

# Lessons about tax evasion and tax avoidance from collaboration with the Danish tax agency

**Claus Thustrup Kreiner**

Seminar at the Swedish Tax Agency

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# Why collaborate?

**Empirical measurement of evasion and avoidance is difficult**

## Measurement problems

- Not possible to measure noncompliance directly in standard register data
- People don't tell the truth, even in anonymous surveys (and large samples of individuals are too expensive)

## Identification problems

- A relationship between resources used on tax enforcement and degree of tax evasion may not be casual



# Projects

- The Danish 2007-08 tax compliance experiment
- Detection of intertemporal shifting in wage income
- Introduction of information reporting on donations to charity
- Introduction of interest payments on owed taxes
- Introduction of a semi third-party reporting instrument on deductions for alimonies and child support transfers

# The Danish tax compliance experiment

A tax audit experiment carried out in Denmark in 2007-08 with more than 40,000 individual income tax filers.

## **Academic publication and policy reports:**

Kleven, Knudsen, Kreiner, Pedersen and Saez. "Unwilling or Unable to Cheat? Evidence from a Tax Audit Experiment in Denmark." *Econometrica*, 2011

"Tax Payer Compliance." Report of the Danish Tax Agency (SKAT), 2009

"Tax evasion and the administration of the Danish Tax System" Chapter 4 in the Report of the Danish Economic Council, 2011.

"What makes tax payers comply? Lessons from a tax audit experiment in Denmark." Kreiner, *European Economy Papers* 463. European Commission, 2012.

# The Danish tax compliance experiment

skabt til vækst

# Børsen weekend

Klimaeventyr trods fiasko  
Executive side 2-3



FREDAG/SØNDAG DEN 23. APRIL 2010 - NR. 77 - ÅRGANG 115 - 31,00 KR/EURO 4,00 borsen.dk

**I. SEKTION**

Dow Jones	Nasdaq	C20
-0,25%	+0,10%	+1,64%
11.097,4	2507,2	101,2
Kl. 20:15	Kl. 20:15	Slutkurs

Svindelsag på vej i krakket børsselskab  
Side 4



Kapitaljagt for milliarder i aktiemedvind  
Side 14-15

Grækenland trækker hele

Mange vil gerne, men det er:

# Sværere at snyde i skat

Skattesnyd er blevet svært. Selv om danskerne snyder for 8 mia. kr. om året, er hullerne blevet færre, fordi Skat modtager mange automatiske indberetninger. Ifølge et nyt forskningsprojekt er det netop effektiv kontrol og ikke danskernes forbedrede moral, der er årsag til mindre snyd. Selvstændige udpeges som største skattesyndere.  
Side 20-21 og leder side 2



# The key questions

- How much noncompliance?
- Why do people comply or not comply?
- Optimal tax enforcement strategies to reduce noncompliance?
- How many resources should society devote to tax enforcement?

## Economic theory of tax compliance behavior

**In traditional theory (A-S-model), tax compliance depends on**

- Economic gain of not complying
- Probability of being detected
- Costs of being detected
- Risk aversion

Andreoni et al (1998): “the most significant discrepancy that has been documented between the standard economic model and real-world compliance is that the theoretical model greatly overpredicts noncompliance.”

### Extensions

- Behavioral aspects: social norms, tax morale, guilt, shame, etc.

**[Taxpayers are able but unwilling to cheat]**

- Information aspects: third-party reporting, withholding, etc.

**[Taxpayers are willing but unable to cheat]**

# Empirical evidence

## The Danish tax compliance experiment

### Experimental design

A stratified random sample of about 20,000 individuals were selected for tax audits in 2007 [**100% audit group**]

Audits: not pre-announced, did not use audit flags, very rigorous.

⇒ Data from audited and filed tax returns used to analyze overall level of compliance, type of income, effect of the marginal tax rate, best predictors of evasion...

Randomly selected **0% audit group** + randomly selected **audit-threat letter group** in 2008

⇒ Effects of tax enforcement (audit correction and audit probability) on future reporting behavior

# Empirical evidence

## Detectable tax evasion in Denmark

		Total audit adjustment	Under-reporting	Over-reporting
<b>Net income</b>	Amount	<b>2,2%</b>	<b>2,3%</b>	<b>-0,1%</b>
	Individuals	<b>10,7%</b>	<b>8,6%</b>	<b>2,2%</b>
<b>Total tax</b>	Amount	<b>2,8%</b>	<b>3,0%</b>	<b>-0,1%</b>
	Individuals	<b>10,6%</b>	<b>8,4%</b>	<b>2,2%</b>

# Empirical evidence

## Income types, 3rd party information and tax evasion

	Share of total net income (%)	Evasion rate(%)
Total net income	100	2,3
Personal income	102	1,1
Deductions	-4	2,2
Capital income	-5	2,6
Stock income	3	5,0
Self-employment income	5	15,7
Third-party reported income	95	0,3
Self-reported income	5	41,5

# Empirical evidence

## Income types, 3rd party information and tax evasion

	Social factors		Socio-economic factors		Information factors		All factors	
Constant	<b>12.72</b>	(1.06)	<b>10.13</b>	(1.12)	<b>1.18</b>	(0.25)	<b>3.72</b>	(1.01)
Female	<b>-5.56</b>	(0.63)	<b>-4.17</b>	(0.65)			<b>-2.06</b>	(0.62)
Married	1.22	(0.70)	-0.55	(0.72)			<b>-1.50</b>	(0.72)
Member of church	-1.59	(0.98)	<b>-2.27</b>	(0.97)			-0.94	(0.92)
Copenhagen	-1.49	(1.52)	-0.01	(1.51)			-0.25	(1.47)
Age above 45	-0.72	(0.67)	-0.63	(0.67)			-0.56	(0.61)
Home owner			<b>5.49</b>	(0.65)			0.15	(0.66)
Firm size below 10			<b>5.07</b>	(1.26)			<b>3.47</b>	(1.05)
Informal sector			<b>4.37</b>	(1.15)			0.27	(0.92)
Self-Reported Income					<b>5.58</b>	(0.75)	<b>5.59</b>	(0.80)
Self-Reported Income > 20K					<b>21.68</b>	(1.38)	<b>21.09</b>	(1.40)
Self-Reported < -10K					<b>14.99</b>	(1.42)	<b>14.74</b>	(1.42)
Audit Flag					<b>13.22</b>	(1.58)	<b>13.07</b>	(1.53)
R-square	<b>1.2%</b>		<b>2.5%</b>		<b>16.2%</b>		<b>16.5%</b>	
Adjusted R-square	<b>1.1%</b>		<b>2.4%</b>		<b>16.1%</b>		<b>16.5%</b>	

# Empirical evidence

## Income types, 3rd party information and tax evasion

Change in reported net income 2007-2008 due to audit correction in 2007

	Audit correction in 2007	Difference: 100% vs. 0% control group			IV-effect of correction
	Net income	Net income	Self-reported	Third-party reported	Net income
Amount (DKK)	8491	2557	2331	225	0,301

