

Endogenous Public Information and Welfare in
Market Games
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Discussion by
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What the paper does

Strategic market game

- ▶ Agents take action x_i where pay-offs depend on a fundamental θ and the average action $\tilde{x} \equiv \int x_i di$
- ▶ Two types of inefficiencies: Average level and dispersion of actions

Two signals about θ :

1. Private signal $s_i = \theta + \varepsilon_i$
2. Public endogenous signal p (or z) with noise (e.g. demand) shock u

What are the welfare effects of agents' conditioning on the price when forming expectations about θ ?

Externalities

Pay-off externality:

- ▶ Agents do not internalize the effect on other agents pay-off when they respond to a noisy public signal

Learning externality:

- ▶ Agents do not internalize that their actions influence how precise the price p is as a signal about θ .

The learning externality

Agents' max problem

$$\max_{x_i} E \left[\left(p - \theta - \frac{\lambda}{2} x_i \right) x_i \mid s_i, p \right] \quad (1)$$

implies the optimal action

$$x_i = \lambda^{-1} (p - E[\theta \mid s_i, p]) \quad (2)$$

$$= \hat{b} + \hat{c}p + as_i \quad (3)$$

The average action (aggregate supply) is then given by

$$\tilde{x} = \hat{b} + \hat{c}p + a\theta \quad (4)$$

and with the inverse demand schedule

$$p = \alpha + u - \beta\tilde{x}$$

market clearing gives the price

$$p = (1 + \beta\hat{c})^{-1} (\alpha + \beta\hat{b} + \beta a\theta + u)$$

The learning externality

The learning externality depends on β which governs direction of strategic concerns

For $\beta \neq 0$ externality reduces welfare relative to “team efficient” benchmark

- ▶ With strategic complementarities agents put too much weight on the endogenous price
- ▶ With strategic substitutability agents put too little weight on the endogenous price

This is a nice result that generalize previous results regarding exogenous public signals.

New implications

Previous literature (e.g. Morris and Shin 2002) has focused on the welfare implications of exogenous public signals or settings in which the policy maker can control either the availability or the precision of public signals

- ▶ Shall a central bank release more or less information?

Here, policy implications/options are different since the public signal is not under direct control of the policy makers:

- ▶ If the public signal is the price, then it is difficult to prevent agents from conditioning on prices

What to do as a policy maker? Paper proposes a transactions tax (or Tobin-type tax)

Optimal policy

Paper demonstrates that a tax on transactions of the form

$$tax = (\delta/2) x_i^2$$

can achieve the socially optimal trade-off between level and dispersion inefficiencies and restore the team efficient solution.

Reminder:

- ▶ Dispersion of production is inefficient with convex cost function (supply model)
- ▶ Dispersion of portfolios not driven by fundamentals is inefficient with risk-averse agents (asset price model)

I will talk more about this normative result in the context of the asset price model

Transaction volume and information

In paper, tight link between ex post dispersion and transaction volume

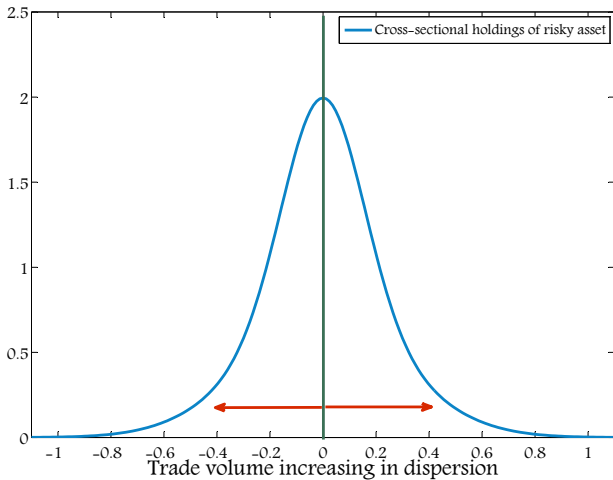
- ▶ Taxing transactions then reduces dispersion

Small changes to model may break link between ex post dispersion and transaction volume

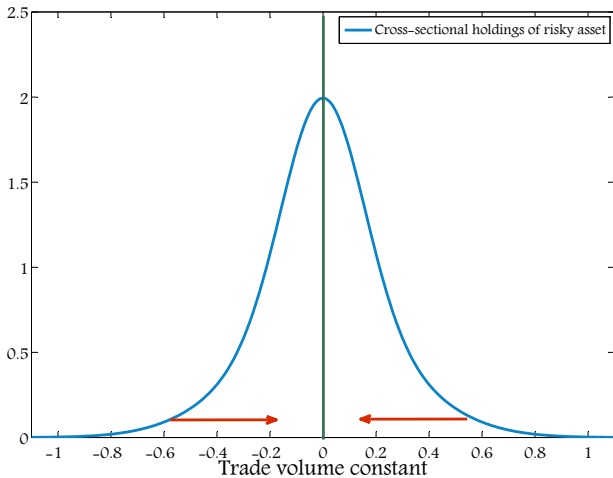
Consider:

- ▶ Long lived assets
- ▶ Occasionally a precise public signal about is available

Volume No Good



Volume Good



Summing up

Learning externalities and endogenous public signals

- ▶ Interesting
- ▶ Elegant
- ▶ Intuitive

Normative implications

- ▶ In the model externality can be off-set by transaction tax
- ▶ In practice a more complex (or perhaps a different simple) solution probably required