Evasione fiscale: evidenze empiriche e scelte di regolazione

Luigi Mittone
Doctoral School of Social Sciences
Cognitive and Experimental Economics Laboratory
Università di Trento

Outline

- The standard Economic approach to tax evasion
- The focalization issue
- Construal Level Theory applied to tax evasion
- Towards a new theory of tax evasion
- How to transfer the laboratory results into reality
- Conclusions

The Allingham and Sandmo model (1972 – AS72) 1/2

$$Y = W - t\,(W - E) = (1 - t)\,W + tE$$

Where W is the gross income of the taxpayer; t is the tax rate and E is the amount of underreported income.

$$Z = (1 - t)\,W + tE - \theta E = (1 - t)\,W - (\theta - t)\,E$$

Where θ is the penalty rate which can be seen as the "price" for evading .

The Allingham and Sandmo model (1972) 2/2

One more step: introducing uncertainty:

$$V = (1-p)\,U\,(Y) + pU\,(Z)$$

Where p is the taxpayer's subjective probability to be audited and therefore fined.

And the final step: maximizing - first order condition

$$(1-p)\,U'\,(Y)\,t - pU'\,(Z)\,(\theta - t) = 0$$

Or:

$$U'\,(Z)\,/U'\,(Y) = (1-p)\,t/p\,(\theta - t)$$

Followers 1/2

- Yitzhaki (1974) – applying the penalty to the evaded tax instead than on the amount of income evaded solves the AS72 ambiguity between the income effect and the substitution effect but leaves unchanged the apparently unrealistic prediction about the inverse relation between tax rates and tax evasion. **Increasing tax rates should take to less evasion.**

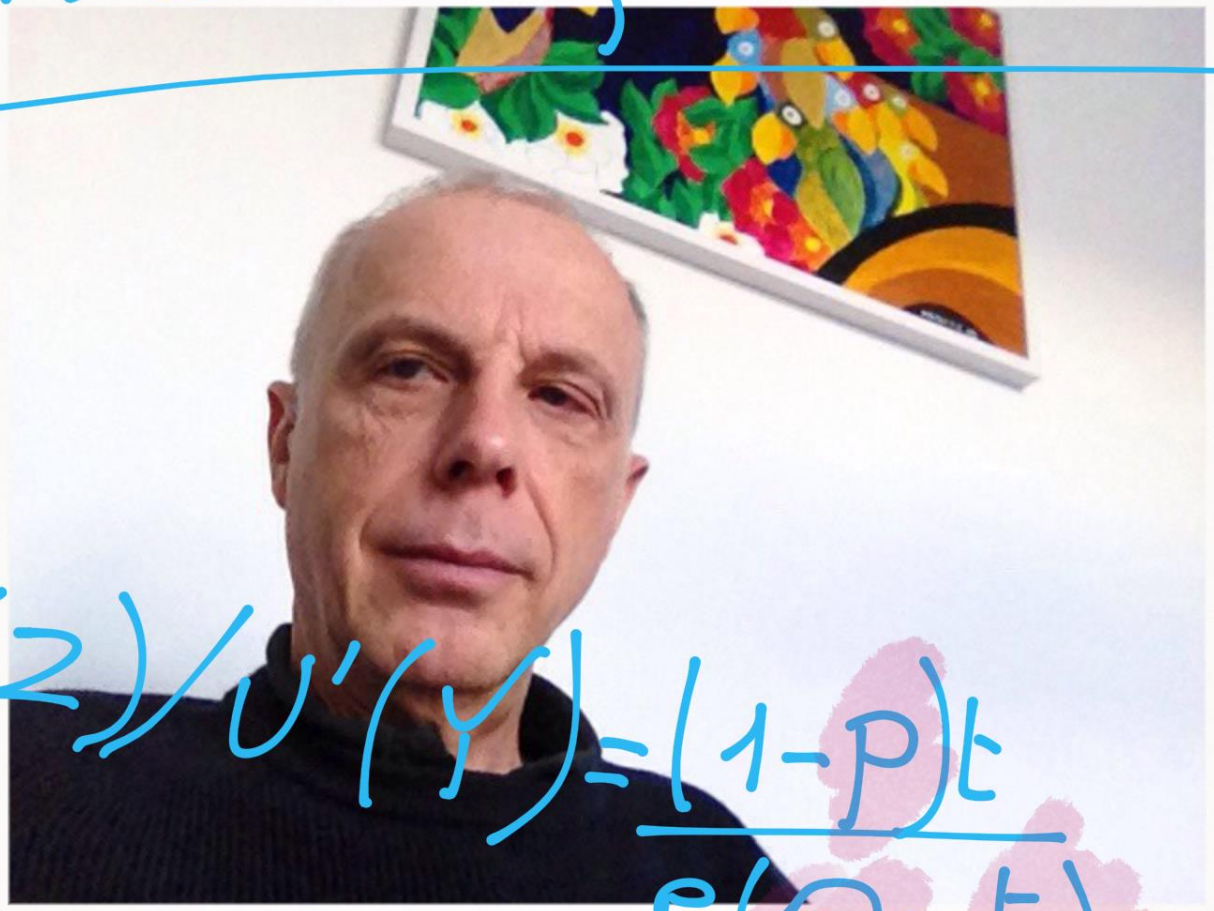
Followers: Neoclassical repair box 2/2

- Bordignon (1993); trying to “improve” the model by including a fairness measure aimed to capture the taxpayer perception of being fairly treated by the Government through the provision of services
- Bernasconi (1998); Bernasconi and Zanardi (2004); try to push the AS72 to consider the possibility of using a reference-dependent utility function inspired by the famous Prospect Theory by Kahneman and Tversky (1979).

Literature reviews

- Cowell (1990)
- Webley et al. (1991)
- Sandmo (2005)
- Kirchler (2007)

The ingredients

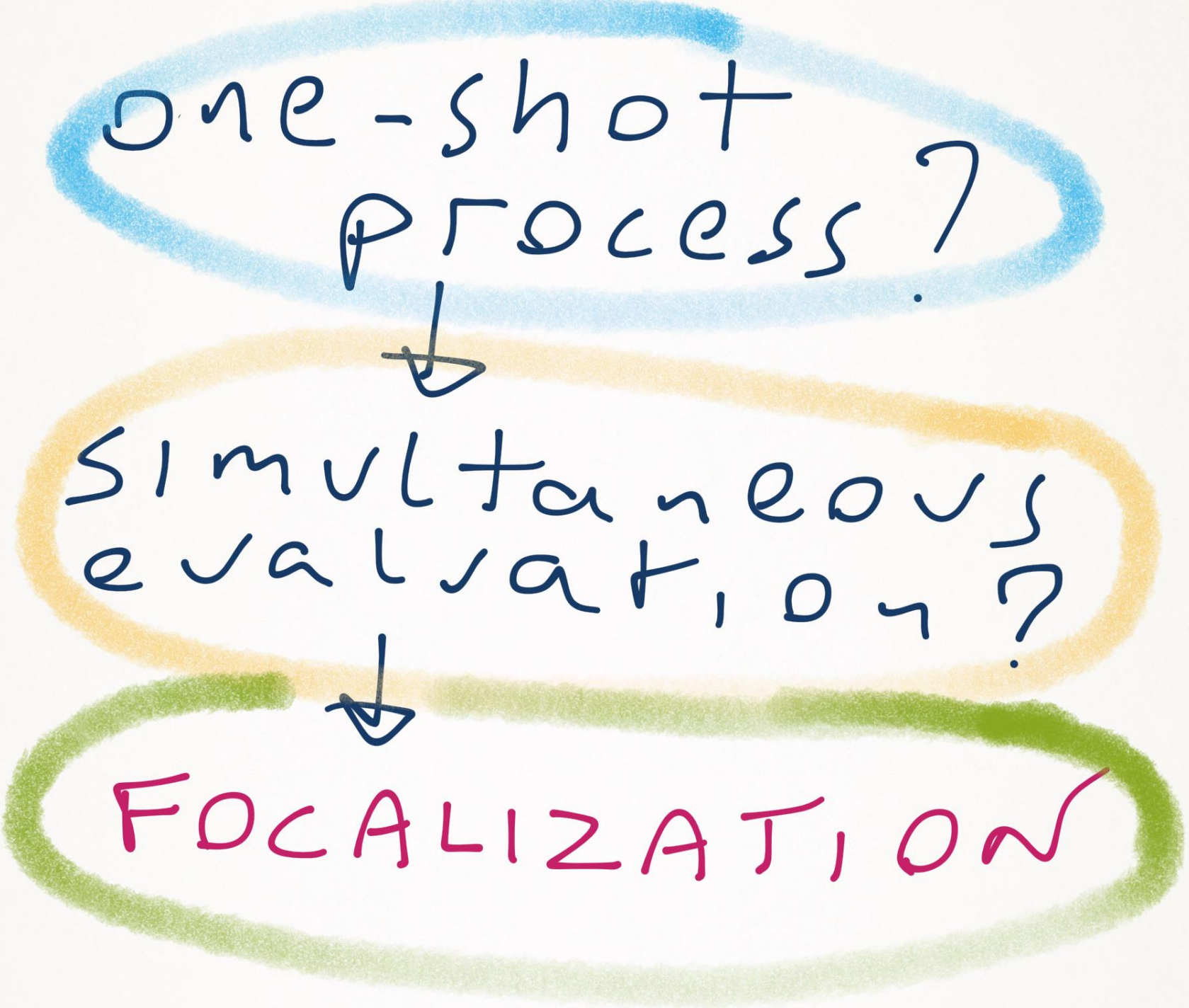


$$\frac{U'(z)}{U'(y)} = \frac{(1-p)t}{p(\theta - t)}$$

Summarizing:

- Tax evasion is described like an individual one-shot decision
- The cognitive process which drives behaviours is almost identical to the consumer's decision making task under uncertainty – i.e. is a matter of maximizing expected utility
- Apparently only one difference: choosing by evaluating many commodities (or many commodities' attributes) versus choosing looking only to two attributes of a set of lotteries.


ETHICS
SOCIAL DIMENSION
FAIRNESS
RISK AVERT.
TAX EVASION
STRAT. INTER.
COLLUSION
TIME

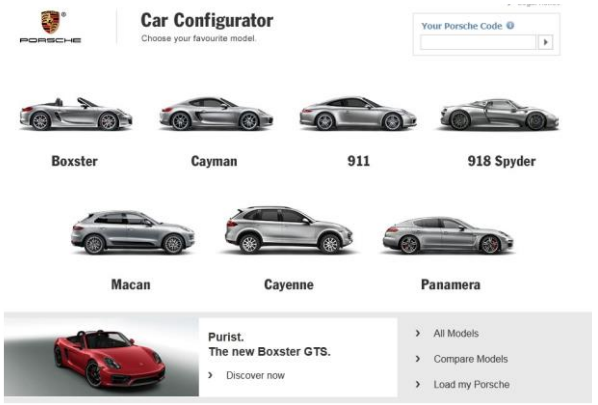

one-shot process?
simultaneous evaluation?
FOCALIZATION

Is taxpayers' focalization consistent?

