

# The Austrian experience with BI and the Slippery slope framework of tax compliance

Behavioral Insights in Public Policy

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## Organisational Chart: Behavioral Economics (Insight Austria)

### Researchers



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### Research Assistants



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**Stefan Derntl, BA**



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# The Behavioral Insights Topics (excerpt)

Separate waste collection and littering in pedestrian areas: Results from a large field-experiment

Behavioral economic measures for more cleanliness in municipal buildings

Which policy measures can motivate active mobility in rural and semi-rural areas?



## Littering and sustainability

Do Austrians approve of nudging as a policy tool?

BI for Better Regulation in Austria

Pension reform approaches from a behavioral economics perspective

Tax compliance



## Policies and regulations

Peer effects in adolescents' saving behavior

Financial Return and Environmental Impact Information Promotes ESG Investments

Why do wealthy people donate?

Optimally designing financial advice



## Financial behaviour

Increasing STEM Interest in Children

Educational aspirations of young migrants



## Financial literacy and education

# The Behavioral Insights Approach

## Goal definition



✓ Who should specifically do what in which situation?

## Analysis



✓ Analysis of the decision-making environment, barriers and motivators

## Intervention



✓ Detailed elaboration of measures and possibilities of testing + discussion of ethical aspects

## Evaluation



✓ Ideally by field experiments

## Awareness raising in the public service (DG Reform)

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### Goal: raising awareness for behavioural insights in Austrian ministries

- A total of 9 workshops with public servants in various ministries
- 3 of them in the Ministry of Finance; topics:



**Customer service**



**Customs**



**Tax compliance**



## OECD Cooperative compliance – Evaluation of the “Accompanied Control program” (*Begleitende Kontrolle; former pilot “Horizontal Monitoring”*)



**Accompanied control:** special procedure of continuous supervision and auditing



**Advantages** for businesses and tax authorities



**Objective:** Scientific consultation of the evaluation process



**Main behavioral insights:**

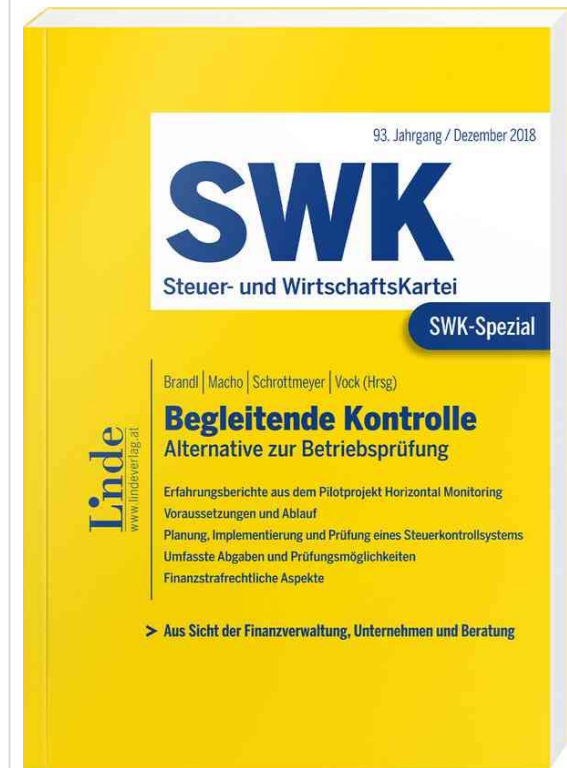
- Tax compliance depends on power of authorities and trust in the authorities and institutions (SSF)
- Behavioral “tool box” to ensure compliance



# Co-operative compliance Austria: “Accompanied Control”

## KPMG

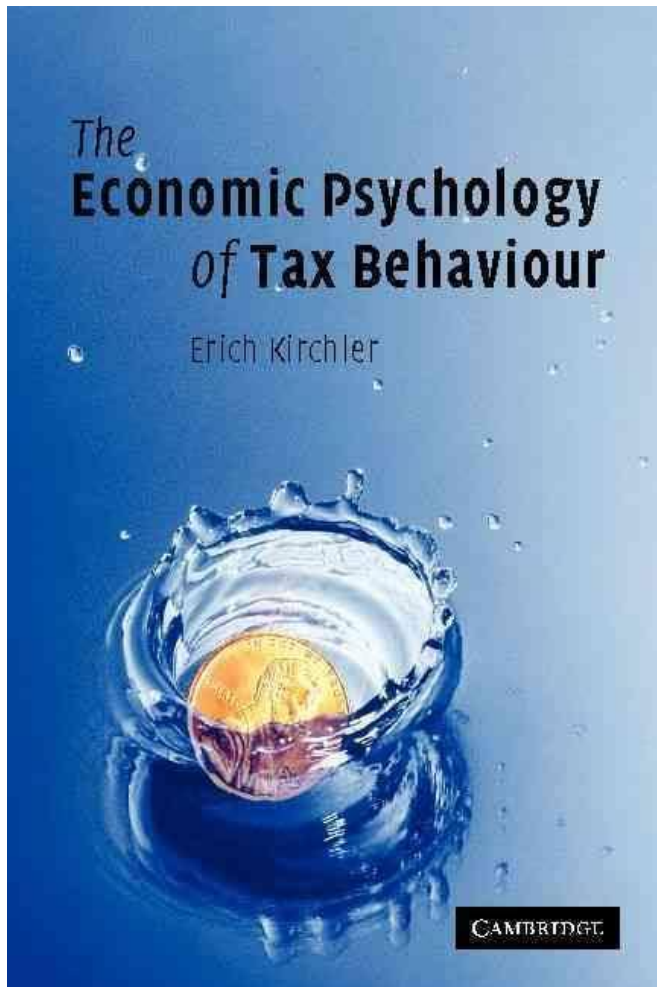
- ✓ Increasing legal certainty and planning security
- ✓ Timely tax coordination of planned and implemented matters apart from requests for information that are subject to a fee and limited in terms of content
- ✓ Elimination of tax audits and thus avoidance of significant additional payments for previous periods in the event of audit findings
- ✓ Saving on company resources for comprehensive audits





# Psychology & tax behavior

## 2 decades ago ...



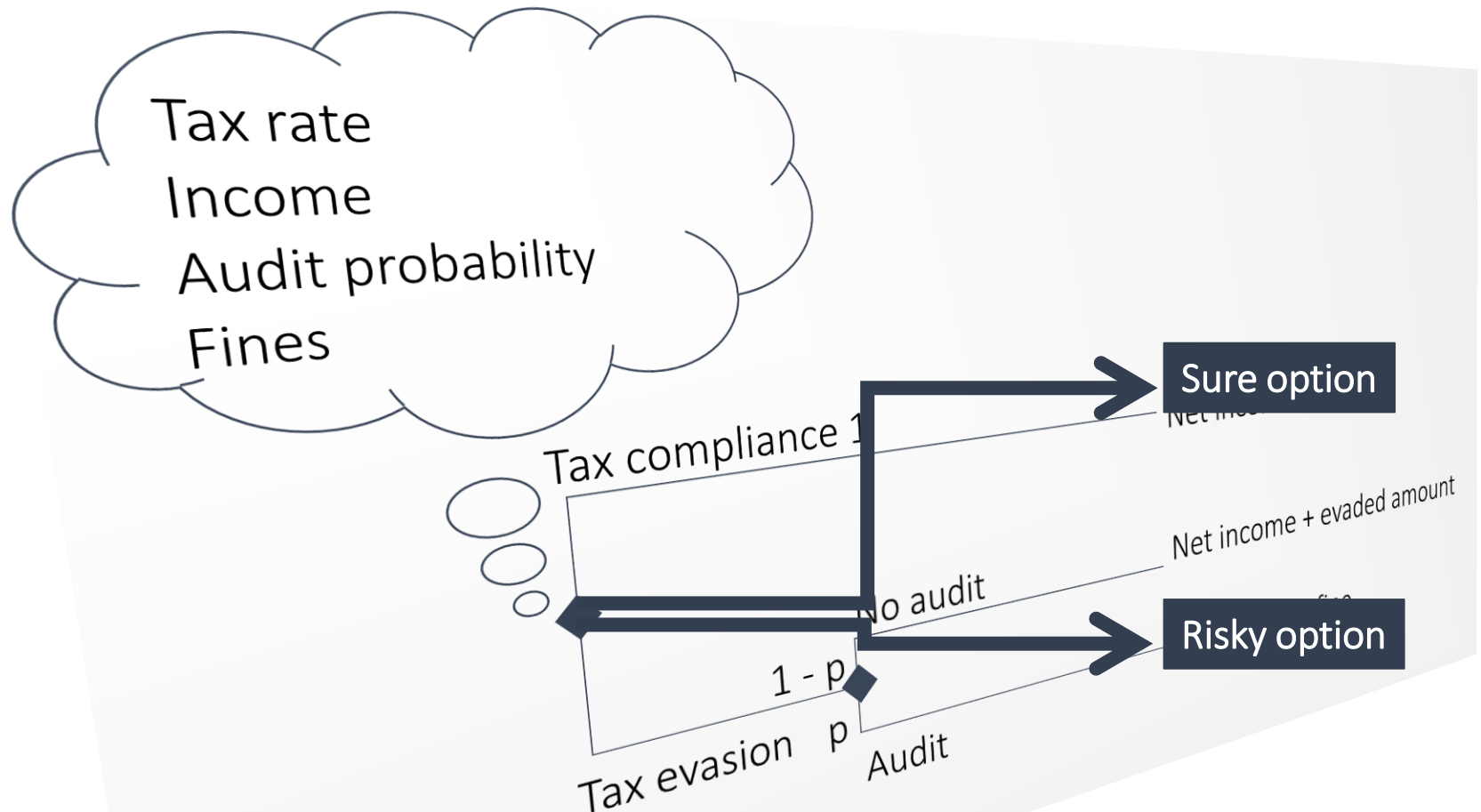
Economics of crime (Allingham & Sandmo, 1972; Srinivasan, 1973; etc.):

- Audits & fines
- Income, tax rate, opportunities

Psychology of cooperation (tax compliance):

- Complexity of the law, knowledge
- Attitudes & moral
- Norms (personal, social, societal)
- Fairness (distributive, procedural, retributive)

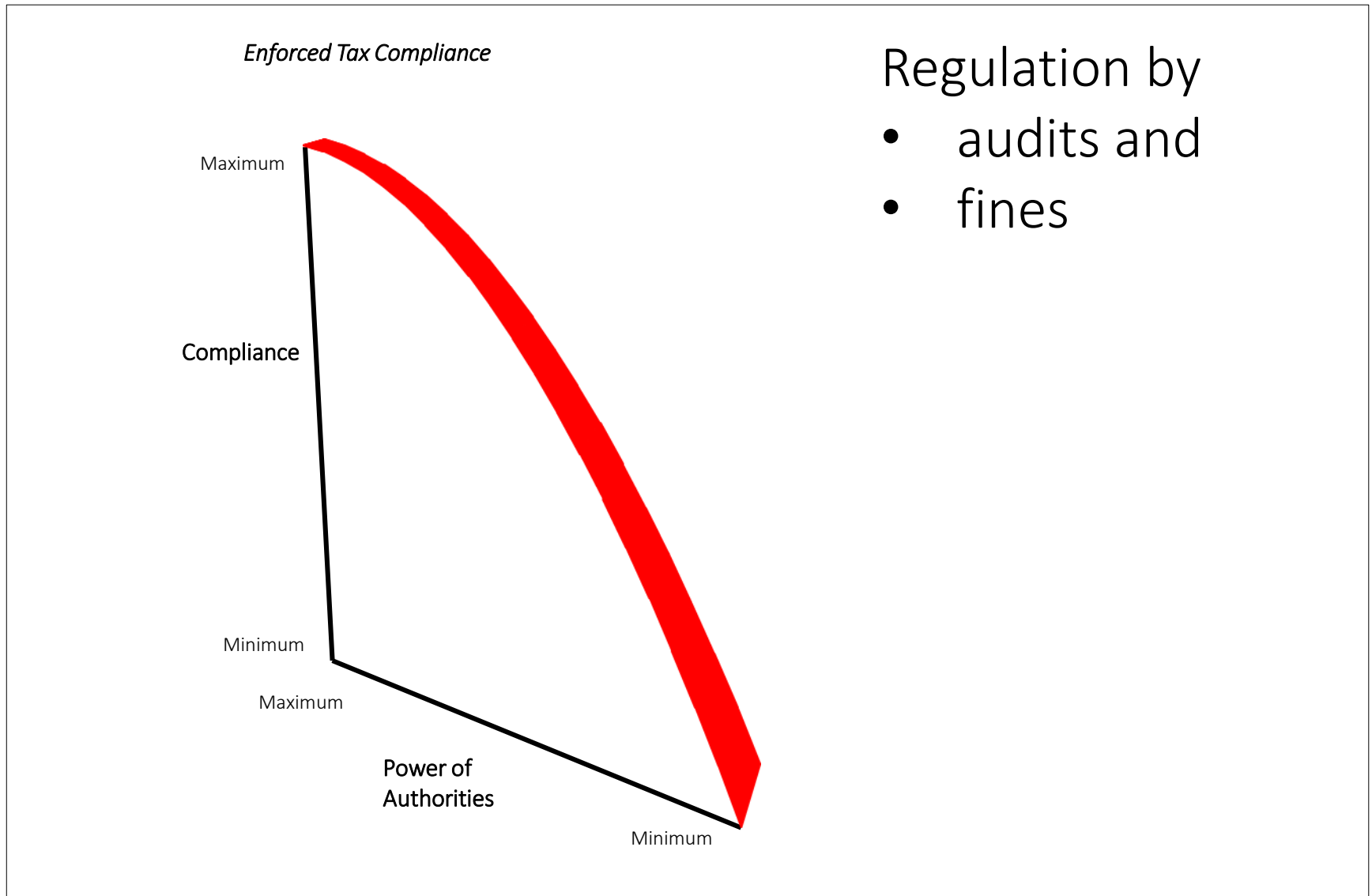
# Decision under risk



Allingham & Sandmo (1972); Srinivasan (1973)

Becker, G. S. (1968). Crime and punishment: An economic approach. *Journal of Political Economy*, 76, 169-217.

