



The Right Amount of Trust

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The rise of trust

- Big and pervasive effects of trust:
- Highly correlated with GDP per capita and growth (Knack and Keefer)
- Allows firms to grow larger (Shleifer et al) and institutions to improve their quality (Tabellini)
- Raises access to financial markets, increases investment in stocks and diversification (GSZ)
- Affects economic and financial transactions across countries (GSZ) and venture capital investments (Bottazzi, Darin)



Trust and surplus

- In this literature *aggregate* economic performance increases monotonically with trust
- Hence trust always “good”=> the more the better
- **Idea**: trust key ingredient in virtually all transactions (Arrow)=> more exchange more creation of surplus



Questions & Doubts

- But how is that surplus divided?
- Does it always pay an *individual* to trust?
- Even more fundamentally, is it true that trust always generates more surplus?
- Old and recent financial scandals may raise doubts that this is actually the case



Old and the new swindlers

The Old Master



Charles Ponzi

The New Master



Barnard Madoff

- 1 Those who trusted these guys lost (a lot of) money, the more so the more they trusted
- 2 Their schemes probably destroyed value



Our contribution

- Focus on relation between trust and performance at the *individual level*
- Argue performance is hump-shaped with own trust
 - very trustworthy individuals will form too optimistic beliefs
=> They trust and trade too much, given the risk of being cheated (and this reduces performance)
 - un-trustworthy individuals will form overly conservative beliefs
=> They trust and trade too little, losing profitable opportunities as a result



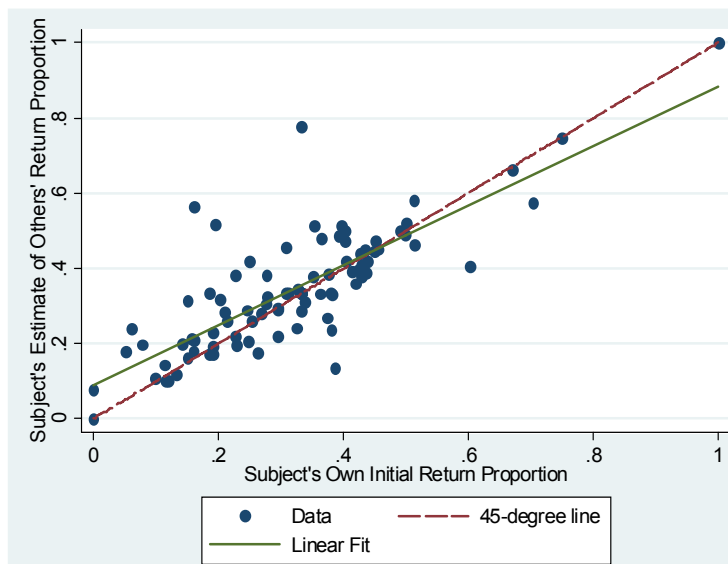
Where is this heterogeneity coming from?

- **From culture:**
 - different parents may teach different priors to their kids (Guiso, Sapienza and Zingales, 2008) and instilled priors persist
- **From culture and psychology:**
 - “False consensus effect” (Ross, Green and House (1977)) => individuals extrapolate others’ trustworthiness from their own trustworthiness and the latter differs (parents teach different values)
- *... You can sit in your armchair and try to predict how people behave by asking yourself how you would behave if you had your wits about you (Thomas Schelling)*

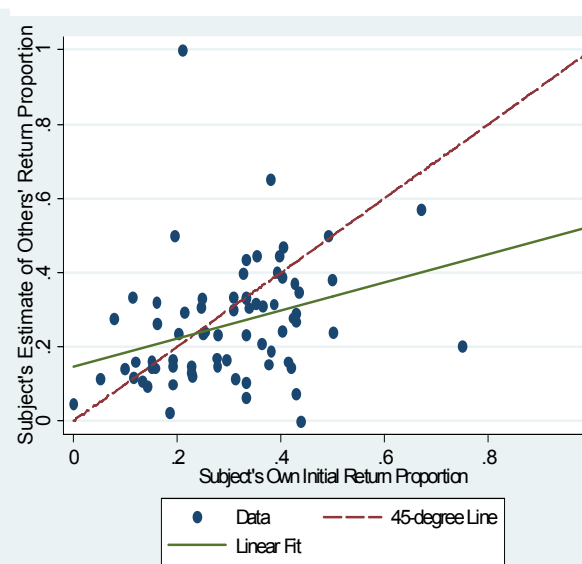


Own and expected trustworthiness

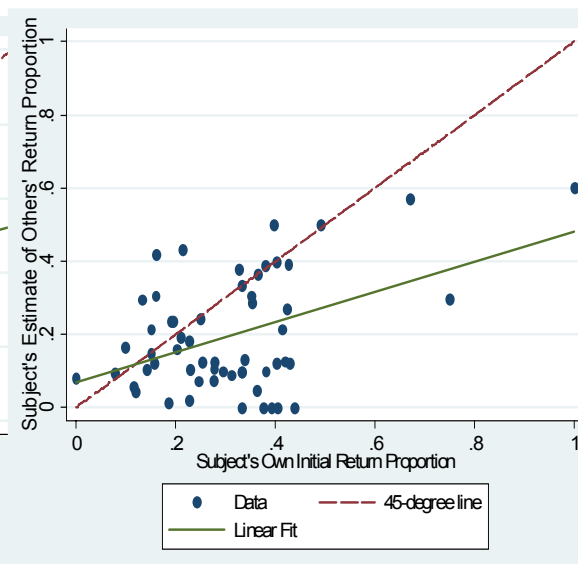
1th round



5th round



12th round



- Very strong correlation
- Does not vanish with repetition



A simple model

1. investor has capital but no ideas;
2. entrepreneur has an idea but no capital; he can cheat

