*}$$

$$\ell^{i*} = 1+\alpha^i - V_x^{-1}(1-q) \quad \square$$

$$\equiv L(q) + (\alpha^i - \alpha), \text{ so } \ell = L(q) = 1+\alpha - V_x^{-1}(1-q)$$

downward-sloping in q (tax&trans.) as claimed?

$$\frac{\partial L(q)}{\partial q} = +V_{xx}^{-1} < 0 \quad \text{as claimed (concavity of } V(\cdot))$$

④ Now a Govt B.C. $f \le q\ell \equiv qL(q)$

$\Rightarrow$

⑤ Policy Pref's of i: $W^i(q;\alpha^i) \equiv (1-q)\ell^{i*} + f + V(1+\alpha^i - \ell^{i*})$

$$= (1-q)\left(L(q) + (\alpha^i - \alpha)\right) + qL(q) + V(1 - L(q) + \alpha)$$

$$= L(q) + V(1 - L(q) + \alpha) + (1-q)(\alpha^i - \alpha)$$

• What's Pref'd Policy of Median?

$$\underset{q}{\text{Max}}\ W^m \Rightarrow L_q(q) - V_x(1 - L(q) + \alpha)L_q(q) - (\alpha^m - \alpha) = 0$$

$$-L_q(q) + V_x(1 - L(q) + \alpha)L_q(q) = \alpha - \alpha^m$$

$$\Rightarrow \uparrow(\alpha - \alpha^m) \rightarrow \uparrow q^m \ ?$$

need a little more structure on the problem

D. Option 2: Intermediate Preferences (Multi-D pol; 1-D voter het.)

1. If $W(\underset{\sim}{q};\alpha^i) = J(\underset{\sim}{q}) + K(\alpha^i)\,H(\underset{\sim}{q})$

   where $K(\cdot)$ monotonic & J&H common,

   then $\underset{\sim}{q}(\alpha^m)$ is unique eqbm.

2. Meaning: if ~~when~~ (some monotonic fnctn of the) 1D of voter het. linearly rescales a common fnctn of the vector of policies.

3. Basically: if 1D voter-het onto which the multi-D policy projects, preserving some ranking by that voter-het, we're back in MVT-land.

4. Examples:

   a. $c = y(1-\tau)$ ((consumption))

   $q_1 + q_2 \le \tau y$ (G.B.C.)

   1D voter-het

   3D policy, which G.B.C. reduces to 2

   $\omega^i = U(c) + \alpha^i G(q_1) + (1-\alpha^i)F(q_2)$

   $$\Rightarrow W(\underset{\sim}{q};\alpha^i) = \underbrace{U(y-q_1-q_2) + F(q_2)}_{J(\underset{\sim}{q})} + \underbrace{\alpha^i(G(q_1) - F(q_2))}_{\alpha^i H(\underset{\sim}{q})} \checkmark$$

   b. Risk Het. & Insurance: $\tau_s y_s = \frac{(1-\alpha^s)}{\alpha^s}\cdot q_s$

   unemployed; employed; govt rev. in state s; lump-sum transfer to unemp.

   $\alpha^s + \alpha^i$ = ind. risk unemp.

   $\alpha^i \sim (0,\sigma^2)$

   π_s = prob. state s

   $$W(\underset{\sim}{q};\alpha,\alpha^i) = \sum_s \pi_s\left[\alpha_s U(y_s(1-\tau_s)) + (1-\alpha_s)U(q_s)\right] + \alpha^i\left[\sum_s \pi_s\left[U(y_s(1-\tau_s)) - U(q_s)\right]\right]$$

   $$= J(\underset{\sim}{q}) + \alpha^i H(\underset{\sim}{q}) \checkmark$$

E. Option 3: $\underset{\sim}{q}$ & $\underset{\sim}{\alpha}$ $\Rightarrow$ chaos unless radial symmetry

(n.b. case missing: $\underset{\sim}{\alpha}$ & q -- should always be possible analogous projection)

II. E. Option 3: q & α $\Rightarrow$ chaos (barring radial symmetry)

1. $\Rightarrow$ SIE &/or Probabilistic Voting

2 Probabilistic Voting

a. Essence of Chaos Prob. is that opt. strategy functions highly discontinuous. Prob. Voting (i.e. uncertainty re: voter locations) smooths those best-responses giving eqba.

b. formally: let Π_p be party p's vote share.

