Econ 230B – Graduate Public Economics

The challenges of taxing capital in a globalized world

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Roadmap

Globalization raises three key challenges:

1. Artificial profit shifting $\rightarrow$ can lead to large corp tax revenue loss
2. Capital mobility and tax competition $\rightarrow$ can lead government to adopt sub-optimally low corporate tax rates
3. No or imperfect information sharing $\rightarrow$ can prevent enforcement of residence-based personal capital taxes

1 Artificial profit shifting

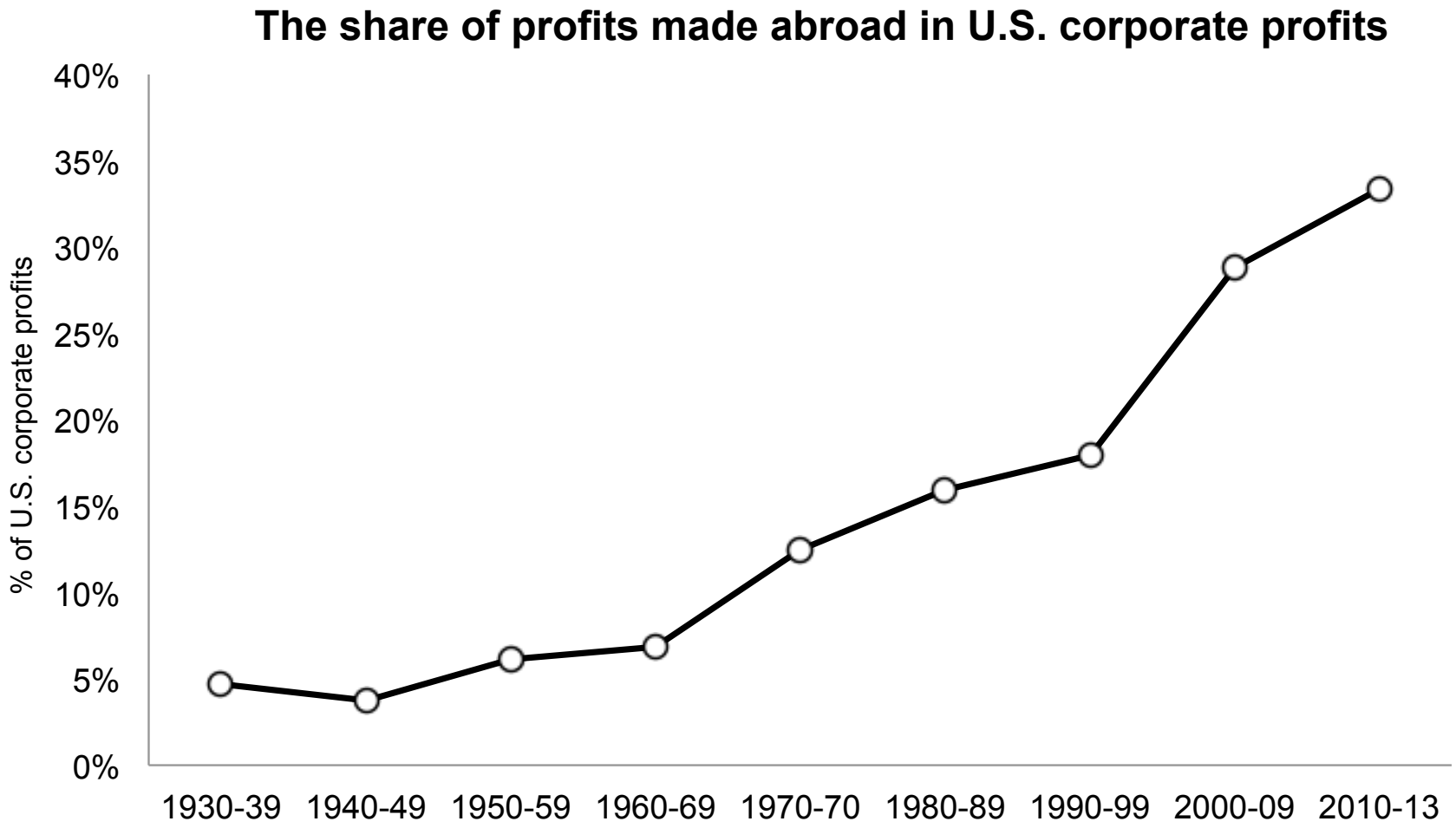
Reminder on source vs. residence based corporate taxes:

