

# Taxation, Inequality and Development

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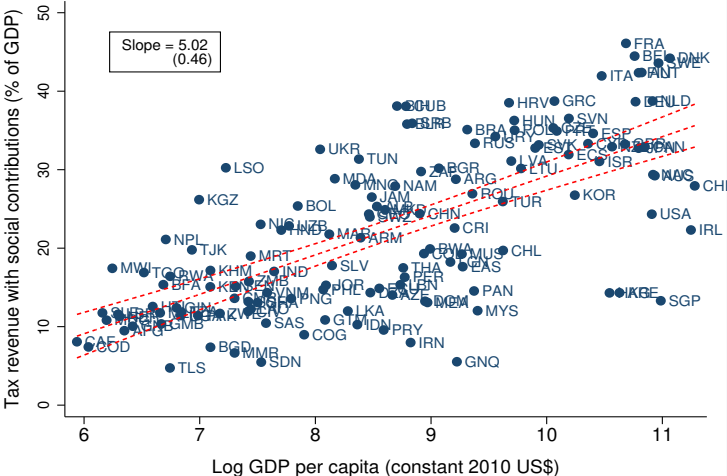
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# Overview: Tax Systems and Development

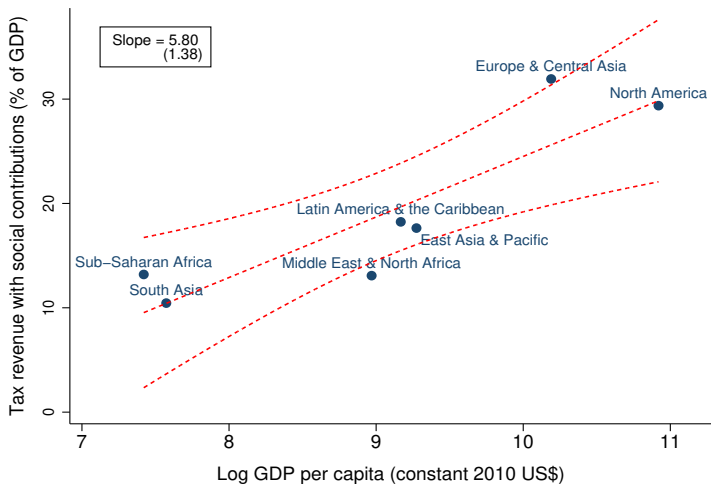
# Key Functions of the Tax and Transfer System

