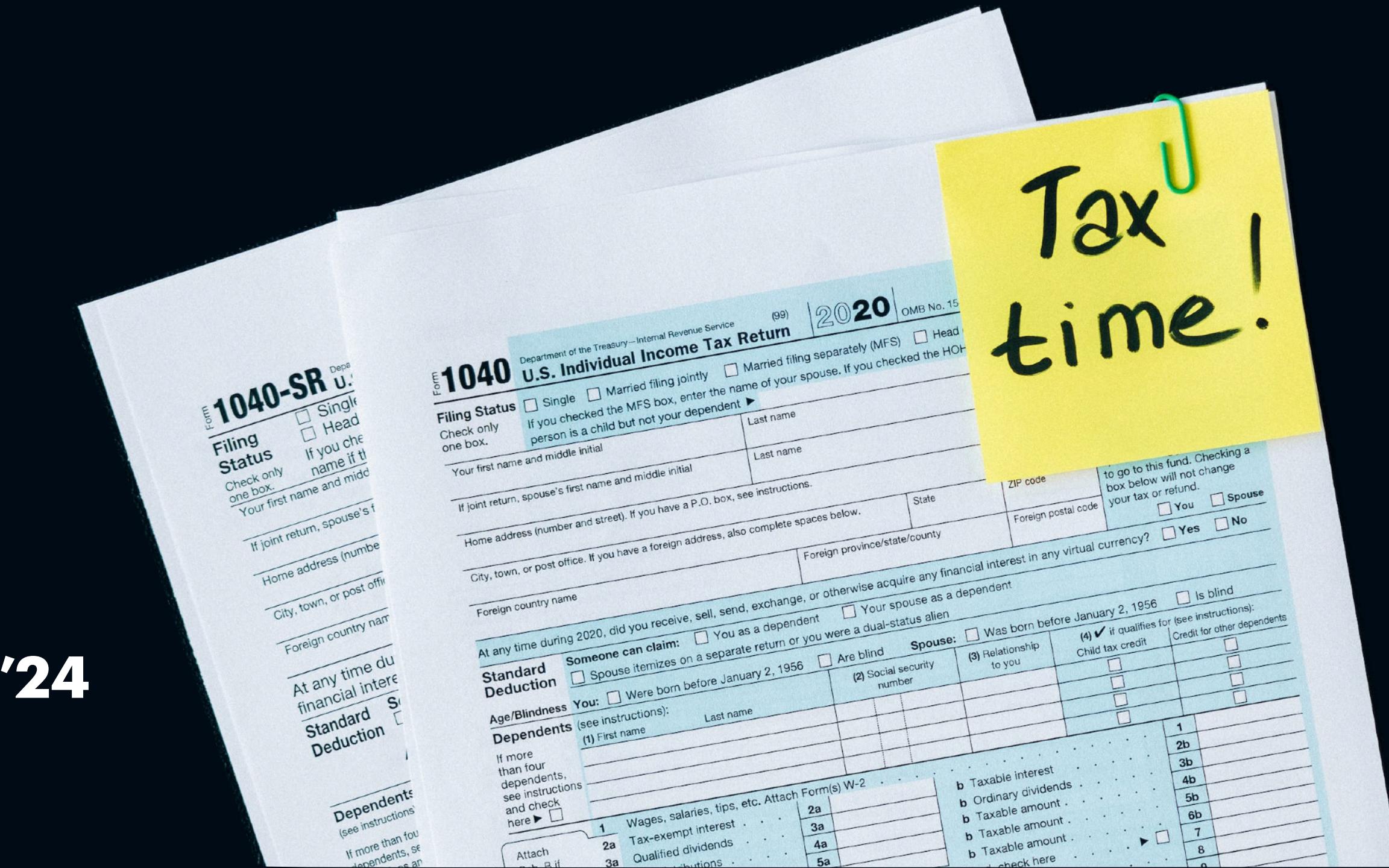


Tax amnesties and the insurance effect

an experimental study by C. Koch
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ILIA LOTAREV • BBECON READING GROUP • AA '23-'24



abstract

if you know about an upcoming tax amnesty, you are more likely to avoid paying taxes due to a lowered perceived risk of being audited

I — INTRODUCTION

tax amnesty

*a temporal or permanent
exemption from legal prosecution
for tax evasion for voluntarily
disclosing underreported income*

Introduction

Paying Taxes as a Game

- if a business pays taxes (T),
the payoff is T for the government
and $-T$ for the business in any situation
- the dominating strategy is **not to pay taxes**
for business and **audit no amnesty** (+ fine F)
for govt; however, there are no resources
(a *non-credible threat*) to play this all the time
- thus, an **audit & amnesty** is the way to recreate
the $(T; -T)$ Nash equilibrium
- the repeated game with **audit & amnesty** leads
businesses to stick with **not paying taxes** due
to the lowered probability of **audit no amnesty**