# Empirical evidence

**Size of problem, behavioral model, impact of policy parameters**

**Tax gap reasonably low** ( $\approx 2-3\%$ ) in relation to standard theory

... **because it is "difficult to evade"** (under reporting of 42% on self-reported income and 0,3% out of 3rd party reported income)

... **because of extensive use of 3rd party information** from employees, banks, trade unions etc. (95% of net income)

**Socio economic factors** have **little predictive power** compared to variables reflecting existence and size of income that is difficult to detect  $\Rightarrow$  **"go after the money"**

**Positive effect from tax rate to tax evasion** (bunching evidence)

**Tax enforcement has positive behavioral effects** (audit adjustment raises self-reported income by 30% of the original adjustment the year after)

# How many resources on tax enforcement?

	All	Self-employed	Wage Earners	Wage earners: Flag	Wage earners No flag
<b>Population share</b>	----- Percent -----				
	100	8	92	11	80
<b>Revenue</b>	----- 2009-DKK -----				
Mechanical	1.150	9.100	400	2.250	100
Behavior	600	3.450	350	2.350	50
Audit cost	1.900	14.600	700	700	700
<b>Net effect</b>	<b>-150</b>	<b>-2.050</b>	<b>50</b>	<b>3.900</b>	<b>-550</b>

# Some lessons for tax administration

## Third-party information

- Very effective instrument to reduce underreporting
- Direct consequence of study: Introduction of full 3rd-party reporting on stocks (buying/selling prices + dividends)
- Difficult to expand third-party info much more in Denmark... Self-employment income is a challenge

## Optimal audit strategy?

- Should focus on income information variables (“go after the money”). Socio-economic factors do not improve selection significantly

## How many resources on tax audits?

- Take into account that audits have disciplinary effects afterwards
- High evasion rate on self-employment income, but self-employed are also very expensive to audit
- Current level of audit resources in Denmark probably not far away from the revenue-maximizing level

# Detection of intertemporal income shifting

New data source with monthly payroll records for all Danish employees + tax reform reducing highest marginal tax rate from 63% to 56%

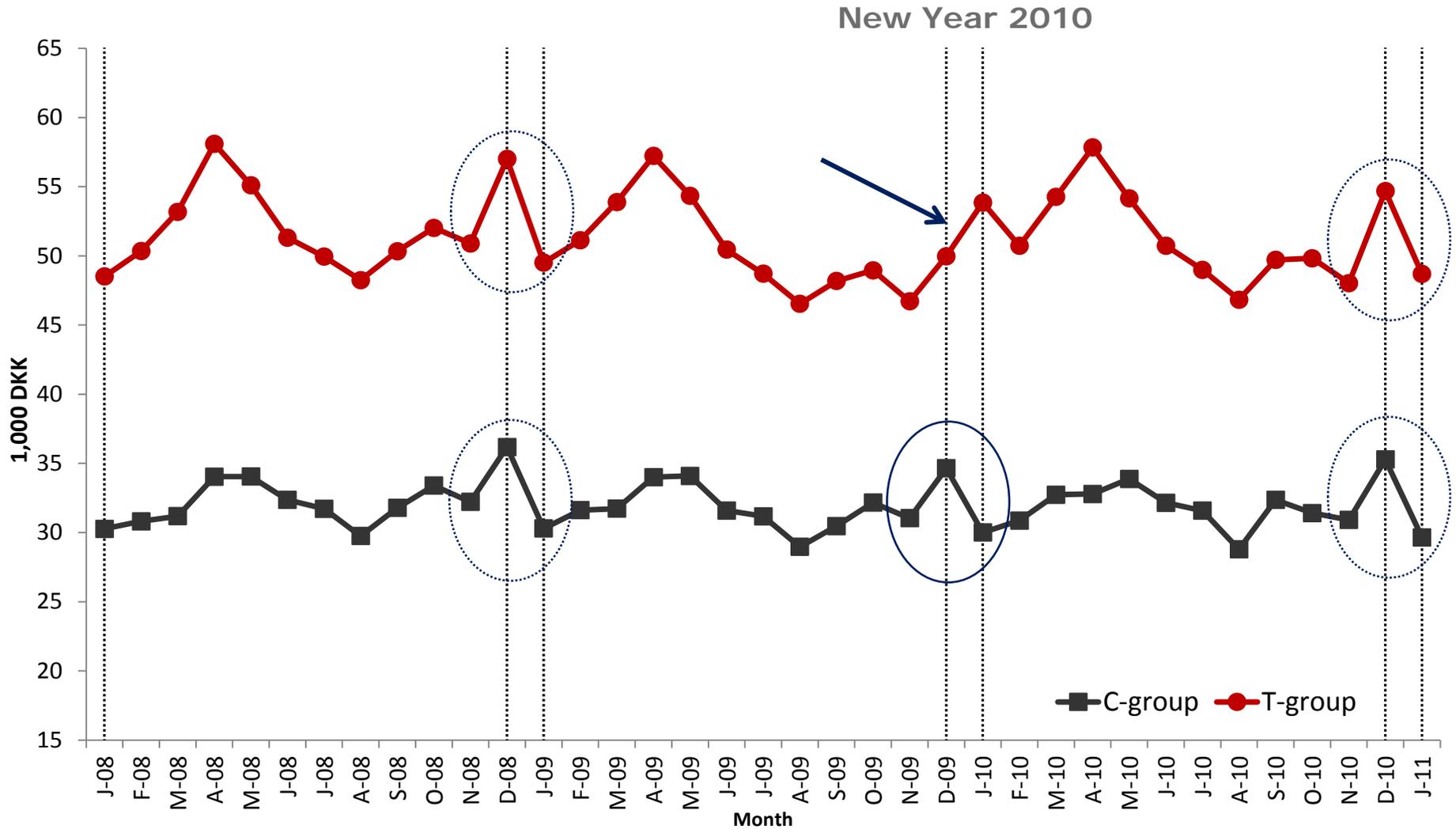
⇒ enable convincing identification of intertemporal shifting behavior



“Year-End Tax Planning of Top Management: Evidence from High-Frequency Payroll Data.” Kreiner, Leth-Petersen and Skov, Papers and Proceedings, American Economic Review, 2014

“Tax Reforms and Intertemporal Shifting of Wage Income: Evidence from Danish Monthly Payroll Records.” (with Søren Leth-Petersen and Peer Ebbesen Skov). American Economic Journal: Economic Policy, 2016