1. Invest in public goods
2. Redistribute & reduce inequality
3. Provide insurance
4. Correct externalities

# Lower Income Countries Collect Less Taxes

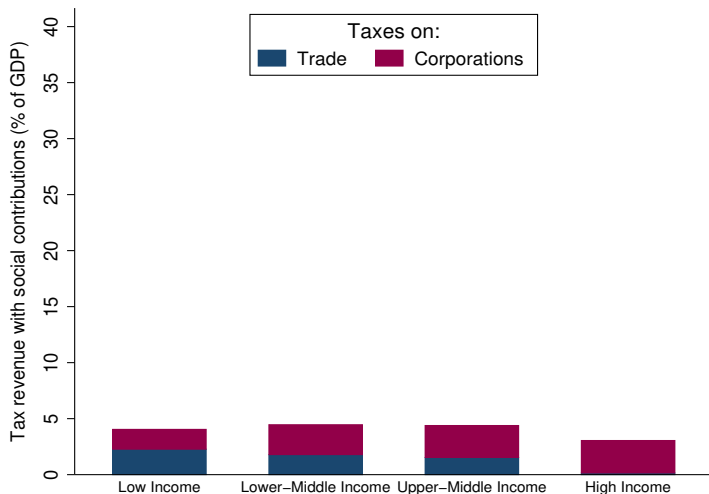


# Regional Differences in Tax Revenue



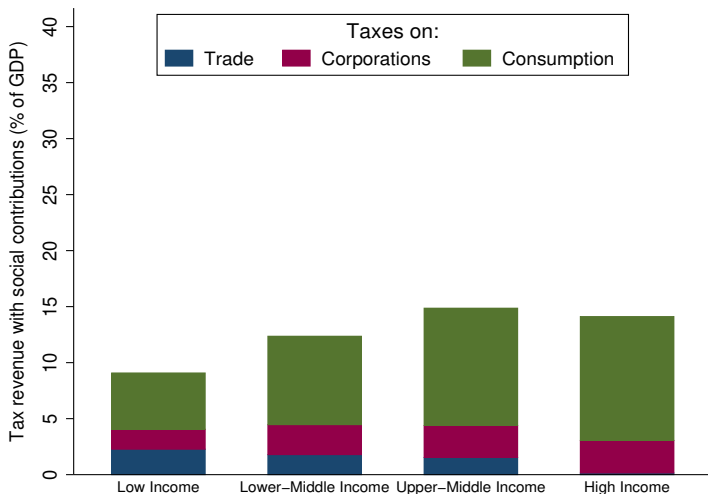
Source: ICTD/UNU-WIDER "Government Revenue Dataset" 2020 & WDI.

## Differences in Tax Instruments



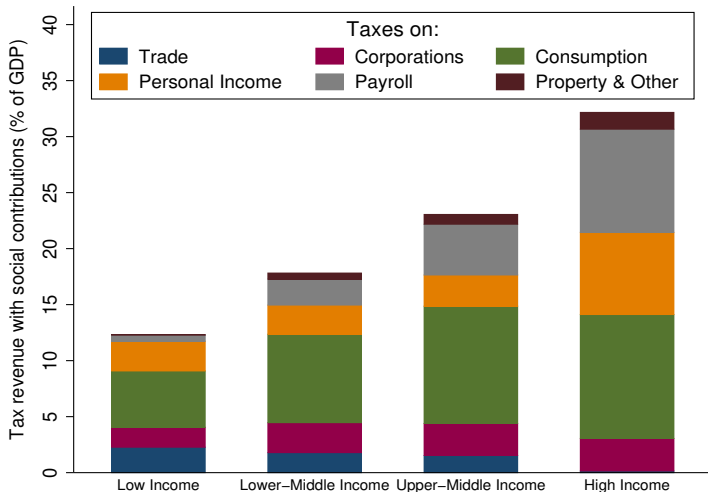
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# Should Tax Revenue Increase be an Objective?

- | Many countries still collect under 15% of GDP in taxes, an insufficient level to meet the SDGs (Adis UN Summit 2015).
- | Current crisis \* demand for social insurance and puts pressure on governments' fiscal position.
- | Important to design taxes which do not impede growth:
  - | Few growth success stories without increasing size of state.
  - | Government's leakage to be balanced against high(er) returns to investment and needs for redistribution.
  - | Improved taxation can spur accountability & better governance.

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Modern tax systems rely on self-reported activity, which is cross-validated with third-party reported data:

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c Employer's name, address, and ZIP code  The Big Company 123 Main Street Anywhere, PA 12345		3 Social security wages 50,000.00		4 Social security tax withheld 3,100.00		
		5 Medicare wages and tips 50,000.00		6 Medicare tax withheld 725.00		
		7 Social security tips		8 Allocated tips		
d Control number A1B2		9		10 Dependent care benefits		
e Employee's first name and initial Last name  Jane A DOE 123 Elm Street Anywhere Else, PA 23456		11 Nonqualified plans		12a See instructions for box 12 D   1,500.00		
		13 Statutory employee Retirement plan Third-party sick pay <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>		12b DD   1,000.00		
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15 State PA	Employer's state ID number 1235	16 State wages, tips, etc. 50,000	17 State income tax 1,535	18 Local wages, tips, etc. 50,000	19 Local income tax 750	20 Locality name MU

Form **W-2** Wage and Tax Statement

2014

Department of the Treasury—Internal Revenue Service

Copy B—To Be Filled With Employee's FEDERAL Tax Return.

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Information is limited in economies with self-employment, short production chains, and incomplete accounting records.

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- | Weak administrations: IT systems & departments not integrated, few incentives for tax inspectors, difficulties to apply the law.

## Trade-offs in Tax Policy Design

Textbook equity-efficiency trade-offs needs to also consider information and capacity constraints → "third-best" policies:

- | Consumption tax: VAT preferred to sales tax, but only with sufficient admin capacity (Pomeranz 2015, Waseem 2020).
- | Corporate tax: preferable to tax SMEs on their turnover rather than on their profits (Best et al. 2015; Bachas and Soto 2018).

