Tax Evasion

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Public Economics - Lecture 14

*These slides were drafted in collaboration with Edoardo Scalcione (Bank of Italy).

Today

- Introduction
- Theoretical framework
- Tax Evasion and Information
- Tax Evasion and Inequality
- Tax Evasion and Audits Design

From Tax to Tax System

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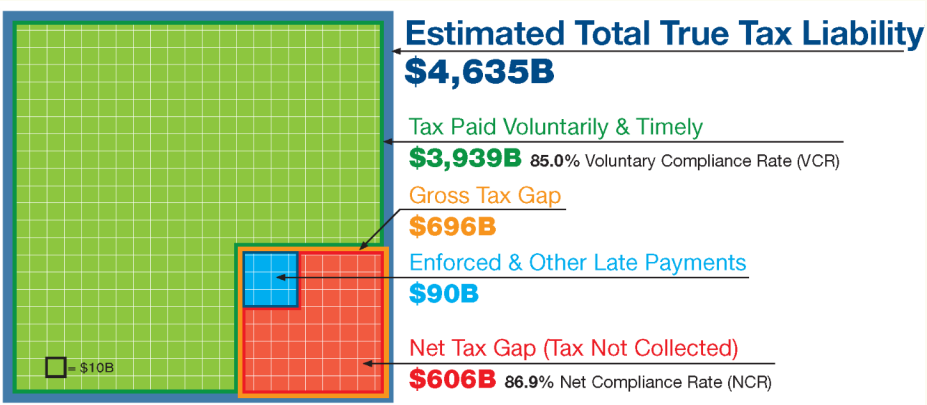
Tax System:

1. Tax base and rates
   - What is taxed and how much
   - We discussed optimal income and commodity tax
2. Remittance rules
   - Who transfer the money to the government
3. Enforcement rules
   - How is the Government checking that everyone is paying the right amount of taxes?
   - So far overlooked, but it is a crucial element of a tax system
   - If tax is not enforced, all the rest is useless!

Why do we care?

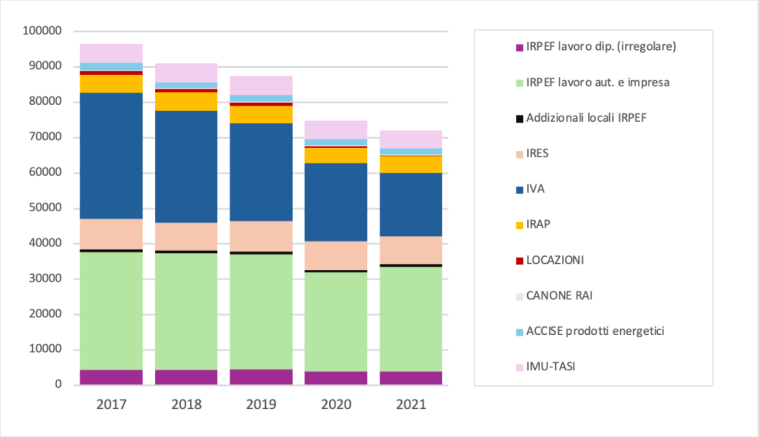
- In the U.S., roughly 13% of taxes ($600 billion) go unpaid annually (i.e., the "tax gap")
  - In Italy, roughly 15%
- Enforcement is costly
  - $6.5b of total cost
  - $5.7b only for personnel compensation
- Underpayment varies tremendously by type of income
  - 57% for self-employment income vs. 1% for wages

Why do we care? 2022 US Tax Gap



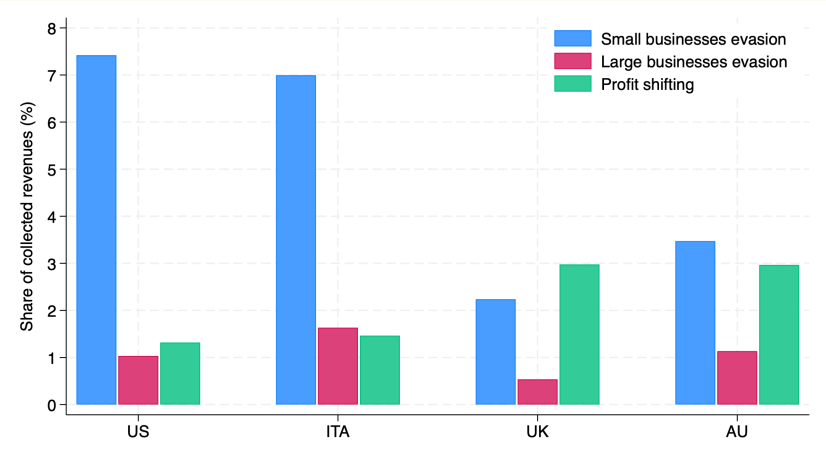
Source: IRS, Tax Gap Projections for Tax Year 2022, Publication 5869 (2024), Figure 1.

Why do we care? 2021 Italy Tax Gap



Y-axis: millions of euros. In 2021, the tax gap was about €73.2 billion, roughly 4% of GDP.
Source: MEF (2023), tax revenue gap; GDP share computed from ISTAT.

