

Microeconomic Analysis

Seminar VII

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SOAS, 2014

Reporting a Crime

Thirty-eight people witnessed the murder of Catherine Genovese over a period of half an hour in New York in March 1964. During this period, none of them significantly responded to her screams for help; none even called the police.

Reporting a Crime

Several journalists, psychiatrists, sociologists, and others tried to explain the witnesses' inaction.

“Indifference to one's neighbour and his troubles is a conditioned reflex of life in New York as it is in other big cities” (Rosenthal 1964)

Reporting a Crime

Many other experiments suggested the opposite.

Even those living in large cities are not in general apathetic to others' plights. An experimental subject who is lone witness of a person in distress is very likely to try to help. But as the size of the group of witnesses increases, there is a decline not only in the probability that any given one of them offer assistances, but also in the probability that at least one of them offers assistance.

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Social psychologists offer three factors to explain these experimental findings:

- 1 “Diffusion of responsibility”: the larger the group, the lower the cost of not helping.
- 2 “Audience Inhibition”: the larger the group, the greater the embarrassment suffered by the helper in case the event turns out to be one in which help is inappropriate.
- 3 “Social influence”: a person infers the appropriateness of helping from others’ behaviour.

All these three factors raise the expected cost and/or reduce the expected benefit of a person’s intervening.

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A game-theoretic analysis could show that even if the costs and benefits are independent of group size, a decrease in probability that at least one person intervenes is an implication of equilibrium.

This approach has an advantage over the social-psychology one: it derives the same conclusion from the same principles that underlie the models we studied so far, rather than positing social features of the specific environment in which a group of bystanders may come to the aid of a person in distress.

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Reporting a Crime: a model

Suppose n witnesses of a crime. Suppose each person put value $v > 0$ to the police being informed, and bears the cost $c > 0$ and such that $v - c > 0$ when she makes the call. The actions for each player are (Call, Not Call).

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The game has n NE in pure strategies where one single player “Call” and the other $n - 1$ players choose “Not call”. In particular there is no symmetric NE in pure strategies.

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In any such equilibrium, each person's expected payoff from Call is equal to the expected payoff from Not Call.

Each person's payoff from Call is $v - c$, and we assume that her payoff to Not Call is 0 if no one else Call and v if at least one Call. Formally,

$$v - c = 0 \cdot Pr\{\text{no one else call}\} + v \cdot Pr\{\text{at least one call}\}$$

or

$$v - c = v \cdot (1 - Pr\{\text{no one else call}\})$$

or

$$c/v = \cdot(1 - Pr\{\text{no one else call}\})$$

Reporting a Crime: a model

Define by p the probability with which each player calls. Therefore, $(1 - p)^{n-1}$ is the probability that no one else calls, thus $c/v = (1 - p)^{n-1}$, which is

$$p = 1 - (c/v)^{\frac{1}{n-1}} \quad (1)$$

So we can conclude that there exists a symmetric NE in mixed strategies in which each witness calls the police with probability (1).

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What happens when n increases?

$$\frac{\partial p}{\partial n} = \frac{(c/v)^{1/(n-1)} \log(c/v)}{(n-1)^2}$$

in words...it tends to zero!

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