Today:

- | Audit efforts often focus on large firms: what is the impact on aggregate production? (Bachas, Fattal-Jaef, and Jensen 2019)
- | Are consumption taxes regressive in economies with large informal sectors? (Bachas, Gadenne, and Jensen 2020)

Size-Dependent Taxation  
(Bachas, Fattal & Jensen, JDE 2019)



## Size-Dependent Tax Inspection

### Context:

- | Administrative constraints lead to governments only enforcing taxes on large firms.
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### Data:

- | WBES 2003-2015: 125k firms in 140 countries.
- | Use questions on tax inspection and on tax compliance.
- | Take averages at narrow industry level.

# Industry Size Rank and Tax Inspection

Source: Bachas, Fattal-Jaef & Jensen (JDE 2019), using World Bank Enterprise Surveys 2003-2015.

# Empirical Strategy: Estimating the Size-Dependent Tax

Issue with OLS:

- | Observed firm size might be distorted by enforcement.

Potential Solution:

- | Proxy for optimal size in a context with few distortions.
- | ) Take the average size of the same industry from US census data (similar to [Rajan and Zingales 1998](#)).

What the IV concretely does:

- | 1st stage: US industry size predicts size of same industry in WBES countries.
- | 2nd stage: Predicted value regressed on average inspection of that industry in each WBES country.

# Results

Firms in an industry with avg of 50 workers compared to firms in an industry with avg of 25 workers:

- | Face a 6% higher probability of tax inspection (mean 61%).
- | Report 5.5% more sales to tax authority (mean 81%).

These results are robust to many specifications:

- | Using variation only between narrow industries (ISIC-3).
- | Controls (e.g. capital intensity).
- | Relying on the panel dimension of the data.

# Results Across Countries by Income Groups

Source: Bachas, Fattal-Jaef & Jensen (JDE 2019)

# Size Taxes through the Lense of a Firm Dynamics Model

In our model (based on [Atkeson and Burstein 2010](#)), firms of different productivity choose as a function of their effective tax rate:

- | Their production and number of workers.
- | Their investment/innovation spending.
- | If they want to enter or exit the economy.

Question: what happens to aggregate productivity (measured as TFP) if we remove the size-dependent tax?

Counterfactual : All firms face the median enforcement intensity.

Calibration : technology parameters match firm-level properties of "undistorted" economy (US). Size-dependent rates from our data.



# Removing Size Dependent Taxes: Mechanisms

Source: Bachas, Fattal-Jaef & Jensen (JDE 2019)

# Removing Size Dependent Taxes: Impact on Firm Size

Source: Bachas, Fattal-Jaef & Jensen (JDE 2019)

# Removing Size Dependent Taxes: Impact on TFP

Source: Bachas, Fattal-Jaef & Jensen (JDE 2019)

## Conclusion: Size-Dependent Taxation

1. Size-dependent enforcement stronger in lower income countries.
2. Combine data and model to shed light on aggregate implications of removing size-dependent taxation:
  - | The avg firm size increases substantially (+ 30%)
  - | Aggregate productivity gains are moderate (+ 1%):
    - | Improves static allocation & fosters innovation.
    - | But leads to higher exit rates, and less entry of small firms.

Informality, Consumption Taxes &  
Redistribution

(Bachas, Gadenne & Jensen, NBER WP 2020)

## Consumption Taxes & Redistribution

In LMICs bleak view of tax systems' capacity to reduce inequality:

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Question: can taxes on consumption redistribute, and how?

- | "Old" rate differentiation channel: setting reduced rates for necessities (food).
- | "New" informality channel : consumption in the informal - untaxed - sector may vary with income.

## Data and Methodology

31 household expenditure surveys (400k households):

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Taxes paid on purchases ~~are~~ not observed in expenditure surveys.

To proxy for formality use place of purchases ([Lagakos 2016](#))

- | Traditional sector : home-production, non-brick-and-mortar, convenience stores, services from individual providers.
- | Modern sector : specialized stores, large stores, institutional services.

Assumption: purchases in small-scale traditional sector do not pay consumption taxes, de-jure or de-facto.

