Tax Enforcement

230B: Public Economics

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Berkeley

Tax Enforcement Problem

Most models of optimal taxation (income or commodity) assume away enforcement issues. In practice:

1) Enforcement is costly (eats up around 10% of taxes collected in the US) when combining costs for government (tax administration) and private agents (tax compliance costs)

2) Substantial tax evasion (15% of under-reported income in the US federal taxes). Tax evasion much worse in developing countries

Two widely used surveys:

Andreoni, Erard, Feinstein JEL 1998

Slemrod and Yitzhaki Handbook of PE, 2002

ALLINGHAM-SANDMO JPUBE'72 MODEL

Seminal in the theoretical tax evasion literature. Uses the Becker crime model

Individual taxpayer problem:

$$\max_{\bar{w}} \ (1-p)\cdot u(w-\tau\cdot\bar{w}) + p\cdot u(w-\tau\cdot\bar{w}-\tau(w-\bar{w})(1+\theta)),$$

where w is true income, $\bar{w}$ reported income, τ tax rate, p audit probability, θ fine factor, $u(.)$ concave.

Let $c^{No\ Audit} = w-\tau\cdot\bar{w}$ and $c^{Audit} = w-\tau\cdot\bar{w}-\tau(w-\bar{w})(1+\theta)$

FOC in $\bar{w}$: $-\tau(1-p)u'(c^{No\ Audit}) + p\theta\tau u'(c^{Audit}) = 0 \Rightarrow$

$$\frac{u'(c^{Audit})}{u'(c^{No\ Audit})} = \frac{1-p}{p\theta}$$

SOC $\Rightarrow \tau^2(1-p)u''(c^{No\ Audit}) + p\tau^2\theta^2 u''(c^{Audit}) < 0$

ALLINGHAM-SANDMO JPUBE'72 MODEL

Result: Evasion $w - \bar{w}$ decreases with p and θ

Proof $d\bar{w}/dp > 0$: Differentiate FOC with respect to p and $\bar{w}$:

$$-dp \cdot \tau u'(c^{No\ Audit}) - d\bar{w} \cdot \tau^2(1-p)u''(c^{No\ Audit})$$
$$= dp \cdot \theta\tau u'(c^{Audit}) + d\bar{w} \cdot p\theta^2\tau^2 u''(c^{Audit})$$

$$\Rightarrow d\bar{w} \cdot [-\tau^2(1-p)u''(c^{No\ Audit}) - p\theta^2\tau^2 u''(c^{Audit})]$$
$$= dp \cdot [\theta\tau u'(c^{Audit}) + \tau u'(c^{No\ Audit})]$$

Similar proof for $d\bar{w}/d\theta > 0$

Huge literature built from the **A-S** model [including optimal auditing rules]

Why is tax evasion so low in OECD countries?

Key puzzle: US has low audit rates ($p \simeq .01$) and low fines ($\theta \simeq .2$). With reasonable risk aversion (say CRRA $\gamma = 1$), tax evasion should be much higher than observed empirically

Two types of explanations for puzzle

1) **Unwilling to Cheat:** Social norms and morality [people dislike being dishonest and hence voluntarily pay taxes]

2) **Unable to Cheat:** Probability of being caught much higher than observed audit rate because of **3rd party reporting**:

Employers double report wages to earners and govt (W2 forms), companies and financial institutions double report capital income paid out to individuals and govt (US 1099 forms)

DETERMINANTS OF TAX EVASION

Large empirical literature studies tax evasion levels and the link between tax evasion and (a) tax rates, (b) penalties, (c) audit probabilities, (d) prior audit experiences, (e) socio-economic characteristics

Early literature relies on observational [non-experimental] data which creates serious identification and measurement issues:

(1) Evasion is difficult to measure

(2) Most independent variables [audits, penalties, etc.] are endogenous responses to evasion and also difficult to measure

$\Rightarrow$ Requires to use experimental data or to find good instruments: (a) IRS National Research Program (NRP), (b) lab experiments, (c) field experiments

Tax gap in the United States

Results from latest National Research Program (NRP) studies (IRS 2022) for 2014-2016

IRS carries out **random** audits to specifically estimate the tax gap

1) Total tax gap (= taxes evaded / taxes owed) around 14%

2) Tax gap concentrated among income items with no 3rd party reporting (such as self-employment income)

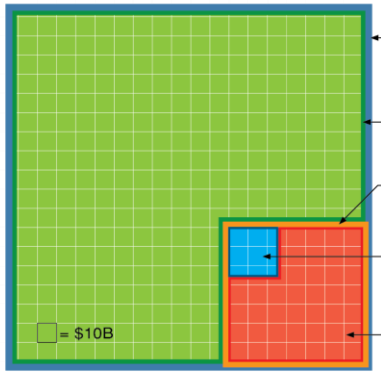
3) Withholding reduces tax gap (liquidity constraint $\Rightarrow$ some taxpayers can never pay taxes owed unless withheld at source)

Figure 1. TY 2014-2016 Tax Gap Map

Tax Gap Estimates for Tax Years 2014–2016

(Money amounts are in billions of dollars; estimates are annual average amounts.)

IRS Research, Applied Analytics & Statistics



Estimated Total True Tax Liability*
$3,307B

Tax Paid Voluntarily & Timely
$2,811B **85.0%** Voluntary Compliance Rate (VCR)

Gross Tax Gap
$496B

Enforced & Other Late Payments
$68B

Net Tax Gap (Tax Not Collected)
$428B **87.0%** Net Compliance Rate (NCR)

Calculating the Net Tax Gap

Nonfiling
Underreporting
+ Underpayment
Gross Tax Gap
– Enforced & Other Late Payments
Net Tax Gap

Total True Tax Liability	Tax Paid Voluntarily & Timely	Gross Tax Gap: Nonfiling	Gross Tax Gap: Underreporting	Gross Tax Gap: Underpayment	Gross Tax Gap	Enforced & Other Late Payments	Net Tax Gap (Tax Not Collected)
$3,307	$2,811	$39	+ $398	+ $59	= $496	– $68	= $428
By Type of Tax							
Individual Income Tax	Individual Income Tax	Individual Income Tax	Individual Income Tax	Individual Income Tax	Individual Income Tax	Individual Income Tax	Individual Income Tax
$1,740	$1,383	$32	+ $278	+ $47	= $357	– $51	= $306
			Business Income $130; Non-Business Income $60; Credits $42; Income Offsets [1] $25; Filing Status $5; Other Taxes [2] $4; Unallocated Marginal Effects [3] $11				
Corporation Income Tax	Corporation Income Tax	Corporation Income Tax	Corporation Income Tax	Corporation Income Tax	Corporation Income Tax	Corporation Income Tax	Corporation Income Tax
$354	$313	#	+ $37	+ $4	= $41	– $8	= $34
			Large Corporations $23; Small Corporations $14				
Employment Tax	Employment Tax	Employment Tax [4]	Employment Tax	Employment Tax	Employment Tax	Employment Tax	Employment Tax
$1,131	$1,038	$7	+ $82	+ $5	= $93	– $6	= $87
			Self-Employment Tax $53; FICA & Uncollected FICA TAX $28; FUTA $1				
Estate Tax	Estate Tax	Estate Tax	Estate Tax	Estate Tax	Estate Tax	Estate Tax	Estate Tax
$22	$17	$<0.5	+ $1	+ $3	= $5	– $3	= $2

NOTES:

* Totals include Excise Tax.

#—No estimate.

Detail may not add to totals due to rounding.

[1] Includes adjustments, deductions, and exemptions.

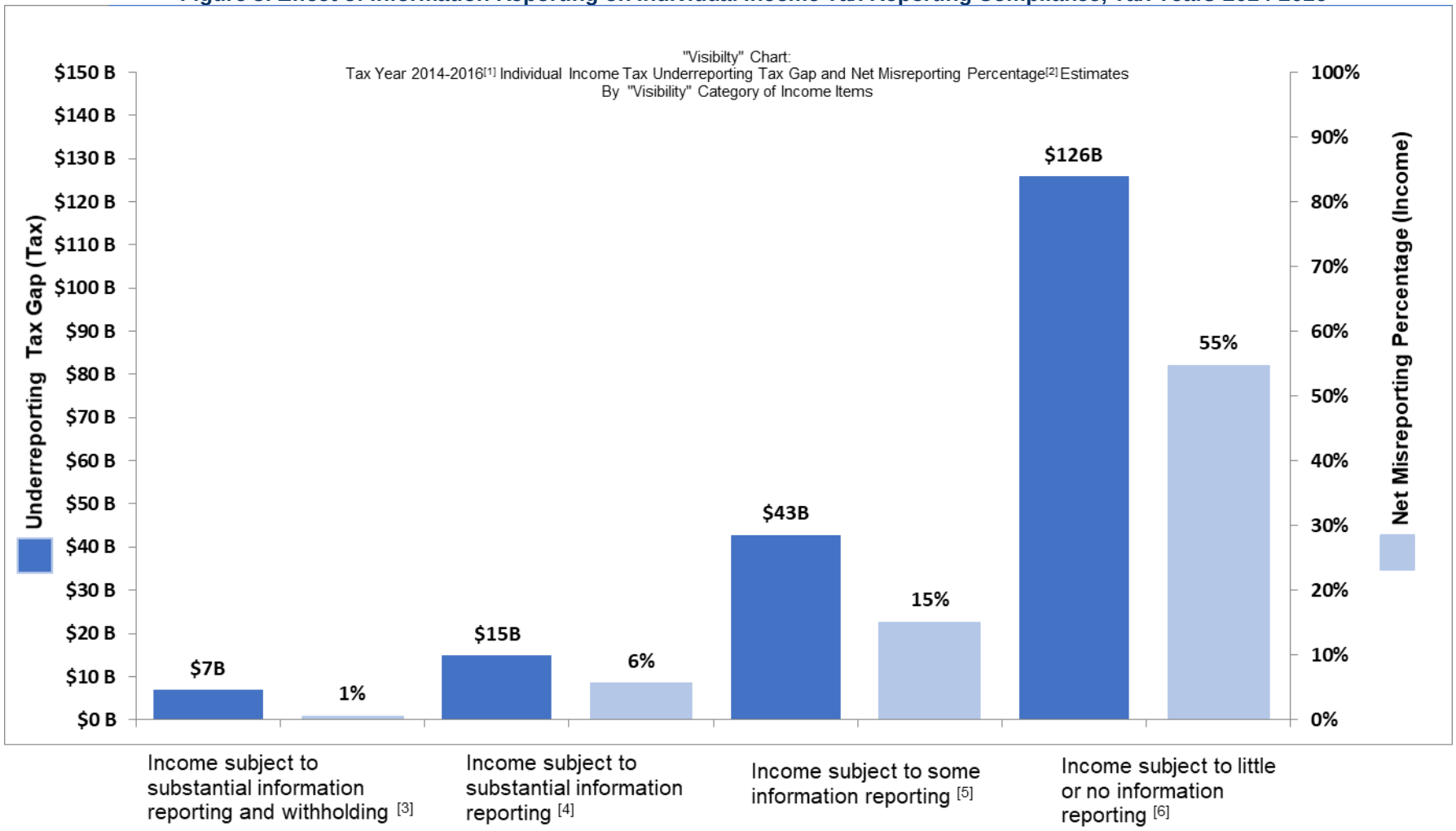
[2] Includes the Alternative Minimum Tax and taxes reported in the "Other Taxes" section of the Form 1040 except for self-employment tax and unreported social security and Medicare tax (which are included in the employment tax gap estimates).

[3] Is the difference between (1) the estimate of the individual income tax underreporting tax gap where underreported tax is calculated based on all misreporting combined and (2) the estimate of the individual income tax underreporting tax gap based on the sum of the tax gaps associated with each line item where the line item tax gap is calculated based on the misreporting of that item only. There may be differences if the marginal tax rates are different in these two situations.

[4] Self-employment tax only.

Revised 03/2022

Figure 3. Effect of Information Reporting on Individual Income Tax Reporting Compliance, Tax Years 2014-2016



[1] The TY 2014--2016 estimate is the annual average for the TY 2014, 2015, and 2016 timeframe. This chart displays the tax gap attributable to the underreported income category and the rate at which that income is misreported as measured by the Net Misreporting Percentage.
[2] The Net Misreporting Percentage is the ratio of the net misreported amount to the sum of the absolute values of the amounts that should have been reported, expressed as a percentage. The net misreported amount for the items in this chart is understatements of income less overstatements of income. On net, income is understated.
[3] Includes wages & salaries.
[4] Includes pensions & annuities, unemployment compensation, dividend income, interest income, State income tax refunds, and taxable Social Security benefits.
[5] Includes partnership/S corp. income, capital gains, and alimony income.
[6] Includes nonfarm proprietor income, other income, rents and royalties, farm income, and Form 4797 income.

NRP: METHODOLOGICAL ISSUES

Numbers from NRP are rough estimates because audits cannot uncover all evasion

$\Rightarrow$ Thorough audits detect evasion of only about 4% of income

IRS uses a parametric econometric model with auditors' fixed effects to blow up evasion found by factor 3 (Feinstein '91):

Detection Controlled Estimation (DCE) methodology:
Key idea: some auditors are better than others

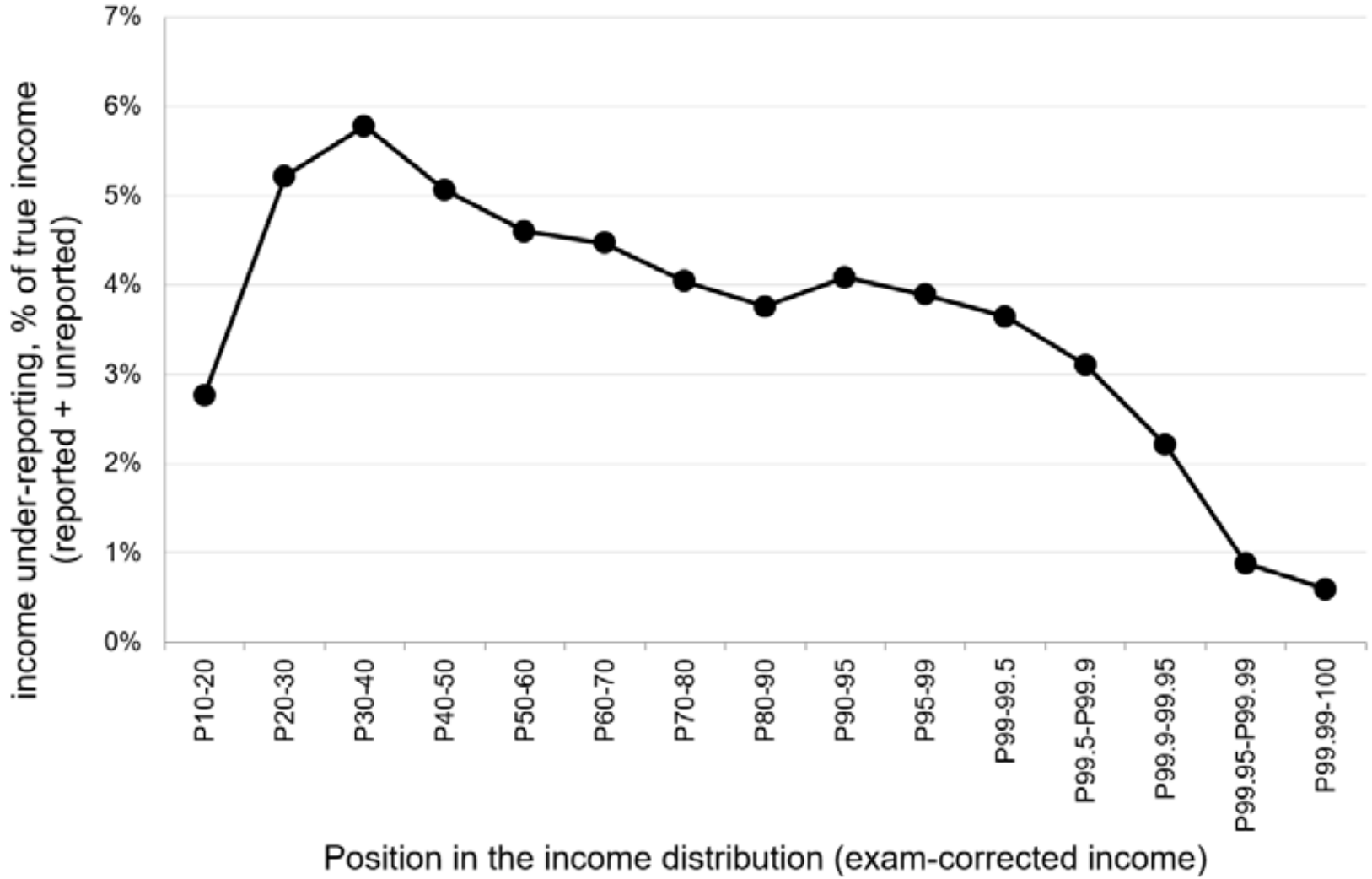
$\Rightarrow$ Very sensitive to assumptions

Guyton et al. 21 point out that NRP misses (a) offshore tax evasion and (b) evasion in passthrough business tax returns

$\Rightarrow$ Tax evasion more concentrated toward the rich than NRP

FIGURE 1: UNREPORTED INCOME DETECTED IN RANDOM AUDIT DATA BEFORE DCE CORRECTION

(a) Unreported Income (% of True Income)



Source: Guyton, Langetieg, Reck, Risch, Zucman. (2021)

(b) Decomposition by Type of Income

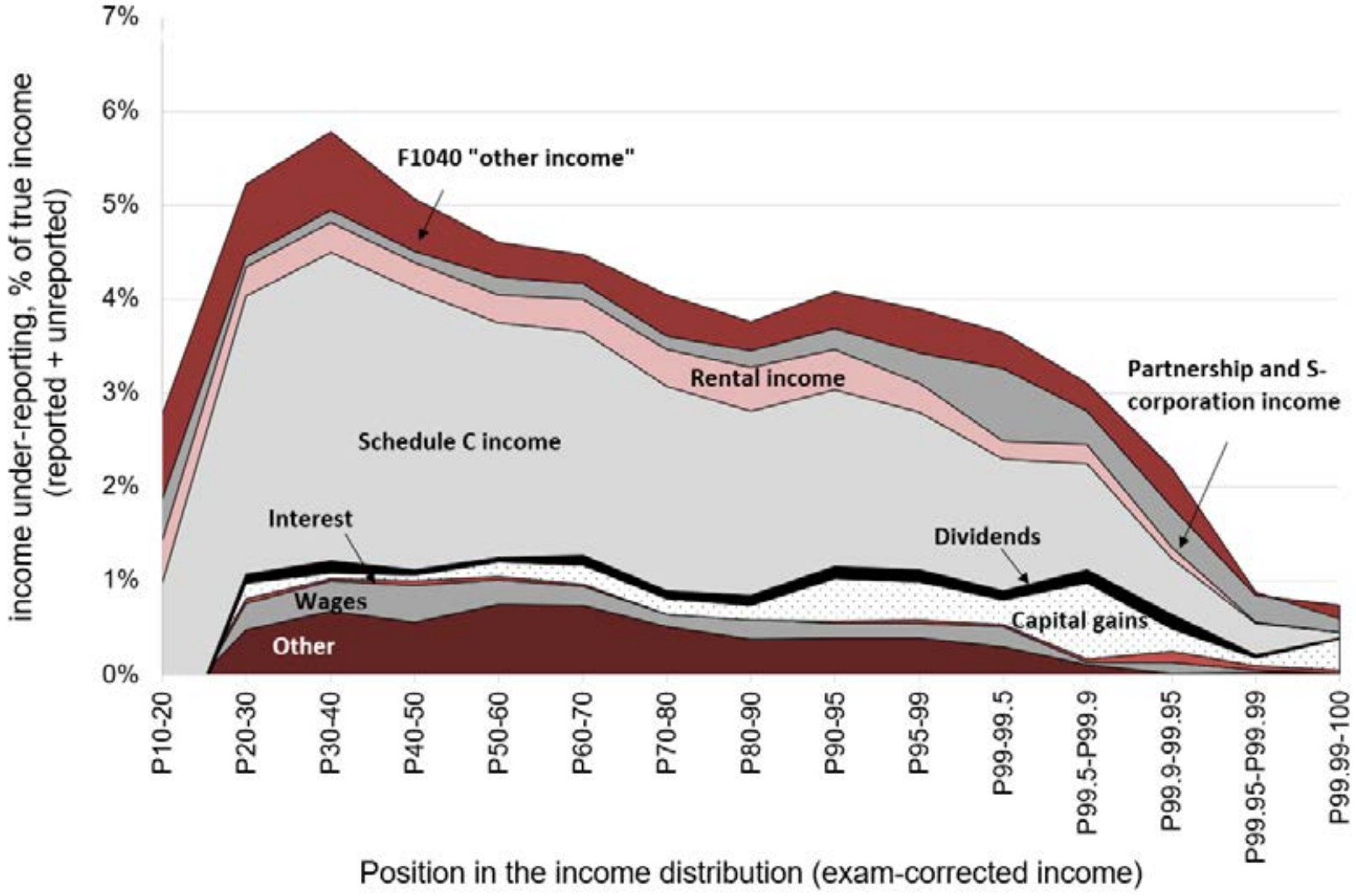
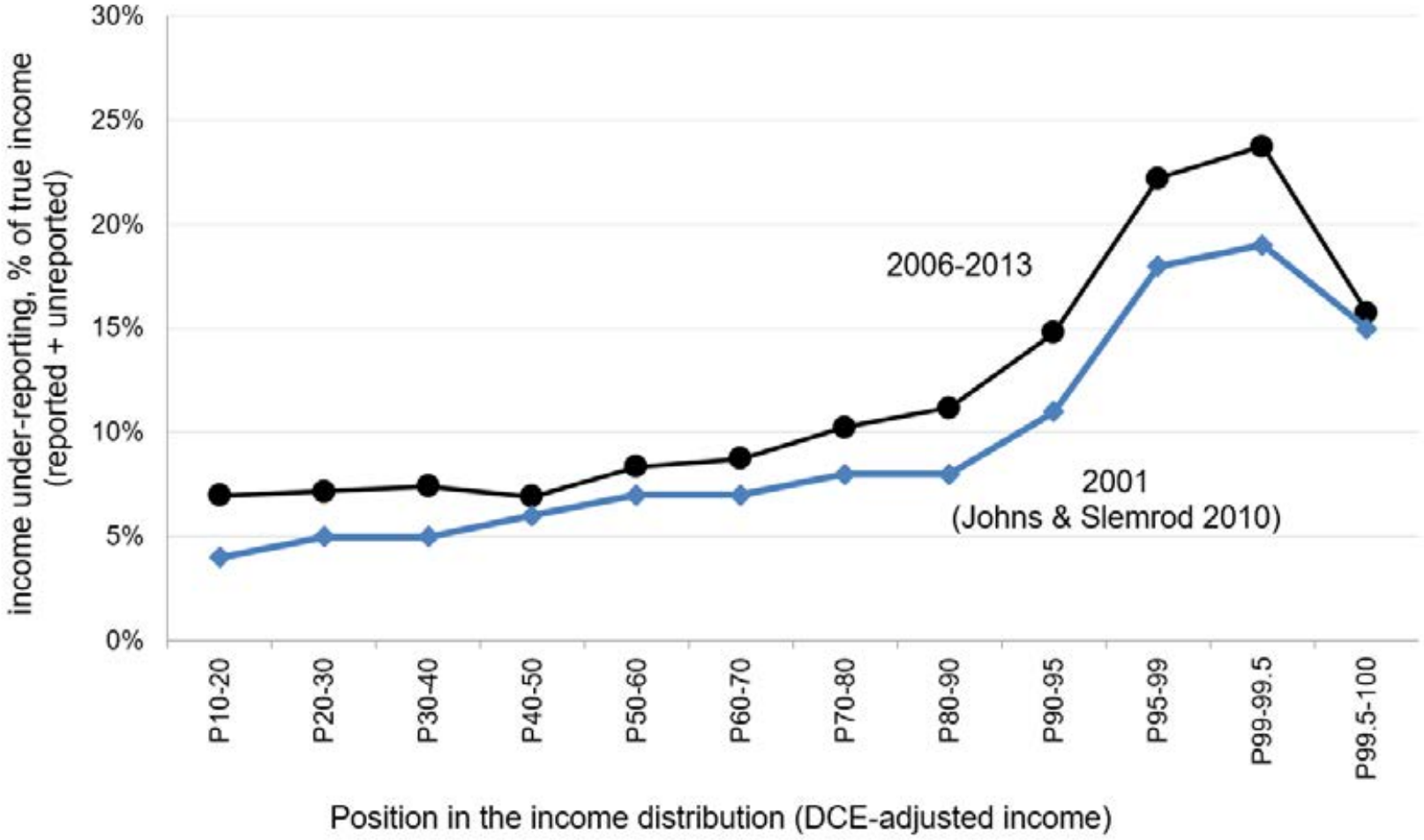