- Source (= *territorial*) taxation: profits taxed where prod. occurs
- Residence (=*worldwide*) taxation: profits taxed where owner lives
- Corporate taxes of most countries are source-based
- US is sometimes said to have a residence-based corporate tax, but in practice has close to source-based tax because of deferral
- Source-based taxation $\rightarrow$ incentives to shift profits to tax havens

Macro evidence on profit shifting (Zucman 2014 JEP)

Idea: decompose location of foreign profits made by U.S.-owned firms

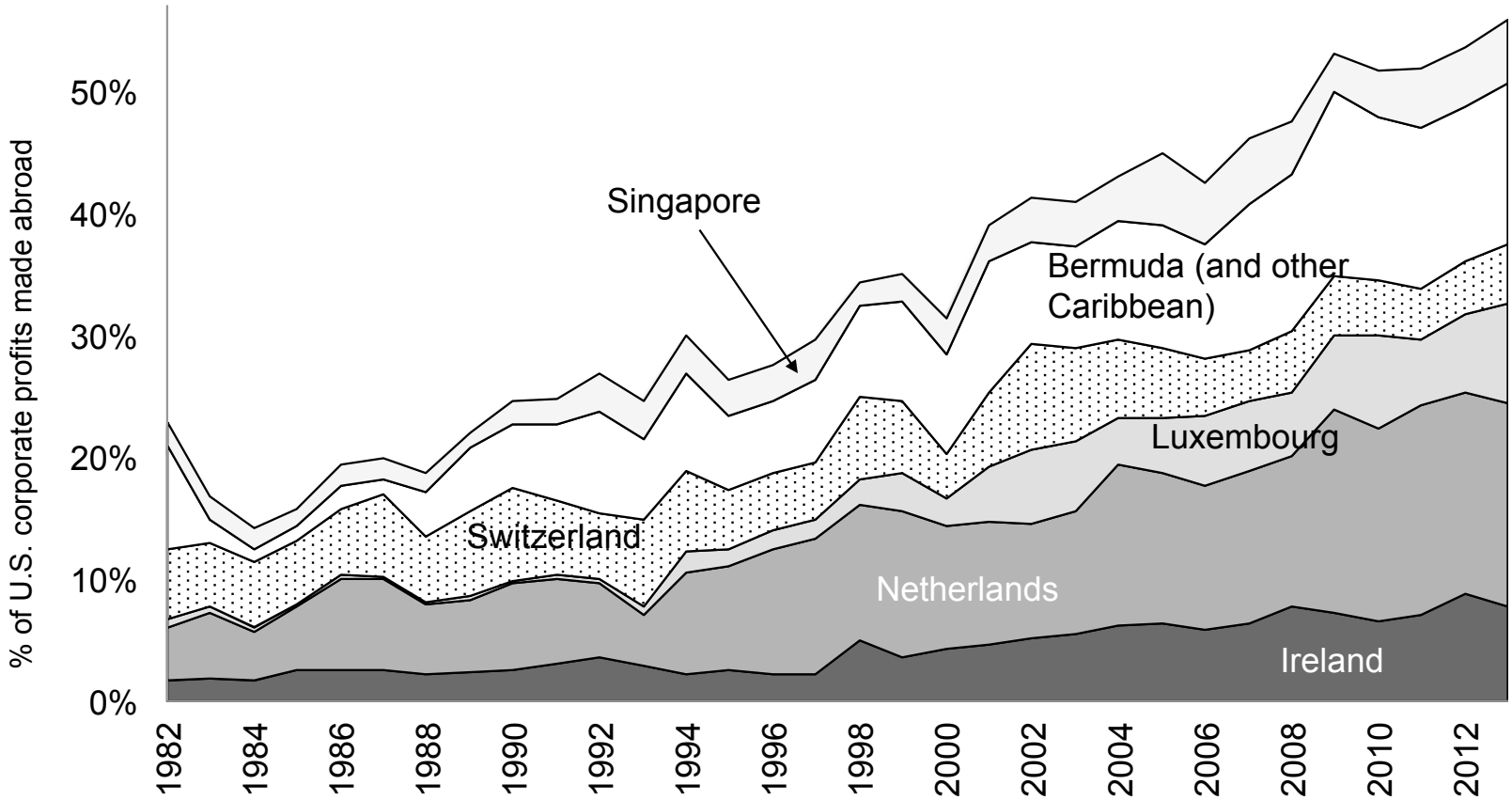
- US-owned firms = U.S. direct investment abroad ($> 10\%$ ownership) + U.S. portfolio investment abroad ($< 10\%$ ownership)
- Profits = dividends + reinvested earnings + corporate taxes paid
- Balance of payments provides country-by-country decomposition of dividends and reinvested earnings for DI, and dividends for PI