- Can we focalize simultaneously our attention on many different attributes of the choice set?
- Simultaneous evaluation versus sequential evaluation
- Old debate about "substantial rationality" versus "procedural rationality": Herbert Simon
- Recent developments in choice theory

Two main sequential processes

- Construct and choose (CAC)



- Shortlist and choose (SAC)

Properties of CAC and SAC

- Payne et al.(1993) categorize heuristics as
  - **Alternative-based search (ABS**): the DM examines attributes within alternatives.
  - **Characteristic-based search (CBS)**: the DM examines attributes across alternatives.
- Examples
  - ABS: standard utility maximization and satisficing (Simon, 1955).
  - CBS: lexicographic and elimination by aspects (Tversky, 1972).
- Key-observation
  - CAC induces an ABS heuristic
  - SAC induces a CSB heuristic
  - EAC does not induce either of them

Two examples about tax evasion

- The bomb crater effect and the loss repair effect
- The slippery slope theory (Kirchler et al 2008) tax system and trust in the government

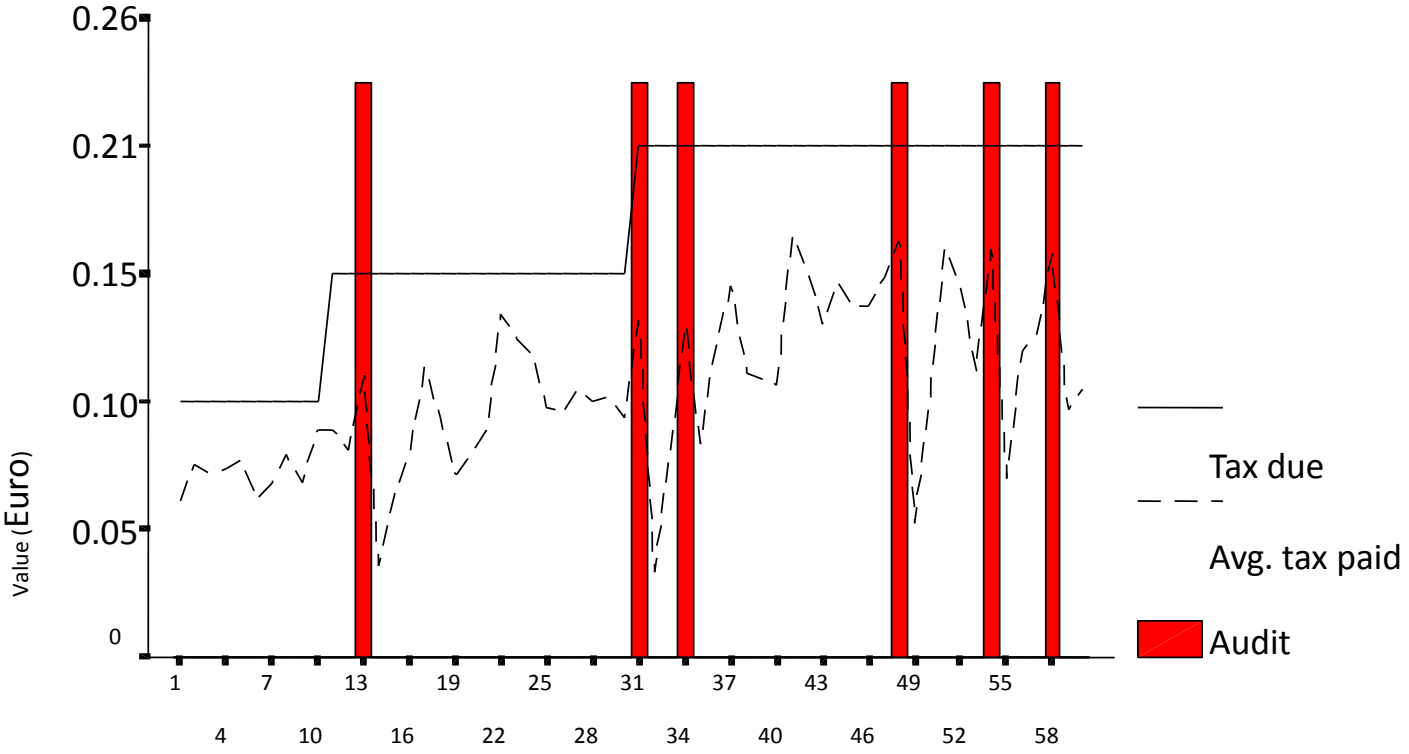
Bomb crater and loss repair

- **Bomb crater effect** – taxpayers (participants to experiments) evade more after being audited, independently from having paid a fine → similar to gambler's fallacy
- **Loss repair effect** – taxpayers evade more after audits only if they paid a fine → similar to sunk cost fallacy

The Bomb Crater Effect - 1/2

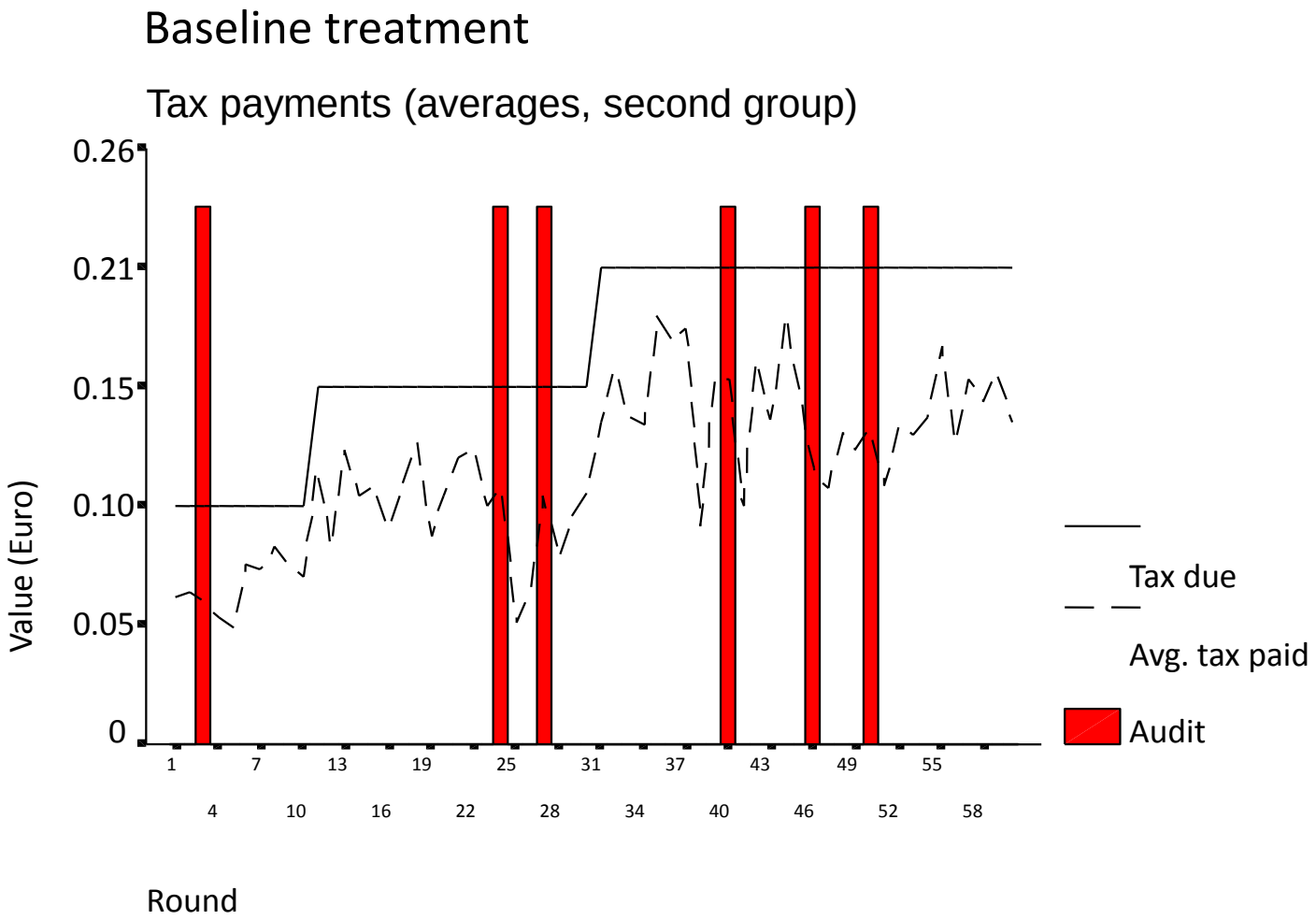
Baseline treatment

Tax payments (averages, first group)



Round

The Bomb Crater Effect - 2/2

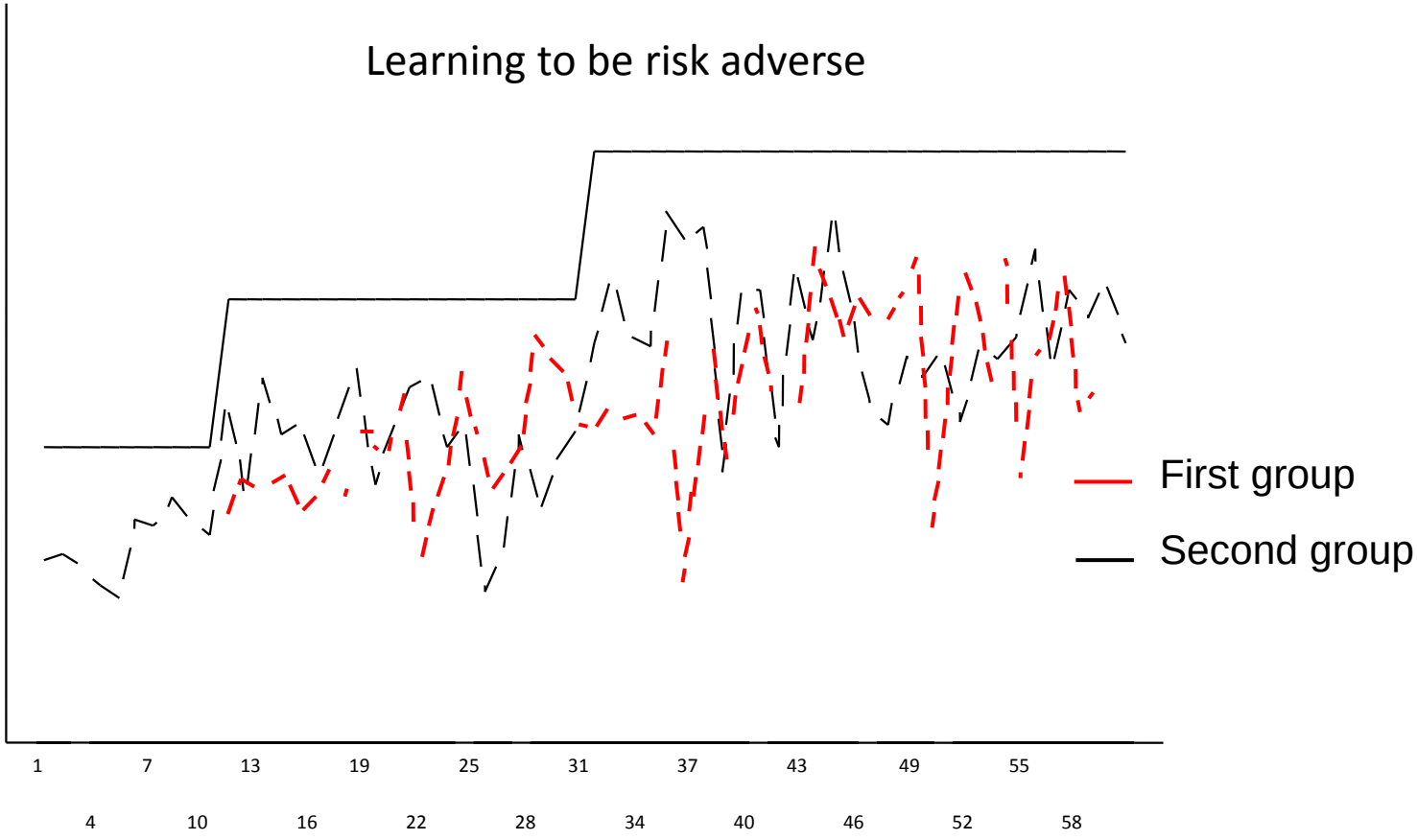


Kastunger et al. (2009)