E = investor endowment

S = amount investor lends

$f(S)$ = output produced if invest S

$$\gamma f(S) > S, f'(S) > 0, f''(S) < 0, f'(0) = \infty$$

$\gamma f(S)$ = amount returned by entrepreneur

π = probability of cheating

Problem

$$\text{Max}_S Y(S) = E - S + (1 - \pi)\gamma f(S)$$



Solution

$$FOC : (1 - \pi)\gamma f'(S_\pi^*) = 1$$

$S_\pi^* > 0$: optimal investment under correct beliefs

$Y(S_\pi^*)$ = income under correct beliefs

Let p be the subjective trust belief . False consensus=>

$p = g(\tau)$; τ = investor trustworthiness, $g'(\tau) > 0$

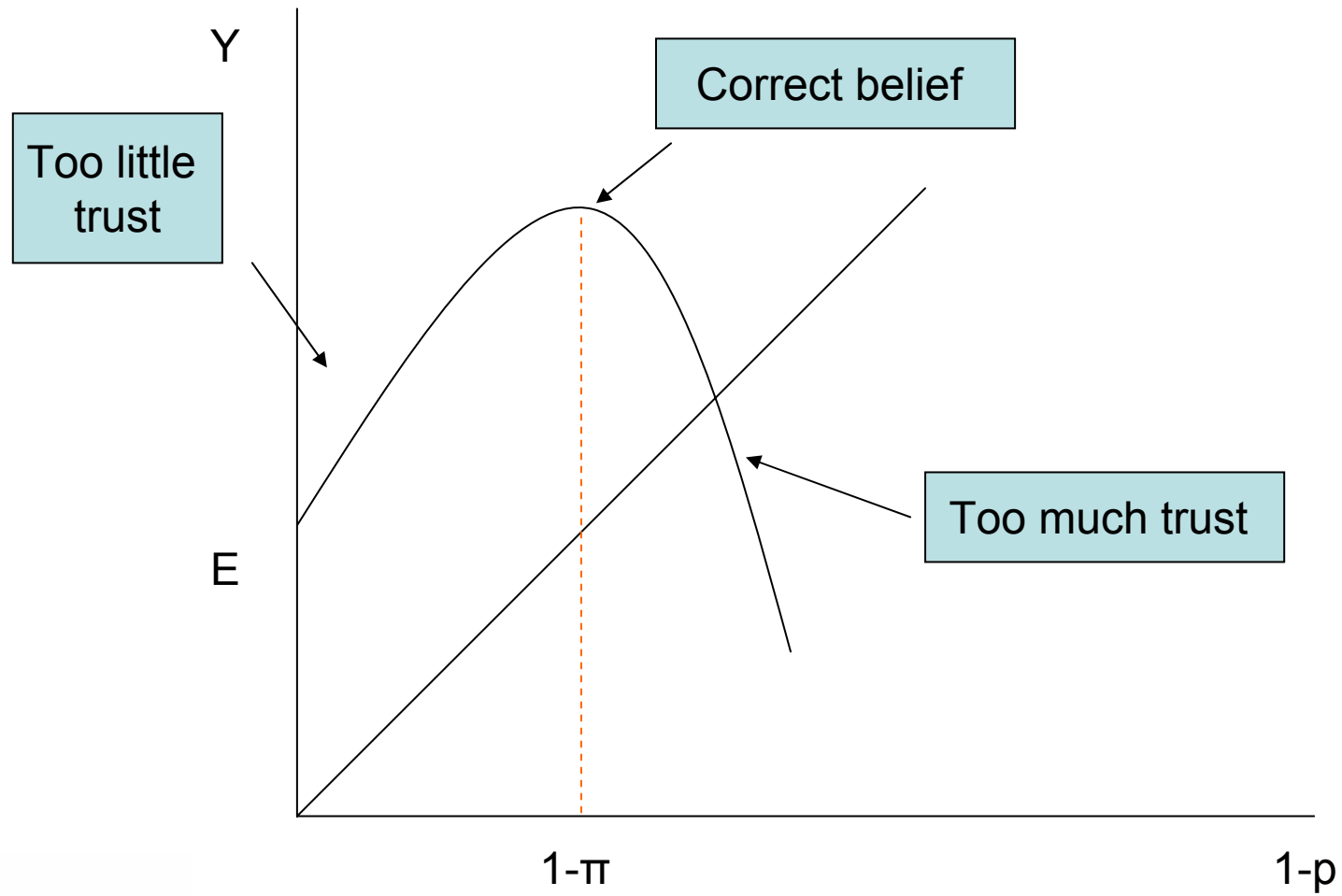
S_p^* = optimal investment under false consensus beliefs

$$Y(S_p^*) = E - S_p^* + (1 - \pi)\gamma f(S_p^*) < Y(S_\pi^*)$$

$$\frac{\partial Y}{\partial(1-p)} = \frac{\partial S_p^*}{\partial(1-p)} \left[\frac{(1-\pi)}{1-p} - 1 \right]$$



Solution: graphics



Predictions

1. Individual performance should **pick at intermediate trust** and be lower for low and very high trust
2. **Pick more to the right in high-trust countries**
3. More **trusting people** more **likely to be cheated**
4. **Less trusting people** more **likely to miss profitable opportunities**



