

Taxation and Development

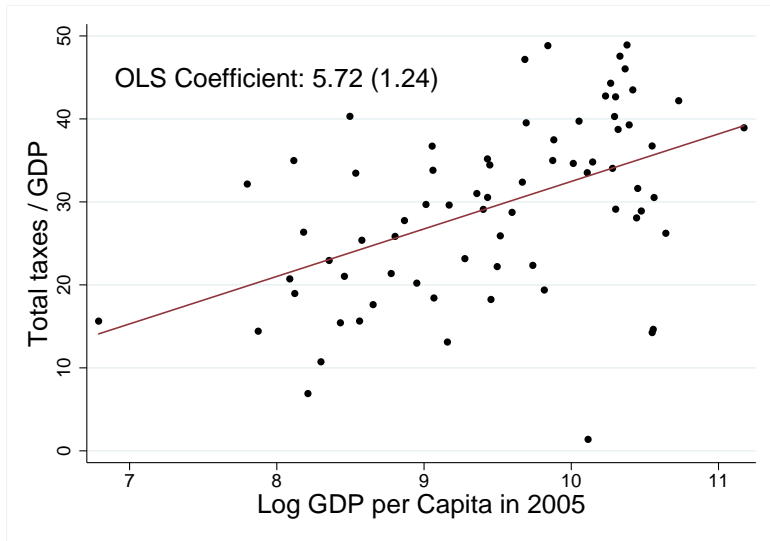
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What Separates PF-Devo From PF?

- ▶ PF-Devo is more than just “studying taxation in developing countries”
- ▶ Focus on tax enforcement and administration:
 - ▶ Traditional PF assumes perfect enforcement and administration (zero evasion at zero administrative costs)
 - ▶ In PF-Devo, enforcement/administration are central objects of interest
- ▶ Focus on the long-run of development:
Tax system \rightleftharpoons economic development
- ▶ Implicit notion that more tax revenue is a good thing

Tax Take vs GDP per Capita



Theories of Government Growth

1. **Demand for public goods** has an income elasticity above one [Wagner's law]
2. **Stagnating productivity** in the public sector [Baumol's cost disease]
3. **Ratchet effect theory** whereby temporary shocks (e.g. wars) raise government expenditure, which do not fall back after the shock
4. **Political economy** aspects (e.g. democratization)
5. **Tax enforcement** improves with development

Two Approaches

1. **Big-picture macro approach:** what shapes tax capacity and tax policy in the long run?
 - ▶ How does a government go from raising around 10% of GDP in taxes to raising 40-50%?
 - ▶ **Fiscal-Capacity-Investment View:** Besley & Persson (2009, 2010, 2011, 2013, 2014)
 - ▶ **Byproduct-of-Development View:** Kleven, Kreiner & Saez (2009, 2016), Kleven (2014), Jensen (2016)
2. **Nitty-gritty micro approach:** given weak tax capacity, what can governments do to incrementally improve
 - ▶ Tax administration
 - ▶ Tax enforcement
 - ▶ Tax policy
 - ▶ Tax morale

Two Approaches

- ▶ The big-picture macro approach is intellectually interesting, but unlikely to yield concrete and conclusive policy guidance
- ▶ So most recent work takes the nitty-gritty micro approach
 - ▶ Analyzes specific contexts and problems, one at a time
- ▶ Frontier of micro approach:
 - ▶ Data: administrative tax records
 - ▶ Identification: RCTs or quasi-experiments
 - ▶ Models: “third-best” models with imperfect compliance
 - ▶ Policy: empirics and models inform the design of (incremental) policy innovations

