

# Fiscal Equalization, Tax Saliency and Tax Competition

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# The Problem

The incentive effects of fiscal equalization on local tax policy in a federal system:

- ▶ pressures of tax competition are reduced.
- ▶ moral hazard problem can occur if local governments can control the assessment basis of the transfer scheme.
  - ▶ Köthenbürger, 2002; Baretti/Huber/Lichtblau, 2002; Bucovetsky/Smart, 2006

# Taxpayers fail to react on taxes

- ▶ Typically, in complex and nontransparent tax systems some tax instruments attract the taxpayers' attention by a high extend while others remain rather unnoticed.
  - ▶ Chetty/Looney/Kroft, 2009; Gabaix/Laibson 2006, Chetty, 2009
- ▶ What are the efficiency consequences of tax competition and fiscal equalization if jurisdictions decide on hidden tax instruments (a combination of salient and hidden tax instruments)?
  - ▶ Bracco/Porcelli/Redoano, 2013; Alt/Dreyer Lassen, 2003

# Tax salience in a setting with incomplete tax compliance

- ▶ We consider a federal systems with de-centrally organized tax enforcement policy:
  - ▶ German federalism
  - ▶ European fiscal capacity.
- ▶ In an economy with tax evasion the tax price is affected by different tax instruments, e.g. statutory tax rate, the intensity of tax audits, law regarding fiscal offenses.
  - ▶ Barette/Huber/Lichtblau, 2002; Stöwhase/Traxler, 2005; Cremer/Gahvari, 2000
- ▶ Taxpayers can only roughly estimate the detection rate based on a retrospective background, a mouth-to-mouth exchange of experiences, or proxy variables.
  - ▶ Slemrod/Blumenthal/Christian, 2001
- ▶ Local fiscal policy is affected by a *double standard*.

# Federal Setting

- ▶ We consider a federal sytem:
  - ▶ central government level
  - ▶ a large number of jurisdictions,  $i = \{1, 2, \dots, n\}$ .
- ▶ In each jurisdiction there is one immobile household, that
  - ▶ in-elastically supplies one working hour on a local labor market.
  - ▶ supplies capital endowment  $k$  on a federal capital market.
  - ▶ owns firms that are located in her home region.
- ▶ Capital is perfectly mobile within the borders of the federation.
- ▶ Small jurisdictions behave as price-takers.

# Tax compliance and tax audits

- ▶ Statutory tax rate on capital employment:  $\tau_i$
- ▶ Proportion of the tax due that is evaded by firms:  $\sigma_i$
- ▶ Detection rate of tax audits:  $a_i$ ,  $a_i \in [a_l, a_h]$ ,  $a_l > 0$
- ▶ Penalty that firms must pay if a tax fraud is detected during tax audits:  $\sigma_i \phi k_i \tau_i$  with  $\phi \geq 1$

# Firms' perceived tax price

- ▶ Firm's expectation concerning tax price:  $\rho_i = \mu(\sigma_i, a_i)\tau_i$
- ▶ Expected broadness of the tax base:  $\mu(\sigma_i, a_i)$ 
  - ▶ Honest firms case:  $\mu(\sigma_i = 0, a_i) = 1$
  - ▶ Neoclassical model (taxpayers observe  $a_i$  and fully apprehend this piece of information):  $\mu(\sigma_i, a_i) = (1 - \sigma_i + \sigma_i a_i \phi)$
  - ▶ General case:  $\mu(\sigma_i, a_i)$  with  $\mu_a \geq 0, \mu_{aa} \geq 0$
- ▶ The degree of firms' attention to tax enforcement/ the statutory tax rate :

$$\xi_a^i = \frac{\mu_a(\sigma_i, a_i)}{\sigma_i \phi},$$

$$\xi_\tau^i = \frac{\mu(\sigma_i, a_i)}{1 - \sigma_i + \sigma_i a_i \phi}.$$

# Profit maximization problem

Firms make production decisions based on the expected tax price.

- ▶ The factor demand function:

$$k_i(\rho_i, \theta_i) = \theta_i f_k^{-1}(\mu(\sigma_i, a_i)\tau_i + r).$$

- ▶ The wage rate:

$$w_i = f(k_i/\theta_i) - k_i(\mu(\sigma_i, a_i)\tau_i + r).$$

- ▶ Firms' profit is given by:

$$\pi_i = \mu(\sigma_i, a_i)\tau_i k_i - (1 - \sigma_i + \sigma_i a_i \phi)\tau_i k_i.$$

(Difference between tax accruals made by firms before tax audits and the assessment note sent to firms after tax audits.)