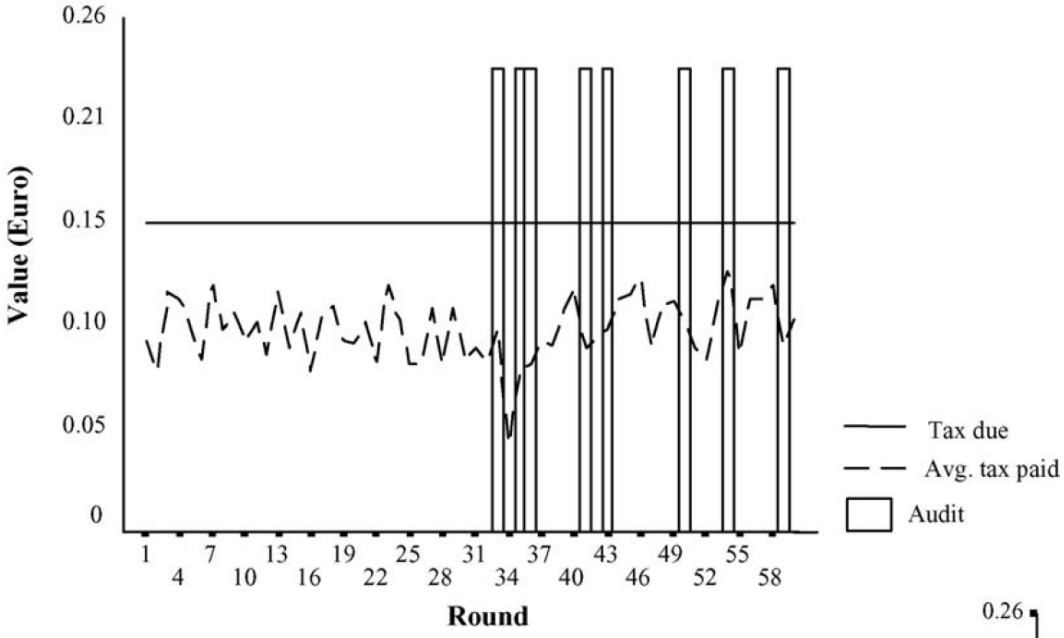
"To analyze the causes of the bomb crater effect, we used tax payments from the control condition and counted the frequencies of compliance and non-compliance at t1, dependent on compliance and non-compliance at t0. … Overall, in 45.2% of the audited cases, participants did not change their behavior from t0 to t1; they were either compliant or non-compliant to the same degree in both filing rounds. Focusing on compliant cases in t0, in 52.7% of compliant audited cases tax payments were reduced to some extent in t1 (21.8%) or participants evaded completely (30.9%) in t1. By contrast, only in 36.9% of non-compliant cases at t0 participants reduced their tax payments (9.4%) or evaded completely (27.5%) at t1; whereas, 19.4% of the non-compliant cases showed increased or total compliance after the audit. **These results do not confirm loss-repair tendencies but suggest misperception of chance.**

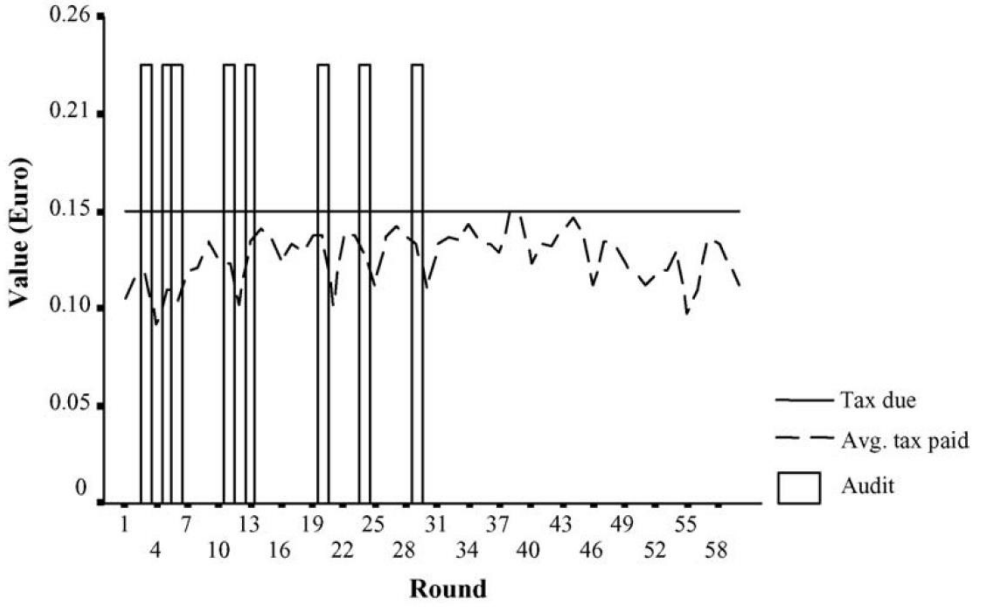
The Echo Effect - 1/2

Baseline treatment: first and second groups



The Echo Effect - 1/2





BUT!

Focalizing on money push towards loss repair effect

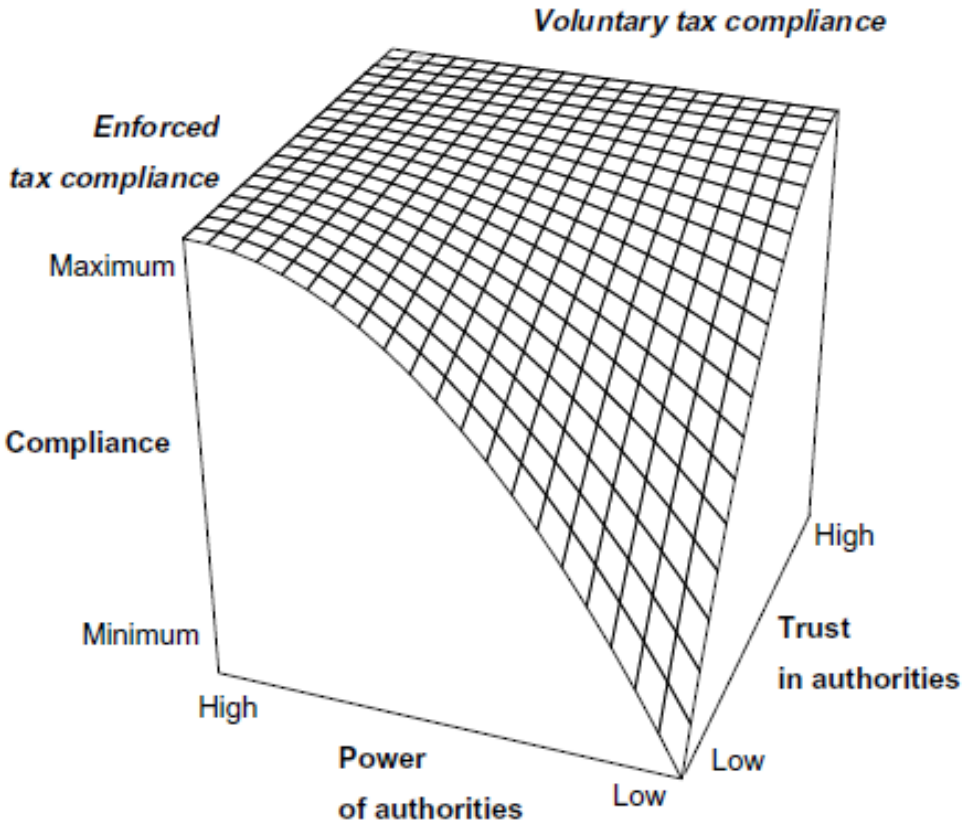
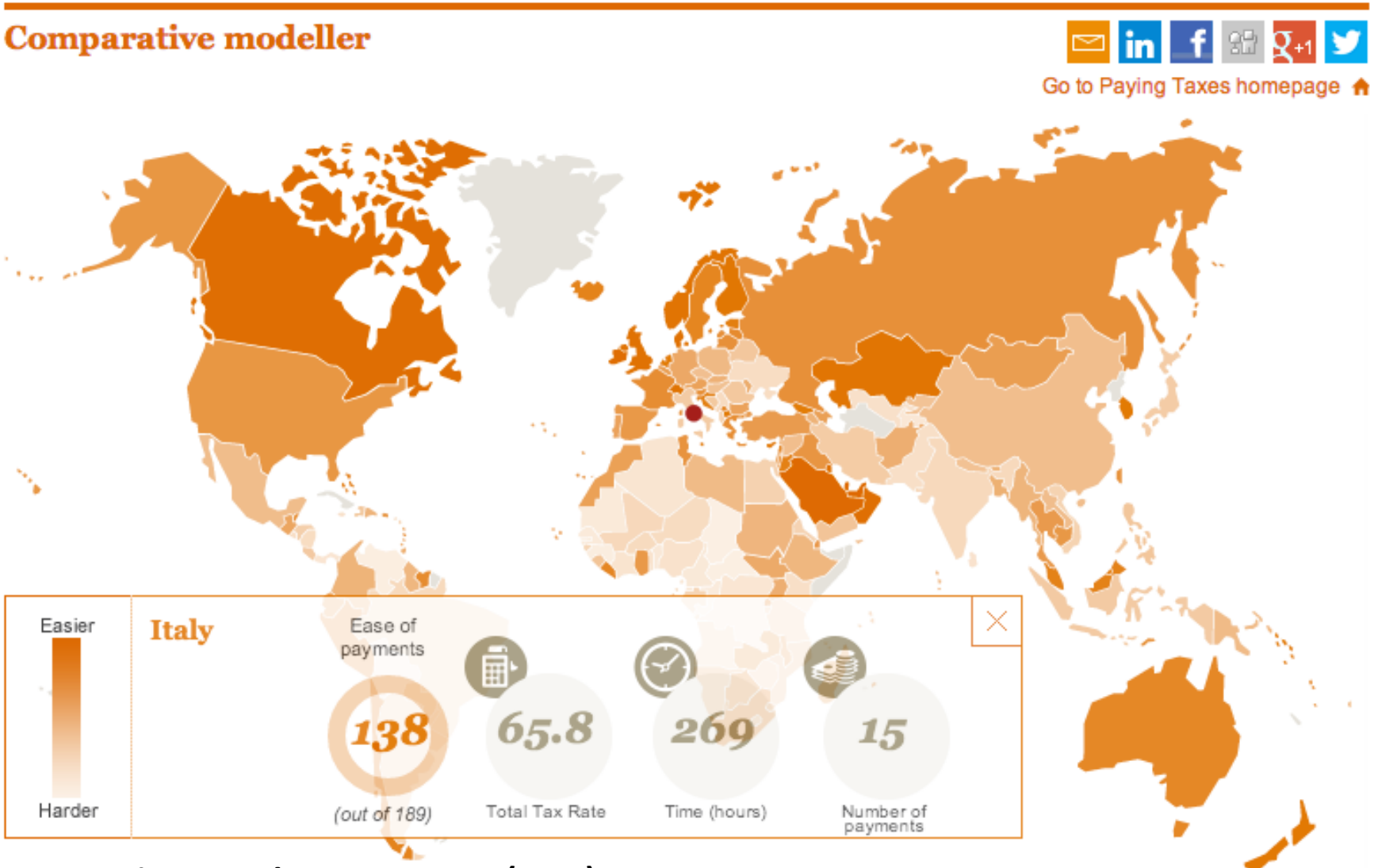


Fig. 1. The "slippery slope" framework: enforced tax compliance and voluntary tax compliance depending on the power of the authorities and trust in the authorities.

