A Positive Theory of Tax Reform

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September 2015

Motivation

- **Tax policy of changes through discrete reforms**
  - No clear notion of reform in most political economy models of tax policy
  - Is there something distinct about the politics of tax reform?
- **Most tax reforms involve changes in the tax base**
  - Not only in tax rates
  - No sharp distinction between the base and rates in existing political economy models of taxation
- **Large focus on vertical redistribution**.
  - But tax reform often attempts to address **horizontal** inequities and resultant distortions
  - E.g. TRA 1986 designed to be vertically neutral

What I Do in this Paper

- Tractable model based on Yitzhaki (1979), Wilson (1989), Slemrod-Kopczuk (2002)
  - Monopolistic competition among firms
    - **Distributional implications** of narrow tax base
  - Endogenous labor supply
    - **Aggregate demand externality** of narrow tax base

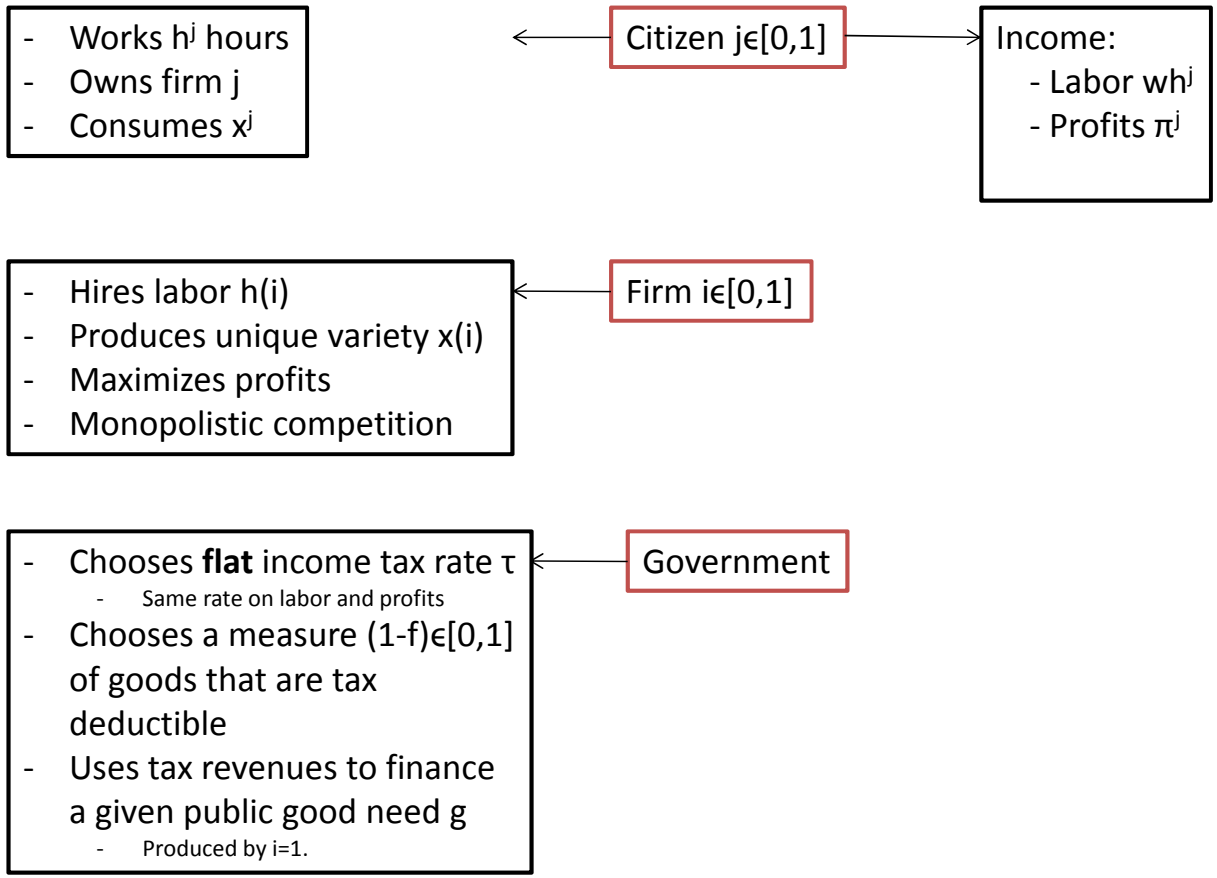
- Tax **base** and tax **rates** determined through a political process
  - Lobbying model with **fixed entry costs**

Overview of Results

- Tax reform more likely when **revenue needs are high**
- Tax reform can be **Pareto improving** at a "reform moment"
- **Large** reforms easier to implement than **marginal** ones
- Politically feasible reforms involve **broadening the base** and **lowering** marginal **rates**
- Incentives to lobby for tax reform are **strategically complementary** $\Rightarrow$ **Multiple equilibria**

Model

Economic Structure



Citizen preferences, constraint, choice

$$u^j = x^j - \frac{\left(h^j\right)^{1+\frac{1}{\eta}}}{1+1/\eta} \qquad \text{(Preferences)}$$

$$x^j = \left[\int_{i=0}^{1} \left(x^j\left(i\right)\right)^{\frac{\varepsilon-1}{\varepsilon}} di\right]^{\frac{\varepsilon}{\varepsilon-1}} \qquad \text{(CES aggregate)}$$

$$\underbrace{\int_{i=0}^{1} p\left(i\right) x^j\left(i\right) di}_{\text{Consumption}} \leq \underbrace{\left(1-\tau\right)\left(wh^j + \pi^j\right)}_{\text{Net income}} + \underbrace{\tau \int_{i=f}^{1} p\left(i\right) x^j\left(i\right) di}_{\text{Tax Deduction}}$$

$\Rightarrow$ Demand for variety $x^j\left(i\right)$, labor supply h^j.