# Intertemporal income shifting visible in raw data



## Identifying taxpayers shifting monthly wages

Shifting Indicator Dummy  $D_{y,m} = 1$  IFF

- $(w_{y,m} - w_{2008,m})/w_{2008} > 50\%$

AND

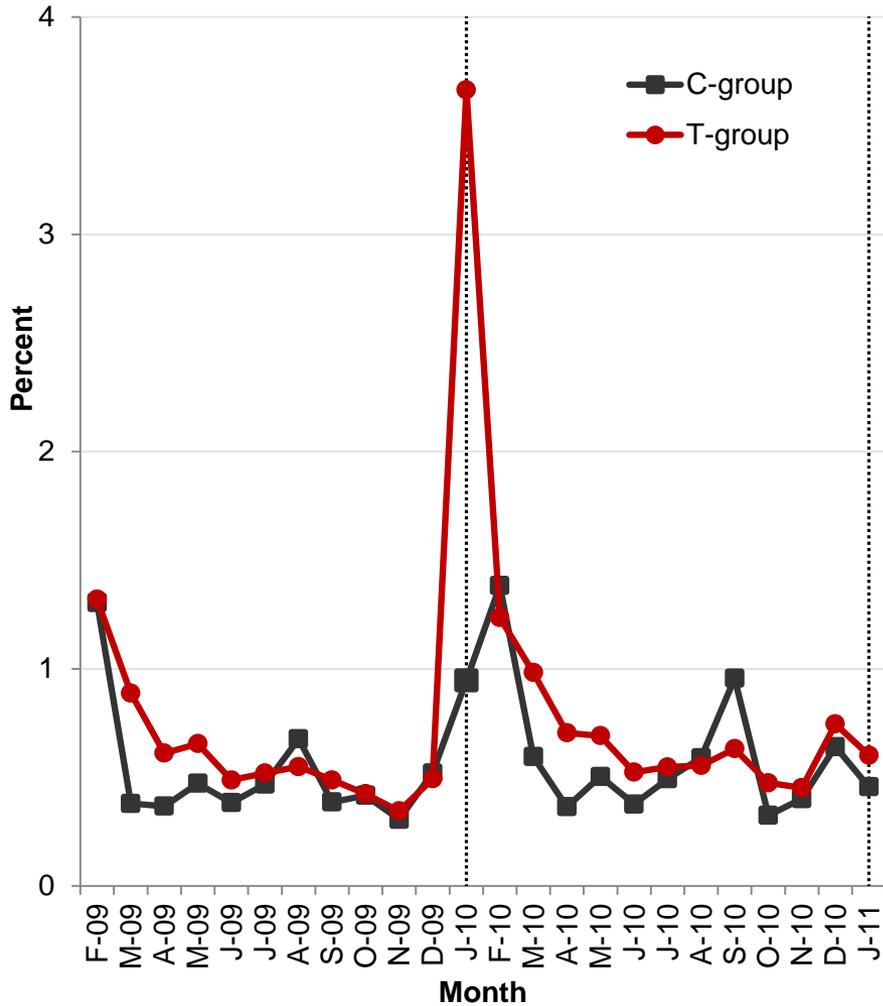
- $-(w_{y,m-1} - w_{2008,m-1})/w_{2008} > 50\%$

Captures both

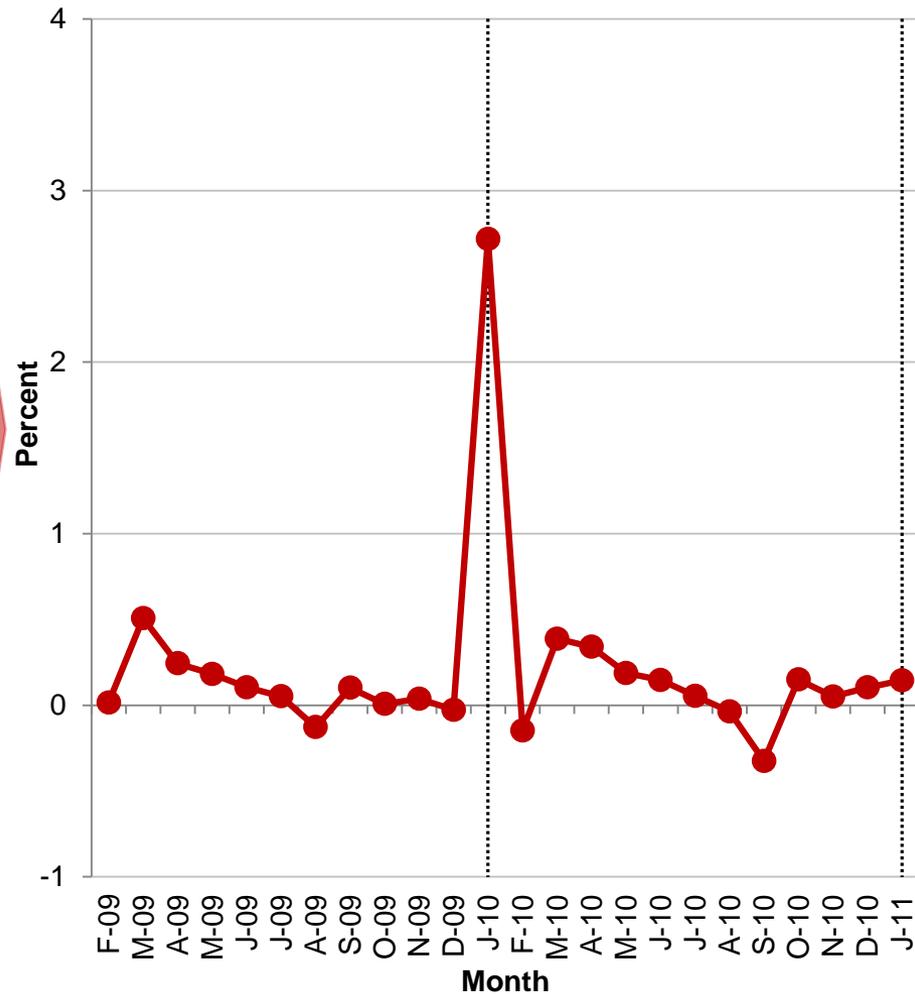
- Individuals who normally receive a **year-end bonus** but postpone the Dec09 bonus payment to Jan10
- Individuals who defer payment of **regular wage income** from Dec09 to Jan10