PriceWaterhouseCoopers

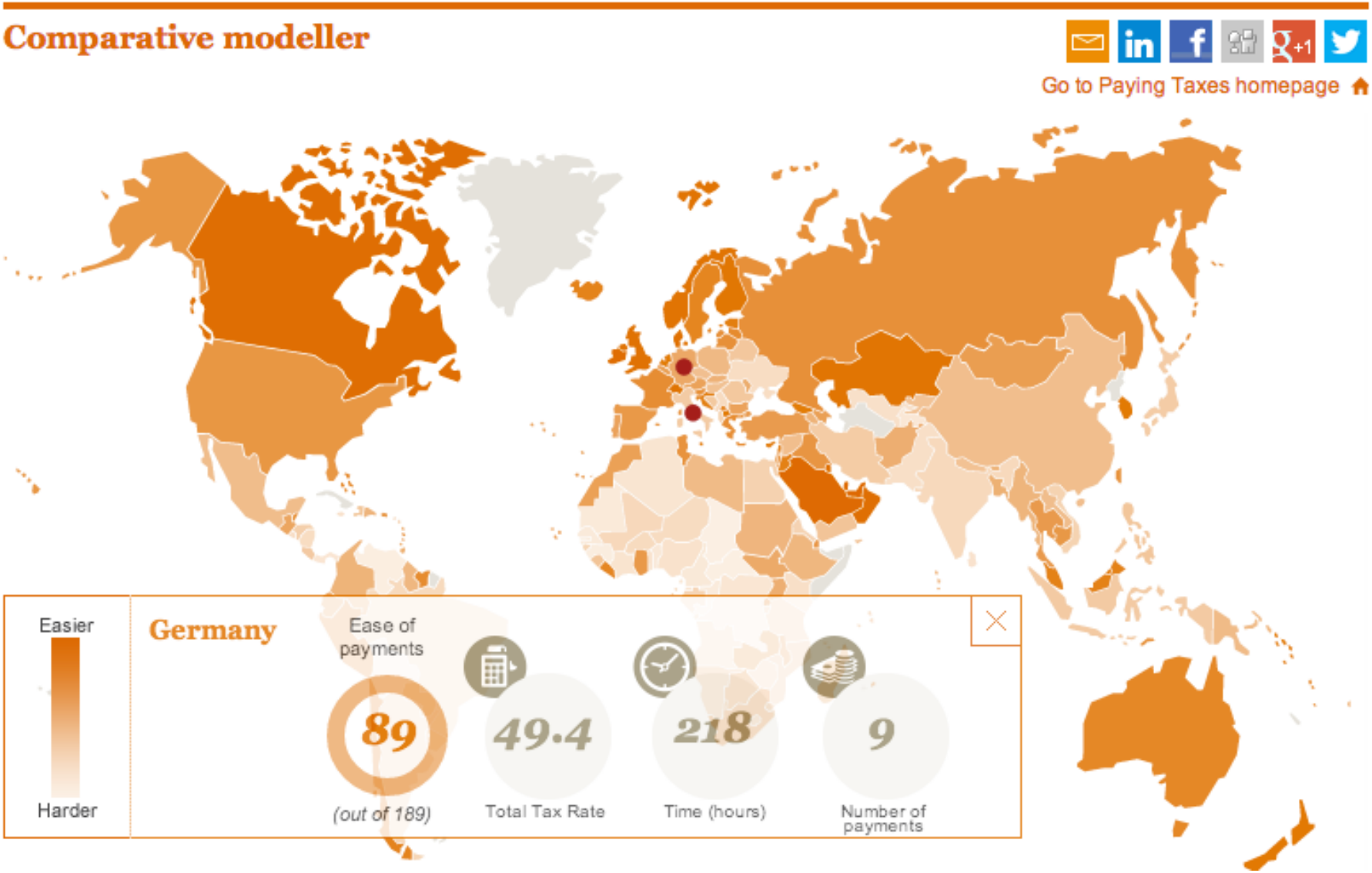
http://www.pwc.com/en_GX/gx/tax/publications/ceosurvey-tax/modeller.jhtml