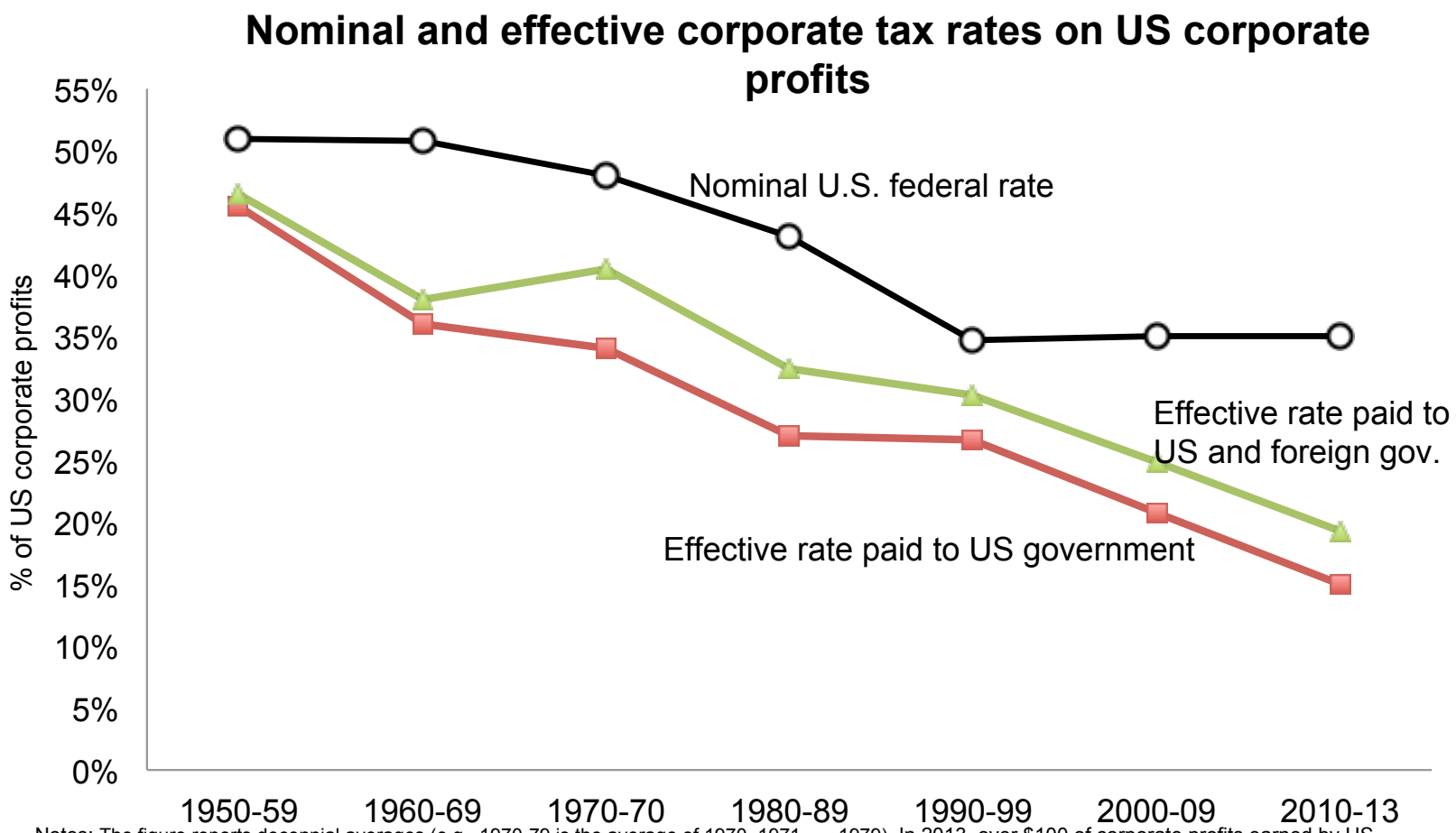
32% of US corporate profits are made abroad in 2013. Foreign profits include dividends on foreign portfolio equities and income on US direct investment abroad (distributed & retained). Profits are net of interest payments, gross of US but net of foreign income taxes. Source: author's computations using BEA data.

