Comments on “Fear of miscoordination...”
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### Partnership game

#### Actions
- **1**: cooperate, the game goes on
- **0**: exit, the game stops

#### Payoffs
- **(1,1)**: flow
- All others, stock

#### Special case:
- Exit value = 0
- All payoffs are stocks
- \( V \) depends on the strategies in the future
- \( w_t \) are i.i.d

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<td>1</td>
<td>( w_t )</td>
<td>( w_t - c + \beta V_E )</td>
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<td>0</td>
<td>( b + V_E )</td>
<td>( V_E )</td>
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<td>(-c)</td>
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Common knowledge

• We can take $w_t$ constant and $w - c > (1 - \beta)b$.

• Two equilibria with non-random strategies

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Imperfect information

• Private signals

\[ s_{it} = w_t + \sigma \varepsilon_{it}, \]

\[ \varepsilon_{it} \text{ uniform on } [-1, 1], \]

\[ \sigma \text{ arbitrarily small.} \]

• If a SRE, exists, then it has a monotone strategy

• Monotone strategy: cooperate if \( s > s^* \)
Solution

• Value of continuing cooperation

\[ V(s^*) = \int \left( P(s > s^* \cap s' > s^* | w)(w + \beta V) - P(s > s^* \cap s' < s^* | w)c + P(s < s^* \cap s' > s^* | w)b \right) f(w)dw. \]

\[ P(s > s^* | w) = \min\left( \max\left( \frac{w + \sigma - s^*}{2\sigma}, 0 \right), 1 \right) = g(w, s^*). \]

\[ V(s^*) = \int g(w, s^*) \left( (w + \beta V)g(w, s^*) + (1 - g(w, s^*))(b - c) \right) f(w)dw. \]

• Critical value \( s^* \) :

\[ P(s' > s^* | s)(E(w|s) + \beta V - c) - P(s' < s^* | s)c \]

\[ = P(s' > s^* | s)b \]

• With vanishing noise, \( P(s' > s^* | s^*) \approx 1/2 \) and \( E(w|s^*) \approx \sigma \).

• Solution \( s^* = b + 2c - \beta V \).
• Strategic complementarity between periods

\[ s^* = b + 2c - \beta V. \]

• More cooperation in the future, higher continuation value \( V \), lower \( s^* \), and more cooperation today

• Set of equilibria depends on the prior:

  • diffuse prior, multiple equilibria

  • concentrated prior, unique equilibrium
Figure 1: Equilibria with diffuse prior
Figure 2: Equilibrium with concentrated prior
Directions

• (very) short period
  • little is gained by deviation

• “Inertia”, main mechanism in previous model of regime switches (QJE 1999)
  • no delay, but a version (non stationary) of the model can be extended:
    • three possible values of the cost (flow) of cooperation: low (cooperation dominant), high (non cooperation dominant), middle (cooperation only if a sufficient mass of others cooperate)
    • Poisson processes for individuals from low to high cost
    • Initial position, individuals cooperate if they can.
    • Solution: unique equilibrium in which individuals cooperate as long as they can; first best solution
• Exit and entry are no symmetric
• In a game of entry with small number of players, Markov strategy may not be appropriate
• Game of entry by Gale (ET, 1995): agents can induce others to follow; guarantee of a lower-bound of the payoff; (vanishingly short periods solve the coordination problem)
• Previous model of exits with three costs is not isomorph to entry.

• Iterated elimination without common knowledge in multiple periods?
• CC (2006). “Complementarities in Information Acquisition With Short-term Trades”: Glosten-Milgrom model with two regions of the price where agents get information or do not get information