Data: Description

- European Social Survey (wave 2): data on cross-national attitudes in Europe
- Covers 26 European countries
- About 2000 randomly sampled individuals for each country (800 in less than 2-million countries)
- Standard information on household demographics

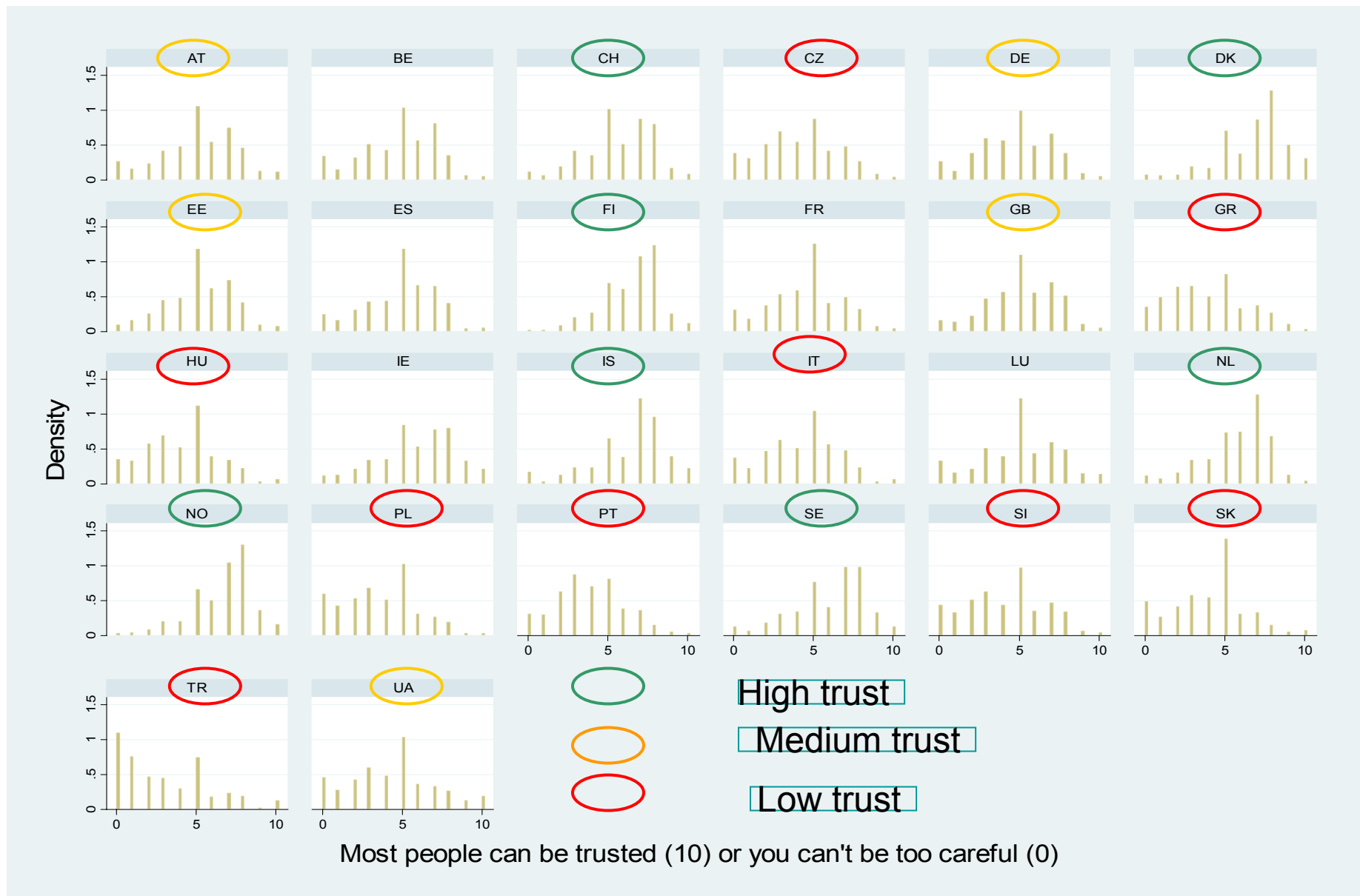


Data: Trust

- Trust is measured using the WVS question
- “ *generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?*”
 - Please tell me on a score of 0 to 10, where 0 means you can't be too careful and 10 means that most people can be trusted
- Differently from WVS (only asks a 0,1 measure), in ESS **intensity** of trust is reported => crucial to study hump



Trust Values Density Functions by Country



Data: individual performance

- **Performance** is measured with household total disposable **income** (only measure available)
- ESS asks survey participant to report which income level category best describes her household's total net income
- 12 categories are available ranging from less than 1800 euros per year to more than 120,000 euros per year
- Assign midpoint of range and take logs

[income description](#)