Source: Zucman (2014).

The share of tax havens in U.S. corporate profits made abroad



Notes: This figure charts the share of income on U.S. direct investment abroad made in the main tax havens. In 2013, total income on U.S.DI abroad was about $500bn. 17% came from the Netherlands, 8% from Luxembourg, etc. Source: author's computations using balance of payments data, see Online Appendix.



Notes: The figure reports decennial averages (e.g., 1970-79 is the average of 1970, 1971, ..., 1979). In 2013, over $100 of corporate profits earned by US residents, on average $16 is paid in corporate taxes to the U.S. government (federal and States) and $4 to foreign governments. Source: author's computations using NIPA data, see Online Appendix.

How artificial profit-shifting works

Three ways to shift profits to low-tax countries:

- Manipulating intra-group import and export prices (*transfer prices*)
- Intra-group borrowing
- Locating intangibles in tax havens

Heckemeyer & Overesch (2013): transfer price most important

But limited data on intangibles

Transfer price manipulations

- Subsidiaries of a same group are supposed to compute their profits as if unrelated (*arm's length pricing*)

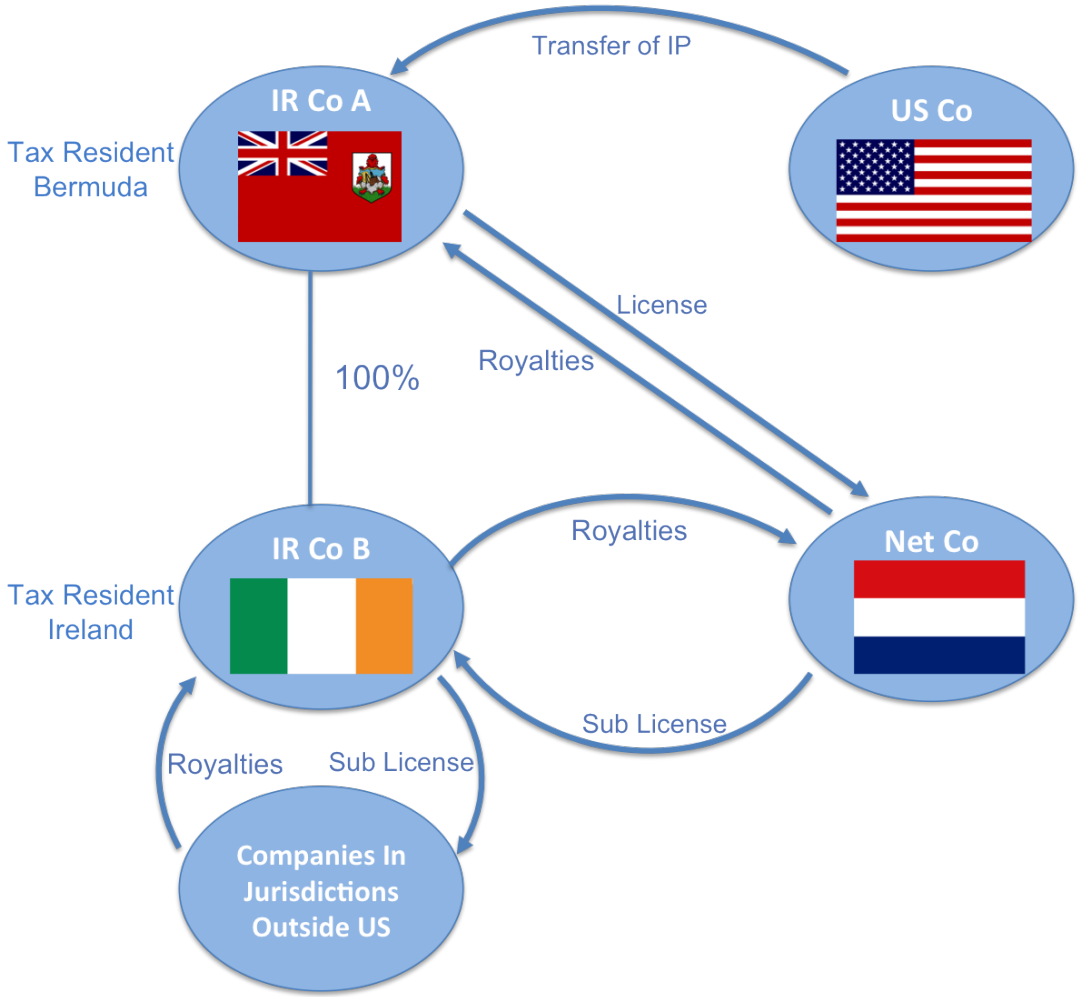
- In practice, relatively easy to manipulate transfer prices, and reference prices sometimes do not exist

- Sizable evidence that intra-group prices differs from arm's length prices (Clausing NTJ 2003)

- Intra-group price manipulation also a problem in purely domestic context (*tunneling*): Bertrand, Mehta and Mullainhathan (QJE'02)