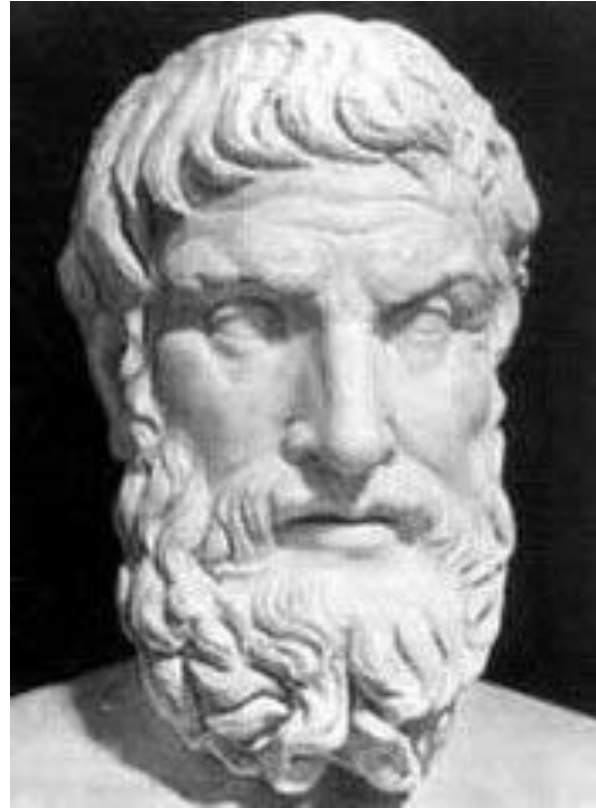
# Economic perspective: Power of authorities



# Measures to strengthen cooperation

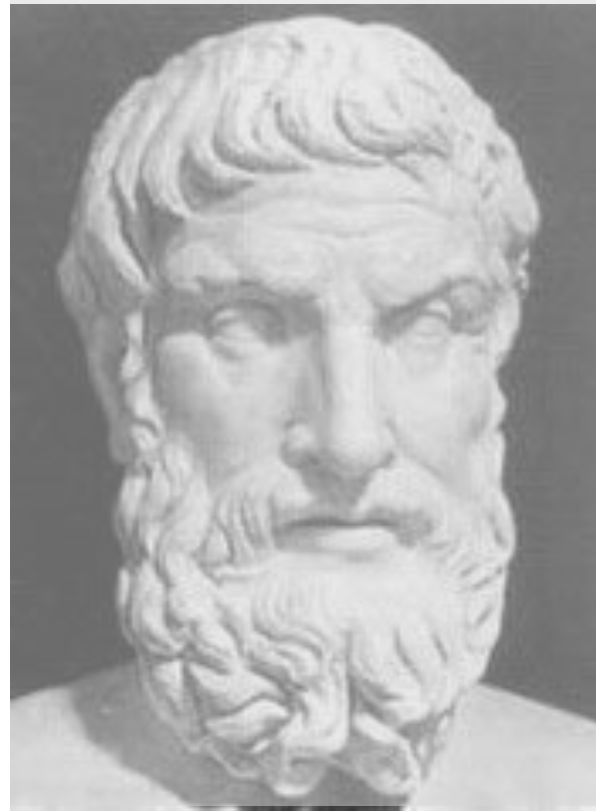
Epiktet (AD 50~138)

Humans are not disturbed by things, but by the views which they take about things.

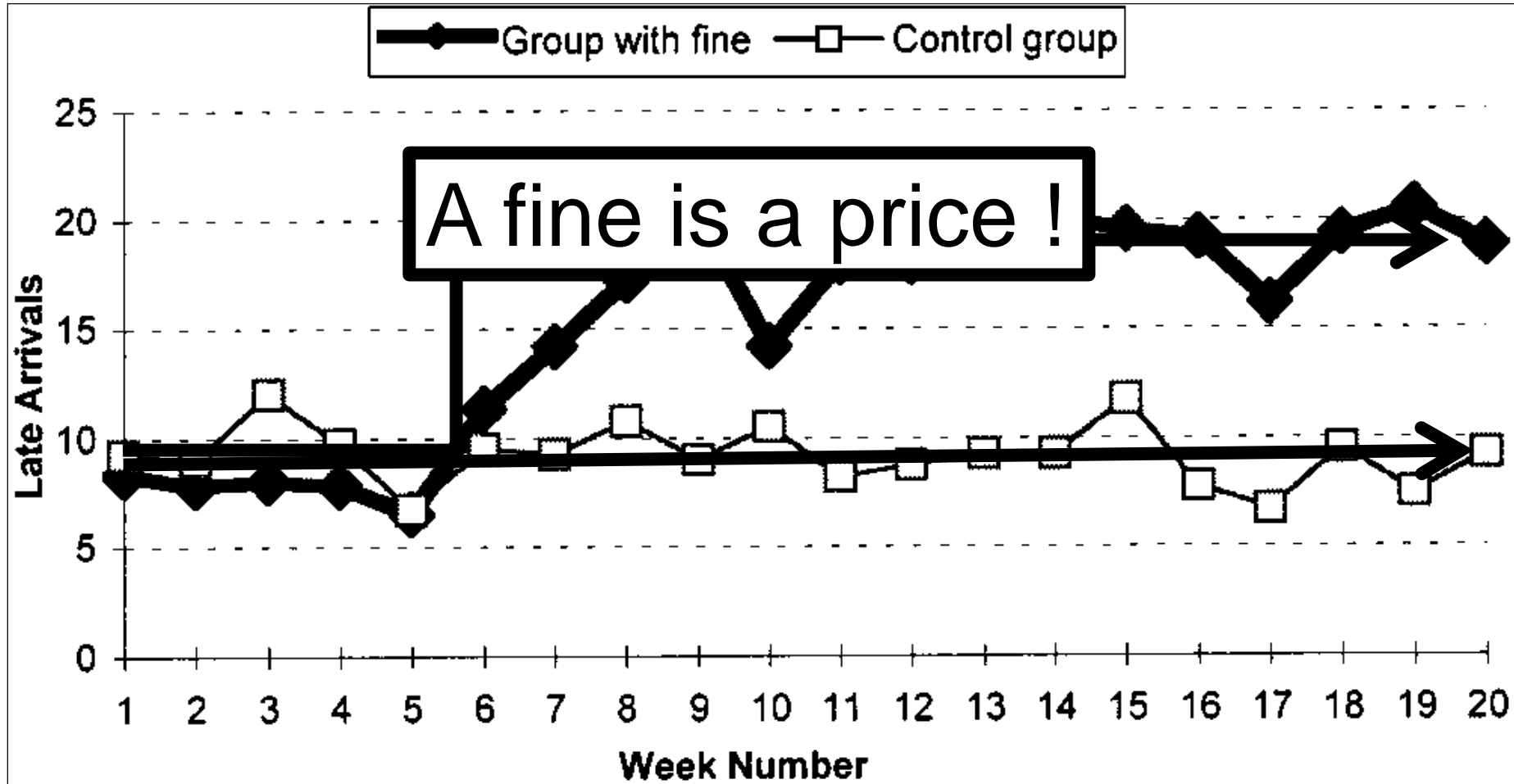


# Audits, fines and backfiring

Fines vs price  
Bomb crater  
Echo  
Differential effects



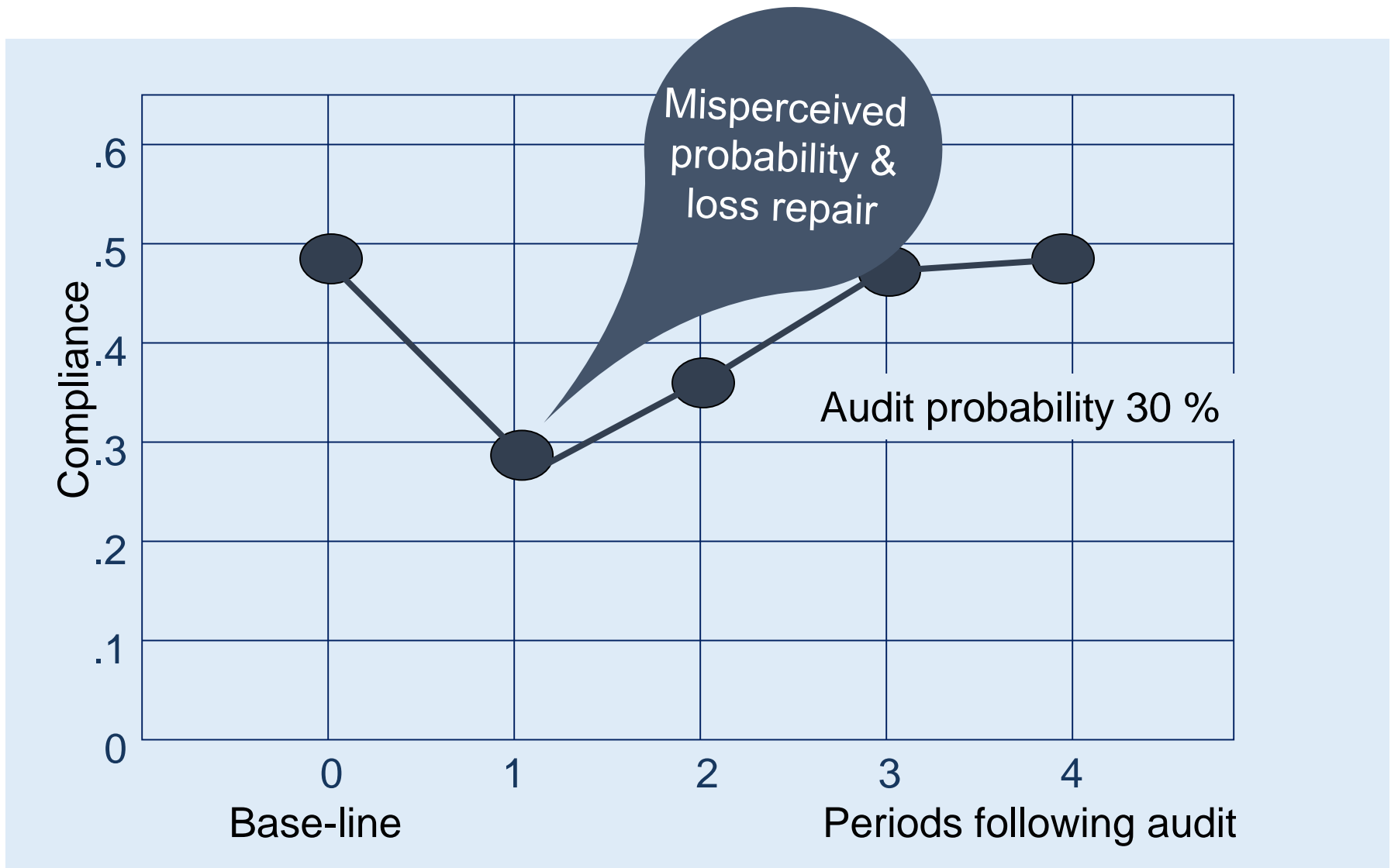
# Fines: Anomalies



Gneezy, U. & Rustichini, A. (2000). A fine is a price. *Journal of Legal Studies* 29(1) 1-18.