FIGURE 2: UNREPORTED INCOME IN RANDOM AUDIT DATA AFTER DCE CORRECTION

(a) Unreported Income (% of True Income)



(b) Decomposition by Type of Income (2006–2013)

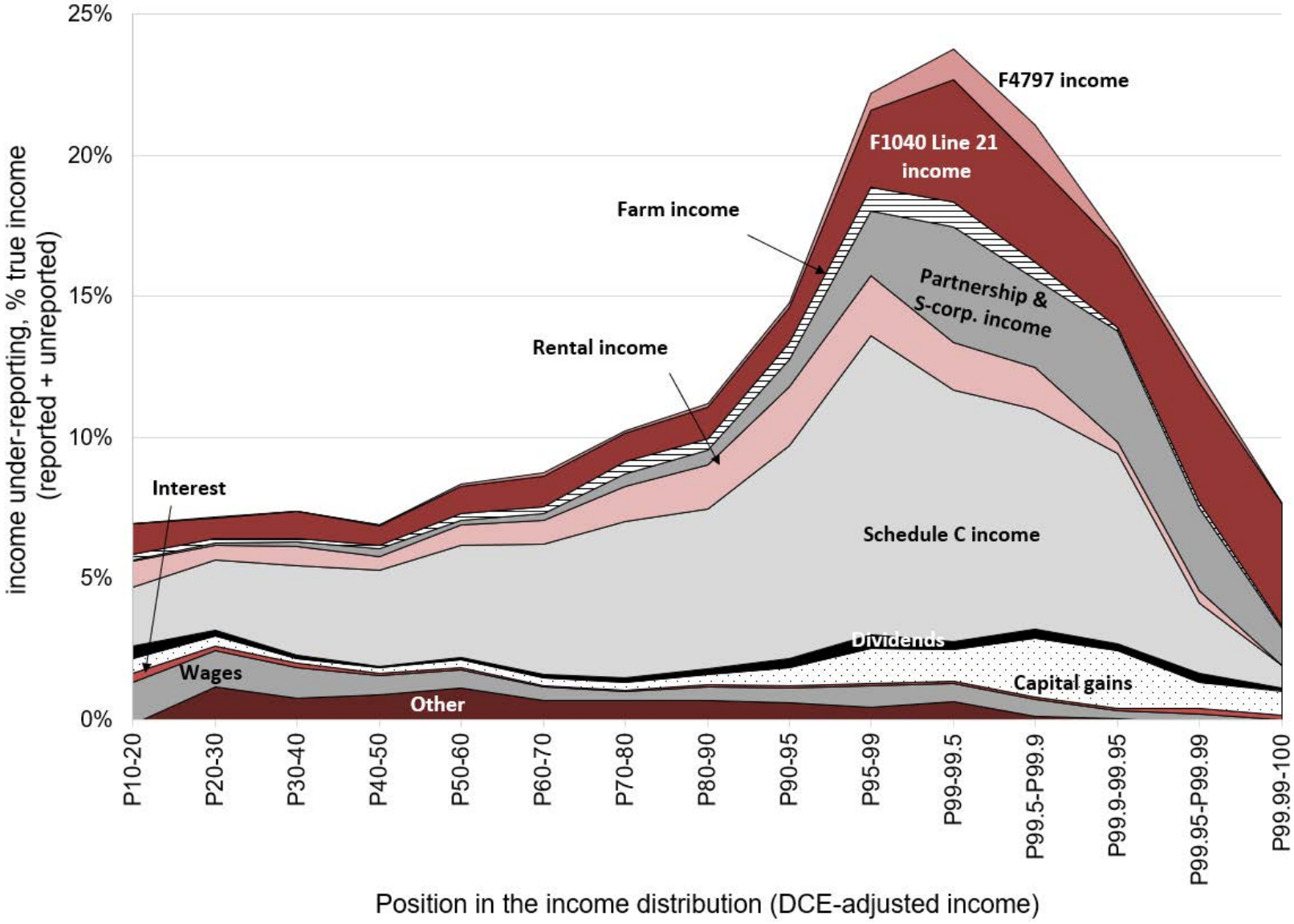


FIGURE 5: ACCOUNTING FOR UNDETECTED OFFSHORE FINANCIAL INCOME

(a) Unreported Income (% True Income)

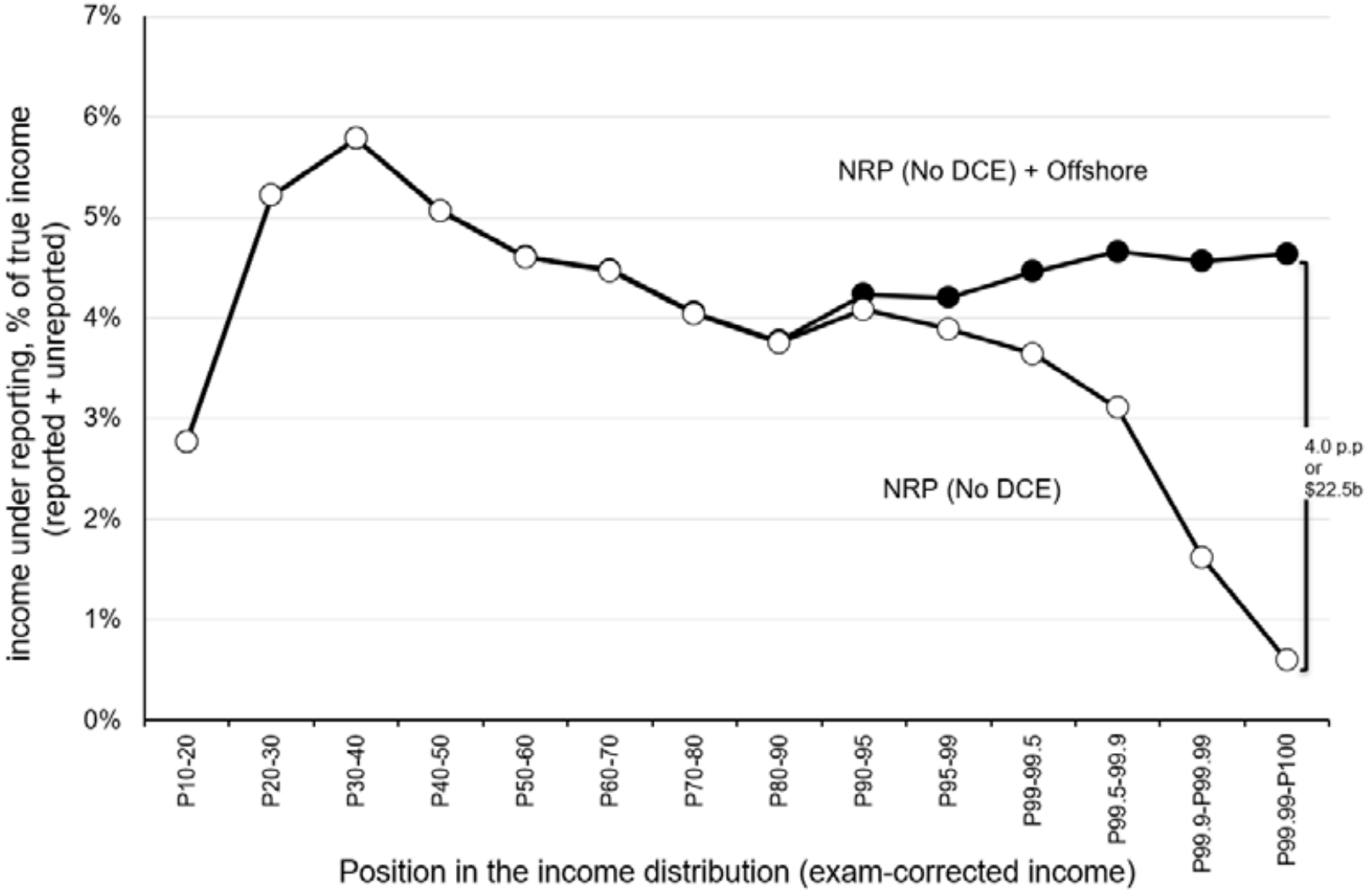


FIGURE 7: ACCOUNTING FOR PASS-THROUGH BUSINESS EVASION

(a) Unreported Income (% True Income)

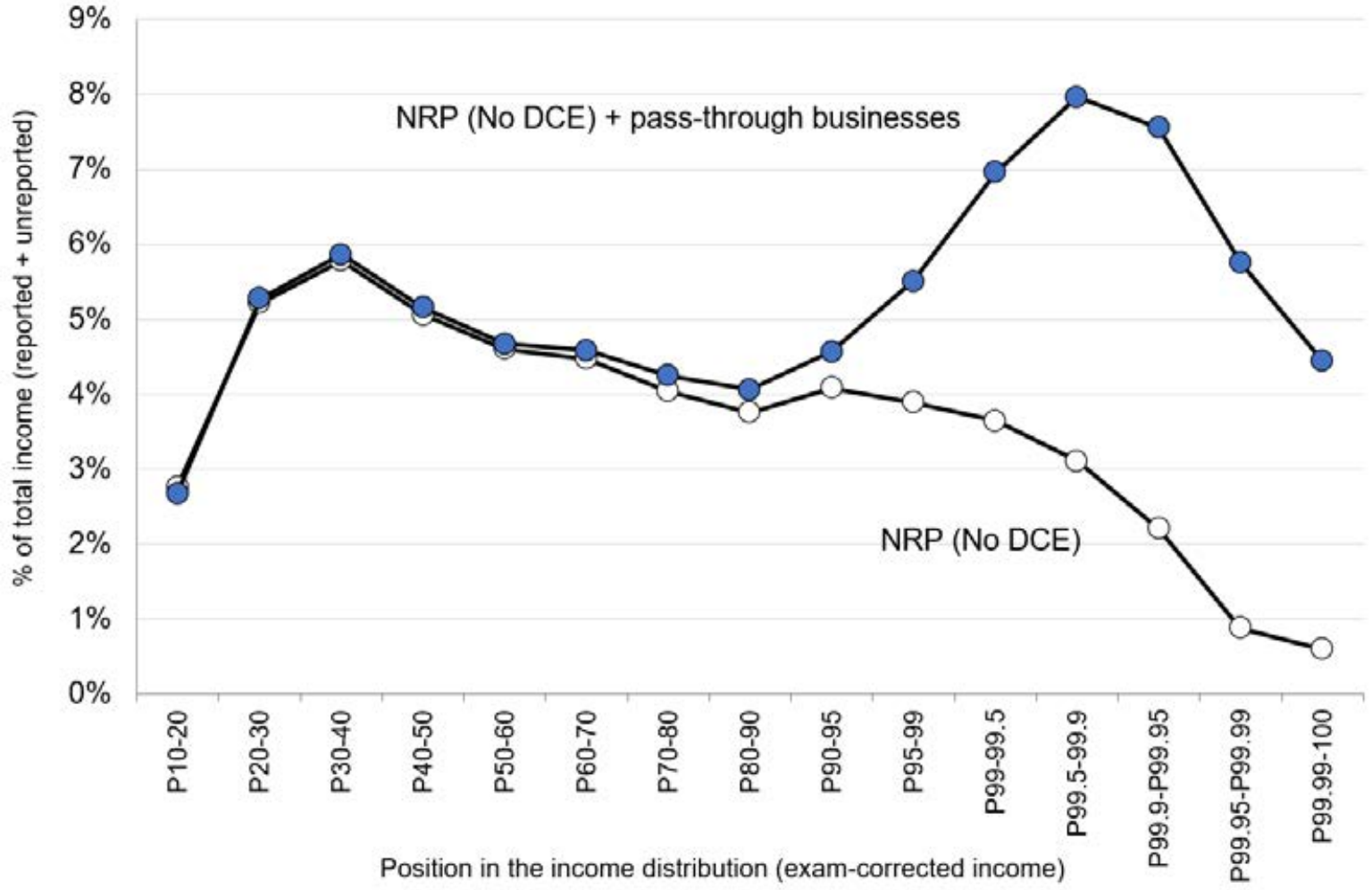
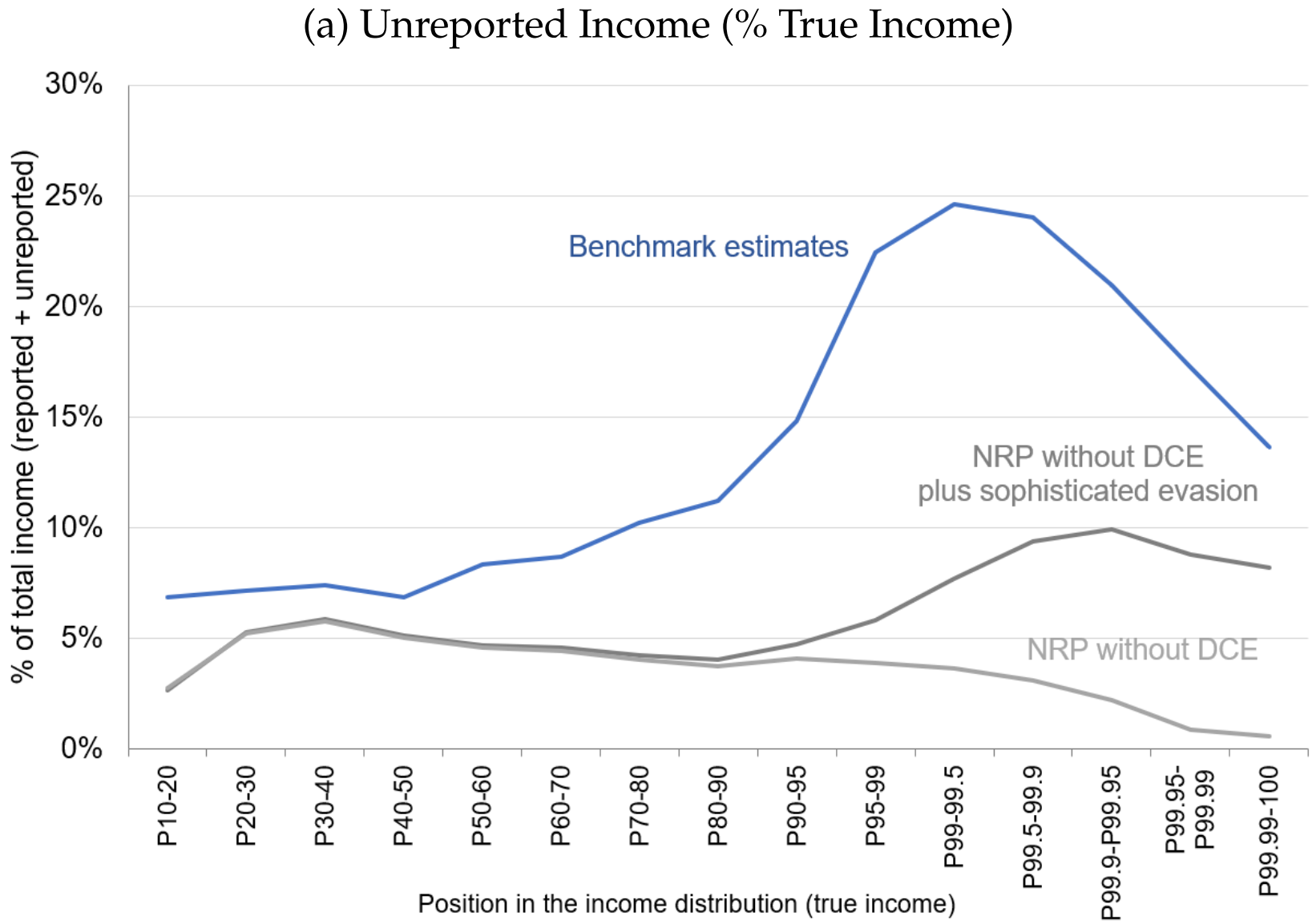


FIGURE 8: THE DISTRIBUTION OF NONCOMPLIANCE IN THE U.S.: BENCHMARK ESTIMATES



LAB EXPERIMENTS

Multi-period reporting games involving participants (mostly students) who receive and report income, pay taxes, and face risks of being audited and penalized

1) Lab experiments have consistently shown that penalties, audit probabilities, and prior audits increase compliance (e.g., Alm, Jackson, and McKee, 1992)

2) But when penalties and audit probabilities are set at realistic levels, their deterrent effect is quite small [Alm, Jackson, and McKee 1992] $\Rightarrow$ Laboratory experiments tends to predict more evasion than we observe in practice

Issues: Lab environment is artificial, and therefore likely to miss important aspects of the real-world reporting environment [3rd party information and social norms]

FIELD EXPERIMENTS

1) Blumenthal, Christian, Slemrod NTJ'01 study the effects of normative appeals to comply: treatment group receives letter encouraging compliance on normative grounds "support valuable services" or "join the compliant majority", control group [no letter]

$\Rightarrow$ No (statistically significant) effect of normative appeals on compliance overall

2) Slemrod, Blumenthal, Christian JPubE'01 study the effects of "threat-of-audit" letters

$\Rightarrow$ Statistically significant effect on reported income increase, especially among the self-employed ["high opportunity group"] but very small sample size

Recently: (a) Hallsworth et al. '17 show that normative appeals help in collecting overdue taxes [but small quantitatively], (b) Bott et al. 2020 for a randomized experiment in Norway on foreign income [threat of audit more effective than normative appeal], (c) see survey Luttmer-Singhal '14

	Either Letter					
	Federal Taxable Income			MN Tax Liability		
	Treated	Control	Treated–Control	Treated	Control	Treated–Control
1994	$26,927	$26,940	$–14	$1,946	$1,954	$–8
1993	$26,346	$26,449	$–103	$1,919	$1,934	$–15
1994–1993	$580	$491	$89(270)	$27	$20	$7(22)
% with 94–93 increase	54.3	53.9	0.4	52.8	52.3	0.5
n	31,149	15,624		31,149	15,624	

Notes:
Number in parentheses is the standard error.
The mean of "Treated–Control" may differ from the mean of "Treated" minus the mean of "Control" due to rounding error.