Trust and performance: evidence

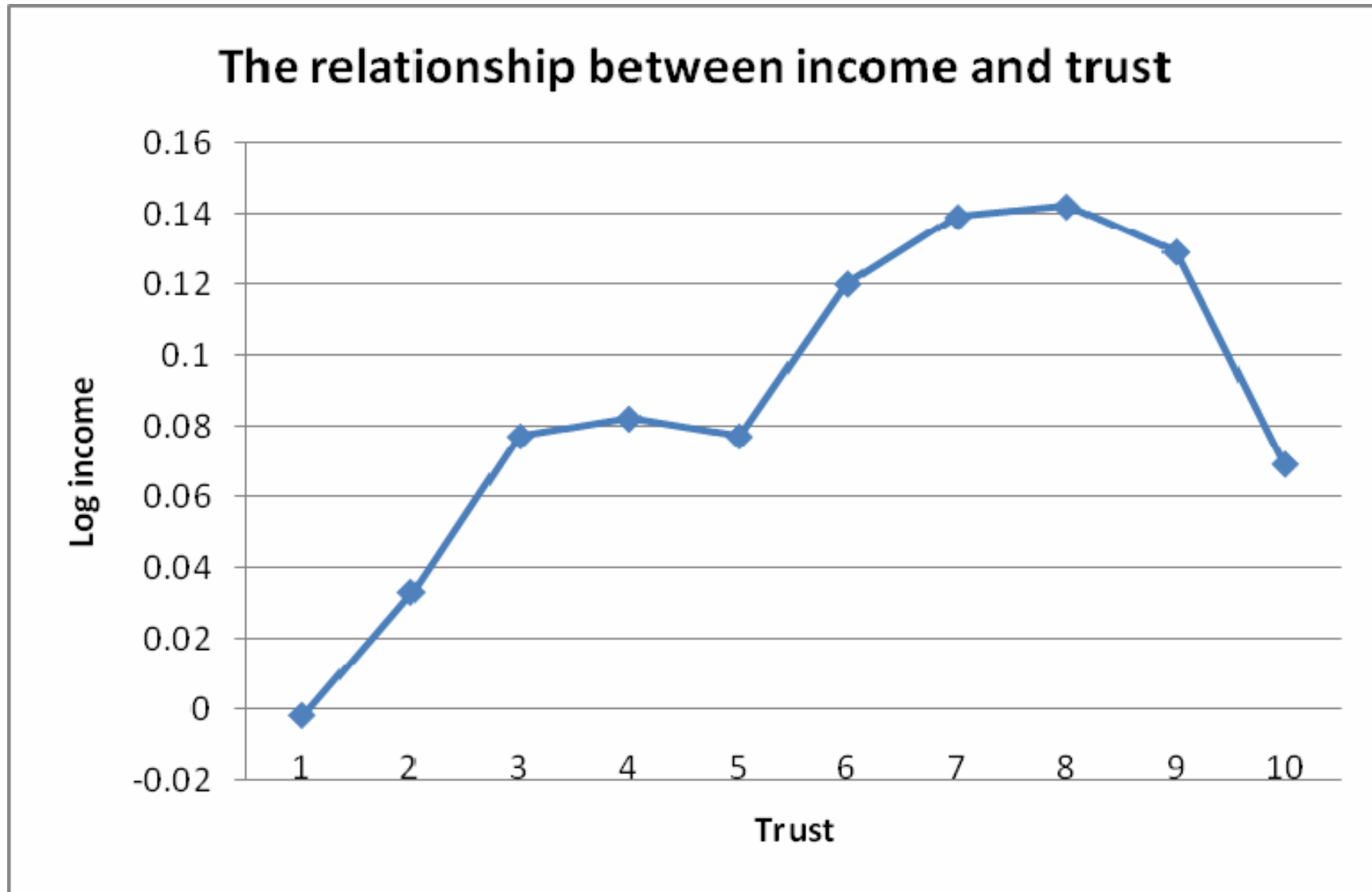
- **Regress** log income on 10 trust-level dummies: excluded group lowest trust level
- **Controls**: age, education, gender, marital status, parents education, immigrant, employment status
- **Control** for risk aversion and altruism
- Full set of **country effects** → absorb systematic differences in average actual trustworthiness and any other relevant country-level effect
- Full set of **regional effects** → absorb systematic within country differences in trustworthiness



