COOPTATION: MERITOCRACY VS. HOMOPHILY IN ORGANIZATIONS

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I. INTRODUCTION

“To coopt” (here) = to elect into a body by the votes of the existing members.

- Many organizations (boards of directors, social clubs, cooperatives, partnerships, trade or monetary unions, academic departments, polities) coopt new members or officers.
- Safe to predict that coopting members pursue their own agenda.
- 3 types of externalities
  - on minority members, whose voice may not be heard
  - on potential members, who may not benefit from equal opportunity
  - on society/third parties, whom the organization is meant to serve.
- What drives organizational success
  - from the members’ viewpoint?
  - from an external perspective (e.g. meritocracy)?
- Should cooptation be constrained by internal rules or external intervention?
MODELING STRATEGY

When a member departs, a new member is coopted by remaining members

- Members driven by two motives: quality and homophily
- Candidates for the position and members characterized by two attributes: vertical and horizontal
  - *preference alignment on vertical attribute*: talented member confers externality $s > 0$ on all other members of the organization (quality of interactions; prestige or budget); untalented member does not
  - *no preference alignment on horizontal attribute* (two groups: gender, religion, ethnicity, politics, scientific field or approach, values, friendship, class background, business strategy…); homophily benefit $b > 0$ from a colleague belonging to the same group, 0 otherwise
- Assume $s > b$. Otherwise, majority’s decision is a no-brainer.
OUTLINE

II. MODEL AND BASIC DYNAMICS
Majority rule; exogenous candidacies
  ● Organizational dynamics (meritocracy? entrenchment?)
  ● Efficiency

III. EXTENSIONS: WHAT DRIVES THE LEVEL OF ENTRENCHMENT?
  ● Homogamic evaluation capability (higher ability to assess quality of candidates of in-group than of out-group)
  ● Other factors (time-varying individual homophily preferences, uncertain voting turnout, existence of decisions requiring supermajorities)

IV. ENDOGENOUS CANDIDACIES
Talented candidates have superior outside options
  ● Voluntary affirmative action
  ● Downward organizational spirals
V. ANTEROOMS FOR APPOINTMENTS
- Candidates can re-apply
- Hierarchies and glass-ceiling

VI. POLICY INTERVENTIONS
Alternative information structures
1) Uninformed principal
2) Principal observes horizontal types (number of men and women), but not talent
3) Principal imperfectly or occasionally observes talent (external evaluation exercises), but not horizontal types (social graph)

Interventions
1) (a) Blind. (b) Super-majority rules
2) Affirmative action
3) (a) Quality-based rewards. (b) Overruling of appointments

VII. ALLEYS FOR FUTURE RESEARCH
II. MODEL AND BASIC DYNAMICS

II.1. MODEL

Infinite horizon $t \in (-\infty, +\infty)$

Organization

- $N = 2k$ members
- Beginning of period: one member (randomly drawn) quits
- $2k - 1$ remaining members elect new member (majority rule)

Discount factor $\delta_0 < 1$

Life-adjusted discount factor $\delta \equiv \delta_0 \left(1 - \frac{1}{N}\right)$. 
Types

- vertical (talent) = per-period externality on all members, ∈ \{0, \tilde{s}\} where \tilde{s} > 0
- horizontal trait ∈ \{A, B\} (groups); per-period homophily benefit \tilde{b} > 0 on members of the same group only.

PDV of contribution of a talented recruit to each incumbent member

\[ s \equiv \frac{\tilde{s}}{1 - \delta_0 \left(1 - \frac{2}{N}\right)} \]

PDV of contribution of an in-group recruit to each group member

\[ b \equiv \frac{\tilde{b}}{1 - \delta_0 \left(1 - \frac{2}{N}\right)} \]

Candidates

One-time candidacies. Wlog 2 candidates (one of each group)
<table>
<thead>
<tr>
<th>Probability</th>
<th></th>
<th>1 − 2x</th>
<th>x</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talent pattern</td>
<td>(s, 0)</td>
<td>(s, s) + α</td>
<td>(0, s)</td>
</tr>
<tr>
<td></td>
<td>(0, 0) + (1 − α)</td>
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[First component: A-candidate’s talent; second component: B-candidate’s talent.]

- Assume that

\[
s > b
\]

(otherwise majority always votes for majority candidate regardless of talent).

