

Tax Discrimination with Competition: The Market for Firms

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October 7, 2021

Governments can compete to attract firms using the tax system

- Many policy instruments available within the tax system:
 1. Corporate tax rate
 2. Tax credits for certain industries or activities
 3. Discretionary tax breaks (subsidies) for individual firms
- Using these levers, governments can price discriminate across firms
 - Effective tax rate of establishment depend on size, region, industry, and more
- Literature mostly focuses on one policy at a time (i.e. tax rate OR subsidy competition)
 - Asks what were to happen if we were to harmonize tax rates across states, or eliminate subsidies (i.e. Fajgelbaum, Morales, Suárez-Serrato & Zidar 2019; Slattery 2020)

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Open question: How do governments trade-off between these levers?

- How would tax rate change if tax incentives were restricted?
- How would tax credits and subsidies change under a minimum tax rate?

The New York Times

U.S. Proposal for 15% Global Minimum Tax Wins Support From 130 Countries

A 15 percent minimum tax rate would generate \$150 billion in additional tax revenue each year, the Organization for Economic Cooperation and Development said.



Janet Yellen, the Treasury secretary, has said there has been a “race to the bottom” as countries have tried to lure businesses with lower tax rates. Pool photo by Greg Nash
Published July 1, 2021 Updated July 8, 2021

The New York Times

Cities Should Stop Playing the Amazon HQ2 Bidding Game

There is no economic benefit to huge tax incentives to lure new companies, so why do cities keep offering them?

Nov. 13, 2018



The waterfront in Long Island City, Queens, a neighborhood where Amazon will situate one of its HQ2 complexes. Cities offered ever more lavish incentives to Amazon in hopes of being selected. Don Emmert/Agence France-Presse — Getty Images

How do governments trade-off between tax rates and tax incentives?

Our approach:

- Develop a model of tax competition between governments that allows for “tax discrimination” (i.e. corporate tax + tax credits and incentives)
 - Governments can offer different tax rates by region or type of firm
- Estimate model using data on taxes, incentives, and economic activity by region and industry
 - Exploit variation that arises from institutional changes in EU regulations to identify trade-off between offering targeted incentives and lowering the tax rate for all firms
 - Apply this to US case (where we do not have exogenous variation)
- Measure the effects of counterfactual policies of interest in both EU and US

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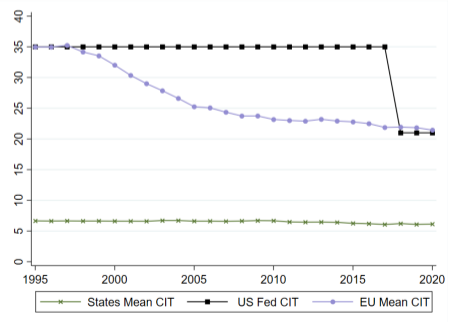
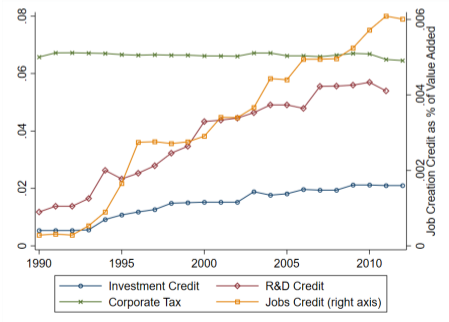
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Today:

- Background and Data: US and EU systems
- Stylized Model: Monopoly Tax Discrimination and Uniform Pricing

Background: US Business Taxation Across States

- No restrictions on business tax policy
 - State and local governments can offer tax incentives at their discretion
- Significant heterogeneity across states
 - In general, states with high corporate tax rates tend to have narrower bases
- Increase in use of tax incentives over time, but little change in statutory rates