Strategic location of debt and intangibles

- Booking assets in low-tax countries enables firms to deduct income in high-tax countries and earn interest & royalties in tax havens
- Problem is growing in importance with rise of intangible capital
- Anti-avoidance rules: thin capitalization, controlled foreign corporations
- Routinely avoided by exploiting inconsistency in tax laws across countries (*treaty shopping*)



The Double Irish Dutch Sandwich

Dharmapala and Riedel (JpubE 2013)

- Estimates extent of profit-shifting among sample of European multinationals (Amadeus)
- Strategy: measure reaction to a parent's earnings' shocks of the earnings of subsidiaries in other countries
- Earnings in low-tax countries respond more than earnings in high-tax jurisdictions $\rightarrow$ suggests shifting to low-tax countries
- Key channel of profit shifting: choice of borrowing location

Policies to prevent profit shifting

- Strengthening arm's length rules (OECD BEPS), monitoring transfer prices, increasing reporting requirements, hiring auditors...
- Theoretically, unclear whether this is useful: risk of wasteful expenditure of resources on both sides. Limited evidence.
- Eliminating tax havens can be welfare improving (Slemrod and Wilson, JpubE'09)
- Can be done by trade tariffs or cross-border withholding taxes (Zucman 2015)

2 Tax competition

How does tax policies in one country affect the options in other countries, and in turn their policies?