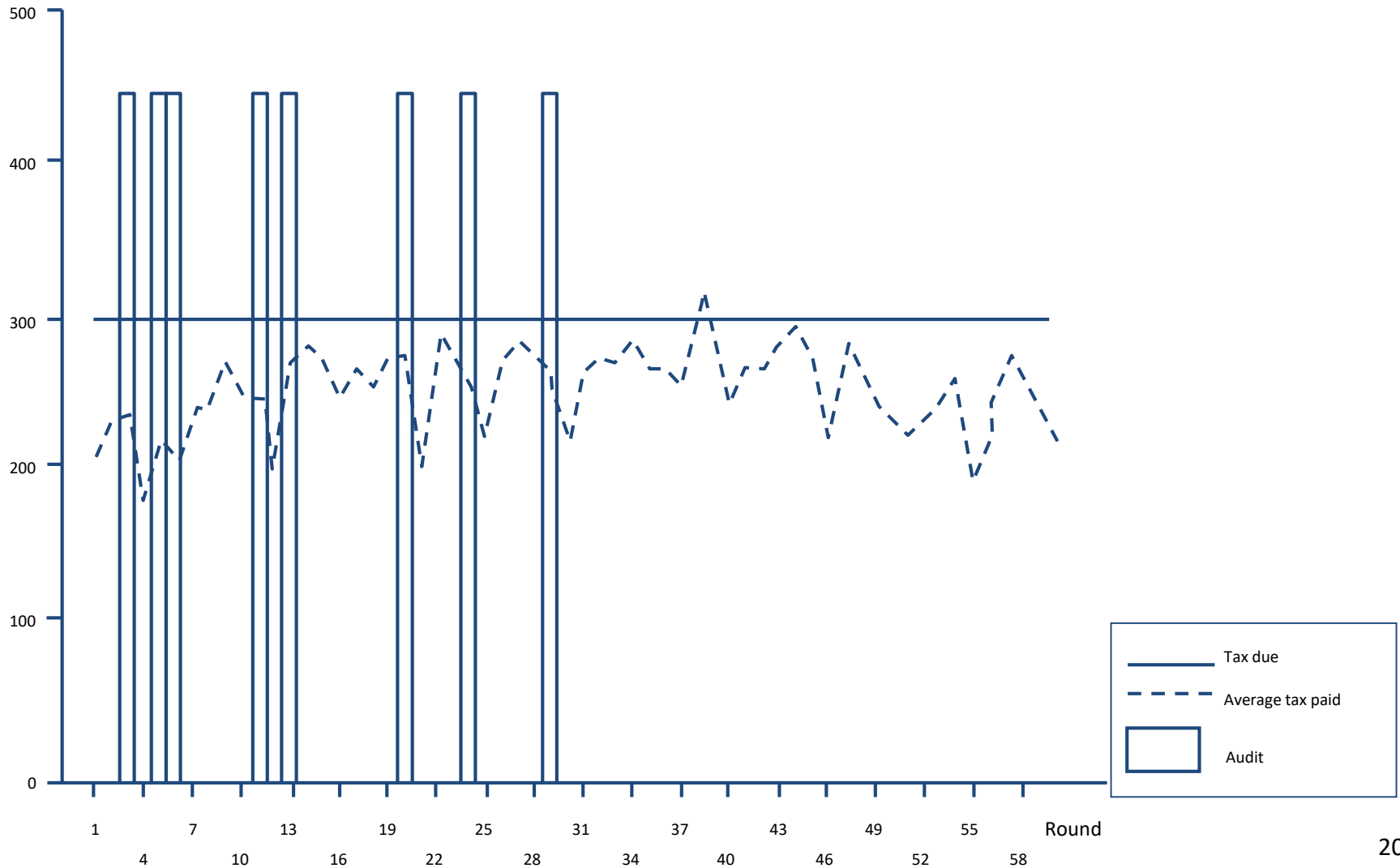
Experimental group: Managements of 6 day care centers introduced a fine for late pick up of children; Control group: 4 day care centers did not introduce a fine.

# Fines & audits: Anomalies



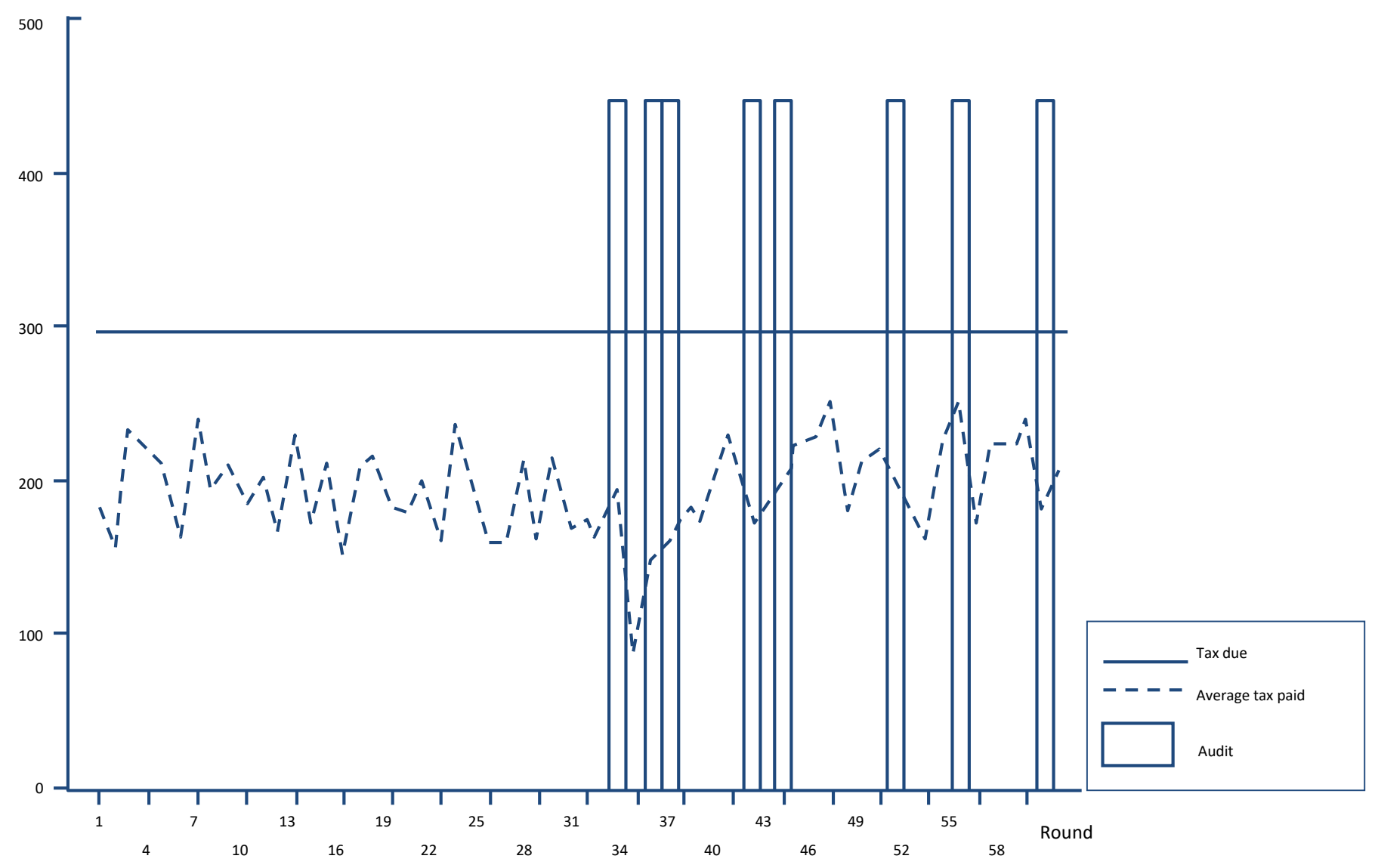
# “Echo” effect in experiments with audits in the first and second half of 60 business periods, respectively Guala and Mittone (2002, p. 12 and 13)

Tax payments (averages, first group)  
Value (Italian Liras)





Tax payments (averages, first group)  
Value (Italian Liras)



# Audits: Education vs backfiring effects

Lab experiments have shown that audits impact on compliance, but there are possible drawbacks.

## Backfiring of audits

### (1) IRS audit impact field study

Sebastian Beer, Matthias Kasper, Erich Kirchler & Brian Erard, 2015 –  
[http://www.taxpayeradvocate.irs.gov/Media/Default/Documents/2015ARC/ARC15\\_Volume2\\_3-AuditImpact.pdf](http://www.taxpayeradvocate.irs.gov/Media/Default/Documents/2015ARC/ARC15_Volume2_3-AuditImpact.pdf)

### (2) Backfiring of audits at state level

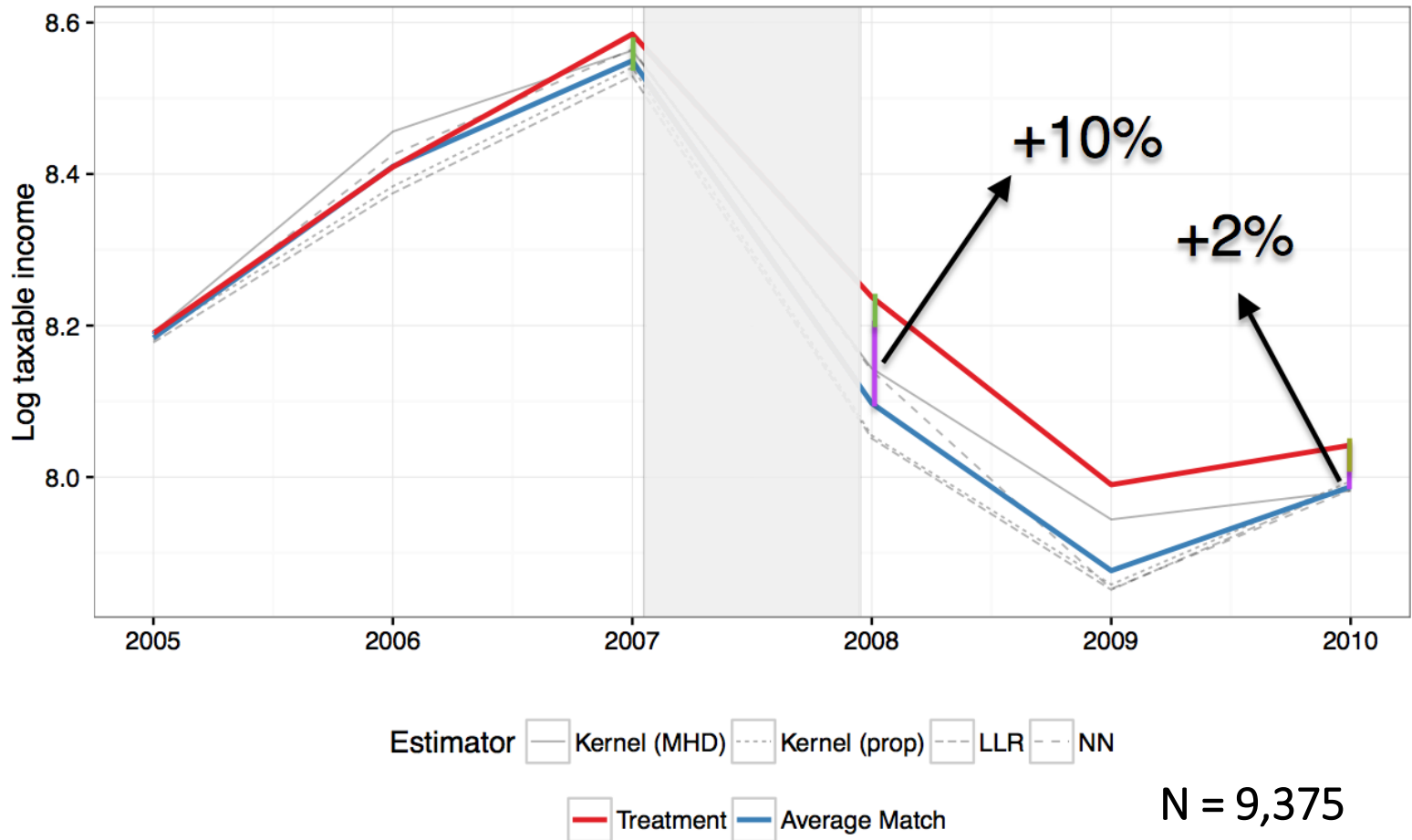
Juan P. Mendoza, Jacco L. Wielhouwer & Erich Kirchler, 2016 -  
[http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2597479](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2597479)