Background: EU Business Taxation Across Member Countries

- Business tax incentives are highly regulated by the European Commission (EC)
 - Can only offer tax credits or discretionary incentives in approved regions
- A region can become an approved “regional aid” region if it:
 1. Has GDP lower than 75% of EU average [“A” region, most generous incentives allowed]
 2. Is a former “A” region, or is chosen by the country due to “socioeconomic, geographical and structural problems” [“C” region, some incentives allowed]
 - All are eligible for some minimum regional aid coverage, so even richest countries will have a small population in “C” regions

	Average	Germany	France	Italy	Spain	Poland	Romania
<i>Taxes:</i>							
Corporate Tax Rate (%)	21.9	29.9	34.4	27.8	25.0	19.0	16.0
<i>Aid Regions:</i>							
Population in A region (%)	38.3	0.0	2.9	29.0	6.9	86.3	89.4
Population in C region (%)	22.3	25.8	21.2	5.0	61.8	13.7	10.6
<i>Aid Spending:</i>							
Per (eligible) capita regional aid (\$)	24.2	27.1	46.5	51.3	4.9	24.7	10.4

Identifying Variation

- The EC designates “regional aid” regions every 7 years
 - We have 2000, 2007, 2014, will soon have 2021
- A region can lose or gain eligibility in 3 ways
 1. Change in formula used to designate an “A” region
 - Current formula uses GDP, past used both GDP and unemployment rate.
 2. New countries join the EU.
 - This changes the average GDP, mechanically changing the threshold for an “A” region.
 3. The economic position of an area changes.

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For identification, we will focus on changes in eligibility that arise for the first two reasons.

- Additional source of variation: **Maximum subsidy allowed in “A” and “C” regions**
 - Determined by EC, changes over time

Stylized Model: Monopoly Tax Discrimination

Gov't is monopolist: chooses tax, τ , to maximize revenue

- Can set tax by industry (i), and region (r)
- Cost function, C_r , a function of total employment in region r
 - cost of providing public goods net of region-specific benefits

Under full tax discrimination, the government solves:

$$\max_{(\tau_{ir})} \sum_r \sum_i \tau_{ir} \Pi_{ir}(\bar{\tau}) - C_r\left(\sum_i L_{ir}(\bar{\tau})\right),$$

Optimal taxes characterized by the inverse elasticity rule.

Stylized Model: Monopoly Uniform Price

Suppose the government can only set one tax rate $\tau_{i,r} = \tau \forall i, r$

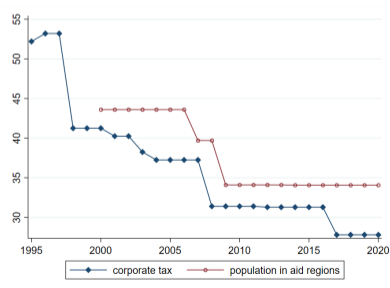
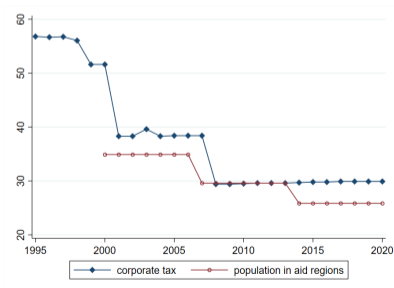
- Uniform tax rate is the weighted average of tax rates under tax discrimination
- Weights are proportional to employment and elasticity for each industry and region
 - Uniform tax rate closer to the $\tau_{i,r}$'s of industries that generate many jobs & are very elastic
 - Relative differences in costs will also play a role

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Data shows decrease in tax rate coinciding with decreasing ability to offer incentives (Germany and Italy):



Next Steps

Structural model

- Firms choose locations
- Government chooses taxes
- This is similar to an IO demand-supply model
 - Firms are the customers, choosing a product (location)
 - Government are the firms, choosing a price (tax)
 - Firms can choose across governments (no longer in the monopoly stylized model)

Key parameters of interest: where is the variation?

- EC regulations: variation in ability to offer tax credits
- For the demand elasticities:
 - Variation in data over location characteristics
 - Data on industry/region level economic activity and industry/region level subsidies in EU

Counterfactuals