Firms

$$\max \pi(i) \text{ s.t.}$$

$$x(i) = \int_0^1 x^j(i)\, dj, \qquad \text{(Demand)}$$

$$x(i) \leq z h(i) \qquad \text{(Technology)}$$

$$\Downarrow$$

$$p(i) = \mu \frac{w}{z} = p = 1 \qquad \text{(Price)}$$

$$\pi(i) = \frac{\mu - 1}{\mu} x(i) \qquad \text{(Markup)}$$

CPI and Tax Wedge

$$p^c(i) = \frac{1}{1-\tau(i)}; \qquad \tau(i) = \begin{cases} 0 & i \text{ exempt} \\ \tau & i \text{ taxed} \end{cases} \quad \text{(Consumer Price)}$$

$$p^c \equiv \left(\int_{i=0}^{1} \left(p^c(i)\right)^{1-\varepsilon} \right)^{\frac{1}{1-\varepsilon}} = \frac{1}{1-\hat{\tau}} \quad \text{(CPI)}$$

$$1-\hat{\tau} \equiv \left[f(1-\tau)^{\varepsilon-1} + (1-f) \right]^{\frac{1}{\varepsilon-1}} \quad \text{(Effective tax rate)}$$

Indirect Utility

$$u^j = \left(z\left(1-\hat{\tau}\right)\right)^{\eta+1}\left(\frac{1}{1+\eta}+\left(\mu-1\right)\frac{\left(1-\tau\left(f\right)\right)^{\varepsilon}}{\left(1-\hat{\tau}\right)^{\varepsilon-1}}\right)$$

Two components:

1. **Utility of "worker"**

$$wh^j - \frac{\left(h^j\right)^{1+\frac{1}{\eta}}}{1+\eta} = \frac{\left(z\left(1-\hat{\tau}\right)\right)^{\eta+1}}{1+\eta}$$

   - Same regardless of tax status.
   - Decreasing in effective tax rate $\hat{\tau}$.

Indirect Utility

$$u^j = \left(z\left(1-\hat{\tau}\right)\right)^{\eta+1}\left(\frac{1}{1+\eta}+\left(\mu-1\right)\frac{\left(1-\tau\left(f\right)\right)^{\varepsilon}}{\left(1-\hat{\tau}\right)^{\varepsilon-1}}\right)$$

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2. **Utility of "entrepreneur"**

$$\pi^j = \left(\mu-1\right)\underbrace{\left(z\left(1-\hat{\tau}\right)\right)^{\eta+1}}_{\text{Aggregate Demand}}\underbrace{\frac{\left(1-\tau\left(j\right)\right)^{\varepsilon}}{\left(1-\hat{\tau}\right)^{\varepsilon-1}}}_{\text{Relative Demand}}$$

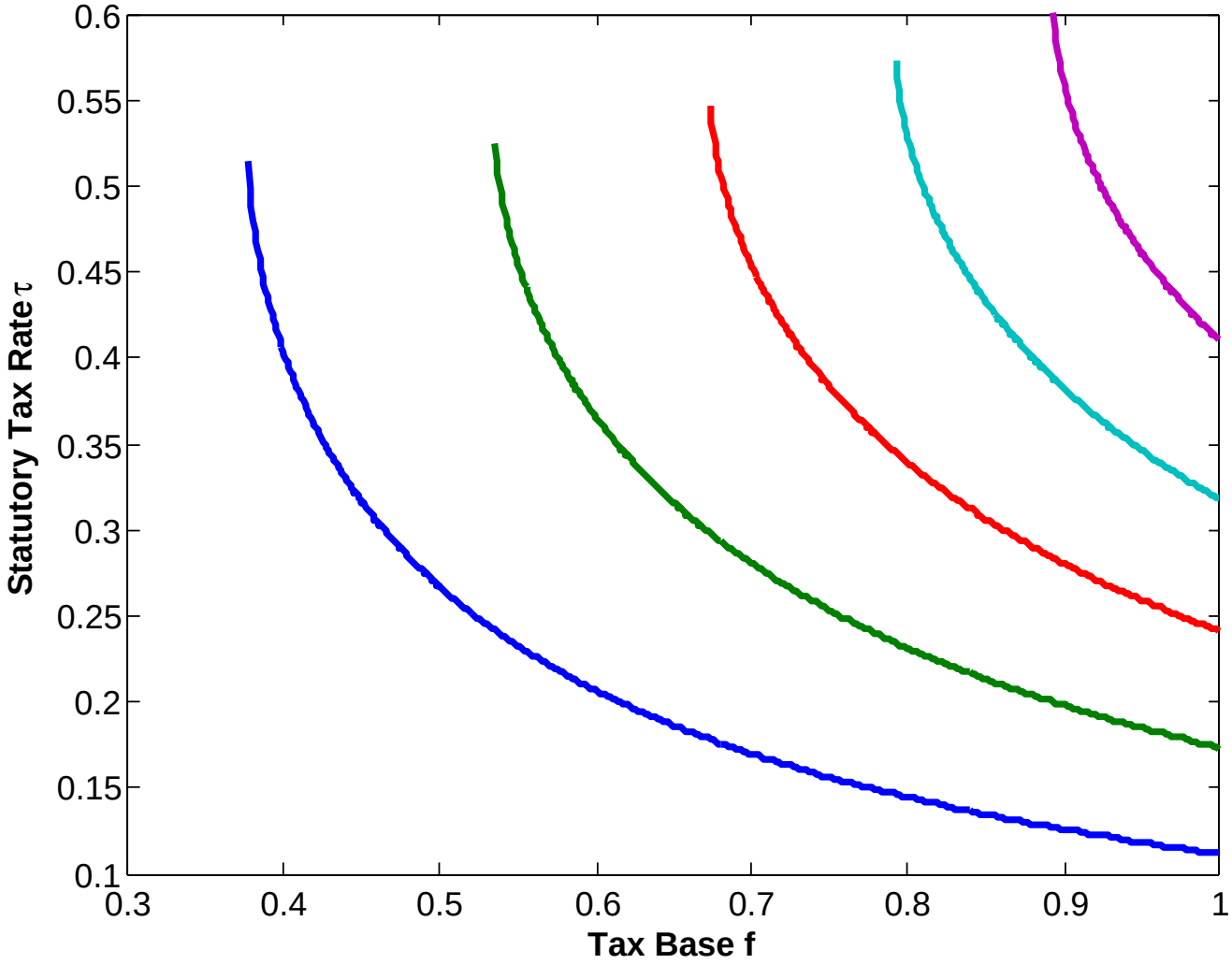
Revenues

$$\rho = \underbrace{\tau\left(wh + \pi\right)}_{\text{Pre-deductions}} - \underbrace{\tau \int_{i=f}^{1} p\left(i\right) x\left(i\right) di}_{\text{Deductions}} \qquad \text{(Revenues)}$$

$$\log \rho = \underbrace{\log \tau + \eta \log\left(1 - \hat{\tau}\right)}_{\text{Standard}} + \underbrace{\log f}_{\text{Base}} + \underbrace{\left(\varepsilon - 1\right) \log\left(\frac{1 - \tau}{1 - \hat{\tau}}\right)}_{\text{Tax efficiency}}$$

