

On Committees of Experts

Otto Swank and Bauke Visser

Erasmus University Rotterdam and Tinbergen Institute

Group / Committee Decision Making

Context: group of agents deciding on behalf of principal

Examples:

Governing Council of the ECB

(Health) expert consensus panels

Cabinet of ministers

Management team

Selection committees

Two important features

1. Agents: experts

Examples:

cardiologist / diagnosis / operation

central banker / state of the economy / interest rate

2. Process: deliberation, followed by voting

Deliberation → pooling of information, potentially improving decision making

Deliberation

Pitfalls:

1. Free-riding in information production
2. Less than optimal use of information (from principal's perspective)

Observed:

(a) Some members paint too rosy a picture

(b) Others have serious reservations, but these do not stop them from accepting 'risky' undertakings

Example of (a) and (b): see Janis' Groupthink

→ (c) The unconventional decision looks attractive

Other observation (d):

Pressure to show united front to the external world

Schultz (former Governor and Vice-Chairman FED): “We should argue in the Board meetings but close ranks in public”

FED votes, percentage of dissenting votes 1966–1996, less than 8%

Cabinet: normally, prime minister informs the public about Cabinet decisions

Idea: explain

(a) Some members paint too rosy a picture

(b) Others have serious reservations, but these do not stop them from accepting 'risky' undertakings

(c) The unconventional decision looks attractive

(d) Pressure to show united front to the external world

members = experts who care about perceived decision-making ability (career, peer pressure, internalised professional standards)

Model

Decision on a 'project': $X = 0$ or $X = 1$?

P = Principal

$$\begin{aligned}U_P(X = 1) &= p + \mu \\U_P(X = 0) &= 0\end{aligned}$$

p : predisposition, $p < 0$ (Principal is sceptic)

μ : uncertainty (unknown state of nature), $\mu \in \{-u, u\}$,

$$p + u > 0, \Pr(\mu = u) = \frac{1}{2}$$

Agents (two, later n)

Agents $i = 1, 2$ experts, privately analyse state of nature

Signal $s_i \in \{s^g, s^b\}$ about μ

Agent can be 'smart' or 'dumb':

$$t_i = \{sm, db\}, \Pr(t_i = sm) = \pi_i = \pi$$

If smart, analysis flawless (fully informative signal)

If dumb, analysis useless (uninformative signal)

Competence not known, only π

Agents

$$\begin{aligned}U_i(X = 1) &= p + \mu + \lambda_i \hat{\pi}_i(X = 1) \\U_i(X = 0) &= \lambda_i \hat{\pi}_i(X = 0)\end{aligned}$$

$$\hat{\pi}_i(X = 1) = \Pr(t_i = sm | X = 1)$$

Updated belief about agent i 's competence / reputation

Based exclusively on decision taken (not on μ)

Two stages:

(1) communication stage: message $m_i \in \{m^g, m^b\}$

Private information shared or manipulated

(2) voting stage, $v_i \in \{v^g, v^b\}$

Actions simultaneous per stage (no herding)

Finally, individual votes aggregated to reach final decision on project

Voting rule: unanimity or majority required for implementation (chosen by Principal)

Economic environment

Recall $p < 0$

Note $E(\mu \mid s^g, s^b) = 0$

To create an interesting environment, assume $p + E(\mu \mid s^g, s^g) > 0$

Upshot:

If you only care about project value, first best rule (FBR) is:

put all information on table, $m_i = s_i$, and then

$$\begin{aligned} \{s_1, s_2\} &= \{s^g, s^g\} && \rightarrow X = 1 \\ \{s_1, s_2\} &= \{s^b, s^g\}, \{s^b, s^b\}, \{s^g, s^b\} && \rightarrow X = 0 \end{aligned}$$

So, more signal concurrence in case of $X = 1$, better from reputational point of view:

$$\hat{\pi}(X = 1) > \pi > \hat{\pi}(X = 0)$$

'Unconventional' decision attractive from rep point of view

Agent: If $s_1 \neq s_2$, Implement or Maintain status quo?

That is, give up project payoff for better reputation?

Status quo best if Agent cares 'little' about reputation, $\lambda_i \leq \bar{\lambda}$

$$p + \underbrace{E(\mu | s_1 \neq s_2)}_{=0} + \lambda_i \hat{\pi}(X = 1) \leq \lambda_i \hat{\pi}(X = 0)$$

Proposition: If interests of Principal and Agents sufficiently aligned, FBR equilibrium outcome: information shared and implementation only if $s_1 = s_2 = s^g$.
Moreover, voting rule immaterial

Cf. Coughlan (2000), Prop. 5

If $\lambda_1 < \bar{\lambda} < \lambda_2$, 2 likes to deviate

Assume: information cannot be manipulated, $m_i = s_i$

Now voting rule matters

Idea: make vote of Principal's ally decisive

Proposition: If information cannot be manipulated, unanimity rule protects Principal's interests best.

Agent 2 frustrated!

Holds also for $n > 2$

Continue with information cannot be manipulated, $m_i = s_i$

Now: $\bar{\lambda} < \lambda_1 < \lambda_2$, both want to deviate (but 1 less than 2)

Imagine $v_1 = v^g$ if $s_1 \neq s_2$. Then

$$\begin{aligned} \{s_1, s_2\} &= \{s^b, s^g\}, \{s^g, s^g\}, \{s^g, s^b\} && \rightarrow X = 1 \\ \{s_1, s_2\} &= \{s^b, s^b\} && \rightarrow X = 0 \end{aligned}$$

Hence, $\beta_1 = \Pr(v_1 = v^g | s_1 \neq s_2) < 1$ must hold

In equilibrium: $\hat{\pi}(X = 1; \beta_1) > \pi > \hat{\pi}(X = 0; \beta_1)$ must hold (as $p < 0$)

In two-person committee: $\beta_1 < \frac{1}{2}$ in eq

Agent 1 determines deviation / Agent 2 only provides information

Assume: information can be manipulated

Assume voting rule = unanimity

If $\lambda_2 > \bar{\lambda}$, 2 likes to deviate

Impossible in voting stage, manipulate information!

2 exaggerates ($m_2 = m^g$ even though $s_2 = s^b$)

The more he cares about his reputation, the more he exaggerates

Agent 1 takes into account agent 2's exaggeration when deciding what to vote

In two-person case, unanimity as good as simple majority, not a general result

Desire to speak with one voice

Schultz (FED): “We should argue in the Board meetings but close ranks in public”

Proposition: Committee members who care about their reputation show a united front.

Idea: Opponent of final decision cannot change decision anymore. Revealing disagreement hurts his reputation

Extend to committees of n members

Information can be manipulated

Main question: Unanimity or other Majority Rule?

Balance:

1. degree of alignment of interest between decisive agent and Principal
2. information exchange in communication stage

Unanimity: Principal's ally decisive; agents with high λ_i frustrated, exaggerate

Example: 3 members, $\lambda_1 < \lambda_2 \lll \lambda_3$

Other Majority Rule: Principal's ally no longer decisive, but perhaps more information shared

Some agents with λ_i high may exaggerate ($m_i = m^g$ if $s_i = s^b$)

Some agents with λ_i low may understate ($m_i = m^b$ if $s_i = s^g$)