# Identifying taxpayers shifting monthly wages

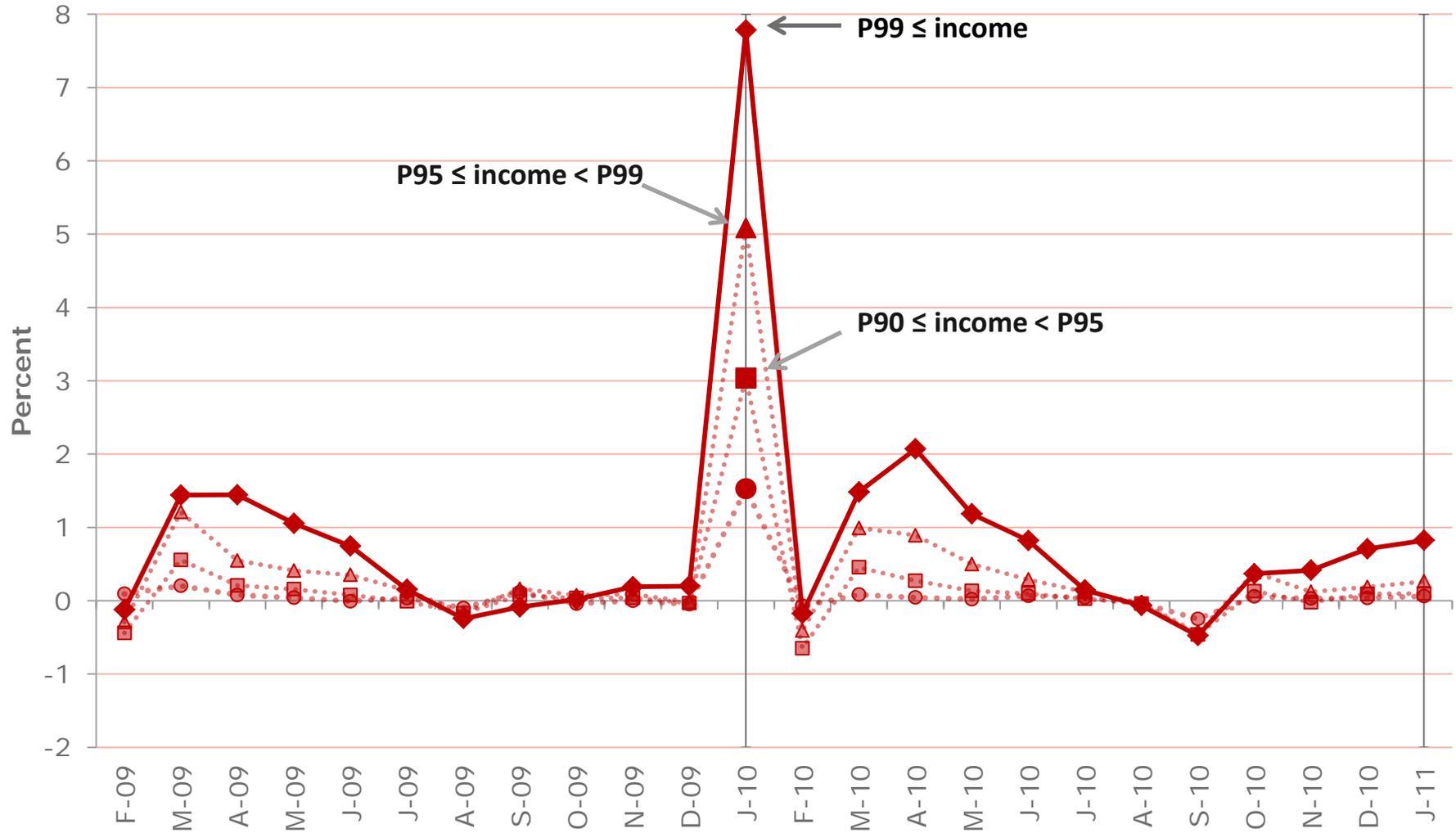
Shifting indicator across treatment status



Shifting indicator of T-group minus C-group



# Shifting is increasing in income



## Main conclusions

**Large shifting responses:** around 10% of monthly income was shifted from 2009 to 2010 in the T-group

**Widespread:** takes place at all income levels & extent of shifting is similar across industry sectors

**Concentrated:** few individuals ( $\approx 3\%$ ) who shift large amounts

**ETI bias:** May account for all the income variation used to estimate the short run ETI + May account for the common finding of a higher ETI for high-income individuals

### **Why do only few taxpayers exploit the opportunity?**

- Awareness (less than one out of five)
- Liquidity constraints (liquid assets/income significant)
- Limited willingness of employers to collaborate (more shifting in small private firms and among CEO's, no shifting in public sector)

## Introduction of 3-party reporting on charitable giving

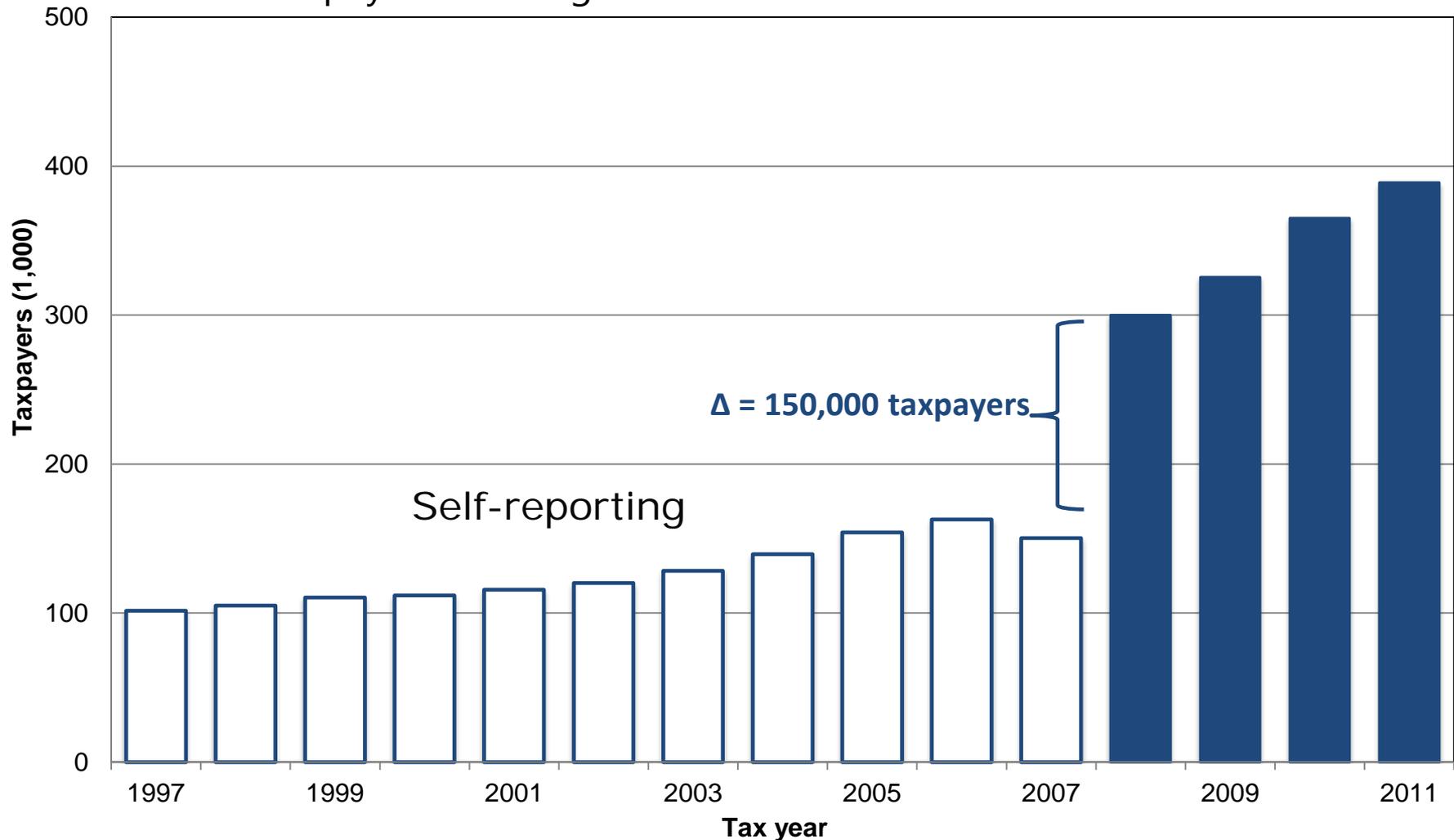
Introduction of third-party reporting and pre-population of charitable tax deductions in 2008  $\Rightarrow$  effect on tax compliance