Feasible Policies

For g ∈[10%,50%] of GDP



Policy Preferences

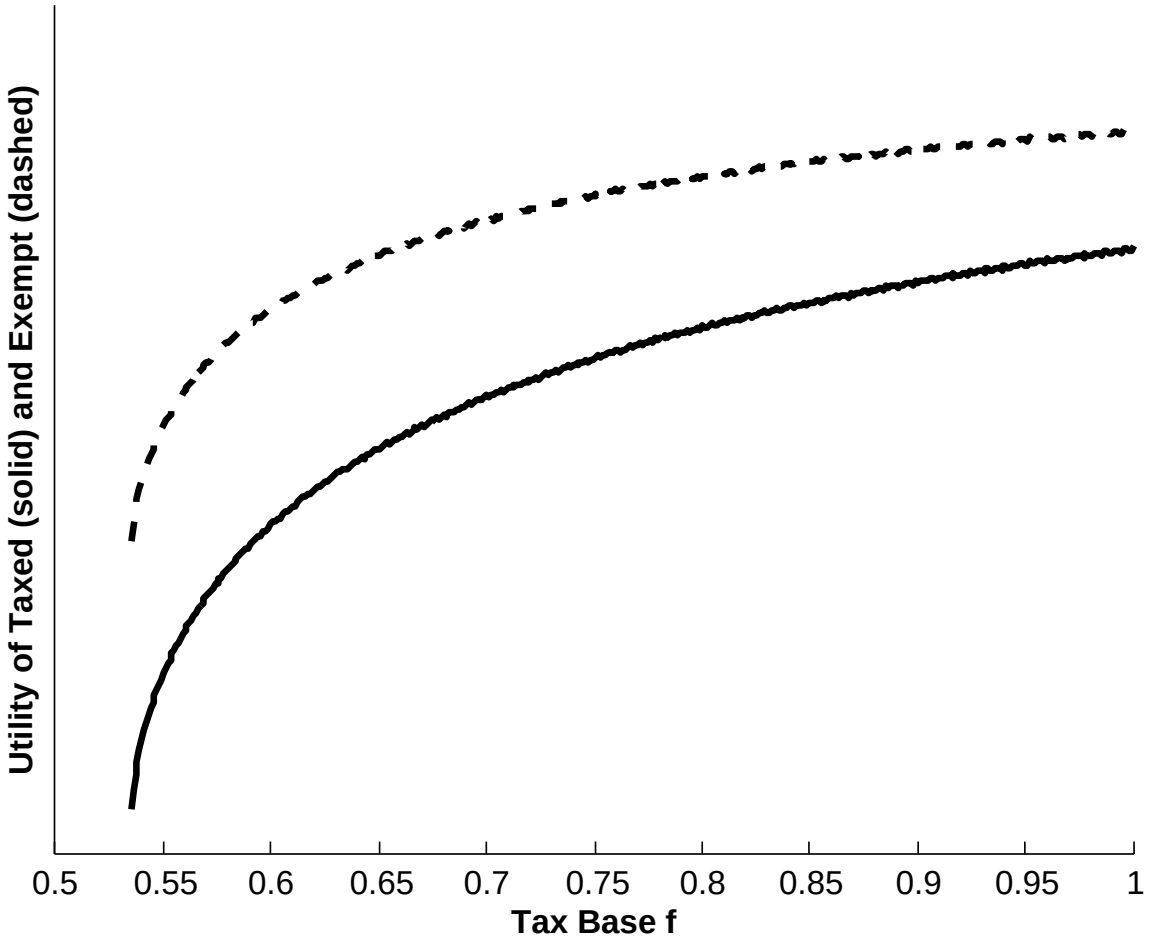
Preferred policy of j:

$$\max_{\tau,f} u^j \iff \max_{\tau,f} \left(z\left(1-\hat{\tau}\right)\right)^{\eta+1} \left(\frac{1}{1+\eta} + \left(\mu-1\right)\frac{\left(1-\tau\left(f,j\right)\right)^{\varepsilon}}{\left(1-\hat{\tau}\right)^{\varepsilon-1}}\right)$$

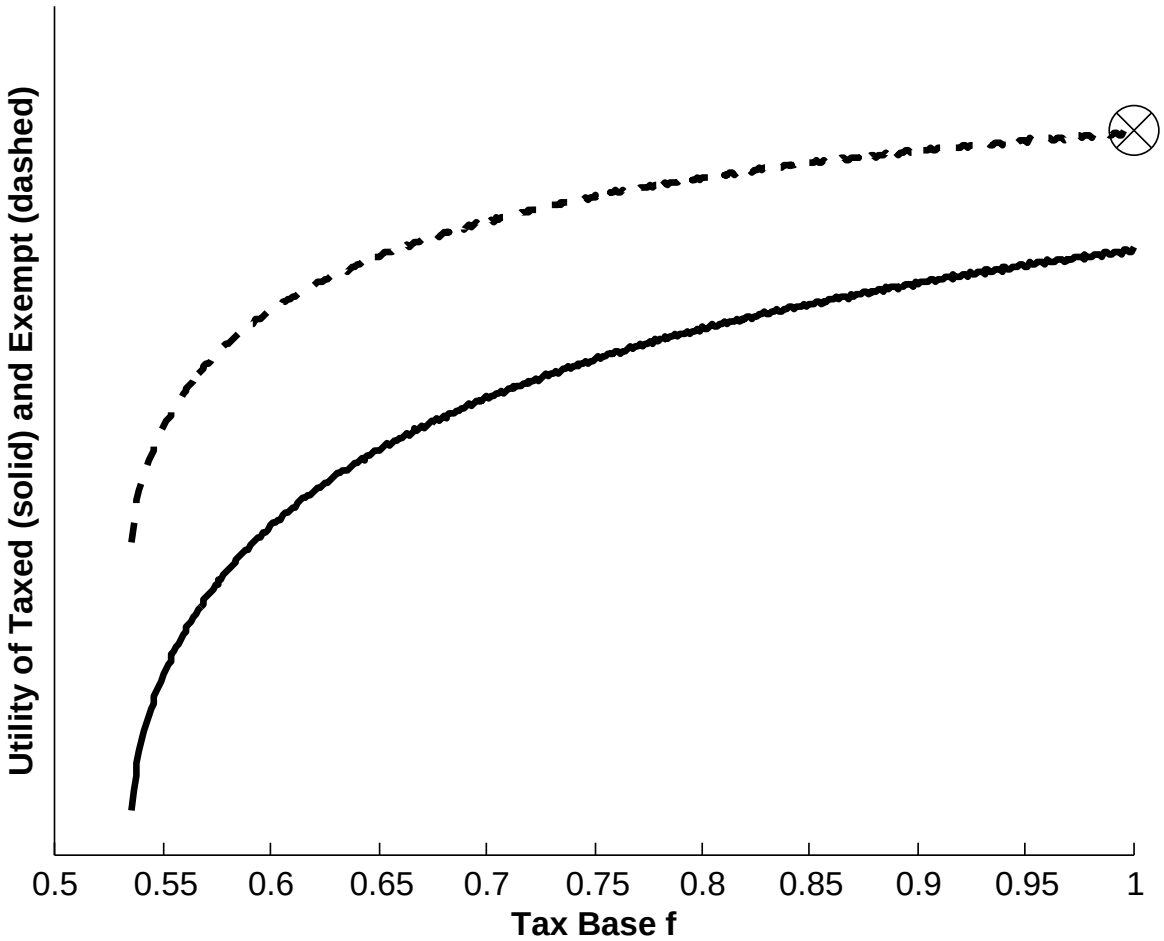
s.t.