The trust-performance **relation**

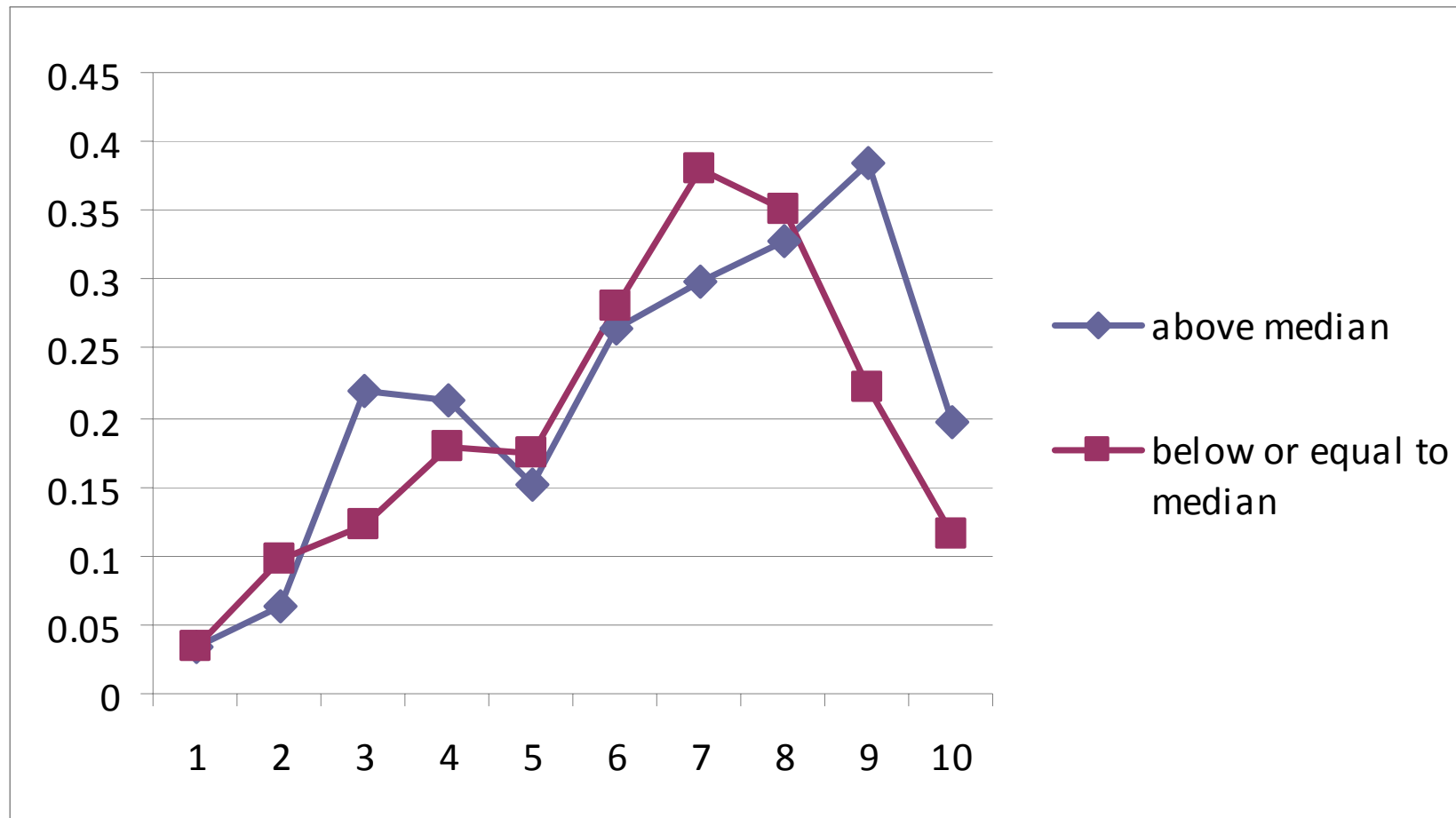
	Demographics	+risk aversion	+ altruism
Trust 1	-0.000	-0.002	-0.008
Trust 2	0.027	0.033	0.022
Trust 3	0.067***	0.077***	0.072***
Trust 4	0.081***	0.082***	0.073***
Trust 5	0.075***	0.077***	0.073***
Trust 6	0.114***	0.120***	0.113***
Trust 7	0.132***	0.139***	0.130***
Trust 8	0.135***	0.142***	0.135***
Trust 9	0.125***	0.129***	0.123***
Trust 10	0.062***	0.069***	0.066***
Risk aversion		0.015***	0.014***
Altruism 1			-0.016***

