A Positive Theory of Tax Reform

Ethan Ilzetzki

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Motivation

- A Positive Theory...
  - Most work on tax reform is normative
  - But tax reform determined and executed through a highly political process
  - Focus here is on the political economy of feasible tax reform

- ...of Tax Reform.
  - Political economy literature rarely makes the distinction between tax policy and tax reform.
  - No distinction between tax rates and the tax base.
  - Separate pol econ literature on impediments to reform. Is there something we can learn regarding tax policy?
What I do in this Paper

  - Endogenous labor supply.
  - Monopolistic competition among firms.
  - Distributional aspects of narrow tax base.

- Tax rates and tax base determined through a political process.
Overview

Tax Reform
Overview
Increasing Tax Rates

[Diagram showing tax rates and tax bases with stick figures representing tax brackets and their emotional responses to tax increases.]
Overview

Broadening the Tax Base
Overview

High Revenue Needs

Tax Rate vs. Tax Base

Ilzetzki

Tax Reform
Overview

Tax Reform
Overview

Insights

- Tax reform more likely when *revenue needs are high*.
  - Sweden 1991
  - Canada 1985
  - TRA 1986
Tax reform more likely when **revenue needs are high**.

Politically feasible reforms involve **broadening the base** and **lowering marginal rates**.

- USA (1986)
- Canada (1985)
- UK (1984)
- Sweden (1991)
- Germany (2000)

Overview

Insights

- Tax reform more likely when revenue needs are high.
- Politically feasible reforms involve broadening the base and lowering marginal rates.
- Large reforms occasionally feasible; marginal reforms politically difficult.

Contrasts with Feldstein (1976), etc.

Contrasts with pol econ models of reform

Contrasts with Dewatripont and Roland (1992)
Tax reform more likely when **revenue needs are high**.

Politically feasible reforms involve **broadening the base** and **lowering** marginal **rates**.

**Large** reforms occasionally **feasible**; **marginal** reforms politically **difficult**.

Tax reforms may involve “**grand coalitions**” or “**grand bargains**”.
Plan of Talk

1. Overview

2. The **economic** model $\implies$ citizen preferences.

3. The **political** model $\implies$ when does collective choice lead to tax reform?

4. Comparative statics $\implies$ what makes tax reform more likely?

5. (Model $\Leftrightarrow$ Tax reform experiences in practice)
Model

Economic Structure

- Works $h_j$ hours
- Owns firm $j$
- Consumes aggregate good $x_j$
- Votes (more on this later)

Citizen $j \in [0,1]$

Income:
- Labor $w h_j$
- Profits $\pi_j$

Firm $i \in [0,1]$

- Hires labor $h(i)$
- Produces unique variety $x(i)$
- Maximizes profits
- Competes via monopolistic competition

Government

- Chooses flat income tax rate $\tau$
  - Same rate on labor and profits
- Chooses a measure $(1-f) \in [0,1]$ of goods that are tax deductable
- Uses tax revenues to finance a given public good need $g$
  - Produced by $i=1$. 
Citizen preferences, constraint, choice

\[ u^j = x^j - \frac{(h^j)^{1+\frac{1}{\eta}}}{1 + \eta} \quad \text{(Preferences of } j) \]

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

\[ \int_{i=0}^{1} p(i) x^j (i) di \leq (1 - \tau) \left( w h^j + \pi^j \right) + \tau \int_{i=f}^{1} p(i) x^j (i) di \]

\[ \text{Consumption} \quad \text{Net income} \quad \text{Tax Deduction} \]

\[ \Rightarrow \text{Demand for variety } x^j (i), \text{ labor supply } h^j. \]

Note: assumed goods ranked in order of taxability. In extension, this ranking is determined endogenously.
Firms (1)

\[ \text{max } \pi (i) \text{ s.t. demand } x(i) = \int_0^1 x^j(i) \, dj \text{ and} \]

\[ x(i) \leq z h(i) \quad \text{(Production function)} \]

In extension: \( z(i) \)

- Gives

\[ p(i) = \mu \frac{w}{z} = p = 1 \quad \text{(Markup)} \]

Same for all \( i \), normalized

with \( \mu \equiv \frac{\varepsilon + 1}{\varepsilon} \)
\[ p^c(i) = \frac{1}{1 - \tau(f, i)}; \quad \tau(f, i) = \begin{cases} 
0 & i \geq f \\
n & i < f 
\end{cases} \]

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

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

\[ \pi(i) = \frac{x(i)}{\varepsilon + 1} \]
Indirect Utility (1)

\[ u^j \propto (z(1 - \hat{\tau}))^{\eta+1} \left( \frac{1}{1 + \eta} + \frac{1}{\varepsilon} \frac{(1 - \tau(f,j))^{\varepsilon+1}}{(1 - \hat{\tau})^\varepsilon} \right) \]

(Indirect Utility)

Two components:

1. Utility of “worker”

\[ wh^j - \frac{(h^j)^{1+\frac{1}{\eta}}}{1 + \eta} \propto (z(1 - \hat{\tau}))^{\eta+1} \]

- Same \( \forall j \)
- Decreasing in effective tax rate \( \hat{\tau} \).
2. Utility of “entrepreneur”

\[ \pi^j \propto (z(1 - \hat{\tau}))^{\eta+1} \frac{(1 - \tau(f, j))^{\varepsilon+1}}{(1 - \hat{\tau})^\varepsilon} \]

Aggregate Demand

Relative Demand

Agg. demand decreasing in \( \hat{\tau} \)

Relative demand increasing in CPI \( \leftrightarrow \hat{\tau} \)

Relative demand decreasing in \( \tau \) for \( j < f \)