$$\rho\left(\tau,f\right) \geq g.$$

Utility with and without a Tax Break



Utility with and without a Tax Break



Lemma 1: Preferences peak at f≈1 given tax status

Preferred Policy

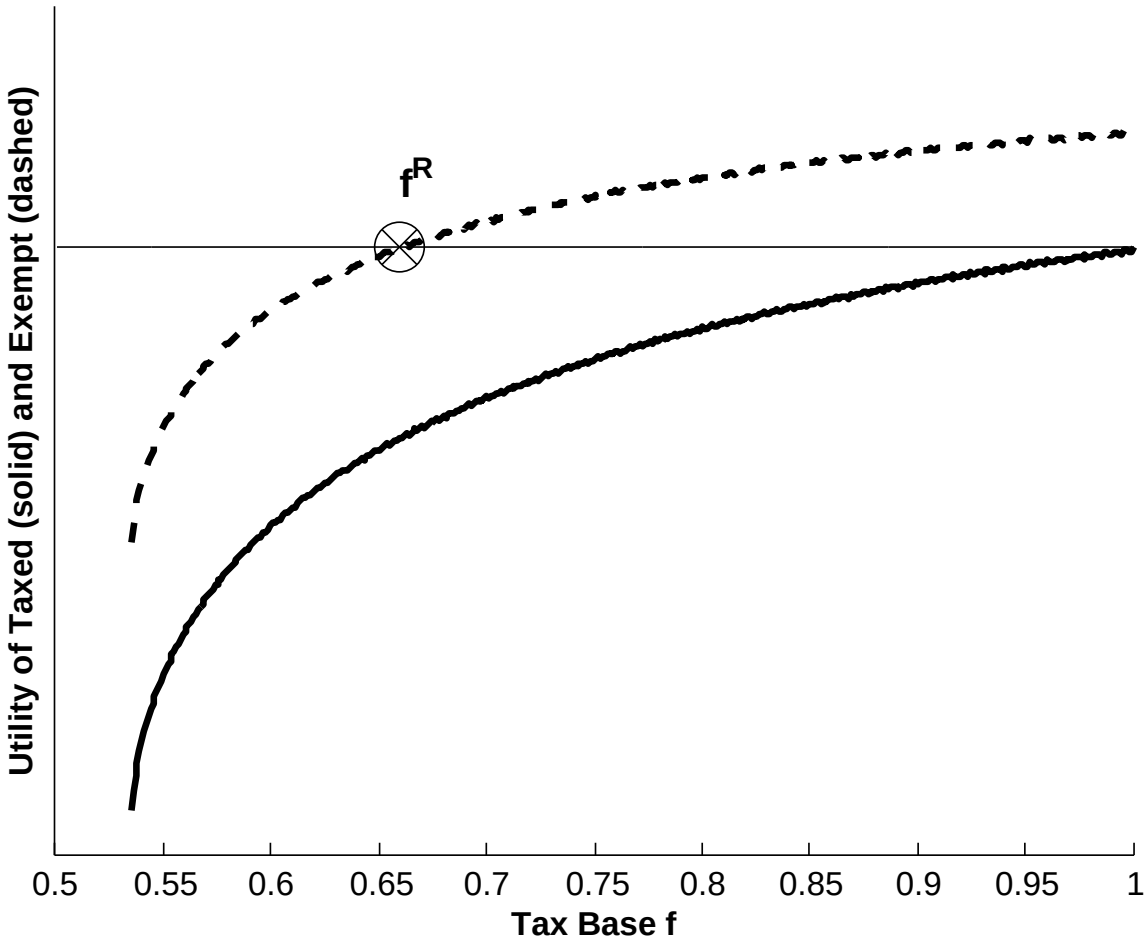
Proposition 2:

- Optimal base for all citizens $f = 1$, keeping their *own* tax status fixed.
  - Always prefer broadening the base
  - as long as it doesn't affect *own* tax status

- $\Rightarrow$ Socially optimal tax base always $f = 1$.
  - We'll refer to a move from $f < 1$ to $f = 1$ as tax reform