(i) in Downsian Comp: $\Pi_p = \begin{cases} 0 \\ \frac{1}{2} \\ 1 \end{cases}$

(ii) in Probabilistic: $\Pi_p = \frac{1}{I}\sum_{i=1}^{I} \Pi_p^i$ where Π_p^i is prob. voter i (of I total) ~~in~~ votes for party p

(iii) Party maximizes Π_p or $Pr(\Pi_p > .5)$ over q

$\Rightarrow$ 3. Example:

a. $$\Pi_A = \frac{1}{I}\sum_{i=1}^{I} F^i\left(W(q_A;\alpha^i) - W(q^B;\alpha^i)\right)$$

a c.d.f. associated w/ some p.d.f. of voter-types alpha

b. – so voters compare q_A & q_B & probabilistically vote for preferred. Vote share from that type voter will be c.d.f of p.d.f. of $W(\alpha^i)$ for that type making that comparison.

c. $\Rightarrow$ symmetric eqba usu. of form, (usu.,):

$$\sum_{i=1}^{I} f^i(0)\, W_{q_1 A}(q_A;\alpha^i) = 0 \qquad \text{pol.}_1$$

$$\sum_{i=1}^{I} f^i(0)\, W_{q_2 A}(q_A;\alpha^i) = 0 \qquad \text{pol.}_2 \text{ etc.}$$

pdf @ $q_A = q_B$

d. So, wtd. sum of utils (soc. wtd. welfare) where wts given by $f^i(0)$ -- i.e. density of that type @ eqbm policy

$\approx$ "responsive" voters

4. SIE -- see last wk's notes

F. Try Probs 2 &/or 3?

VI. Electoral Competition

A. Pub. Finance Model: $\omega^i = c^i + H(g)$ $\quad H' > 0, H'' < 0$ $\quad$ util.

$c^i = (1-\tau)y^i$ $\quad$ consumpt.

$\tau y = g$ $\quad$ G.B.C.

$$W^i(g) = (y-g)\frac{y^i}{y} + H(g)$$

$$\max_g W^i \Rightarrow -\frac{y^i}{y} + H_g(g) = 0$$
$$\Rightarrow g^* = H_g^{-1}\left(\frac{y^i}{y}\right)$$

(simple med. voter model / ineq. & gov't)

$\Rightarrow$ unwtd soc. welf.

$$\omega = \int_i W^i(g)\,dF = W(g)$$

$$g^* = H_g^{-1}(1) \Leftarrow$$ (p-wtd sum = E(ω) = avg)

B. Downsian Comp $\Rightarrow$ $\underbrace{g_A = g_B = g^{*m}}_{\pi_p = .5}$ $\Rightarrow g^* = H_g^{-1}\left(\frac{y^m}{y}\right)$

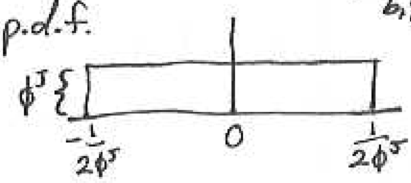
$\Rightarrow$ ⓐ Meltzer-Richard/Rome
ⓑ Wagner's Law or Baumol's Disease

C. Probabilistic Voting: $J = R, M, P$ $\quad y^R > y^M > y^P$ $\quad$ of pop-share α^J

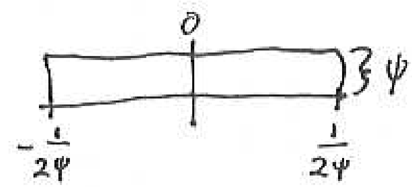
1. Voter i in J prefers A if $W^J(g_A) > W^J(g_B) + \sigma^{iJ} + \delta$

(individual-specific, pro-B bias) (national pro-B bias)

$$\sigma^{iJ} \sim U\left[-\frac{1}{2\phi^J}, \frac{1}{2\phi^J}\right]$$
$\Rightarrow$ p.d.f.



$$\delta \sim U\left[-\frac{1}{2\psi}, \frac{1}{2\psi}\right] \Rightarrow \text{p.d.f.}$$



Timing:
2. Simult., Noncoop. Announce; shocks realized; vote; winner implements

3. Finding Maximand for Parties:

ideal (non-g)   looks

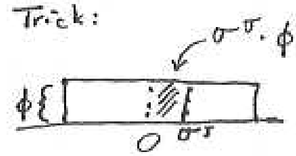
iJ Votes for A if $W^J(g_A) > W^J(g_B) + \sigma^{iJ} + \delta$

$$\Rightarrow \quad \sigma^{iJ} < \sigma^J = W^J(g_A) - W^J(g_B) - \delta$$

$\frac{1}{2}$ of grp $+ \sigma^J \phi^J$

$$\Pi_A = \sum_J \alpha^J \phi^J \left(\sigma^J + \frac{1}{2\phi^J}\right) =$$

Trick:



group J density

group J share of pop.