“The use of third-party information reporting for tax deductions: evidence and implications from charitable deductions in Denmark” Gillitzer and Skov, Oxford Economic Papers, 2018

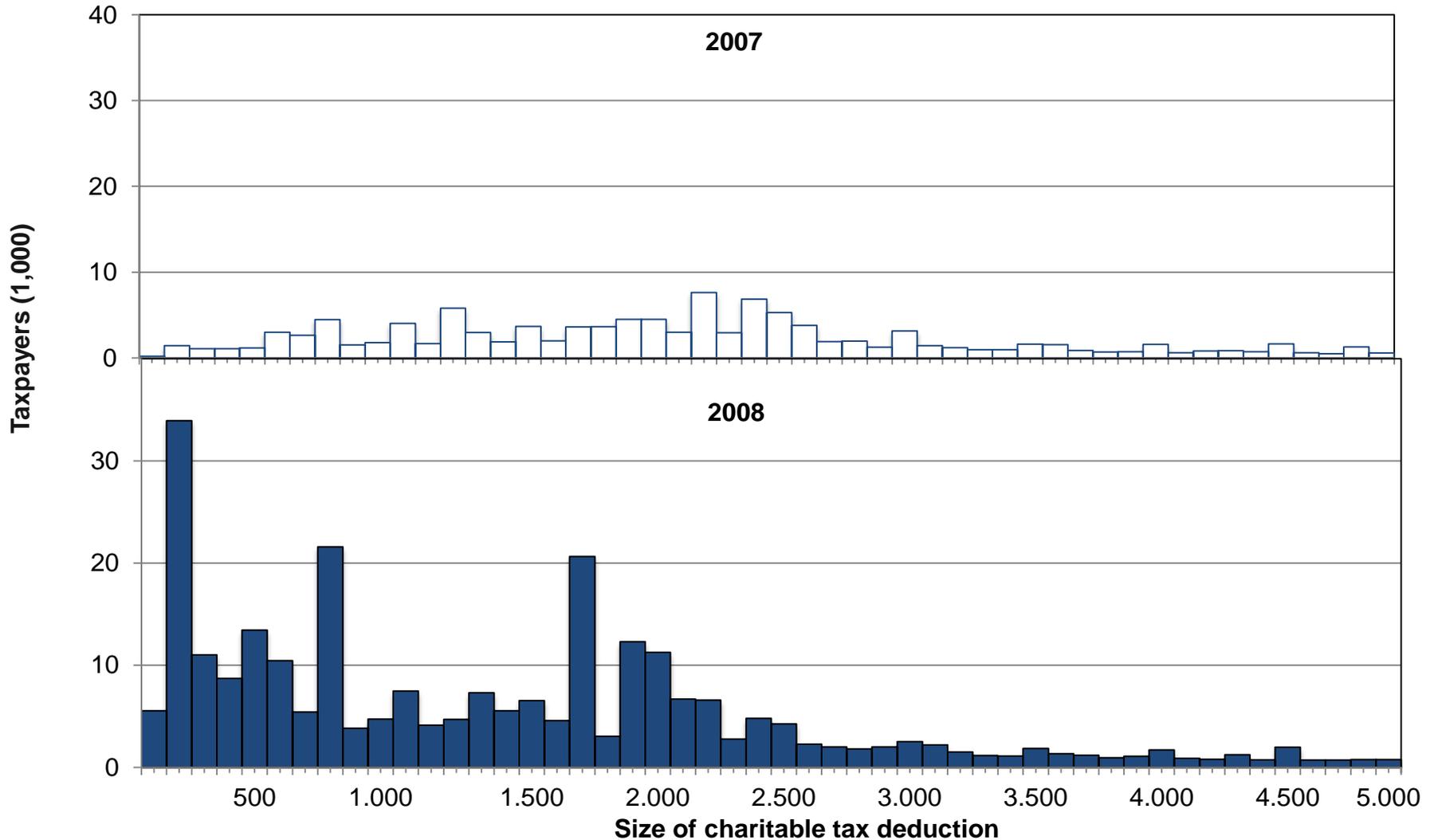
## Introduction of 3-party reporting caused a surge in deductions

Taxpayers claiming a tax deduction for charitable donations



## Most new claims were small in value

Taxpayers claiming a charitable tax deduction: by claim size



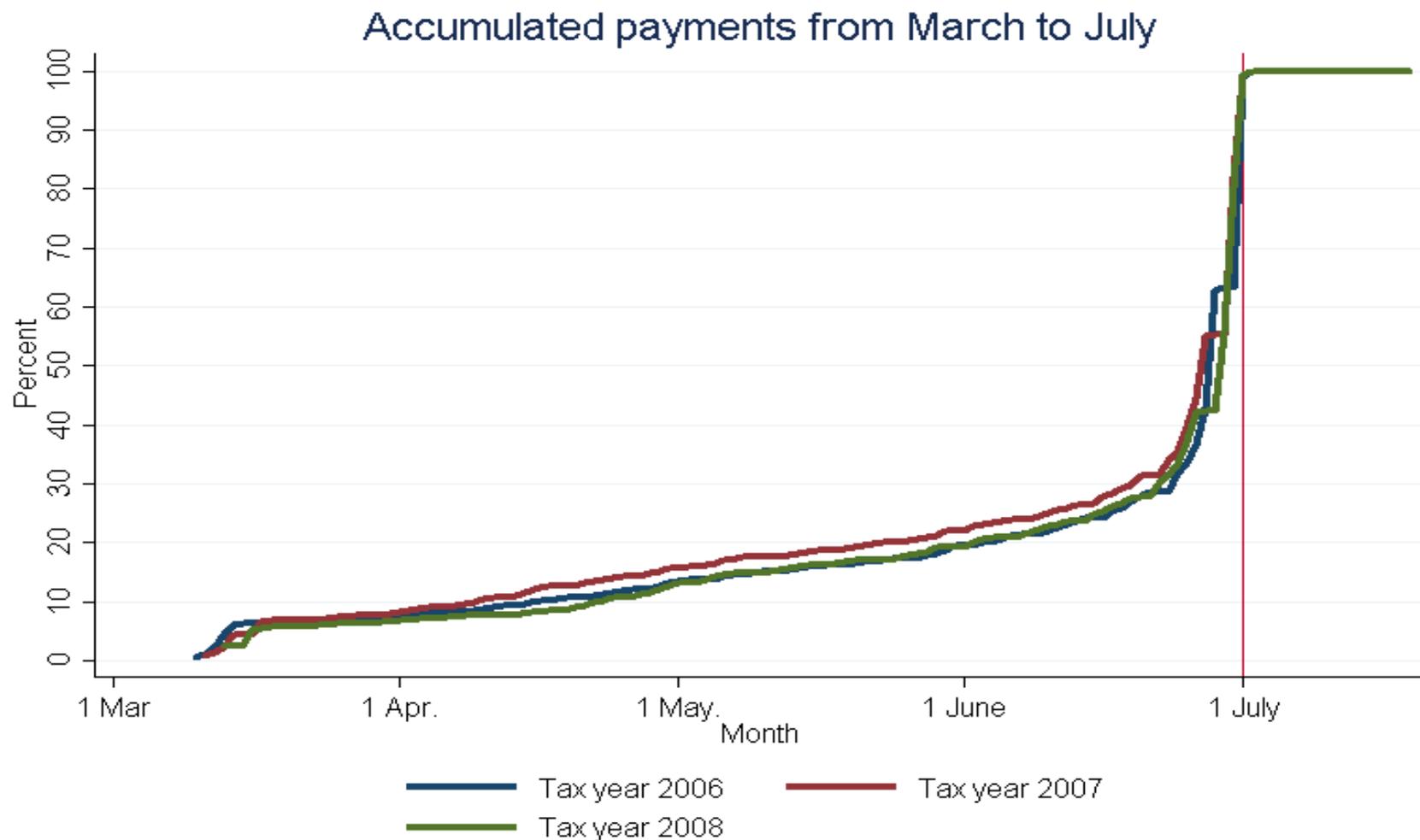
## Introduction of interest payments on owed taxes