Overview of Topics

1. Tax enforcement
2. Tax policy
3. Tax administration
4. Tax morale

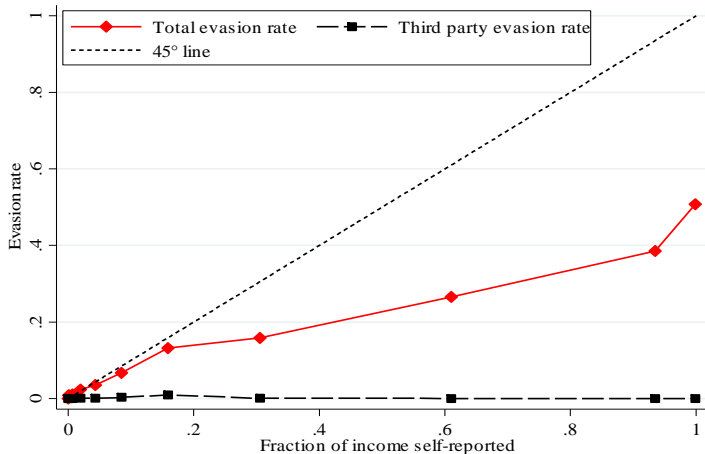
Tax Enforcement

Tax Enforcement

- ▶ Models of deterrence and compliance:
 - ▶ Allingham & Sandmo (1972):
Self-reporting; audits and penalties AS-Model
 - ▶ Kleven et al. (2009, 2011, 2016):
Third-party reporting; information; firm size/complexity
- ▶ Enforcement instruments
 1. Audits
 2. Penalties
 3. Third-party information reporting
 4. Other verifiable information trails (credit cards, receipts, etc.)
 5. Withholding
- ▶ Kleven et al. (2011, 2016): *tax enforcement is fully successful iff verifiable third-party information (3-4) has wide coverage*

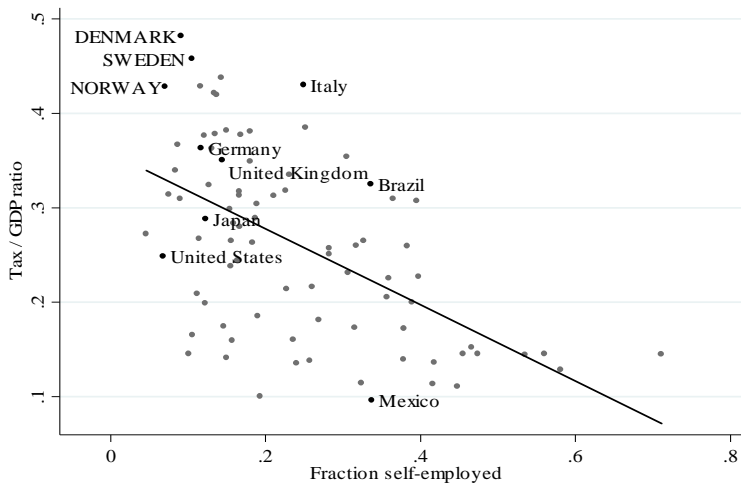
Tax Evasion and Third-Party Information

Kleven et al. (2011): Evidence From Danish Audit Experiment



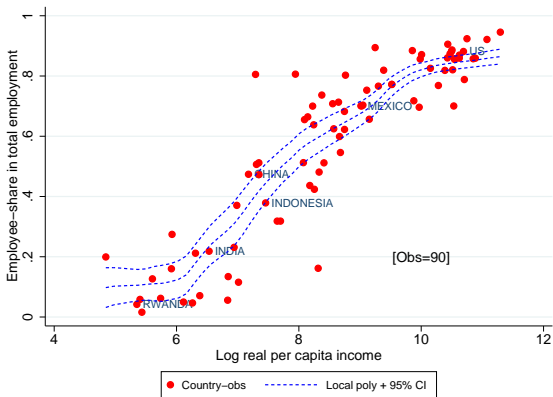
Tax Take and Third-Party Information

Kleven (2014): Cross-Country Evidence



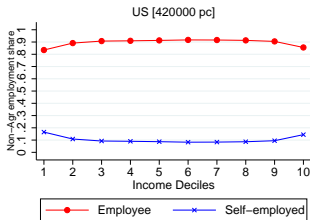
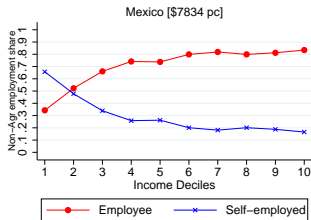
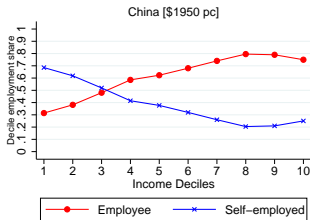
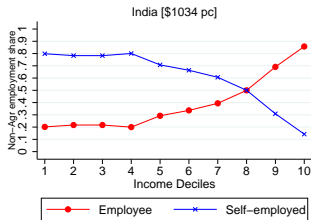
Aggregate Employee Shares Across Countries

Jensen (2016): Evidence From 90 Micro Surveys



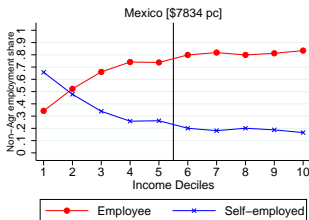
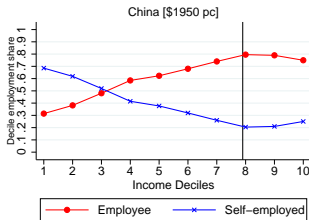
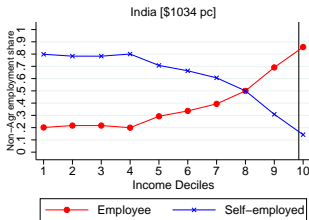
Distributional Employee Shares Within Countries