The Trust-Income relation



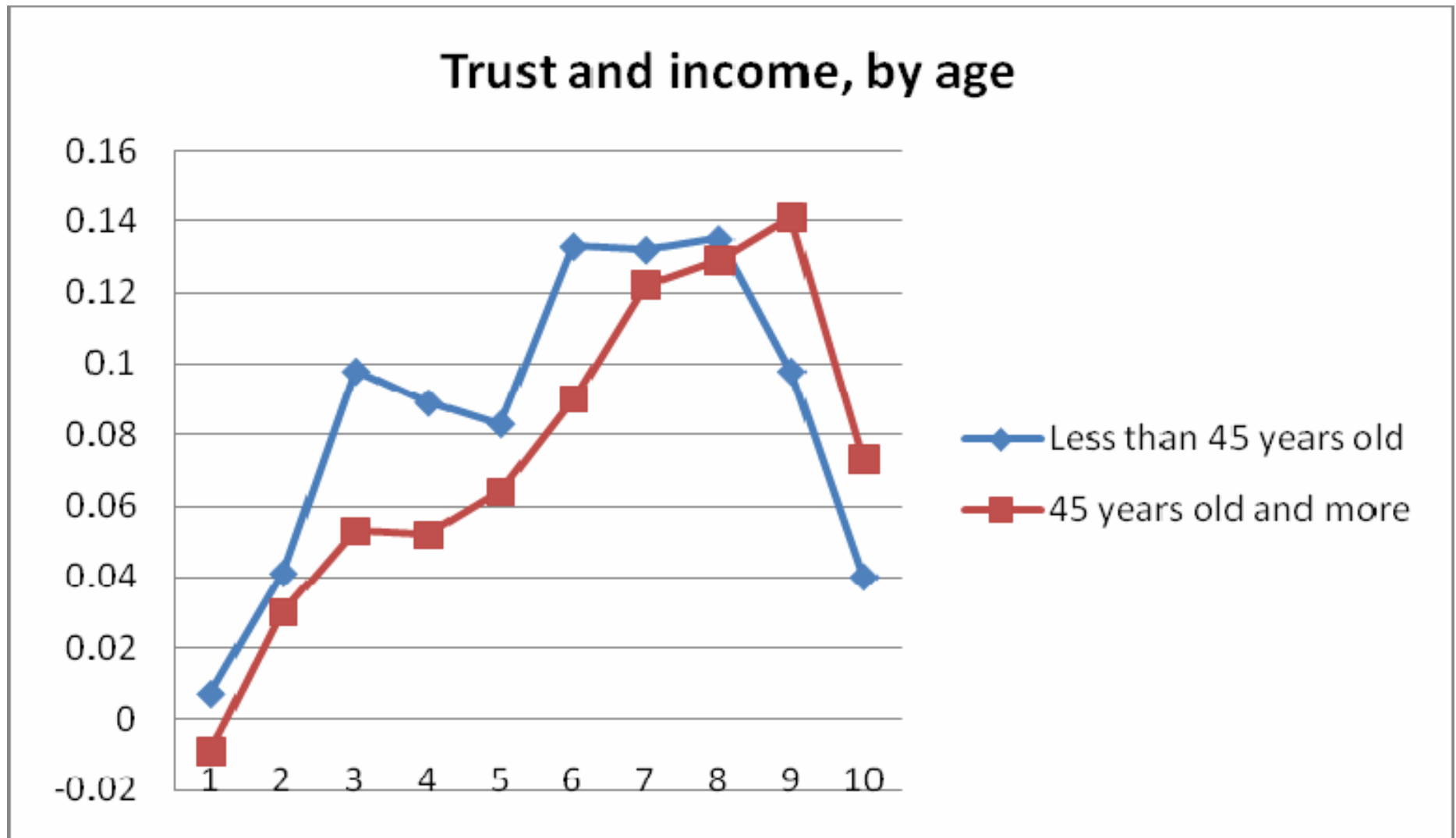
experiment

It picks earlier in low trust countries

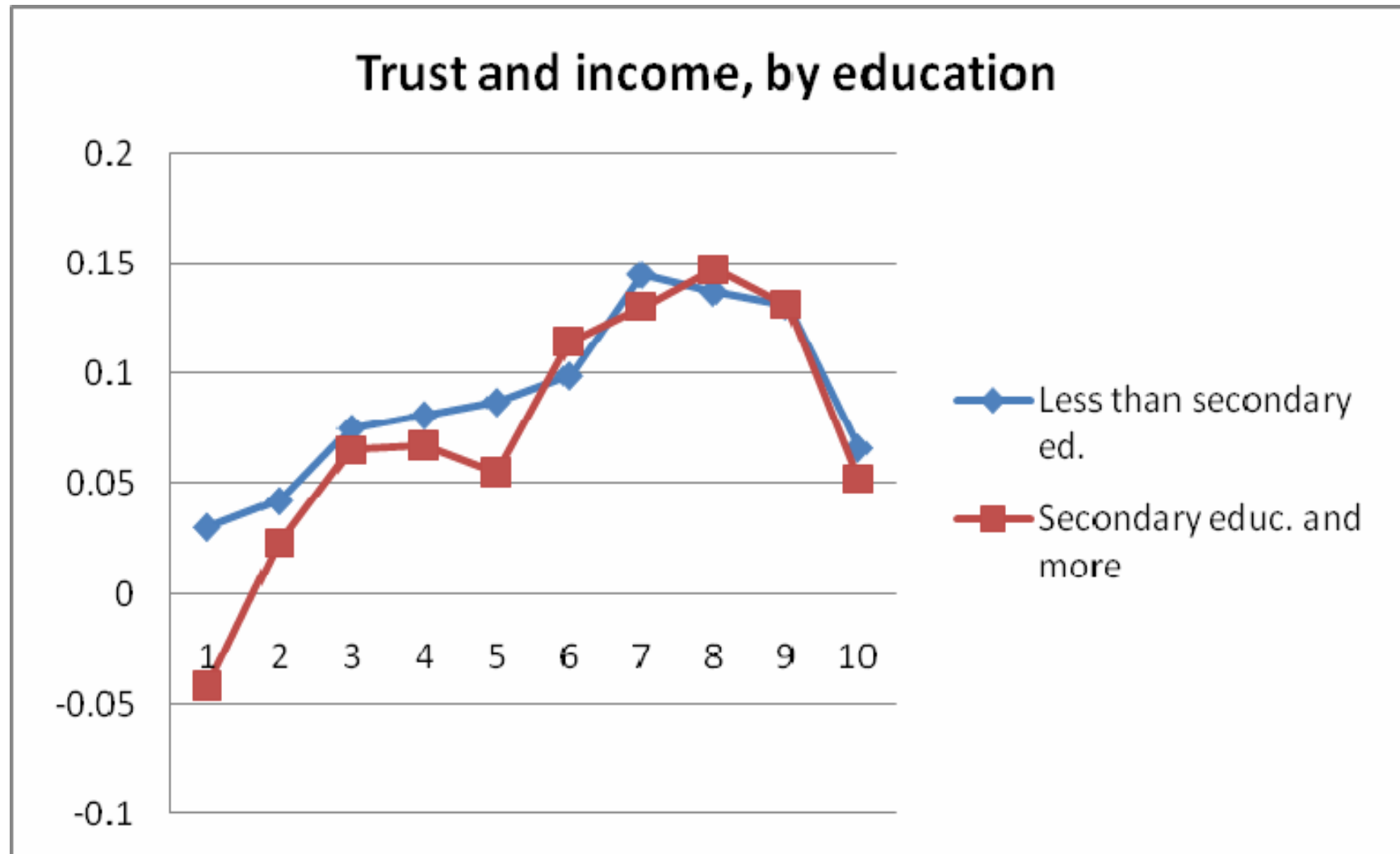


... consistent with simple model

Does not vanish with experience



...nor with education



Trust and performance: comments

- Unlikely to be driven by reverse causality
 - If more income generates more trust, can explain rising portion but not falling one
 - If it implies less trust, can explain falling portion not rising one
- Effects economically important Compared to the pick
 - A trust of 2 => an income 11 percentage points lowers than pick income
 - A trust of 10=> an income 8 percentage points lower than pick income