2010 tax reform introduced an interest rate of 4.6% on owed taxes accruing from January 1st 2010 (until 2010 owed taxes paid before July 1st would avoid any interest payments)



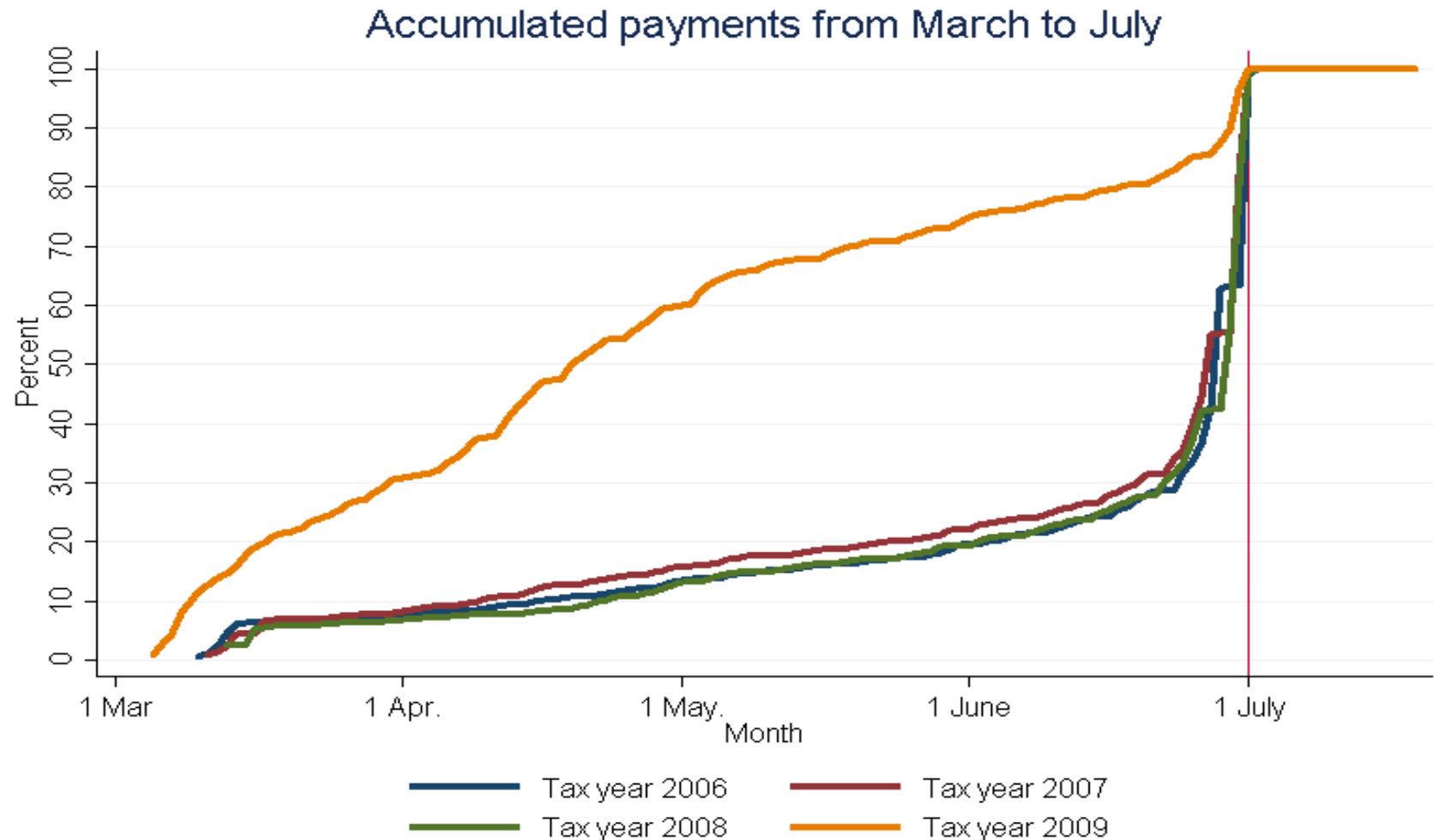
“Pay now or pay later: Danish Evidence on Owed Taxes and the Impact of Small Penalties.” Skov, Working paper, 2014