Tax gap comes mostly from small businesses



Source: Di Gregorio, Paradisi, and Sartori (2026).

Theory of Tax Evasion

A simple model of tax evasion

- Let's try to understand what is going on in a simple theoretical framework
  - Based on the seminal paper by Allingham and Sandmo (1972)
- Taxpayer:
  - Maximize expected utility, risk aversed with neg. absolute risk aversion
  - Given true income y, choose declared income d
  - Face tax rate τ, probability of audit $p(d)$ and fine rate $1 + \gamma$
- Evasion decision as an optimal portfolio choice: Undeclared income is a risky asset.
  - With probability $1 - p$, the taxpayer keeps the gain from evasion $\tau(y - d)$
  - With probability p, evasion is discovered and a penalty $\gamma(y - d)$ is paid.

Taxpayer Problem

$$\max_{d} \; p(d)\, u(\tilde{y}_{\text{Audit}}) + (1 - p(d))\, u(\tilde{y}_{\text{No audit}}),$$

$$\tilde{y}_{\text{Audit}} = (1-\tau)y - \gamma\tau(y-d), \qquad \tilde{y}_{\text{No audit}} = y - \tau d.$$

- First-order condition (interior): Note that d affects both p and $\tilde{y}$.

$$(1 - p(d))u'(\tilde{y}_{\text{No audit}})\tau = p(d)u'(\tilde{y}_{\text{Audit}})\gamma\tau - p'(d)\left[u(\tilde{y}_{\text{No audit}}) - u(\tilde{y}_{\text{Audit}})\right]$$

- Interpretation:
  Trade off expected gain from hiding income against the expected cost of possible detection.

FOC Intuition

$$\underbrace{(1-p(d))u'(\tilde{y}_{\text{No audit}})\tau}_{\text{Evasion Gain}} = \underbrace{p(d)u'(\tilde{y}_{\text{Audit}})\gamma\tau}_{\text{Detection Cost}} - \underbrace{p'(d)\left[u(\tilde{y}_{\text{No audit}}) - u(\tilde{y}_{\text{Audit}})\right]}_{\text{Audit Effect}}$$

Decrease declared income d by \$1:

- Save τ with prob.$1 - p(d)$
- Pay extra $\gamma\tau$ with prob $p(d)$
- Affect the probability of being audited through $p'(d) \implies p(d)$ decreasing in d

Insight: Audit more those that declare a low income

Comparative Statics

Assume $p(d) = p$

$$\underbrace{(1-p)u'(\tilde{y}_{\text{No audit}})}_{\text{Evasion Gain}} = \underbrace{pu'(\tilde{y}_{\text{Audit}})\gamma}_{\text{Detection Cost}}$$

- Evasion increase with income
  - Share of income evaded depends on relative risk-aversion
- Declared income is increasing in p and γ
  - Evasion deterred by high prob. of detection and by a high penalty
- Marginal tax has an ambiguous effect
  - Substitution Effect: Higher tax makes evasion more valuable
  - Income Effect: Higher tax makes the taxpayer poorer, less risk taken

Extensive Margin

- An individual has no incentive to evade the first 1$ if and only if

$$\underbrace{(1-p)u'(\tilde{y}_{\text{No audit}})}_{\text{Evasion Gain}} < \underbrace{pu'(\tilde{y}_{\text{Audit}})\gamma}_{\text{Detection Cost}} \iff (1-p) < p\gamma$$

$$\text{Evade} \iff p(1+\gamma) < 1$$

- Extensive margin does not depend on risk aversion!
  - Very easy and testable prediction
- In the US, audit prob. is 0.7%, fine is 100% $\implies p(1+\gamma) = 0.007 * 2$
  $\implies$ Everyone should evade!

Taking Stocks

- Audit more low declared incomes $\implies p'(d) < 0$
- Evasion increases in income while the effect of the tax is ambiguous
- Evade $\iff p(1+\gamma) < 1$
  - In the real world $p(1+\gamma)$ is very low $\implies$ Evasion should be everywhere...
  - However, it is on average 15% (1% for wages!) $\implies$ Evasion Puzzle

Tax Evasion and Information

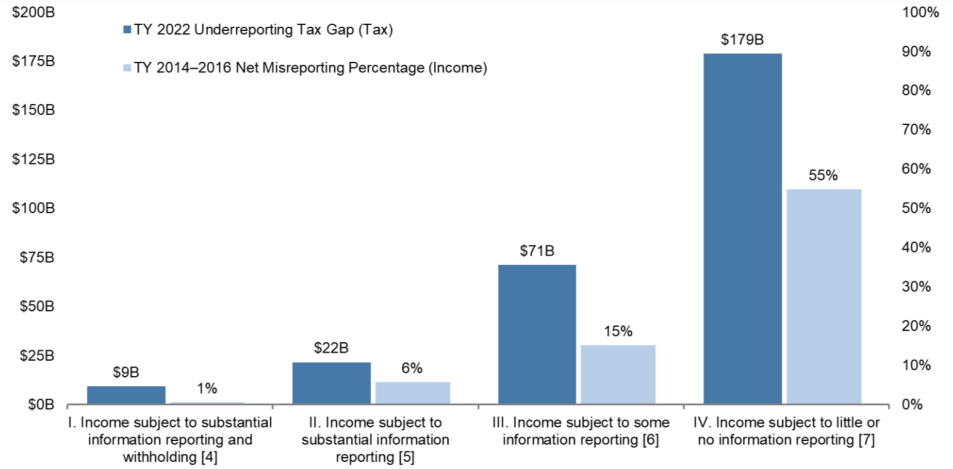
Some Descriptive Evidence

- Tax compliance depends critically on automatic features:
  - Information from third parties
  - Withholding