[Histogram trust](#)



Digging deeper into mechanism

- Too much trust hampers performance because exposes one to:
 - Larger losses if cheated
 - Higher chances of being cheated (GSZ)
- Too much mistrust hampers performance because causes individuals to miss profit opportunities
- We have info on whether and how often individual is cheated, not on missed opportunities

Test whether chances of being cheated increase with trust



Data on cheating experience

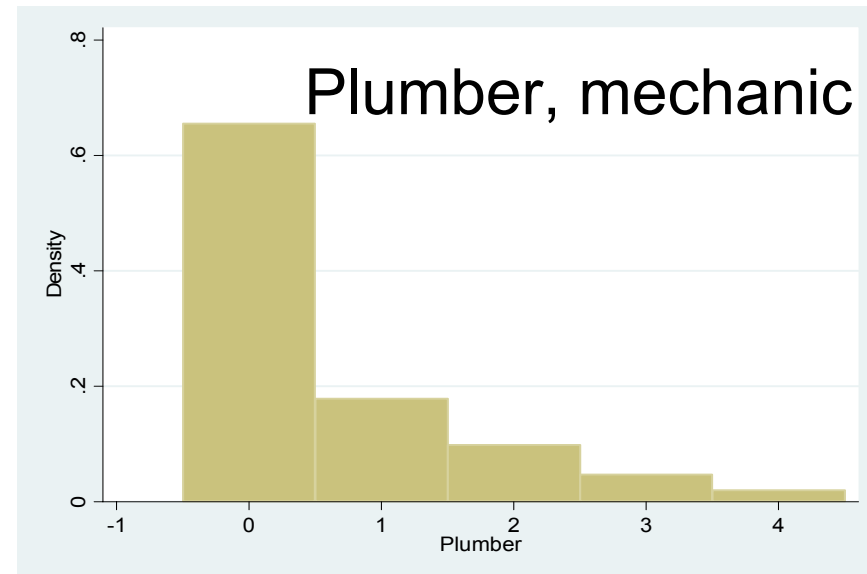
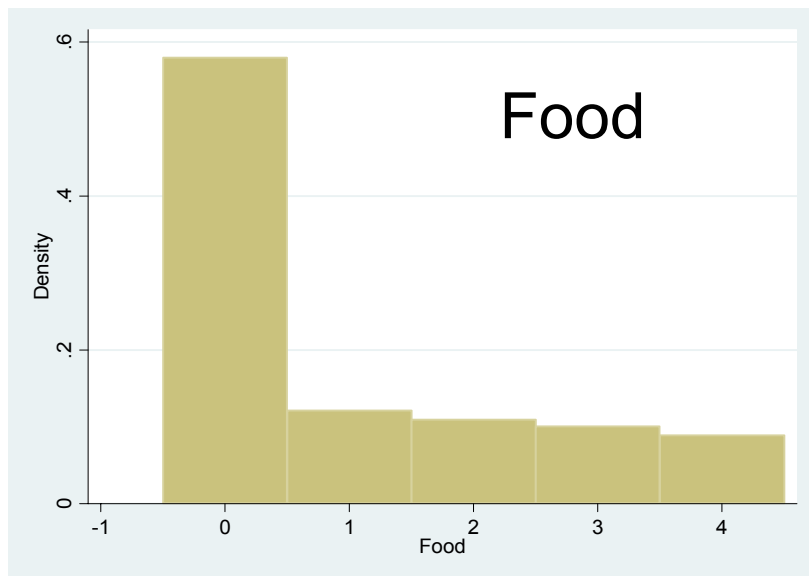
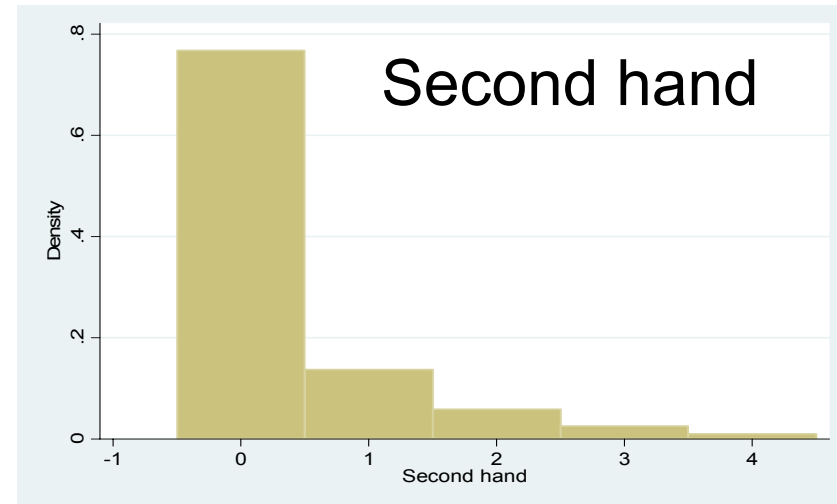
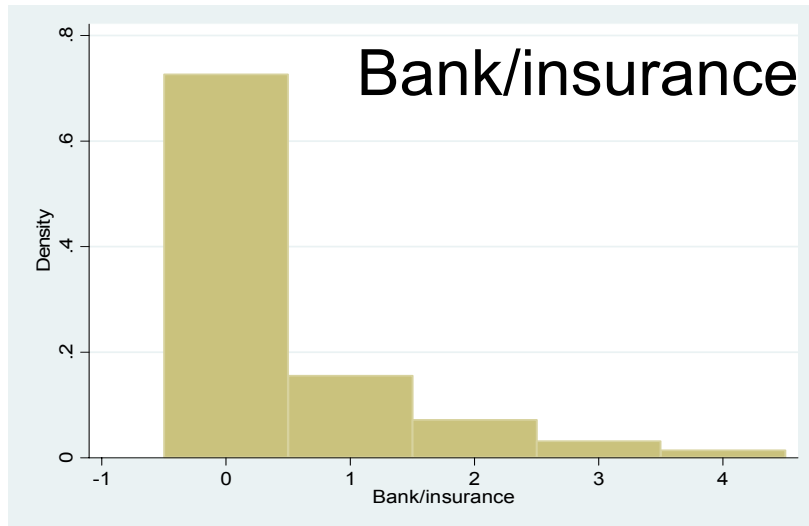
“How often, if ever, have each of these things happened to you in the last five years?”

