The Role of Party Factions: An Information Aggregation Approach

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"A structured group within a political party which seeks at a minimum to control authoritative decision-making positions of the party." (Zuckerman, 1975)

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Typically based on common ideology and leadership (Rose 1964, Janda 1995, Harmel et al 1995)



"The term party is not in itself loathsome, the term faction *always* is."

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Voltaire, Encylopedie

Persico, Rodrigues, Silverman (2011)



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Galeotti, Ghiglino, Squintani (2009)

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- There is a given endowment of policy making authority $e: K \rightarrow I$.
- Factions form via voluntary delegation of authority.
 Delegation is repeated until it stops.
 The final assignment of policy making authority is *a* : *K* → *I*.

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Politicians obtain signals $s_i \in \{0, 1\}$ about $\theta \sim U[0, 1]$. The signals are conditionally i.i.d.: $Pr(s_i = 1|\theta) = \theta$.

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- Strategic communication between politicians.
 Each politician *i* sends a message *m_{ij}* ∈ {0, 1} to every other politician *j*.

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■ Platform design via final policy choices. For each policy *k*, politician a(k) decides $y_k \in \Re$.

The Model

Payoffs

$$u_i(\hat{\mathbf{y}}, \theta) = -\sum_{k \in \mathcal{K}} (\hat{y}_k - \theta - b_i)^2$$

Equilibrium

- Pure Strategy Perfect Bayesian Equilibrium (**a,m,y**)
- Punishment if player *i* fails to delegate is babbling to *i*.
 We do not allow for complete communication shut-down as an equilibrium punishment.
- Coordination on efficient (weighted Utilitarian) equilibrium.

Communication and Platform Design

Let d_j (m) be the number of informative signals of player j
 and l_j (m) number of signals equal to 1

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Lemma 1. Galeotti, Ghiglino, Squintani (2009)

- Given communication equilibrium **m** a politician *j* makes decision $y_k = E\left[\theta | l_j(\mathbf{m}), d_j(\mathbf{m})\right] + b_j$
- 2 The profile **m** is an equilibrium if and only if, whenever politician *i* is truthful to politician *j*,

$$\left|b_i - b_j\right| \leq rac{1}{2\left[d_j(\mathbf{m}) + 2
ight]}$$

3 The expected utility accrued by any player *i* from any policy *k* assigned to a politician *j* is

$$Eu_i(j,\mathbf{m}) = -\frac{1}{6\left(d_j(\mathbf{m}) + 2\right)} - \left(b_i - b_j\right)^2$$

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 $f_{ij}(e, a) = |\{k \in \mathcal{K} : e(k) = i, a(k) = j\}|$ is the number of decisions k that are initially endowed to politician i and transferred to j.

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- In equilibrium only disjoint factions with unique leaders

Proposition 1. In any equilibrium $(a, \mathbf{m}, \mathbf{y})$ sparty \mathcal{I} is divided in a collection \mathcal{C} of disjoint factions. For any faction F, all politicians j in F delegate all decisions to a unique leader l(F), who does not delegate decisions further.

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- Given **m**, *i* delegates only to a more informed party member
- Expected utility depends only on identity of decision-maker
- If *i* delegates to *j* then she transfers all policies endowed to her

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Suppose $f_{1,2}(e, a) = f_{2,4}(e, a) = f_{3,1}(e, a) = f_{6,7}(e, a) = 1$



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- Then $C = \{F_1, ..., F_N\}$ consists of

• $F_1 = \{1, 2, 3, 4\}$, $F_2 = \{5\}$ and $F_3 = \{6, 7\}$

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l(*F*₁) = 4 makes 4 decisions
 l(*F*₂) = 5 makes 1 decision
 l(*F*₃) = 7 makes 2 decisions

- Suppose $f_{1,2}(e, a) = f_{2,4}(e, a) = f_{3,1}(e, a) = f_{6,7}(e, a) = 1$
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- $l(F_1) = 4 \text{ makes 4 decisions}$
- l(F_2) = 5 makes 1 decision
- l(F_3) = 7 makes 2 decisions
- Suppose $f_{4,3}(e, a) = 1$; yields cycle
Faction Formation

■ For any faction leader *l*(*F*), define *d*_{*l*(*F*)} (*C*, *L*) as the maximum information held by *l*(*F*) in equilibrium.
 ■ For any other player *j*, let *d*_{*j*} (*C*, *L*) = 1.

Proposition 2. In any Pareto-undominated equilibrium $(a, \mathbf{m}, \mathbf{y})$, the factional structure $C = \{F_1, ..., F_N\}$ with leaders $\mathcal{L} = \{l(F_1), ..., l(F_N)\}$ is such that for any faction F and $i \in F, j \in \mathcal{I}$

$$\frac{1}{6\left(d_{j}\left(\mathcal{C},\mathcal{L}\right)+2\right)}+\left(b_{i}-b_{j}\right)^{2}\geq\frac{1}{6\left(d_{l\left(F\right)}\left(\mathcal{C},\mathcal{L}\right)+2\right)}+\left(b_{i}-b_{l\left(F\right)}\right)^{2} \ (1)$$

Proposition 3. The factions that form in any Pareto-undominated equilibrium are ideologically connected: If politicians *i* and *j* belong to the same faction *F*, then so does any politician *k* whose bias b_k is between b_i and b_j .