- High heterogeneity in the information available
  - "Little or no" information reporting: Self-employed income
  - "Some" information reporting: Deductions, capital gains
  - "Substantial" information reporting: Dividends
  - Both withholding and information reporting: Wages

$\Longrightarrow$ Non-compliance is concentrated in income that is not third-party reported

Lack of Information and Tax Gap

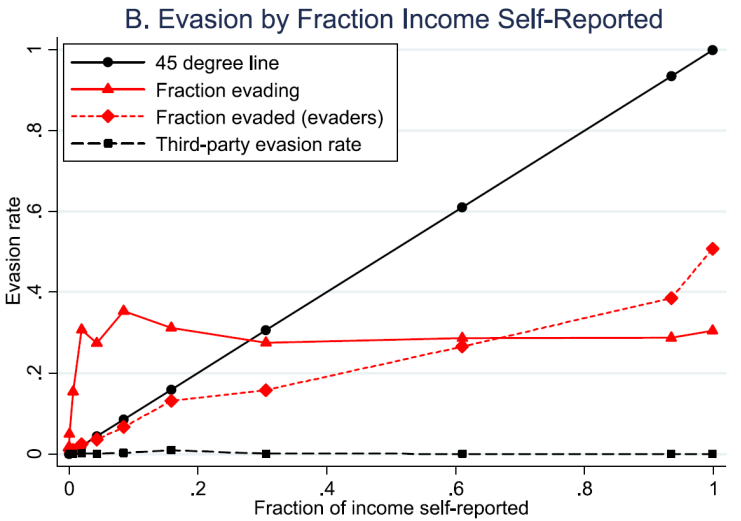


The role of information

Kleven et al. (2011) "Unwilling or Unable to cheat: Evidence from Denmark"

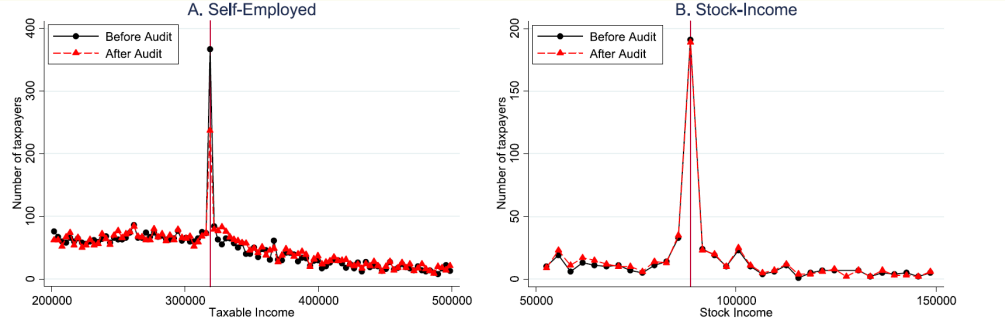
- Large field experiment in Denmark (40k taxpayers)
  - Unanticipated random audits at baseline
  - Random Threat-of-audit letters
- Anatomy of tax compliance
- Response of evasion to tax enforcement and tax rates under different information environments
- Distinguish income items subject to third-party reporting and to self-reporting

Anatomy of tax compliance



Effect of marginal tax rate on Evasion

Exploit bunching at kinks under different information environments



Bunching in both cases. For self-employed is evasion, while for stock income is just avoidance!

Effect of Enforcement on Evasion

TABLE V

EFFECTS OF RANDOMIZED PRIOR AUDITS ON YEAR TO YEAR INCOME CHANGES[a]

	Baseline Audit Adjustment	Change in Reported Income (Panels A1 and B1) and Probability of Income Increase (Panels A2 and B2) from 2006 to 2007			IV Effect of Audit Adjustment on Income Change
		Total Income	Self-Reported Income	Third-Party Reported Income	
	1	2	3	4	5
A. Full Sample					
A1. Amounts [difference between the 100% and the 0% audit groups]					
Net income	8491	2557	2331	225	0.301
	(827)	(787)	(658)	(691)	(0.098)
Total tax	3295	1375			0.417
	(257)	(464)			(0.144)
A2. Probability of audit adjustment and income increase [difference between the 100% and the 0% audit groups]					
Net income	19.09	0.89	2.11	0.24	0.047
	(0.28)	(0.48)	(0.48)	(0.48)	(0.025)
Total tax	19.17	0.99			0.052
	(0.28)	(0.49)			(0.025)
Number of observations	41,571	41,571	41,571	41,571	41,571