# TAS (IRS): Audit impact study

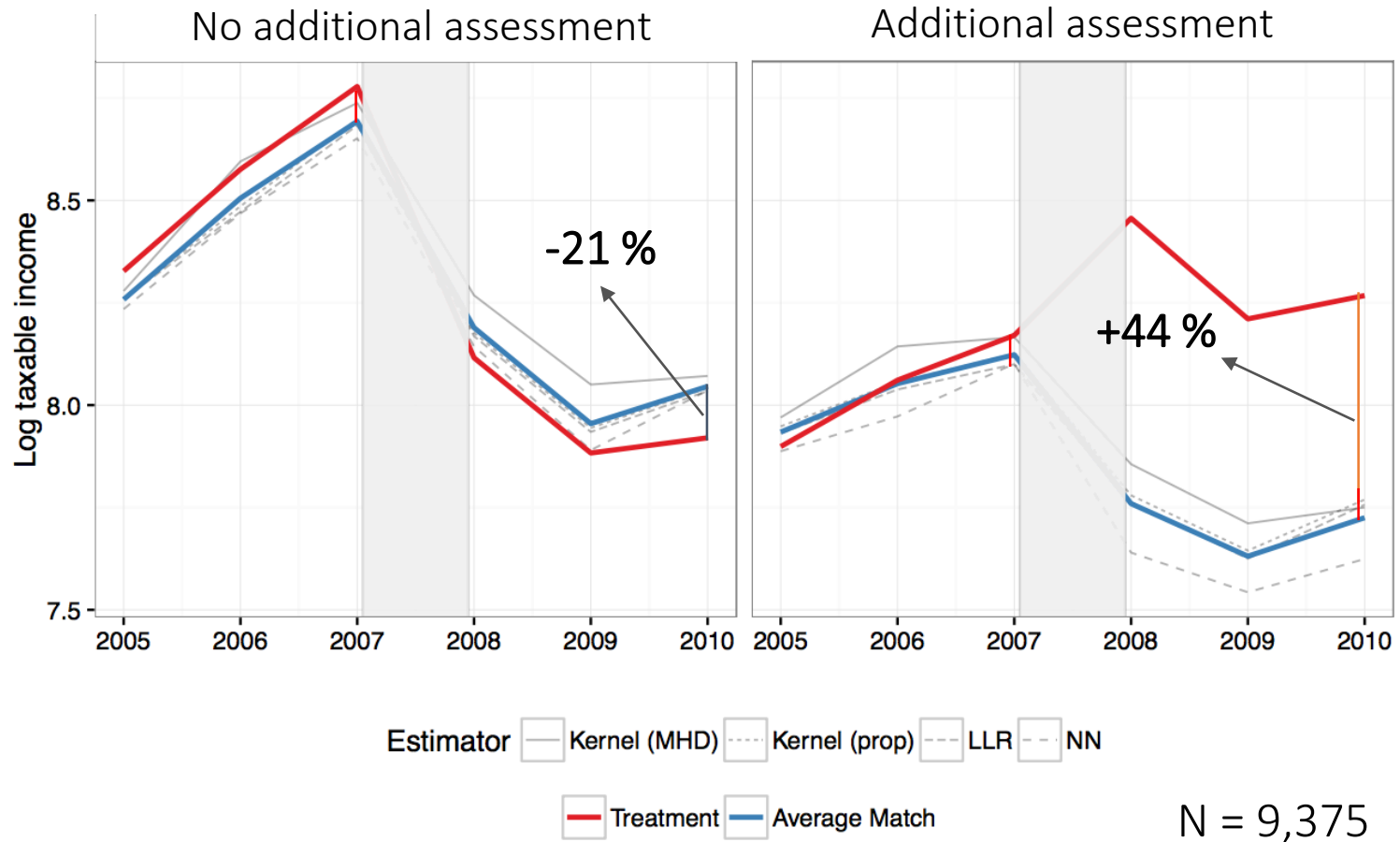
## Beer et al., 2015

- Impact of audits on subsequent reporting behavior (allow for heterogenous responses for those audited with positive vs no adjustment or negative audit result)
- Data: Schedule C filers (sole proprietors with revenue <200,000 \$/yr) between 2005-2011 (17,699 tax filers; 2,204 audited + control group)
  - Administrative information on income and risk indicator (DIF score)
  - Audit information (starting/closing date, audit type, audit result)

# Audits increase compliance...



# ... but audit outcomes matters!



# Results

- In the aggregate, taxable income increases by roughly 10% one year after the audit (2% after 3 years).
- While taxpayers with an additional tax adjustment increased their reported income by around 64% one year after the audit (44% after 3 years),
- taxpayers with no additional assessment reported around 15% less income the year after they were audited (21% after 3 years).

# Backfiring of audits - Country level analysis

## Mendoza et al., 2017

### Method

Data: 35 countries; years 2003-2012 (OECD, World Bank, Swiss Institute of Management Development IMF)

### Variables:

#### Dependent variable:

Tax compliance = business peoples' perception of tax evasion (IMD, 2015a). The 1-item measure corresponds to business peoples' perception of the extent to which tax evasion is common practice in their country (scale ranges from 0 to 10).

# Backfiring of audits

Independent variable:

**Auditing level** = number of verification actions by tax authorities per 100 taxpayers in each country (OECD, 2015a)

[Verification actions = audits, controls, examinations, investigations, inquiries; field, desk or correspondence actions]

Control variables =

(c) Penalty for tax offenses (% of unpaid taxes)

(d) Short term interest rate (imposed on unpaid taxes; Andreoni et al., 1998; OECD, 2013). Penalty = maximum percentage that tax offenders pay for tax offenses)

(e) Personal and corporate income tax rates (marginal income tax rate)

(f) GDP per capita

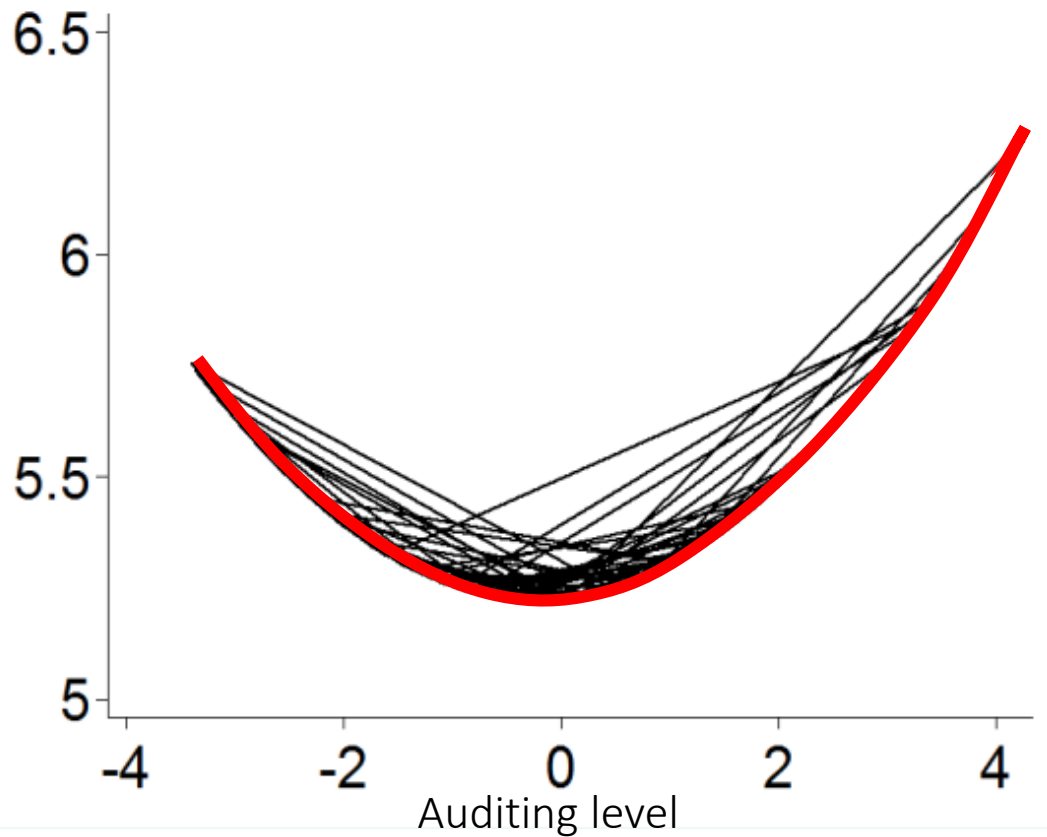
(g) Trust in government (indicated by perception of government effectiveness and transparency of government policy; IMD, 2015a; World Bank, 2015b)



# Backfiring of audits

Associations between auditing level and each compliance indicator ( $N=260$ )

Tax evasion  
(predicted  
values)



To examine the non-linear association, auditing level is mean-centered and its square is incorporated into the analysis. In line with prior cross-country investigations (e.g., Hail et al., 2015), a fixed effects model with robust standard errors (clustered by country) was applied. This allows to control for structural (time-invariant) country characteristics (Kezdi, 2003), and generate standard errors that are robust to both heteroskedasticity and intra-group (cross-country) correlation (Stock & Watson, 2008; Perez-Truglia, 2009).

# Conclusion



An elevated auditing level has a backfiring effect on tax evasion (or: high evasion leads to increased audits?)

The backfiring effect on evasion could be due

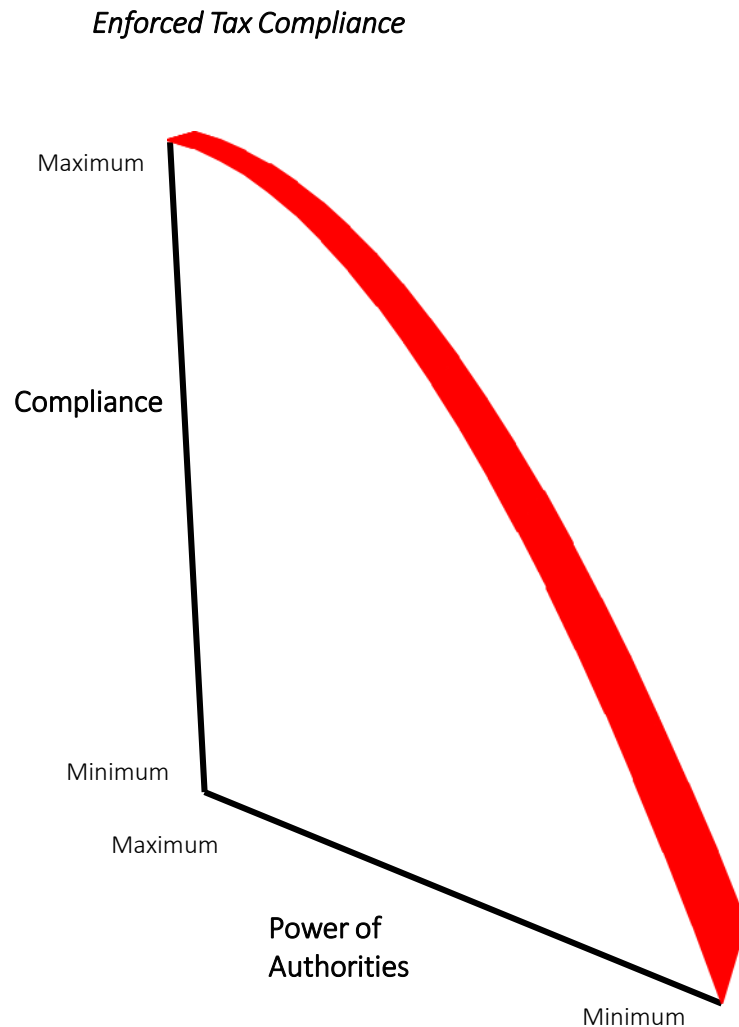
to taxpayers untargeted auditing, leading to perception of distrust among compliant taxpayers (too few audits do not reach out to non-compliant taxpayers;

too many audits do not discriminate between cooperative and free-riding taxpayers, thus, they could signal distrust.

... and

DIF-score selection (non-committed samples; differential effects -> letter studies and effects of deterring messages

# Economic perspective: Power of authorities



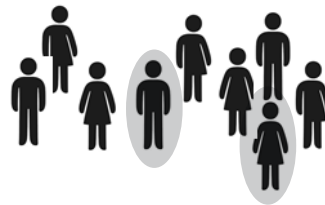
Regulation by

- audits and
- fines

... is effective, but a differential perspective needs to be taken (in some segments of taxpayers, audits and fines fire back).

# View of humankind

To protect honest taxpayers from free riders, controls and sanctions are necessary.