- Let \( \bar{x} \equiv x + (1 - 2x)\alpha \) (prior prob. that A or B candidate is talented).
Flow payoff (end of period) for a member $i$

$$u_{i,t} = n_{-i,t} \tilde{s} + m_{-i,t} \tilde{b}$$

number of talented fellow members
number of in-group fellow members

Summary of timing

<table>
<thead>
<tr>
<th>Period $t$</th>
<th>time</th>
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<tr>
<td>One member quits $\Rightarrow 2k - 1$ members left. Resulting majority size: $M$</td>
<td>Candidacies (majority rule)</td>
</tr>
<tr>
<td>Member $i$ of type $\theta \in {A, B}$ enjoy flow payoff $n_{-i,t} \tilde{s} + m_{-i,t} \tilde{b}$</td>
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**Equilibrium concepts**

1) *Perfect equilibrium in weakly undominated strategies*  
(to avoid coordination failures in which majority votes for unfavored candidate)

2) *Add Markov perfection and group symmetry*  
(only the size $M$ of the majority matters)

3) *Canonical*  
   - *meritocratic* if majority always selects best candidate, and, in case of a tie, selects in-group candidate;  
   - *entrenched*: same as meritocratic, except that majority always selects the in-group candidate when $M = k$ (tight majority).

We will show that (2) and (3) are equivalent.

Later on: stronger forms of entrenchment.
II.2. CANONICAL EQUILIBRIA

$M \geq k$: size of the majority at beginning of period.

Majority’s decision is a no-brainer, unless minority candidate is more talented than majority one:

- loss $s - b > 0$ if choice of in-group candidate
- longer-term control consequences.

Let $i$ denote the size of group ($i \in \{1, \ldots, N - 1\}$) and

$V^r_i = \text{forward-looking valuation in regime } r \in \{m, e\}$

- valuation of current and future hires
- ignores legacy quality (additive $\Rightarrow$ VNM-irrelevant).
Intuition for decreasing and increasing differences.
Proposition 1 (regions of existence of canonical equilibria)

Also: More patient members \((\delta \uparrow)\) ⇒ cost of losing control increases ⇒
- entrenched equilibrium region widens
- meritocratic equilibrium region shrinks.

Proposition 2 (uniqueness in the class of symmetric MPEs)

All symmetric Markov Perfect equilibria in weakly undominated strategies are canonical.
Welfare

(a) From point of view of current members

Proposition 3 (Non-ergodic insider welfare)

Whenever the meritocratic and the entrenched MPE coexist, i.e. for \( s/b \in (\rho^m, \rho^e) \), at any majority size the meritocratic equilibrium is preferred by all members of the organization to the entrenched equilibrium.

(b) Ergodic aggregate member welfare

End-of-period ergodic distribution

\[ \nu^r_i = \text{ergodic probability of being in state } i \text{ in equilibrium } r \in \{e, m\} \]

Expected ergodic quality

\[ S^m - S^e = N(N - 1) v^e_{k+1} \frac{k + 1}{N} x \tilde{s} > 0 \]

- \( N \) members can each have an externality on \((N - 1)\) others
- \( \nu^e_{k+1} \) is the probability of a tight majority
- \( x \tilde{s} \) represents the probability of a non-meritocratic decision
Expected homophily benefit

\[ B^r \equiv \sum_{i=k}^{N} \nu_i^r \left[ i(i - 1) + (N - i)(N - i - 1) \right] \tilde{b} \]

increasing in \( i \)

\( W \equiv \) ergodic steady state (quality + homophily)

**Proposition 4 (Ergodic per-period aggregate welfare)**

For any \( s > b \), \( W^m > W^e \), i.e. the meritocratic equilibrium dominates the entrenchment equilibrium in terms of ergodic per-period aggregate welfare.
NON-LINEAR HOMOPHILY BENEFITS

- Analysis carries over to concave homophily benefits.
- Convex homophily benefits give rise to new organizational dynamics (e.g. may be meritocratic for small majorities, fully entrenched for large ones).
III. SUPER ENTRENCHMENT

[Aside from $s \leq b$: Full entrenchment = admit only majority candidates.]

III.1. HOMOGAMIC EVALUATION CAPABILITY

Assumption: Can evaluate only quality of in-group candidate.

- Majority selects in-group candidate if talented
- Otherwise, assesses quality of out-group candidate at

$$s^+ = \frac{x}{1 - \bar{x}} s < s$$

(a) If $s^+ \leq b$, then full entrenchment.
(b) If $s^+ > b$

Two opposite effects relative to baseline model:

- lower cost of entrenchment: $s^+ - b < s - b$
- higher probability $x + (1 - 2x)(1 - \alpha) > x$ that minority candidate be viewed as more talented than majority one

$\Rightarrow$ minority better treated than under full information.