# Budget constraints

- ▶ Households' budget constraint:

$$x_i = w_i + rk + \pi_i.$$

- ▶ The budget constraint of jurisdiction  $i$ :

$$z_i = (1 - \sigma_i + \sigma_i a_i \phi) \tau_i k_i + s_i$$

- ▶ Tax base equalizing program:

$$s_i = \alpha \left( \sum_{j=1}^n \frac{k_j(\rho_j + r)}{n} - k_i(\rho_i + r) \right) \bar{\tau}.$$

# Decentralized tax enforcement and no tax autonomy

- ▶ German fiscal federalism:
  - ▶ *Länder* are responsible for the enforcement of taxes with federal-wide tax rates.
  - ▶ Strong inter-regional redistribution program based on the tax revenue (instead of the tax base).
- ▶ EMU fiscal capacity with harmonized tax rates:
  - ▶ National states are responsible for the enforcement of taxes.
  - ▶ Tax rates are harmonized.
  - ▶ A European budget is used to adjust fiscal discrepancies across national states.
- ▶ The first order condition of the welfare-maximizing enforcement policy  $a_i$  writes:

$$MRS_{zx}^i \leq \frac{1}{(1 - \alpha)(1 + \eta_i \xi_a^i)} = MCF_a^i$$

# Decentralized tax enforcement and tax autonomy

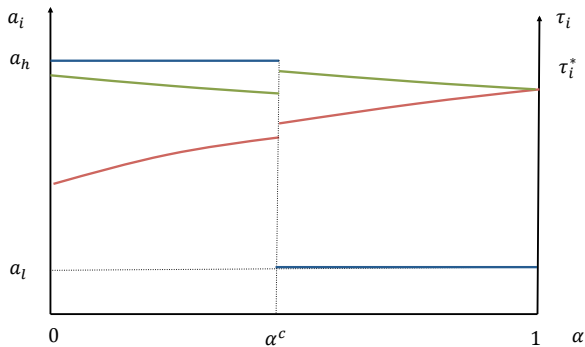
- ▶ Reform option for the German fiscal federalism:
  - ▶ *Länder* are responsible for the enforcement of taxes with federal-wide tax rates.
  - ▶ Strong inter-regional redistribution program based on the tax revenue instead of the tax base.
- ▶ EMU fiscal capacity without tax harmonization:
  - ▶ National states are responsible for the enforcement of taxes.
  - ▶ No harmonization of tax rates.
  - ▶ A European budget is used to adjust fiscal discrepancies across national states/regions.
- ▶ The first order conditions of the welfare-maximizing enforcement policy  $a_i$  and statutory tax policy  $\tau_i$  write:

$$MRS_{zx}^i \leq \frac{1}{(1 - \alpha)(1 + \eta_i \xi_a^i)} = MCF_a^i$$

$$MRS_{zx}^i \leq \frac{1}{(1 + (1 - \alpha)\eta_i \xi_\tau^i)} = MCF_\tau^i$$

# Decentralized tax enforcement and tax autonomy

*Figure 1*



# Decentralized tax enforcement and tax autonomy

Jurisdiction  $i$  engages in *tax-cut-cum-base-broadening* (corner solution with  $a_h$ ) if the equalizing rate do not exceed the critical value  $\alpha^c$ :

$$\alpha_i^c = \frac{\eta_i(\xi_a^i - \xi_\tau^i)}{1 + \eta_i(\xi_a^i - \xi_\tau^i)},$$

the left hand side is the marginal loss of eligibility that goes along with the use of tax instrument  $a_i$  instead of  $\tau_i$  and the right-hand side depicts the reduction of the incidence of the capital tax on labour due to the taxpayers' inattention to  $a_i$ .

# Comparative static analysis

- ▶ The less attention is paid to enforcement activities, the higher the critical equalizing rate  $\alpha^c$ .
- ▶ The more elastic the tax base, the higher the critical equalizing rate  $\alpha^c$ .
  - ▶ The critical value  $\alpha^c$  is relatively high (low) for jurisdictions with relatively low (high) fiscal power.
  - ▶ The critical value  $\alpha^c$  is relatively high if the tax base is relatively mobile (in integrated markets).

# Conclusion

- ▶ Jurisdictions can undermine inter-regional redistribution programs if they have an influence the assessment basis of the transfers schemes.
- ▶ We consider an competitive environment in a federal system. In this environment the incentive problem is also rooted in the absence of a salient tax instrument.
- ▶ Intensive inter-regional competition with an instrument to which taxpayer pay much attention can limit local governments' attempts to fish from the common pool of federal funds.
- ▶ Extensions
  - ▶ Decision makers in jurisdiction  $i$  are revenue maximizer.
  - ▶ Tax evasion causes an additional deadweight loss.
  - ▶ Tax audits entail positive cost that are born by jurisdictions.
  - ▶ Tax evasion  $\sigma_i$  depends on tax instruments  $a_i$  and  $\tau_i$ .