- A. “A bank or insurance company failed to offer you the best deal you were entitled to”
- B. “A plumber, builder, car mechanic or other repair person overcharged you or did unnecessary work”
- C. “You were sold food that was packed to conceal the worse bits ”
- D. “You were sold something second-hand that quickly proved to be faulty”

1 Never; 2 Once; 3 Twice; 4 3 or 4 times; 5 5 times or more



Cheating distributions



Trust and cheating

- Problem when testing effect of trust on chances of being cheated: people learn and if cheated revise prior downwards
 - ⇒ Learning biases towards finding a negative relation
 - ⇒ Account for this with IV. Two instruments
 - ⇒ Important to behave properly
 - ⇒ Important to be loyal to friends and devote to people close
 - ⇒ Both imply higher trustworthiness and thus more trust (under FC)

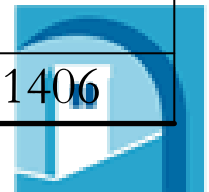


Trust and cheating: first stage

Important to behave properly	0.062***
Loyalty	0.060***
<i>F</i> statistics- first stage	16.65
Observations	33,771

Trust and cheating: IV estimates

	Bank Insurance	Second hand things	Food	Plumber, builder, mechanic, repairer	Times being cheated
Trust	0.375***	0.129*	0.732***	0.144***	1.171***
Risk aversion	-0.007	0.014 ***	0.031***	-0.010***	0.004
Age	0.021***	-0.001	0.026***	0.019***	0.064***
Male	0.122***	0.086***	-0.166***	0.098***	0.152***
Immigrant	0.025	0.061***	0.025	0.050*	0.119
Primary	0.019	0.050**	-0.014	-0.054	0.050
Secondary	0.063**	0.039**	0.013	-0.031	0.139
Income	-0.002	-0.008	-0.026*	0.017	-0.020
Hansen <i>J</i> statistics	0.137	0.002	0.465	0.439	0.382
<i>F</i> statistics- first stage	17.48	16.65	17.20	19.65	110.03
Observations	33771	36740	37641	36156	31406



Trust & cheating: effects

A one SD increase in trust:

- Raises the n. of times one is cheated by a plumber by **60%** of sample mean and that when buying second hand by **85%**
- Increases n of times one is cheated when buying food by **1.7 times** the mean
- **Doubles** n of times one is cheated by a bank



Persistence

- How persistent effect of trust on cheating?
 - Experiment suggest tendency to extrapolate beliefs from own is persistent, but:
 - repetitions in experiments are limited
 - time too short
 - In real life lots of interactions and lots of opportunities to learn. Does it vanish?
 - exploit information on country of origin of sample participants and variation in trust across countries
1. If FC persistent, immigrants from high trust countries more likely to be cheated than immigrants from low trust countries
 2. Effect may differ between first and second generation



Persistence: the evidence

	(1)	(2)	(3)	(4)	(5)
	Bank Insurance	Second hand Things	Food	Plumber, builder, mechanic, repairer	Times being cheated (sum)
Trust c.o. *first generation	0.232**	0.105	0.657**	0.243*	1.322**
	(0.109)	(0.144)	(0.233)	(0.158)	(0.420)
Trust c.o.*second generation	-0.020	0.179	-0.253	-0.107	-0.512
	(0.206)	(0.220)	(0.192)	(0.257)	(0.598)

Freeing oneself from FCE can take as long as one generation=> an additional reason why immigrants may have a hard time



Reconciling micro **and macro**

- **Macro data:**
 - trust and aggregate performance monotonically positive
- **Micro data:**
 - Performance picks at intermediate levels of trust
- **Reconciliation:**
 - Micro evidence shows the distributional consequences of wrong beliefs;
 - Macro evidence the value-creation effects
- Consistent if investors resources are productively invested rather than used to attract other investors through a Ponzi scheme



Conclusion

- Mis-calibrated trust beliefs can be individually costly
 - Too little trust protects against social risk but at the cost of giving up opportunities
 - Too much trust over-exposes to cheaters and cause losses
- How large are these costs?
- Madoff case suggests they can be substantial as 50 billion dollars is as much as 0.4% of US GDP
- But actual cost could be much larger if Paul Krugman suspect that the whole financial industry may be a huge Madoff economy was right!