Source: Blumenthal et al. (2001), p. 131

Table 4

Average reported federal taxable income: differences in differences for the whole samp

Whole sample (weighted)

	Treatment	Control	Difference
1994	23,781	23,202	579
1993	23,342	22,484	858
94−93	439	717	−278
S.E.			464
%w/increase	54.4%	51.9%	2.5%***
n	1537	20,831	

Low income

	High opportunity		
	Treatment	Control	Difference
1994	7473	3992	3481
1993	971	787	183
94−93	6502	3204	3298
S.E.			2718
%w/increase	65.4%	51.2%	14.2%*
n	52	123	

Source: Slemrod et al. (2001), p.466

TAX AUDIT EXPERIMENT FROM DENMARK

Kleven-Knudsen-Kreiner-Pedersen-Saez '11 analyze bigger Danish income tax auditing experiment [stratified sample 40,000]

Overall detected evasion [no adjustment] is around 2.5% but:

1) Evasion rate for self-reported items is almost 40%

2) Evasion rate for third party reported items is only 0.3%

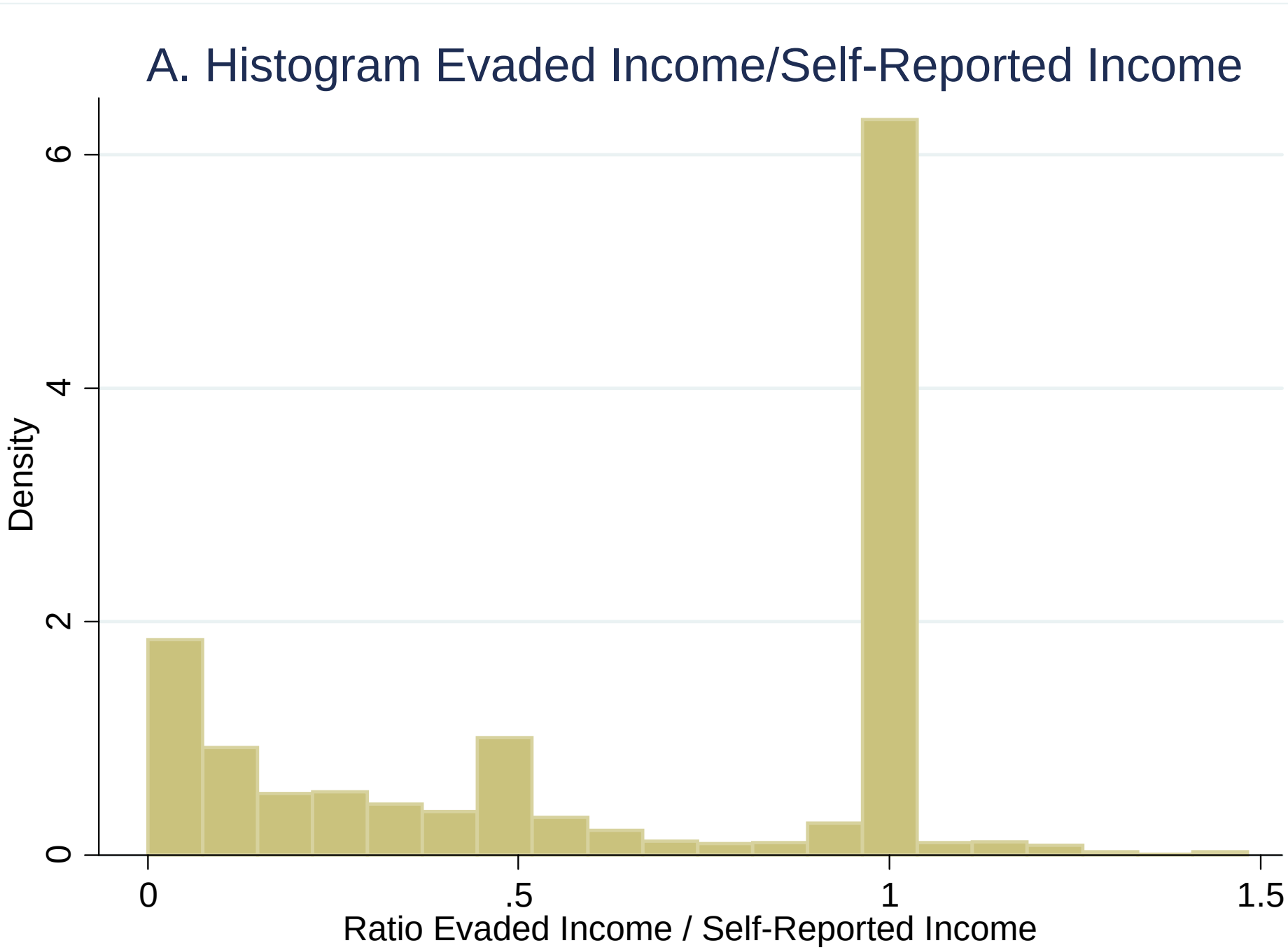
3) Overall evasion rate is so low because 95% of income is third party reported in Denmark

Role of 3rd party reports [information structure] seem to trump social factors and economic factors:

Self-Reported vs. Third-Party Reported Income

	Pre-audit net income			Under-reporting of income		
	Total	Third-party	Self-reported	Total	Third-party	Self-reported
Amount	**206,038**	**195,969**	**10,069**	**4,255**	**536**	**3,719**
	(2,159)	(1,798)	(1,380)	(424)	(80)	(416)
Percent	**98.38**	**98.57**	**38.18**	**8.39**	**1.72**	**7.28**
	(0.09)	(0.08)	(0.35)	(0.20)	(0.09)	(0.19)

Source: Kleven et al. (2010)


A. Histogram Evaded Income/Self-Reported Income
Density
0
2
4
6
0
.5
1
1.5
Ratio Evaded Income / Self-Reported Income

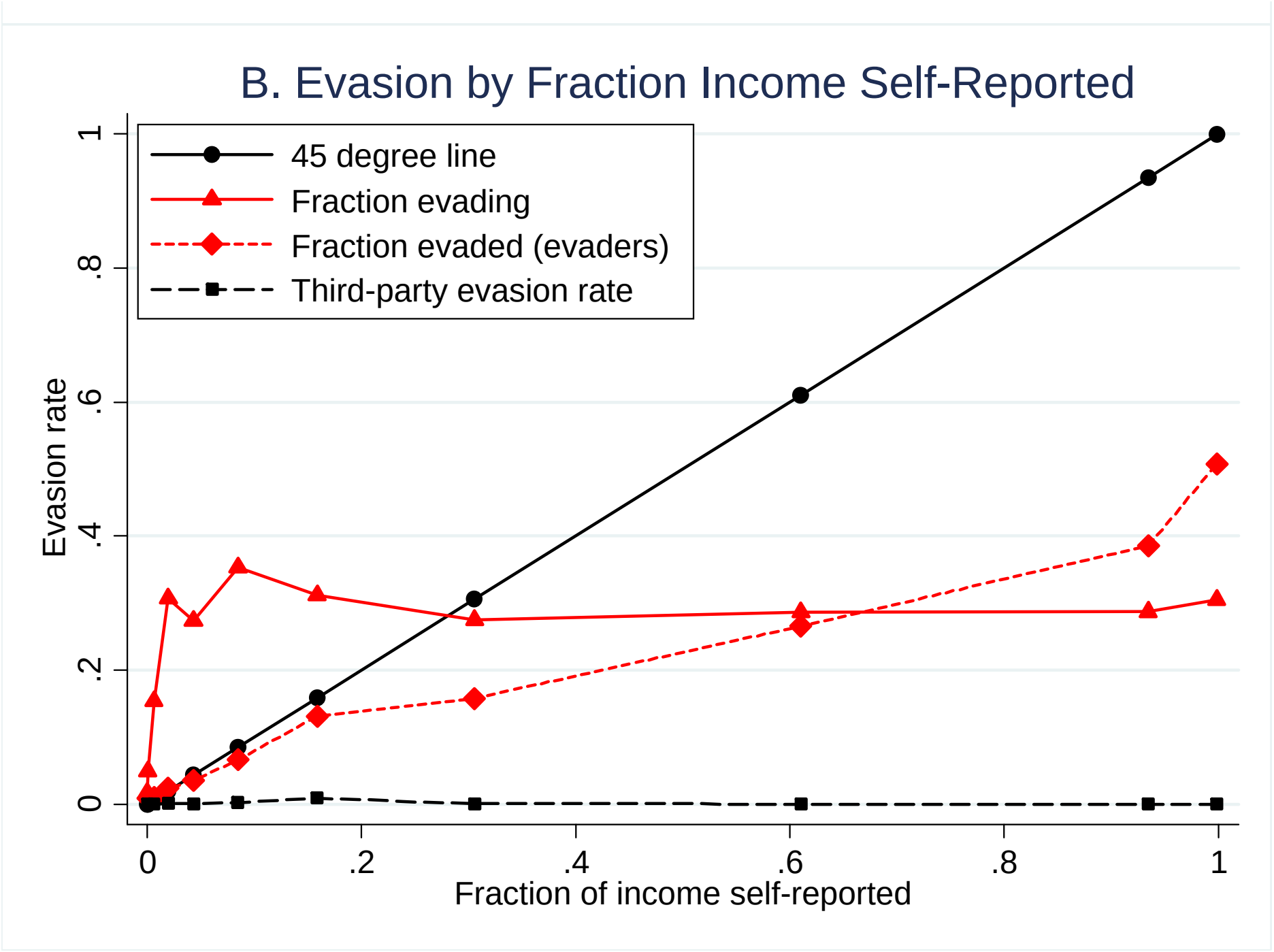


Figure 3. Anatomy of Tax Evasion

Panel A displays the density of the ratio of evaded income to self-reported income (after au

TAX AUDIT EXPERIMENT FROM DENMARK

Kleven et al. '11 also provide experimental causal effects of:

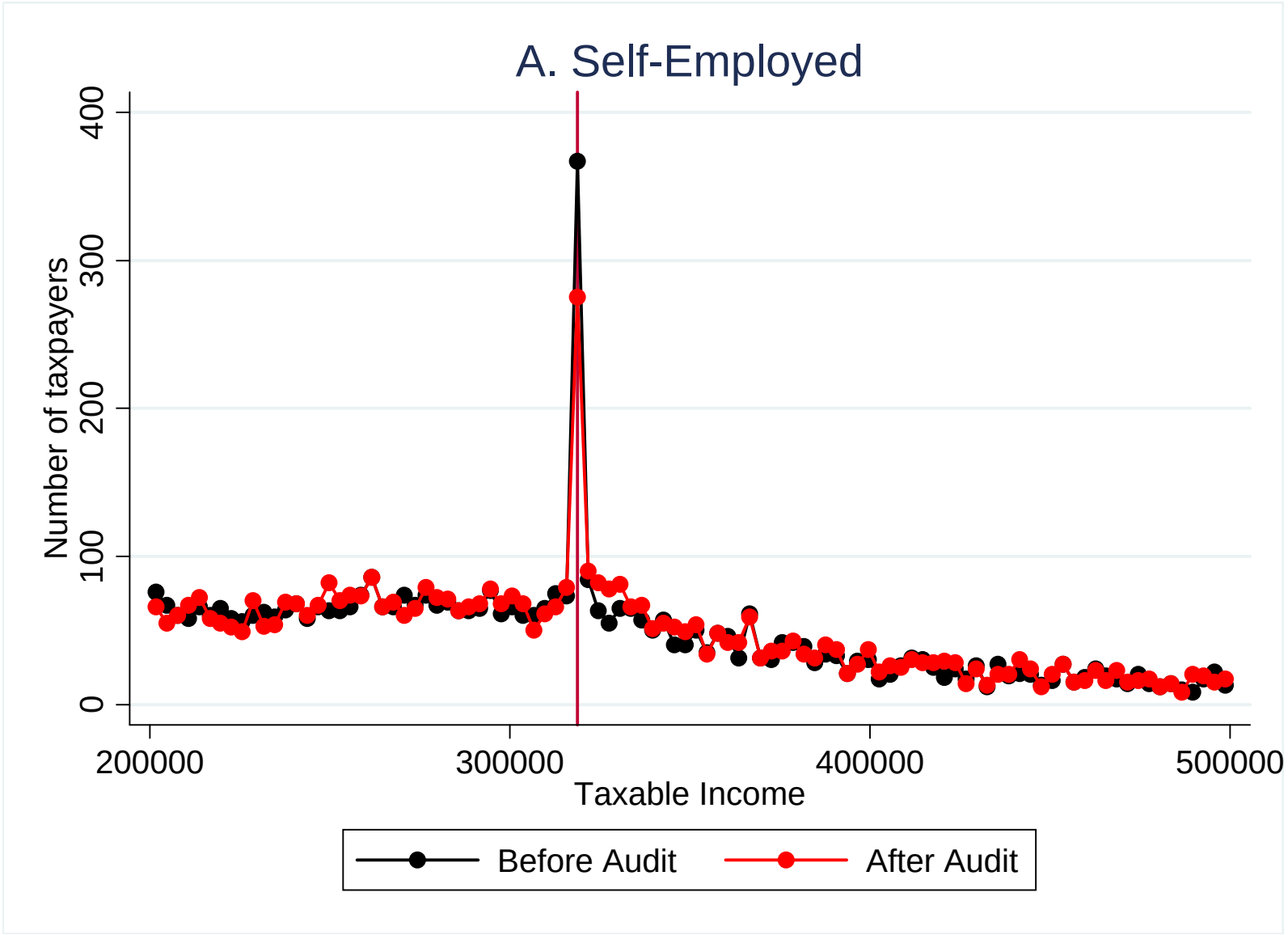
1) Marginal tax rates: use bunching evidence before and after audit: Most bunching not due to evasion but avoidance $\Rightarrow$ Effect of MTR on evasion is modest

2) Prior-audit effects: compare next year outcomes of 100% audit group and a 0% audit group [as audited tax filers may update upward beliefs on p]

$\Rightarrow$ Find significant effects on reported income increases, concentrated among self-reported items [nothing on 3rd party income]: Extra tax collected through this indirect effect is about 50% of extra taxes collected due to base year audits

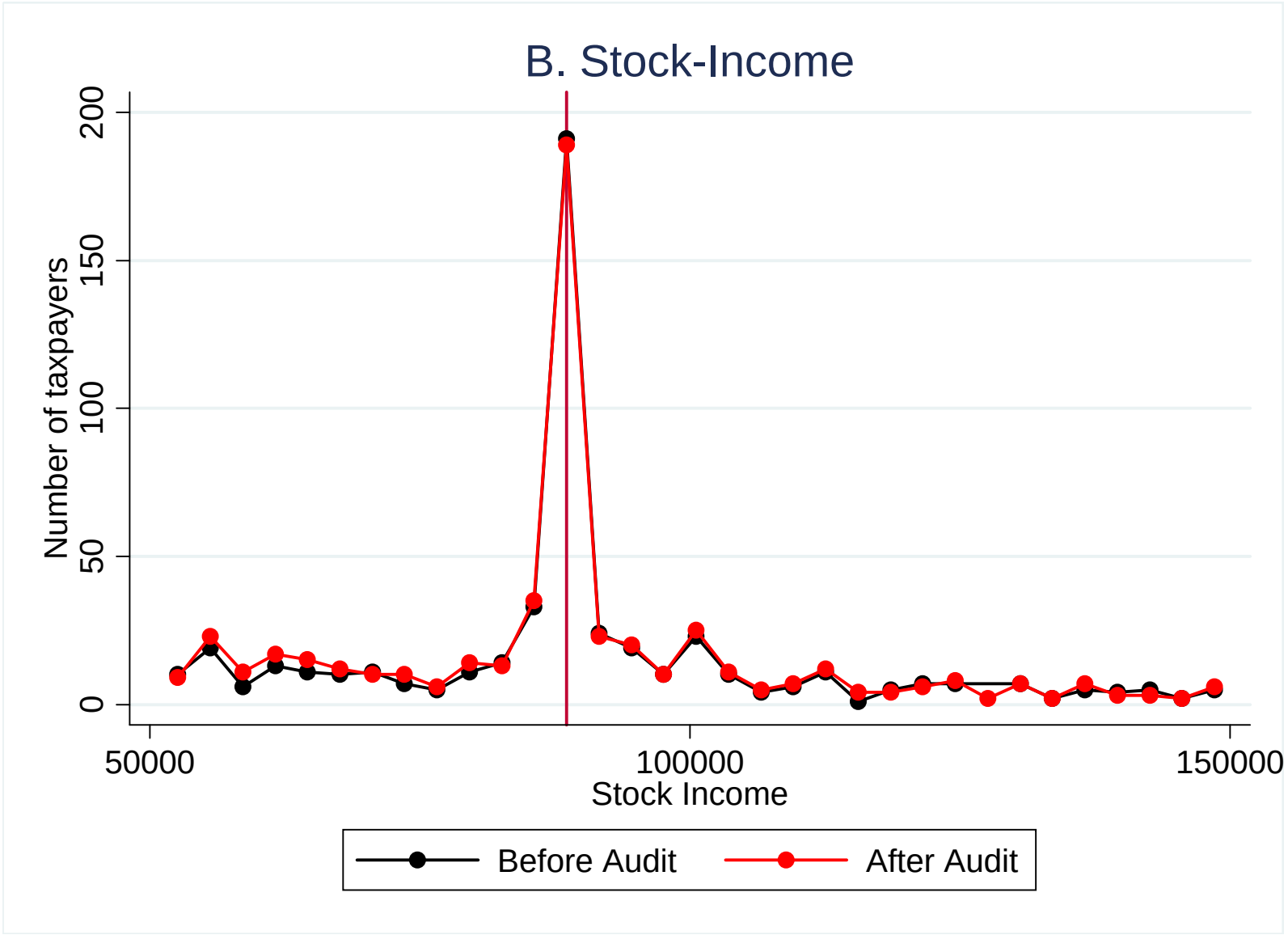
3) Threat-of-audit letters: Find significant effects on self-reported income increases [as in Slemrod et al.] and letter prob matters

Bunching at the Top Kink in the Income Tax



Source: Kleven et al. (2010)

Bunching at the Kink in the Stock Income Tax



Source: Kleven et al. (2010)

Effect of Audits on Subsequent Reporting

Amount of income change from 2006 to 2007

	Baseline audit adjustment amount	Difference: 100% vs. 0% audit group		
	Total income	**Total income**	**Self-reported income**	**Third-party income**
Net income	**5629**	**2554**	**2322**	232
	(497)	(787)	(658)	(691)
Total tax	**2510**	**1377**		
	(165)	(464)		

Source: Kleven et al. (2010)

Effect of Audit Threats on Subsequent Reporting

Probability of upward adjustment in reported income (in percent)

	Both 0% and 100% audit groups		
	Letter – No Letter	**50% Letter – No Letter**	**100% Letter – 50% Letter**
Net income	**1.51**	**1.04**	**0.95**
	(0.28)	(0.33)	(0.33)
Total tax	**1.54**	**0.99**	**1.10**
	(0.28)	(0.33)	(0.33)

Source: Kleven et al. (2010)

EXPLAINING ACTUAL TAX POLICIES

Income $w = w_t + w_s$ where w_t is third party reported (observed by govt at no cost) and w_s is self-reported (as in standard Allingham-Sandmo model).

Incorporating 3rd party reporting solves puzzles of the **Allingham-Sandmo** model:

1) Evasion rates are high in s sector (consistent with **Allingham-Sandmo**) and low in t sector

2) IRS sets audit rate p higher when $\bar{w}_s < 0$ (small business losses, undocumented deductions, etc.) to protect w_t base

3) $\bar{w}_s$ losses not allowed against w_t (example: US limits capital gain losses and passive business losses)

4) Use of schedular income taxes (tax separately various bases): Earliest income taxes (1800-1900) are **schedular**

SIMPLER MODEL OF TAX EVASION

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

FOC $du/d\bar{w} = 0 \Rightarrow [p(\bar{w}) - p'(\bar{w})(w - \bar{w})](1 + \theta) = 1$

Introduce the elasticity of the detection probability with respect to undeclared income: $\varepsilon = -(w - \bar{w})p'(\bar{w})/p(\bar{w}) > 0$

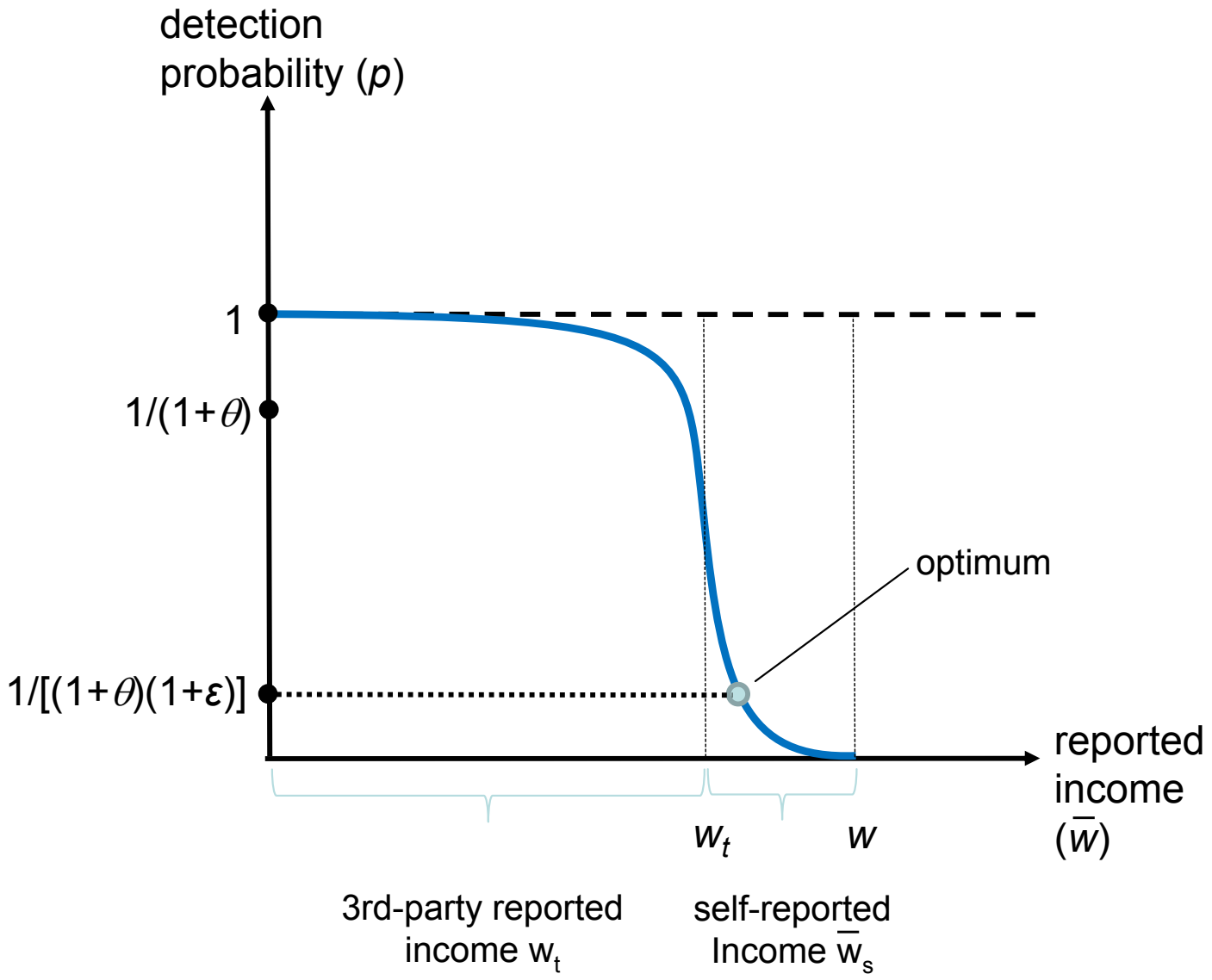
$$1 = p(\bar{w}) \cdot (1 + \theta) \cdot (1 + \varepsilon)$$

If $\varepsilon = 0$, then always evade if $1 > p \cdot (1 + \theta)$

If $\varepsilon > 0$, then evading more increases risk of being caught on all infra-marginal evaded taxes $\Rightarrow$ Even with $\theta = 0$, full evasion is not always optimal

Shape of $p(\bar{w})$ depends crucially on 3rd party income

Figure 1: Probability of Detection under Third-Party Reporting



Source: Kleven et al. (2010)

WHY DOES THIRD PARTY REPORTING WORK?