		BUSINESS	
		PAY TAXES	DON'T PAY TAXES
GOVERNMENT	33%	T	$-T$
	33%	$-T$	$-(T+F)$
	33%	T	$T+F$



Introduction

Amnesties and Audits as Carrots and Sticks

- ▶ amnesties do not directly impact tax compliance as they do not inherently modify the cost-benefit analysis of tax evasion *ceteris paribus* (*Alm and Beck 1991, Macho-Stadler et al. 1999*).
- ▶ tax amnesties achieve greater success when accompanied by increased enforcement (*Alm et al. 1990*)
- ▶ Usually, amnesties are time-bound, but Germany, the Netherlands, and others have implemented **permanent** tax amnesties that do not include any kind of time limit, so the taxpayers **anticipate** them
- ▶ this can work as **insurance** against an increase in enforcement, leading to more tax evasion over time

insurance effect

here implies that taxpayers may evade taxes in anticipation of an amnesty, especially if they expect an increase in audit rates

Repeated Tax Amnesty Leads to a Lowered Perceived Risk of No Amnesty

		BUSINESS		BUSINESS	
		PAY TAXES	DON'T PAY TAXES	PAY TAXES	DON'T PAY TAXES
GOVERNMENT	33% NO AUDIT	T	T	T	T
	33% AUDIT NO AMNESTY	T	$-T$	$-T$	$-(T+F)$
	33% AUDIT & AMNESTY	T	T	$-T$	$-T$
		30% NO AUDIT		10% AUDIT NO AMNESTY	
		T	T	T	T
		$-T$	$-(T+F)$	$-T$	$-(T+F)$
		T	T	$T+F$	$T+F$
		$-T$	$-T$	$-T$	$-T$
		60% AUDIT & AMNESTY			
		T	T	T	T

III – RESEARCH QUESTIONS

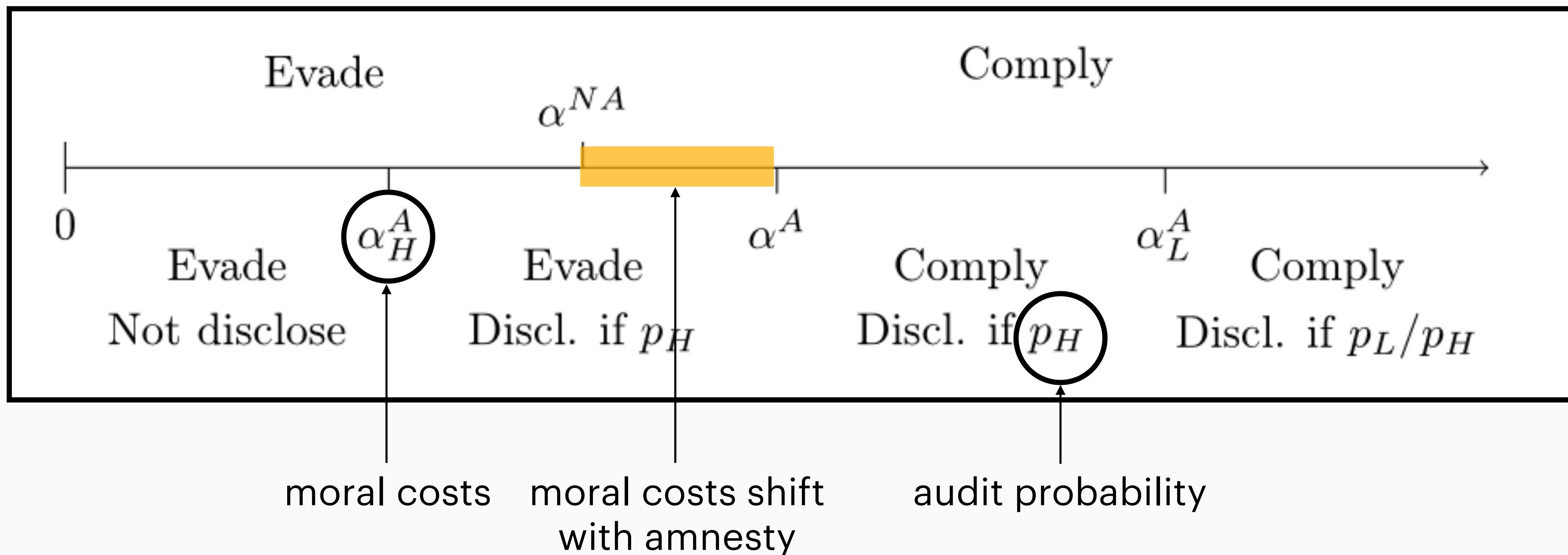
Research Questions

Key Objective & Assumptions

- (1) Would participants use the tax amnesty as an "insurance" against increased audit probability?
- (2) Would this lead to a decrease in overall tax compliance and therefore government revenue?

- does the insurance effect actually affect behavior?
- is it strong enough to lower tax compliance?
- does it make tax amnesties less effective even when an increasing audit rate provides an incentive to voluntarily disclose evaded taxes?

important to isolate from the tax morale



tax morale

*an intrinsic motivation to pay taxes,
independent of economic incentives
or disincentives; comes from ethical,
social, and cultural factors*

Research Questions

Factors Influencing the Tax Morale

- social norms
- trust in government
- perceived fairness of the tax system
- belief in the public good provision

amnesties influencing the tax morale:

non-pecuniary (non-financial) motives

- **social proof:** after several repeated amnesties, people might learn the more people around them avoid paying taxes
- **law of small numbers:** a person is quick to assume an audit rate after just a few periods

III – EXPERIMENT DESIGN

Experiment Design

Tax Declaration Game

Participants earn and declare an income and face a certain audit probability as well as a fine for evaded taxes in case they are caught:

- earned income varies: 60, 70, 80, 90, 100
- the tax rate is set at 25%
- the audit probability fluctuates from 2.5% to 25%
- audited individuals have to pay taxes on the declared income **and the evaded taxes of the current and the previous three periods** plus a fine of 100% of these evaded taxes \approx 700% fine

info

EARNED INCOME

options

FINE IF AUDITED

AUDIT PROBABILITY

key variable

PAY

AVOID

% OF INCOME DECLARED

Double Treatment

noInfo

subjects are aware that the audit rate fluctuates but are unaware of the specific rate

pastInfo

subjects are informed about the audit rate of the previous period

currInfo

subjects are provided with information about the current audit rate

1

game is repeated 60 times, in 2 rounds of 30 periods; tax amnesty is available **in one of the rounds**

3

the audit rate dynamically went from low to high and **stayed high for 1–5 periods** before reverting to low

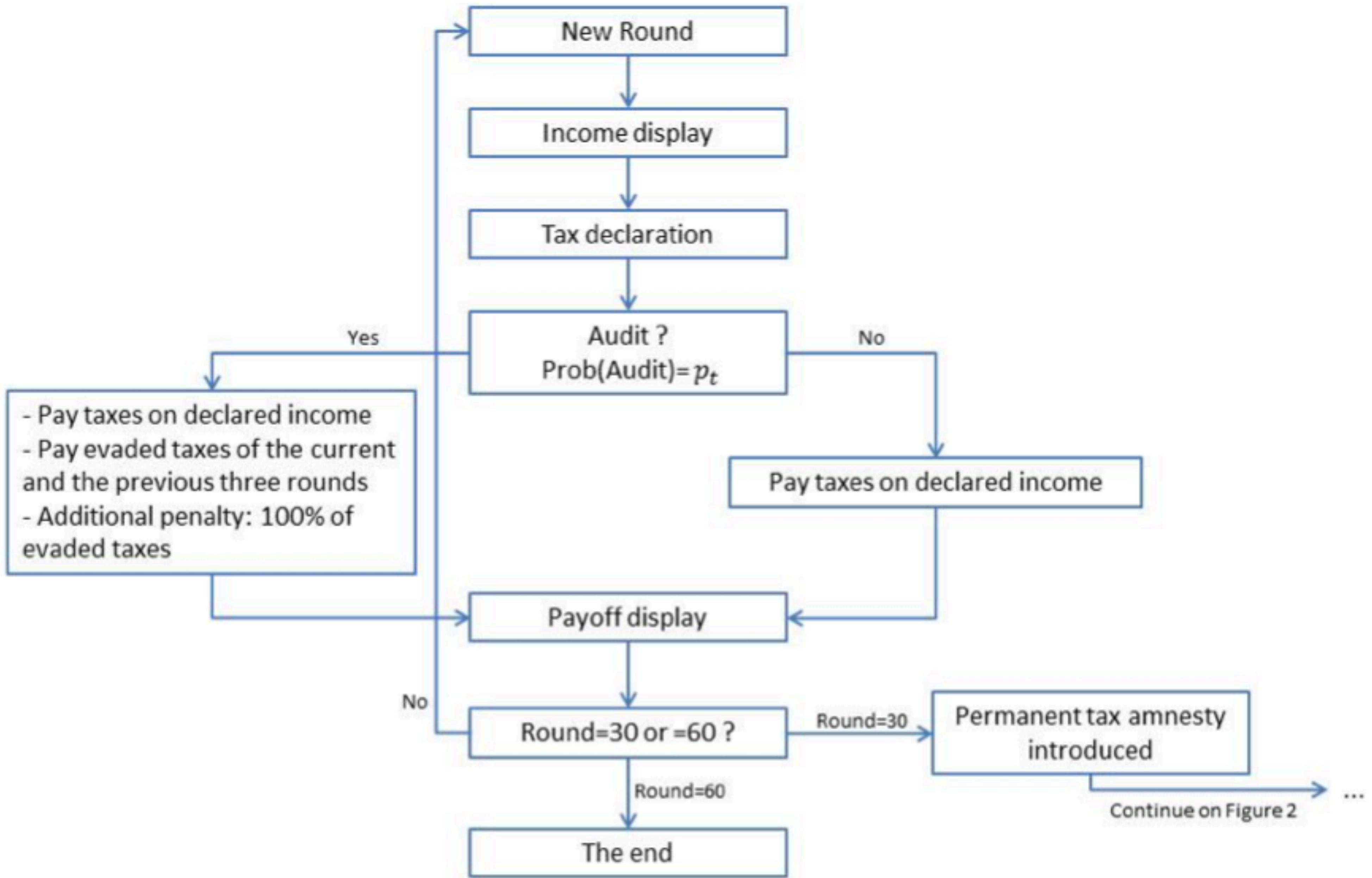
2

tax amnesty is introduced: it allowed participants to disclose and pay any of the previously evaded taxes

