

# Some Economic Observations Regarding Communication About Policy

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## What happens (to rough approximation) in ongoing communication

**Listeners** are good statisticians.

- Receive signals from the speaker.
- Make inference about the environment, based on previous experience with the speaker's signals.
- Use that inference to make decisions under uncertainty.

**The speaker** is a strategist.

- Knows something that affects listeners' best action.
- Has own preferences (sometimes coincident with listeners' preferences) over actions.
- Understands how listeners will interpret various signals.
- Sends the signal that **induces the speaker's desired action**.
- May balance getting what he wants today against preserving influence on listeners' future actions (**reputation**).

## You can't fool all of the people all of the time

In a steady state of ongoing communication, listeners have learned to identify deception by the speaker.

- If the speaker makes some (false) statement only in some situation, then listeners will reinterpret it.
- If the speaker makes some statement whether or not it is true, then listeners will disregard it.

To close approximation, the speaker can

- Be silent (or “babble” or “mumble”), or
- Speak truthfully, but only in general terms, or
- Speak truthfully and specifically.

The speaker cannot successfully lie, except rarely and at high cost of future credibility.

## Three questions about central bank communication

Central banks have begun to communicate more informatively with the public than they used to do.

More than many speakers, a central bank shares the preferences of its listeners.

- 1 In this circumstance, why would the CB not communicate with the public?
- 2 Why would the public not believe the CB?

Two views about the change of CB-communication regime seem doubtful.

- That, after numerous decades of being opaque, central bankers finally discovered a better way to do things.
- That the public of today is better equipped to process communication from the central bank than was the public of former times.

Then, the change in communication equilibrium must have been triggered by some change in the environment.

- ③ What happened?

## When is it optimal to communicate?

A “prisoner’s dilemma” among private agents gives the CB incentive

- not to reveal information, if
  - The situation seldom arises, and
  - agents are uninformed about it;
- to reveal information, if the CB can persuade the agents that cooperation is optimal.

The optimal policy of a privately informed CB will change from non-disclosure to disclosure, if a change in the environment makes the PD situation occur more often.

Consider a environment with two states

- Cooperation is privately, as well as socially, optimal in state  $\Gamma$ .
- Defection is privately optimal, but socially inefficient, in state  $\Delta$ .

State  $\Gamma$

$$u(x, x', \Gamma) = \begin{bmatrix} c & d \\ c & 2 & 0 \\ d & 0 & 1 \end{bmatrix}$$

State  $\Delta$

$$u(x, x', \Delta) = \begin{bmatrix} c & d \\ c & 2 & 0 \\ d & 6 & 1 \end{bmatrix}$$

If private agents believe that  $P(\Delta) = 1/6$ , then their expected payoff is

$$\frac{5}{6}u(x, x', \Gamma) + \frac{1}{6}u(x, x', \Delta) = \begin{bmatrix} c & d \\ c & 2 & 0 \\ d & 1 & 1 \end{bmatrix}$$

This is a type of coordination game, not a prisoner's dilemma.

An agent should cooperate, if he believes that other agents will also cooperate.



Suppose that the stochastic environment changes so that  $P(\Delta) = 1/2$ .

$$\frac{1}{2}u(x, x', \Gamma) + \frac{1}{2}u(x, x', \Delta) = \begin{bmatrix} c & d \\ c & 2 & 0 \\ d & 3 & 1 \end{bmatrix}$$

The expected value of decisions is a prisoners' dilemma matrix.

It is privately optimal for an uninformed agent to defect.

# CB communication in the high-risk environment

Pure-strategy communication with commitment

Suppose that

- $P(\Delta) = 1/2$
- The CB is informed, and is known by private agents to be informed.
- The objective of the CB is to maximize private agents' utility.
- The **CB commits before learning the state** to send a state-dependent message: 'Gamma', 'Delta', or 'No comment'.