Jensen (2016): Evidence From 90 Micro Surveys



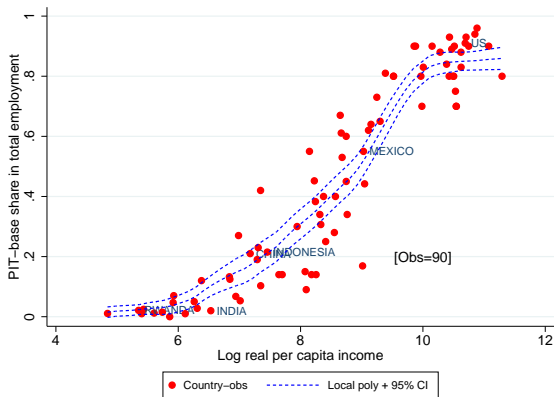
Distributional Employee Shares Within Countries and the Income Tax Exemption Threshold

Jensen (2016): Evidence From 90 Micro Surveys



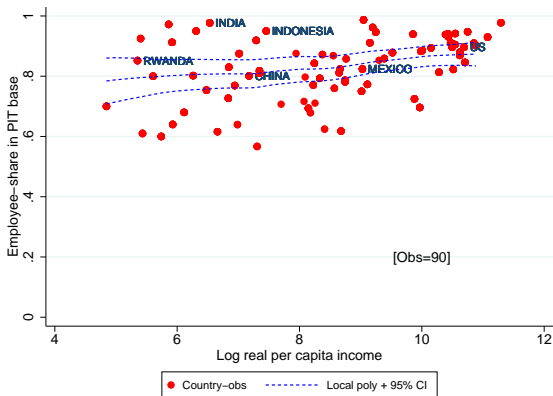
Income Tax Base Share Across Countries

Jensen (2016): Evidence From 90 Micro Surveys



Aggregate Employee Share in Income Tax Base

Jensen (2016): Evidence From 90 Micro Surveys



Tax Enforcement Studies in Developing Countries

Pomeranz (2015) [VAT in Chile]:

- ▶ Randomized audit letter experiment
- ▶ Does the paper trail between trading firms in a VAT-chain deter evasion?
- ▶ No random variation in the paper trail, only in audit threats
- ▶ Two findings:
 1. Transactions covered by a paper trail (firm-to-firm) respond less to audits than transactions not covered (firm-to-consumer)
 2. Audit threats to non-compliant firms have positive spillovers upstream, but not downstream
- ▶ Consistent with a paper trail effect between business partners (and with third-party information effects in Kleven et al. 2011)

Tax Enforcement Studies in Developing Countries

Kumler, Verhoogen, and Frias (2013) [Payroll Tax in Mexico]:

- ▶ Substantial underreporting of wages by firms, with evasion being declining in firm size
- ▶ Giving employees incentives to ensure accurate employer reports improve compliance

Carillo, Pomeranz, and Singhal (2014) [CIT in Ecuador]:

- ▶ Third-party information is ineffective if taxpayers can make offsetting adjustments on less verifiable margins
- ▶ Evidence from rich countries (with high 3rd-party coverage) may not reveal marginal effect where coverage is very low

Naritomi (2015) [VAT in Brazil]:

- ▶ Providing incentives for consumers to ask for VAT receipts and whistleblow non-compliant firms improves compliance

Tax Policy

Tax Policy: Traditional Analysis

Traditional PF analysis builds on three classic contributions:

1. Diamond-Mirrlees (1971): commodity taxes, prod. efficiency
2. Mirrlees (1971): income taxes
3. Atkinson-Stiglitz (1976): income vs commodity taxes

Policy recommendations coming out of this literature:

1. Use progressive income taxes
2. Use uniform VAT/sales tax
3. Do not use differentiated commodity taxes
(except for externalities/internalities)
4. Do not use capital taxes (?)
5. Do not use taxes on turnover, trade, and intermediate inputs