Individual differences

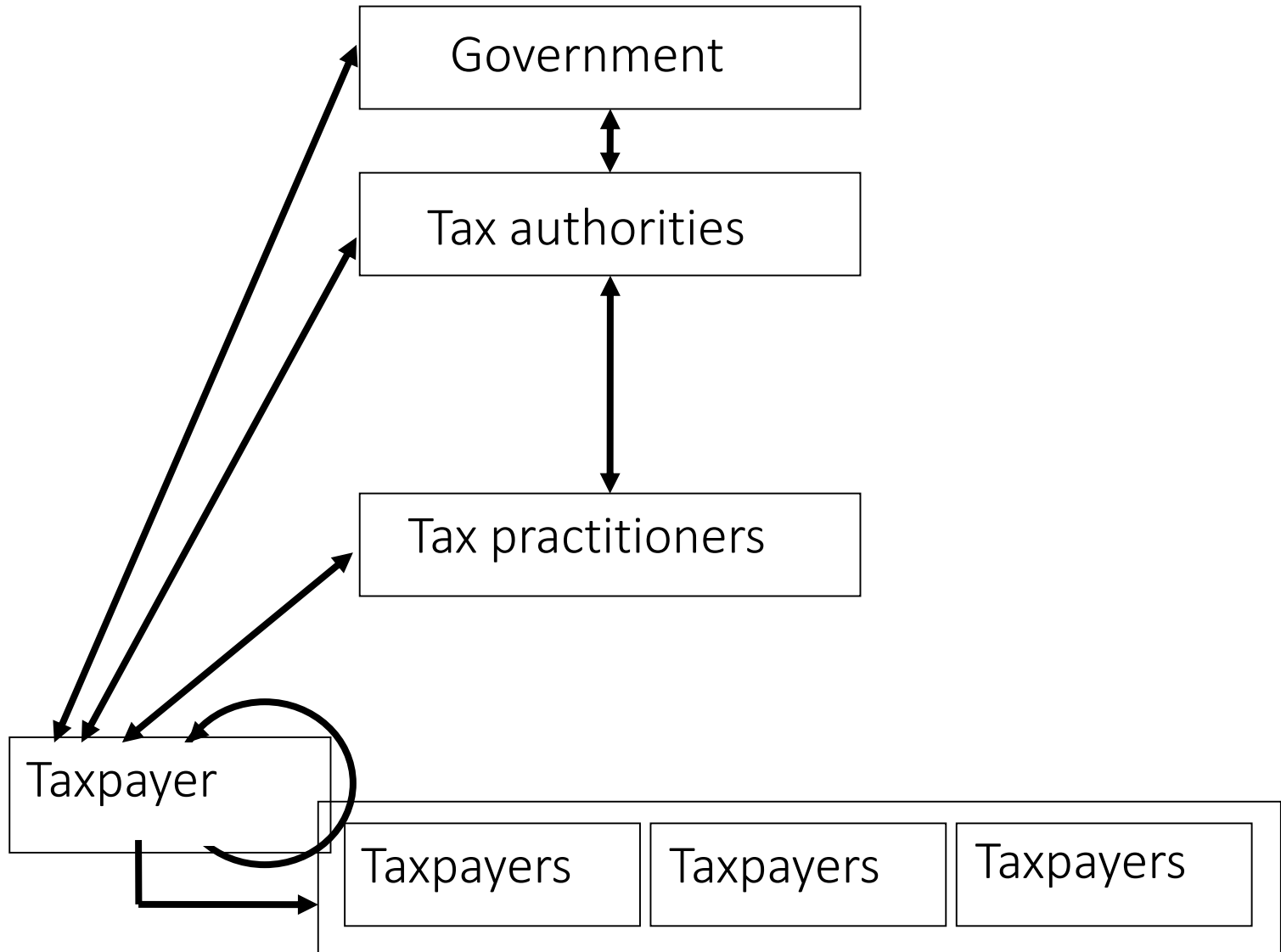
Interaction in social systems

Additional (individual) drivers of compliance:

- complexity and understanding of the law
- attitudes, personal norms, and tax morale
- procedural, distributive, retributive justice
- social norms, horizontal trust
- demographic characteristics (opportunity, age, gender, ...)

The interaction climate between authorities and citizens is key!

# Actors in the field



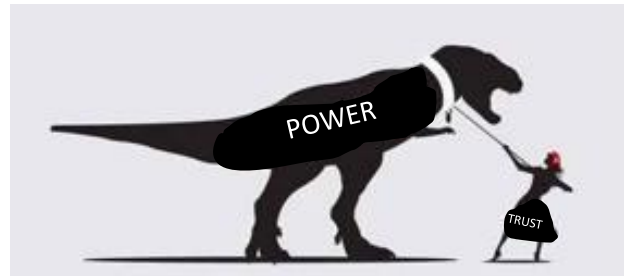
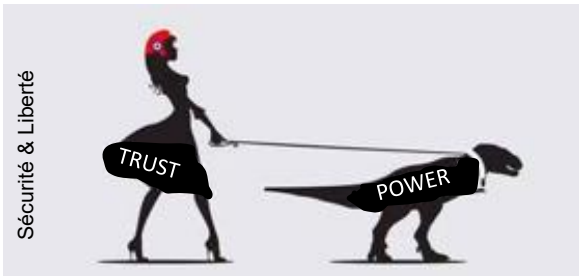
# Interaction climate

## Antagonistic (power)

- „Cops and robbers“
- High social distance
  - No respect
  - Negative emotions
- Cost-benefit calculation
- Enforced compliance

## Synergistic (trust)

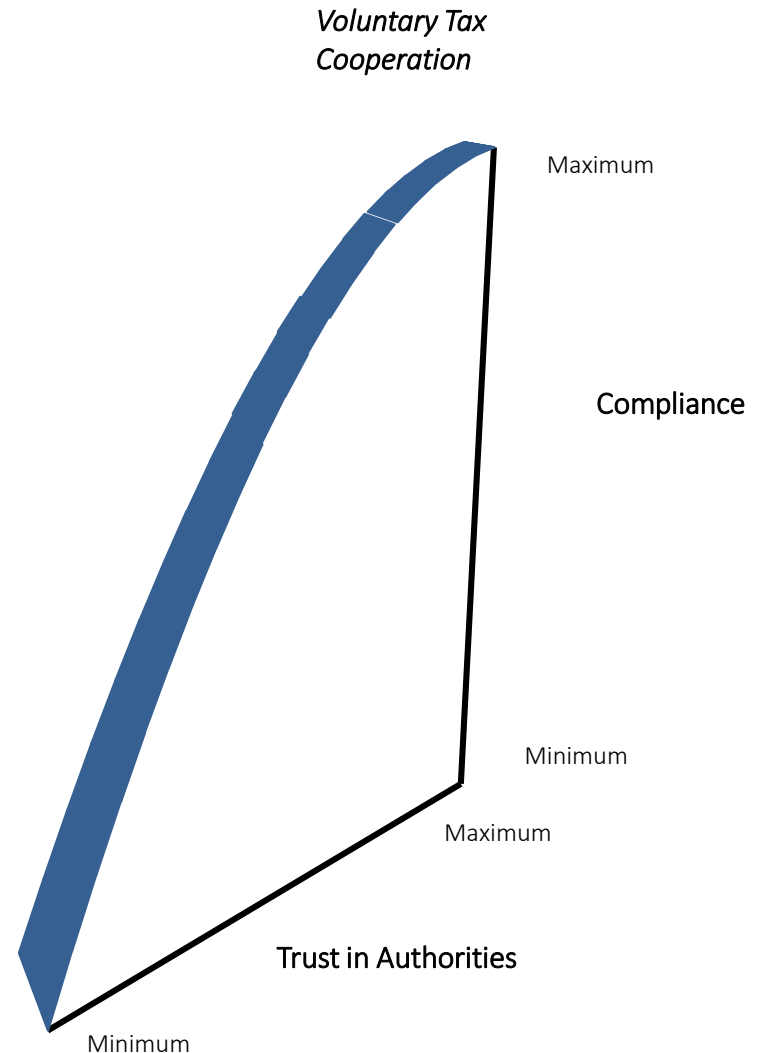
- „Service & client“
- No social distance
- Mutual respect
- Positive emotions, trust
- Feeling of responsibility
- Voluntary cooperation



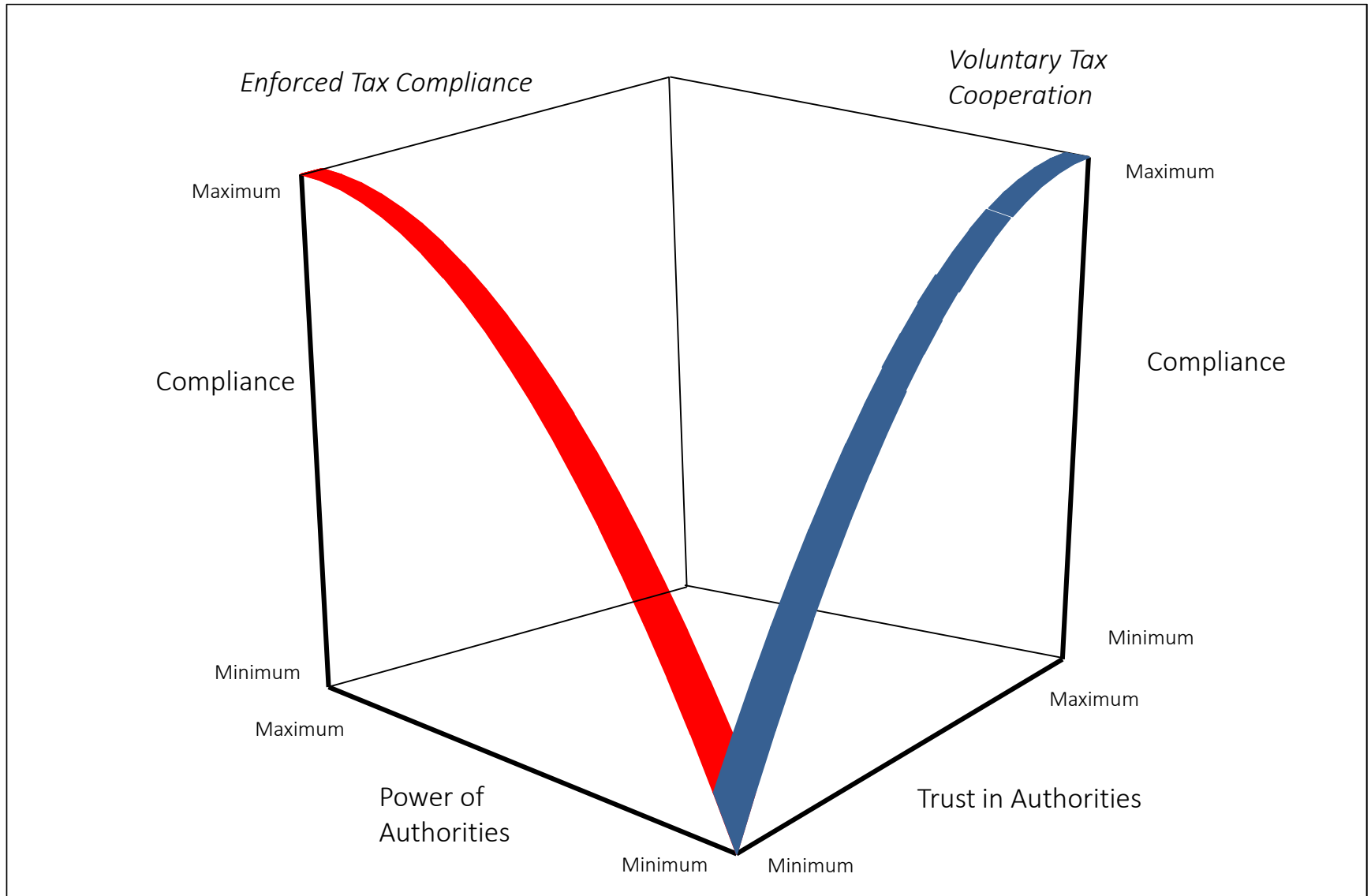
# Psychological perspective: Trust

Regulation by building trust

- Complexity and understanding
- Attitudes (morale)
- Horizontal trust: social norms
- Vertical trust: distributive and procedural (and retributive) fairness