Parameter Assumption

Utility with and without a Tax Break



There is a tax base below which tax reform is Pareto improving

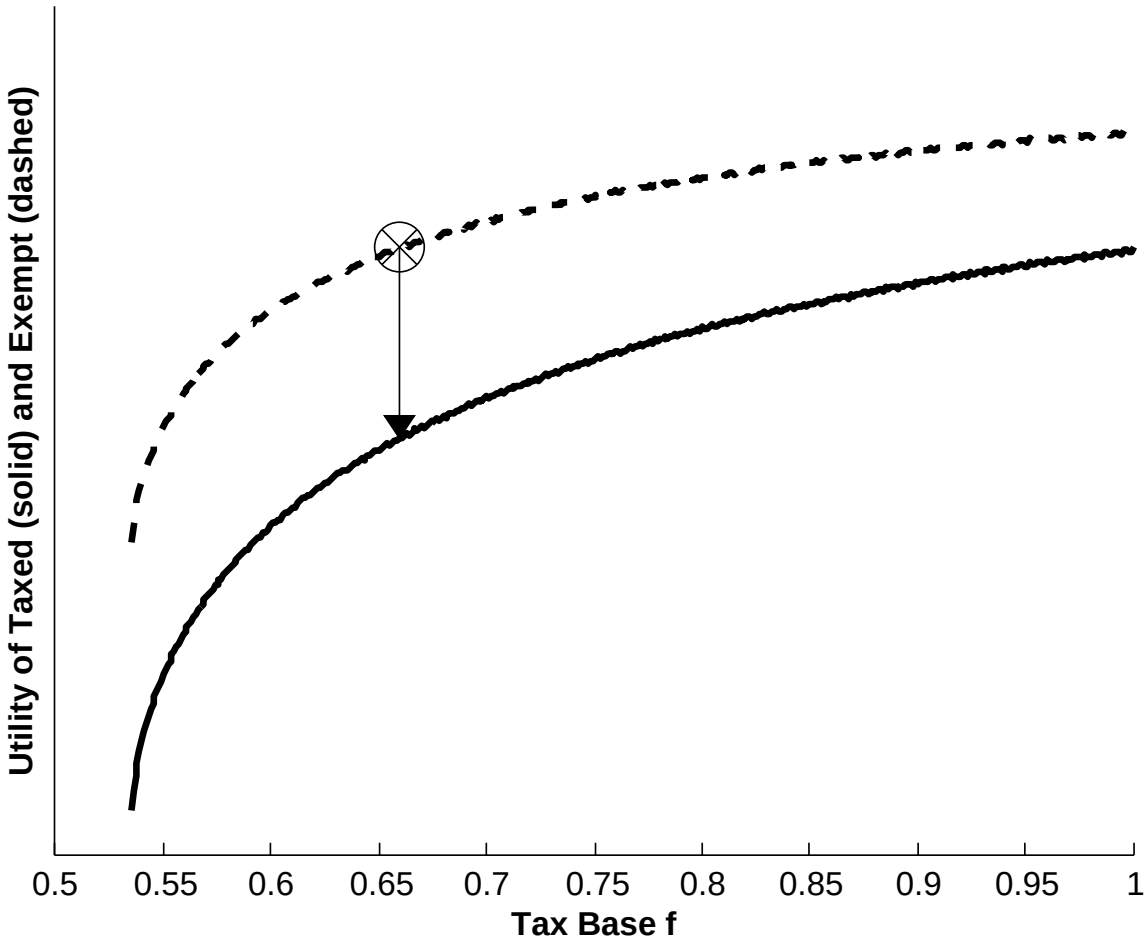
Pareto-Improving Tax Reform

Proposition 3:

- For any value of g there exists a tax base $f = f^R$ such that all citizens prefer $f = 1$ to all feasible tax bases $f < f^R$

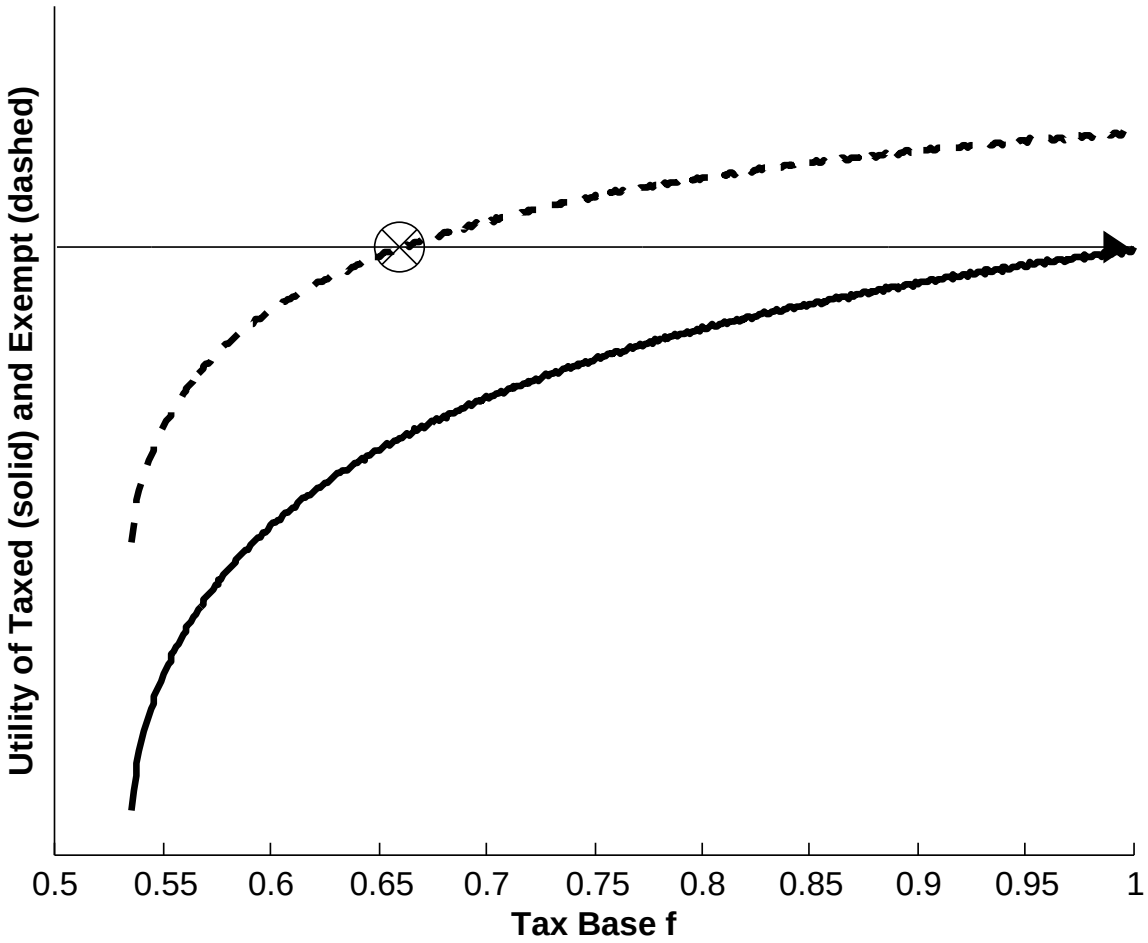
- $\Rightarrow f = 1$ is Pareto improving relative to all $f < f^R$