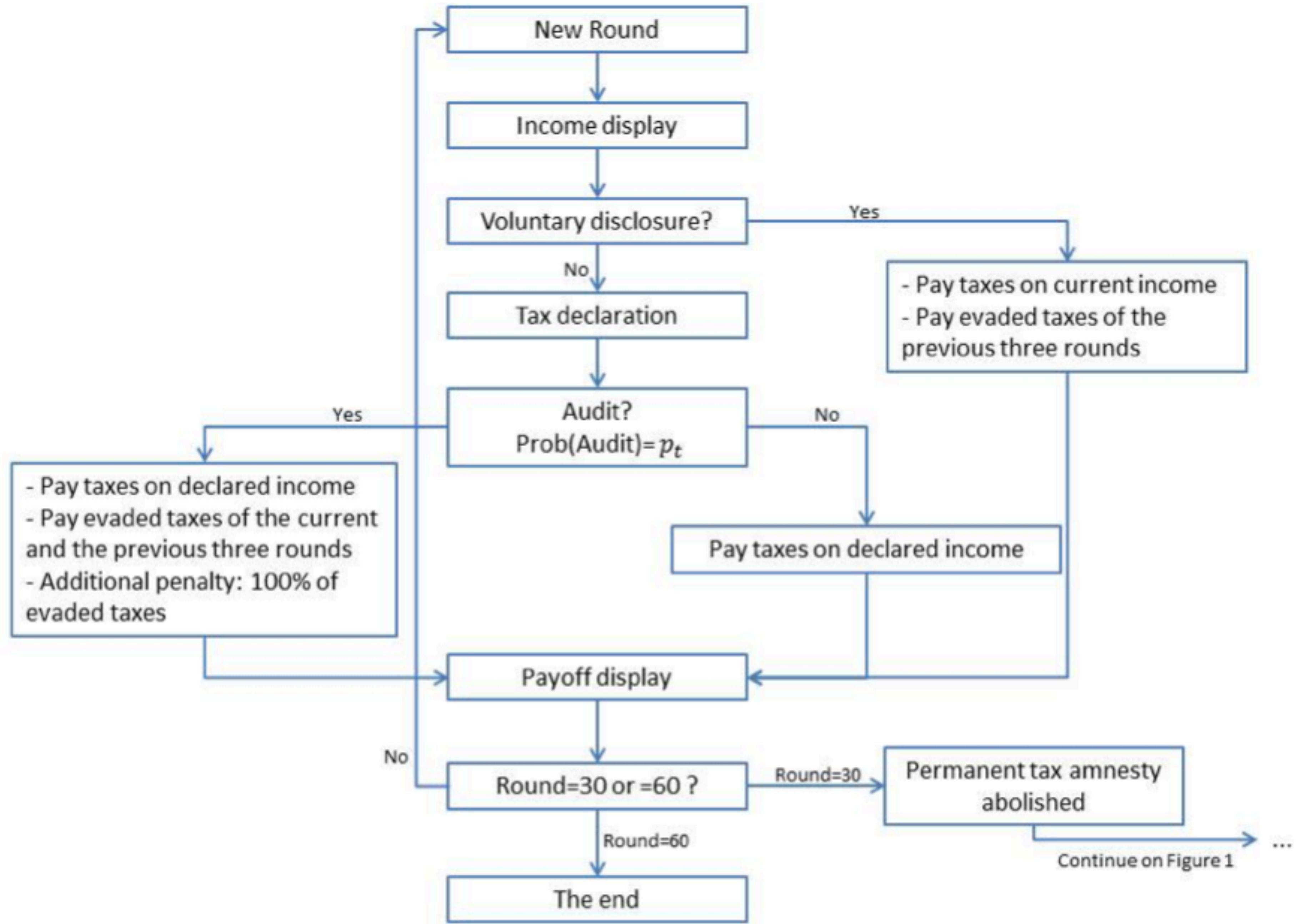
4

at the end of each period, subjects are informed about whether or not they have been selected for an audit and see a period summary