Audits have a positive deterrence effect on tax evasion

$\Longrightarrow$ Higher self-reported income in the following year

Kleven et al. 2011

- Seminal paper that highlight the role of information in tax enforcement
- Provide a solution to the "evasion puzzle"
  - Low evasion even if low audit rate
- Key Intuition: People are "unable" to cheat due to third-party information
  - Self-reported income behaves like in AS model
  - Substantially evade and respond to increase in audits
- Information reporting is more important than low marginal tax rates for enforcement

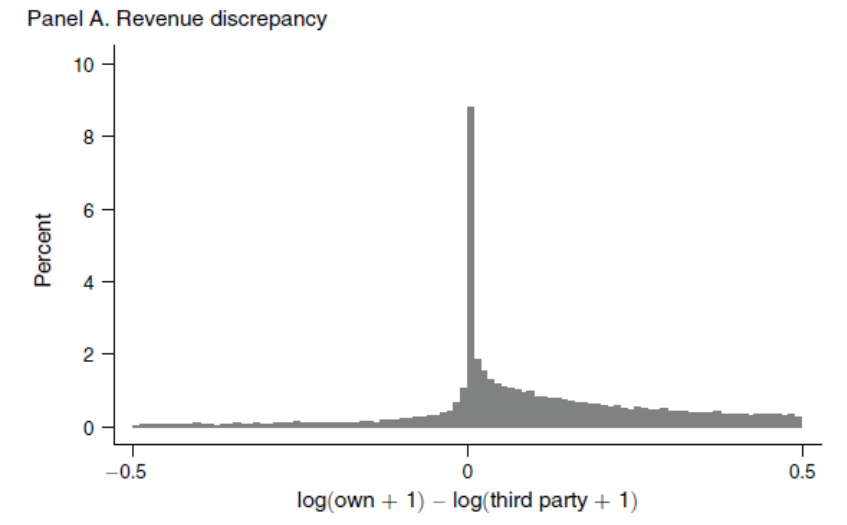
Limits of Information

Is third-party information the ultimate solution to enforcement problem?

Carrillo et al. (2017)
"Dodging the Taxman: Firm Misreporting and Limits to Tax Enforcement"

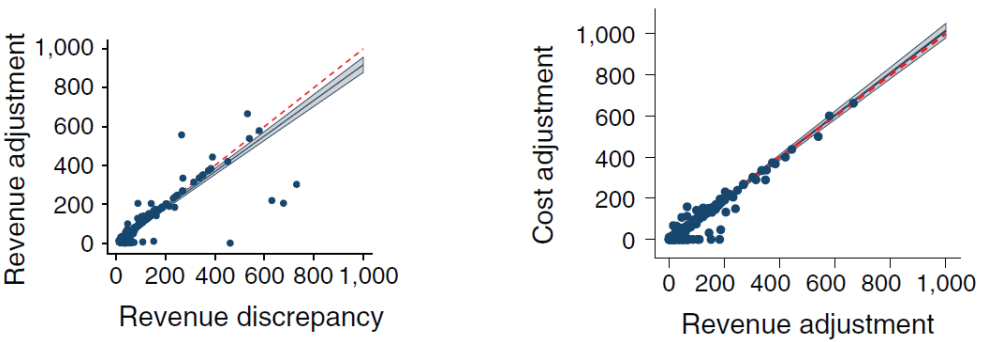
- Policy intervention in Ecuador on corporate income tax reporting
- Firms notified about detected revenue discrepancies btw self-reported and third-party reported revenue
- Analyze how firms respond to the use of third-party information

Third-Party vs Self-Reported



Revenue and Cost Adjustment

Share of amending firms is 11 percent for the 2009 round



Carrillo, Pomeranz, and Singhal (2017)

- Show impact and potential limitations of tax enforcement based on third-party information in low capacity environments
- Optimal tax base will depend on third-party information on the base as a whole.
  - Revenue information alone has limited impact when costs remain unverified
- Third-party reporting and traditional enforcement are complementary
- Key Point: Information is not enough, credible enforcement is needed!

Tax Evasion and Inequality

Who is evading?

- What is the distributional impact of tax evasion?
- Are riches evading more than poor?
- Poor evade taxes vs Riches avoid taxes?
- Very debated topic!

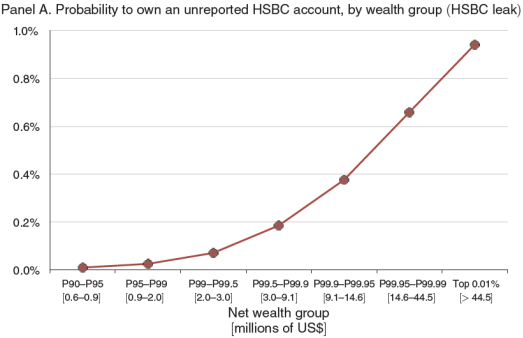
$\Longrightarrow$ Let's look at a popular paper on this
Alstadsæter et al. 2019 "Tax Evasion and Inequality"

