Summing Up Social Dilemmas
In Part II we learned about three kinds of social dilemmas—externalities, coordination problems, and commitment problems. Each of these models describes a broad array of social phenomena. Moreover, when any one of them occurs, the right policy intervention could achieve a Pareto improvement. The hope is that having a conceptual understanding of these dilemmas clarifies where there are opportunities for policy to do good.

Importantly, different dilemmas require different types of policy responses. Table 6.1 offers a summary, showing the policy technologies best matched to each social dilemma.

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SOCIAL DILEMMAS AND GOVERNANCE

Each of our social dilemmas also happens within government

Externalities and interest groups

Coordination failure in the bureaucracy

Commitment problems and fiscal policy

Let’s see a couple examples
A Model of Interest Groups

Factory owner and $N$ citizens invest in lobbying

Each hour of lobbying costs $100$

If the citizens do $C$ hours of lobbying and factory owner does $F$ regulator sides with the citizens with probability

$$\frac{C}{C + F}$$

If citizens win, each benefits $b > 0$. If factory owner wins, she benefits $\pi$

$$b < \pi < N b$$
Citizen’s Best Response

If citizen $i$ believes other citizens all invest $c$ and owner invests $F$, then solves

$$
\max_{c_i} \left( \frac{c_i + (N - 1)c}{c_i + (N - 1)c + F} \right) b - 100c_i
$$

$$
\text{BR}_i(c, F) = \frac{\sqrt{bF}}{10} - F - (N - 1)c
$$

Each citizen will make the same contribution

$$
\text{BR}_i(F) = \frac{\sqrt{bF}}{10} - F - (N - 1) \text{BR}_i(F)
$$

$$
\text{BR}_i(F) = \frac{\sqrt{bF} - 10F}{10N}
$$
If the factory owner believes citizens purchase a total of $C$ hours

$$\max_F \left( \frac{F}{C + F} \right) \pi - 100F$$

$$\text{BR}_f(C) = \frac{\sqrt{C \pi} - 10C}{10}.$$
**EQUILIBRIUM**

\[
\text{BR}_i(F) = \frac{\sqrt{bF} - 10F}{10N}
\]

\[
\text{BR}_f(C) = \frac{\sqrt{C\pi} - 10C'}{10}.
\]

\[
c^* = \frac{b^2\pi}{100(b + \pi)^2N} \quad \text{and} \quad F^* = \frac{b\pi^2}{100(b + \pi)^2}.
\]
Who Wins?

\[ C^* = Nc^* = \frac{b^2 \pi}{100(b + \pi)^2} \]

\[ F^* = \frac{b\pi^2}{100(b + \pi)^2} \]

Since \( \pi > b \), factory owner lobbies more. Citizens win with probability

\[ \frac{C^*}{C^* + F^*} = \frac{\frac{b^2 \pi}{100(b + \pi)^2}}{\frac{b^2 \pi}{100(b + \pi)^2} + \frac{b\pi^2}{100(b + \pi)^2}} = \frac{b}{b + \pi} < 1/2. \]
An Example

Suppose $b = 1000$, $N = 100,000$ and $\pi = 1,000,000$

Citizens’ total value of stopping pollution is $100,000,000$, while factory owner’s value of polluting is only $1,000,000$

Probability citizens win is

$$\frac{1000}{1000 + 1,000,000} = \frac{1}{1001}.$$
Concentrated vs. Diffuse Interests

Diffuse interests are hampered by internal externalities problems.

This makes it hard to organize in support of even very important issues.

All else equal, concentrated interests (fewer people) are better able to wield political power than diffuse interests (more people).