

Discussion of:  
"Markets Versus Governments"  
by  
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# The Question

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Fundamental questions in economics:

- What role should markets *and* governments play in the allocation of resources?
- What can explain the combinations of markets and governments observed in different countries?

**Question in the paper:** When are markets better than governments?

**Trade-off:** Insurance versus incentives.

**Analysis:** Race between different frictions

- Market friction: Self-enforcement.
- Government frictions: Private information (private agents) and sustainability (government)

# Environment

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## Preferences

$$u(c_t, l_t | \theta_t)$$

$\theta_t \in \Theta$ ,  $G(\theta)$  invariant distribution of  $\theta$  at any time  $t$

$$l_t \in [0, \bar{L}]$$

Single crossing property:  $u_c(c, l | \theta) / u_l(c, l | \theta)$  is increasing in  $\theta$  for all  $c, l$

Alternative utility specifications:

No income effects:

$$u(c, l | \theta) = u(c - g(l/\theta))$$

Separable:

$$u(c, l | \theta) = u(c) - g(l/\theta)$$

## Technology

$$Y_t = \int_{i \in I} l_t^i di$$

# Markets

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- **Fully anonymous (autarchy):**

Agents' problem:

$$\max_{c,l} u(c, l | \theta) \quad s.t. \quad c = l$$

Ex ante utility under a veil of ignorance:

$$U^M = \int_{\Theta} u(\theta) dG(\theta)$$

$\theta$  realization at time 0

$u(\theta)$  ex ante lifetime utility

Markets ...

- **Self-enforcing:**

Welfare maximizing self-enforcing equilibrium:

$$\max_{\{c_t(\theta^t), l_t(\theta^t)\}_{t=0}^{\infty}} E \left[ \sum_{t=0}^{\infty} \beta^t u(c_t(\theta^t), l_t(\theta^t) | \theta_t) \right]$$

subject to

$$\int_{i \in I} c_t^i di \leq Y_t$$

$$E \left[ \sum_{j=0}^{\infty} \beta^j u(c_{t+j}(\theta^{t+j}), l_{t+j}(\theta^{t+j}) | \theta_t) \right] \geq u(\theta_t)$$

\* *All information is public.*

# The Government

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- Government operates a *sustainable mechanism*.
- Government cannot observe individual productivities/types.
- Key assumption: Private histories.

*Both individual types and the entire history are private information.*

Simple Incentive Compatibility Constraint:

$$u(c_t(\theta), l_t(\theta) | \theta) \geq u(c_t(\hat{\theta}), l_t(\hat{\theta}) | \theta) \text{ for all } \theta, \hat{\theta} \in \Theta,$$

## The Government ...

- **Best Sustainable Mechanism**

$$U^{SM} = \max_{\{c_t(\theta), l_t(\theta)\}_{t=0}^{\infty}} E \left[ \sum_{t=0}^{\infty} \beta^t u(c_t(\theta^t), l_t(\theta^t) | \theta_t) \right]$$

subject to

$$C_t + x_t \leq Y_t$$

$$u(c_t(\theta), l_t(\theta) | \theta) \geq u(c_t(\hat{\theta}), l_t(\hat{\theta}) | \theta) \text{ for all } \theta, \hat{\theta} \in \Theta,$$

$$\sum_{s=0}^{\infty} \delta^s v(x_{t+s}) \geq v\left(\eta \int_{\Theta} l_t(\theta) dG(\theta)\right).$$

$\eta$  : Institutional constraints on the ruler.

## The Government ...

- Solving for the Best Sustainable Mechanism

### *Quasi-Mirrlees Problem*

$$U(\{C_t, Y_t\}_{t=0}^{\infty}) = \max_{\{c_t(\theta), l_t(\theta)\}_{t=0}^{\infty}} E \left[ \sum_{t=0}^{\infty} \beta^t u(c_t(\theta^t), l_t(\theta^t) | \theta_t) \right]$$

subject to

$$\int_{\Theta} c_t(\theta) dG(\theta) \leq C_t,$$
$$\int_{\Theta} l_t(\theta) dG(\theta) \leq Y_t,$$

$$u(c_t(\theta), l_t(\theta) | \theta) \geq u(c_t(\hat{\theta}), l_t(\hat{\theta}) | \theta) \text{ for all } \theta, \hat{\theta} \in \Theta,$$

## The Government ...

### *Government Incentive Problem*

$$U^{SM} = \max_{\{C_t, L_t\}_{t=0}^{\infty}} \mathcal{U}(\{C_t, Y_t\}_{t=0}^{\infty})$$

subject to

$$C_t + x_t \leq Y_t$$

$$\sum_{s=0}^{\infty} \delta^s v(x_{t+s}) \geq v(\eta Y_t).$$

# Results on Governments

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- *Dichotomy* between provision of incentives to individuals and provision of incentives to the government.
- **Key concept:** Aggregate Distortion

Marginal tax rate on highest type

$$\bar{\tau} = 1 + \frac{u_l(c_t(\bar{\theta}), l_t(\bar{\theta}) | \bar{\theta})}{u_c(c_t(\bar{\theta}), l_t(\bar{\theta}) | \bar{\theta})}$$

**Significance:** No Distortion at the Top Principle with Private Information

*Aggregate distortion captures wedge introduced by the sustainability constraint*

## Results on Governments ...

### Findings:

1. If  $\delta \geq \beta$ , the sustainability constraint eventually stops binding and aggregate distortion disappears,
2. If  $\delta < \beta$ , the aggregate distortion never disappears,
3. In the best *stationary* equilibrium, aggregate distortions never disappear.

