Social norms, social approval, social interaction

Readings:
Young 1998 ( Sections 1-4)
Nyborg and Rege (2003 JEBO; only cursory reading required for Sections 3-5)
Akerlof (1980)
Lindbeck (1997)
See also: Nyborg and Rege (2003, PC)
Social norm

- a rule of behavior that one is expected to follow, which is enforced through social sanctions (others’ approval and/or disapproval).
Social approval matters

• Rege and Telle (2004, *JPub Ec*):
  – One-shot public good game; four treatments:
    – Approval (non-anonymity)/non-approval
    – Associative (“community”)/non-associative

• Results:
  – Weak evidence: associative language increases contributions
  – Strong evidence: identification/indirect social approval increases contributions
Conventions, norms and equilibria

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<thead>
<tr>
<th></th>
<th>Left</th>
<th>Right</th>
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<tbody>
<tr>
<td>Left</td>
<td>3,3</td>
<td>-10, -10</td>
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Two high-speed drivers: Both prefer to drive at the same side of the road as the other. It doesn’t matter which side, as long as it’s the same!

Ex. of a convention: Everyone drives to the right, and expects everyone else to drive to the right.
Conventions, norms and equilibria, cont.

<table>
<thead>
<tr>
<th></th>
<th>Don’t smoke indoors</th>
<th>Smoke indoors</th>
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<td>Don’t smoke indoors</td>
<td>4,4</td>
<td>-2,(5-3)</td>
</tr>
<tr>
<td>Smoke indoors</td>
<td>(5-3),-2</td>
<td>1,1</td>
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</tbody>
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Material payoff only: PD

If being *the only one* who smokes indoors is punished by *social disapproval*, a PD in material payoffs can become a coordination game in utilities.
Conventions and norms

• A convention is equilibrium behavior in a game played repeatedly by many different individuals in society, where the behaviors are widely known to be customary (Peyton Young, 1998).
  – Ex: Driving on the right side of the road
  – Ex: Language, clothing

• A social norm is a rule of behavior one is expected to follow, enforced by social sanctions (others’ approval or disapproval)
  – Ex: Not smoking indoors; foot binding
  – Youngs def. makes «convention» a wider concept than «social norm»
A social norm interpretation of ‘warm glow’

- **i** cares about private & public goods, and **social approval**:

  (1) \( U_i = u(x_i) + v(G) + s_i \)

  *where* \( s_i = \) social approval

  Assume \( g_i \) (i’s contribution) discrete: 0 or 1 (\( g_i \in \{0, 1\} \))

  - Contributor meets contributor: Gives **social approval** \( K \)
  - Non-contributors: neither receive nor give approval
  - Social rewards *increasing in share of contributors*

  (2) \( s_i = g_iKa \)

  *a = share of others who contribute.*

  - If \( a = 0 \), \( s_i = 0 \) for \( g_i = 1 \)
  - If \( a = 1 \), \( s_i = K \) for \( g_i = 1 \)
  - If \( 0 < a < 1 \), \( 0 < s_i < K \) for \( g_i = 1 \)
Contributing to get social approval

(1) \( U_i = u(x_i) + v(G) + s_i \)
(2) \( s_i = g_i K_a \)
(3) \( a = (\sum_{j \neq i} g_j)/N \) \( N = \) population size, ex.
(4) \( Y = x_i + g_i \) \( i \)'s budget constraint, equal for all
(5) \( G = G^0 + (\sum_{j \neq i} g_j) + g_i = G_{-i} + g_i \) \( G^0 = \) public sector supply

\( i \) considers \( K, a, N, Y, G^0, \sum_{j \neq i} g_j \) exogenous.

• Assume \( i \) would be free-rider without social approval (\( G^0 \) sufficiently large).