Marginal Reform



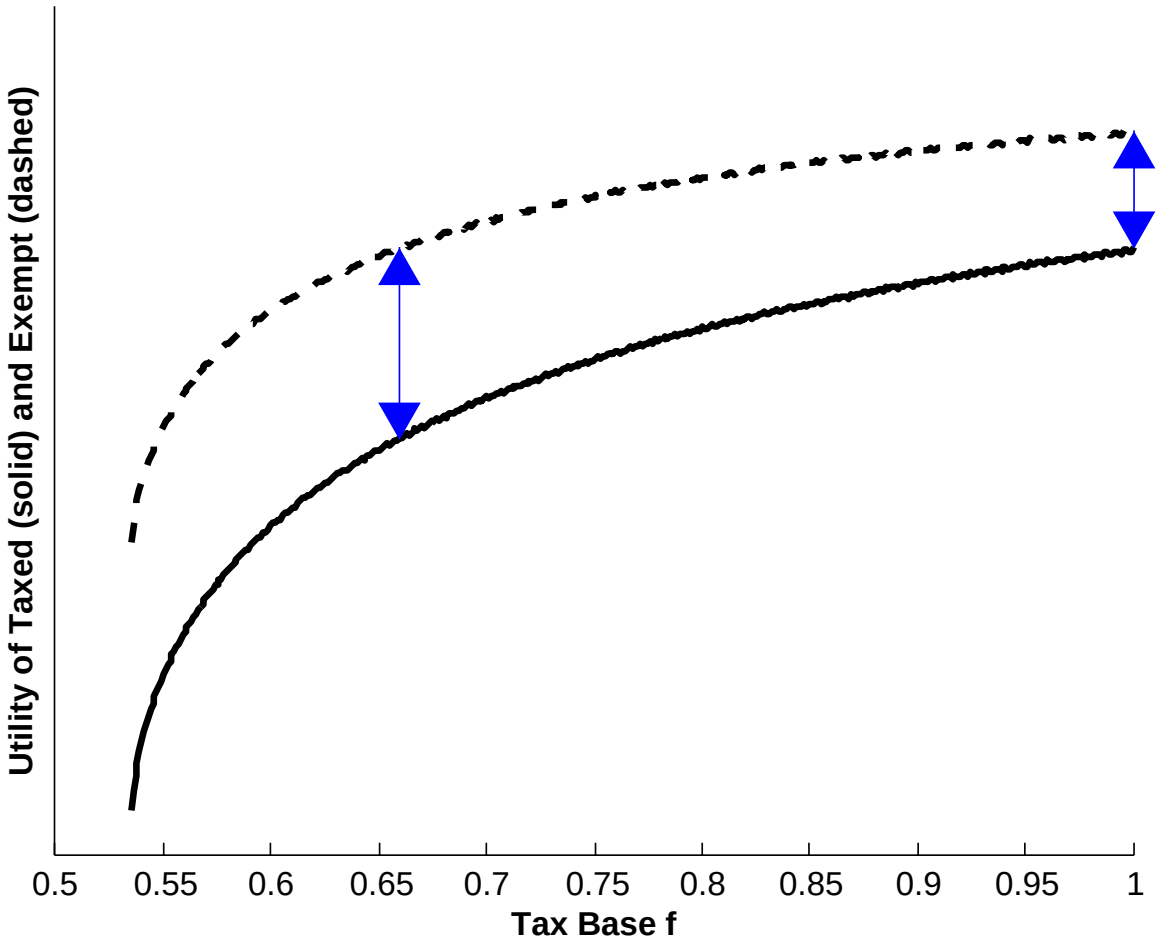
If losers must be compensated, marginal reform always costly

Big-Bang Reform



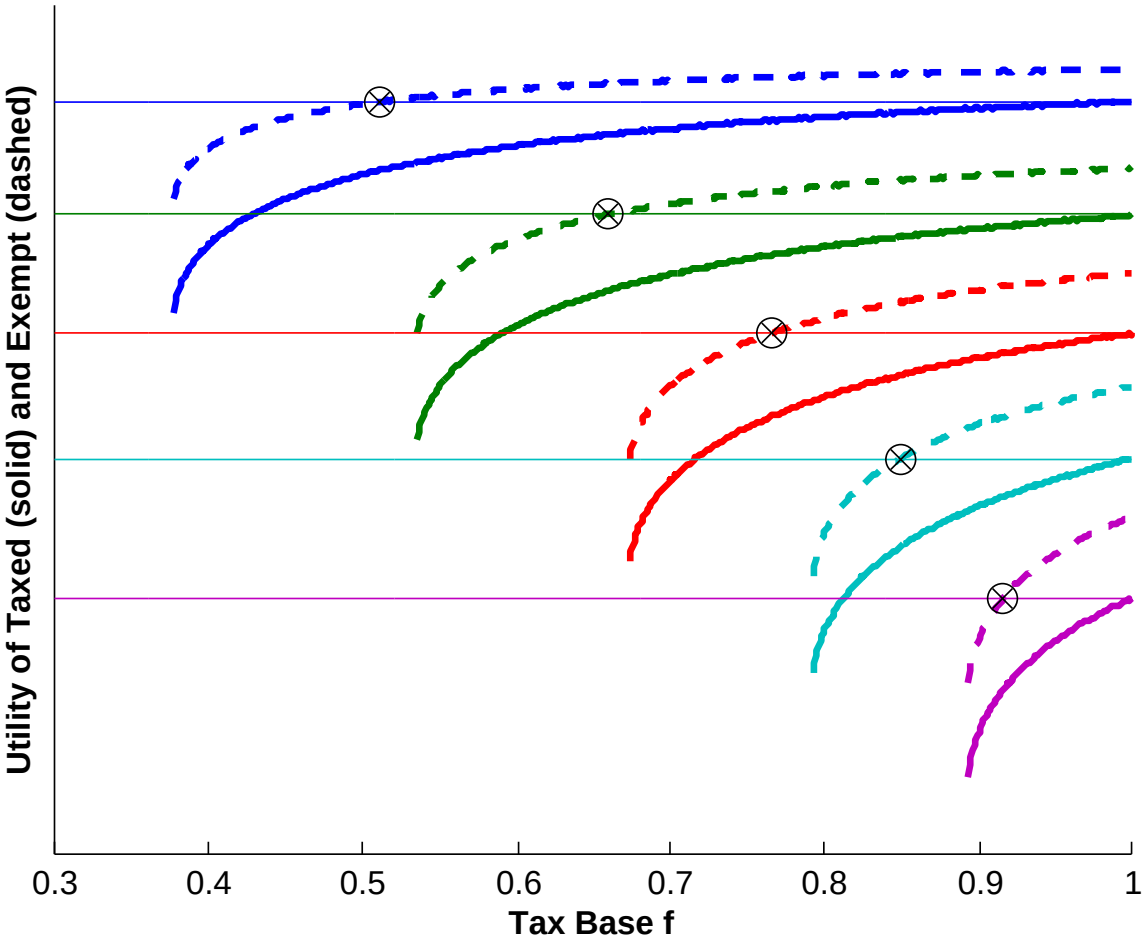
While comprehensive reform is Pareto improving