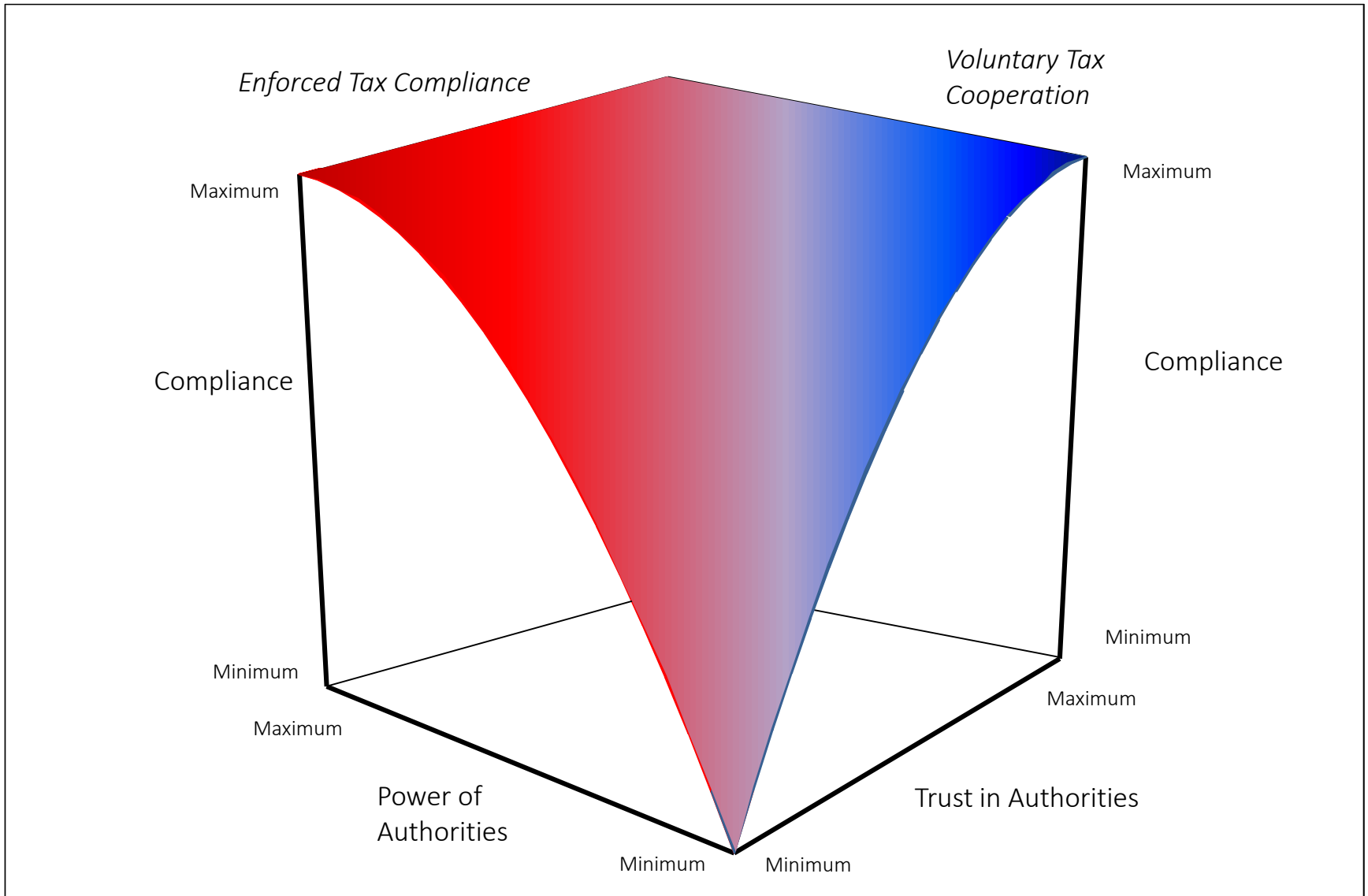


# Interaction of power & trust (economics & psychology)



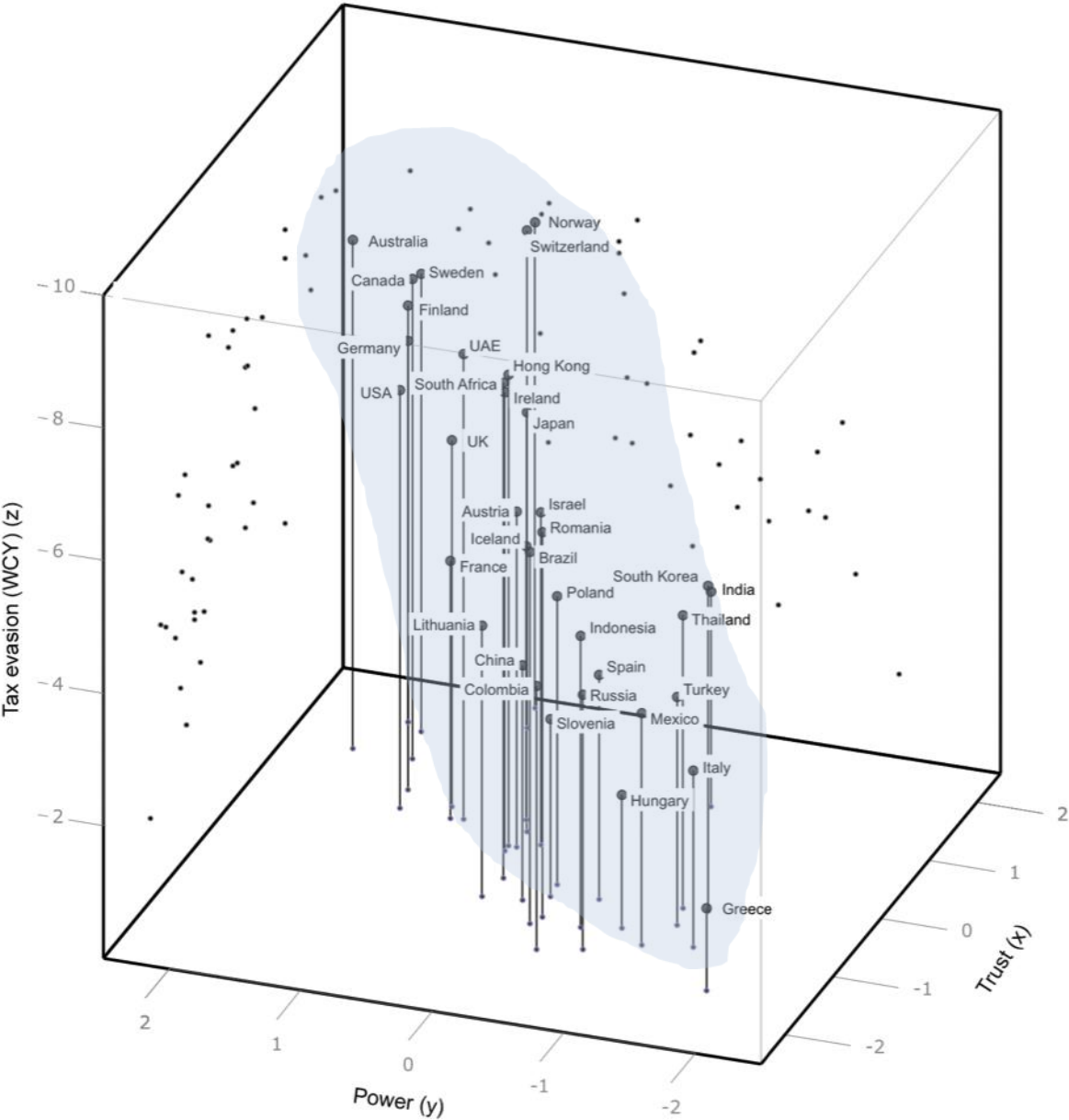


# Interaction of power & trust (economics & psychology)





# Tax evasion

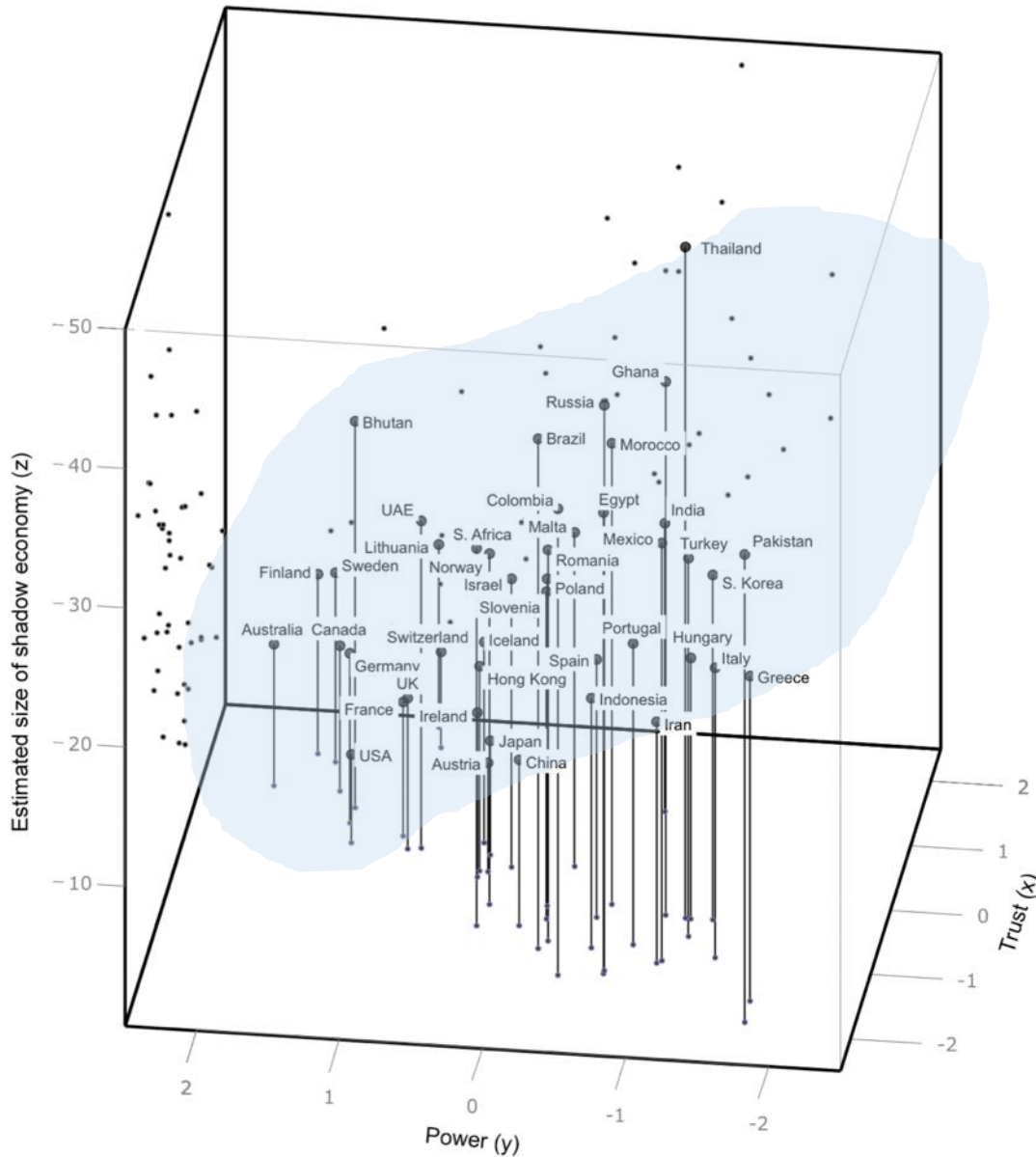


| Variable              | Tax evasion (WCY)    |             |                    |
|-----------------------|----------------------|-------------|--------------------|
|                       | <i>B</i>             | <i>SE B</i> | $\beta$            |
| Constant              | 4.86                 | 0.19        |                    |
| Trust                 | 0.32                 | 0.30        | .18 <sup>a</sup>   |
| Power                 | 1.14                 | 0.31        | .63 <sup>***</sup> |
| <i>R</i> <sup>2</sup> | .60                  |             |                    |
| <i>F</i>              | 25.38 <sup>***</sup> |             |                    |

Note. *N* = 36

<sup>a</sup>*p* < .10 ; <sup>\*\*\*</sup>*p* < .001.

# Shadow Economy



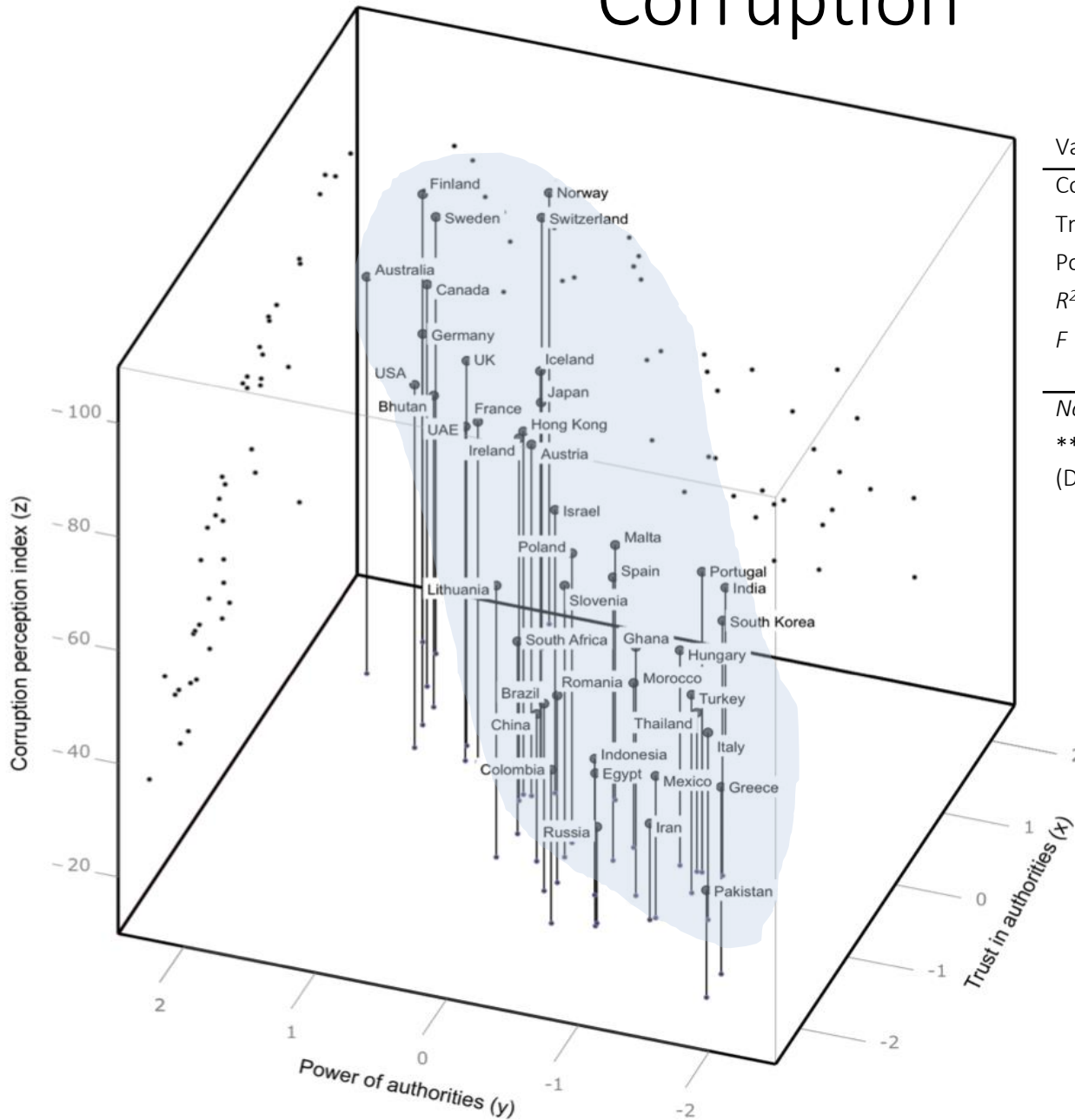
| Variable | Shadow Economy Index |             |         |
|----------|----------------------|-------------|---------|
|          | <i>B</i>             | <i>SE B</i> | $\beta$ |
| Constant | 21.27                | 1.19        |         |
| Trust    | -3.19                | 1.96        | -.32    |
| Power    | -3.64                | 1.96        | -.36    |
| $R^2$    |                      | .39         |         |
| <i>F</i> |                      | 12.95***    |         |