## Pre-reform: bulk of owed amounts paid close to the July deadline



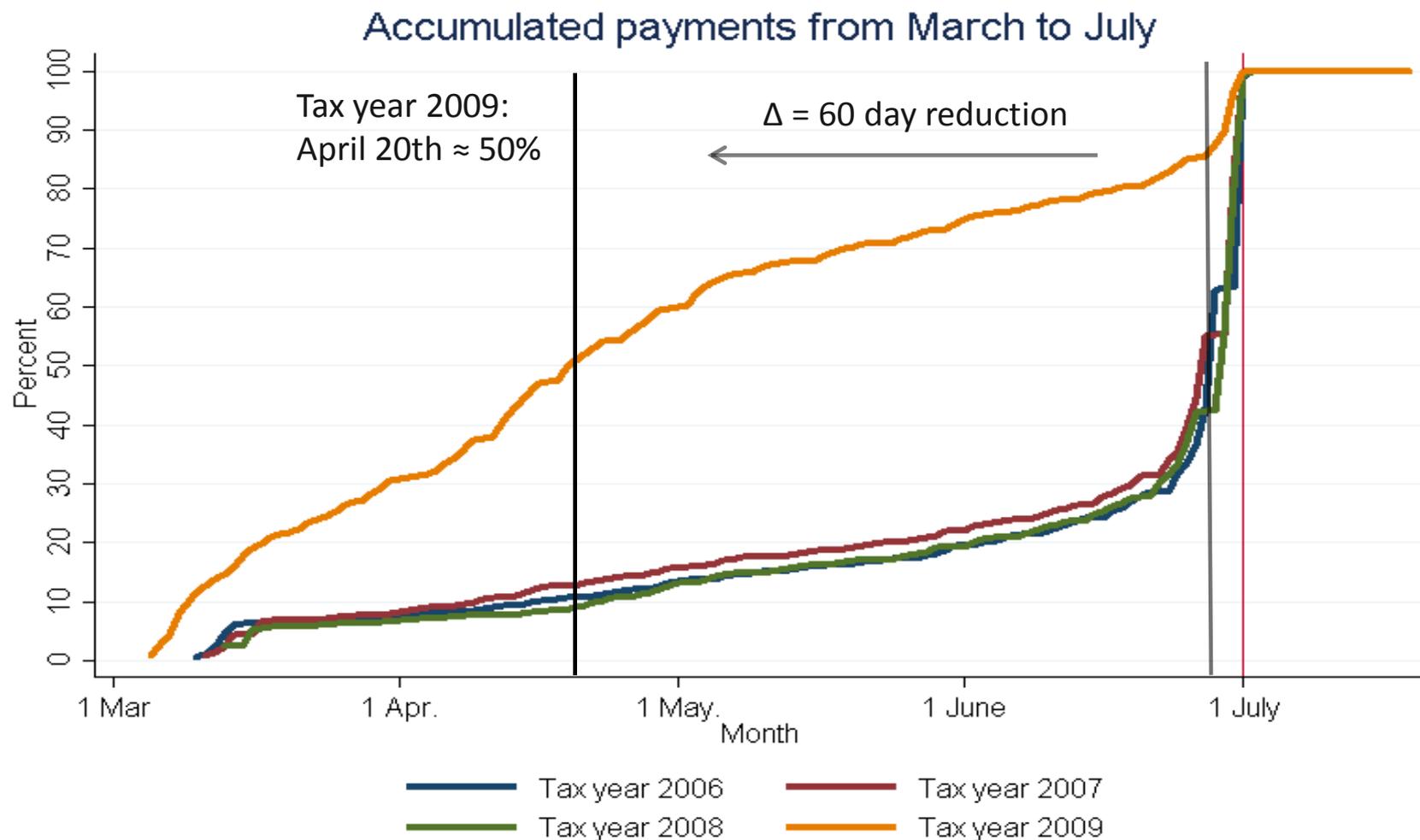
The figure shows the accumulated payments from the arrival of the pre-populated tax assesment in the beginning of March to end of the voluntary payment period, 1st July

## Substantial change in payment profile after reform



The figure shows the accumulated payments from the arrival of the pre-populated tax assesment in the beginning of March to end of the voluntary payment period, 1st July

## Substantial change in payment profile after reform



The figure shows the accumulated payments from the arrival of the pre-populated tax assesment in the beginning of March to end of the voluntary payment period, 1st July

## **Introduction of a semi third-party reporting instrument on alimonies and child support transfers**

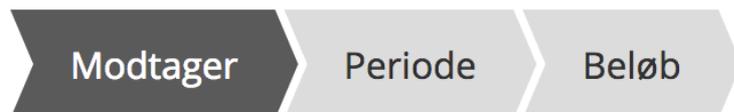
In 2013 SKAT introduced a new “calculation module” in TastSelv to combat misreporting of deductions for alimony and child support transfers



“Effect of a semi third-party reporting instrument on tax compliance.”  
Bentsen and Skov, Work-in-progress, 2018

# TastSelv module

## Børnebidrag



### Modtager

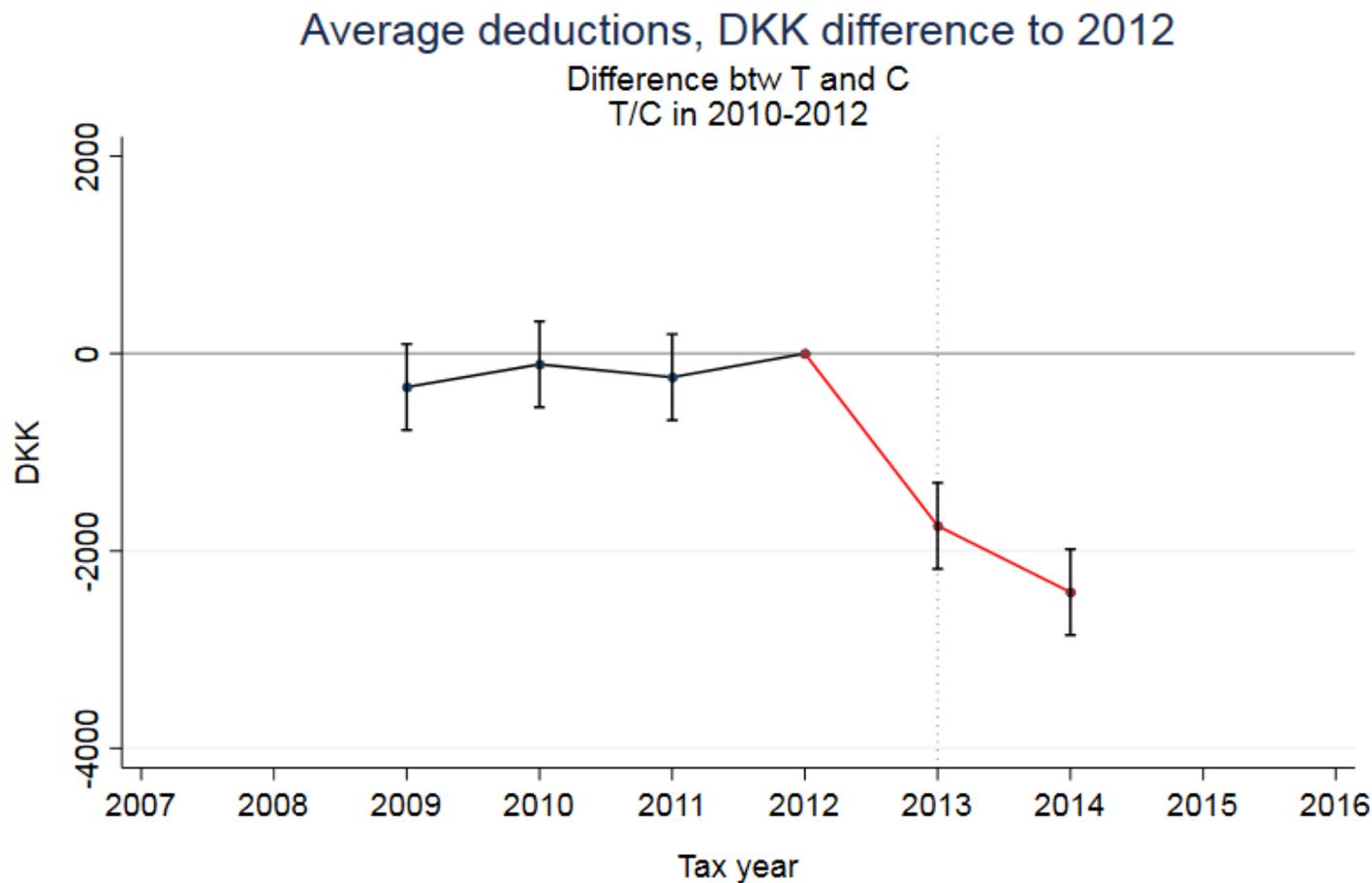
Barnet har et dansk cpr-nummer

Barnet har ikke et dansk cpr-nummer

Cpr/cvr-nummer \*

Skriv cpr/cvr-nummer

## Introduction of interest payments on owed taxes



Note: Sample used is taxpayers with deduction from 2008-2015. TPR or Self-reported deduction from 2010-2012. Yearly observations: N Treatment: 24,631, N Control: 18,651.