• If \( g_i = 0 \): \( U_i = u(Y) + v(G_{-i}) \) \( \text{(A)} \)
• If \( g_i = 1 \): \( U_i = u(Y-1) + v(G_{-i} +1) + K_a \) \( \text{(B)} \)
• Will contribute if \( a \) large enough, i.e. if \( B > A \): \( [u(Y-1) + v(G_{-i} +1) + K_a] - [u(Y) + v(G_{-i})] > 0 \)
  \( v(G_{-i} +1) - v(G_{-i}) + K_a > u(Y) - u(Y-1) \)
Social approval vs. impure altruism

• Contribute if public good gain plus social reward > lost cons. benefits
  \[ v(G_{i+1}) - v(G_i) + Ka > u(Y) - u(Y-1) \]

• Impure altruism: if public good gain plus warm glow > lost cons. benefits

• Difference: with social approval,
  – value of the private good ("warm glow") depends on others’ behavior
  \[ a > \frac{[u(Y) - u(Y-1) - v(G_{i+1}) + v(G_i)]}{K} \]

• An increase in \(a\) can make \(i\) prefer to contribute
  – Makes multiple equilibria possible

• Also:
  – Requires observability by others (non-anonymity)
Nash equilibria

• If \( K \) is large enough, \( a = 1 \) is a Nash equilibrium.
  – Contributes if \( v(G_{i+1}) - v(G_i) + K \cdot 1 > u(Y) - u(Y-1) \)
  – Contributing gives high social rewards, since there are many rewarders: A social norm for contributing is enforced
  – Public good supply: \( G = G^0 + N \)
  – Given others’ strategies, contributing is individually optimal.

• \( a = 0 \) is also a Nash equilibrium:
  – We know that \( v(G_{i+1}) - v(G_i) + 0 > u(Y) - u(Y-1) \)
  – Contributing gives no social rewards, since there are no rewarders: No enforced social norm for contributing
  – Public good supply: \( G = G^0 \)
  – Given others’ strategy, not contributing is individually optimal.

• \( a = a^* \) is also an («unstable») Nash equilibrium
  – \( a^* \) is the share of contributors making \( i \) exactly indifferent.
  – \( v(G_{i+1}) - v(G_i) + ka^* = u(Y) - u(Y-1) \)
Social norms as cooperation equilibria

• Social norm models with multiple equilibria: n-person coordination games

• The social norm is in place (the norm is enforced): The economy is in a Nash equilibrium where it is individually optimal, due to social sanctions, to obey the rule of behavior.

• There is no social norm in place (the norm is not enforced): The economy is in a Nash equilibrium where it is not individually optimal to obey the rule of behavior.
Crucial: Approval depends on others’ behavior

- If social approval for following the norm is
  - \textit{increasing} in others’ norm compliance: Multiple equilibria can arise (coordination game; ’good’ or ’vicious’ circles)
  - \textit{decreasing} in others’ norm compliance (status-seeking model): Unique equilibrium
  - \textit{constant}: Like impure altruism
Feasibility of a generous welfare state

- 2 (stable) Nash equilibria:
  1. Few welfare recipients; strong norms against living on social security payments (high stigma); high political support for the welfare state
  2. Many (potential) recipients; weak norms against living on social security payments (little stigma for welfare recipients); low political support for the welfare state.
Tax evasion

• Assume:
  – People care about social approval
  – Government cannot observe evasion, trading partner can.
  – Tax evaders do not disapprove of other evaders
  – Tax payers do disapprove of evaders
• If most others evade, the expected social sanction by evading will be small.
• If most others pay taxes, the expected social sanction will be large.
• Both evasion by (almost) everyone and evasion by (almost) everyone may be Nash equilibria.
The role of policy

• Assume:
  – Full evasion and no evasion are both Nash equilibria
  – No evasion is Pareto superior to full evasion

• Potential roles of policy:
  – Determining relative prices
  – Determining the choice set
  – Coordinating the economy in the Pareto superior NE
Public policy and social norms

• Nyborg and Rege (2003, JEBO): On the evolution of norms for considerate smoking behavior

• Non-smokers
  – dislike passive smoking; spontaneous (involuntary) negative reaction
  – Reaction stronger if less used to passive smoking

• Smokers:
  – Dislike negative reactions from non-smokers
  – Trade the disutility of social sanctions against the disutility of smoking outdoors in cold weather.