Private Value of Tax Break



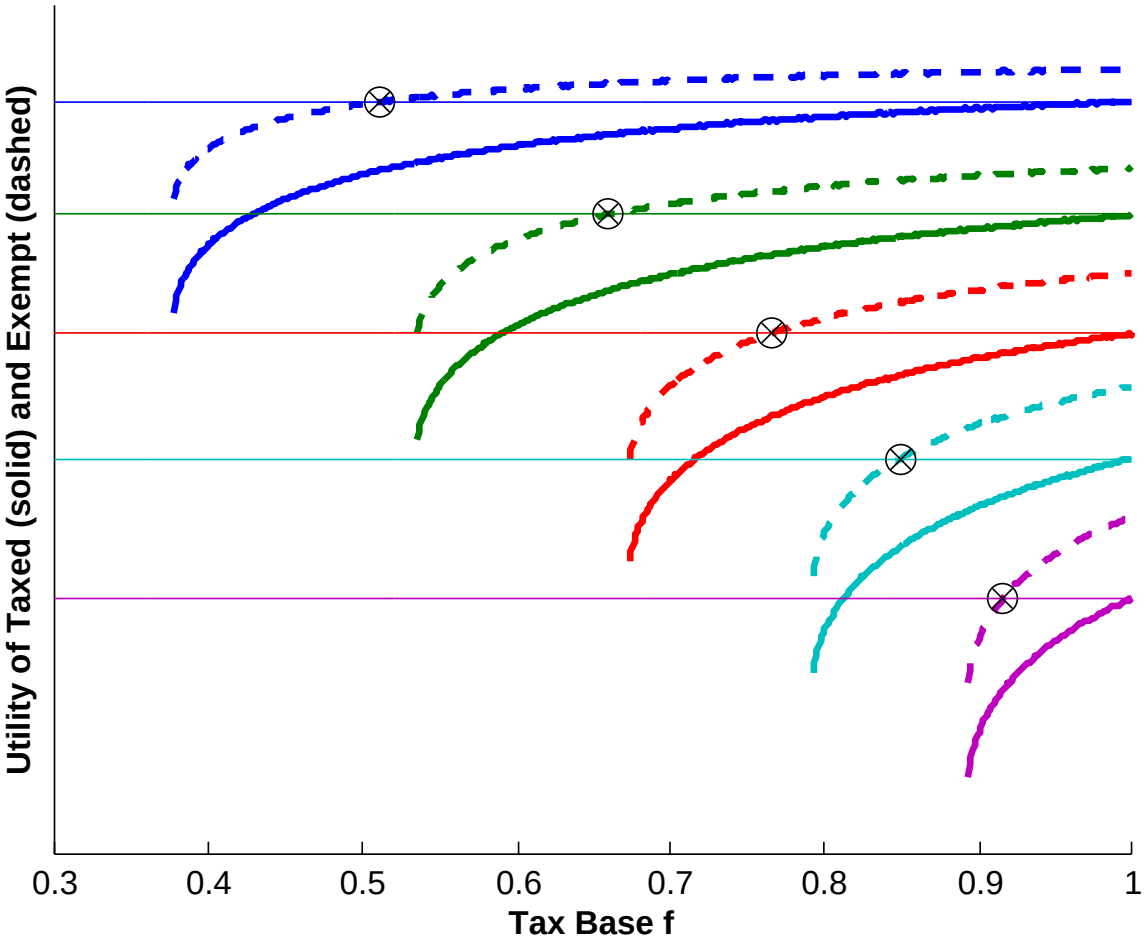
Prop. 4: Private value of tax break decreasing in tax base

Increases in Public Good Needs...



Prop. 4: Value of tax break increasing in g

Increase the Scope for Pareto-Improving Reform



Prop. 5: Prospects for reform increase in g

Politics: Fixed Cost to Lobbying

3 Stage political game:

1. Each citizen i decides whether to lobby.
   Lobbying incurs a **fixed cost** ϕ.

2. The value of g is drawn from a distribution $\Gamma(g)$.
   Lobbyists choose policy $\{\tau, f\}$ to maximize joint utility.