**experiment flow
/
no amnesty**



experiment flow / amnesty



Experiment Design

Experiment Flow

Runde
2

Verbleibende Zeit [sec]: 30

Ihr Einkommen 90

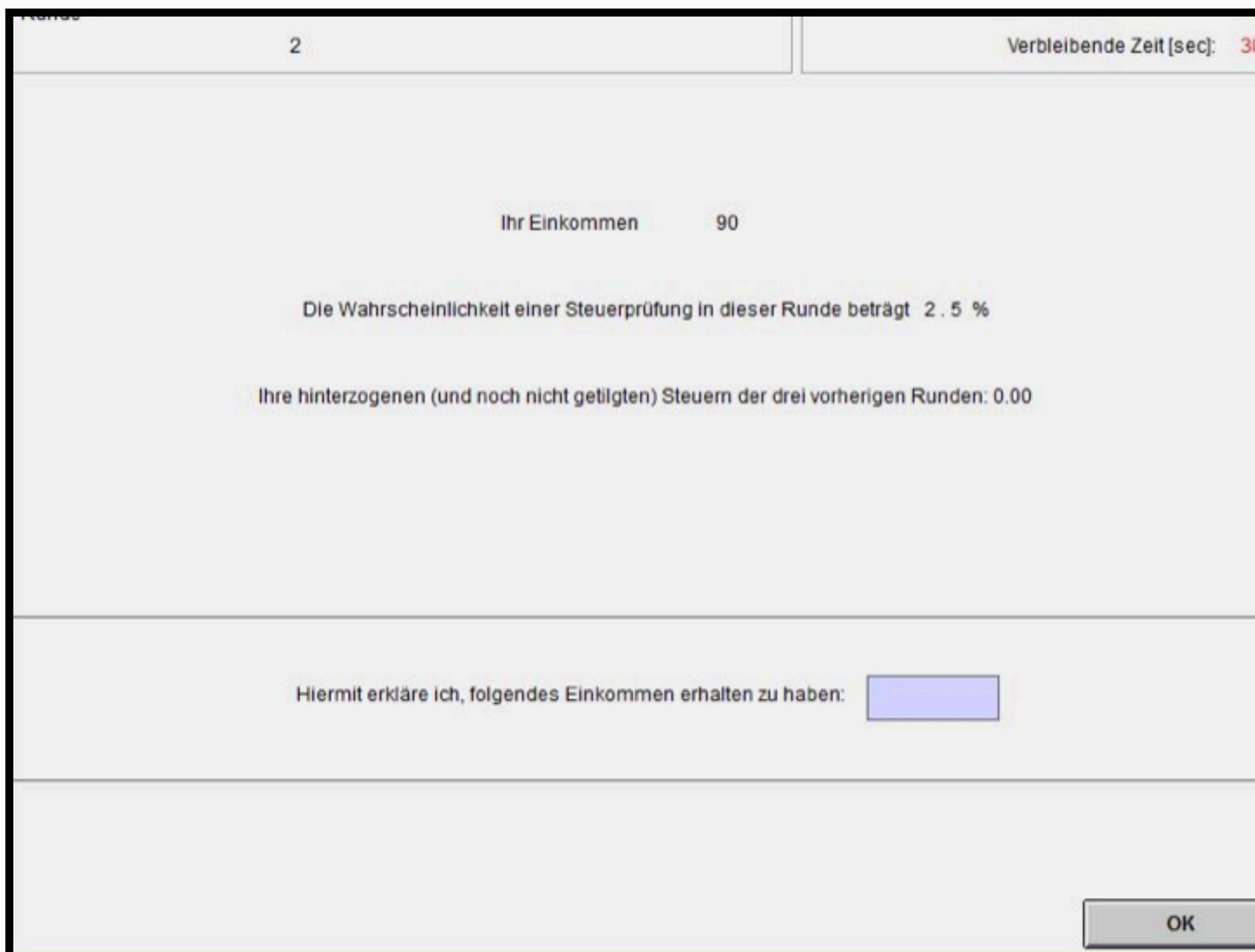
Die Wahrscheinlichkeit einer Steuerprüfung in dieser Runde beträgt 2.5 %

Ihre hinterzogenen (und noch nicht getilgten) Steuern der drei vorherigen Runden: 0.00

Hiermit erkläre ich, folgendes Einkommen erhalten zu haben:

Ich gebe zu, Steuern hinterzogen zu haben und will jetzt die Möglichkeit einer strafbefreienden Selbstanzeige nutzen
(Folge: jetziges Einkommen wird komplett versteuert und hinterzogene Steuern der drei vorherigen Runden werden nachgezahlt)

OK



This screenshot shows the tax declaration interface for the currInfo treatment. It displays the participant's current income (90), the probability of audit (2.5%), and the amount of undeclared taxes from the previous three rounds (0.00). The participant is asked to declare their actual income, which they do by entering a value into a text input field. Below this, there is a checkbox for voluntary disclosure, which, if checked, would result in the current income being fully taxed and the previously undeclared taxes being追缴ed.