# Exiting new empirical evidence from other countries

Size of evasion responses (Slin 2018; Kosonen 2018; Escobar 2018; Kotakorbi 2018)

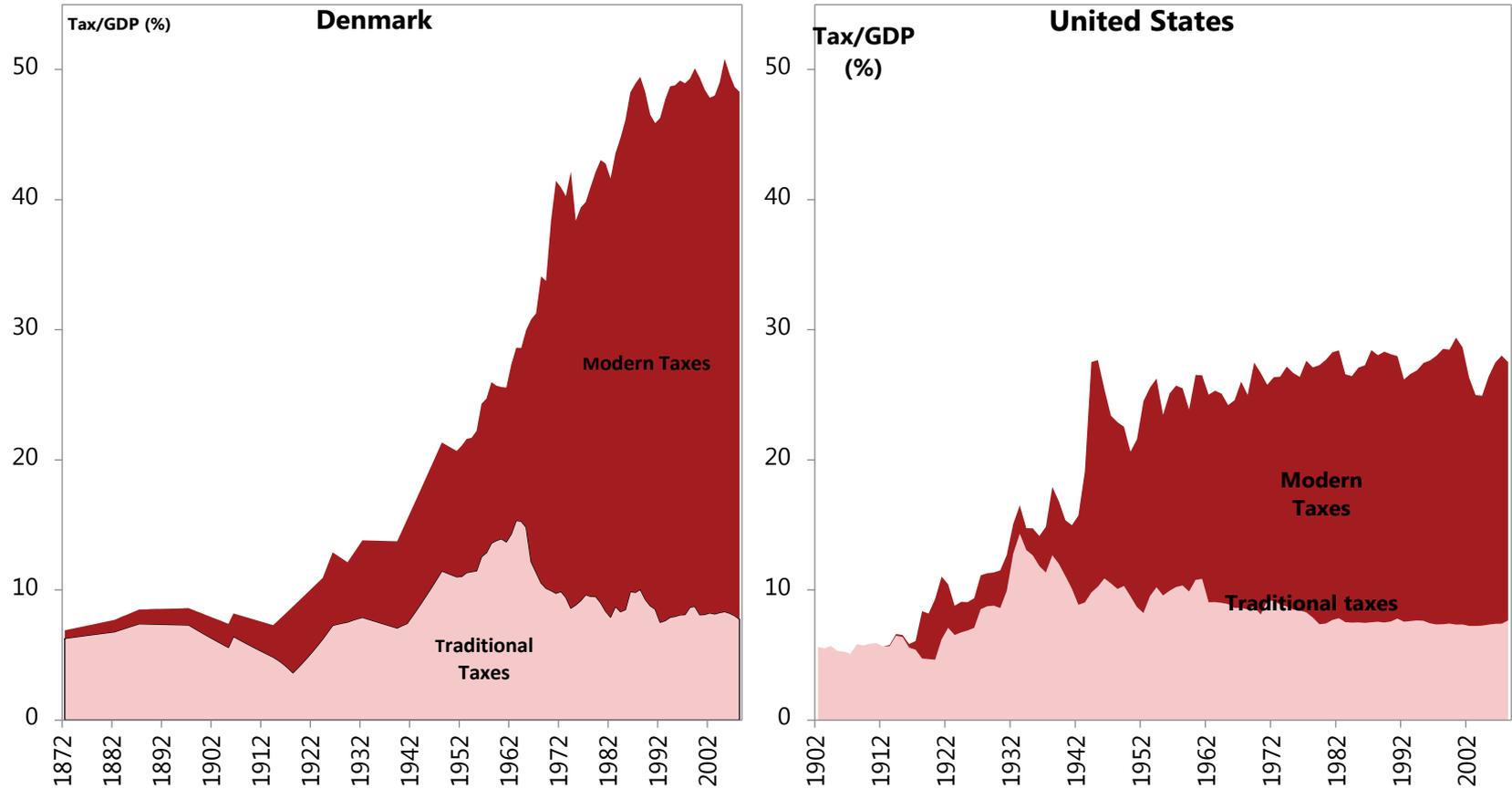
Effect of enforcement instruments on behavior (DeBacker 2018; Advani 2018; Torsvik 2018)

Effectiveness of 3<sup>rd</sup> party info: Collaborative behavior important (Kleven, Kreiner, Saez 2016; Bjørneby 2018)

Moral, guilt, shame, loss aversion (Treber 2018; Engström 2018)

Social networks (Telle 2018)

# EXTRA SLIDES



Sources: Kleven, Kreiner, Saez Economica 2016

Resources spend on tax enforcement: ¼% of GDP in DK

## Effectiveness of 3<sup>rd</sup> party info/withholding

Milton Friedman in interview in 1995:

*"I was an employee at the Treasury Department. We were in a wartime situation. How do you raise the enormous amount of taxes you need for wartime? ... You could not do that during wartime or peacetime without withholding. And so people at the Treasury tax research department, where I was working, investigated various methods of withholding... It was a very interesting and very challenging intellectual task. I played a significant role, no question about it, in introducing withholding. I think it's a great mistake for peacetime, but in 1941–43, all of us were concentrating on the war. I have no apologies for it, but I really wish we hadn't found it necessary and I wish there were some way of abolishing withholding now."*

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### Buried treasure

# A new study details the wealth hidden in tax havens

**But even the new data are patchy and do not fully account for all wealth**

Oct 7th 2017



SWITZERLAND, which developed cross-border wealth-management in the 1920s, was once in a league of its own as a tax haven. Since the 1980s, however, tax-dodgers have been spoiled for choice: they can hide assets anywhere from the Bahamas to Hong Kong. The percentage of global wealth held offshore has increased dramatically. But it has been hard to say how much that is, and who owns it.

Few offshore centres used to disclose such data. But in 2016 many authorised the Bank for International Settlements (BIS) to make banking statistics publicly available. Using these data, a new study by Annette Alstadsaeter, Niels Johannesen and Gabriel Zucman, three economists, concludes that tax havens hoard wealth equivalent to about 10% of global GDP. This average masks big variations. Russian assets worth 50% of GDP are held offshore; countries such as Venezuela, Saudi Arabia and the United Arab Emirates climb into the 60-70% range. Britain and continental Europe come in at 15%, but Scandinavia at only a few per cent.

One conclusion is that high tax rates, like those in Denmark or

In this section