- Increasingly important question with globalization, increased factor mobility, more perfect international capital market
- See Lane and Milesi-Ferretti (2003, 2007) on rise of cross-border investment
- Similar issues between sub-national govs. (such as US states). Key difference: Federal gov. can help coordinate

Zodrow and Mieszkowski (1986) and Wilson (1986)

- n countries $i = 1, ..., n$ with output per unit of labor $y_i = f_i(k_i)$
- Labor supplied inelastically by population h_i (immobile)
- Source taxes on capital at rate t_i, generating $t_i k_i$ in revenue
- Capital-owners can invest wherever they want $\rightarrow$ after-tax return to capital has to be the same everywhere: $f_i'(k_i) - t_i = \rho \quad \forall i$
- Consumer has preferences over private good (x) & public good (r)
- Consumer welfare in i: $W_i = f_i(k_i) - f_i'(k_i)k_i + \rho \bar{k}_i + G_i(t_i k_i)$

- Government chooses tax rate to maximize welfare, taking tax rates of all other countries as given.

- Assume t_i increases. Then capital moves out of i to other countries until we're back to $f_i'(k_i) - t_i = \rho$ for all i

- So domestic capital falls in i, rises elsewhere and ρ falls

- FOC is: $\frac{\partial W_i}{\partial t_i} = -f_i''(k_i)k_i\frac{\partial k_i}{\partial t_i} + G_i'(t_i k_i)\left(k_i + t_i\frac{\partial k_i}{\partial t_i}\right) + \frac{\partial \rho}{\partial t_i}\bar{k}_i = 0$

- Gov weighs the reduction in wage, increase in revenue, and reduced net income on wealth

Symmetric Nash equilibrium in pure strategies:

- FOC defines a best response function $t_i(t_{-i})$ relating gov maximizing tax rate to the tax rates t_{-i} set by all others
- The intersection of the best responses $t_i(t_{-i})$ characterizes an interior Nash equilibrium in pure strategies (when it exists)
- Is the equilibrium socially optimum?
- Consider how small increases in tax rate $dt_i = dt$ by all countries would affect welfare in country i at the Nash equilibrium

- This reduces ρ by dt and leaves total capital and its allocation unchanged, so $dW_i = [(k_i - \bar{k}_i) f_i''(k_i) - G_i'(t_i k_i) t_i] \frac{\partial k_i}{\partial t_i} dt$

- If countries are identical (same population, production function, same preferences) then in equilibrium $k_i = \bar{k}_i = \bar{k}$ and:

$$dW_i = -G_i'(t_i k_i) t_i \frac{\partial k_i}{\partial t_i} dt > 0$$

- All countries would benefit from a small uniform increase in all tax rates: the Nash equilibrium is not Pareto efficient

$\rightarrow$ Core argument against international tax competition

Asymmetric equilibrium

- Country i gains from dt iff $(k_i - \bar{k}_i) f_i'' - G_i'(t_i k_i) t_i < 0$.
- This is always the case when $k_i > \bar{k}_i \rightarrow$ for capital importers , it's always good to have a coordinated increase in corporate taxes
- For capital exporters, it's unclear
- Depends, e.g., on how far they are from optimal provision of public goods
- See Keen and Konrad (HPE, 2013)

Empirical evidence on capital mobility

- A number of studies regress FDI on taxes, find elasticities close to or above 1 (see Zodrow 2010 for survey)

- Identification relies on orthogonality of tax rates to other factors (e.g., bureaucracy). No natural quasi-experimental variation

- Main response to differentials in τ_K seems to be artificial profit shifting rather than changes in K

- If policies successful at curbing profit shifting, mobility could $\nearrow$, pushing τ_K further toward 0 (Hong & Smart '10; Johannesen '10)

Formula apportionment

- Tax base in country i based on shares of global sales, assets, and/or payroll made in i (Gordon and Wilson Econometrica '86)
- Used by US states for their own corporate taxes (Clausing '14)
- Key attraction: eliminates the opportunity for companies to engage in profit shifting
- Sales only apportionment removes incentives to move K abroad
- Potential problem of sales through low-tax resellers