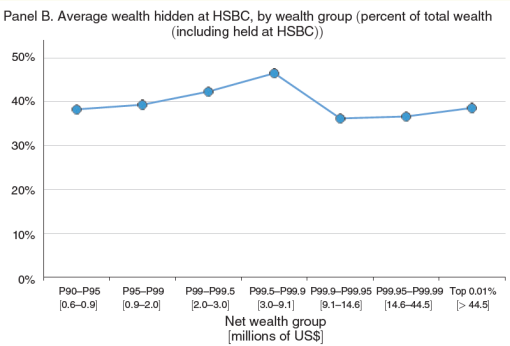
Alstadsæter et al. 2019

Alstadsæter et al. 2019 "Tax Evasion and Inequality"

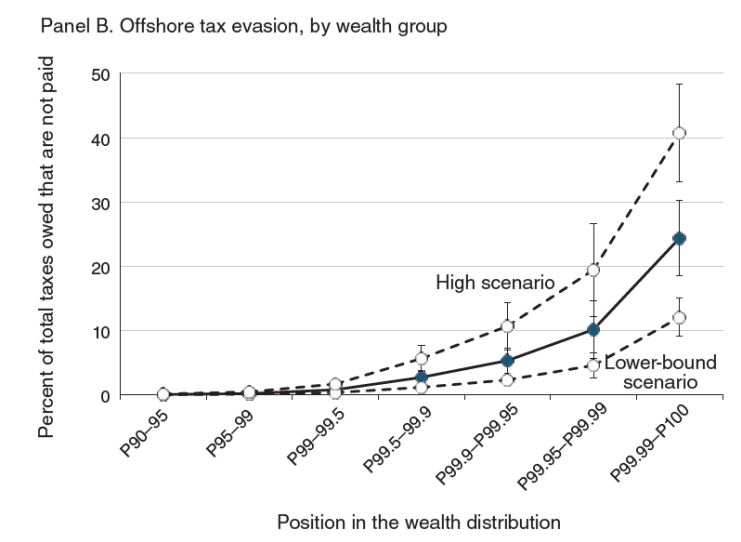
- Unique dataset of leaked customer lists from offshore financial institutions "Panama Papers" + "Swiss Leaks"
- Match off-shore data to administrative wealth records in Scandinavia
- Comprehensive analysis of the distribution of tax evasion
- Distinguish between legal tax avoidance and illegal evasion

Who is evading offshore?

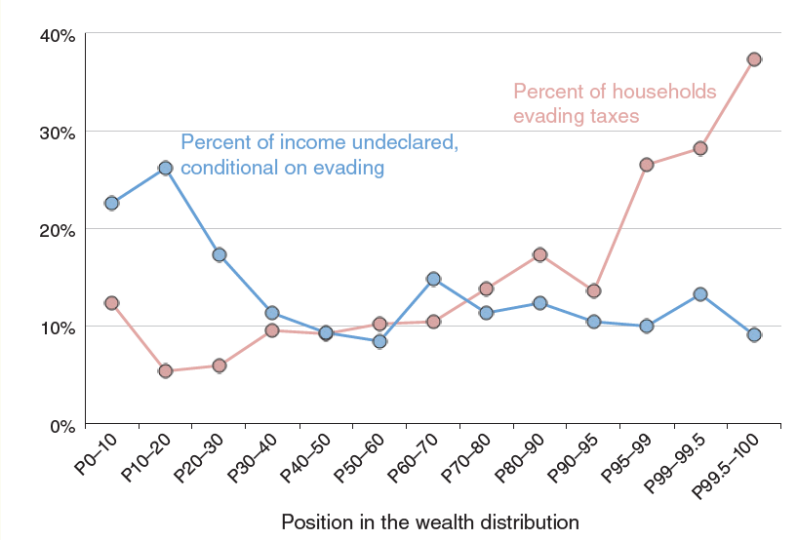




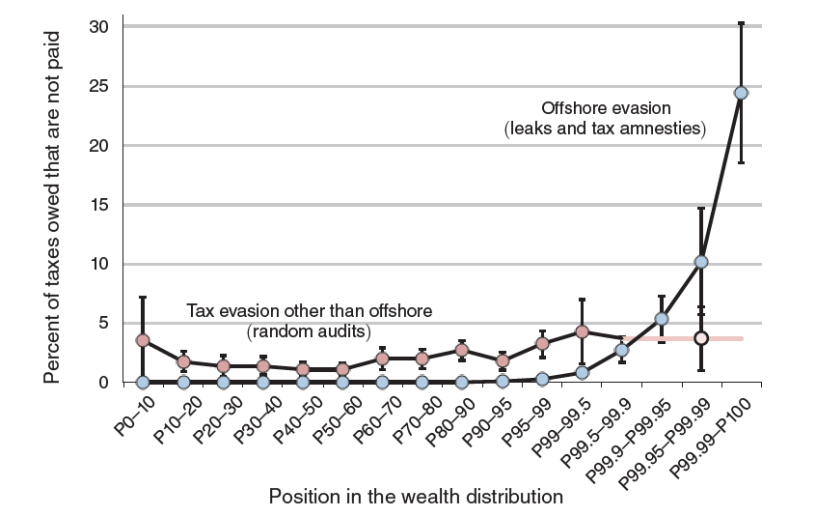
Aggregate Offshore Tax Evasion



Evasion Distribution based on Audits



Total Evasion Distribution



Alstadsæter et al. 2019

- High rates of tax evasion at the top, not only tax avoidance
  - Top 0.01% evade about 25 % of their taxes
- Accounting for off-shore evasion, wealth concentration increases substantially
- Standard tax audits cannot detect all the evasion at the top

Key Points:

- Traditional audits are not enough to deter evasion at the top
  $\Longrightarrow$ Information Reporting across countries
- Off-shore evasion prevents to reduce inequality
  $\Longrightarrow$ Proposal for a Global Minimum Tax to the G20

From Individuals to Firms

So far we have seen that individual off-shore evasion:

- Increase inequality
- Limits redistribution through taxes

Same reasoning applies to firms!