Tax Policy: Theory vs Reality in Poor Countries

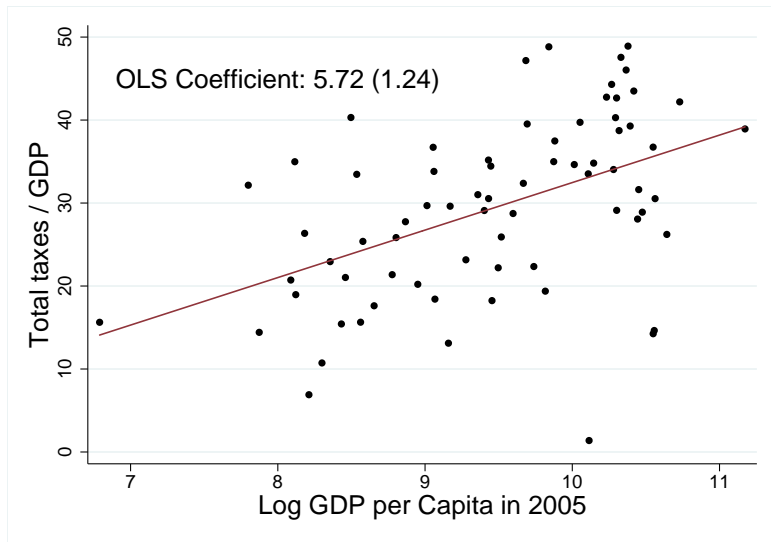
- ▶ Low-income countries tend to rely on the “wrong tax policies” (Gordon & Li 2009) Tax Structures
- ▶ Two responses:
 1. Policies should be changed (Newbery & Stern 1987)
 2. The models are wrong, not the policies
- ▶ Traditional models assume:
 - ▶ Full set of tax instruments (except for taxes on innate ability)
 - ▶ Perfect enforcement of these tax instruments
- ▶ Implications of informality or evasion for optimal tax policy:
 - ▶ **Informality (extensive margin):** Emran & Stiglitz (2005); Keen (2006); Gordon & Li (2009)
 - ▶ **Evasion (intensive margin):** Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)

From Tax Rates to Tax Instruments

- ▶ Much academic work studies the pattern of optimal tax rates
 - ▶ Taking the tax instrument as given (e.g., nonlinear income tax)
 - ▶ Allowing for lots of flexibility in tax instruments
- ▶ This is second-order for developing economies
 - ▶ Here the choice between tax instruments is key
 - ▶ Which instruments represent the best trade-off between standard efficiency-equity concerns and compliance concerns?
- ▶ **Taxonomy of Taxes:**
 - ▶ **Modern:** income taxes, social security taxes, VAT
 - ▶ **Traditional:** property taxes, wealth transfer taxes, excises, tariffs, etc.

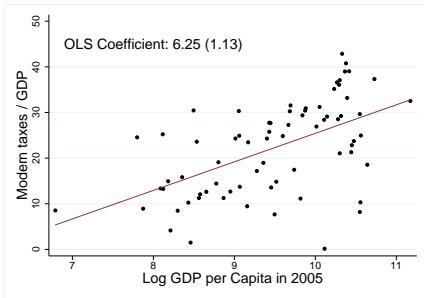
Tax Take Across Countries

Total Taxes / GDP

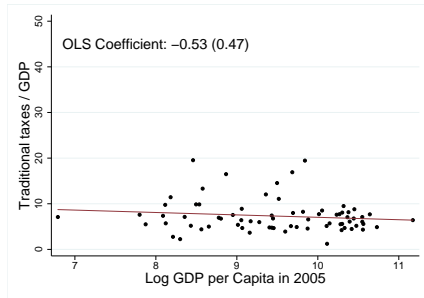


Tax Structure Across Countries

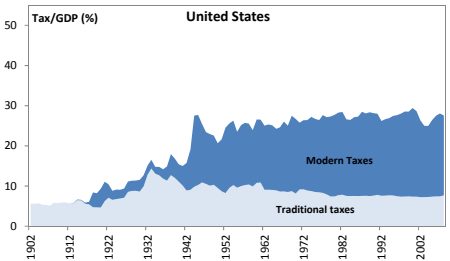
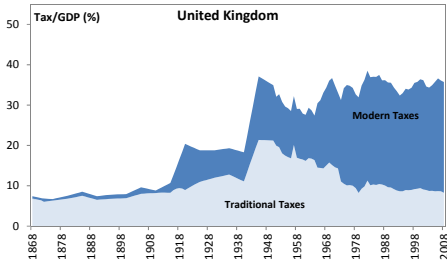
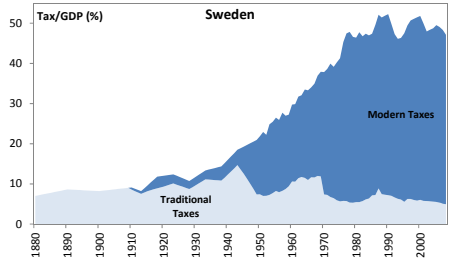
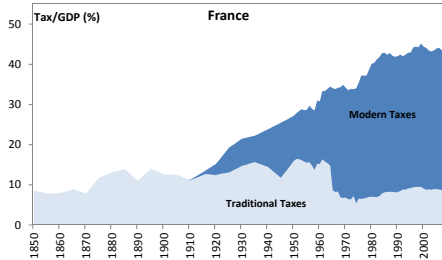
Modern Taxes / GDP