3. Economy operates under policy $\{\tau, f\}$; payoffs are realized.

Subgame equilibrium of Stage 2

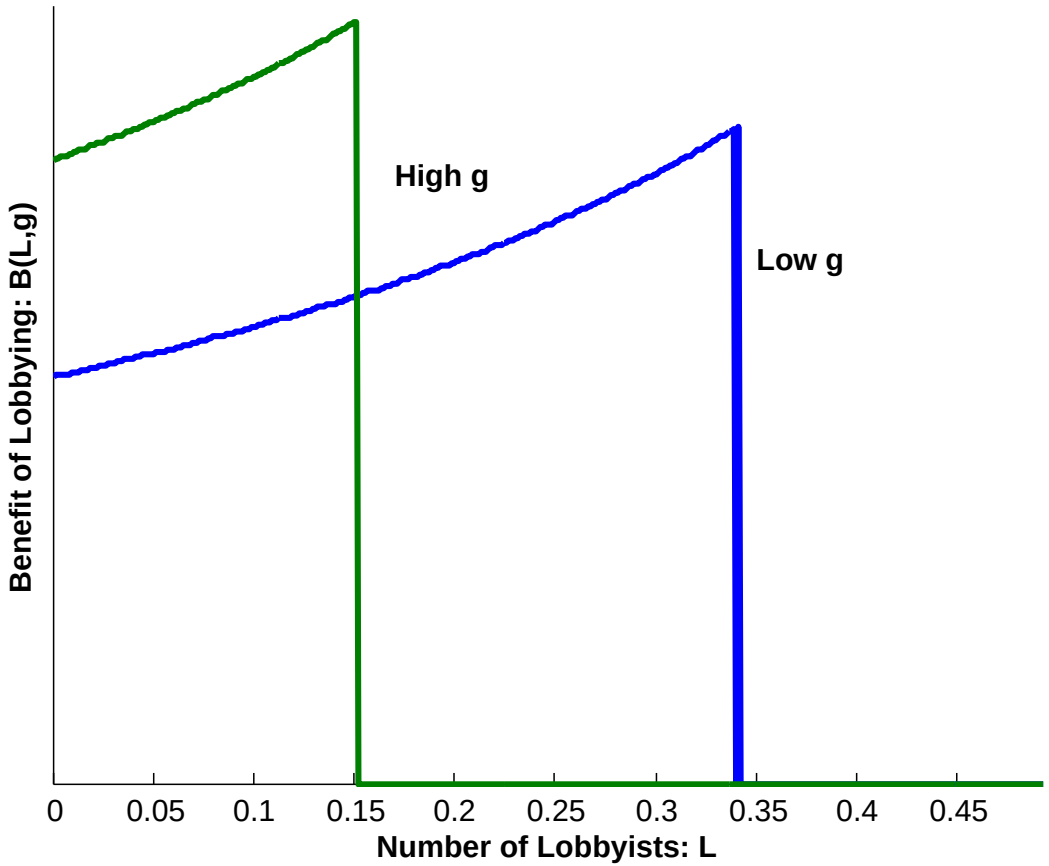
f=1-L

If $L < 1 - f^R$

f=1

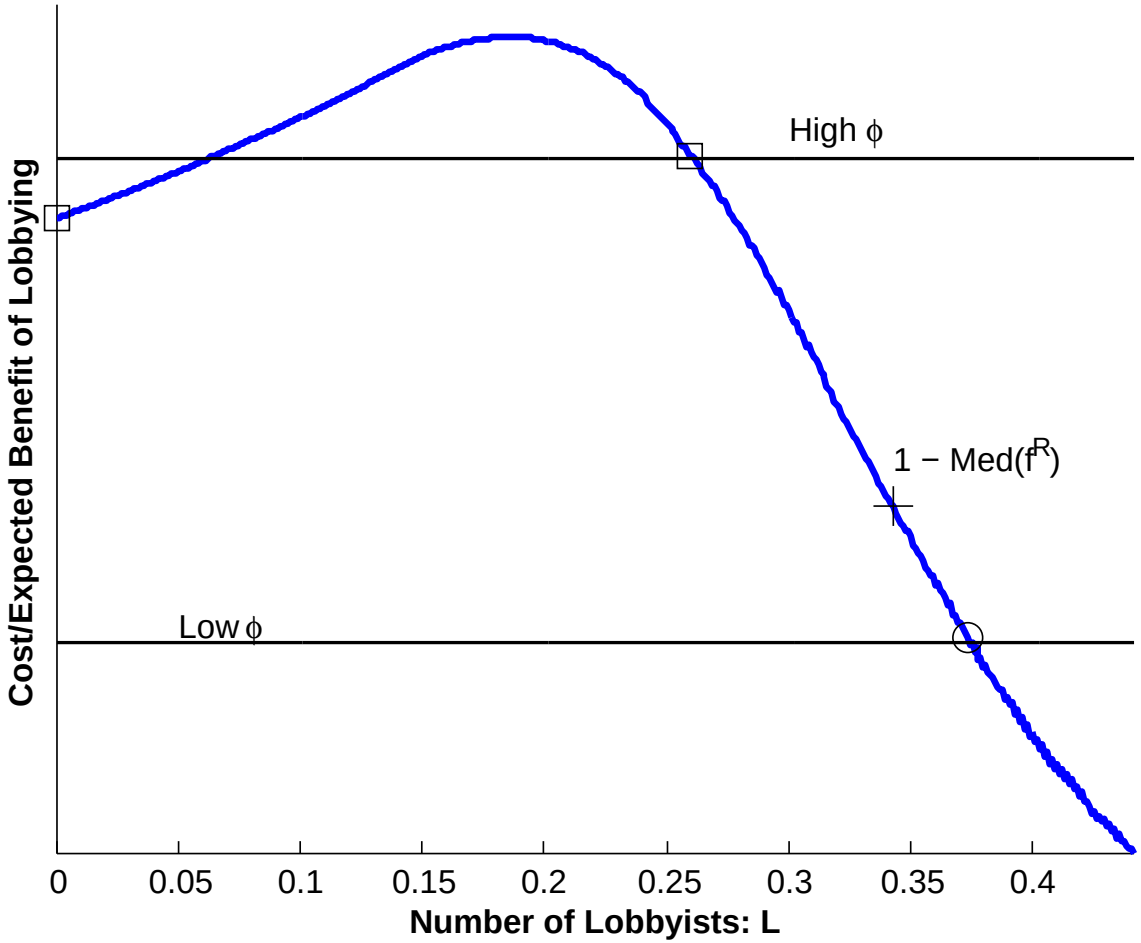
If $L > 1 - f^R$

Benefit of Lobbying in Stage 2



Expected Cost and Benefit of Lobbying

Equilibrium lobby size



Summary of Findings

- Tax reform triggered by **large revenue needs**.
- **Tax reform** involves **broadening the base** and (typically) **lowering rates**.
- **Large** reforms **feasible**. **Marginal** reforms politically **difficult**.
- Private gains from tax breaks higher when tax base is narrow $\Rightarrow$ **Multiple equilibria**.

Data

- Data on corporate tax base changes from Kawano and Slemrod (2012)
  - 30 OECD Countries
  - 1980-2004
- Define *Broaden*= 1 as any broadening of the tax base for domestic corporations
  - Robust to international tax reforms
- Right hand side variables
  - Tax revenues / GDP (or G/GDP or Debt/GDP)
  - Current statutory corporate tax rate
  - Change in statutory rate

Results

Table: Regression Results

	Dependent Variable = Reform					
	1	2	3	4	5	6
g/GDP	.009**	.010**	.009**	.032**	.008**	.007*
	(.004)	(.004)	(.004)	(.014)	(.003)	(.004)
Corp. Tax Rate		.009***	.007***	.026***	.008***	.007*
		(.002)	(.002)	(.009)	(.003)	(.004)
Δ Tax Rate		-.017***	-.018***	-.060***	-.020***	-.014**
		(.006)	(.006)	(.022)	(.007)	(.006)
Country FE	NO	NO	YES	YES	YES	YES
Year FE	NO	NO	NO	NO	YES	YES
R^2	0.01	0.05	0.15	0.11	0.20	0.19
n	709	621	621	566	621	653

Conclusions

- Tractable model for political determination of tax base+rates.
- Provides predictions for when and how these policies might be reformed.
- Consistent with tax reform experiences in OECD countries over past few decades.

Tax Aversion

- If (**but not** only if)

$$(1-\hat{\tau})^{\varepsilon-1} > (\mu-1)(\varepsilon-\eta-2)...$$

- ...all citizens prefer lower statutory and effective tax rates.

- **Assumption 1**: Citizens are tax averse

- E.g. (parameterization used in figures)
  - $\eta = 0.5$
  - $\varepsilon = 2$ (Broda and Weinstein, 2006).

$$1-\hat{\tau} > -0.5(\mu-1)$$

Back