• Two (stable) equilibria:
  – One in which all smokers smoke indoors
  – Another in which no-one smoke indoors
The considerate smoking norm model

• Smoker $i$’s utility depends on negative reactions on indoor smoking from non-smokers ($r$) and inconvenience cost of smoking outdoors ($c$):

\[
U = (r - c)\gamma_i
\]

$(r - c) = \text{net gain of smoking outdoors rather than indoors}$

$\gamma_i = 1$: $i$ smokes outdoors (considerate);

$\gamma_i = 0$: $i$ smokes indoors (inconsiderate)

• Non-smokers’ reactions depend on believed health effects of passive smoking ($k$), and how used they are to passive smoking:

\[
r = \alpha kh
\]

$\alpha = \text{Share of non-smokers in the population}$

$h = \text{average consideration level among smokers}$
Smoking regulation

• Smoking regulation divides individuals’ time between a share $R$ spent in the regulated zone (at work) and a share $(1-R)$ in the unregulated zone (private homes). Average consideration level:

$$h = R + (1 - R)\overline{y}$$

$\overline{y}$ = average consideration level in unregulated zone.

• Regulated zone: No inconsiderate smoking.

• Payoff from being considerate depends on $R$ (via non-smokers’ reactions) and other smokers’ behavior:

$$U(\gamma_i; \overline{y}) = (k\alpha[R + (1 - R)\overline{y}] - c)\gamma_i$$

• If $\gamma_i = 0$ (inconsiderate): $U = 0$

• If $\gamma_i = 1$ (considerate): $U = r - c$

= $k\alpha h - c$
### Nash equilibria

<table>
<thead>
<tr>
<th></th>
<th>All others are considerate in the unreg. zone</th>
<th>All others are inconsiderate in the unreg. zone</th>
</tr>
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<tbody>
<tr>
<td>I'm considerate</td>
<td>$k\alpha - c &gt; 0$</td>
<td>$k\alpha R - c &lt; 0$</td>
</tr>
<tr>
<td>I'm inconsiderate</td>
<td>0</td>
<td>0</td>
</tr>
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</table>

- Assume that $1 > \frac{c}{\alpha k} > R$
- Then, there are three Nash equilibria:
  - Every smoker is considerate
  - No-one is considerate
  - A share $x'$ of smokers are considerate, all are indifferent (corresponds to a mixed strat. NE).
The impact of regulation

- Initial situation: **All smokers smoke indoors**
- **Smoking regulation:** All non-smokers now spend some share of their time in smoke-free air.
  - Get less used to passive smoking
  - React more strongly
- Those smokers who are most vulnerable to social sanctions will start to go outdoors
  - Non-smokers even less used to passive smoking
  - Still more smokers go outdoors
  - Continues until…
- In the new equilibrium, **every smoker smokes outdoors** – even in the unregulated zone.
The role of policy

• To secure such a move, the regulatory change must be large enough
  – Otherwise, the first scared smokers will soon discover that sanctions are still not all that strong, and they will go back indoors.
  – «Large enough» = inconsiderate NE no longer an equilibrium

• If smoking regulation is reversed, the economy will stay in high consideration NE!
  – social sanctions enforce the norm

• Policy can affect behavior indirectly, through its effect on social norms
  – even behavior which cannot be regulated directly

• The role of policy here: Coordination device
Concluding remarks: Social norms

• Voluntary contributions to public goods: typically PD-like situations
• Social interaction can change this into n-person coordination games
• Multiple equilibria can arise if
  – people have preferences for social approval
  – people sanction those who break a norm
  – strength of sanction/approval is increasing in the share of norm followers
• Possible role for policy: Coordination device
• The exam
  – Make sure to answer whatever you find easy
  – **Show & tell:**
    • Always explain what you’re doing and why
    • Own words, intuition: +++!
  – If you don’t have time to show: *Tell*

• Earlier exams

**GOOD LUCK!**