Traditional Taxes / GDP



Tax Take and Tax Structure Over Time



From Macro to Micro

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)

- ▶ **Production Efficiency Theorem:**

Any second-best optimal tax system maintains production efficiency

- ▶ **Policy implication:**

Firms should be taxed on their profits, not on their turnover

- ▶ **Ubiquitous production inefficient tax scheme:**

Minimum Tax Scheme (MTS) that taxes firms on either profits or turnover depending on which tax liability is larger

- ▶ Such schemes are motivated by the idea that turnover taxes are harder to evade than profits taxes
- ▶ Best et al. (2015) analyze the MTS on corporations in Pakistan

Empirical Methodology Using Minimum Tax Scheme

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)

- ▶ MTS combines a profit tax with a turnover tax:

$$T = \max \{ \tau_{\pi} (y - c) ; \tau_y y \} \quad \text{and} \quad \tau_{\pi} > \tau_y$$

where y = turnover, c = costs, and τ_{π}, τ_y are tax rates

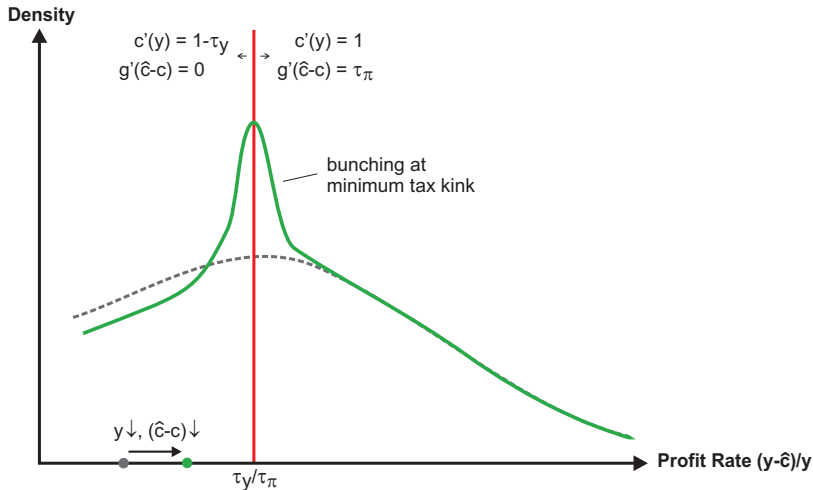
- ▶ Firms switch between profit and turnover taxes when the reported profit rate π crosses a threshold:

$$\tau_{\pi} (y - c) = \tau_y y \quad \Leftrightarrow \quad \pi \equiv \frac{y - c}{y} = \frac{\tau_y}{\tau_{\pi}}$$

- ▶ **Non-standard kink** where both tax rate and tax base jump
 - ▶ Kink changes real and evasion incentives differentially
 - ▶ Develop method for eliciting (bounds on) evasion from bunching at the MTS kink

Bunching Theory

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)



Variation in Minimum Tax Kink

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)

- ▶ **Variation in profit tax rate τ_π across firms:**

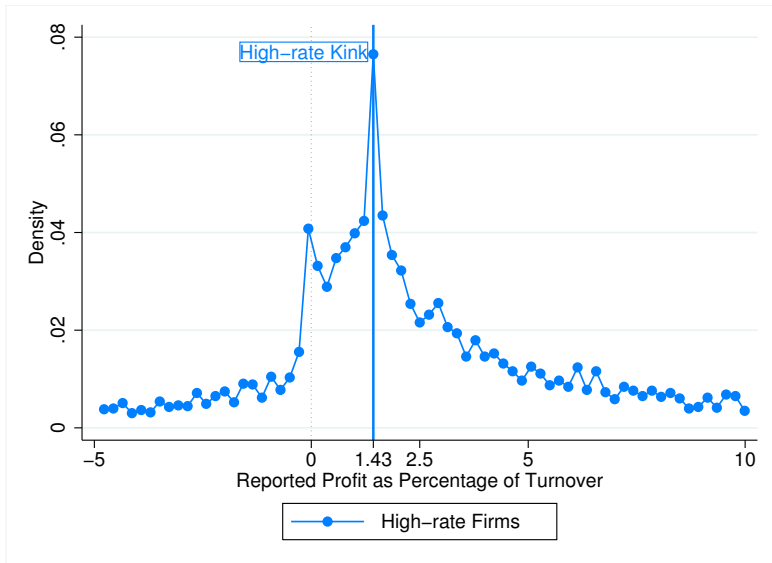
- ▶ High rate of 35%, low rate of 20%
[depends on incorporation date, turnover, assets, #employees]

