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 & intetgrs
       b. emph. on institutions
   ⇒ 4. PE-GE Approach
       a. exit as rtl (expect) max'g pol & econ actors
       b. self-interested pol. actors
       c. Positive analysis (w/ normative - benchmark background)
   B. Framework / Limitations:
   1. Instit's given
   2. 2-Pry/2-Cand. Systems
   3. Vast institutional simplifications
   4. Policy = redistrib. tax, fisc., mon.; trade, reg. neglected & Int'l local
   5. Not much emph. info/info agg.
   6. Only scratch surface of econ po'l reform
   7. No new empir. work (here)
   C. Govt 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 Dynamics & Sequential Policy Choice
         b. Monetary Policy
   E. Politics
      1. Citizens Vote &/or Lobby, but always RTL (expects)
      2. Pols Opportunistic &/or Interested (Electoral/Partisan)
      3. Distinguish:
         a. Pre-Electoral Politics - credible, binding pre-elec. platforms
         b. Post-Electoral Politics - post-elec. credibility issues
            (i) Winner-take-all
            (ii) legislative Bargaining
II Ch. 2: Preferences & Institutions:

A. General Policy Problem: Set-up
   1. Set of citizens \( \xi^i \), with characteristics \( x^i \)
   2. Vector of policies, \( q \)
   3. \( u = f(c^i) \)
   4. Vector of mult-relations/functions: \( q \) (prices)

B. General Policy Problem: Specification
   1. Indirect Utility: \( W(q, \xi; x^i) = \text{Argmax} \left[ U(c^i, \xi, q; x^i) \right] \)

C. Policymaker: \( \max \quad \text{s.t.} \quad G(q, \xi) \geq 0 \)
   \( \text{self-interested} \quad \text{pols} \quad \text{some constraints} \quad (\text{binding}) \)

   \( p = P(q) \)

C. Reduced-Form Indirect-Utility: \( \tilde{W}(q, P(q); x^i) \approx \tilde{W}(q; x^i) \)

C. Prefered policy (bliss-point): \( q^{*}(x^i) = \text{Argmax} \tilde{W}(q; x^i) \)

C. Pol-mhog Analysis = specifying institutions [conditions] that give "..."

C. Option #1: MVT (1D policy & voter heter.)
   1. If single-peaked pref's, then \( \xi^m \) = unique eqn (MVT)
      (n.b., if citizen action depends on \( q \), then concave UC)
      not sufficient for concave UC.
      \( \Rightarrow \)
   b. Single-Crossing Property:
      if \( (q > q' \land x^i > x'^i) \) or \( (q < q' \land x^i < x'^i) \),
      then \( W(q; x^i) \leq W(q'; x'^i) \Rightarrow W(q; x'^i) \leq W(q'; x^i) \)

   C. [Meaning: voter heterogeneity \( (x^i) \) must preserve ordering
ever projected to policy space]

2. First Example:
   \( \omega^i = c^i + V(x^i) \)
   b.c. \( c^i \leq (1 - \xi) c^i + f \)
   l.c. \( 1 + x^i \geq x^i + c^i \)
   \( \xi \) (heterogeneity: some more able/productive than others)

   \( \mu = x^i \quad \text{med}(x) = x^m \)
(3) \[ L^* = L(q) + (\alpha^* - \alpha) \] optimal labor-supply:

Maximize \( \omega \) s.t. \( c^* \leq (1-q) L^* + \int_0^1 \alpha^* x^* x^* \)

Maximize \( c^* + V(1 + \alpha^* - L^*) \)

Maximize \( (1-q) L^* + f + V(1 + \alpha^* - L^*) \)

\[ \Rightarrow (1-q) \omega = V'(1 + \alpha^* - L^*) \]

\[ (1-q) = V_x (1 + \alpha^* - L^*) \]

\[ V_x (1-q) = 1 + \alpha^* - L^* \]

\[ L^* \quad \text{such that} \quad \omega = V_x (1-q) \]

\[ L^* = 1 + \alpha^* - V_x (1-q) \]

\[ \equiv L(q) + (\alpha^* - \alpha), \text{so} \quad L = L(q) + \int_0^1 \alpha^* x^* x^* \]

downward-sloping in \( q \) (as claimed?)

\[ \frac{dL(q)}{dq} = V_x < 0 \quad \text{as claimed} \quad \text{(concave)} \]

(4) Now a Govt. B.C. \( f \leq qL \equiv qL(q) \)

\[ \Rightarrow \quad \text{(Policy Pref. of} \ \alpha) \]

\[ W^*(q; \alpha^*) \equiv (1-q) L^* + \int_0^1 \alpha^* x^* x^* \]

\[ = (1-q) (L(q) + (\alpha^* - \alpha)) + qL(q) + V(1 - L(q) + \alpha) \]

\[ = L(q) + V(1 - L(q) + \alpha) + (1-q) (\alpha^* - \alpha) \]

What's Pref. Policy of Median?