In theory, employer and employee could collude to evade taxes
$\Rightarrow$ third-party does not help (Yaniv 1992)

In practice, such collusion is fragile in modern businesses bc:

1) Accounting and payroll records that are widely used within the firm [records need to report true wages in order to be useful to run a complex business]

2) A single employee can denounce collusion between employer and employees. Likely to happen in a large business [disgruntled or new employee, whistle blower seeking govt reward]

$\Rightarrow$ Taxes can be enforced even with low penalties and low audit rates [Kleven-Kreiner-Saez 2016, Jensen 2022]

Limits of 3rd Party Reporting in Devo Context

Feinmann-Hsu-Lauletta '22 conduct a large survey among formal workers in Brazil. Key findings:

1) Partial unreported pay is widespread, sizable, and proportionally larger for higher income workers

2) Generally suggested by the employer (80%) and paid with cash (50%) or electronic payments (40%)

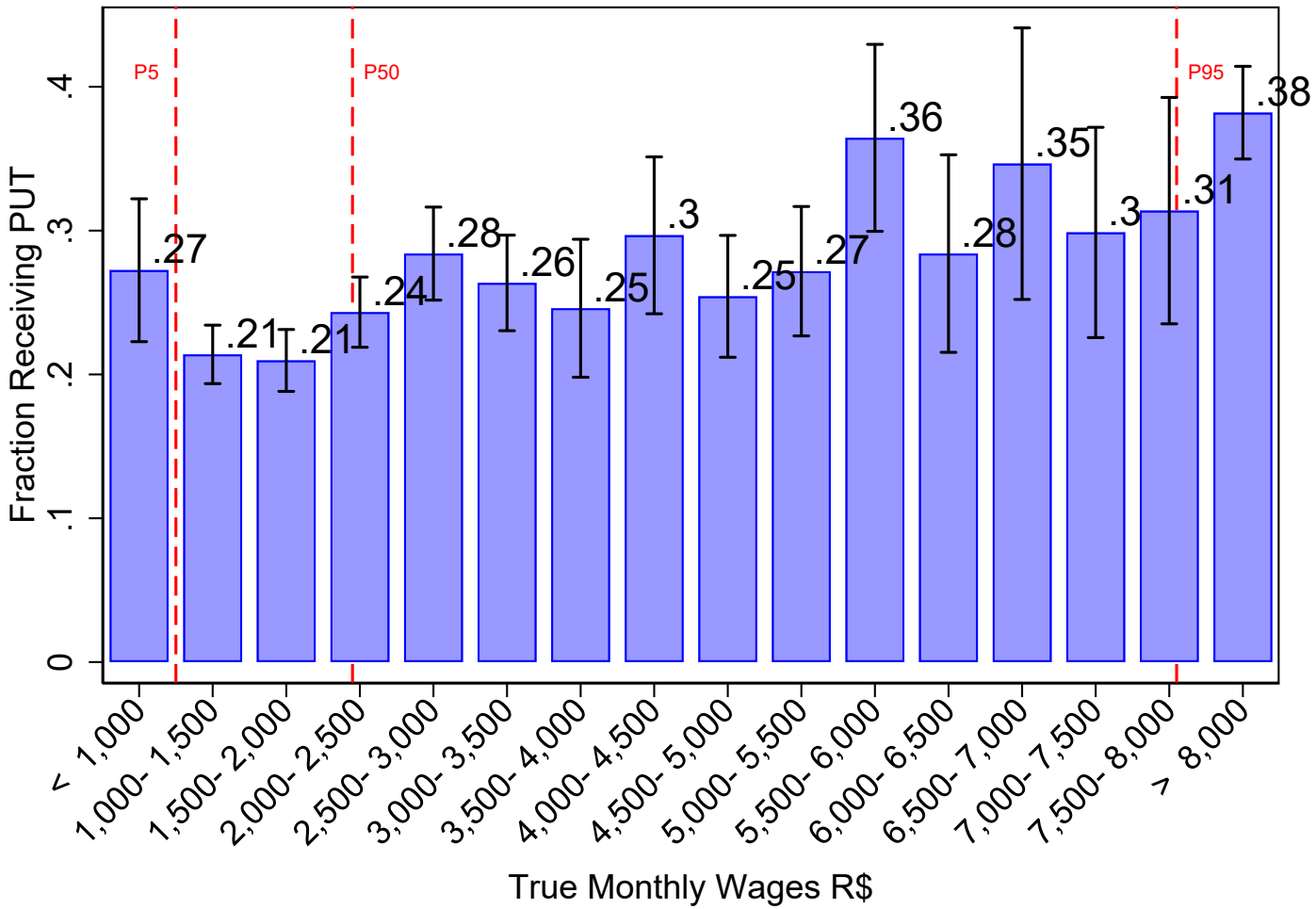
3) Bunching at ceiling for pension payroll taxes for workers aged 55+ provides "observational" confirmation of split of pay into formal wage + unreported wage

4) Labor lawsuit (citing "payment under the table") increases formal pay in the firm $\Rightarrow$ Workplace conflict reduces evasion

Conclusion: Cracking down on these payments is possible but obviously hard to do if everybody does it

Evidence from our Survey - Distribution

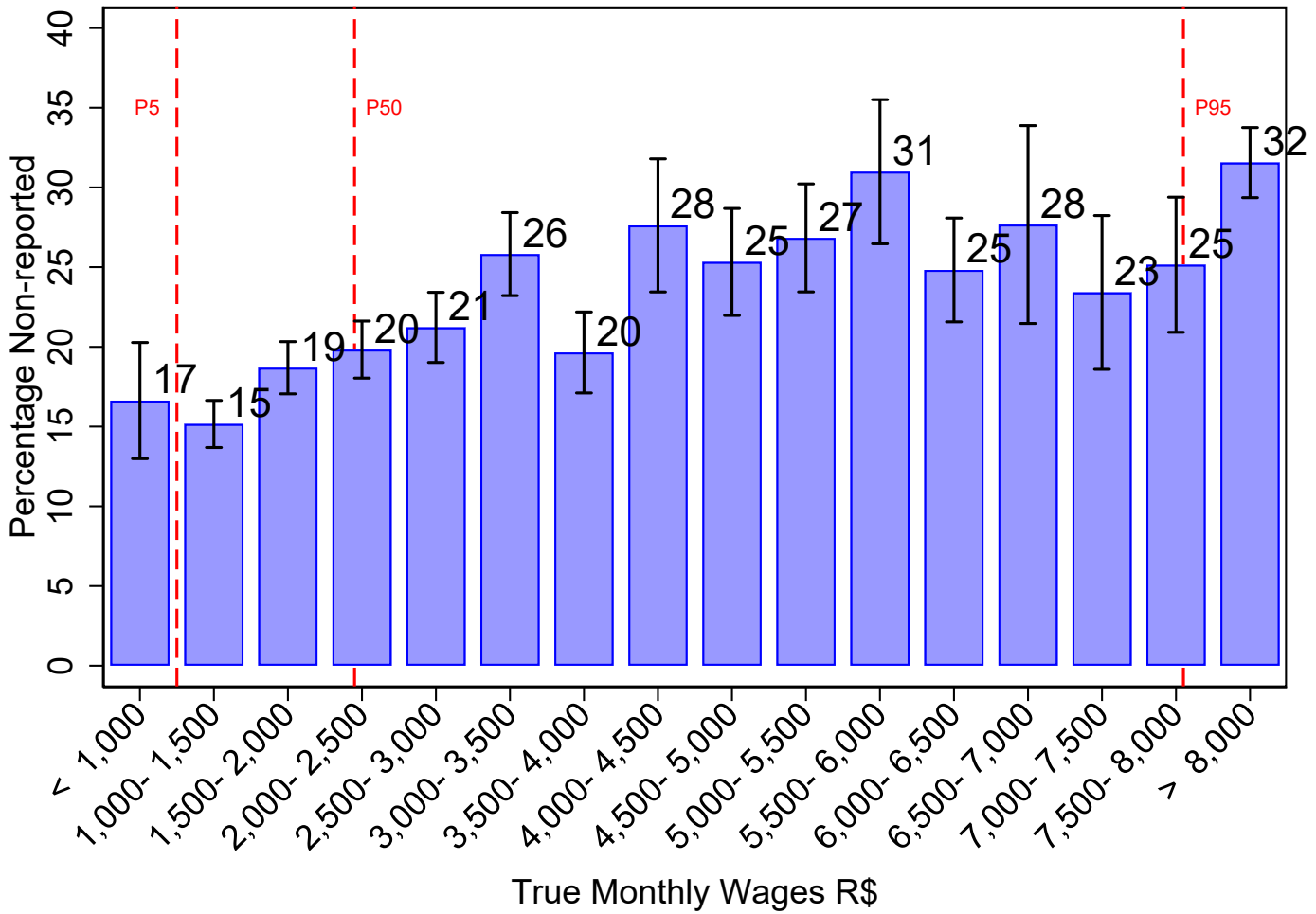
Fraction receiving PUT by wage group
(Only formal workers)



The proportion of non-reported wage increases as wage increases

Evidence from our Survey - Distribution

% Paid under the table by wage group
(Only PUT receivers)



The proportion of non-reported wage increases as wage increases

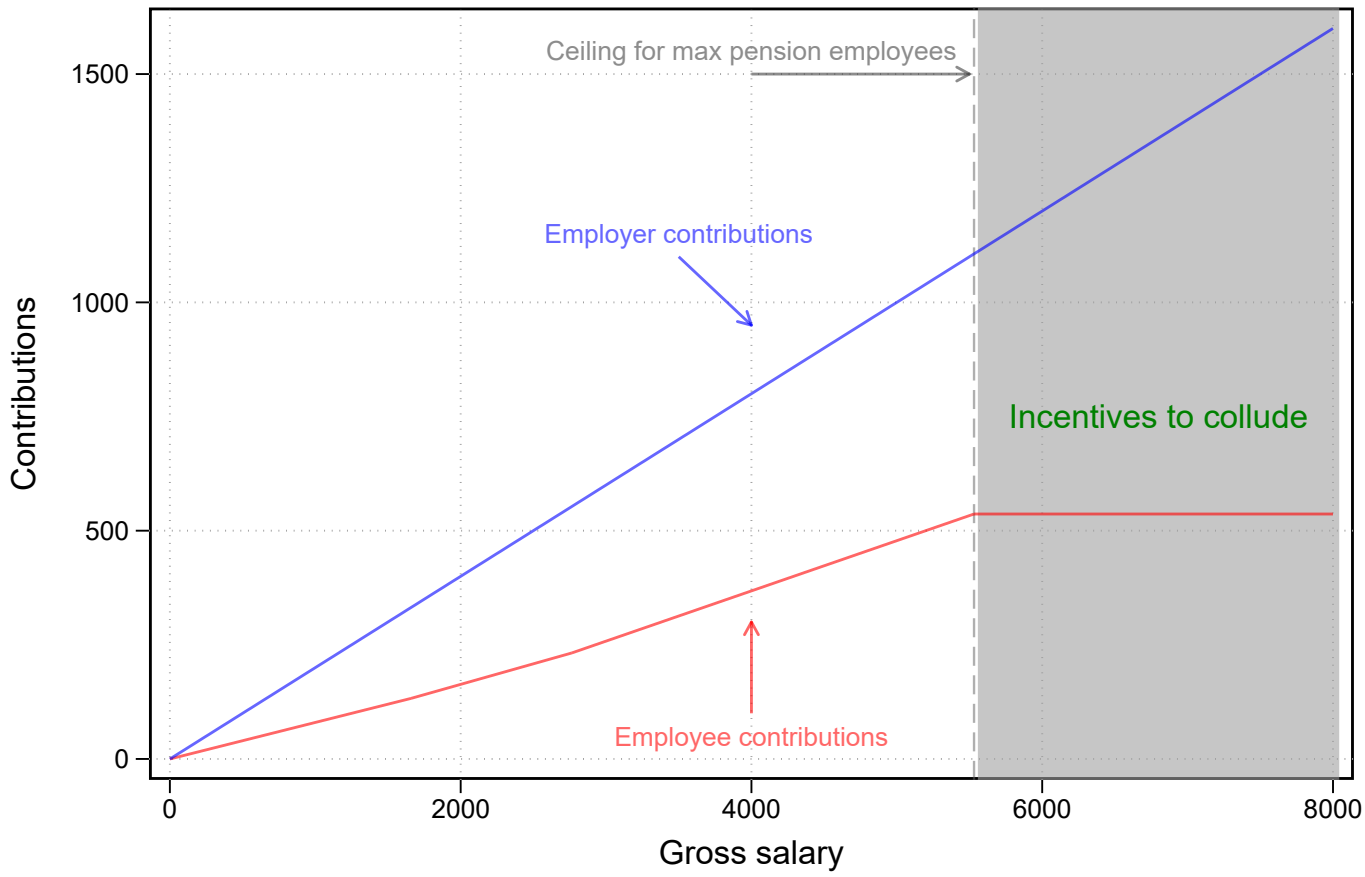
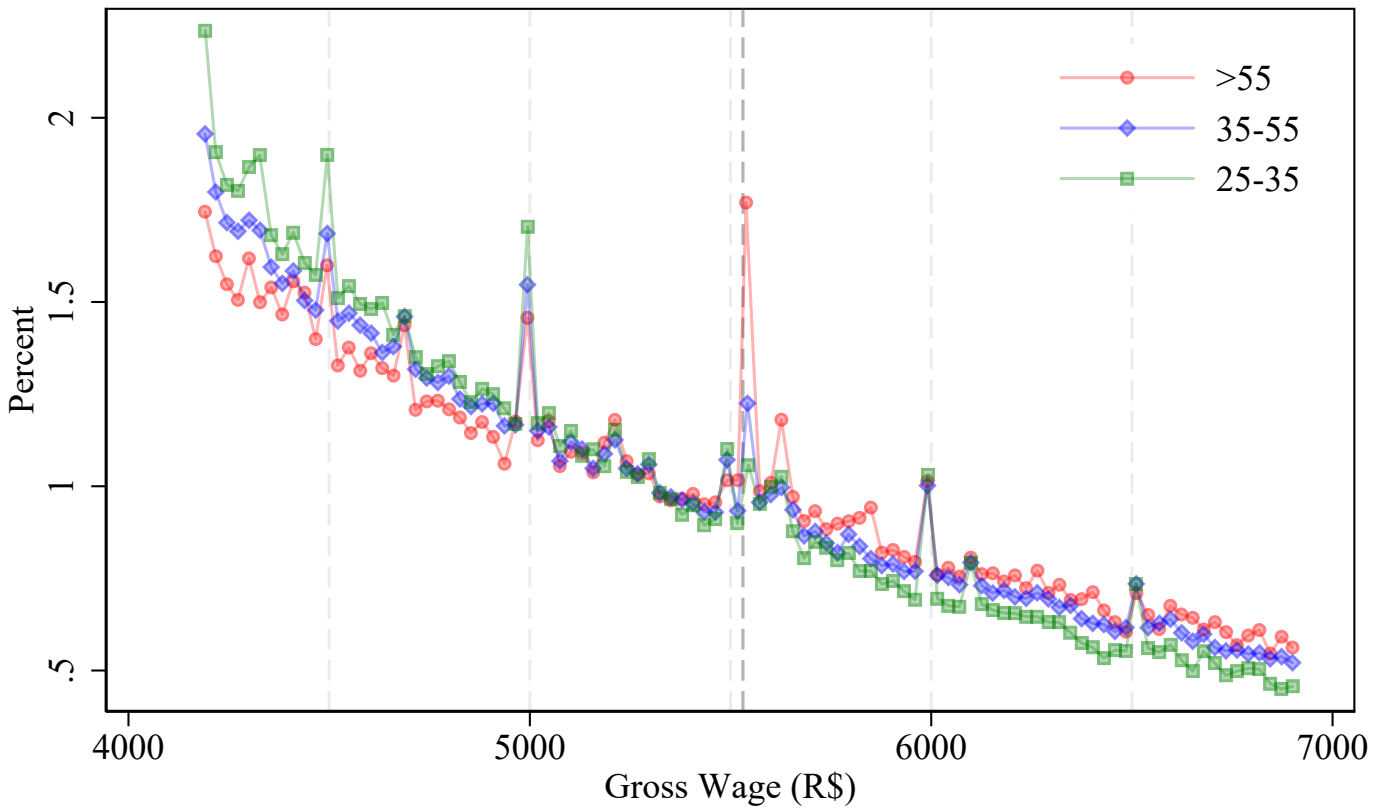


Figure: Ceiling and Incentives

See Details

Figure: Wage Distribution in 2017

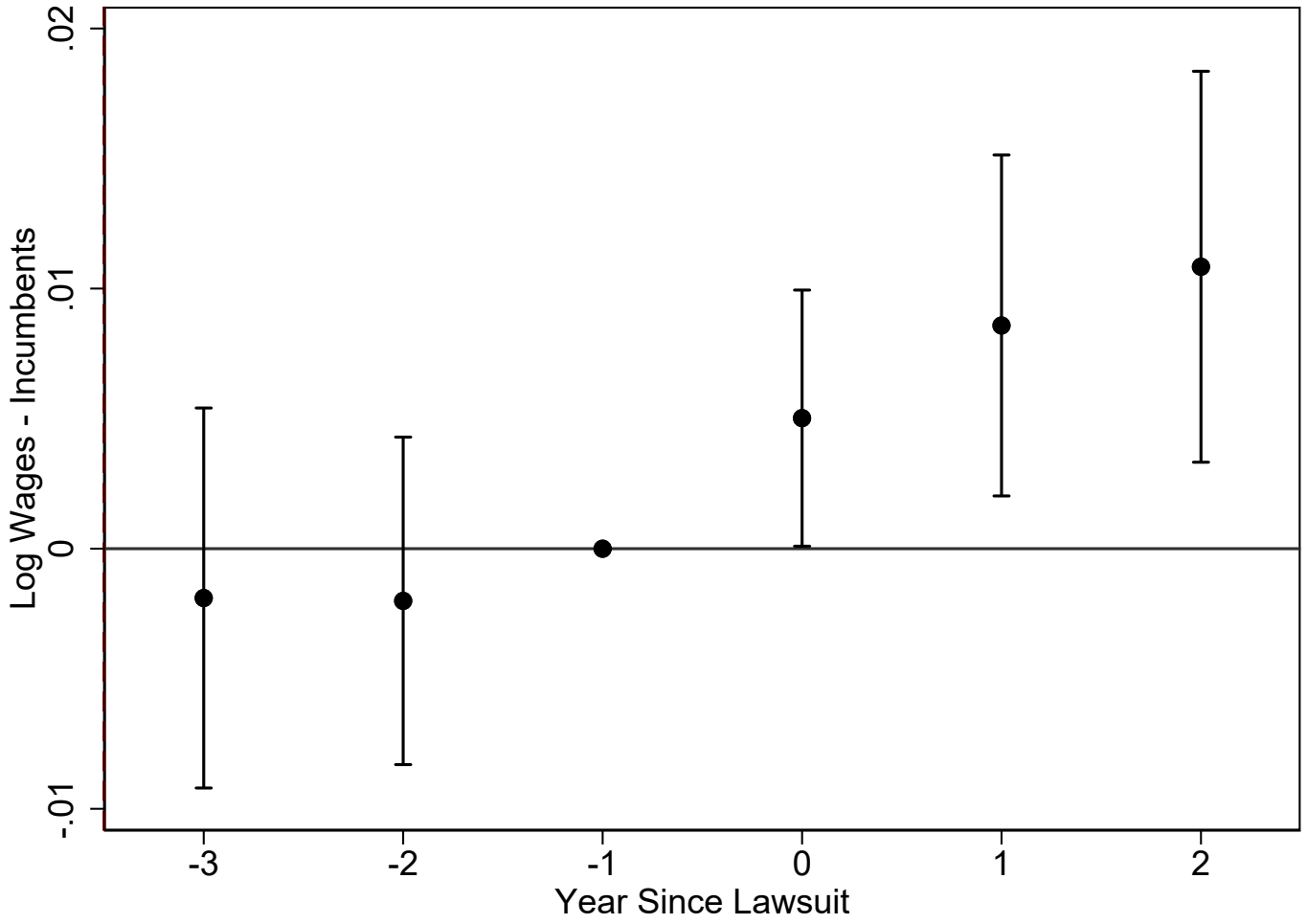


Old = 153793
Middle Age = 1106746
Young = 836581
Bins = 100
Ceiling: R$ 5,531

Workers close to retirement have higher incentives to report their true wages, but up to the ceiling.

Results

Average Log Wages - Incumbent Workers



This plot shows that reported wages of incumbent workers increase by 1% after the lawsuit relative to the control group.