- ▶ **Variation in turnover tax rate τ_y over time:**

- ▶ 2006-07: tax rate of 0.5%
- ▶ 2008: turnover tax scheme withdrawn
- ▶ 2009: tax rate of 0.5%
- ▶ 2010: tax rate of 1%

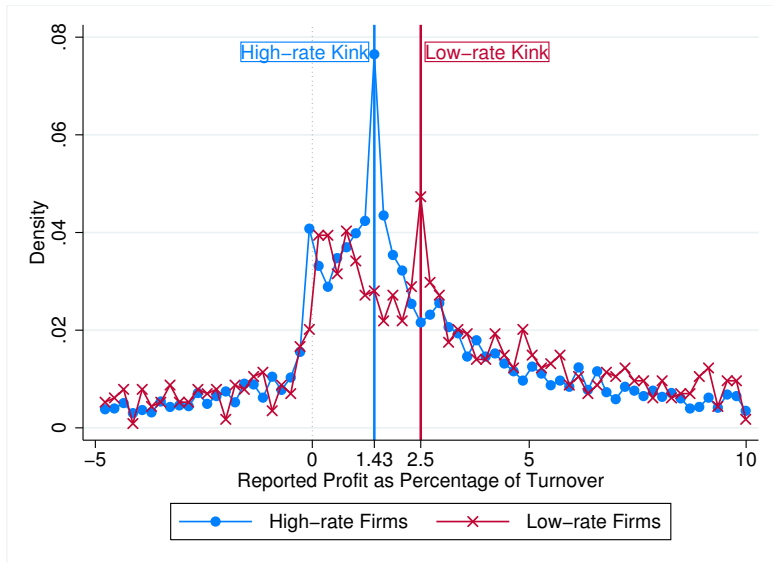
Bunching Evidence: High-Rate Firms 2006/07/09

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)



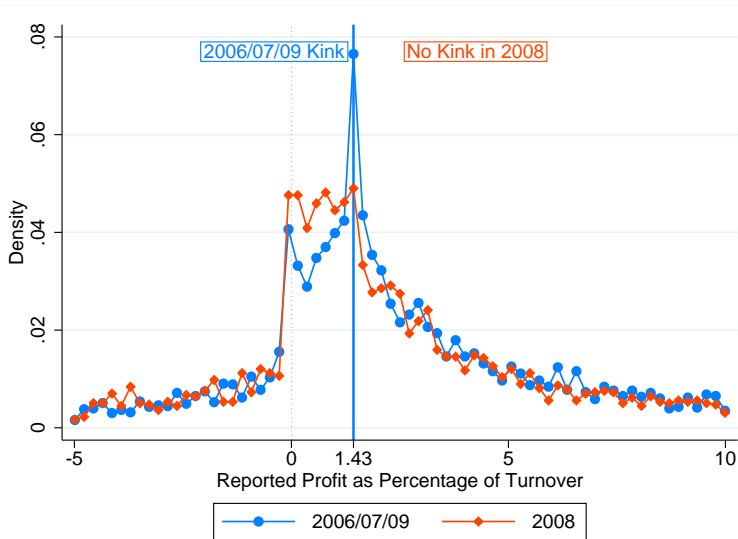
Bunching Evidence: High-Rate vs Low-Rate Firms

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)



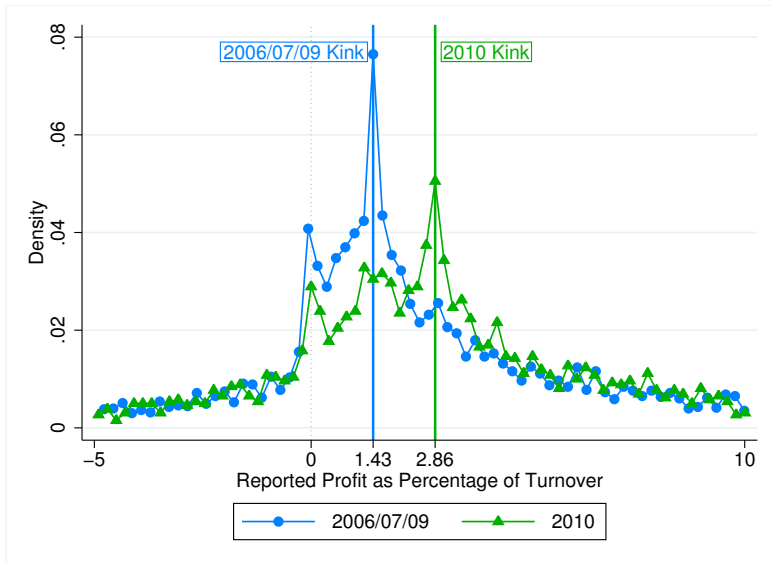
Bunching Evidence: 2006/07/09 vs 2008

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)