Note.  $N = 44$

\*\*\* $p < .001$ .

Data: 2007, 2010, 2014

# Corruption



| Variable | Corruption Perception Index |             |         |
|----------|-----------------------------|-------------|---------|
|          | <i>B</i>                    | <i>SE B</i> | $\beta$ |
| Constant | 57.48                       | 1.45        |         |
| Trust    | 9.35                        | 2.38        | .50***  |
| Power    | 7.79                        | 2.38        | .42**   |
| $R^2$    |                             | .75         |         |
| $F$      |                             | 61.52***    |         |

Note.  $N = 44$

\*\* $p < .01$ . \*\*\* $p < .001$ .

(Data: 2014)

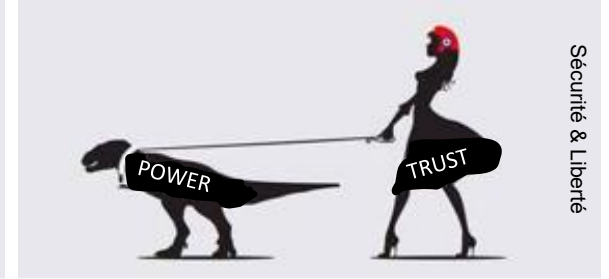
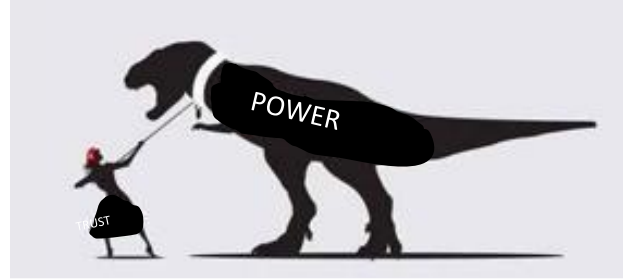
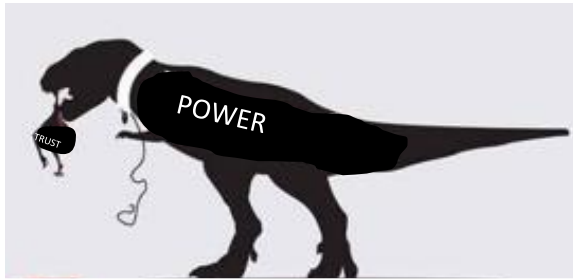
Shadow  
economy

National  
happiness

# What must be done?

## Power & trust

### Antagonistic climate

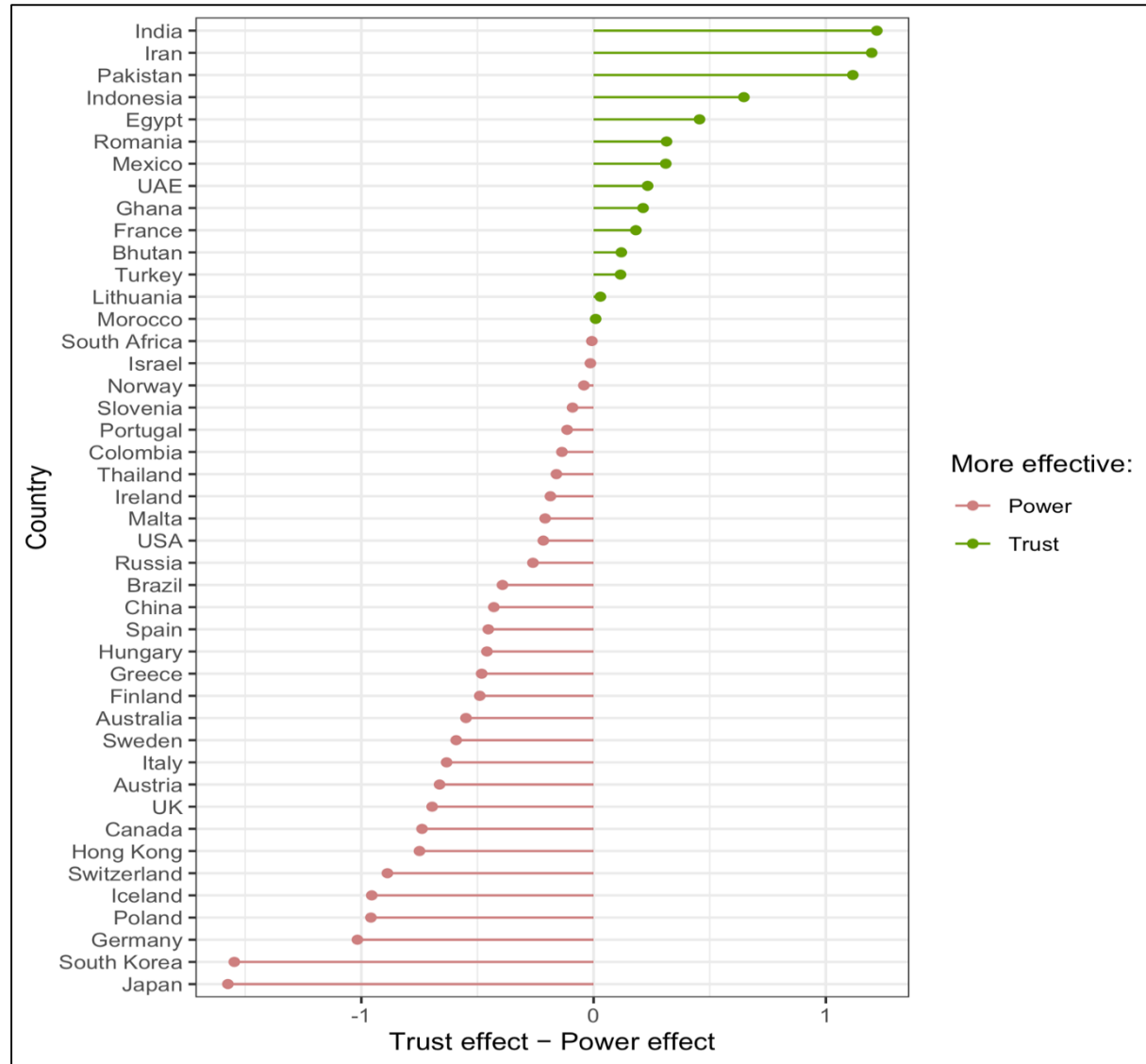


Journal du Siecle (retrieved 2011) [https://www.google.at/search?q=journal+du+siecle+liberte&biw=1366&bih=673&site=webhp&source=lnms&tbn=isch&sa=X&ved=0ahLUKEwia27X225rKAhXHEywkH5KZA\\_wQ\\_AUIBigB#tbn=isch&q=journal+du+siecle+liberte+securite&imgcr=ASgOUoj\\_gogEDM%3A](https://www.google.at/search?q=journal+du+siecle+liberte&biw=1366&bih=673&site=webhp&source=lnms&tbn=isch&sa=X&ved=0ahLUKEwia27X225rKAhXHEywkH5KZA_wQ_AUIBigB#tbn=isch&q=journal+du+siecle+liberte+securite&imgcr=ASgOUoj_gogEDM%3A)

# What must be done?

## Sequencing power & trust

# Difference between regression coefficients of trust & power in 44 countries

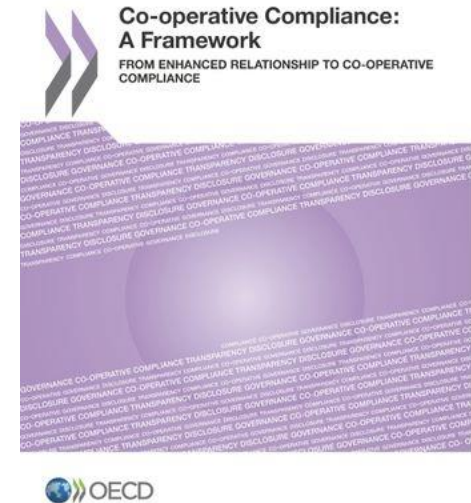


Alm, J., Gerbrands, P. & Kirchler, E. 2021. ... A re-analysis of the data in Batrancea et al. (2019) is depicted in Figure 2, where the x-axis shows the difference between the regression coefficients of trust and power and the y-axis shows the specific country. A positive value for the difference in coefficients indicates that trust has a stronger effect in the respective country (in relative terms), while a negative value denotes a stronger impact of power on intentions to pay taxes. The resulting pattern suggests that increasing power in wealthy countries might improve compliance to a stronger degree, while in less wealthy countries trust in the authorities could be more relevant, perhaps because in wealthier countries trust in authorities is high already while in less wealthy countries trust seems to be lower and power may be perceived as arbitrary.

# Co-operative compliance

Framework conditions to create trust in institutions:

- (a) A closed social system must be established (e.g., founding a community or an association so that membership in the community is clearly defined and recognizable for the members)
- (b) Membership in this closed society must be advantageous and loss of membership experienced as a disadvantage
- (c) Expectations and rules must be communicated transparently
- (d) Space must be created for trust-building by at least partially dispensing with an explicit contractual regulation of cooperation risks. When partners act according to agreed rules and expectations, trust is created and reproduced
- (f) The development of social norms that regulate this trust as a good to be protected and not to be violated is relevant
- (g) Trustworthiness of the partners must be communicated and made public via reputation mechanisms (Ripperger, 2007, p. 58f)

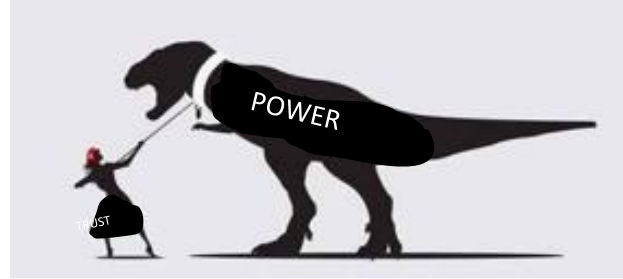
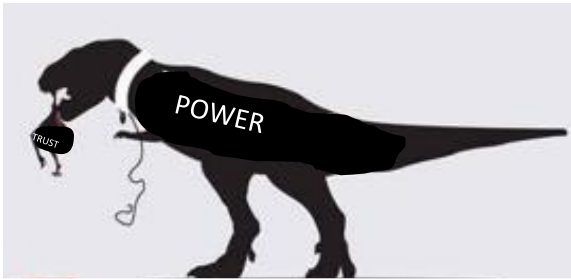




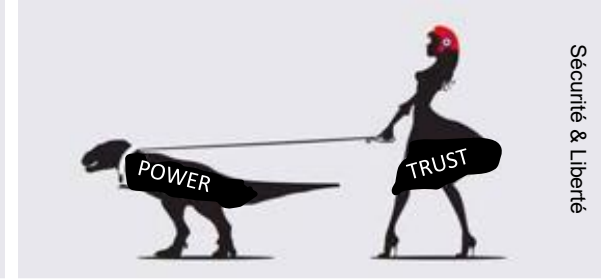
# What must be done?