Maximize \( \omega \)

\[ L^* = \alpha^* \quad \text{such that} \quad \omega = V_L (1-L(q) + \alpha) L(q) - (\alpha^* - \alpha) = 0 \]

\[ -L^* (q) + V_L (1-L(q) + \alpha) L(q) = \alpha^* - \alpha \]

\[ \Rightarrow (\alpha^* - \alpha) = \gamma \]

need a little more structure on the problem
D. Option 2: Intermediate Preferences  (Multi-D pol; 1-D voter het)

1. If \( W(q; \alpha^i) = J(q) + K(\alpha^i) H(q) \)
   where \( K(\cdot) \) monotonic & \( J \) & \( H \) common,
   then \( q(\alpha^m) \) is unique eqm.
   \( \text{(some monotonic eqm of the)} \)

2. Meaning: if \( 1D \) of voter het. linearly rescales a common fn 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:
   \[ c = y (1 - \gamma) \]  (assumption)  \( \text{1D voter-het} \)
   \[ q_1 + q_2 \leq 2y \]  (G.B.C.)
   \( \Rightarrow W(q; \alpha^c) = U(y - q_1 - q_2) + F(q_2) + \alpha^c (G(q_1) + F(q_2)) \)
   \[ J(q) + \alpha^c H(q) \]

b. Risk Het. & Insurance: \( q_s \) = \( (1 - \alpha^s) q \)

\[ W(q; \alpha, \alpha^c) \]
\[ = \sum_s P_s \left[ \alpha_s U(y_s (1 - \gamma_s)) + (1 - \alpha_s) U(q_s) \right] \]
\[ + \alpha^c \left[ \frac{1}{2} \sum_s P_s \left[ U(y_s (1 - \gamma_s)) - U(q_s) \right] \right] \]
\[ = J(q) + \alpha^c H(q) \]

E. Option 3: \( q^* \) & \( q \) \( \Rightarrow \) chaos unless radial symmetry

(\text{n.b. case missing: } \alpha \& q \text{ should always be analogous projection possible})
II. E. Option 3: \( q \approx \infty \Rightarrow \text{chaos (baring radial symmetry)} \)

1. \( \Rightarrow \text{SIE or Probabilistic Voting} \)

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 \( T_P \) be party p's vote share.
      
      (i) in Pournian Comp: \( T_P = \begin{cases} 
      0 & \text{if } \ \ \ \ \ \\
      1 & \text{if } \ \\
      \end{cases} \)
      
      (ii) in Probabilistic: \( T_P = \frac{1}{\pi} \sum_{i=1}^{n} T_{P_i} \) where \( T_{P_i} \) is prob. voter \( i \) (of \( P \))
      
      (iii) Party maximizes \( T_P \) or \( Pr(T_P > 0.5) \)
      
      \( \Rightarrow \text{B} \).
      
      Example:
      \( T_A = \frac{1}{\pi} \sum_{i=1}^{n} f'(W(q; \lambda^i) - W(p; \lambda^i)) \)
      
      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 \( \lambda^i \) for that type making that comparison.

C. \( \Rightarrow \) symmetric eqba usu. of form, usu.

\[ \sum_{i=1}^{n} f'(q) W_{qA} (q_A; \alpha^i) = 0 \quad \text{pol. 1} \]

\[ \sum_{i=1}^{n} f'(q) W_{qA} (q_A; \alpha^i) = 0 \quad \text{pol. 2} \]

\( \text{pdf} @ q_A = q_B \)

D. \( \Rightarrow \) So, with sum of utilities (social welfare) where was given by \( f(q) \) -- if:

\( f(q) \) density of that type @ eqbm policy

F. Try Probs 2 \& 3?

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VI. Electoral Competition

A. Pub. Finance Model: \( \omega^i = c^i + H(g) \quad H > 0, H'' < 0 \quad \text{util.} \)
\[ c^i = (1 - \tau) y^i \quad \text{consump.} \]
\[ 2y = g \quad \text{G.B.C.} \]
\[ W^i(g) = (y - g) \frac{y^i}{y} + H(g) \]
\[ \max_W W^i \Rightarrow \frac{y^i}{y} + H'(g) = 0 \quad \Rightarrow g^* = H^{-1}(\frac{y^i}{y}) \]
\[ \Rightarrow \text{undid soc. well.} \]
\[ \omega = \int W^i(g) \, dF = W(g) \]
\[ g^* = H_y'(1) \quad \text{p-und sum} = E[g] \]

B. Downsian Comp \( g_A = g_B = g^* \Rightarrow g^* = H_y'(\frac{y^A}{y}) \quad \text{Meltzer-Richard/Romer} \)
\[ \Rightarrow \text{Wagner's Law} \quad \text{Baumol's Disease} \]