Ambiguous impact of homogamic evaluation on entrenchment.
Between “entrenchment” (meritocracy violated when $M = k$) and “full entrenchment” (meritocracy violated for all $M$): “super entrenchment” (meritocracy violated when $M \leq k + \ell$).

1. **Uncertain voting participation**
   
   Example: if $s/b \approx 1$ and Bernouilli participation, full entrenchment

2. **Imperfect identification of group allegiance**

3. **Supermajority clause for some (non-membership) decisions**

4. **Some forms of interventions (later).**
**Uncertain voting participation**

Let $\Lambda(M)$ denote the probability that majority of size $M$ loses the vote (absenteeism pattern: can be independent or correlated). Assume

- $\Lambda(M) < \frac{1}{2}$ and decreasing

- $\Lambda(M) > 0 \Leftrightarrow M \leq k + \ell - 1$ (maybe $N - 1$)

**Proposition**

For any $s/b$ sufficiently close to 1, super-entrenchment at level $\ell$ (full entrenchment if $\ell = k$, as is the case for Bernoulli absenteeism).
IV. ENDOGENOUS CANDIDACIES

LARGE ORGANIZATIONS

- Mass 1 of members; continuous time; replacement rate $\chi dt$.
- $x[\chi dt]$ talented majority and minority candidates, where $x < 1/2$. So $(1 - 2x)[\chi dt]$ must be chosen from a (large) pool of untalented majority or minority candidates (resp. $(1 - x)[\chi dt]$ if participation constraint of talented candidates from one group is violated).

Deterministic system $\Rightarrow$ majority is freed from vagaries of a random pool of candidates $\Rightarrow$ control is not an issue. But attracting talented minority candidates is.

But attracting talented minority candidates is (outside option $\tilde{u} > 0$ per period).

Legacy captured by state space $\{S_t, M_t\}$, where $S_t$ is average quality of current members and is now relevant.

Candidates’ participation decisions are intertemporal SC. We assume no coordination failure.
**Equilibrium:** 5 possible regions

**Region 1 (standard favoritism):** majority favors in-group candidates within untalented pool

**Region 2 (mild affirmative action to keep attracting talented minority candidates):** majority takes some untalented minority candidates

**Region 3 (strong affirmative action to recoup attractiveness):** $(1 - 2x)[\chi dt]$ untalented appointments are all minority ones. Talented minorities cannot be attracted for a while

**Region 4 (giving up on minority candidates):** appoint only majority candidates.

**Region 5 (only mediocre appointments):** even talented majority candidates turn down offer.
Proposition

- Unique outcome; three possible steady states:
  - SS#1: diversity and high quality
  - SS#2: homogeneity and low quality
  - SS#3: homogeneity and zero quality.

- Basins of attraction: SS#1 w.r.t. SS#2 and SS#3 (SS#2 w.r.t. SS#3) more likely,
  - the higher the initial diversity
  - the higher the initial quality.
V. ANTEROOMS FOR APPOINTMENTS

So far: appointment process = choice between coopting candidates and letting them go for good.

Dynamic process: Talent pool is

(1) external: turned-away candidates may be persistent and reapply

(2) internal: organization grooms junior members for possible promotion to senior positions.
V.1. CANDIDATES CAN RE-APPLY

At any point of time, “stocks” of previously rejected talented majority and minority candidates (stocks of non-talented candidates are irrelevant). Assume $\alpha = 0$.

Existence region for meritocratic equilibrium* shrinks.

**Intuition**

- Stocks are irrelevant on equilibrium path for the meritocratic equilibrium (but not off-the-equilibrium path).
- Cost of entrenchment is reduced (less costly to turn down a talented minority candidate).

*Equilibrium may not be fully meritocratic. Majority surrenders control only when number of talented minority candidates in store is below some threshold.
Various hypotheses for existence of a glass ceiling. Can non-meritocratic cooptation be a factor?

Senior level

promotions

outside hires

Junior level

junior recruitment

$N = 2k$ positions

$J$ positions
Simplifying assumptions

- supply of “untalented” (lack of experience in firm) potential outside hires of each group ⇒ majority can always keep control if wants to
- one job opening at senior level in each period
- homophily benefits: $b < s$ at senior level, $b^J < s^J$ at junior level (⇒ meritocratic hiring at junior level).