If the CB always sends the same message, then its signal will be uninformative. Private agents will always take action  $d$ .

If it sends distinct messages in the two states (truthful reporting, without loss of generality), then private agents will condition their action on the message.

Agents will play  $c$  in event  $\Gamma$ . Truthful reporting is the best pure-communication-strategy outcome that the CB can achieve.

## CB communication in the high-risk environment

Conditionally randomized communication with commitment

Now suppose that the CB can commit to send a randomized message in each state.

When it is always truthful, agents strictly prefer to cooperate when they receive message 'Gamma'

Suppose that the CB also communicates 'Gamma' with small probability when the true state is  $\Delta$ .

Message 'Gamma' is **usually** associated with state  $\Gamma$ , so agents will place sufficiently high credence in the report to play  $c$ .

Even if agents discover the duplicity ex post, they will recognize that the CB has misled them in their own interest.

Do CBs paternalistically mislead the public? If not, then why not?

# CB communication in the high-risk environment

Communication without commitment

Suppose the CB can decide what message to send **after learning the state**.

If the CB has credibility with private agents, then its optimal message is always 'Gamma'.

But then, its signal is uninformative.

So the CB is not credible.

Unless commitment can be enforced, there is no informative communication equilibrium.

## Self-enforcing commitment

The foregoing analysis concerns a static environment.

If communication is ongoing (repeated interaction), and if private agents learn the true state independently ex post, then truthful reporting can be enforced in a 'trigger-strategy' equilibrium.

For some time subsequent to a deviation by the CB from equilibrium,

- Private agents disregard reports from the CB.
- The central bank remains silent or 'babbles'.

It is more robust to enforce a pure strategy in this way, than a mixed one.

So the need for self-enforcement explains why paternalistic misrepresentation is rare.

## An imperfectly informed CB

The trigger strategy seems peculiar.

A more appealing theory is that the CB is sometimes mistaken, and that the accuracy of its observations fluctuates with some (Markovian) persistence.

Private agents do not directly observe whether the CB is currently accurate, but infer inaccuracy from incorrect reports.

When the CB's report does not match the actual state, private agents will assume that the CB has become inaccurate.

They will disregard CB reports until the CB re-establishes its 'track record', because they will be skeptical that the CB knows the truth.

From the perspective of the CB, this mechanism provides the same incentive for truthful reporting as a trigger-strategy equilibrium would provide.

## Assessing the theory

This theory suggests answers to the three questions posed earlier.

- ① In an environment where PD situations among private agents seldom occur, providing information about their occurrence is counterproductive.
- ② There are two reasons why private agents might disregard reports provided by a CB.
  - They may believe that the CB has incentive for paternalistic misrepresentation.
  - They may believe that the reports are based on information of dubious accuracy. In fact, unless private agents are **sometimes skeptical** of the CB's accuracy, it may be time inconsistent for the CB **ever** to be informative and truthful.



- 3 If an economy changes from an environment where PD situations are rare to one where they are more frequent, optimal CB communication policy may become more informative. In trying to explain a recent, worldwide shift in CBs' communication policies, the possibility of such an environmental change deserves attention.

However, an informative-communication equilibrium depends on quantitative assumptions that may not be satisfied.

- Notably, the CB must have superior information to private agents.
- Regarding inflation and business-cycle forecasting, the evidence regarding such an informational advantage is mixed.

## Communication about CB objectives and intentions

The preceding discussion pertains to reporting by the CB about the economic environment—not about itself.

The discussion applies, for example, to disclosure of inflation forecasts, if they are taken at face value.

Communication by the CB about itself raises further, more subtle, theoretical issues.

Modelling of those issues is not yet far advanced.

However, “actions speak louder than words.”

As a practical matter,

- A central bank that makes good policy may not need to talk much about itself;
- A central bank that has lost public confidence, probably cannot gain much from making ‘cheap talk’. (cf. Sargent on the ends of hyperinflations.)