Propositions 2 and 3 recover definitions and stylized facts

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Factions based on common ideology and leadership



The Bevanites



The Gaitskellites

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Two Examples

Equidistant Bias

- Odd number of politicians $I \ge 5$
- K = I
- $\bullet \ e(k) = k$
- Ideological distance between neighboring politician is β
 I.e., b_i = iβ for i = 1, ...I

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■ Ideological distance between neighboring politician is β I.e., $b_i = i\beta$ for i = 1, ...I

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Clustered Preferences

- Three ideological groups: left, center and right
- Size n_L , n_R , and n_C and $n_i \ge 3$
- Ideology $-b_L$, 0, and b_R
- K = I

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Suppose that $d_4 \ge 3$

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- Suppose that $d_4 \ge 3$
- Using Lemma 1 $|b_i b_j| \le \frac{1}{2[d_j(\mathbf{m}) + 2]} \Leftrightarrow \beta \le 1/10$

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- By Equation 1 all delegate to $4 \Leftrightarrow \beta \leq \frac{1}{45}\sqrt{5}$
- Optimal configuration C consists of $F_1 = \{1, 2, 3, 4, 5, 6, 7\}$
- With $l(F_1) = 4$
- Unity under the most moderate leader is always Pareto optimal
- Small bias \Rightarrow Unified party under moderate leader

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Suppose β larger, specifically $\frac{1}{5}\sqrt{45} < \beta \le \frac{1}{30}\sqrt{5}$

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The median politician is isolated

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• Suppose β larger still, specifically $\frac{1}{30}\sqrt{5} < \beta \le \frac{1}{12}\sqrt{2}$

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- Suppose β larger still, specifically $\frac{1}{30}\sqrt{5} < \beta \le \frac{1}{12}\sqrt{2}$
- By Equation 1, extremists 1 and 7 do not delegate to 4
- But would delegate to 2 and 6 respectively

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- But would delegate to 2 and 6 respectively
- Optimal configuration is C that consists of $F_1 = \{1, 2\}, F_2 = \{3, 4, 5\}, F_3 = \{6, 7\}$

■ $l(F_1) = 2$ and $l(F_3) = 6$ takes 2 decisions and $l(F_2) = 4$ takes 3

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- Suppose $\beta > \frac{1}{12}\sqrt{2}$
- By Lemma 1 $d_4 = 1$
- Then, using Equation 1 no factions form
- Each politician takes 1 decision

Tying in the Extremists

- Leaders are separated by "ideological steps" of length β
- Extreme politicians join faction with moderate leaders
- This improves welfare
- But constrains moderates from joining more moderate factions

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First order concern is avoidance of extreme stands

Tying in the Extremists

- Leaders are separated by "ideological steps" of length β
- Extreme politicians join faction with moderate leaders
- This improves welfare
- But constrains moderates from joining more moderate factions
- First order concern is avoidance of extreme stands
- Logic defines an iterative procedure to calculate $(\mathcal{C}, \mathcal{L})$
 - Begin with the most extreme politician
 - Bind her in the most moderate faction possible
 - Continue iteratively
 - Remaining politicians form faction lead by median
- Provides complete characterization (Proposition 4)

Proposition 4. Suppose that there are an odd number $I \ge 5$ of politicians, and that ideological neighbors are at ideological distance β . The welfare maximizing equilibrium factional structure is characterized as follows:

1 Each leader *l*'s equilibrium information equals $d(\beta) = \min\{I, d^*\}$ whenever $g(d^* + 1) < \beta \le g(d^*)$, where the function $g(\cdot)$ is defined as $g(d) = (2 \cdot \lceil (d-1)/2 \rceil \cdot (d+2))^{-1}$ for any integer *d*. The leader of each faction is always its most moderate politician.

2 Letting $q(\beta) = \left\lfloor \frac{1}{\beta} \sqrt{\frac{d(\beta)-1}{18(d(\beta)+2)}} \right\rfloor$, there are $G = 2 \cdot \left\lfloor \frac{I-1}{2(q(\beta)+1)} \right\rfloor + 1$ factions, symmetrically arranged around the median politician m = (I+1)/2. All factions are of size $q(\beta) + 1$ but the one containing the median politician m, which is of size $M = I - (G-1)(q(\beta) + 1)$.