Glass ceiling even if meritocratic hiring at senior level

- particularly strong if entrenchment at senior level
- particularly strong if organization is more pyramidal (still a conjecture in the case of a meritocratic equilibrium).
VI. POLICY INTERVENTIONS

Principal’s objective function

(a) Internalization of members’ payoffs (*: discussed below)

- Generalized efficiency (quality, homogamy and possibly transfers)*: \( qS + B - \xi T, \) where \( q \geq 1. \)
- Equity/equal opportunity

(b) Externalities

- Positive externality associated with quality is natural assumption*
- However can think of negative externalities. Talent-stealing: organizations compete to attract fixed pool of talent (exogenous candidacies).

Warning: No mechanism design.
Allow the principal to overrule majority decisions. Idea: Prevent entrenchment.

Proposition

The principal’s refraining from engaging in blind interventions is an equilibrium.

- No point intervening unless majority is tight
- Net loss of blind overruling when majority is tight (reduces homophily benefits).
**COMMITMENT TO AFFIRMATIVE ACTION**

*Assumption*: Principal observes horizontal types, but not talent.
Imposes minimum diversity: $M \leq k + \ell < N$ at the end of period.

Ambiguous effect
- Constraint on majority behavior/protection of minority ⇒ reduces incentive for entrenchment.
- But some inefficiency (reverse violation of meritocracy, lower homophily benefits).
  - reverse violation of meritocracy may be worse in terms of efficiency than entrenchment under laissez faire
  - for $s/b$ large, unique equilibrium = meritocracy with ties broken in favor of minority candidate.
- May look better if endogenous candidacies.
IMPLEMENTING SUPER-MAJORITY RULES

Modeling: let \( l \in \{1, \ldots, k - 1\} \),

- voting rule requires a majority of \( k + l \) members
- if quorum not reached, principal chooses one candidate at random (blind)

Proposition

For \( s/b \) close to 1, super-entrenchment to level \( l \).

Conjecture: Existence region of meritocracy widens.
REWARDING QUALITY

Modeling

- quality assessment exercise (Poisson process with parameter $\eta$)
- reward $yN$ per talented member (one-shot reward better for incentives than spread out over time)
- cost of public funds.

Talented member then yields to each other member quality benefit

$$s^+ = s \left( 1 + \eta \frac{y}{\bar{s}} \right).$$

Proposition

(i) Low $\frac{s}{b}$: Little appetance for meritocracy. Incentives required for generating meritocracy must be very large $\Rightarrow$ the intervention may not be optimal

(ii) High $\frac{s}{b}$: The intervention is wasteful (meritocracy prevails anyway)

(iii) Intervention optimal for intermediate $\frac{s}{b}$. 
QUALITY-BASED INTERVENTIONS THAT BACKFIRE

Principal learns quality of current candidates with probability $\eta$ in each period, can overrule majority if latter chooses less talented candidate.

For $s/b$ close to 1:

- Majority plays full entrenchment strategy
- Principal would be better off committing not to intervene.
VII. ALLEYS FOR FUTURE RESEARCH

(a) More than two groups and coalitions

- May involve a quantum leap in the complexity of the analysis, but would be very rewarding.

(b) Human capital investment

- Adding an ex-ante investment in human capital, which increases the probability of being “talented”.

- New feature relative to endogenous candidacies: availability of talented minorities is a public good from the point of view of organizations.

- Self-fulfilling outcomes (minorities do not invest because organizations are entrenched, and organizations are entrenched because they cannot find competent minorities)?
(c) Competition among organizations

- Competition: meritocracy may have perverse effects if the talent pool is exogenous. “Talent stealing effect” may imply that organizations may be too diverse rather than too entrenched!
- “Beckerian” question of whether competition among organizations will lead to equal opportunity.

(d) Heterogeneous tastes for homogamy

- Self-selection into highly entrenched organizations (gentlemen’s clubs) and more tolerant/open structures?