currInfo: Tax declaration

Runde
2

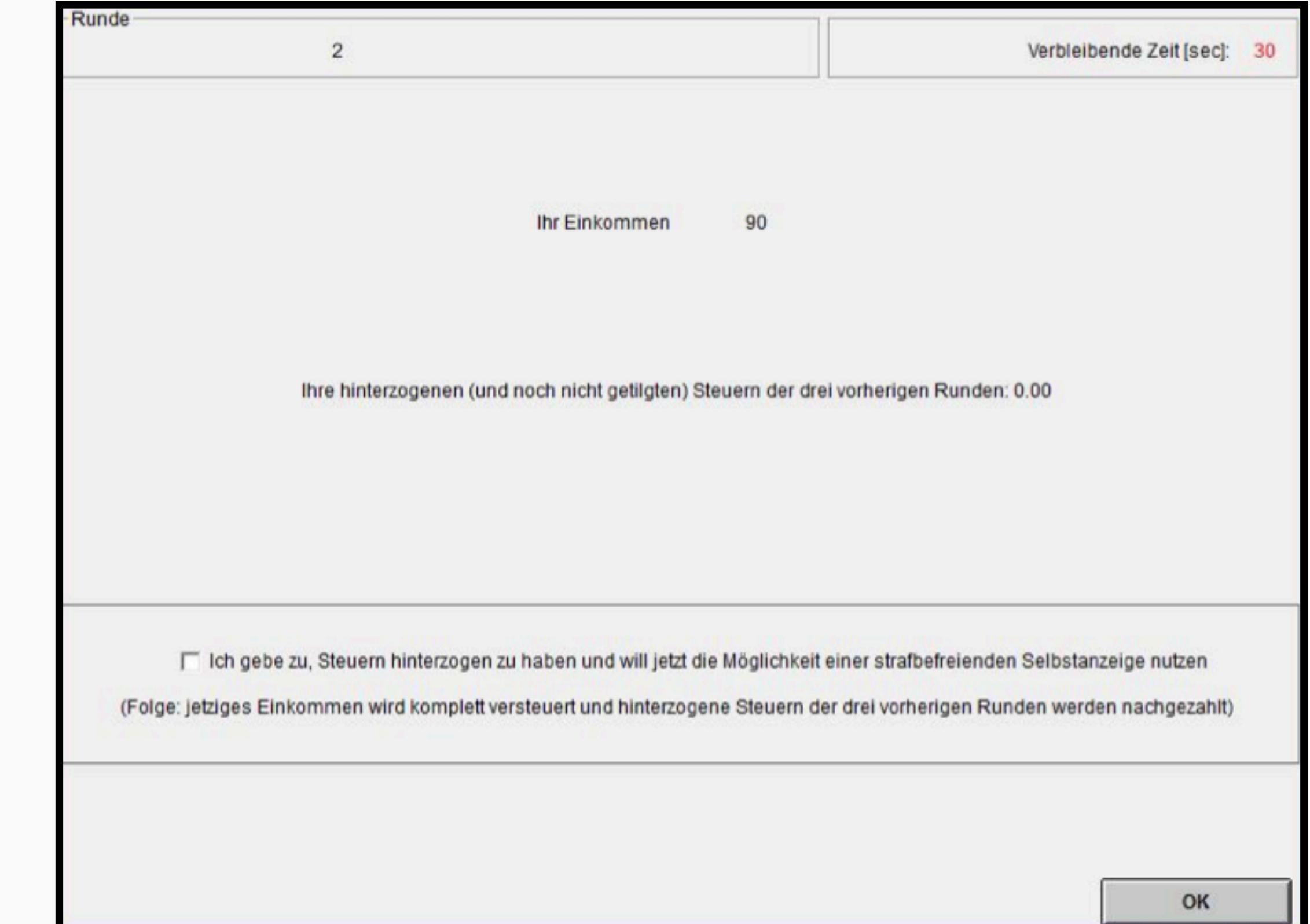
Verbleibende Zeit [sec]: 30

Ihr Einkommen 90

Ihre hinterzogenen (und noch nicht getilgten) Steuern der drei vorherigen Runden: 0.00

Ich gebe zu, Steuern hinterzogen zu haben und will jetzt die Möglichkeit einer strafbefreienden Selbstanzeige nutzen
(Folge: jetziges Einkommen wird komplett versteuert und hinterzogene Steuern der drei vorherigen Runden werden nachgezahlt)

OK



This screenshot shows the voluntary disclosure interface for the noInfo treatment. It displays the same information as the currInfo version: current income (90), audit probability (2.5%), and previous undeclared taxes (0.00). However, it lacks the income declaration input field. Instead, it features a checkbox for voluntary disclosure, which, if checked, would lead to the current income being taxed and the previous undeclared taxes being追缴ed.

noInfo: Voluntary disclosure

Experiment Design

Hypotheses

PERMANENT TAX AMNESTY LEADS TO TAX AVOIDANCE

- ▶ **H1A** In *currInfo*, a permanent tax amnesty lowers tax compliance, at least compared to *noInfo*
- ▶ **H1B** In *pastInfo*, if there is a negative effect of an amnesty (compared to *noInfo*), its magnitude is smaller than in the *currInfo* treatment

HIGH EXPECTED AUDIT RATE LEADS TO VOLUNTARY DISCLOSURES

- ▶ **H2A** In *currInfo*, there is a positive number of voluntary disclosures and they are triggered by an upward jump in the audit rate in the current period
- ▶ **H2B** In *pastInfo*, there are fewer disclosures than in *currInfo* and they are triggered by an upward jump in the audit rate in the previous period
- ▶ **H2C** In *noInfo*, there are fewer voluntary disclosures than in *pastInfo* and *currInfo*

Experiment Design

Procedures

- ▶ 120 subjects participated in the experiment which took place at the mLab at Mannheim University
- ▶ 40 people per group, 20 per round (amnesty in the first half/in the second half)
- ▶ 12 laboratory sessions with 8-12 participants each
- ▶ the participants earned 11.85 Euro on average
- ▶ the ‘taxed’ money was donated to *Bundeskasse*, the German federal budget

IV – RESULTS & DISCUSSION

Results & Discussion

General Results

- ▶ **the highest compliance rate** in *noInfo*,
the group with no knowledge about
the probability of an audit
- ▶ **the lowest compliance rate** in *currInfo*,
the group that knew the probability
of an audit in the current period
- ▶ **the highest number of voluntary
disclosures** is in *currInfo*,
the lowest – in the *pastInfo*
- ▶ in all three groups, **the perceived audit
rate was higher** than the actual one
(and the highest in *noInfo*)
- ▶ on average, at least 1/3 of the subjects
have a positive tax debt

Table 1
Summary statistics by treatment.