Profits(\( \hat{\tau} \)) depends on \( \text{sign}(\eta + 1 - \varepsilon) \)
Indirect Utility (3)
Utility of j=0.5
Indirect Utility (3)
Policy options on the margin

[Diagram showing tax rate versus utility with marginal reform indicated]
Large reforms may be more feasible than marginal ones.
Reform likely to involve broadening the base and lowering rates.
Revenues

\[ \rho = \tau (wh + \pi) - \tau \int_{i=f}^{1} p(i) \times (i) \, di \]

Pre-deductions \hspace{1cm} Deductions

\[ \log (\rho (\tau, f)) = \log \tau + \eta \log (1 - \hat{\tau}) + \log f + \varepsilon \log \left( \frac{1 - \tau}{1 - \hat{\tau}} \right) \]

Standard \hspace{1cm} Base \hspace{1cm} Tax efficiency
Policy Preferences (1)

Preferred policy of $j$:

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

s.t.

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

Discontinuity of preferences at $f=j$
Policy Preferences (2)

Optimality Condition for $j$

- **Interior solution:**

\[ MCPF^\tau (j) = MCPF^f (j) \]

\[ MCPF^\tau (j) \equiv - \frac{\partial u^j}{\partial \tau} / \frac{\partial \rho}{\partial \tau} \]

\[ MCPF^f (j) \equiv - \frac{\partial u^j}{\partial f} / \frac{\partial \rho}{\partial f} \]

- **Candidate corner solutions:**

  - $f=j$
  - $f=1$
  - $\tau=1$
\( \text{Policy Preferences (3)} \)

Proposition 2

\( \text{MCPF}^\tau (j) > \text{MCPF}^f (j) \quad \forall \tau, \quad f \neq j \)

\( \Rightarrow \) Optimal base for all citizens is either \( f = j \) or \( f = 1 \).

- Always prefer broadening base on the margin...
- but not necessarily if own tax status changes

\( \Rightarrow \) Socially optimal tax base always \( f = 1 \).

- Here, we’ll refer to a move from \( f < 1 \) to \( f = 1 \) as \textbf{tax reform}

\( \Rightarrow \) Unanimous support for \( f = 1 \) \textbf{behind the veil of ignorance}. 

\textbf{Ilzetzki Tax Reform}
Policy Preferences (4)
Proposition 3

\[ \exists j^R \text{ s.t.} \]
\[ f = 1 \text{ is the ideal point } \forall j < j^R \]
\[ f = j \text{ is the ideal point } \forall j > j^R \]

Preferences peak at \( f = 1 \)

Preferences peak at \( f = j \)

If citizens not “ordered” \( j^R \) is the measure of citizens that would \textbf{collectively} forgo their tax benefit in favor of \textbf{tax reform}.

No citizen would \textbf{individually} forgo her tax benefit to broaden the tax base \textbf{marginally}.
\( j^R \) is increasing in \( g \)

\[ \Rightarrow \text{Support for reform increasing in revenue needs.} \]
Two political candidates $A$ and $B$.

- Simultaneously propose policies $f^A$ and $f^B$.
  - $\tau$ determined residually through government budget constraint.
- Objective: maximize probability of winning election.
  - Robust to maximizing vote share
- Candidate with majority of votes implements policy.

Mixed strategy

- Draw $f^A$ and $f^B$ from distribution $\phi^A(f^A)$ and $\phi^B(f^B)$

Extension: second stage in which firms lobby for tax breaks in competitive auction $\Rightarrow$ Endogenously ranks higher $z(i)$ firms as less “taxable”.
Politics (2)
Political Equilibrium

- If $j^R > \frac{1}{2}$, unique equilibrium is $f^A = f^B = 1$ with probability 1.

- If $j^R \leq \frac{1}{2}$ large multiplicity of equilibria, but all have
  - $f^A = f^B = 1$ with infinitessimal probability.
  - Always 50% probability of a tax base in the $\left[ j^R, \frac{1}{2} \right]$ range.
  - Always 50% probability of a tax base in the $\left[ \frac{1}{2} + j^R, 1 \right]$ range.

Tax reform enacted with bi-partisan support.
Political Equilibrium

\[ \phi(f^B) \]

- \( f^B > f^A \)
- \( f^A > f^B \)
- \( f^A - \frac{1}{2} \)
- \( f^A \)

- \( J^R \)
- \( \frac{1}{2} \)
- \( J^R + \frac{1}{2} \)
- \( 1 \)

- \( F^L \)
- \( F^H \)
Tax reform triggered by **large revenue needs**.

**Tax reform** involves **broadening the base** and (typically) **lowering rates**.

**Large reforms** feasible. **Marginal** reforms politically **impossible**.

Tax reforms may involve “**grand bargains**” or **shifting political alliances**.
Examples

- USA (1986)
- Canada (1985)
- UK (1984)
- Sweden (1991)
- Germany (2000)

- Triggered in times of (perceived) need to decrease deficit.
- Involved base-broadening + tax rate cuts
- Large changes
- Bipartisan support (USA, ’86, Sweden, ’91)
Political Uncertainty and Tax Reform

- Behind the veil of ignorance citizens agree $f = 1$.
- If distribution of tax preferences relatively certain $\Rightarrow$ no tax reform.
- Uncertainty about distribution of benefits $\Rightarrow$ tax reform more likely.
- More diffuse political power $\Rightarrow$ tax reform.

Heterogeneous productivity

Lobbying for tax benefits

- Endogenous ranking of citizens in terms of taxability.
Conclusions

- Tractable model for political determination of tax base and rates.
- Provides an explanation for inefficient tax policies.
- ...and predictions for when and how these policies might be reformed.
- Consistent with tax reform experiences in G7 countries over past few decades.