Taxation and trust in Gvt. 1/8

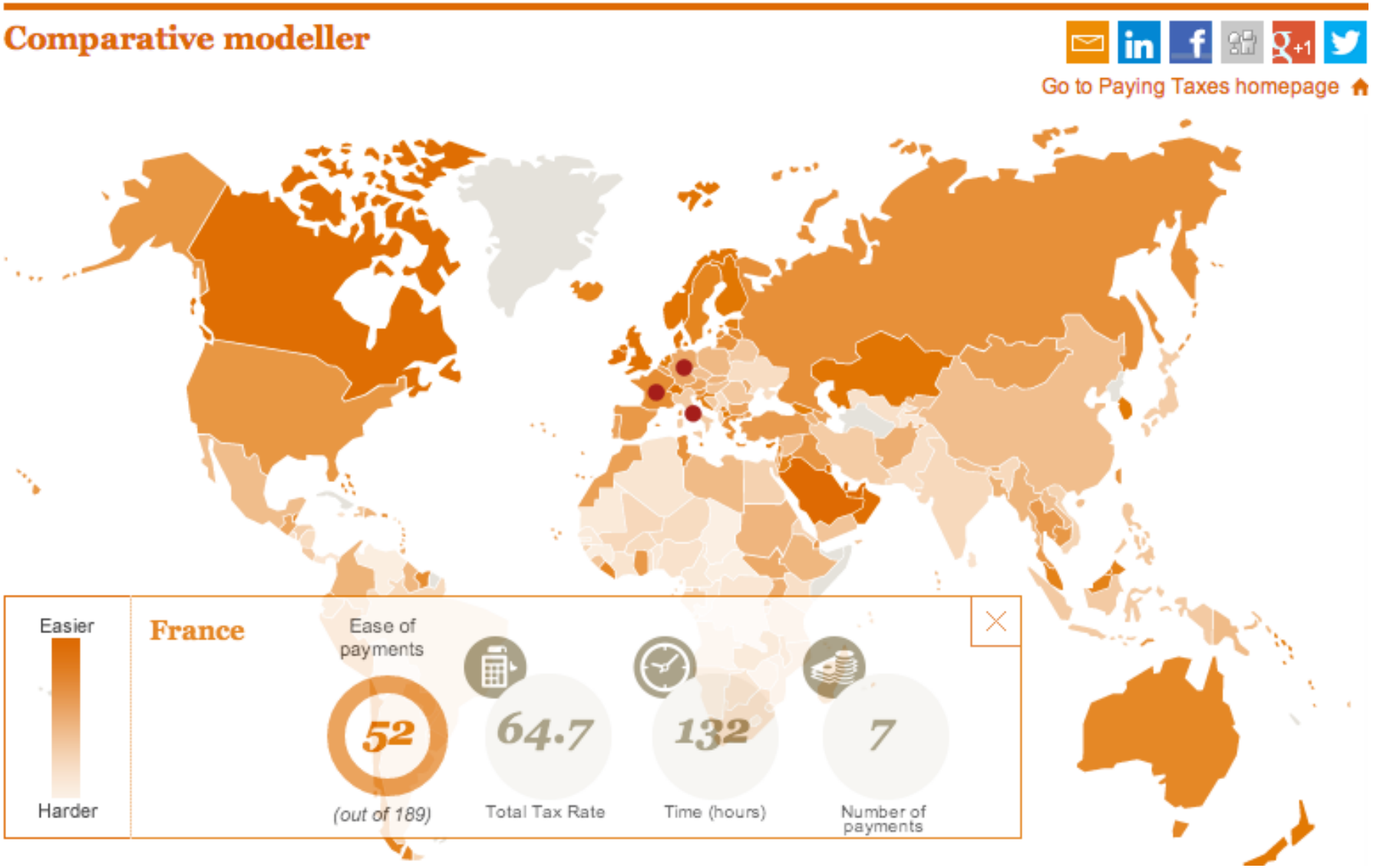


Fonte: PricewaterhouseCoopers (PwC), 2012

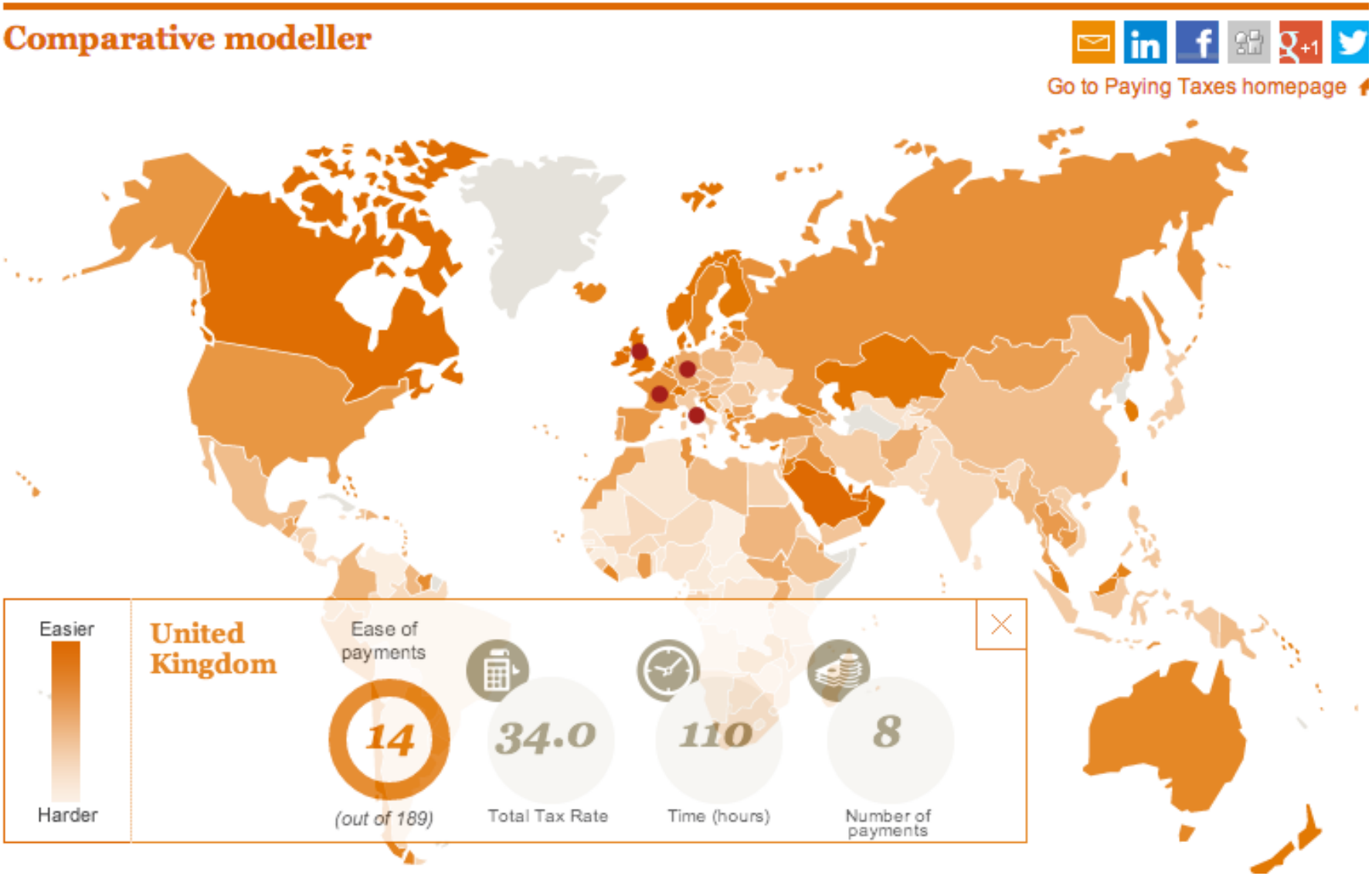
Taxation and trust in Gvt. 2/8



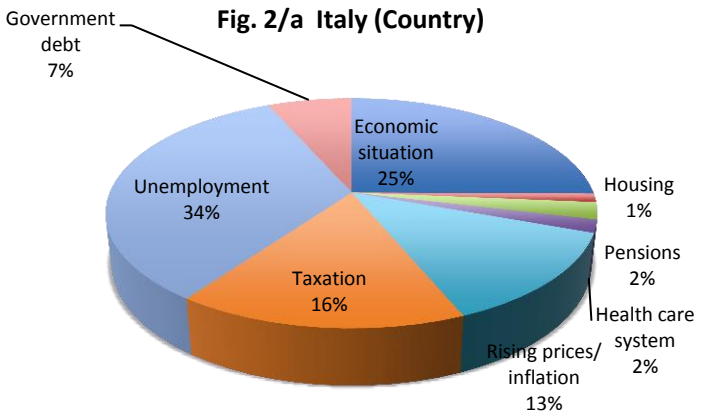
Taxation and trust in Gvt. 3/8

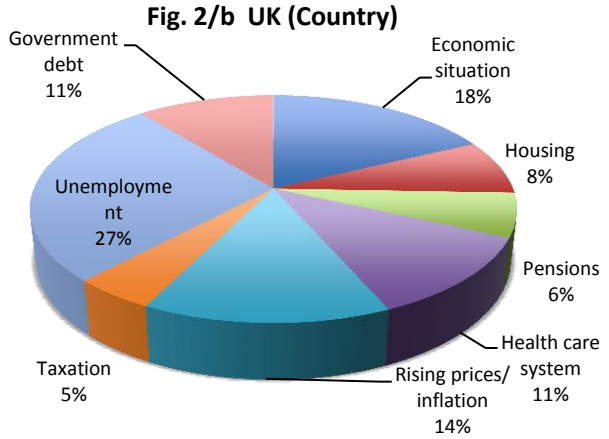


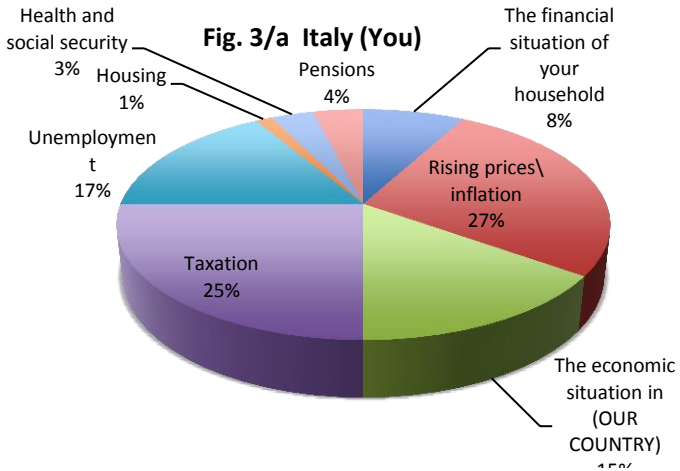
Taxation and trust in Gvt. 4/8

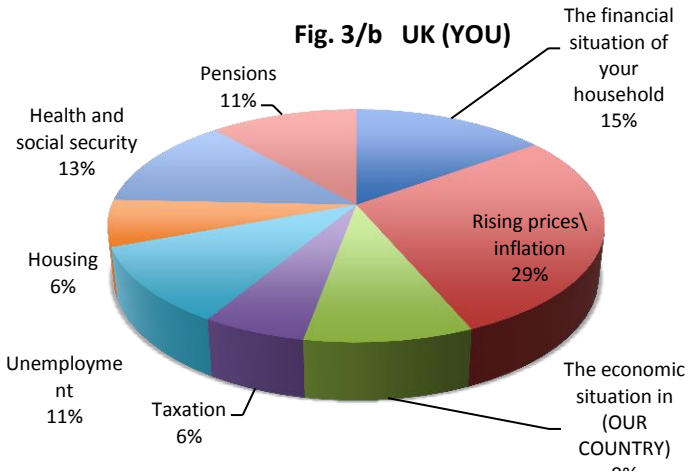


"What do you think are the most important issues facing (our country) at the moment?" (Fig. 2a-b); and *"… personally what are the most important issues facing at the moment?"* (Fig. 3a-b).









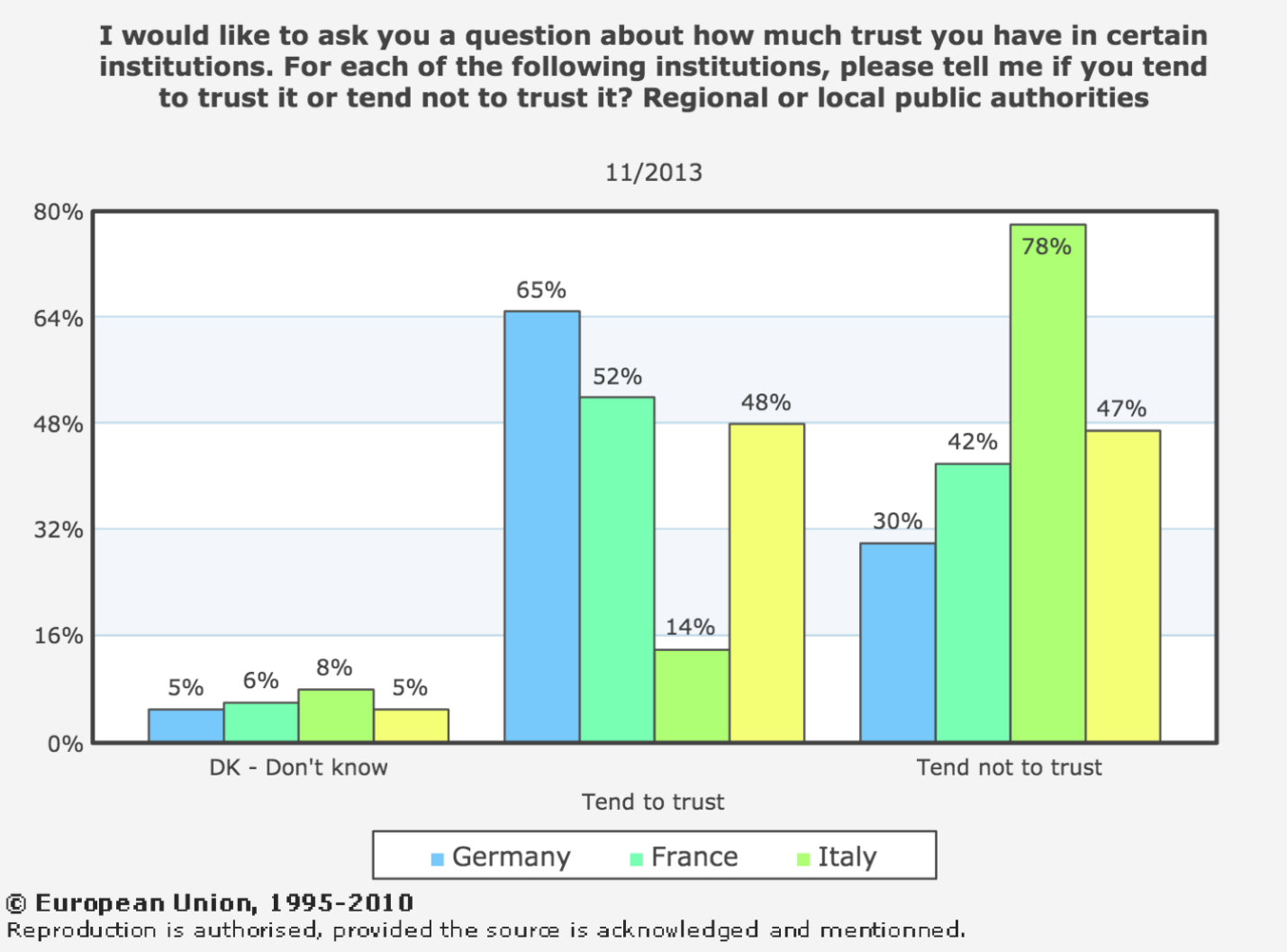
Standard Eurobarometer 81 2012

QA4a. What do you think are the two most important issues facing (OUR COUNTRY) at the moment?

	Unemploy-ment	Economic situation	Rising prices/ inflation	Immigration	Health and social security	Government debt	Crime	Taxation	Pensions	The education system	Housing	The environment, climate and energy issues	Terrorism
EU28	48%	29%	16%	15%	14%	13%	12%	11%	11%	9%	5%	5%	2%
HR	70%	43%	14%	1%	3%	18%	25%	6%	4%	2%	2%	1%	0%
IT	65%	42%	14%	16%	5%	10%	7%	25%	5%	1%	1%	1%	2%
CY	75%	75%	5%	3%	4%	8%	12%	5%	1%	2%	2%	1%	0%

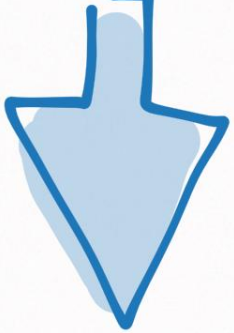
Standard Eurobarometer 81 2014

Taxation and trust in Gvt. 6/8



Source: http://ec.europa.eu/public_opinion

Does Focalization drive public opinion?



MOOD?

TAX EVASION?

Liberman et al. (2002) Construal Level Theory

"here and now, yet people, events, and situations that are beyond our immediate experience populate our mind. We plan for the future, remember the past, think about remote locations, take others' perspective, and consider alternatives to reality. In each case, we transcend the present to consider psychologically distant objects. An object is ***psychologically distant*** *from us to the extent that it is remote in time (future or past) or in space; refers to experiences of others (e.g., relatives, acquaintances, or strangers); and unlikely to occur. But how do we transcend the present, evaluate, and make decisions with respect to psychologically distant objects? And how does increasing distance from objects affect the way we respond to these objects?"*

Hypothesis 1 of CLT: As the various dimensions map onto a more fundamental sense of psychological distance, they should be interrelated.

Fig. 2. Two examples of incongruent visual stimuli: a word denoting social proximity, "us," located far from the observer, and a word denoting social remoteness, "them," located near the observer. Because spatial distance is associated with temporal distance, social distance, and hypothecticality, participants are slower to indicate the location of the arrow and to identify the word on it with incongruent stimuli than with congruent stimuli ["us" located near the observer and "them" located far from the observer (*6*)].