HISTORY OF TAX COLLECTION

Interesting to understand why taxes develop the way they do [Webber-Wildavsky '86 book, Ardant '71 book in French]

During most of history, governments were under the tax enforcement constraint: they were collecting as much taxes as possible given the economic / informational conditions

Many developing countries today still face such tax enforcement constraints

Earliest taxes are tributes: conquerors / rulers realize that it is more lucrative to raise periodic tributes than outright raiding

FROM ARCHAIC TO MODERN TAXES

1) Coercive state from 3000BC-1900AD: rise of despotic kingdoms, invent taxes (and writing) and forced labor to serve power of hierarchical state (Scott 2017)

Governments try to extract revenue through rules without destroying economic activity and without generating tax revolts: "plucking the goose while minimizing hissing" (Colbert)

Combination of poll taxes, land taxes, product taxes (tithe), excise taxes, tolls, govt monopolies (govt size $\leq$ 10% of GDP supports only regalian public goods)

European countries have largest states and largest military to colonize world (Piketty 2020)

2) Rise of social state in 20th century: modern taxes based on formal businesses (payroll taxes, income taxes, VATs) with big govt 30-50% of GDP serve population rather than state

Taxation as the Origin of States

States first arise through warfare and conquest in productive areas (e.g. Nile Valley) to extract taxes (see Carneiro, 1970)

Modern test of this theory: Sanchez JPE'20 surveys Eastern Congo villages in war areas

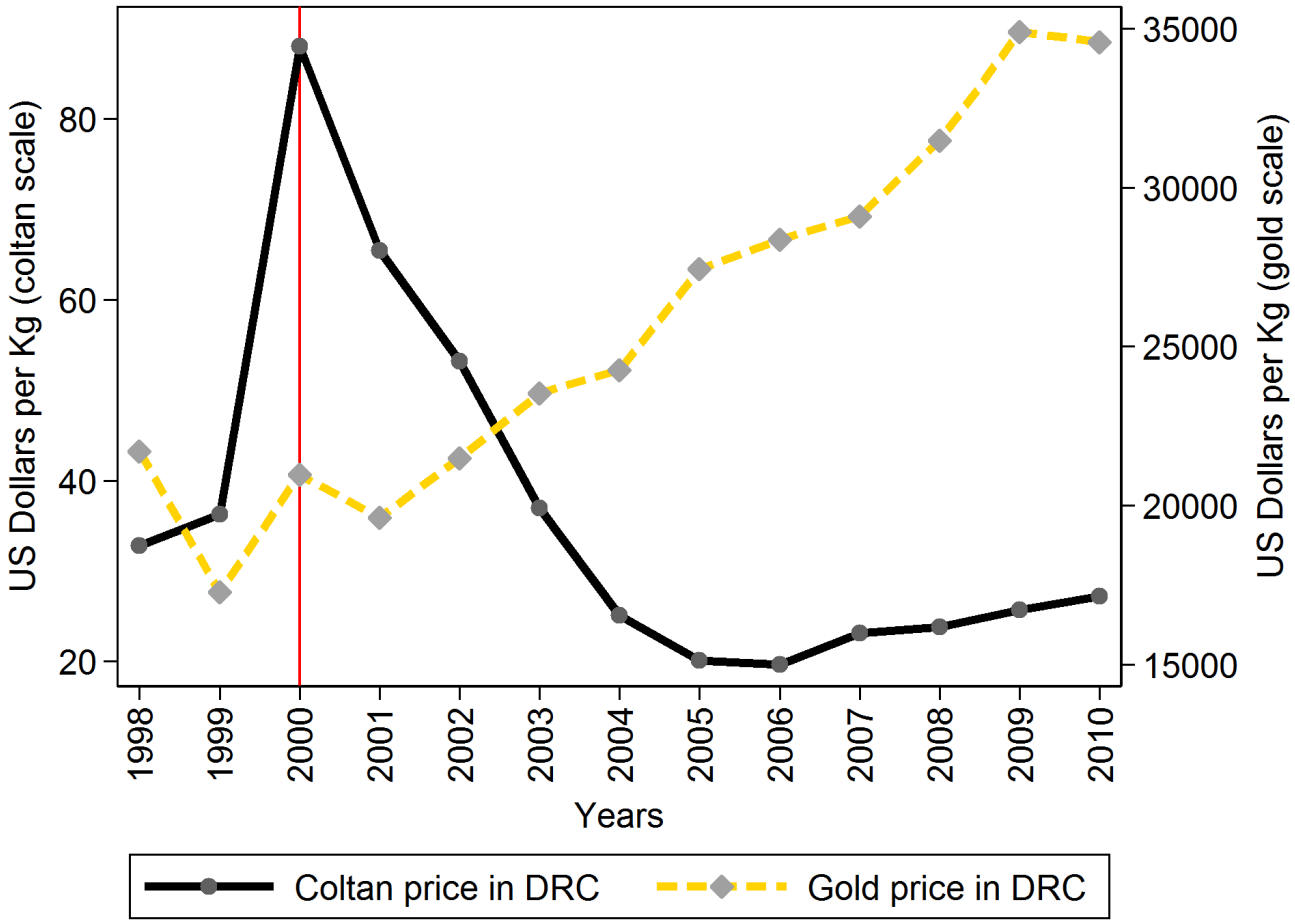
Bandits establish "local states" (=order and taxes) when village tax potential is high

(a) villages with coltan mineral have tax potential particularly when coltan price is high

(b) villages with gold mineral do not have tax potential (bc gold can be easily hidden)

Likelihood of taxation of coltan mining sites follows coltan price

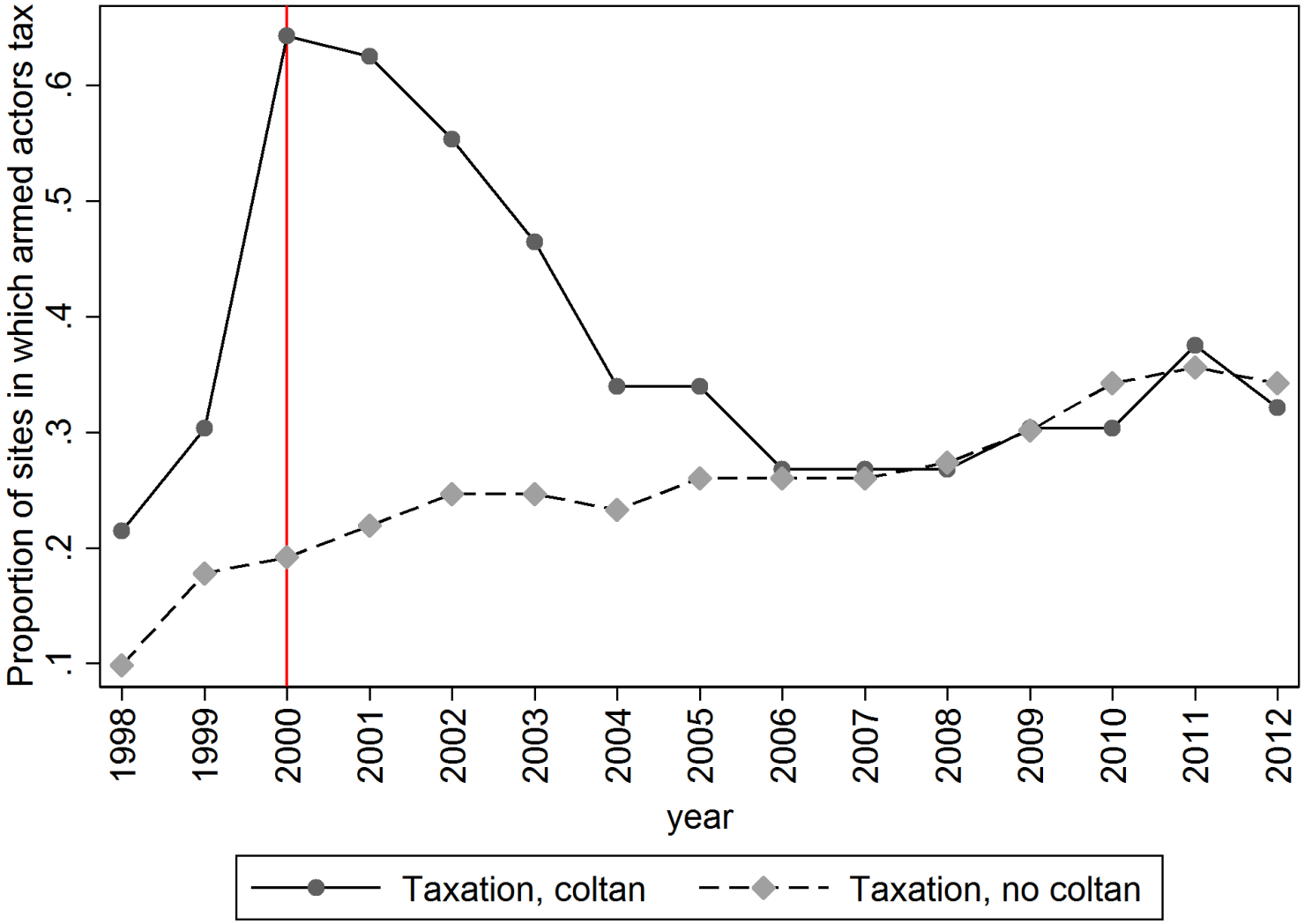
Figure 2: Local prices of coltan and gold



Notes: This figure plots the yearly average price of gold and coltan in Sud Kivu, in USD per kilogram, as measured in the survey. The price of coltan is scaled on the left vertical axis and the price of gold in the right axis. Source: United States Geological Survey (2010).

Source: Sanchez (2015)

Figure 9: Demand shock for coltan and presence of taxation



Notes: This figure plots the average number of sites where an armed actor collects taxes regularly on years. I take this variable from the site survey, in which the specialists are asked to list past taxes in the site. Taxes by an armed actor are defined in the survey as a mandatory payment on mining activity which is regular (sporadic expropriation is excluded), stable (rates of expropriation are stable) and anticipated (villagers make investment decisions with knowledge of these expropriation rates and that these will be respected). The solid line graphs the average number of mining sites where an armed actor collects regular taxes for mining sites that are endowed with available coltan deposits, and the dashed line reports the same quantity for mining sites that are not endowed with coltan deposits.

Source: Sanchez (2015)

Taxation and State Building

Weigel QJE'20 shows that citizens' engagement increases when taxes are enforced better

Field experiment randomizing property tax collection improvements across 356 neighborhoods of a large city in Congo (door to door registration and in-person appeals to pay)

First stage: property tax compliance: 0.1% in control to 11.6% in treatment.

Second stage: town hall attendance meetings or submitting local govt evaluations increased 5 points (or 31%)

Reverse causality: From public goods to taxes: Krause '21 finds in randomized experiment in Haiti that providing municipal garbage removal increases property tax compliance by 27% (and reduces localized political violence by 85%)

Source: Weigel QJE'20

TABLE III

EFFECTS OF THE CAMPAIGN ON COLLECTOR VISITS, TAXPAYER REGISTRATION, PROPERTY TAX COMPLIANCE, AND REVENUES

Dependent variable:	Visited by collector	Registered as taxpayer	Property tax compliance		Tax revenue per person
Unit:	Household	Household	Household	Neighborhood	Neighborhood
	(1)	(2)	(3)	(4)	(5)
Campaign	0.815***	0.788***	0.103***	0.115***	367.295***
	(0.013)	(0.009)	(0.007)	(0.009)	(62.518)
Stratum FE	Yes	Yes	Yes	Yes	Yes
R^2	0.640	0.577	0.054	0.396	0.173
Observations	27,443	27,443	27,443	356	356
Clusters	356	356	356	N/A	N/A
Control mean	0.0499	0.0000	0.0006	0.0005	1.5683

Notes. *Visited by collector* is an indicator for households reporting at least one visit by tax collectors in 2016. *Registered as taxpayer* is an indicator for households that were registered by collectors and assigned a unique tax ID. *Property tax compliance* is an indicator for households that paid the property tax in 2016. *Tax revenue per person* is the total property tax receipts per neighborhood divided by the estimated number of nonexempt property owners. See Section IV.B for details on these variables. The unit of analysis in the first three columns is the individual household, and the data include the universe of potential taxpayers (excluding the commune of Nganza). The unit in the last two columns is the neighborhood, which reduces potential for measurement error in merging administrative data with household surveys to estimate tax compliance and revenues. Tax revenue is measured in Congolese francs. Data: midline survey merged with government tax database.

TABLE IV

EFFECTS OF THE CAMPAIGN ON PARTICIPATION

	Town hall meeting attendance (1)	Evaluation form submission (2)	Town hall or evaluation (3)	Town hall and evaluation (4)	Index (town hall & evaluation) (5)	Cost of participation (transport) (6)	Cost of participation (transport & opp.) (7)
Campaign	0.045**	0.024**	0.050***	0.027***	0.145***	0.050***	0.071***
	(0.020)	(0.012)	(0.016)	(0.009)	(0.043)	(0.017)	(0.021)
Covariates	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stratum FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.068	0.055	0.071	0.039	0.073	0.054	0.058
Observations	1,934	2,913	2,913	2,913	2,913	2,913	2,913
Clusters	252	356	356	356	356	356	356
Control mean	0.17	0.099	0.16	0.035	–0.077	0.11	0.16
Dep. var.	Binary	Binary	Binary	Binary	Std. index	% Daily inc.	% Daily inc.
Rand. inf. p	.023	.058	.0048	.0048	.0022	.0072	.0022
Bonferroni p	.033	.067	N/A	N/A	N/A	N/A	N/A

Notes. *Town hall meeting attendance* is an indicator variable that equals 1 if an individual attended a town hall meeting. *Evaluation form submission* is an indicator variable that equals 1 if an individual submitted an evaluation. *Town hall or evaluation* indicates that an individual either attended a town hall meeting or submitted an evaluation. *Town hall and evaluation* indicates that an individual attended a town hall meeting and submitted an evaluation. *Index (town hall & evaluation)* is the standardized sum of *Town hall meeting attendance* and *Evaluation form submission*. *Cost of participation (transport)* and *Cost of participation (transport & opp.)* are the estimated transport costs, or transport plus opportunity costs (respectively), incurred by individuals to attend a town hall and/or submit an evaluation as a share of average daily household income. See Section IV.B for details on all variables. Covariates include gender, age, age squared, wealth, a business owner dummy, and the quality of public lighting in the neighborhood, as discussed in Section IV.D. Online Appendix Section A4 shows other covariate regimes. The last two rows show p-values from randomization inference (with 5,000 iterations) and with Bonferroni adjustments, respectively. Data: endline survey merged with town hall attendance and submitted evaluation records as well as cost estimates from enumerator motorcycle taxi receipts. The sample size is smaller in column (1) because the government discontinued town halls after April 1 due to insecurity in Kananga. Endline respondents sampled after this date never had a chance to attend a meeting.

Source: Weigel QJE'20

VARIOUS SALES TAXES

Turnover taxes used to tax all sales: business to consumer (B-C) and business to business (B-B):

Creates multiple layers of taxes along a production chain $\Rightarrow$ Higher total tax when B-B-C than B-C

Retail Sales Tax is imposed on B-C sales only [B-B exempt]: difficult to distinguish B-B and B-C (shifting), strong evasion incentive for B-C [sales tax does not work well with small retailers]

Value-Added-Tax (VAT) taxes only value added [sales minus purchases] in all transactions (B-B and B-C): equivalent to retail sales economically but easier to enforce [automatic upstream enforcement]

VAT first introduced in France in 1950s, has spread to most countries [US only rich country without VAT]

POMERANZ AER'15 VAT EXPERIMENT

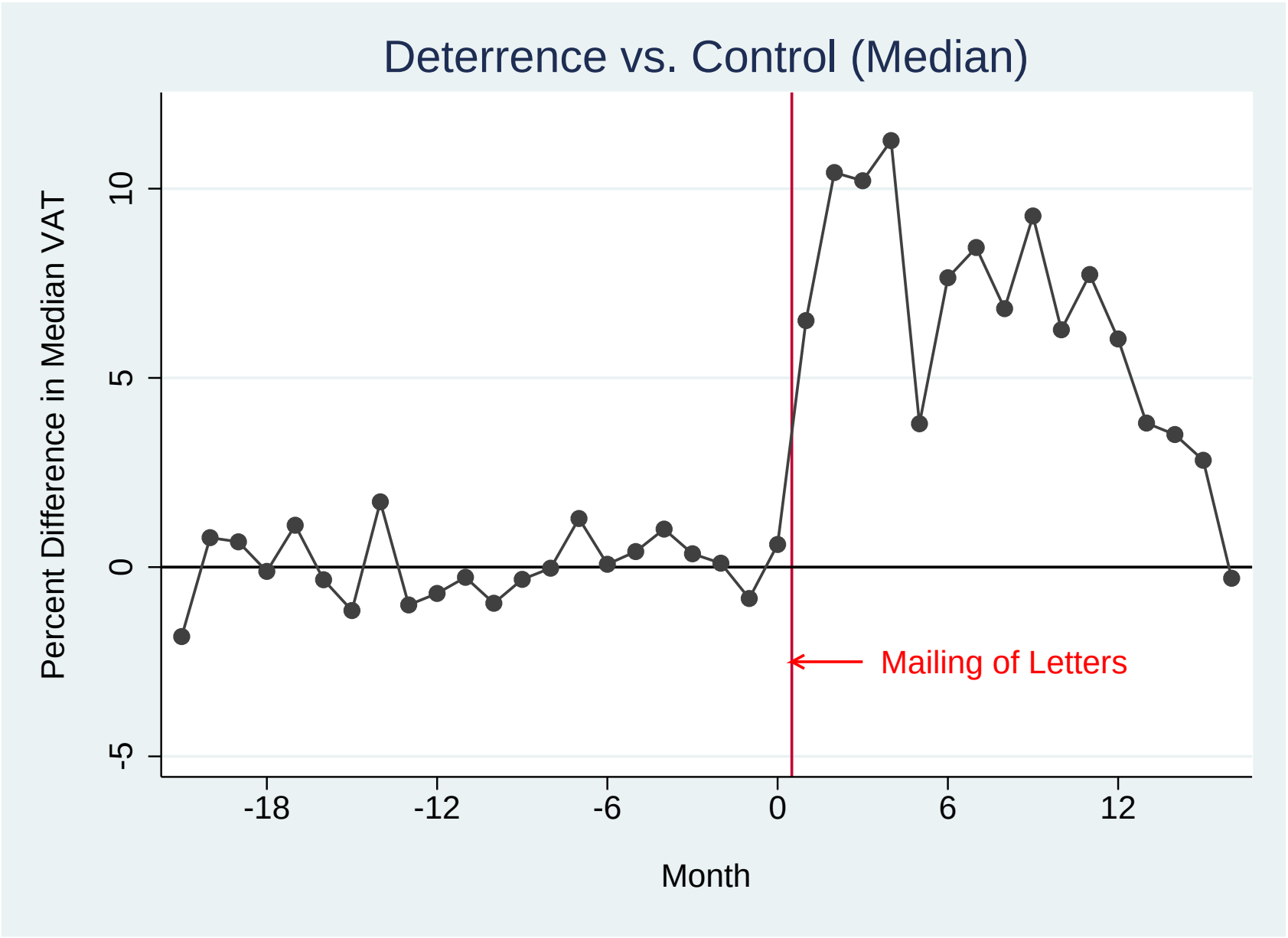
Randomized experiment with 445,000 firms in Chile: sent threat of VAT audit letters to sub-sample of businesses

Key Results:

1) Significant effect of letters on VAT collection (+10% over 12 months)

2) Smaller impact on reported transactions that already have a paper trail (intermediate sales) than on those which don't (final sales)

3) Effect of random audit announcement is transmitted up the VAT chain, increasing compliance by firms' suppliers



Source: Pomeranz AER'14

Panel A

Table 4: Letter Message Experiment: Intent-to-Treat Effects on VAT Payments by Type of Letter

	(1) Mean VAT	(2) Median VAT	(3) Percent VAT > Previous Year	(4) Percent VAT > Predicted	(5) Percent VAT > Zero
Deterrence letter X post	-1,114	1,326***	1.40***	1.42***	0.53***
	(2,804)	(316)	(0.12)	(0.10)	(0.09)
Tax morale letter X post	-1,840	262	0.40	0.30	0.44**
	(6,082)	(666)	(0.25)	(0.22)	(0.20)
Placebo letter X post	835	383	-0.11	-0.19	-0.14
	(6,243)	(687)	(0.26)	(0.23)	(0.20)
Constant	268,810***	17,518***	47.50***	48.27***	67.30***
	(1,799)	(112)	(0.07)	(0.07)	(0.06)
Month fixed effects	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	No	Yes	Yes	Yes
Treatment Assignment	No	Yes	No	No	No
Number of observations	7,892,076	1,221,828	7,892,076	7,892,076	7,892,076
Number of firms	445,734	445,734	445,734	445,734	445,734
Adjusted R^2	0.40		0.14	0.28	0.47

Notes: Column (1) shows a regression of the mean declared VAT on treatment dummies, winsorized at the top and bottom 0.1% to deal with extreme outliers. Column (2) shows a median regression of average VAT before treatment and in 4 months after each treatment wave. Columns (3)-(5) show linear probability regressions of the probability of an increase in declared VAT compared to the same month in the previous year, the probability of declaring more than predicted and the probability of declaring any positive amount. Observations are monthly in Columns (1) and (3)-(5) for ten months prior to treatment and four months after each wave of mailing. The four months after the second wave excludes firms treated in the first. Coefficients and standard errors of the linear probability regressions are multiplied by 100 to express effects in percent. Monetary amounts are in Chilean pesos, with 500 Chilean pesos approximately equivalent to 1 USD. Standard errors in parentheses, robust and clustered at the firm level for Columns (1) and (3)-(5). *** p<0.01, ** p<0.05, * p<0.1.