(e) Integrity of quality assessment exercises

- Dominant groups may control not only the organizations themselves, but also the panels that are supposed to assess them.
- At the same time, minority groups may be minorities not because they suffer from some innate trait that is unrelated to quality (gender, ethnicity...), but because they are perceived as lower-quality agents by the majority group...
(f) **Cooptation as manipulation.** If individuals outside the organization have nuisance power and coopting them changes their behaviour: can capture the second meaning of “cooptation” (Selznick 1949). [Easy to capture in reduced form using this model]

(g) **Searching for talented candidates.** Will search be mainly directed toward ingroup/majority candidates?
1) *Economics of discrimination* (post Becker 1957)
   - Homogamic benefit, but market forces may impose meritocratic hiring
   - Static

   - Talented recruits are a nuisance for incumbent members (may later take their jobs).
   - Tenure (Carmichael) and hierarchical communication channels (Friebel-Raith) alleviate competition between recruiters and recruitees.
2) **Affirmative action**

- Coate-Loury (*AER* 1993): Employers have taste for discrimination. Affirmative action boosts minority incentives to invest in skills if modest, reduce incentives if extensive.
- Rosen (*EER* 1997). Search model. Group that is discriminated against in hiring is less choosy and applies for jobs that (it knows) generate a low joint-surplus, “vindicating” discrimination.

3) **Club theory and local public goods** (post Buchanan 1965/Tiebout 1956). Mostly static, but some exceptions:

- Barbera et al (*GEB* 2001): each member can bring on board any candidate. Impact of graph structure on expansion of group (friends may bring enemies into the group).
- Roberts (*Research in Economics* 2015): majority rule. New members more favorable to expansion than previous ones.
- Acemoglu et al. (*AER* 2012): otherwise desirable moves may lead to loss of control.
4) **Recruiting talent under incomplete information**
   - Board et al. (2017): dynamics of an organization when more talented members are better at identifying talent.
   - Moldovanu-Shi (*TE* 2013): multi-dimensional-quality assessment performed by biased specialists.

5) **Trade-off between talent and like-mindedness**
   - Cai-Feng-Weng (2013): three-member organization. Distributive politics within the organization each period. Size of rent to fight for determines entrenchment vs meritocracy.

VALUE FUNCTIONS AND TRANSITION PROBABILITIES

\[ V_M = \text{value function for majority} \]
\[ V_M^- \text{ (resp. } V_M^+) = \text{value function for majority when majority candidate is (is not) less talented.} \]
\[
V_M = xV_M^- + (1 - x)V_M^+
\]

Forward-looking (ignores legacy)

\[
\begin{align*}
V_M & = \max \left\{ b + \delta \left( \frac{M}{N-1} V_M + \left(1 - \frac{M}{N-1}\right) V_{M+1} \right), \\
& \quad \quad s + \delta \left( \frac{M-1}{N-1} V_{M-1} + \left(1 - \frac{M-1}{N-1}\right) V_M \right) \right\} \\
V_M^- & = b + \frac{\bar{x}}{1-x}s + \delta \left( \frac{M}{N-1} V_M + \left(1 - \frac{M}{N-1}\right) V_{M+1} \right) \\
V_M^+ & = b + \frac{x}{1-x}s + \delta \left( \frac{M}{N-1} V_M + \left(1 - \frac{M}{N-1}\right) V_{M+1} \right)
\end{align*}
\]

Can also compute minority’s value function similarly.
One-period transition probabilities depend on perspective, in equilibrium $r \in \{e, m\}$

- majority member $p_{i,j}^r$
- outsider
- minority member $\hat{p}_{i,j}^r$

Existing members condition on their still being in the organization tomorrow.
Example: Consider an equilibrium with current majority size $M > k$ and probability of moving to majority size $M + 1$.

From point of view of majority member:

$$p_{M,M+1} = (1 - x) \left( \frac{N - (M + 1)}{N - 1} \right)$$

prob (chooses in-group candidate, moving group size to $M + 1$) conditional on member still being around at $t + 1$, prob that a minority member departs

From point of view of minority member:

$$\hat{p}_{M,M+1} = (1 - x) \left( \frac{N - M}{N - 1} \right)$$
Still assume that large number of untalented candidates of each group and that probability of talented candidates is as above.

Opportunity cost $\tilde{u} > 0$ for a talented candidate of accepting a position in the organization.

Information structure of candidate?

Don’t want to introduce too many state variables ("legacy" quality associated with types of existing members is irrelevant to members, but not to candidates).

Simplifying assumption: Minimal information: Candidates at $t$ only know which group holds the majority (captures idea that organization may be inequally attractive to minority and majority candidates). Probabilities: They use the ergodic distribution.
Candidates’ participation decisions are intertemporal SC. We assume no coordination failure.

Participation constraint: (Under some conditions for entrenched equilibrium) tighter for talented minority candidate than for talented majority candidate.