Corporate tax integration

- Shareholders receive credits for previously paid corporate taxes
- Corporate tax becomes like a withholding pre-paid tax that is refunded when dividends are paid out to individuals
- Removes incentives to shift profits and move capital abroad
- Existed in Europe; still exists today in Canada, Mexico, Australia
- Can be combined with apportionment to ensure proper withholding at corporate level

Border adjustment (Auerbach 2010)

- Include in corporate tax base value of all imports and deduct the value of all exports
- Similar to VAT border-adjustment (Auerbach & Holtz-Eakin '16)
- In theory, $ FX must adjust leaving trade balance unchanged
- Like sales apportionment and integration, border adjustment removes incentives to shift profits or move capital abroad
- If combined with full expensing and no interest deduction: DBCFT

Economically DBCFT at $\tau = 20\%$ is equivalent to:

1. Abolish corporate income tax

2. Introduce a value-added-tax on consumption at 20% rate

3. Subsidize labor earnings at 20% rate (like a giant payroll tax cut)

1. is regressive and makes US a corporate tax haven

2. $+$ 3. is equivalent to a tax on existing wealth (progressive)

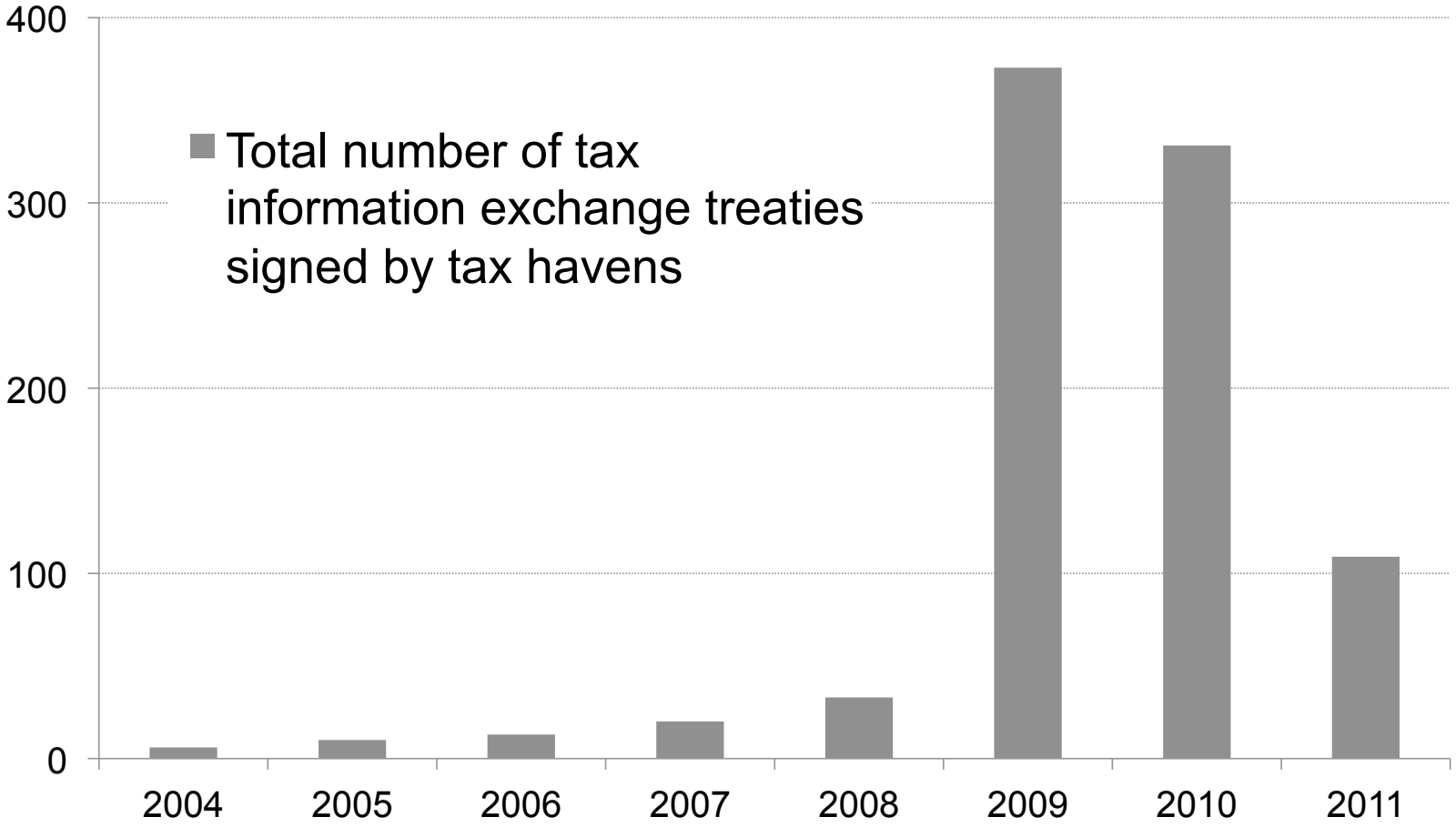
Uncertainties: FX adjustment, foreign business to consumers sales (problem also for VAT), WTO compatibility, long-term revenue effects