Source: Pomeranz AER'15

Table 5: Impact of Deterrence Letter on Different Types of Transactions

	(1) Percent Sales > Previous Year	(2) Percent Input Costs > Previous Year	(3) Percent Intermediary Sales > Previous Year	(4) Percent Final Sales > Previous Year
Deterrence letter X post	1.17***	0.16	0.12	1.33***
	(0.22)	(0.21)	(0.19)	(0.21)
Constant	55.39***	53.25***	38.37***	45.04***
	(0.13)	(0.13)	(0.12)	(0.12)
Month fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Number of observations	2,392,529	2,392,529	2,392,529	2,392,529
Number of firms	133,156	133,156	133,156	133,156
Adjusted R^2	0.25	0.22	0.30	0.32

Notes: Regressions of the probability of the line item (total sales, total input costs, intermediary sales, and final sales) being higher than in the same month the previous year. Sample of firms that have both final and intermediary sales in the year prior to treatment. The four months after the second wave excludes firms treated in the first wave. Coefficients and standard errors are multiplied by 100 to express effects in percent. Robust standard errors in parentheses, clustered at the firm level. *** p<0.01, ** p<0.05, * p<0.1.

Source: Pomeranz AER'15

Table 6: Interaction of Firm Size and Share of Sales to Final Consumers

Panel A:	Percent VAT > Previous Year				
	(1)	(2)	(3)	(4)	(5)
Deterrence letter X final sales share	1.61***			1.48***	1.43***
	(0.26)			(0.27)	(0.26)
Deterrence letter X size category		-0.17***		-0.10***	
		(0.04)		(0.04)	
Deterrence letter X log employees			-0.45***		-0.29**
			(0.11)		(0.12)
Deterrence letter	0.68***	2.63***	1.66***	1.49***	0.92***
	(0.16)	(0.29)	(0.13)	(0.35)	(0.19)
Constant	47.53***	48.87***	47.50***	48.89***	47.53***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
Final sales share X post	Yes	No	No	Yes	Yes
Size measure X post	No	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes
Month dummies	Yes	Yes	Yes	Yes	Yes
Observations	7,308,631	7,116,590	7,340,994	7,084,823	7,308,631
Number of firms	406,834	396,135	408,636	394,367	406,834
Adjusted R^2	0.14	0.14	0.14	0.14	0.14

Source: Pomeranz AER'15

Table 7: Spillover Effects on Trading Partners' VAT Payments

	(1) Percent VAT > Previous Year	(2) Percent VAT > Predicted	(3) Percent VAT > Previous Year	(4) Percent VAT > Predicted	(5) Percent VAT > Previous Year	(6) Percent VAT > Predicted
Audit announcement X post	2.41**	2.03*				
	(1.14)	(1.11)				
Audit announcement X supplier X post			4.28***	3.92***	4.14***	3.83***
			(1.54)	(1.50)	(1.52)	(1.52)
Audit announcement X client X post			-0.26	-0.28	-0.14	-0.28
			(1.64)	(1.51)	(1.67)	(1.55)
Supplier X post			-0.64	0.34	-1.11	0.60
			(1.62)	(1.59)	(1.67)	(1.64)
Constant	52.07***	49.06***	52.07***	49.06***	52.75***	50.11***
	(0.95)	(0.94)	(0.95)	(0.94)	(0.96)	(0.96)
Controls X post	No	No	No	No	Yes	Yes
Controls X audit announcement X post	No	No	No	No	Yes	Yes
Month fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	45,264	45,264	45,264	45,264	44,288	44,288
Number of firms	2,829	2,829	2,829	2,829	2,768	2,768
Adjusted R^2	0.05	0.11	0.05	0.11	0.05	0.10

Notes: Regressions for trading partners of audited firms. Column (1), (3) and (5) shows the probability of an increase in declared VAT since the previous year, Column (2), (4) and (6) shows the probability of declaring more than predicted. The controls in Columns (5) and (6) are firm sales, sales/input-ratio, share of sales going to final consumers, and industry categorized as "hard-to-monitor." Observations are monthly for ten months prior to treatment and six months after the audit announcements were mailed. Coefficients and standard errors are multiplied by 100 to express effects in percent. Robust standard errors in parentheses, clustered at the level of the audited firm. *** p<0.01, ** p<0.05, * p<0.1.

Source: Pomeranz AER'15

WEALTH IN TAX HAVENS ZUCMAN QJE'13

Official statistics substantially underestimate the net foreign asset positions of rich countries because they do not capture most of the assets held by households in off-shore tax havens

Example: US individual opens a Cayman Islands account and buys mutual fund shares (composed of US stock): Cayman Islands record a liability but US do not record an asset (because this is not reported in the US)

$\Rightarrow$ Total world liabilities are larger than world total assets

Zucman compiles all financial stats and estimates that around 8% of the global financial wealth of households is held in tax havens (three-quarters of which goes unrecorded = 6%)

Top 1% holds about 50% of total financial wealth $\Rightarrow$ 12% of financial wealth of the rich is hidden in tax heavens

Alstadsaeter-Johannesen-Zucman JpubE'18 use Bank for International Settlements (BIS) data to distribute offshore wealth across countries of origin

DISTRIBUTIONAL WEALTH IN TAX HAVENS

Alstadsaeter-Johannesen-Zucman AER19 link data from HSBC leak of accounts to Norwegian tax data

Complete file of the clients of HSBC Switzerland was leaked in 2007 and obtained by tax authorities

HSBC: large bank ($\simeq$ 5% of Swiss offshore wealth)

Accounts frequently held through shell companies, but HSBC recorded identity of beneficial owners

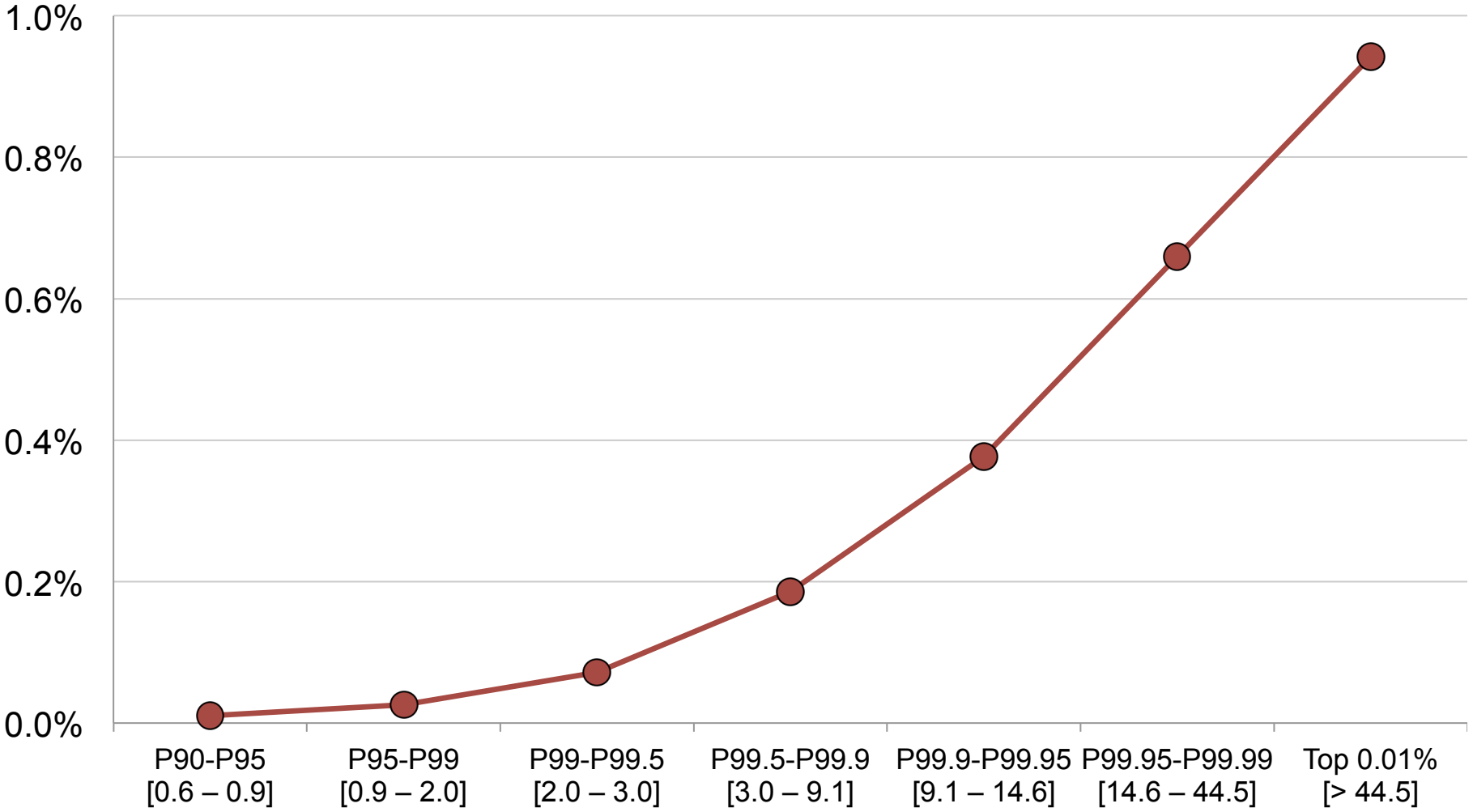
Clear-cut way to identify evasion by linking to tax returns of clients: linking done in Scandinavia

Similar exercise done for Panama Papers leak and tax amnesty

Londono-Avila '21 show that Panama Papers leak increased voluntary disclosure of evasion for Colombia wealth tax

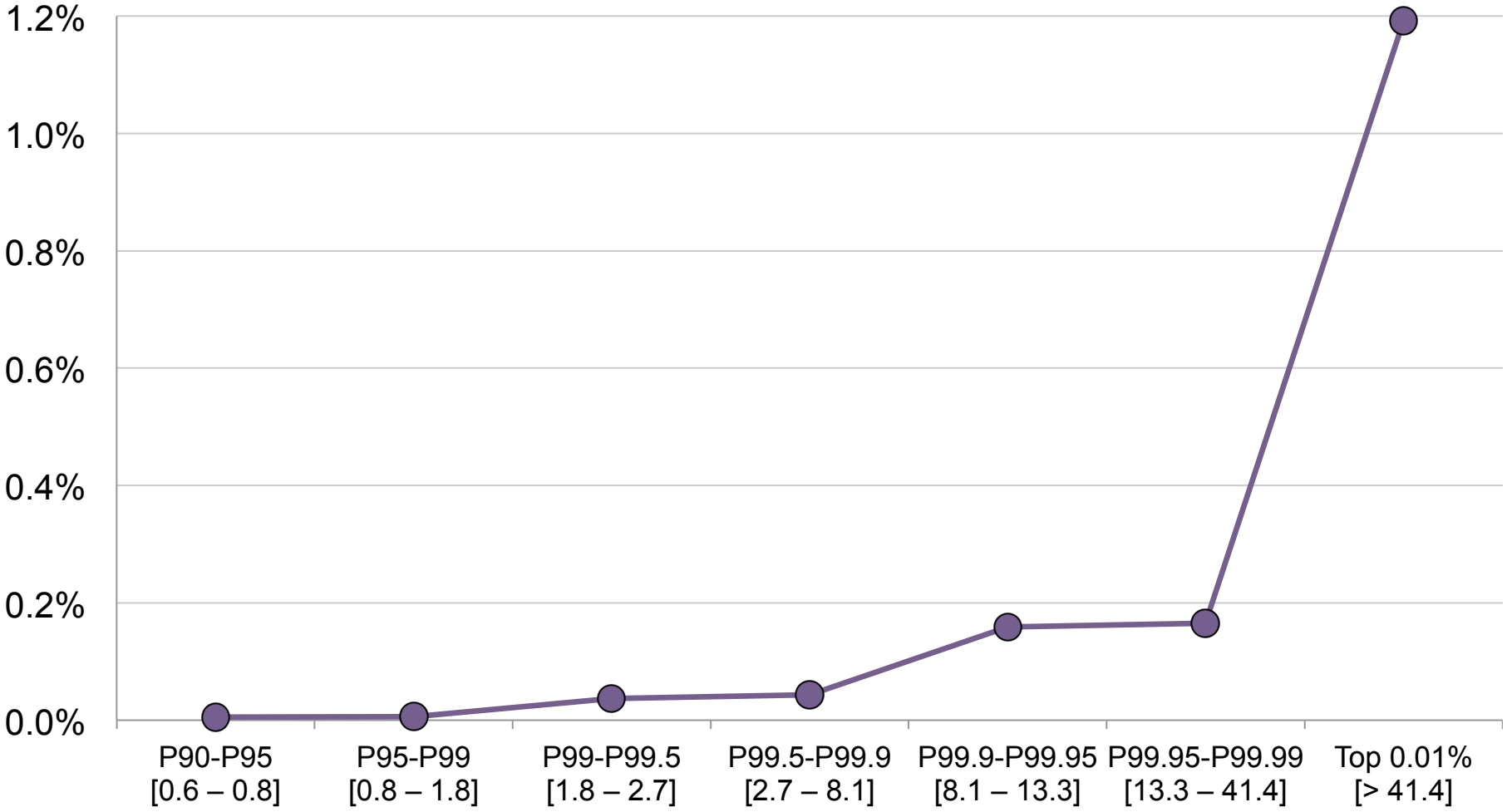
Probability to own an unreported HSBC account, by wealth group

(HSBC leak)



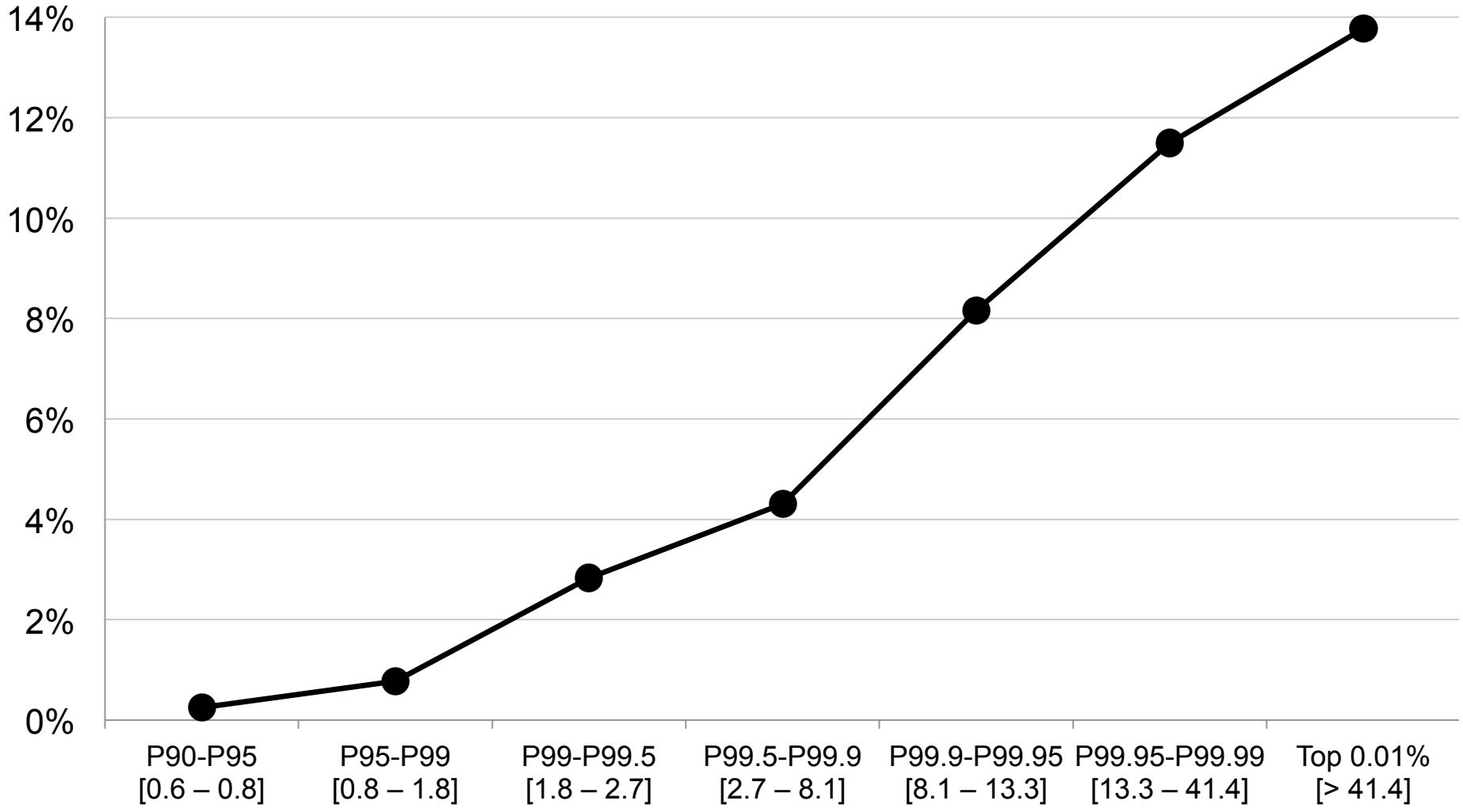
Source: Alstadsæter (2019)

Probability to appear in the "Panama Papers", by wealth group
(Shareholders of shell companies created by Mossack Fonseca)

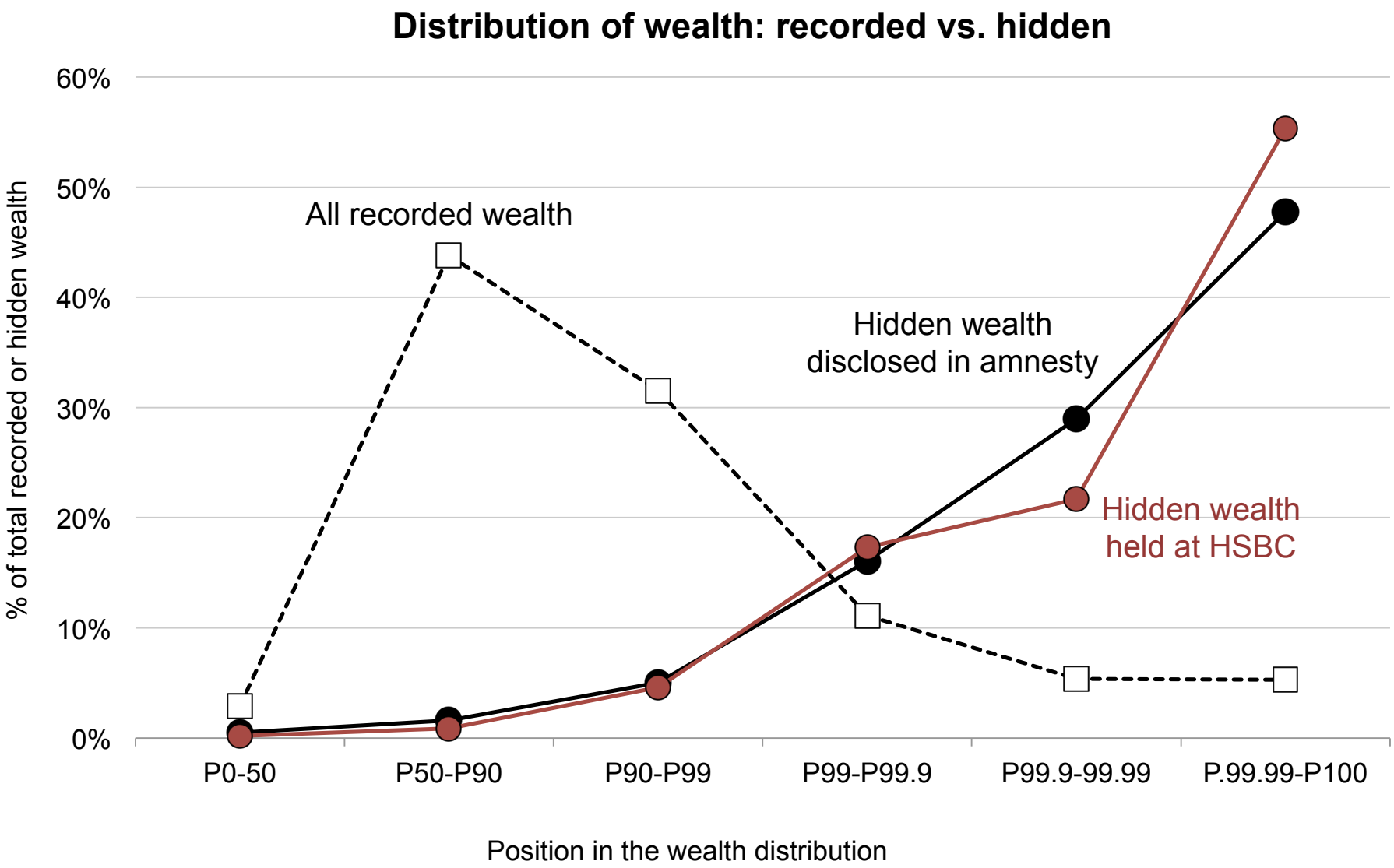


Source: Alstadsæter (2019)