## Power & trust

### Antagonistic climate



### Synergistic climate



Journal du Siecle (retrieved 2011) [https://www.google.at/search?q=journal+du+siecle+liberte&biw=1366&bih=673&site=webhp&source=lnms&tbn=isch&sa=X&ved=0ahLUKEwia27X225rKAhXHEywkH5KZA\\_wQ\\_AUIBigB#tbn=isch&q=journal+du+siecle+liberte+securite&imgcr=ASgOUoj\\_gogEDM%3A](https://www.google.at/search?q=journal+du+siecle+liberte&biw=1366&bih=673&site=webhp&source=lnms&tbn=isch&sa=X&ved=0ahLUKEwia27X225rKAhXHEywkH5KZA_wQ_AUIBigB#tbn=isch&q=journal+du+siecle+liberte+securite&imgcr=ASgOUoj_gogEDM%3A)

Power and trust are relevant; an antagonistic interaction climate demands that trust be built in institutions to increase willingness of citizens to cooperate with the authorities

Sequencing:

trust – legitimate and professional power

and coercive power (frequent and effective audits, harsh fines) ?

## ... back to effects of audits

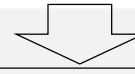
How react taxpayers after face-to-face (field, office) and correspondence audits with different outcomes (adjustment, no correction, refund) ?

TAS Annual Report 2017 and 2018 (US - Survey)

[https://taxpayeradvocate.irs.gov/Media/Default/Documents/2017-ARC/ARC17\\_Volume2\\_05\\_AuditsIDtp.pdf](https://taxpayeradvocate.irs.gov/Media/Default/Documents/2017-ARC/ARC17_Volume2_05_AuditsIDtp.pdf)

Matthias Kasper, Sebastian Beer, Erich Kirchler & Brian Erard

# Legitimate and (perceived) professional power & trust (interaction climate)



Coercive power  
(audits and harsh  
fines)

Not targeted

Based on trust and  
well targeted

Decrease of  
reason-based  
trust     -     Decrease of  
perceived  
legitimate power

Increase of  
reason-based  
trust     +     Increase of  
legitimate  
power

Fear

Anger

Attention/  
prudence

Protection/  
security

Hiding/  
avoidance/  
enforced  
compliance

Avoidance and  
(risky) rational decision: non-  
compliance or enforced  
compliance

Voluntary  
compliance

# Conclusion

Pillars of cooperation are

- trust in authorities
- power of authorities (legitimate and professional and also coercive measures)

Cooperation is maintained by

- audits in form of
  - education
  - service
  - targeted control
- fines at
  - an adequate level and
  - severe, to protect the cooperative majority from exploitation by free-riders



Solidarity

Cornerstones: altruism, cooperation, fairness

# Randomized Control Trials: Letter studies

Differential effects

# Randomized Control Trials: Letter studies

Systematic review of letter studies

Truzka, A., Puklavec, Z. & Kirchler, E. (2022). Nudging taxpayers to comply: reflections about the effect of deterrence and non-deterrence behavioral interventions depending on taxpayers' motivational postures.

Meta-analyses conducted on both laboratory and field experiments reveal that deterrence interventions, on average, increase compliance (e.g., Alm et al., 2020b; Antinyan & Asatryan, 2020; Blackwell, 2007), irrespective of whether they highlighted the perceived probability of audits or the perceived severity of sanctions. However, effect sizes are relatively small (e.g., Kleven et al., 2011).

The effect of non-deterrence nudges is less conclusive (e.g., Antinyan & Asatryan, 2020).

# Randomized Control Trials: Letter studies

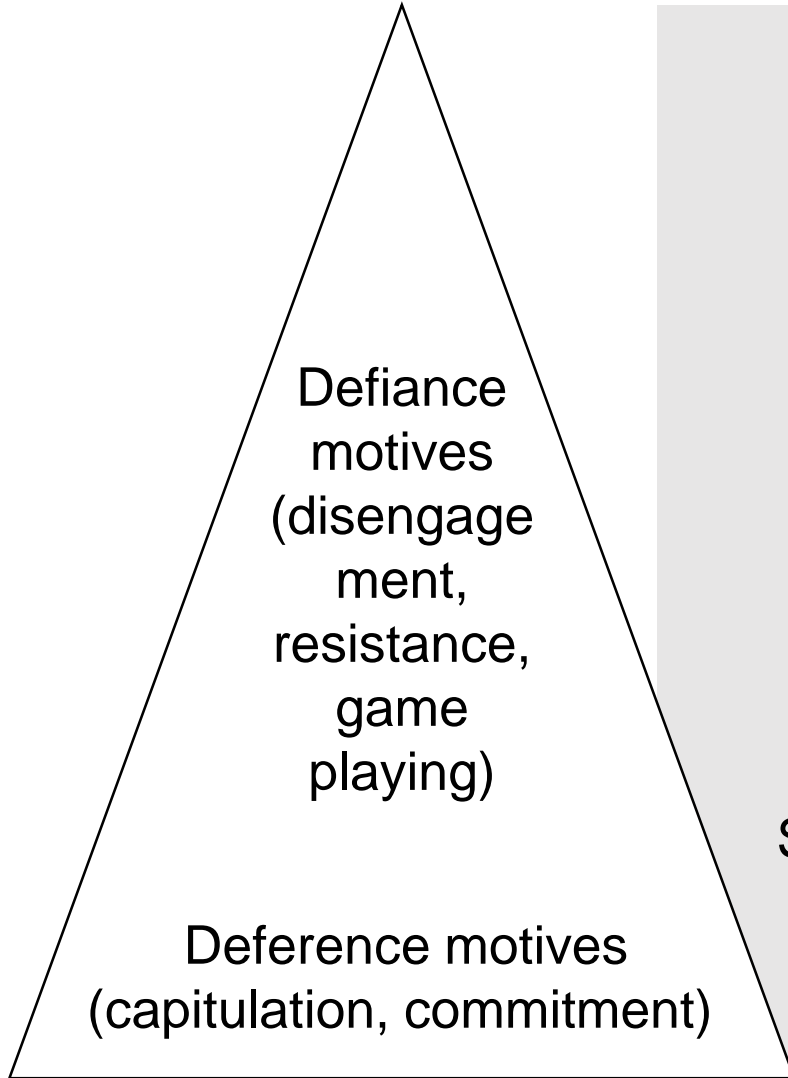
| Method           | Tax compliance | Interventions |                |
|------------------|----------------|---------------|----------------|
| field experiment | tax compliance | deterrence    | nondeterrence  |
| letter           | tax evasion    | audit         | social norm    |
| reminder         |                | detection     | moral appeal   |
|                  |                | penalty       | persuasion     |
|                  |                | threat        | public goods   |
|                  |                |               | simplification |
|                  |                |               | information    |
|                  |                |               | reward         |
|                  |                |               | framing        |

Australian Taxation Office Compliance Model and Motivational Postures  
(adapted from Braithwaite, 2003b, p. 3, James et al., 2003)

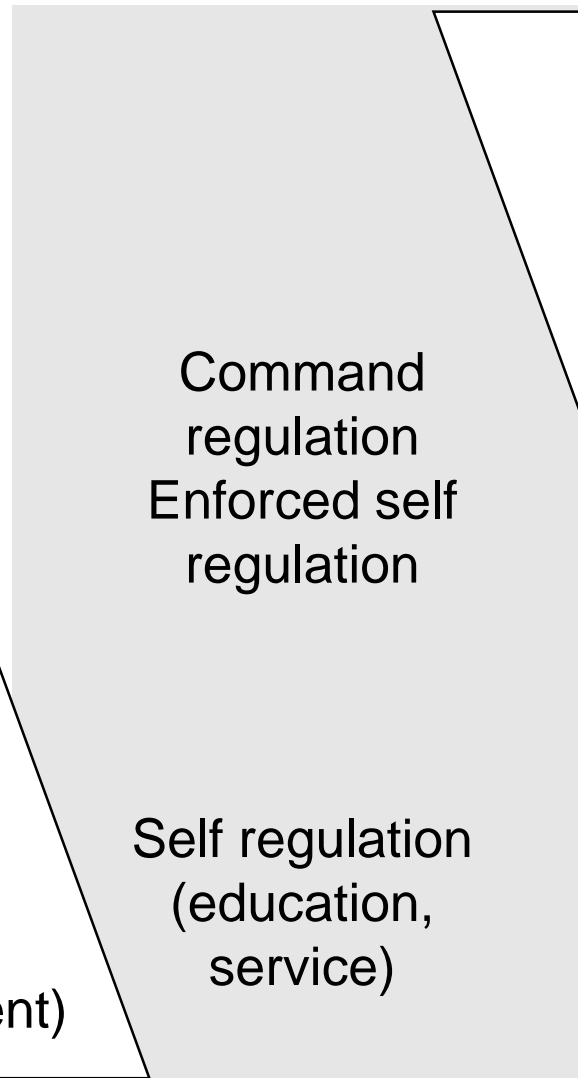




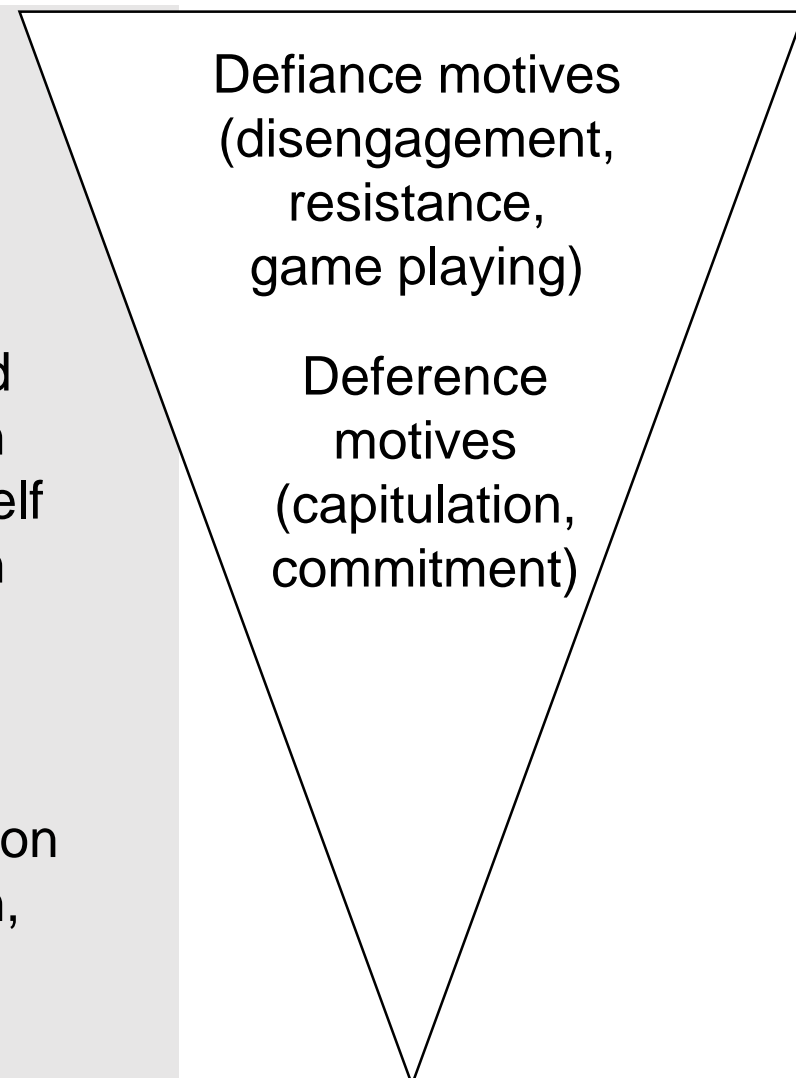
Motivational postures in the population



Compliance strategies



Motivational postures in RCT-samples



# Description of Nudging Interventions

- Information: information letter, simple letter, simple reminder
- Psychological costs: social norm, moral appeal
- Reciprocity: public goods, reward
- Simplification
- Deterrence: audit/detection threat, penalty threat
- Other

Taxpayer population

Treatment effect

Non-deterrent interventions

Deterrent interventions

Information

Psych-costs

Reciprocity

Simplification

Deterrence

Non-compliant groups

Positive

14 (-1.52)

34 (-0.66)

11 (-3.66)

9 (2.03)

65 (3.63)

Zero

18 (1.45)

31 (0.81)

22 (1.76)

2 (-1.52)

30 (-2.47)

Negative

3 (0.18)

5 (-0.24)

9 (3.6)

0 (-0.99)

3 (-2.23)

Mixed groups

Positive

6 (-1.37)

4 (-1.71)

13 (-0.86)

4 (0.98)

37 (2.44)

Zero

24 (1.34)

21 (1.59)

37 (0.74)

5 (-0.74)

57 (-2.32)

Negative

1 (-0.01)

1 (0.18)

2 (0.28)

0 (-0.56)

3 (-0.12)

Standardized Residuals



-2

0

2

Frequencies and Standardized Residuals (in Parentheses) of Nudges and Effects in Non-Compliant and Mixed Taxpayer Populations