- Profit Shifting limits tax collection
- Result of international tax competition $\Longrightarrow$ Legal avoidance

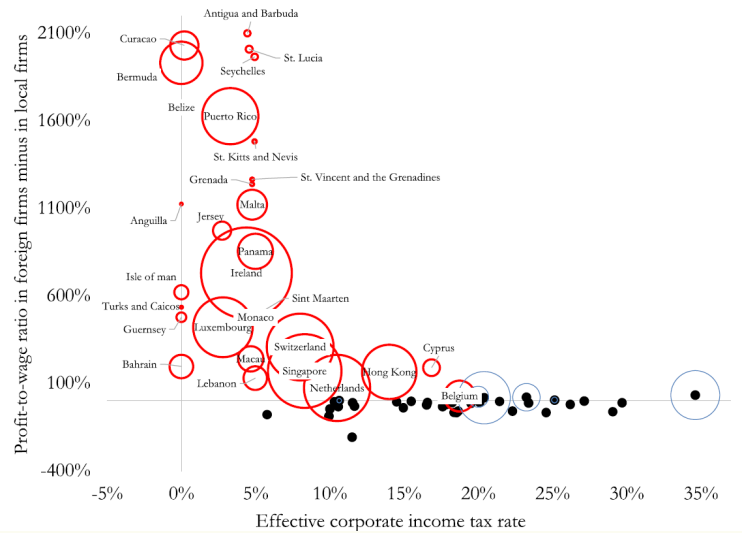
$\Longrightarrow$ Tørsløv et al. 2022 "The Missing Profits of Nations"

The Missing Profits of Nations

Tørsløv et al. 2022 "The Missing Profits of Nations"

- Use new macroeconomic data on foreign firms to back up profit-shifting
- Key Idea: Compare profitability multinational vs local firms in each tax haven
  $\Longrightarrow$ Incomparable high profits per wage paid = Profit-shifting
- Using bilateral balance of payments data, re-allocate the shifted profits to origin countries
  $\Longrightarrow$ Estimate "missing profits of nations"

The Missing Profits of Nations



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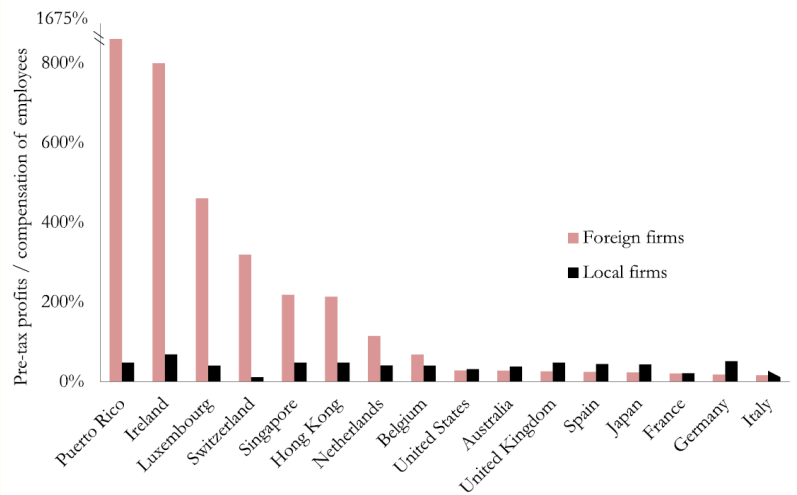

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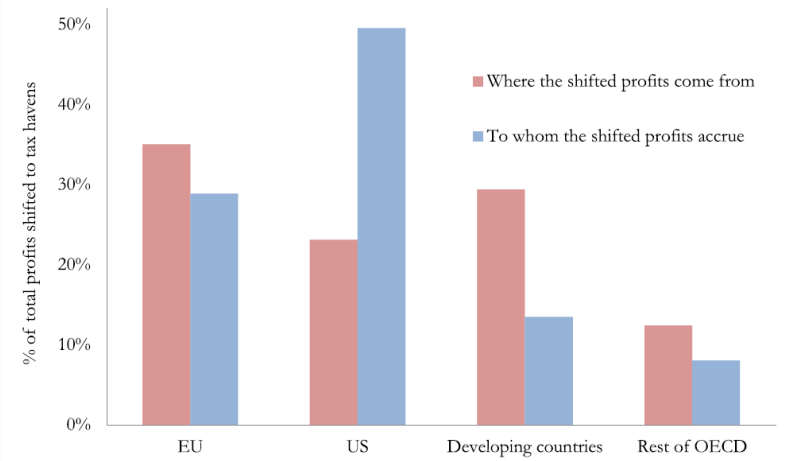