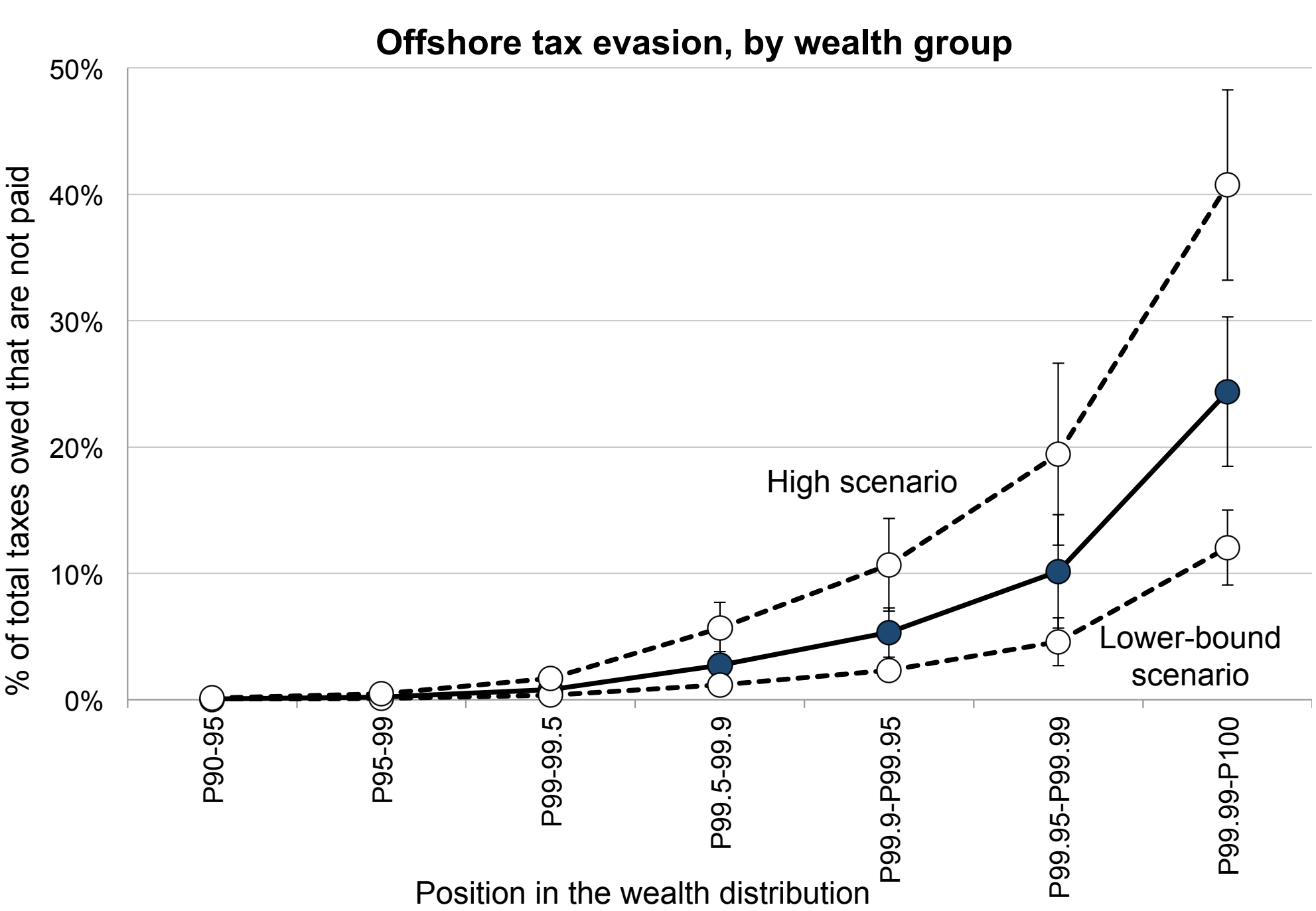
Probability to voluntarily disclose hidden wealth, by wealth group
(Swedish and Norwegian tax amnesties)



Source: Alstadsæter (2019)



Source: Alstadsæter (2019)


Offshore tax evasion, by wealth group
50%
40%
30%
20%
10%
0%
% of total taxes owed that are not paid
High scenario
Lower-bound scenario
P90-95
P95-99
P99-99.5
P99.5-99.9
P99.9-P99.95
P99.95-P99.99
P99.99-P100
Position in the wealth distribution

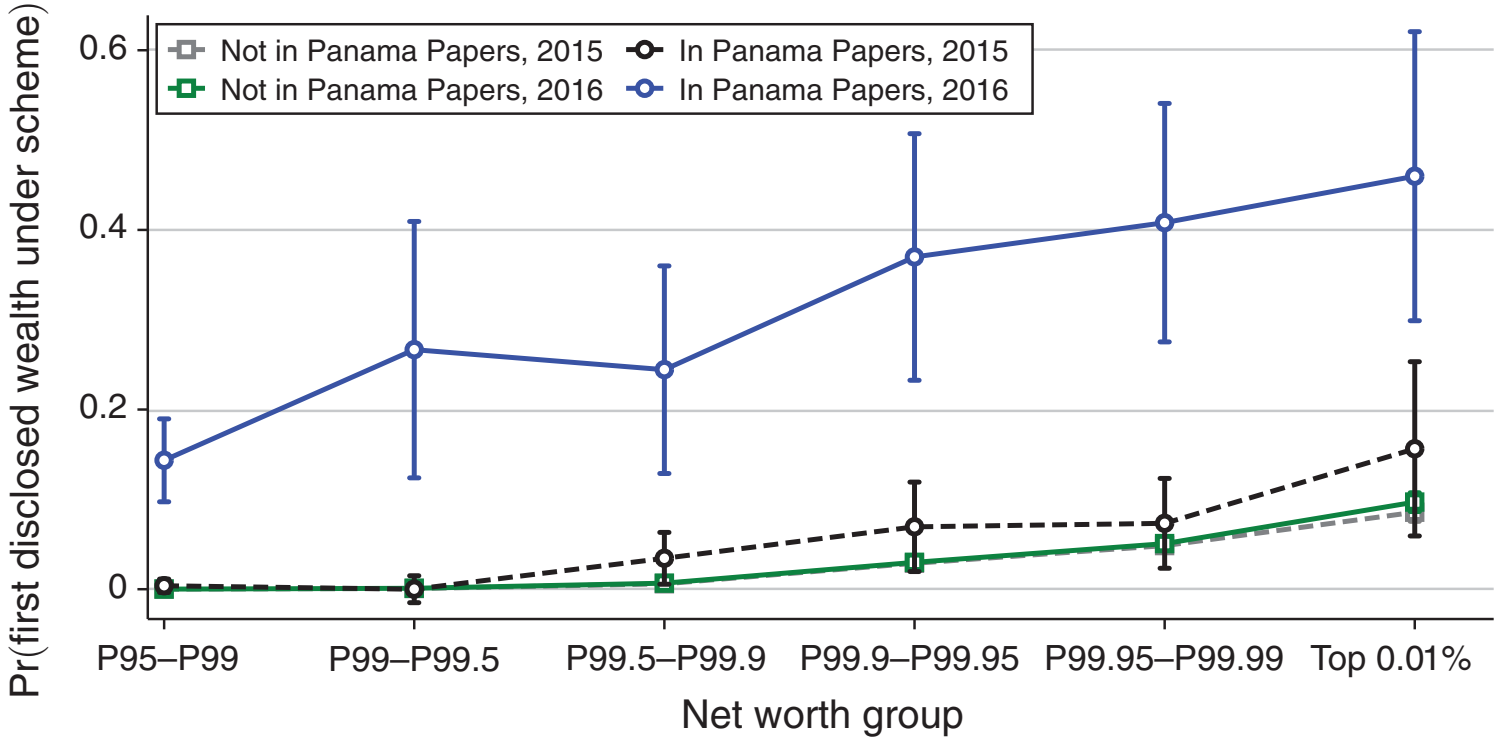
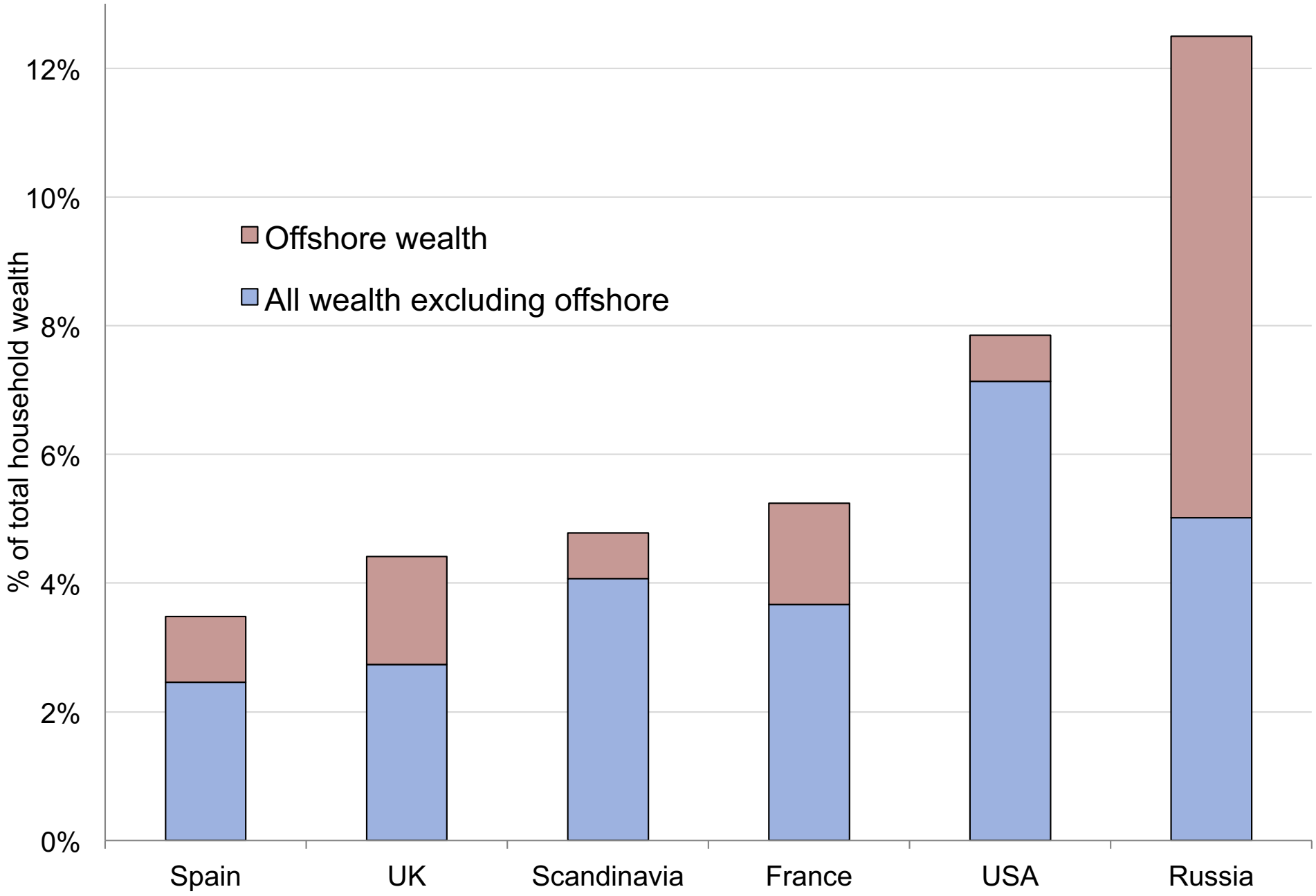


FIGURE 3. THE PANAMA PAPERS LEAK RAISED DISCLOSURES OF HIDDEN WEALTH

Notes: This figure presents the effect of the Panama Papers leak on disclosing wealth under Colombia's voluntary disclosure scheme. The markers plot raw means of the probability of first disclosing hidden wealth in 2015 (before the leak) and 2016 (after the leak) for taxpayers in the Panama Papers (round marker) and taxpayers not in the Panama Papers (square marker) by wealth group. The vertical lines represent the 95 percent confidence intervals. The Panama Papers leak in 2016 raised disclosures for those named in the leak. The sample is the universe of individuals filing income or wealth tax returns in 2015, 2016, or 2017, that is, 2,421,936 individuals—of which 1,167 appear named in the Panama Papers. Wealth groups are generated every year based on reported wealth including disclosures. The pre-leak differences in disclosures between taxpayers named versus not named in the Panama Papers are statistically significant (but economically negligible) for groups P99–P99.5 and P99.5–P99.9; they are not statistically significant for all other groups.

Top .01% wealth share and composition from 2000-2009
Source: Alstadsaeter, Johannesen and Zucman JpubE'18



CURBING OFF-SHORE TAX EVASION

Rich individuals can evade taxes on wealth and capital income using offshore accounts in tax havens with bank secrecy

US passed FATCA in 2010: requires foreign banks to report accounts owned by US persons to IRS or face stiff penalties

$\Rightarrow$ Almost all banks complied (Panama papers leak risk)

$\Rightarrow$ Extended to all OECD+G20 countries in 2014: **Common Reporting Standard**

$\Rightarrow$ Harder today to evade taxes through offshore accounts

Casi et al. 2020 shows that cross-border deposits in tax havens have declined by 12% after adoption (but still scope for evasion)

Real estate not subject to CRS has become more attractive to companies incorporated in tax havens (Bomare-Le Guern 2022 study London)

Tax Avoidance of Multinational Corporations

Multinational firms: Firms that operate in multiple countries. Foreign branches of the firm are called subsidiaries.

Territorial tax system: Corporations earning income abroad pay taxes to countries in which the income is earned (most countries use this system)

Global tax system: Corporations are taxed by their home countries on their income regardless of where it is earned (with tax credit for foreign corporate taxes paid)

US had global tax system before 2018 (but foreign profits were taxed only when "repatriated")

Repatriation Tax Holidays (before 2018)

In US pre-2018, owners eventually wanted the income repatriated from abroad and paid out to them as dividends

Corporations paid normal (old) corporate tax 35% tax on foreign profits upon repatriation

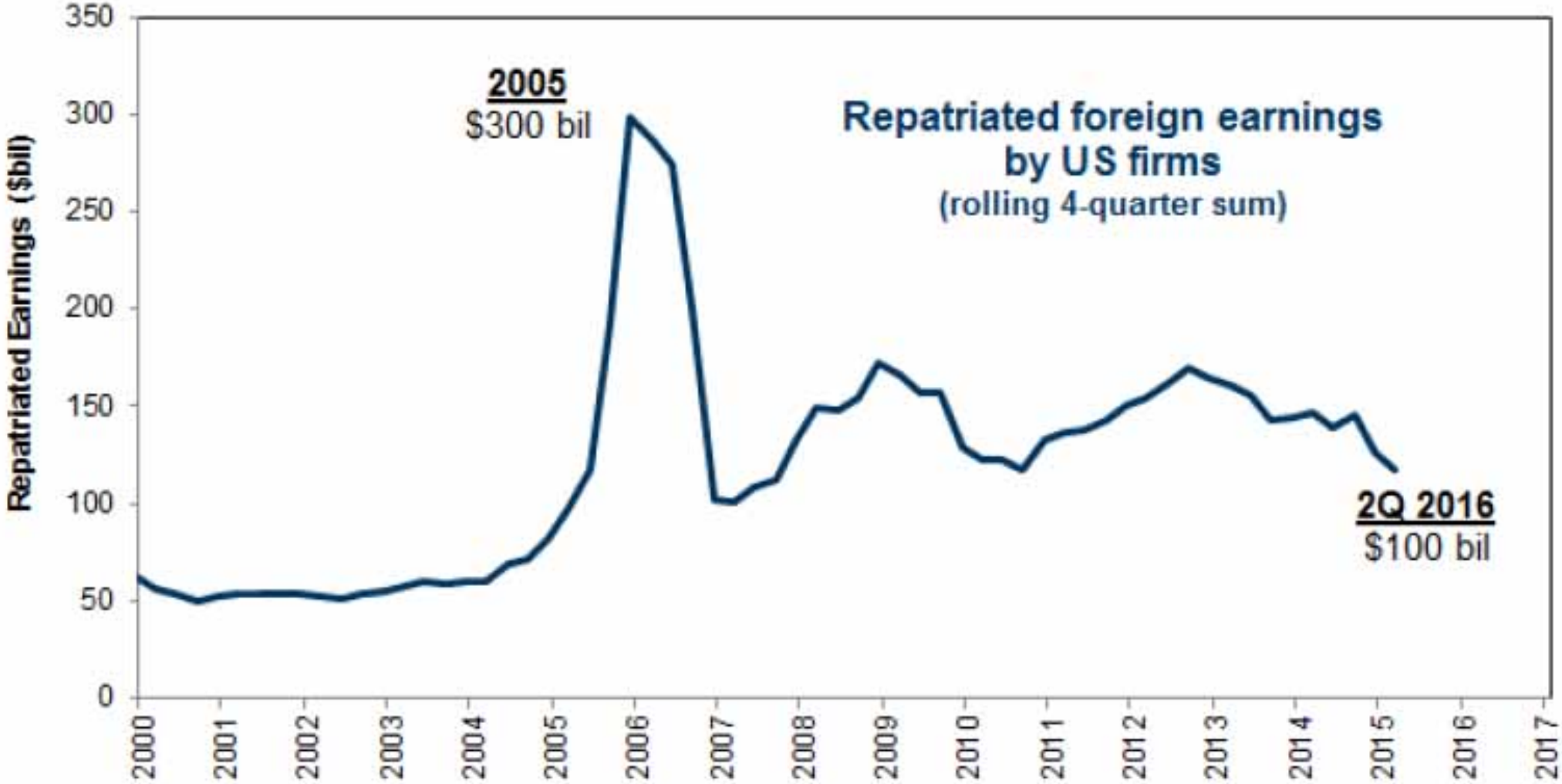
Massive amount of profits accumulated abroad (about $2.5 Tr by 2018) $\Rightarrow$ Temptation for politicians to offer repatriation tax holiday

American Jobs Creation Act of 2004: Reduced tax rate on repatriated profits from 35% to 5.25% for 2005 only: surge in repatriations in 2005 (by $250bn) followed by reductions in repatriations in subsequent years

$\Rightarrow$ Net tax loser and no surge in investment

2018 Trump tax reform forces repatriations over 2018-2025 with 15.5% tax on cash and 8% on other assets and imposes min tax of 10.5% on new foreign profits with foreign tax credit

Exhibit 5: Earnings repatriated by all US firms
as of 2Q 2016



Source: Bureau of Economic Analysis, Goldman Sachs Global Investment Research

Tax Avoidance of Multinationals (Zucman '14)

Share of profits made abroad by US corporations is about 1/3 today (was less than 5% in the 1930s)

50% of foreign profits of **multinationals** are reported in tax havens (such as Ireland)

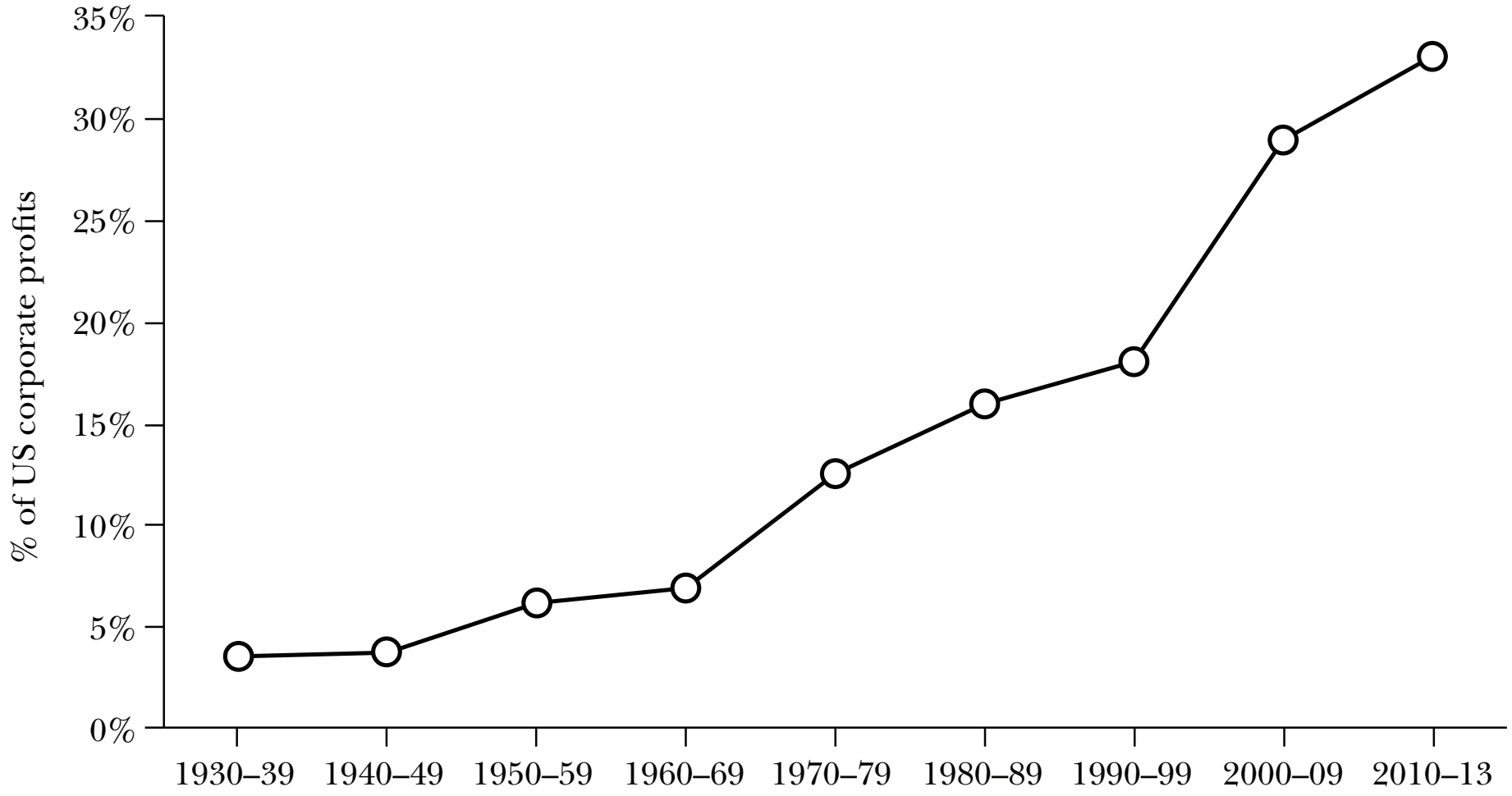
Multinational companies are particularly savvy to avoid corporate income tax by reporting most of their profits in low tax countries using **transfer pricing**: one subsidiary buys/sells to another at manipulated prices to transfer profits

Example: Google located its search engine algorithm in Bermuda and Google Bermuda leases it to Google US, Google EU, etc.

