

**2D-1**

## Sub-provincial Assignments of Joint Fiscal Responsibilities: Mechanism Design Based on Benefit Principle

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### Summary



- This paper uses the **benefit principle** as the criterion to analyze how to design the vertical sub-provincial assignments of common fiscal affairs and expenditure responsibilities.
- We focus on the analysis of **distortional assignments** of joint fiscal responsibilities among provincial governments and local jurisdictions.
- Loose the rigidity of sub-provincial fiscal assignments and the “**one-size-fits-all**” approach.
- Provide **differentiated combinations** of “assignments of fiscal affairs and expenditure responsibilities” for lower-level governments to meet the heterogeneous needs in different jurisdictions.

## Outlines



- Motivation
- A brief history of academic thought
- The Model
  - Equilibrium under complete information
  - A separating equilibrium under asymmetric information
  - Other equilibria
- Conclusion

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## Motivation



- After the reform of China's tax-sharing system, there are many drawbacks in China's fiscal system:
  - insufficient of Local autonomy
  - inconsistency of fiscal affairs and responsibilities
  - vertical versus decentralized management system
- The division of fiscal affairs and expenditure responsibilities should be according to the “**scope of benefit**”
- **However, the division principle and the actual implementation are in their own path**

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## Motivation



- We want to check the alignment of fiscal authority and expenditure responsibility
  - taking the **benefit principle** as the natural law of market economy
  - recognizing the "**self-selection**" power of local governments
- Let the market play a decisive role in the allocation of resources
- Let multi-level governments perform their fiscal functions better

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## A brief history of academic thought



- Adam Smith: The **benefit principle** always be the core of his analyzing framework
- Ricardo, Pigou, Marshall, Samuelson and Musgrave: Weaken it.
- Wicksell, Lindahl: Generalize it.
- Samuelson, Musgrave: Weaken it.
- Buchanan and Tullock: Promote it.
- Tiebout: Apply it to Local public finance. (Voting by feet)

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## A brief history of academic thought



- **FGFF(Tiebout, Oates)**
  - Maximizing social welfare
  - w/o the incentive mechanism for local officials
- **SGFF(Qian, Weingast)**
  - w/ the incentive mechanism for local officials
  - regional heterogeneity
  - spillover effect
  - ...

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## A brief history of academic thought



- **In China**
  - Planned economy period: Ignoring individual and local interests
  - Reform and Opening-up in 1978:
    - Attach importance to the construction of the fiscal system
    - Lack of breakthroughs in fundamental theories
  - After the reform of China's tax-sharing system:
    - Theories of fiscal decentralization
    - Incentive mechanism for the promotion of officials
- Our view: **Incentive-compatible** fiscal institutional arrangements based on the **benefit principle** are an **inevitable** choice

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## The Model

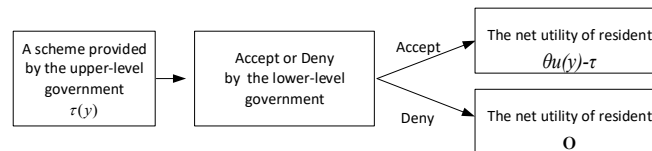


### 1. Equilibrium under complete information

- The net utility of resident of lower-level government:

$$\Omega(y, \tau, \theta) = \theta u(y) - \tau$$

- $y$ : local public goods
- $\tau$ : payment of the resident
- $\theta$ : the subjective importance of public goods
- A scheme provided by the upper-level government:  $\tau(y)$



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## The Model



### 1. Equilibrium under complete information

- $\tau^0 = \theta u(y^0)$ : In line with the principle of benefit
- $\tau^0 < \theta u(y^0)$  or  $\tau^0 > \theta u(y^0)$ : conflict with the principle of benefit
- Proposition 1:** When the lower level of government has the autonomy to accept the expenditure responsibility plan given by the upper-level government, the accepted division of fiscal authority and expenditure responsibility **may satisfy the benefit principle** and benefit the residents of the lower-level government's jurisdiction.

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## The Model



### 1. Equilibrium under complete information

- Back to the optimal scheme problem of upper-level government:

$$\begin{aligned} \max_{(y^i, \tau^i)} \quad EG &= \sum_i (\tau^i - wy^i) \\ \text{s.t.} \quad \tau^i &\leq \theta^i u(y^i) \end{aligned}$$

- **Proposition 2:** When the upper-level government is fully aware of the evaluation of public goods by residents in the jurisdiction of the lower-level government, and the lower-level government has the autonomy to accept the scheme or not, the **quantity of public good meets** the level of **efficiency** provision, and the expenditure responsibility assigned to the lower-level government is **in line** with **the principle of benefit**.