Construal level theory hypotheses

- Hypothesis n.2 of CLT: How people construe events depends on their psychological distance from these events: The construal of psychologically remote events emphasizes their superordinate or central features, whereas the construal of psychologically proximate events emphasizes their subordinate or secondary features.
- The concept of “Distality”
- Desirability versus feasibility

Construal level theory applied to tax evasion

- Focalizing on “practical” issues related to tax payment should increase tax compliance weakening the “desirability” dimension of tax evasion (having more money to spend)
- Psychological reaction of refusal of a too complex tax system
- Once more we have to do with the problem of keeping into account the composite and sequential nature of the process of paying taxes (and deciding to evade or not)

To evade taxes is often a repeated decision process

CUMULATIVE EFFECTS

Towards a new theory of tax evasion

- A good theory of tax evasion should include some essential features:
  - Being able to keep into account the sequential nature of the tax evasion process
  - Being able to integrate the choice problem into a wider socio-psychological frame without losing generality
  - Being potentially normative

Another example from the laboratory: different kinds of deterrents

In experiments on tax evasion:

- positive and negative monetary incentives have already been investigated (Kastlunger et al., 2011)
- the impact of negative and positive non-financial incentives it has been less investigated

Only recently, the impact of emotions in cheating has been explored with more attention (Coricelli et al., 2010; Maciejovsky et al., 2012; Coricelli et al., 2013)

Lessons from theory

Alm and Torgler (2011) suggest some non-financial incentives for improving ethics in tax compliance behavior:

- Use the mass media to publicize cheaters (negative incentive)
- Triggering the idea that tax compliance is a widespread phenomenon among citizens (positive incentive)

Lessons from reality: 1

- Emphasis on evasion → negative form of incentive

Lessons from reality: 2

- Emphasis on compliance → positive form of incentive

"We will see in what circumstances the Agency will issue public certificates of recognition of tax conformity, given a positive result in controls of fiscal obligations. The interested businesses will have the opportunity to post these certificates in their stores. Honest people deserve reputation of honest people."

(Attilio Befera, Italian Revenue Agency Director, March 2012)

Research questions: Casal and Mittone 2014

1. Do people care about how their tax behaviour is judged by other members of the community?
2. Are negative incentives more effective than positive incentives? Or, does the contrary hold?
3. Which is the value that taxpayers attribute to negative emotions in cheating behavior?

Experimental design: the key ingredient

Pictures of audited tax-dodgers are displayed on the screens of other taxpayers, in order to test the impact of public information on cheating behaviors.

Experimental design: a forerunner

Coricelli et al. (2010), main similarities:

1. income-reporting game with treatment for negative emotion (Stigma)
2. Higly “framed” setting
3. tax-rate (55%)
4. not (direct) feedback on others’ behavior
5. evaded amount kept secret

Experimental design: differences

Main differences with Coricelli et al. (2010):

- treatment for positive emotion (Esteem)
- all available pictures were displayed
- measure the monetary value of social blame

  - Skin Conductance Responses (SRC)
  - redistribution of collected taxes (public good game structure)
  - exogenous audit probability
  - between-subject design
  - experimental technicalities (group size, number of periods, fine-rate, initial endowment)

Experimental design: public good

The experiment is based on a voluntary contribution game:

- groups of 4 participants
- initial endowment (E): 1500 ECU each round
- tax rate ( ): 55%
- audit probability: 20%
- fine on detected evasion () : 125% of evaded taxes
- multiplication factor (): 1.4
- 20 rounds

Therefore, the payoff for the participant is to is equal to:

$$\Pi = \begin{cases} E - \tau DI + \frac{\alpha \sum_{i=1}^{4} \tau DI_i}{4} & \text{if (s)he is not audited} \\ E - \tau DI + \frac{\alpha \sum_{i=1}^{4} \tau DI_i}{4} - \theta(\tau(E - DI)) & \text{if (s)he is audited} \end{cases}$$

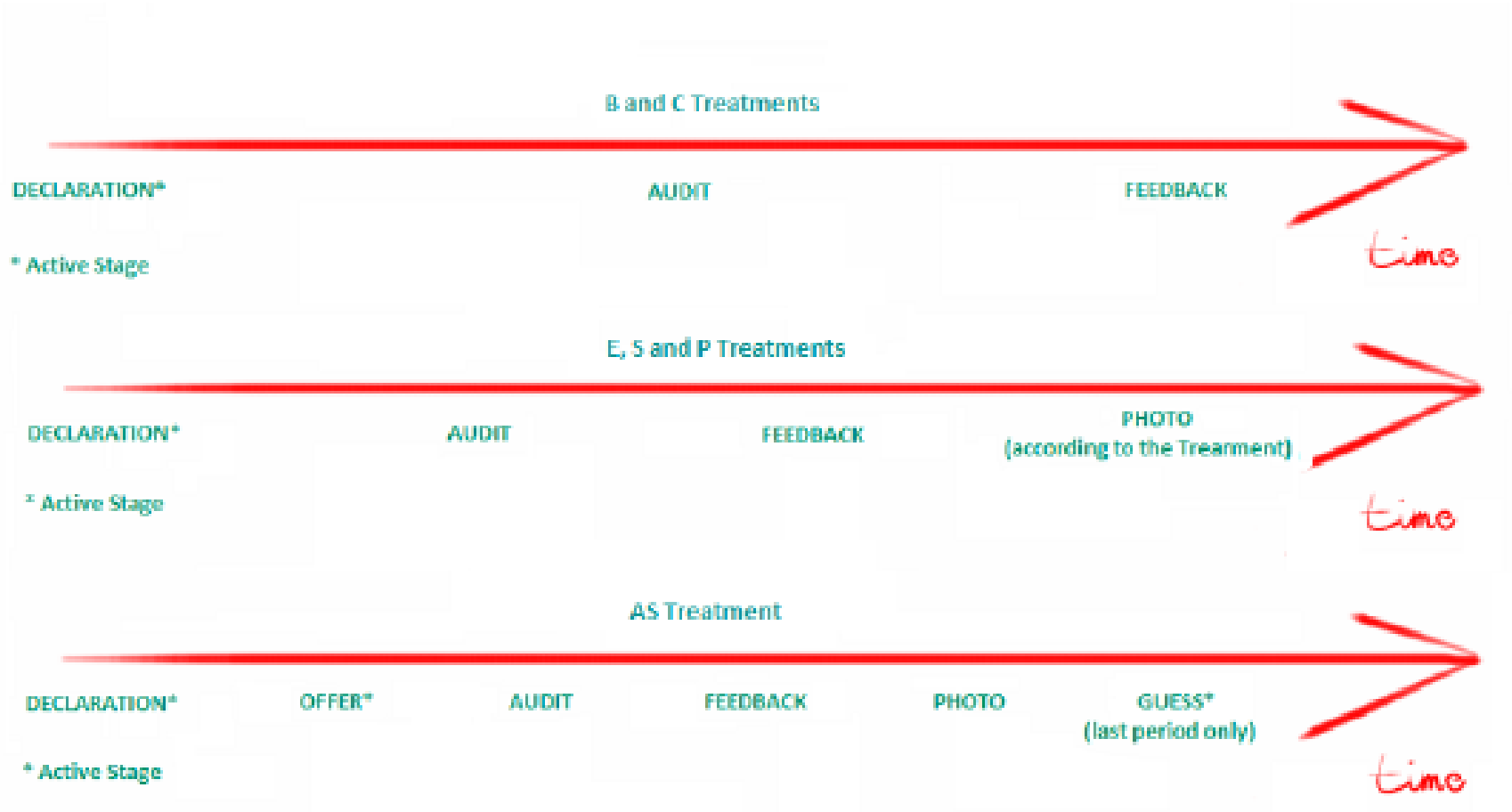
DI: Declared Income

Experimental design: treatments

Treatment	# of subjects	# of sessions	pic. for enrollment	anonymity of audited evaders	anonymity of audited full contributors
Robustness Check (RC)	48	3	NO	YES	YES
Control (C)	32	2	YES	YES	YES
Esteem (E)	32	2	YES	YES	NO
Public (P)	32	2	YES	NO	NO
Stigma (S)	32	2	YES	NO	YES
Anonymous Stigma (AS)	32	2	YES	POSSIBLE	YES

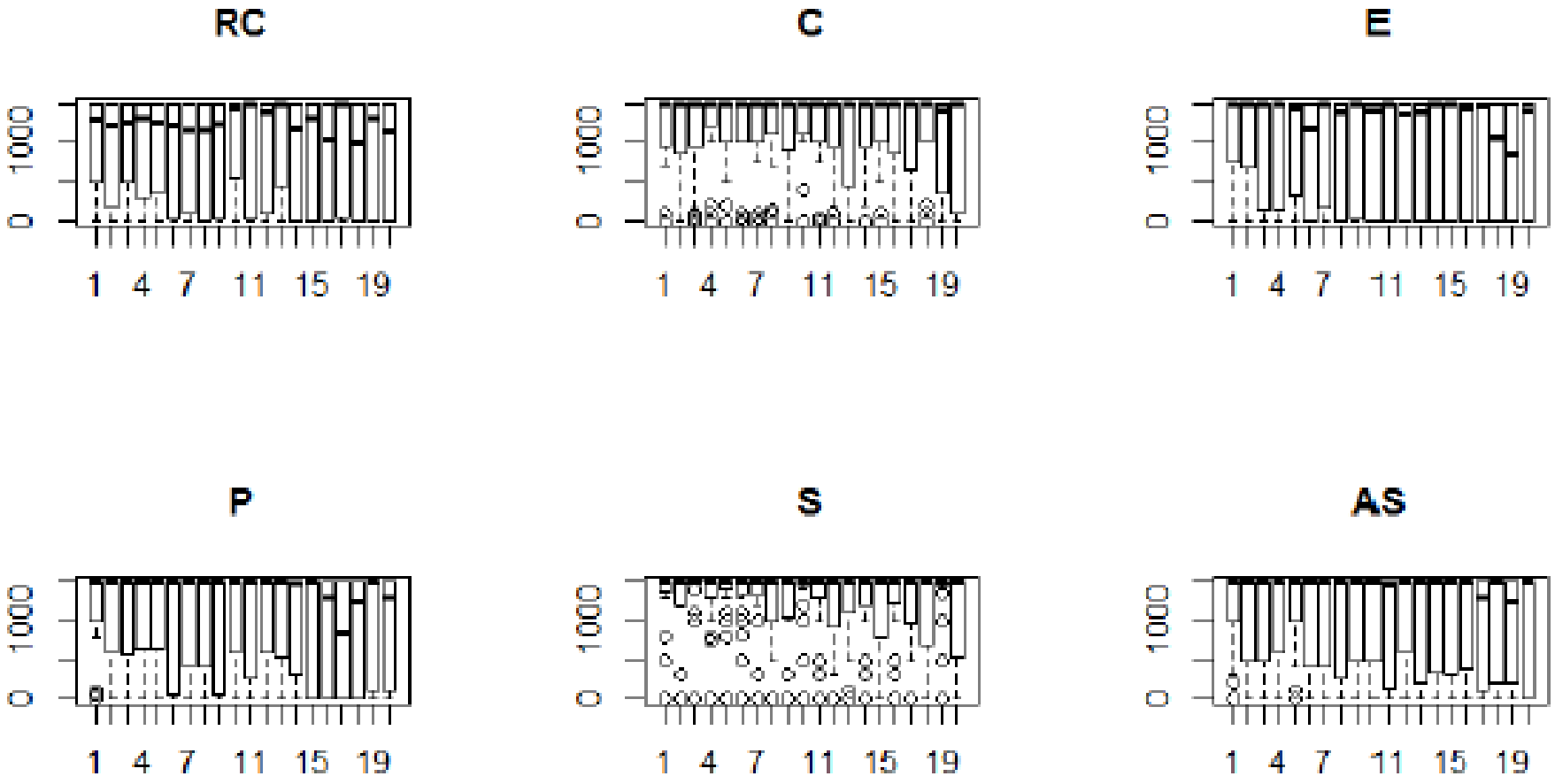
All sessions were composed by 16 participants