**Rationale:** Ability to allocate distortions intertemporally implies that they can eventually be overcome if  $\delta \geq \beta$ .

- $\delta \geq \beta$  : Front-loading distortions is optimal and allows to eventually relax the sustainability constraint.
- Imposing stationarity prevents optimal spreading of distortions over time.

# Comparing Markets and Governments

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- **Role of ruler preferences**

- Discounting:

1.  $U^{SM}(\delta) > U^M$  for  $\delta$  high enough

2. If  $\eta = 1$  and  $\theta_0 > 0$ , as  $\delta$  goes to 0,  $U^M > U^{SM}$

3.  $\delta$  affects the *size* of aggregate distortions, not the *structure* of distortions across types.

- Risk aversion:

- Higher  $\sigma_g$  increases ruler's cost of being replaced, raising the utility under governments.

*Summing Up:*

\* If sustainability constraint is not too severe, governments are preferred.

## Comparing Markets and Governments ...

- **Role of institutional constraints**

1.  $U^{SM}(\eta) > U^M$  implies the same holds for all  $\eta' \leq \eta$ ,
2.  $\eta \rightarrow 0$  implies  $U^{SM}(\eta) > U^M$ ,
3. For  $\eta$  low enough government are preferred to markets.

Small effect on taxes but "large" effect on welfare, through effect on size of  $x_t$ .

# Questions

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*Why should  $\delta$ ,  $\sigma_g$  and  $\eta$  be taken as given?*

- Private agents would choose high  $\delta$  and  $\sigma_g$ .

"Conservative central banker" logic.

- What is the optimal value of  $\sigma_g$ ?

No aggregate risk → No role for risk-sharing between ruler and private agents when  $\sigma_g < \sigma$

- What fundamental friction underlies  $\eta > 0$ ?

– Can  $\eta$  be minimized via an ex ante process of institutional design?

# Role of Risk Aversion and Risk

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- **Anonymous Markets**

- No Income Effect Utility: Monotone Relationship

As risk aversion or risk rise, market utility declines, making governments preferred.

- Income Effects: Non-Monotone Relationship

As risk aversion or risk rise, aggregate output also rises, tightening the sustainability constraint.

## Role of Risk Aversion and Risk ...

- **Self-enforcing markets** (with public information)

### **Analytical:**

1. If  $\delta < 1$ ,  $\beta < 1$  and  $\eta > 0$ , for preferences close to linear and log,  $U^M(u) > U^{SM}(u)$  if  $\theta_0 = 0$ .

**Rationale:** With risk-neutrality or for  $u(0) = -\infty$ , the market implements *first best* allocation.

2. For  $\delta$  sufficiently large, there exists a utility function *not* close to linear or log, such that  $U^M(u) < U^{SM}(u)$ .

### **Numerical:** Non-monotonic relationship ( $\delta = \beta$ )

1. Very low and very high risk aversion and risk, market allocation is *first best* → Markets are preferred
2. Intermediate values of risk aversion and risk → Governments are preferred.

# What Have We Learned?

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- The type of government is critical in the comparison between markets and governments.
- The structure of markets is critical in the comparison between markets and governments.
- Essential role of ability to shift distortions intertemporally under governments.
- Comparison between sets of frictions:
  - Self-enforcement and private information at  $\delta = 1$ ,
  - Self-enforcement and sustainability with no private information.

# Comments

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- Markets or governments are not given their best chances in the analysis.
  - *Government*: Limitation to private histories and no aggregate risk.
  - *Markets*: No private insurance.
    - 0 profit restriction implies that second best insurance could be attained without any loss of resources.
- Possibly large gains from combining markets and governments.
  - *Autarchy*: With a storage technology, a lot of the gains from full insurance can be obtained by self-insurance, if shocks are not too persistent.
    - May be all the government needs to do is provide a risk-free asset?
  - *Self-Enforcement*: Government can enforce tax payments.
    - Why can't the government enforce contracts on behalf of private agents?

# Open Questions

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Why Insist on Markets *or* Governments?

- Complementarity of markets and governments.
  - Role of governments in market design and creation.

Bisin and Gottardi (2006)

- Role of governments in contract enforcement.
- Role of government in record-keeping.

Kocherlakota (1998), Green and Zhou (2005)

- Crowding-out of markets by governments.

Krueger and Perri (2005) and GT (2006)

- Markets can exert constraints on governments.

Bisin and Rampini (2006)

## Open Questions ...

### **Normative questions:**

- What is the essential role of markets?
- What is the essential role of governments?

### Fundamental advantages of government:

1. Exclusivity in the relation with citizens.
2. Power of enforcement.
3. Monitoring and record-keeping technologies?

### **Positive question:**

- Can analysis rationalize the different combinations of markets and governments observed in practice?