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Rationale for Factions

Tying in the Extremists

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Rationale for Factions

Tying in the Extremists

Role for Factions

Cannot infer platform directly from preferences

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Rationale for Factions

Tying in the Extremists

Role for Factions

- Cannot infer platform directly from preferences
- Nor from a summary statistic of preferences
- But require more detailed analysis of faction formation

Factions matter (for collective choice)

Three ideological groups: left, center and right. Size n_L , n_R , and n_C and $n_i \ge 3$, Ideology $-b_L$, 0, and b_R , with K = I

The party welfare induced by assigning any action k to a leader of group j is:

$$W_{j} = -\sum_{i=L,C,R} n_{i} (b_{i} - b_{j})^{2} - \frac{n_{L} + n_{R} + n_{C}}{6 (d_{j} + 2)}$$

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Three ideological groups: left, center and right. Size n_L , n_R , and n_C and $n_i \ge 3$, Ideology $-b_L$, 0, and b_R , with K = I

- Small biases and/or large groups
 - Party is united under dominant faction
- Leader indexed by largest among W_L , W_C , and W_R
- Large biases b_L and b_R and/or small groups
 - Party remains divided in three ideological tendencies

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Three ideological groups: left, center and right. Size n_L , n_R , and n_C and $n_i \ge 3$, Ideology $-b_L$, 0, and b_R , with K = I

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- Suppose b_L large and b_R small relative to size of groups
- Faction of the center-right forms and Left is isolated.
- Leader (of center-right) largest among W_C and W_R
- Interchanging *L* with *R* to obtain center-left faction



"A number of citizens, whether amounting to a minority or majority of the whole, who are united and actuated by some common impulse of passion, or of interest, adverse to the rights of other citizens, or to the permanent and aggregate interests of the community."

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Federalist, no.10

Benchmark 1: Factionalized-vs-Centralized Party

Decisions are either shared between faction leaders Or centralized to a moderate leader

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Benchmark 1: Factionalized-vs-Centralized Party

Decisions are either shared between faction leaders Or centralized to a moderate leader

Benchmark 2: Factionalized-vs-Nonfactionalized party

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Decisions are shared between faction leaders Or politician exercises own judgement

Benchmark 1: Factionalized-vs-Centralized Party

Proposition. For generic ideologies **b**, the party's welfare is weakly larger if the party is united under the leadership of the welfare-maximizing politician than in any equilibrium of our factionalization game.

- Moderate leadership always desirable
- But as we have seen not always sustainable
- Then factions offer a second best solution wrt Benchmark 1

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Benchmark 2: Factionalized-vs-Nonfactionalized party

• With equidistant bias factions are welfare enhancing

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Usually the case with clustered biases

Benchmark 2: Factionalized-vs-Nonfactionalized party

• With equidistant bias factions are welfare enhancing

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- Usually the case with clustered biases
- Though we can find counter-example
Three ideological groups: left, center and right. Size n_L , n_R , and n_C and $n_i \ge 3$, Ideology $-b_L$, 0, and b_R , with K = I

Benchmark 2: Factionalized-vs-Nonfactionalized party

- If party is unified in a dominant faction then welfare is higher
- Otherwise outcome is ambiguous
- Consider case of a center-right faction lead by Right Leader
- $W_R > W_C$ so centrists better off under leadership from the right

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- But may be very detrimental to leftists
- Then welfare can be higher without factions

- Suppose politicians communicate only within factions
- Return to earlier example

Odd number of politicians; I = 7 and K = I and e(k) = k; ideological distance between each politician and closest ideological neighbor fixed at β and so $b_i = i\beta$ for i = 1, ...I.

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• Suppose
$$\frac{\sqrt{5}}{45} < \beta \le \frac{\sqrt{5}}{30}$$

Under open communication optimal configuration is {1,2,3}, {4}, {5,6,7}

- Suppose politicians communicate only within factions
- Return to earlier example

Odd number of politicians; I = 7 and K = I and e(k) = k; ideological distance between each politician and closest ideological neighbor fixed at β and so $b_i = i\beta$ for i = 1, ...I.

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- Suppose $\frac{\sqrt{5}}{45} < \beta \le \frac{\sqrt{5}}{30}$
- Under open communication optimal configuration is {1,2,3}, {4}, {5,6,7}
- But under closed communication $\{1, 2, 3, 4\}, \{5, 6, 7\}$

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- But under closed communication $\{1, 2, 3, 4\}, \{5, 6, 7\}$
- Or {1,2,3}, {4,5,6,7}

- Suppose politicians communicate only *within* factions
- Return to earlier example

Odd number of politicians; I = 7 and K = I and e(k) = k; ideological distance between each politician and closest ideological neighbor fixed at β and so $b_i = i\beta$ for i = 1, ...I.

- Suppose $\frac{\sqrt{5}}{45} < \beta \le \frac{\sqrt{5}}{30}$
- Under open communication optimal configuration is {1,2,3}, {4}, {5,6,7}
- But under closed communication $\{1, 2, 3, 4\}, \{5, 6, 7\}$
- Or $\{1, 2, 3\}, \{4, 5, 6, 7\}$
- If alone the median is uninformed so better to join faction
- Fewer and larger factions under closed communication
- Policy outcome depends on factional structure

Party Factions and Platform Design

T.Dewan (LSE) and F. Squintani (Warwick University)

Why Factions? Do they Matter? Welfare Implications?

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- Model that recovers descriptive and stylized facts
- Factions matter for policy outcomes
- Welfare effects are ambiguous
- And so factionalism can be beneficial