Experimental design: sessions timeline

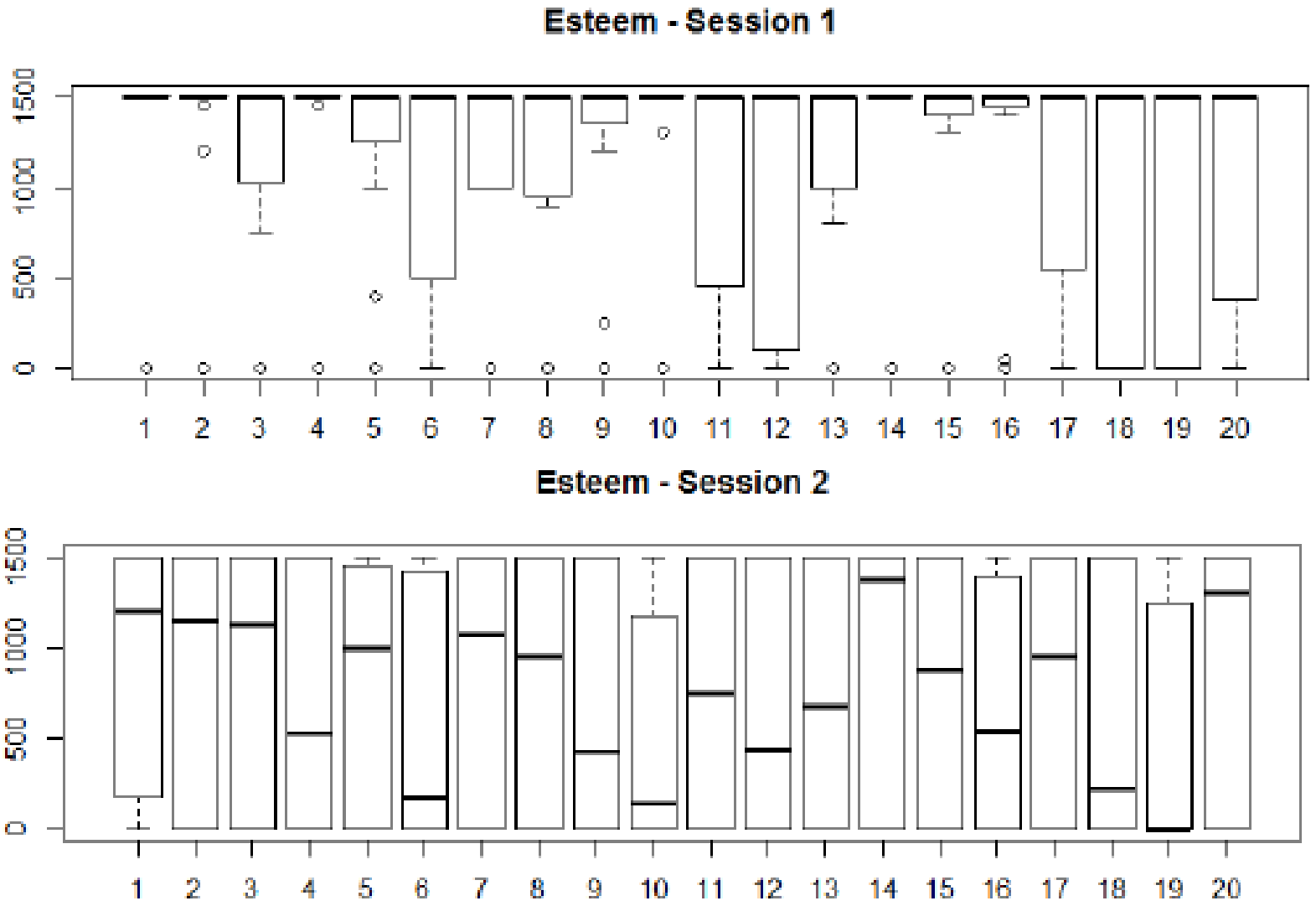


Screenshot example:

Declared income across rounds



Ceiling effect: “effetto tetto”



Ceiling effect: more details

Table: Audits, Full Cooperators and Full Evaders - First Round

	RC			*C*		*E*		*P*		*S*		*AS*	
# of	S1	S2*	S3*	S1	S2	S1	S2*	S1*	S2	S1	S2	S1*	S2
Audit	0	4	2	2	3	3	2	6	4	5	3	4	4
Full Coop.	10	5	7	8	11	14	5	8	13	12	10	9	13
Full Evad.	2	2	1	1	3	2	4	2	1	1	3	4	0

* session without *effetto tetto*

FIRST QUALITATIVE RESULT:

- The effetto tetto seems to be driven by the number of full cooperators in the first period: when the full cooperators are the majority in the group, the effetto tetto is triggered.
- The effect seems also to be trigged when there is not this clear majority, but the number of audits is sufficiently high.

Average declared income

Table: Average Declared Income at Individual Level

Treatment	Min	1st Qu.	Median	Mean	3rd Qu.	Max
RC	0	634	988	934	1365	1500
C	30	838	1292	1121	1473	1500
E	0	525	1015	950	1478	1500
P	0	626	1111	1010	1475	1500
S	75	1069	1348	1210	1490	1500
AS	0	597.8	1195	1015	1500	1500

When comparing average contribution at the individual level, treatment S statistically differs from treatments RC, E, P (Wilcoxon Rank Sum Test, p-value = 0.02187, p-value = 0.08646, p-value = 0.08925 respectively).

Full cooperation

Table: Percentage of full cooperation (First Period)

Treatment	% of full contributions	% of evasions
RC	45.8	54.2
C	59.3	40.7
E	59.3	40.7
P	65.6	34.4
S	68.7	31.3
AS	68.7	31.3
POOLED	64.3	35.7

When comparing frequencies of full cooperation in the first period, treatment RC statistically differs from treatments S, P, AS and from the pooled sample (S+P+AS+C+E) (Pearson's Chi-squared test, p-value = 0.04355, p-value = 0.08197, p-value = 0.04355, p-value = 0.02141, respectively).

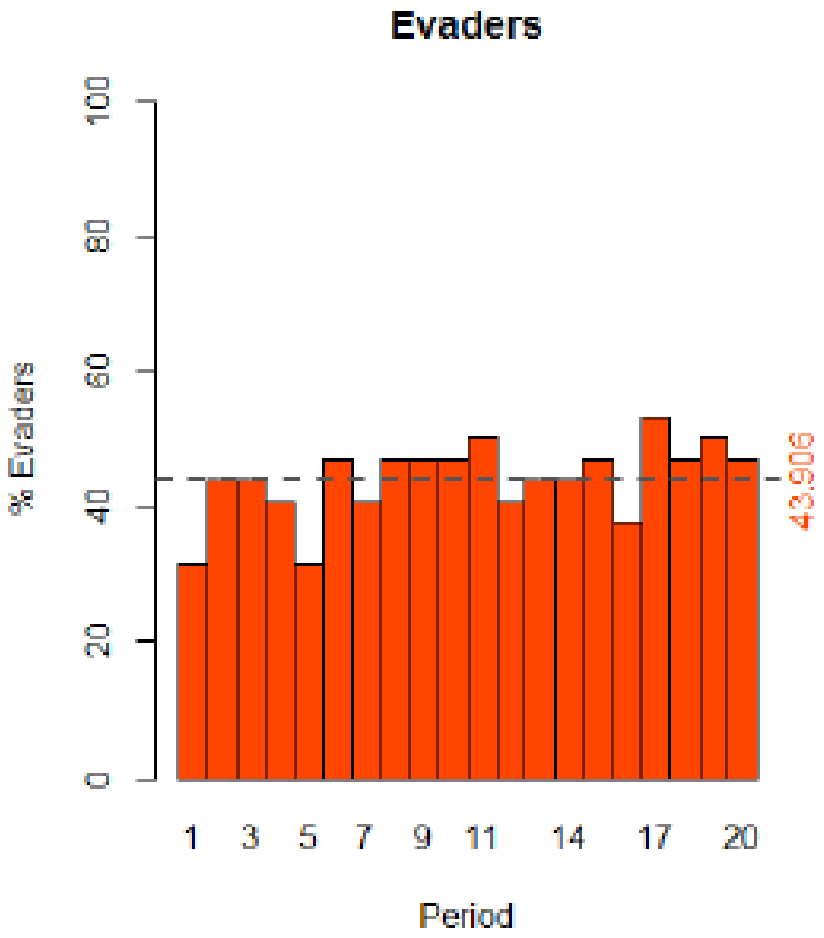
Determinants of evasion

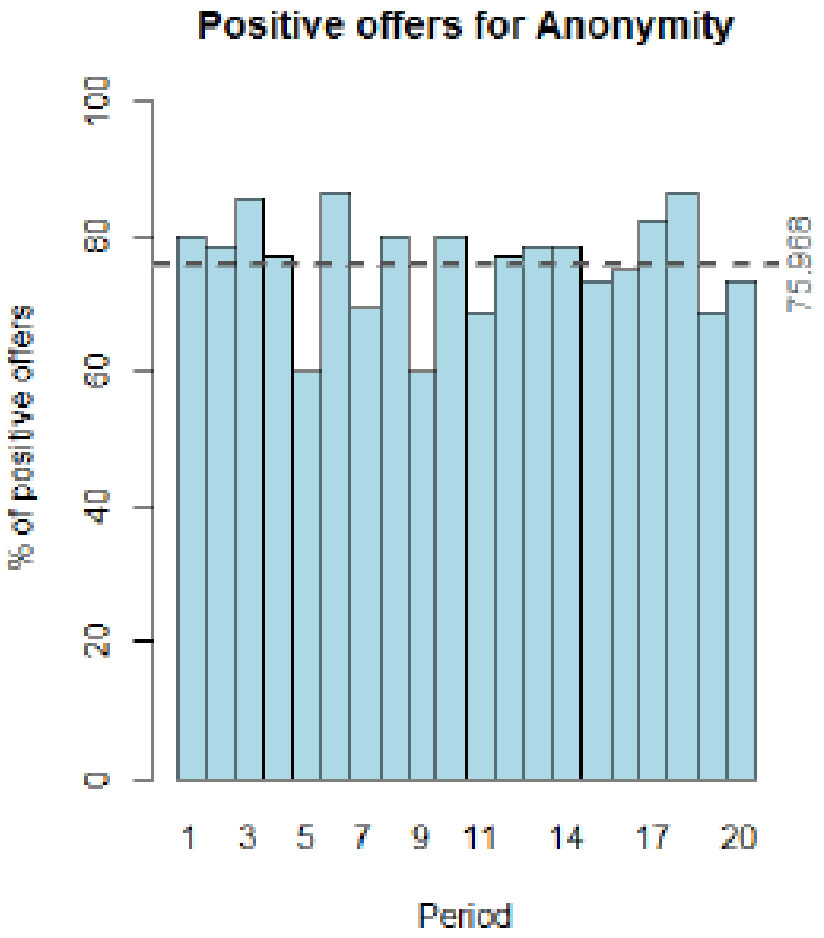
Table: Decision of evading (Generalized linear mixed model)

Evasion~	Coeff	Std. Error
(Intercept)	2.87041	2.11557
Control	-1.24174	0.82191
Esteem	-1.76123	0.82540*
Public	-1.04940	0.80308
Stigma	-2.80415	0.82823***
Anonymous Stigma	-1.78213	0.81055*
Age	-0.08359	0.08038
Female	-1.50708	0.50261**
Econ	-0.05063	0.51992
Period	0.08734	0.01650***
Just Checked	1.56945	0.13451***
Count Check	-0.26946	0.06811***