C. Probabilistic Voting: \( J = R, M, P \quad y^R > y^M > y^P \quad \text{pop. State } \alpha \)

1. Voter \( i \) in \( J \) prefers \( A \) if: \( W^i(g_A) > W^i(g_B) + \frac{P - J}{2} + S \)
\[ 0 \sim U[-\frac{1}{2}\psi, \frac{1}{2}\psi] \Rightarrow \text{p.d.f.} \]
\[ s \sim U[-\frac{1}{2}\psi, \frac{1}{2}\psi] \Rightarrow \text{p.d.f.} \]

Timing:
2. Simult., Noncoop. Announce.; shocks realized; vote; winner implements.
3. Finding Maximal for Parties:

Votes for A: \( W(g_a) > W(g_b) + \delta \)

\[ \Rightarrow 0 \leq \alpha \in \mathbb{R}^n \quad W(g_a) - W(g_b) = \delta \]

\[ \Pi_A = \sum_{\alpha} \alpha^T \phi^T (G - G) \alpha = \] 

group \( i \)'s share of pop.

\[ p_A = \text{prob} [\Pi_A > \frac{1}{2}] = \text{prob} \left[ \sum \alpha^T \phi \left( W(g_a) - W(g_b) - \delta + \frac{1}{2} \phi \right) \right] \]

\[ = \text{prob} \left[ \sum \alpha^T \phi \left( W(g_a) - W(g_b) - \delta \right) + \frac{1}{2} \phi > \frac{1}{2} \right] \]

\[ = \text{prob} \left[ \sum \alpha^T \phi \left( W(g_a) - W(g_b) - \delta \right) - \delta \phi > 0 \right] \]

\[ = \text{prob} \left[ \frac{1}{\phi} \sum \alpha^T \phi \left( W(g_a) - W(g_b) \right) > \delta \right] \]

\[ = \frac{1}{\phi} \cdot \psi \cdot \sum \alpha^T \phi \left( W(g_a) - W(g_b) \right) \]

Considering shift in policy, \( p_A \), toward preferred for groups 1, 2, or 3 will raise or lower \( \phi^2 \) for those groups, resulting in tradeoff of this sort of overweight high \( \phi \) groups.

4. So, Eqn will be Max

\[ g^* = \text{Max} \]

\[ f_\phi \]

\[ \Rightarrow \text{equate marginal returns of drifting in grp J's (center) direction} \]

\[ \Rightarrow \max \text{ with soc. well.:} \]

\[ \frac{1}{\phi} \sum \alpha^T \phi \left( W(g_a) - W(g_b) \right) \]

5. Algebraically:

\[ g^* = H_2 \left( \frac{\psi}{\phi} \right) \]

\[ \Rightarrow \text{Marginal until drifting toward J is:} \]

\[ \frac{1}{\phi} \sum \alpha^T \phi \left( W(g_a) - W(g_b) \right) \]

\[ \text{["instrumental" mention]} \]

\[ H_2 \left( \frac{\psi}{\phi} \right) \]

\[ \text{[more plausibly, large]} \]
D. Lobbying Model: 1. \[ C_p = \sum_j C_j \] 
\[ \text{contribs per aown to J} \] 
\[ \text{contribs to P} \] 
\[ \text{Target? (Q)} \]

2. "Popularity" Now Two Parts: \[ f = \sum \alpha + h(C_A - C) \]
\[ \text{s \in U[-1/2,1/2]} \]

\[ \Rightarrow 3. \text{Cut-off/Swing-voter:} \]
\[ D^J = W^J(q_a) - W^J(q_b) + h(C_A - C) - f \]

\[ \Rightarrow 4. \]
\[ p_a = \frac{1}{2} + \psi \left[ W(q_a) - W(q_b) + h(C_A - C) \right] \]

\[ \Rightarrow 5. \text{Lobby Utility:} \]
\[ p_a W^J(q_a) + (1-p_a) W^J(q_b) - \frac{1}{2} (C_A^J + C_B^J)^2 \]
\[ \Rightarrow C_A^J = \max \left\{ \phi_{q_a}(W^J(q_a) - W^J(q_b)) \right\} \text{ and v.v. for } C_B^J \]

\[ \Rightarrow \text{Conclusion 1: never give to more than 1 cand.} \]

\[ \Rightarrow 6. \text{Pol's Max} \]
\[ \sum_j \left[ \psi + O^J (\psi h)^2 \right] W^J(q_a) \]
\[ \Rightarrow g^J = H^{-1} (\hat{\eta}/y) \text{ where } \hat{\eta} = \frac{\sum_j \left[ 1 + O^J (\psi h)^2 \right] y^J}{\sum_j \left[ 1 + O^J (\psi h)^2 \right]} \]

\[ \text{i.e. size-wealth-orded with median-inefficiency} \]

\[ \text{i.e. wholly intuitive.} \]