Note: traditional sector could pay taxes through production chain, adjustments in paper.

# Aggregate Share of Informal Consumption on GDP pc

Source: Bachas, Gadenne & Jensen (NBER WP 2020)

# Informality Engel Curve: Household Data from Mexico

Lowess fit on household data, ENIGH 2014 (N= 19,479). Source: Bachas, Gadenne & Jensen (NBER WP 2020)

# Slopes of Informality Engel Curves Across Countries

For each country  $i$ :  $\text{Share Informal} = \ln(\text{income pp})_i + \alpha_i$

# Implications for the Progressivity of Consumption Taxes

Progressive tax: tax rate  $\uparrow$  with household's income/expenditure.

) Consumption taxes are progressive if items consumed disproportionately by the poor are exempted (e.g. traditional, food)

Mechanical simulation with tax revenue collected = 10% of GDP:

1. Uniform tax rate which applies only to modern sector
2. Food exempted but both modern and traditional taxed
3. Food exempted and only modern sector taxed

# Average Progressivity of Consumption Tax Policies

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# Progressivity & GDP pc: only Modern Sector Taxed

# Optimal Consumption Taxes with Behavioral Responses

Commodity tax model ([Diamond 1975](#)) with different varieties:

- | As consumers get richer consume more modern (taxed) varieties
- | Consumers respond to taxes: higher rates lead to more substitution from modern to traditional varieties.

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Question: How do optimal tax rates change with development?

Calibration: use our data patterns, product elasticities & substitution elasticities from literature ([Atkin et al. 2018](#); [Faber and Fally 2017](#)).

# Results: Tax Rates on Food relative to Other Products

(a) Counterfactual: all varieties taxed

(b) Only modern varieties taxed

Source: Bachas, Gadenne & Jensen (NBER WP 2020)

# Results: Inequality Reduction

Source: Bachas, Gadenne & Jensen (NBER WP 2020) & Commitment to Equity.

## Extensions & Limitations

- | Pass-through of taxes to the traditional sector:
  - | Adjust results using Mexico's census data where all firms report VAT paid on inputs and on output.
  - | Our ongoing micro-study finds no pass-through of an increase in VAT on prices of informal retailers in Mexico.
- | Incidence entirely born by consumers. If falls also on workers (profits), then need to know who works (owns) in formal firms.
- | Distributional savings.
- | Rate differentiated across 12 COICOP2 goods.
- | Absence of a personal income tax.



## Policy Implications: Informality and Redistribution

1. Consumption taxes perform non-trivial redistribution in LMICs.
2. Should enforcement stop focusing on the informal sector?
  - | No! fairness concerns, efficiency.
  - | But equity case to exempt small firms de-jure from taxes.
3. Should food (necessities) be exempted from taxes?
  - | Hard to justify on equity grounds in poor countries.
  - | Stronger case as countries get richer, but then Personal Income Tax should perform the redistribution.

**More Tax Research and  
How to (try to) Impact Policy**

# Exciting Literature using Program Evaluation Approach

Fast developing complementary approach:

- | How to improve taxation by tweaking policies & incentives?
- | Method: digitized admin. data & direct work with Tax admin.

Some examples:

- | Tax lotteries help with final stage reporting but at large cost ([Naritomi 2019](#)).
- | Electronic filling has no impact on reported taxes but levels the playing field between high & low evasion risk firms ([Okunogbe and Pouliquen 2018](#)).
- | Performance pay for tax inspectors lead to higher tax revenue but also more bribes ([Khan, Khwaja, and Olken 2016](#)).
- | Broadening the property tax base encourages more citizens to participate and monitor local governments ([Weigel 2020](#)).

# Research and WB's Opportunity to Shape Tax Policy

LMICs' tax policies face information & capacity constraints:

- | Research can help tailor tax design, given these constraints.
- | Data & technology promise to help.

Encourage use of tax admin. data, set standards & provide evidence:

- | Current crisis:
  - | Tax data can document in real time the economic situation.
  - | Design and evaluation of emergency tax relief & social transfers.
- | Aftermath will require \* revenue, achieved equitably:
  - | International tax architecture to adapt to MNEs & digitization.
  - | Taxes on income and wealth in a globalised economy.
  - | Environmental taxation.

# THANK YOU

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