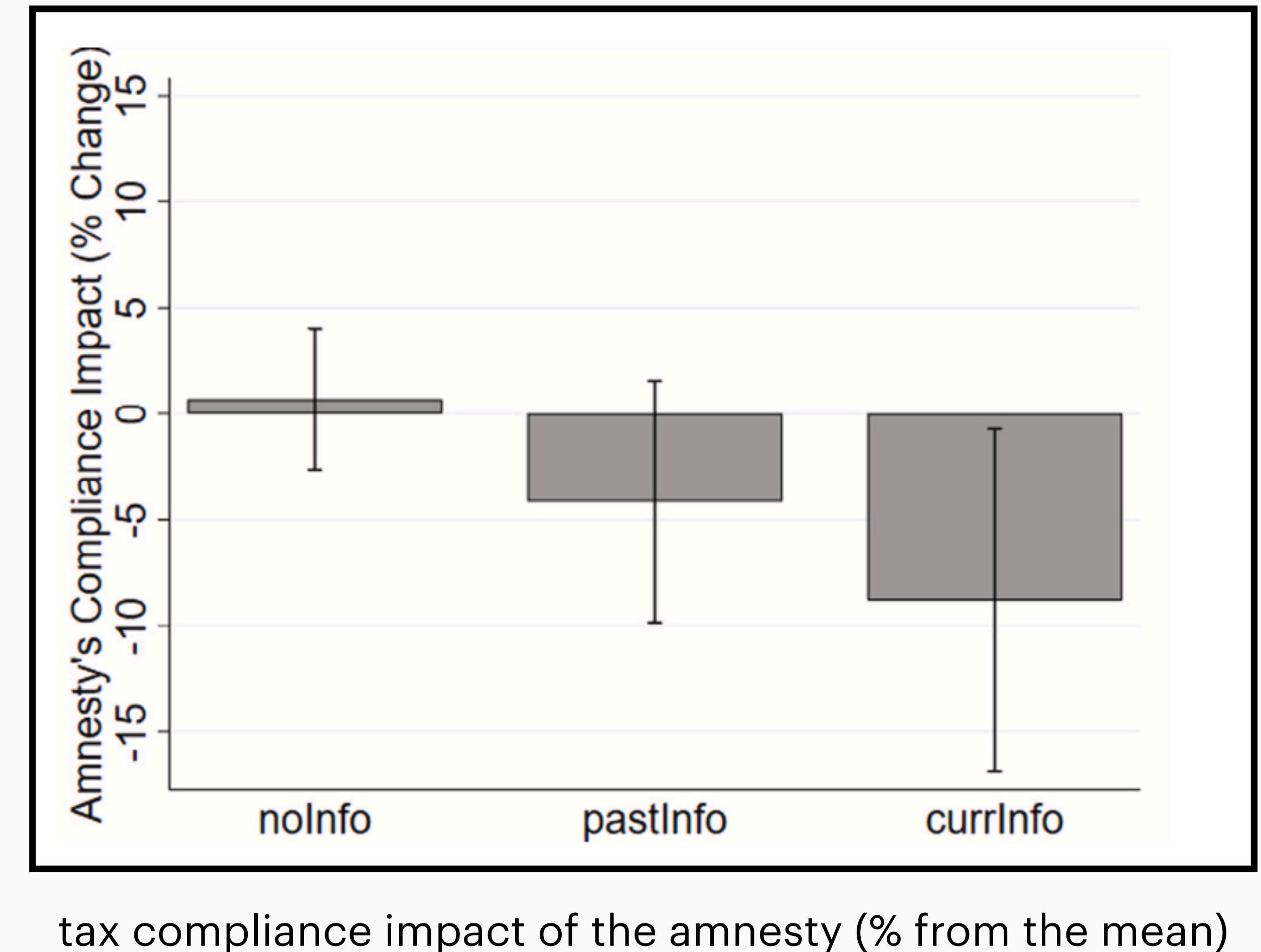
Treatment	Total (60 periods)	With amnesty (30 periods)	Without amnesty (30 periods)
currInfo	Subjects = 40 Mean compliance rate = 0.550 Sub. with tax debt = 0.360 Mean audit rate = 0.094 Mean perceived audit rate = 0.103 (median = 0.1)	Subjects = 40 Mean compliance rate = 0.536 Sub. with tax debt = 0.353 Mean audit rate = 0.101 Voluntary disclosures = 65	Subjects = 40 Mean compliance rate = 0.565 Sub. with tax debt = 0.368 Mean audit rate = 0.087
pastInfo	Subjects = 40 Mean compliance rate = 0.706 Sub. with tax debt = 0.408 Mean audit rate = 0.095 Mean perceived audit rate = 0.109 (median = 0.1)	Subjects = 40 Mean compliance rate = 0.692 Sub. with tax debt = 0.416 Mean audit rate = 0.096 Voluntary disclosures = 36	Subjects = 40 Mean compliance rate = 0.721 Sub. with tax debt = 0.400 Mean audit rate = 0.094
noInfo	Subjects = 40 Mean compliance rate = 0.772 Sub. with tax debt = 0.539 Mean audit rate = 0.088 Mean perceived audit rate = 0.126 (median = 0.1)	Subjects = 40 Mean compliance rate = 0.778 Sub. with tax debt = 0.551 Mean audit rate = 0.084 Voluntary disclosures = 45	Subjects = 40 Mean compliance rate = 0.767 Sub. with tax debt = 0.527 Mean audit rate = 0.092