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## The Model



### 2. A separating equilibrium under asymmetric information

- The optimal scheme problem of upper-level government:

$$\max_{(y^H, \tau^H, y^L, \tau^L)} \quad EG = q(\tau^L - wy^L) + (1 - q)(\tau^H - wy^H)$$

s.t.

$$\tau^H \leq \theta^H u(y^H) \quad (IR_H)$$

$$\tau^L \leq \theta^L u(y^L) \quad (IR_L)$$

$$\theta^H u(y^H) - \tau^H \geq \theta^H u(y^L) - \tau^L \quad (IC_H)$$

$$\theta^L u(y^L) - \tau^L \geq \theta^L u(y^H) - \tau^H \quad (IC_L)$$

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# The Model



## 2. A separating equilibrium under asymmetric information

- For IRs:

Cases	IRs	Benefit principle
(I) Insufficient fiscal inputs by upper-level government and ask local governments to bear the expenditure responsibility	$\tau^i > \theta^i u(y^i)$ X	X
(II) Areas that receive full transfer payments from upper-level government	$\tau^i = \theta^i u(y^i)$ O	O
(III) A combination of fiscal decentralization, local autonomy and accountability	$\tau^i = \theta^i u(y^i)$ O	O
(IV) Corrective design of misaligned ecological compensation mechanism	$\tau^i = \theta^i u(y^i)$ O	O
(V) The reverse adjustment of fiscal interests under the "free rider" of administrative power arrangement	$\tau^i \leq \theta^i u(y^i)$ X	X

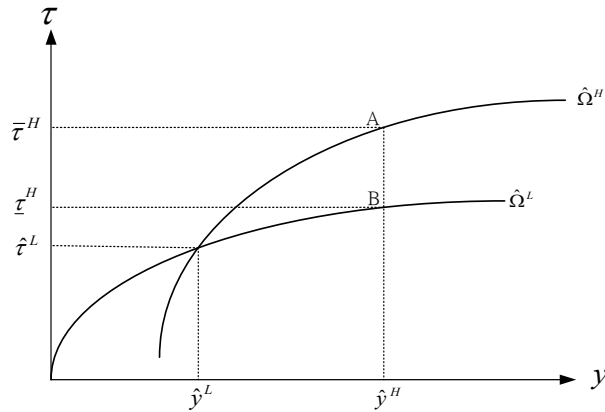
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# The Model



## 2. A separating equilibrium under asymmetric information

- For ICs:



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## The Model



### 2. A separating equilibrium under asymmetric information

- **Lemma 1:** If the preferences of residents of the lower-level government jurisdiction for public services are not known to the higher-level government, and the higher-level government wants to achieve a separating equilibrium through different combinations of fiscal affairs and expenditure responsibilities, the combination provided to the **low-type** jurisdiction **satisfies the benefit principle**, and the combination provided to the **high-type** jurisdiction will benefit from it.

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## The Model



### 2. A separating equilibrium under asymmetric information

- **Lemma 2:** If the preferences of residents of the lower-level government jurisdiction for public services are not known to the higher-level government, and the higher-level government wants to achieve a separating equilibrium through different combinations of fiscal affairs and expenditure responsibilities. The scheme provided to the residents of the **high-type** jurisdiction will make him feel **as good as** that provided to the **low-type** jurisdiction, but the scheme provided to the residents of the **low-type** jurisdiction will make him feel **worse than** that provided to the **high-type** jurisdiction.

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## The Model



### 2. A separating equilibrium under asymmetric information

- **Proposition 3:** If the preferences of residents of the lower-level government jurisdiction for public services are not known to the higher-level government, and the higher-level government wants to achieve a separating equilibrium through different combinations of fiscal affairs and expenditure responsibilities. In the scheme provided to **high-type** jurisdictions, the **quantity of public goods meets** the level of **efficiency**, but the **expenditure responsibility is lower** than the level of the **benefit principle**, while in the scheme provided to the **low-type** jurisdiction, the **quantity of public goods is lower** than the efficiency provision level, but the **expenditure responsibility meets** the level of **the benefit principle**.

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## The Model



### 3. Other equilibria

	Schemes		The efficiency of public goods provision	Benefit principle
Separating equilibrium	High-type	$(y^{H*}, \tau^{H*})$	O	X
	Low-type	$(y^{L*}, \tau^{L*})$	X	O
Pooling equilibrium	High-type	$(\bar{y}, \bar{\tau})$	X	X
	Low-type	$(\bar{y}, \bar{\tau})$	O	O
High-type only equilibrium	High-type	$(\bar{y}, \bar{\tau})$	O	O
	Low-type	$(0,0)$	X	O

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## Conclusion



- Conclusion

- In order to meet the **heterogeneous needs** of residents in different jurisdictions for public services, the **principle of benefit** must be taken as the **benchmark principle** for the design of fiscal relationship mechanism, and the compatibility of fiscal power and expenditure responsibility.
- **Reduce the direct intervention** and allocation of affairs and expenditure responsibilities by the functional departments of central and provincial governments under the vertical management system.

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Thank you for your patience.

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