3 Cross-border information sharing

- Globalization makes it easy to own assets abroad. Offshore wealth $\approx 8\%$ of world's household financial wealth (Zucman QJE 2013)
- Without third-party reporting on these assets, very easy to evade residence-based taxes (on personal capital income and wealth)
- Traditionally, tax havens exchanged no/very little information
- This is changing (Fatca and similar laws in other OECD countries)
- Two key limits: incomplete cooperation & incentives of tax havens

Pitfalls of incomplete coop. (Johannesen & Zucman '14)

- April 2009: G20 countries force tax havens to sign bilateral information exchange treaties
- But to be compliant a tax haven needs to sign only 12 treaties
- Bilateral data from Bank for International Settlements show bank deposits shifted to havens with no treaty
- Key to have global cooperation (can be enforced with sanctions)


400
300
200
100
0
Total number of tax information exchange treaties signed by tax havens
2004
2005
2006
2007
2008
2009
2010
2011

Research design: panel regressions with country-pair fixed effects

$$log(Deposits_{ijq}) = \alpha + \beta Treaty_{ijq} + \gamma_{ij} + \theta_q + \epsilon_{ijq}$$

- i: source country (e.g., France)
- j: host country (e.g., Switzerland)
- Quarterly observations 2004-2011
- Time and country-pair fixed effects

Dependent variable: deposits of savers of country *i* in banks of country *j*		
VARIABLES	BANK: havens SAVER: non-havens	BANK: havens SAVER: non-havens
Treaty between *i* and *j*	**-0.1156**** **(0.0349)**	
Treaty (Contemp)		0.0223 (0.6331)
Treaty (+1 quarter)		-0.0927 (0.1300)
Treaty (+2 quarters)		-0.1306** (0.0449)
Treaty (+3 quarters)		-0.1724*** (0.0057)
Treaty (>3 quarters)		-0.1818** (0.0137)
Observations	30,960	30,960
Countrypair FE	YES	YES
Time FE	YES	YES

Robust p-values in parentheses, clustered at the country-pair level

Dependent variable: deposits of savers of country *i* in banks of country *j*

VARIABLES	BANK: havens SAVER: non-havens	BANK: havens SAVER: non-havens
Treaty between *i* and *j*	-0.1659***	-0.0498
	(0.0052)	(0.4286)
Saving tax directive (STD)	-0.2161***	-0.2198***
	(0.0004)	(0.0003)
# of treaties signed by *i* with havens other than *j*	**0.0059****	
	(0.0402)	
# of treaties signed by *i* with havens other than *j* × $Treaty_{ijq}$		0.0001
		(0.9719)
# of treaties signed by *i* with havens other than *j* × (1 - $Treaty_{ijq}$)		0.0120***
		(0.0033)
Observations	30,960	30,960
Countrypair fixed effects	YES	YES
Time fixed effects	YES	YES

Robust p-values in parentheses, clustered at the country-pair level

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