$$p_A = \underset{\delta}{\text{prob}}\left[\Pi_A > \tfrac{1}{2}\right] = \text{prob}\left[\sum_J \alpha^J \phi^J \left(W^J(g_A) - W^J(g_B) - \delta + \tfrac{1}{2\phi^J}\right) > \tfrac{1}{2}\right]$$

$$= \text{prob}\left[\sum_J \alpha^J \phi^J \left(W^J(g_A) - W^J(g_B) - \delta\right) + \cancel{\tfrac{1}{2}} > \cancel{\tfrac{1}{2}}\right]$$

$$= \text{prob}\left[\sum \alpha^J \phi^J \left(W^J(g_A) - W^J(g_B)\right) - \delta \sum_J \alpha^J \phi^J > 0\right]$$

$$= \text{prob}\left[\sum \alpha^J \phi^J \left(W^J(g_A) - W^J(g_B)\right) - \delta \phi > 0\right]$$

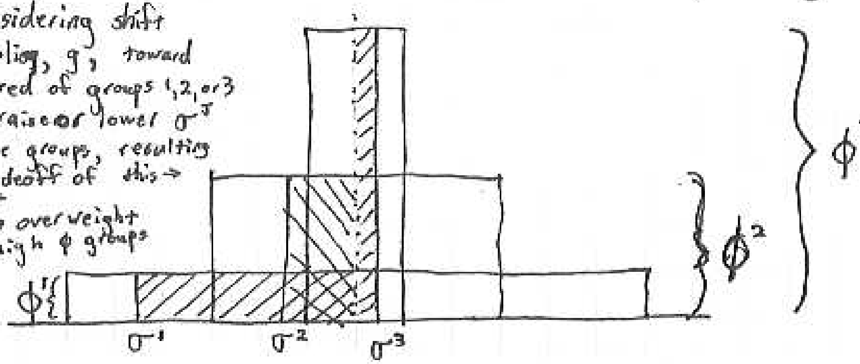
$$= \text{prob}\left[\frac{1}{\phi} \sum \alpha^J \phi^J \left(W^J(g_A) - W^J(g_B)\right) > \delta\right]$$

trick again $=$

$$= \frac{1}{2} + \frac{1}{\phi} \cdot \psi \cdot \sum \alpha^J \phi^J \left(W^J(g_A) - W^J(g_B)\right)$$

considering shift in policy, g, toward preferred of groups 1, 2, or 3 will raise or lower σ^J for those groups, resulting in tradeoff of this sort

$\Rightarrow$ overweight high ϕ groups



4. So, Eqbm will be $\underset{g_A | \bar{g}_B}{\text{Max}}$ $\Rightarrow$ equate marginal returns of drifting in grp J's (center) direction

$\Rightarrow$ max wtd soc. welf.: $\frac{\psi}{\phi} \sum_J \alpha^J \phi^J \left(W^J(g_A) - W^J(g_B)\right)$

5. Algebraically: $g^* = H_g^{-1}\left(\dfrac{\left(\frac{\sum_J \alpha^J \phi^J y^J}{\phi}\right)}{y}\right)$ $\rightarrow$ Marginal util drifting toward J is:

$$= H_g^{-1}\left(\tilde{y}/y\right)$$

["influence-wtd" median]

$$\frac{\psi}{\phi} \sum_J \alpha^J \phi^J$$

more "purchasable" w/ g.

lrgr

D. Lobbying Model: 1. $C_P = \sum_J O^J \alpha^J C_P^J$ ← contrib's per mem to J

contrib's to P; J org'd? (0,1); popshare J

2. "Popularity" Now Two Parts: $\delta = \tilde{\delta} + h(C_B - C_A)$

$\tilde{\delta} \sim U[-\frac{1}{2\psi}, \frac{1}{2\psi}]$ as before

⇒ 3. Cut-pt / Swing-voter: $\sigma^J = W^J(g_A) - W^J(g_B) + h(C_A - C_B) - \tilde{\delta}$

⇒ 4. $p_A = \frac{1}{2} + \psi\left[W(g_A) - W(g_B) + h(C_A - C_B)\right]$ & $\alpha^J = \alpha$ → $\phi^J = \phi$ to simplify

5. Lobby Utility:

$p_A W^J(g_A) + (1-p_A) W^J(g_B) - \frac{1}{2}\left(C_A^J + C_B^J\right)^2$

⇒ $C_A^J = Max[0, \psi h (W^J(g_A) - W^J(g_B))]$ & v.v. for C_B^J

⇒ Conclusion 1: never give to more than 1 cand.

⇒ 6. Pol's $\underset{g}{Max} \sum_J \alpha^J [\psi + O^J(\psi h)^2] W^J(g_A)$

⇒ $g^L = H_g^{-1}(\hat{Y}/Y)$ where $\hat{Y} = \dfrac{\sum_J \alpha^J[1 + O^J \psi h^2] Y^J}{\sum_J \alpha^J [1 + O^J \psi h^2]}$

i.e. size-wealth-org'd wtd median-influence

i.e: Wholly intuitive.