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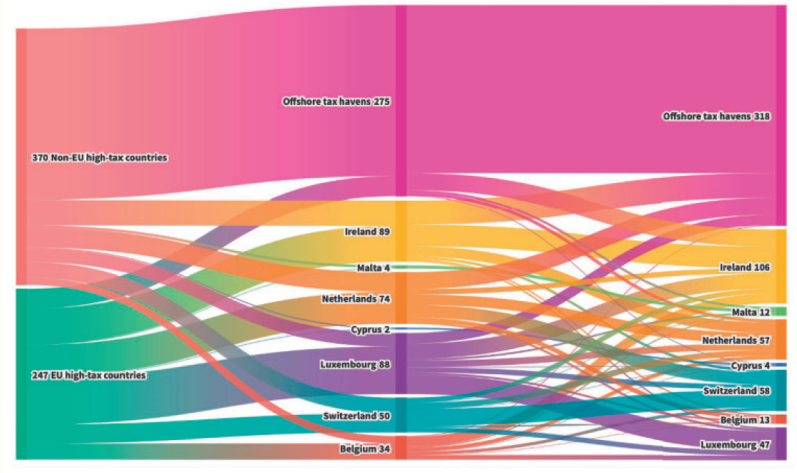


Tørsløv et al. 2022

- Exploit a simple idea and accessible data to estimate profit-shifting in a new way!
- Estimate that 36% of multinational profits are shifted to tax havens globally
- Domestic profits would increase 20% in EU, 10% in the US
- Profit shifting reduces the effective tax rate of the wealthy
  - Contribute to increasing inequality
  - Proposal for a Global Minimum Tax

Tax Evasion and Audits Design

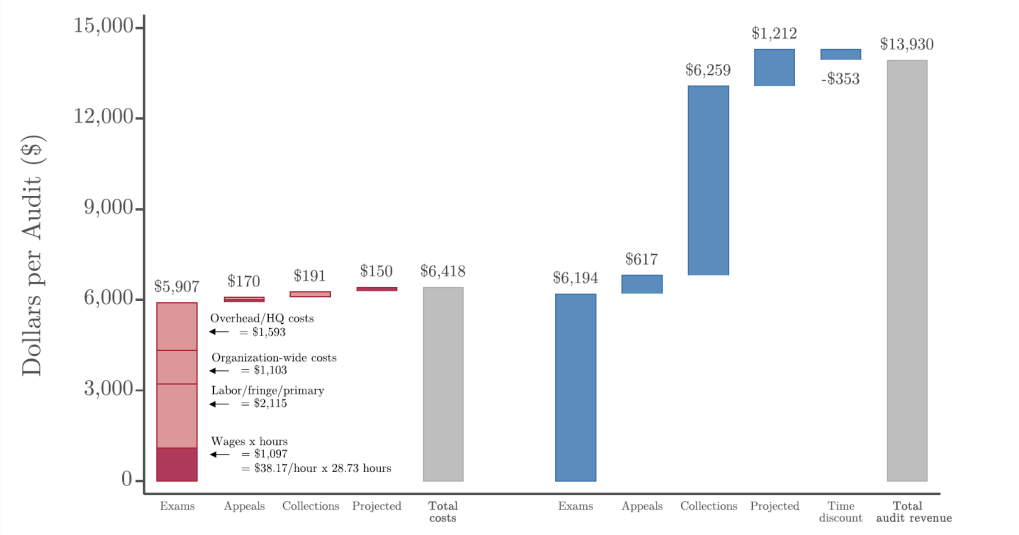
Audits Design

- How should we design audits?
- Do audits of high-income taxpayers generate more revenue per dollar spent?
- Does the complexity of auditing high-income taxpayers reduce the "bang for the buck" of enforcement spending?

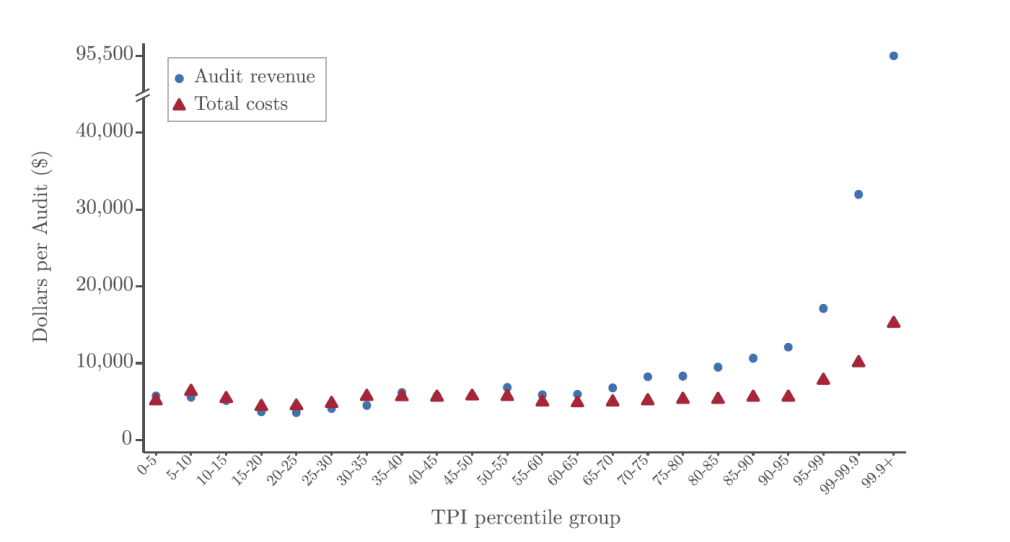
Boning et al. 2025 "A Welfare Analysis of Tax Audits Across the Income Distribution"