Profits are moving to tax havens but not workers nor real capital $\Rightarrow$ This is a tax avoidance story

Figure 1

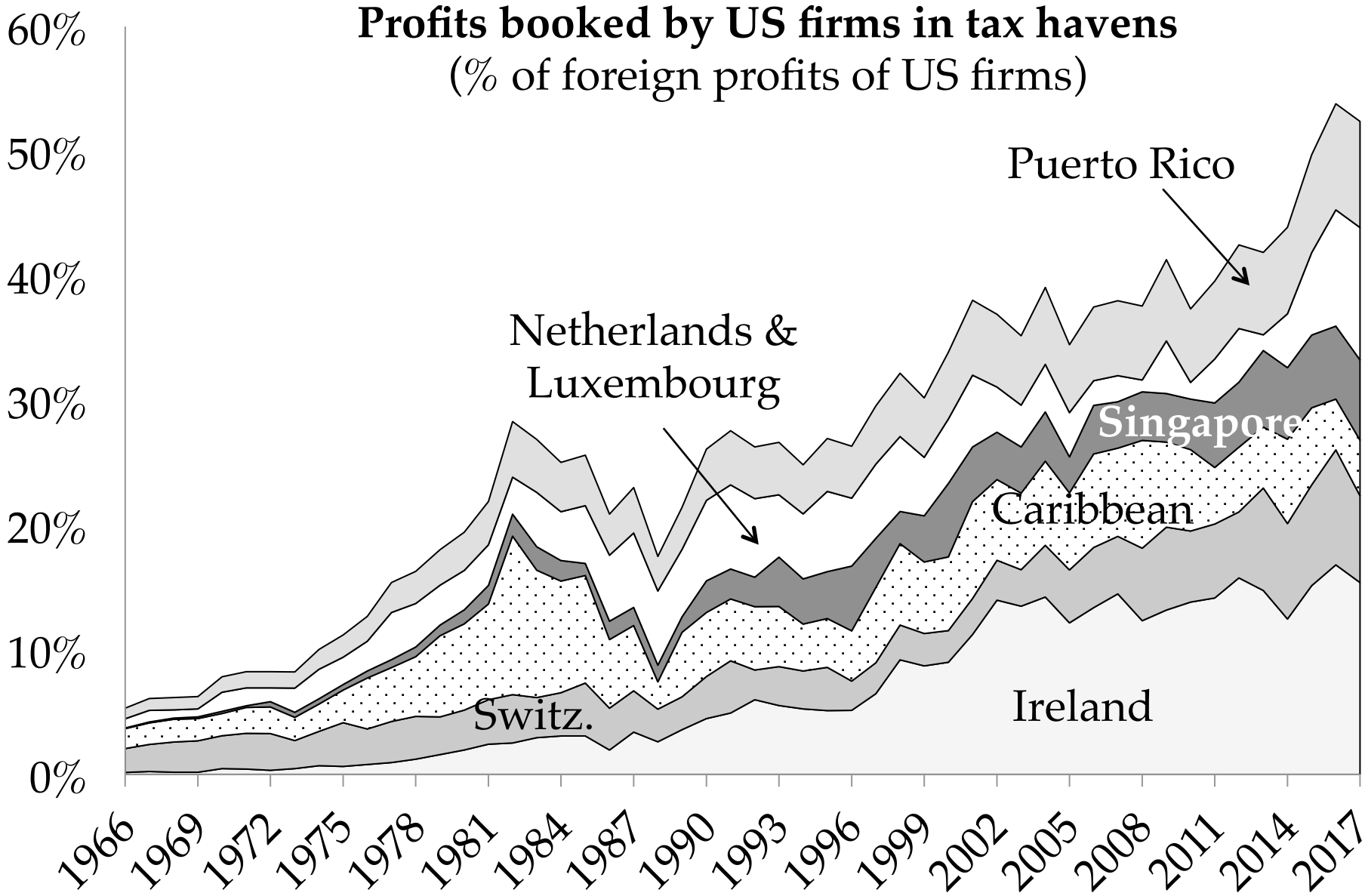
The Share of Profits Made Abroad in US Corporate Profits



Source: Author's computations using National Income and Product Accounts data.

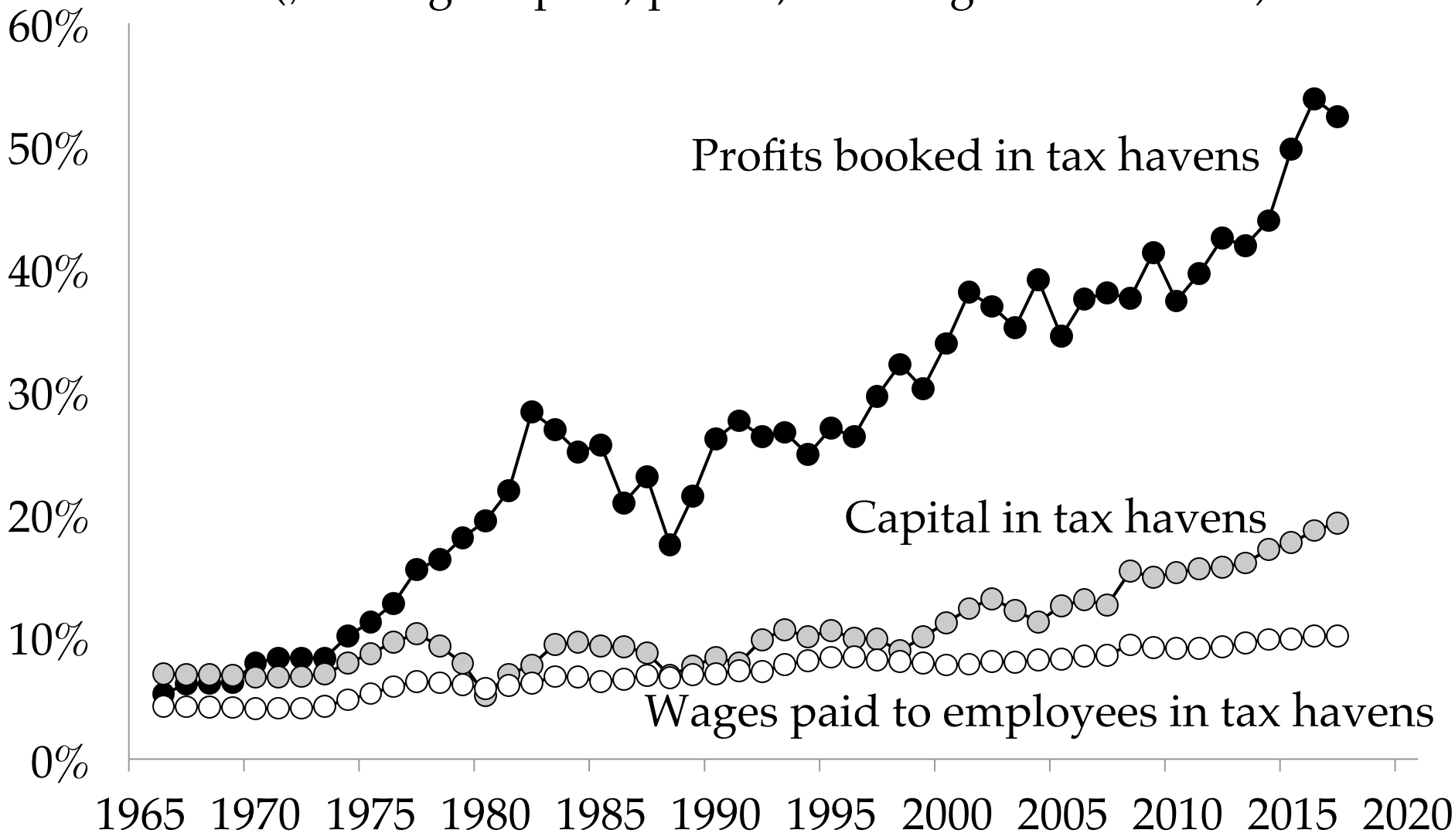
Notes: The figure reports decennial averages (that is, 1970–79 is the average for years 1970, 1971, through 1979). Foreign profits include dividends on foreign portfolio equities and income on US direct investment abroad (distributed and retained). Profits are net of interest payments, gross of US but net of foreign corporate income taxes.

Source: Zucman JEP 2014


Profits booked by US firms in tax havens
(% of foreign profits of US firms)
60%
50%
40%
30%
20%
10%
0%
Puerto Rico
Netherlands &
Luxembourg
Singapore
Caribbean
Switz.
Ireland
1966
1969
1972
1975
1978
1981
1984
1987
1990
1993
1996
1999
2002
2005
2008
2011
2014
2017

Capital, profits & wages of US firms in tax havens

(% foreign capital, profits, and wages of US firms)



Issues with new US Corporate Tax System

Since 2018, US has a very low corporate tax rate of 21%

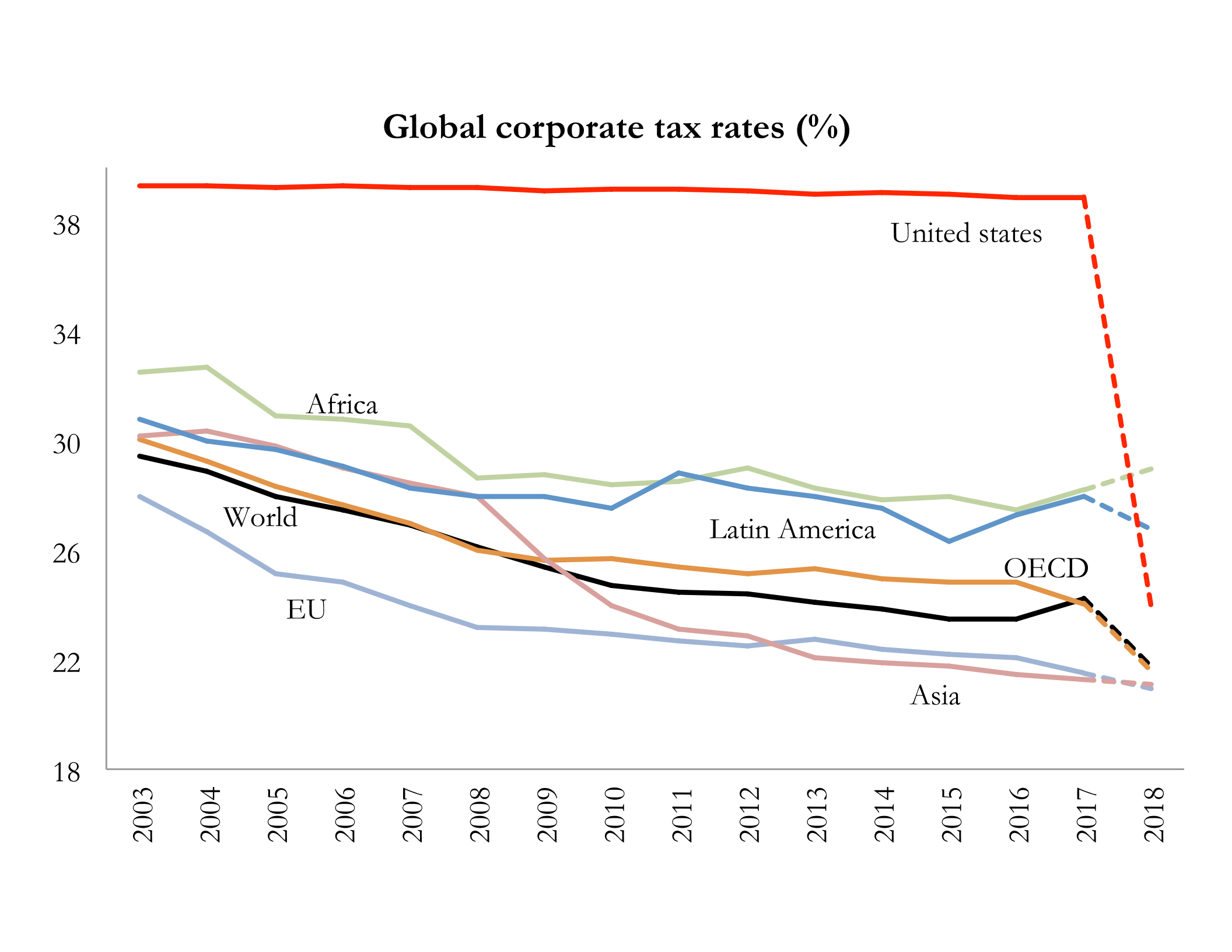
$\Rightarrow$ Strong incentives for successful business owners to incorporate and keep profits inside the corporation and pay only 21% (instead of higher top individual tax rate)

$\Rightarrow$ This can undermine the progressive individual income tax

If business is a multinational: profits abroad are taxed at an even lower 10.5% tax rate (with foreign tax credit) and only on supernormal profits in excess of 10% of capital abroad.

$\Rightarrow$ Multinationals still have strong incentives to shift profits abroad in tax havens (Garcia-Bernardo, Jansky, Zucman '21)

Declining corporate tax rates worldwide due to harmful tax competition (re-inforces inequities created by globalization)


Global corporate tax rates (%)
38
34
30
26
22
18
United states
Africa
World
Latin America
OECD
EU
Asia
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018

Taxing Multinational Companies more Effectively

Current territorial system where multinationals choose where to report profits is easy to game. Need a better system: Several possibilities:

1) Tax on global profits in real time (each country taxes its multinationals on global profits with credit for foreign taxes)

2) Minimum tax on foreign profits country-by-country: min tax needs to be high enough to discourage use of tax havens

3) Apportioning profits based on sales in each country [as states are doing within the US and as EU new digital tax]

Probably need a combination of these and have strong anti-inversion regulations so that it's hard for multinationals to change nationality [Saez-Zucman 2019 discussion]

2021 Global minimum tax agreement

Recent international agreement October 2021 (136 countries)

Each country will police its own multinationals by imposing a minimum tax of 15% on foreign profits country-by-country:

Apple pays 5% on its profits in Ireland, US charges extra 10%

$\Rightarrow$ Kills the pure tax haven model but 3 weaknesses:

a) 15% is low relative to domestic corporate tax rates

b) Carveout: Min tax applies only on profits in excess of 5% of payroll+tangible capital deployed $\Rightarrow$ Multinationals have incentives to move **real operations** to low tax places

c) Sales apportionment replacing EU digital tax is tiny

Conclusion: tax low but shows this is technically solvable. US has not passed it yet (legislation is part of stalled Build Back Better bill)

REFERENCES

Allingham, M. and A. Sandmo "Income tax evasion: a theoretical analysis", Journal of Public Economics, Vol. 1, 1972, 323-338. (web)

Alm, J., B. Jackson and M. McKee "Institutional Uncertainty and Taxpayer Compliance", American Economic Review, Vol. 82, 1992, 1018-1026. (web)

Alstadsaeter, Annette, Niels Johannesen and Gabriel Zucman, "Tax Evasion and Inequality," American Economic Review, 2019 (web)

Alstadsaeter, Annette, Niels Johannesen and Gabriel Zucman, "Who Owns the Wealth in Tax Havens? Macro Evidence and Implications for Global Inequality," Journal of Public Economics, 2018 (web)

Andreoni, J., B. Erard and J. Feinstein "Tax Compliance", Journal of Economic Literature, Vol. 36, 1998, 818-60. (web)

Ardant, G.: Histoire de l'impôt (Volumes 1 and 2), Paris: Fayard, 1971.

Besley, T., T. Persson "The Incidence of Civil War: Theory and Evidence", NBER Working Paper, 14585, 2008. (web)

Blumenthal, M., C. Christian and J. Slemrod "Do Normative Appeals Affect Tax Compliance? Evidence from a Controlled Experiment in Minnesota", National Tax Journal, Vol. 54, 2001, 125-238. (web)

Bomare, Jeanne, and Sgal Le Guern Herry. 2022 "Will we ever be able to track offshore wealth? Evidence from the offshore real estate market in the UK." Sciences Po Economics Discussion Paper 10. (web)

Bott, Kristina, Alexander W. Cappelen Erik Sorensen, Bertil Tungodden (2020) "Youve got mail: A randomized field experiment on tax evasion", Management Science 66(7) (web)

Cage, Julia and Lucie Gadenne "The Fiscal Cost of Trade Liberalization", Harvard Working Paper, 2012 (web)

Carneiro, Robert (1970) "A Theory of the Origin of the State," Science, 169(3947), 733–738. (web)

Casi, E., Spengel, C., and Stage, B. M. (2020). "Cross-border Tax Evasion After the Common Reporting Standard: Game Over?" Journal of Public Economics, 190:104240. (web)

Cowell, F. Cheating the Government: The Economics of Evasion (MIT Press, Cambridge, 1990).

Dwenger, Nadja , Henrik Kleven, Imran Rasul, Johannes Rincke 2016. "Extrinsic and Intrinsic Motivations for Tax Compliance: Evidence from

a Field Experiment in Germany", American Economic Journal: Economic Policy? (web)

Feinstein, Jonathan S. 1991 "An econometric analysis of tax evasion and its detection," Rand Journal of Economics 22(1), 14-35 (web)

Feinmann, Javier, Roberto Hsu Rocha, and Maximiliano Lauletta. 2022 "Payments Under the Table (Employer-Employee Collusion in Brazil)" UC Berkeley working paper (web)

Garcia-Bernardo, Javier, Petr Jansky, and Gabriel Zucman. 2021 "Did the Tax Cuts and Jobs Act Reduce Profit Shifting by US Multinational Companies?", working paper (web)

Guyton, John, Patrick Langetieg, Daniel Reck, Max Risch, Gabriel Zucman. 2021. "Tax Evasion at the Top of the Income Distribution: Theory and Evidence", NBER working paper No. 28542. (web)

Hallsworth, Michael, John A. List, Robert D. Metcalfe, and Ivo Vlaev (2017) , "The Behavioralist As Tax Collector: Using Natural Field Experiments to Enhance Tax Compliance", Journal of Public Economics, 148, 14-31. (web)

IRS, 2022 "Federal Tax Compliance Research: Tax Gap Estimates for Tax Years 2014-2016" (web)

Jensen, Anders. 2022 "Employment Structure and the Rise of the Modern Tax System" American Economic Review, 112 (1): 213-34, 2022. (web)

Johannesen, Niels and Gabriel Zucman "The End of Bank Secrecy? An Evaluation of the G20 Tax Haven Crackdown," American Economic Journal: Economic Policy, 6(1), 2014. (web)

Johns, A. and Slemrod, J. (2010). "The Distribution of Income Tax Noncompliance." National Tax Journal, 63(3): 397-418. (web)

Keen, M. "VAT, Tariffs, and Withholding: Border Taxes and Informality in Developing Countries", IMF Working Paper WP/07/174. (web)

Kleven, H., M. Knudsen, C. Kreiner, S. Pedersen, and E. Saez "Unwilling or Unable to Cheat? Evidence from a Randomized Tax Audit Experiment in Denmark", Econometrica 79(3), 2011, 651-692. (web)

Kleven, H. C. Kreiner, and E. Saez "Why Can Modern Governments Tax So Much? An Agency Model of Firms as Fiscal Intermediaries", Economica, 2016. (web)

Krause, Benjamin. 2020 "Balancing Purse and Peace: Tax Collection, Public Goods and Protests", ARE Berkeley PhD thesis chapter (web)

Londono-Velez, Juliana and Javier Avila-Mahecha. "Enforcing Wealth Taxes in the Developing World: Quasi-Experimental Evidence from Colombia", American Economic Review: Insights, June 2021, 3 (2): 131-48. (web)

Luttmer, Erzo F. P. and Monica Singhal (2014) "Tax Morale", Journal of Economic Perspectives 28(4), 149–168. (web)

Peacock, A. T. and Wiseman, J. (1961) The Growth of Government Expenditure in the United Kingdom, Princeton, NJ: Princeton University Press.

Piketty, Thomas, *Capital and Ideology*, Cambridge: Harvard University Press, 2020 (web)

Pomeranz, Dina. 2015. "No Taxation without Information: Deterrence and Self-Enforcement in the Value Added Tax." American Economic Review, 105(8): 2539-69. (web)

Saez, Emmanuel and Gabriel Zucman. 2019. The Triumph of Injustice: How the Rich Dodge Taxes and How to Make them Pay, New York: W.W. Norton (web)

Sanchez de la Sierra, Raul (2020) "On the Origin of States: Stationary Bandits and Taxation in Eastern Congo" Journal of Political Economy. (web)

Scott, James C. 2017. *Against the Grain: A Deep History of the Earliest States.* New Heaven, CT: Yale University Press.

Shaw, J., J. Slemrod, and J. Whiting "Administration & Compliance", in IFS, The Mirrlees Review: Reforming the Tax System for the 21st Century, Oxford University Press, 2009. (web)

Slemrod, J. and S. Yitzhaki "Tax Avoidance, Evasion and Administration", in A. Auerbach and M. Feldstein (eds.), Handbook of Public Economics, Vol. 3 (Amsterdam: North-Holland, 2002), 1423-1470. (web)

Slemrod, J., M. Blumenthal and C. Christian "Taxpayer response to an increased probability of audit: evidence from a controlled experiment in Minnesota", Journal of Public Economics, Vol. 79, 2001, 455-483. (web)

Webber, C., A. Wildavsky, A history of taxation and expenditure in the Western world. New York : Simon and Schuster, 1986.

Weigel, Jonathan L. 2020 "The participation dividend of taxation: How citizens in Congo engage more with the state when it tries to tax them." Quarterly Journal of Economics 135.4: 1849-1903. (web)

Yaniv, G. "Collaborated Employee-Employer Tax Evasion", Public Finance/ Finances Publiques, Vol. 47, 1992, 312-321. (web)

Zucman, G. "The Missing Wealth of Nations: Are Europe and the US Net Debtors or Net Creditors", Quarterly Journal of Economics, 2013, 1321-1364. (web)

Zucman, G. *The Hidden Wealth of Nations*, September 2015, University of Chicago Press. (web)

Zucman, G. "Taxing across Borders: Tracking Personal Wealth and Corporate Profits" Journal of Economic Perspectives, 28(4), 2014, 121-148. (web)