Bunching Evidence: 2006/07/09 vs 2010

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)



Summary of Results

Best, Brockmeyer, Kleven, Spinnewijn & Waseem (2015)

- ▶ Bunching at MTS kink + model → evasion responses to switches between profit and turnover taxation
- ▶ Turnover taxes reduce evasion by up to 60-70% of corporate income
 - ▶ Competing hypothesis: filing costs / lazy reporting Lazy Reporting
- ▶ Use empirical estimates and model to analyze the optimal choice of tax instrument
 - ▶ Switch from pure profit tax to pure turnover tax can increase revenues by 74% without decreasing aggregate after-tax profits (i.e., a welfare gain)
 - ▶ Does not include welfare cost from GE cascading
- ▶ So it may be worthwhile to deviate from production efficiency to improve compliance

Tax Administration

Tax Administration

- ▶ In developing countries, incentives for civil servants are poor:
 - ▶ Pay is relatively low
 - ▶ Pay is untied to performance
 - ▶ Career advancement opportunities are limited/uncertain
 - ▶ Non-pecuniary job benefits (e.g. social status or influence) and corruption can be substantial
- ▶ Research on public sector incentives in education and health
- ▶ Little research **incentives and corruption in tax administration**

Pakistan Performance Pay Project

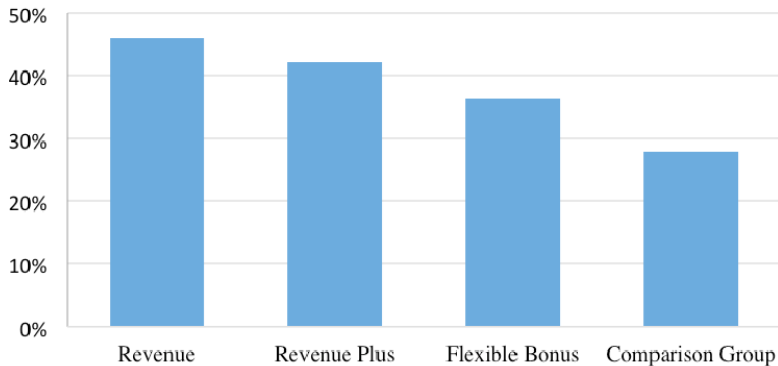
Khan, Khwaja & Olken (2016)

- ▶ RCT in collaboration with the Excise & Taxation Department in Punjab, Pakistan
- ▶ Focus on the local property tax in Punjab
- ▶ Implement performance pay for tax officials in order to:
 - ▶ Raise tax revenue
 - ▶ With minimum cost (wage outlays, taxpayer dissatisfaction)
- ▶ Randomly allocate tax officials to different incentive schemes:
 - ▶ Revenue
 - ▶ Revenue PLUS (adjusts for accuracy and taxpayer satisfaction)
 - ▶ Flexible Bonus (wider set of criteria, subjective adjustments)

Treatment Effects on Total Tax Collected

Khan, Khwaja & Olken (2016)

Increase in Total Tax collected*



Corruption?

Khan, Khwaja & Olken (2016)

- ▶ Revenue gains come from a small fraction of properties (3%) that become taxed at their true value
 - ▶ In a survey, these taxpayers report not paying larger bribes
- ▶ The vast majority of properties in treated areas do not pay higher taxes, but instead report higher bribes
- ▶ This is roughly consistent with a collusion story:
Performance pay increases tax collectors' bargaining power over taxpayers, who either have to pay higher bribes to continue evading or pay substantially higher taxes if collusion breaks down

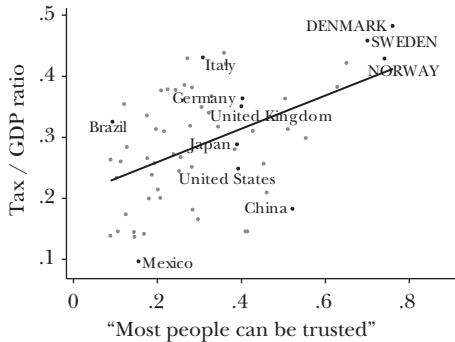
Tax Morale

Tax Morale

- ▶ Taxonomy of tax morale (Luttmer & Singhal 2014):
 - ▶ Intrinsic motivation (innate preference)
 - ▶ Social norms (depend on other individuals)
 - ▶ Reciprocity (depends on the state)
 - ▶ Culture (long-run societal effect)
- ▶ We know relatively little about such effects:
 - ▶ What is the quantitative importance of tax morale mechanisms?
 - ▶ Can policy makers affect tax morale through policy design?
- ▶ What we can say is that tax take and compliance are correlated with proxies for tax morale across countries