*** (0.1%);** (1%); * (5%) significance level

The value of anonymity



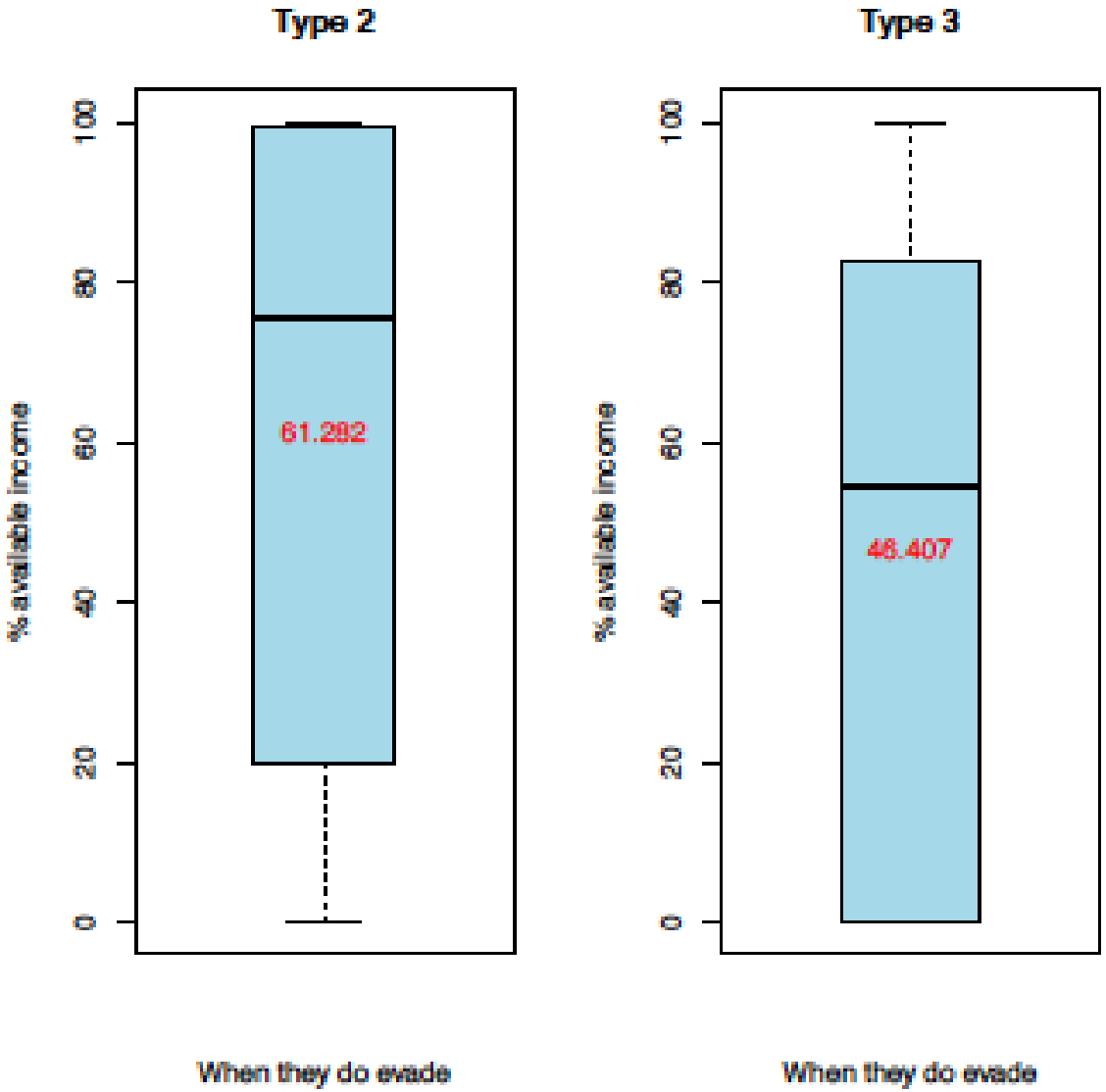


Types of evaders

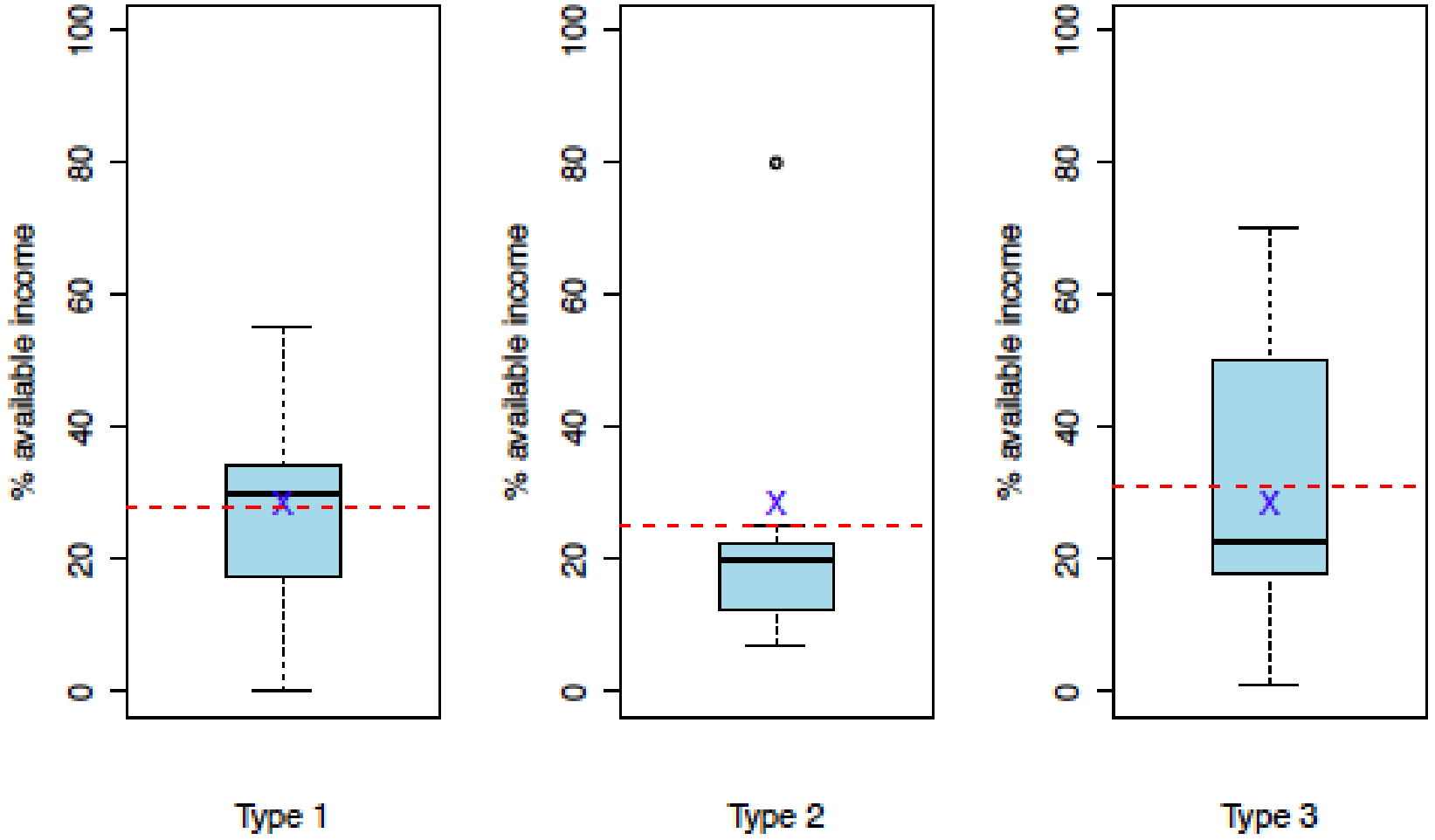
It is not easy to categorise taxpayers based on their behaviour. Some exercise of classification have been made both in theoretical Torgler (2003) and in experimental (Mittone, 2002) research.

Type 1 - Taxpayer type 1 never evaded or evaded only once
Type 2 - Taxpayer type 2 evaded 2 or more times during the session AND he mainly paid full taxes (# Period of Full Compliance > # Period of Evasion)
Type 3 - Taxpayer type 3 evaded 2 or more times during the session AND he mainly evaded (# Period of Full Compliance <= # Period of Evasion)

The value of anonymity: taxp. 2 and 3



Wta for knowing the tax-dodgers



Wrapping up:

Result 1

Taking a picture during the enrollment process, pushes taxpayers to be more compliant.

It is not possible to exclude that the picture — even if when it is not used — has induced a "preventive" form of attention of the participants.

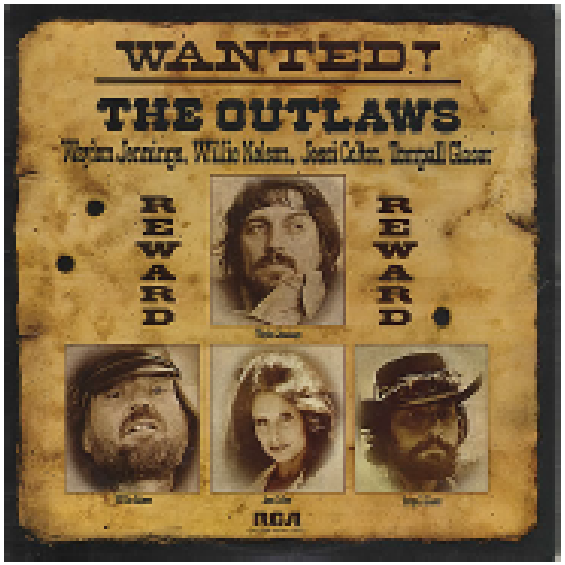
A two-ways effect:

Result 2

Non-financial incentives work in both directions:

1. if honesty is publicized, taxpayers evade less in order to be recognized as a virtuous member of the group
2. if evasion is publicized, taxpayers evade less in order to be avoid social blame

Incentives are more effective if with a negative feature: the threat of publicizing tax-dodgers rises tax compliance better than the promise to publicize the ones who complied with tax duties.



Bomb crater and echo effects

Result 3

1. tax evasion increases with the proceeding of the experiment and the repetition of the rounds
2. the more a subject is checked, the less the likelihood of evasion
3. after an audit, the likelihood of evasion increases

Anonymity

Result 4

The possibility of acquiring the anonymity leads to:

1. an increase in the number of acts of evasion
2. a related reduction in term of tax revenue

BUT

3. total tax yield (taxes + fines + photo) does not statistically decrease

Social Stigma has a real impact in sustaining tax compliance and reducing tax evasion.

Transferring experiments into reality 1

- Using tax audits timing like a “pedagogical” device to induce tax compliance:
  - New taxpayers (e.g. new companies, professionals, etc.) should be monitored from the very beginning of their “fiscal lives”.
  - Tax audits could be replaced by “light” interventions (phone calls, forced advising service, etc.)
  - Calibration of the tax audits timing to destroy the “bomb crater effect”; at the same time reinforcing the “echo effect” across long periods of time

Transferring experiments into reality 2

- Using social norms as alternative deterrents:
  - Building artificial groups of peers (e.g. 10-12 freshly born companies), then publicize the individual tax declarations among the members of each “peers circle”.
  - Release “honest tax payer certificates” after a successful tax audit
  - Offer the possibility to “buy” anonymity (confidentiality) to reinforce the perceived psychological cost of social blame.

Transferring experiments into reality 3

- Incentivizing social control:
  - Allowing “whistle blowing”.
  - Involve media and social network to diffuse information about good and bad tax payers

Grazie per la cortese attenzione!