- Use comprehensive database that tracks activities by IRS personnel
- Know exactly who and how many hours is working on each audit $\Longrightarrow$ Extremly rich data!
- Detailed analysis of cost and revenues of audits across the income distribution

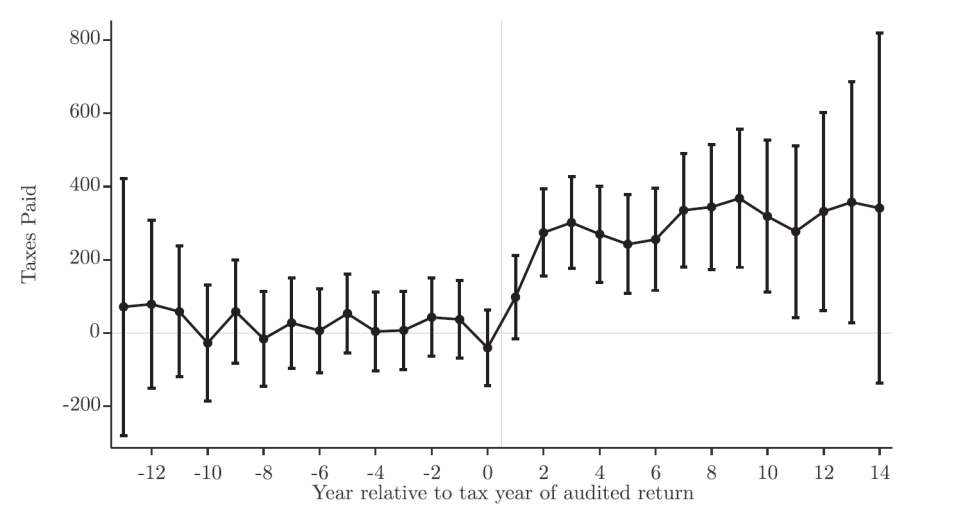
Average Revenue and Costs



Average Revenue and Costs by income



Dynamic Deterrence



Audit MVPF

What is the welfare consequence of a marginal increase in audit rate?

Audit MVPF

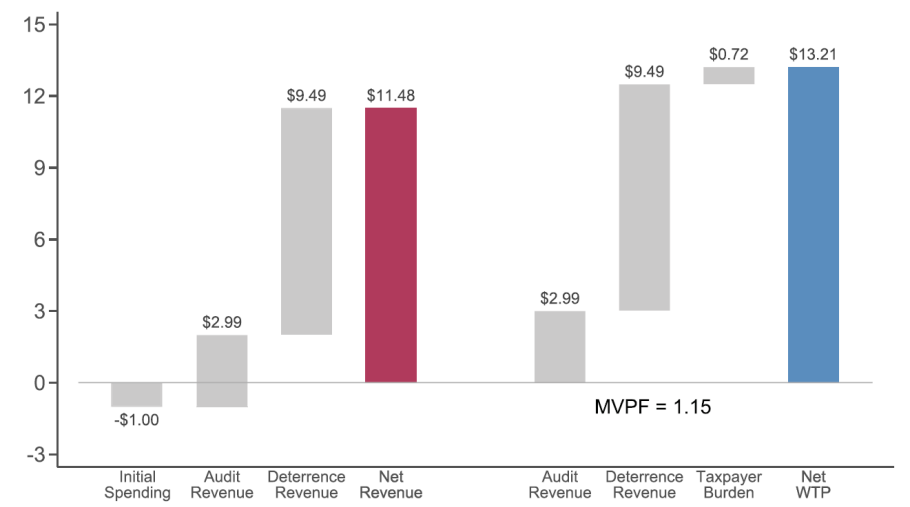
What is the welfare consequence of a marginal increase in audit rate?

Marginal Value of Public Funds (MVPF) by Hendren and Sprung-Keyser (2020)

$$\text{MVPF}_{\text{Audit}}(y) = \frac{\text{WTP to Avoid Audit}}{\text{Net Govt Revenue Raised}}$$

- \$1 of revenue raised $\implies$ \$MVPF loss from affected taxpayers
- MVPF $\uparrow$ $\implies$ Welfare Loss $\uparrow$
- MVPF $\rightarrow 1$ $\implies$ Non-distortionary revenue raising policy

High-Income Audit MVPF



Boning et al. 2025

Detailed analysis of the returns to tax audits across the income distribution

- Audit returns vary substantially across the income distribution
  - Audits of higher-income taxpayers are more costly but have higher return
- Audits generate a persistent increase in collected tax revenue