compliance rate = declared income over the true income

Results & Discussion

Amnesty Influence

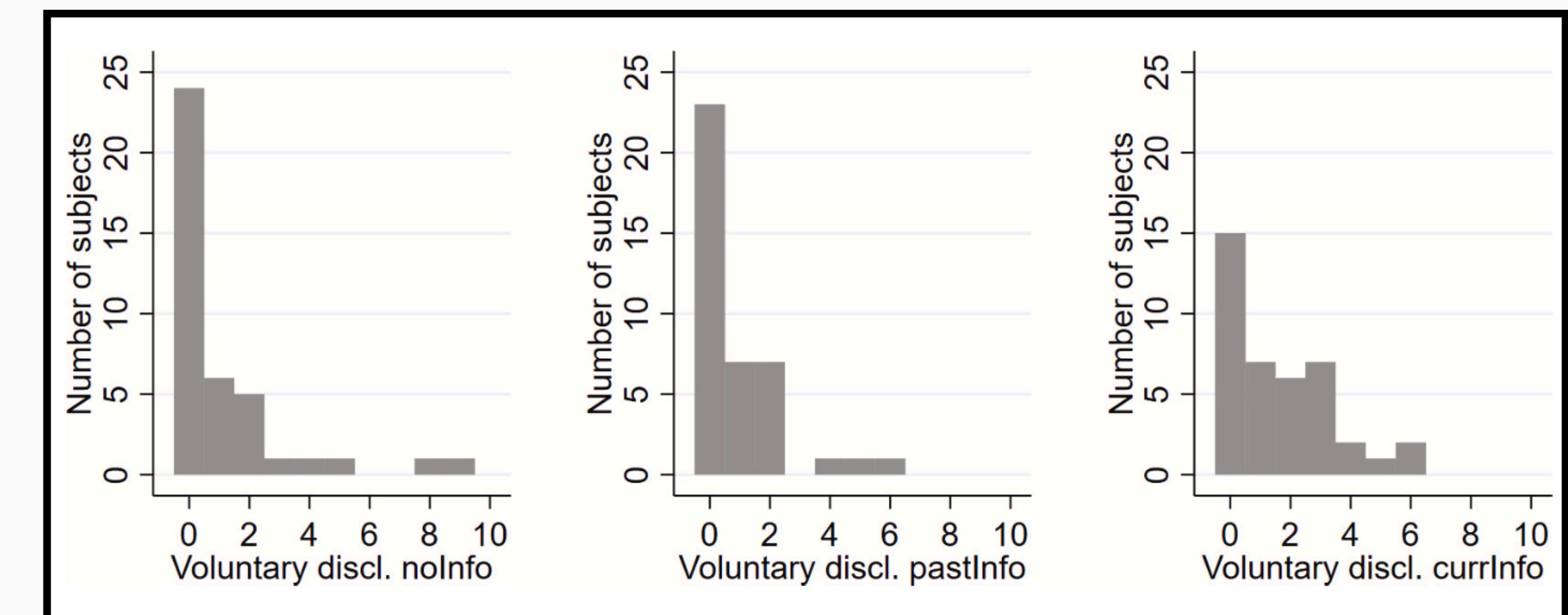
- ▶ **income is negatively correlated with compliance**, in line with previous studies
- ▶ a high audit rate leads to more compliance when the current audit rate is known (*currInfo*)
- ▶ with optimal information in *currInfo*, **the amnesty significantly (9–10%) reduces compliance**
- ▶ in *pastInfo*, the reduction is not statistically significant
- ▶ usual for tax experiments, a very high proportion of full evasion and full compliance is observed
- ▶ introducing the amnesty at the beginning of the experimental sessions had a more detrimental effect on compliance than introducing it later



Results & Discussion

Voluntary Disclosures

- ▶ In *currInfo*, 65 voluntary disclosures among 40 subjects are observed, and **46 of them take place directly after an upward jump in the audit rate**
- ▶ in *pastInfo*, there were 36 voluntary disclosures, among which 21 occurred after an upward jump in the previous period
- ▶ no significant difference between *noInfo* and *pastInfo*, even though *noInfo* had a twice lower mean debt (16 vs 31.2)
- ▶ the amount of taxes disclosed voluntarily differed across treatments, with larger amounts typically disclosed in the *currInfo* and *pastInfo* compared to *noInfo*



voluntary disclosures per group

Results & Discussion

Key Results

A tax amnesty does not per se lower compliance. However, in line with an insurance effect, under optimal information, subjects reduce tax compliance by about 9%-10%, **supporting H1A/H1B**

Supporting H2A/H2B, voluntary disclosures are triggered by an upward jump in the current or the previous audit rate. A non-negligible number of disclosures is observed in noInfo, **contradicting H2C**.

No significant increase or decrease in the revenue share attributable to the tax amnesty. These results align with the presence of conflicting effects of the amnesty on different individuals, for which we have obtained some evidence.

Results & Discussion

Policy Implications

- ▶ policymakers should recognize that repeated or predictable tax amnesties can act as an 'insurance' for taxpayers against future enforcement, reducing overall tax compliance
- ▶ while tax amnesties might offer short-term revenue boosts, their potential to decrease long-term compliance should be considered
- ▶ expectations of future amnesties can lead taxpayers to adapt their behavior in ways that are not conducive to sustained compliance
- ▶ signalling high audit rates can lead to higher tax compliance — enforcing a credible threat

Thank you for your attention

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