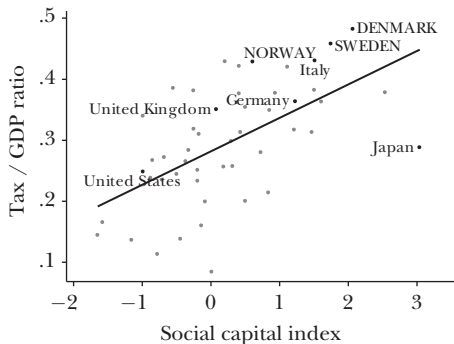
Tax Take vs Trust

Kleven (2014)



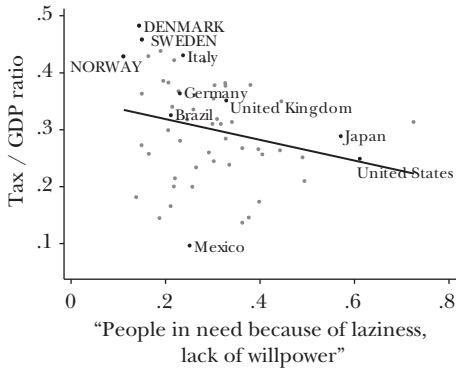
Tax Take vs Social Capital

Kleven (2014): Index of Civic Participation, Voter Turnout, and Crime



Tax Take vs Beliefs About the Poor

Kleven (2014)



From Macro to Micro

Studying Tax Morale Using Randomized Letter Treatments

Del Carpio (2014) [Peru Property Tax]:

- ▶ Letters that provide information about compliance norms had a strong positive impact on compliance

Hallsworth, List, Metcalfe, Vlaev (2014) [UK Income Tax]:

- ▶ Letters with norms and public goods messages improves the timely payment of taxes, conditional on declaration

Dwenger, Kleven, Rasul, Rincke (2015) [German Church Tax]:

- ▶ In an unenforced tax system, they find that (i) intrinsically motivated compliance is substantial, (ii) that much of it may be driven by duty-to-comply, and (iii) there is no crowd-out between extrinsic and intrinsic motivations

Conclusion

- ▶ PF-Devo was under-researched for a long time, but is now quickly growing
 - ▶ Recent work is fueled by the increasing availability of administrative data and a wealth of quasi-experimental variation
- ▶ Rather than relying on off-the-shelf developed country solutions, the literature takes a more “nitty-gritty micro approach” grounded in the specific context and constraints of developing countries
- ▶ There are still many unanswered questions, so hopefully we will see much more work on this in the future

Appendix Graphs

Allingham-Sandmo Model

- ▶ True income \bar{z} , reported income z , evasion $e = \bar{z} - z$
- ▶ Tax rate τ , probability of audit p , penalty $\theta \cdot \tau \cdot e$
- ▶ Expected utility:

$$E[u] = (1 - p) \cdot u(\bar{z} \cdot (1 - \tau) + \tau \cdot e) + p \cdot u(\bar{z} \cdot (1 - \tau) - \theta \cdot \tau \cdot e)$$

- ▶ First-order condition:

$$\frac{u'(c_A)}{u'(c_N)} = \frac{1 - p}{p \cdot \theta}$$

Compliance Puzzle?

- ▶ A Taxpayer evades if $\frac{dE[u]}{de} > 0$ around $e = 0$, which implies

$$p \cdot (1 + \theta) < 1$$

- ▶ In practice $p \cdot (1 + \theta) \approx 0 \rightarrow$ *AS-Model predicts that everybody evades at least some*
- ▶ Is there a compliance puzzle?
 - ▶ For developed countries: maybe
 - ▶ For developing countries: no


Tax Structure in Poor vs Rich Countries

Gordon and Li (2009)




GDP per capita	Tax Revenue (% of GDP)	Income Taxes (% of Revenue)	Corporate Income Tax (% of income taxes)	Consumption and Production Taxes (% of Revenue)	Border Taxes (% of Revenue)	Inflation Rate	Seignorage Income (% of Revenue)	Informal Economy (% of GDP)
< \$745	14.1	35.9	53.7	43.5	16.4	10.6	21.8	26.4
\$746-2,975	16.7	31.5	49.1	51.8	9.3	15.7	24.9	29.5
\$2,976-9,205	20.2	29.4	30.3	53.1	5.4	7.4	6.0	32.5
All developing	17.6	31.2	42.3	51.2	8.6	11.8	16.3	30.1
> \$9,206	25.0	54.3	17.8	32.9	0.7	2.2	1.7	14.0




Revenue is lower



Share of income tax is lower



Shares of corporate income tax, consumption taxes, border taxes and seignorage are higher



Informal economy is larger

Test for Lazy Reporting

