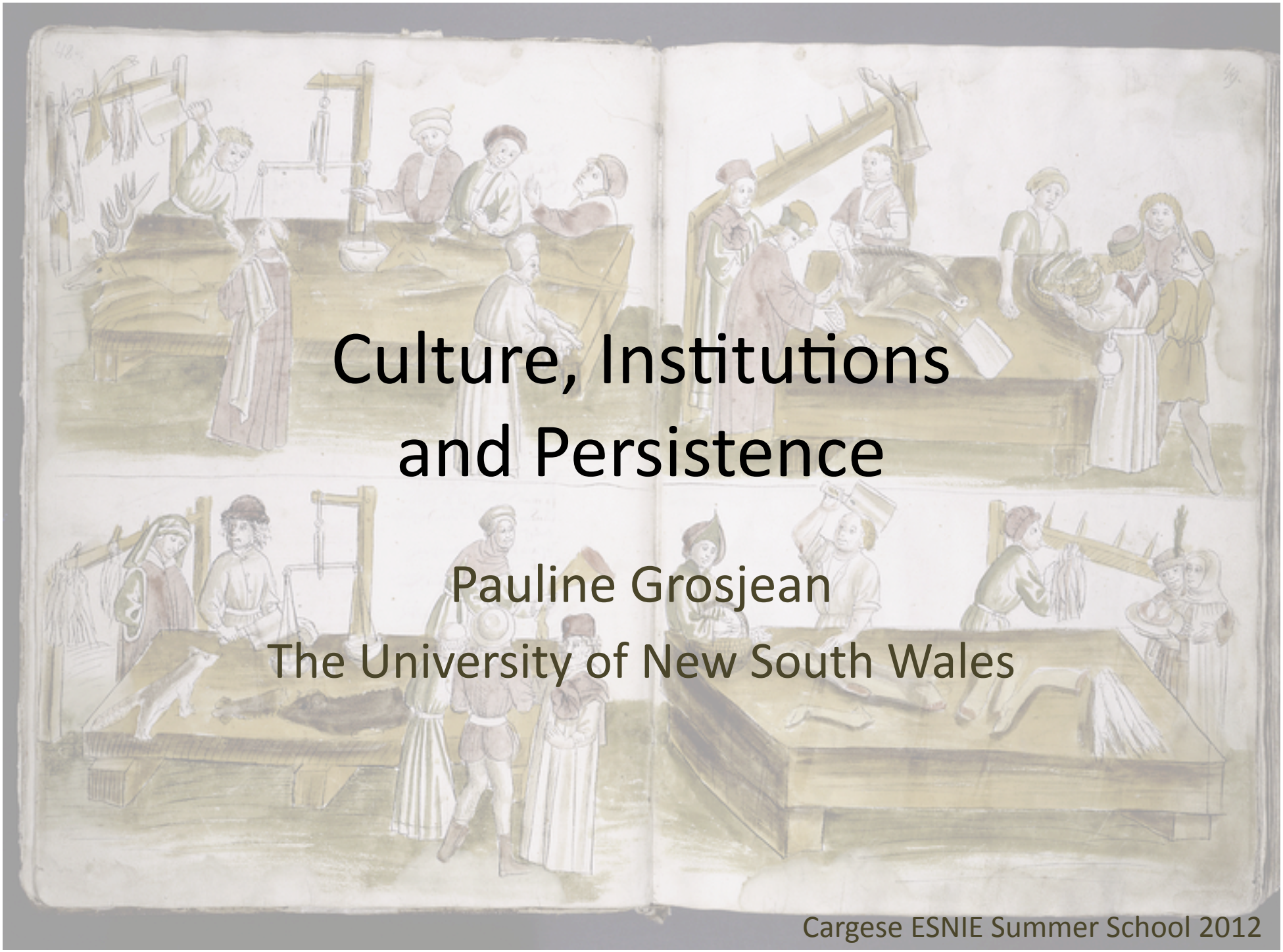

Culture, Institutions and Persistence

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Cargese ESNIE Summer School 2012

Outline

I. The Persistence of History through Domestic Institutions
II. Culture as a Channel of Historical Persistence
    I. Definition
    II. Identification
    III. Evidence
III. The Interplay of Culture and Institutions
    I. Theoretical Model: Tabellini QJE 2008
    II. Empirical Agenda and Studies

I. History Matters
Domestic Institutions as a Channel of Persistence

- Seminal empirical contributions
  - La Porta, Lopez de Silanes, Shleifer and Vishny (1997, 1998): legal origins, investor rights and financial development
  - Acemoglu, Johnson and Robinson 2001: importance of historic institutions for current economic development. Growth promoting institutions vs. rent-seeking extractive institutions
  - Engerman and Sokoloff (1997, 2002): initial differences in endowments -> slavery -> subsequent evolution of domestic institutions to protect elite
- Other evidence on domestic institutions as source of persistence:
  - Acemoglu et al. (2005): the "rise of Europe", (2011): the French revolution
  - Colonial institutions: Banerjee and Iyer (2005): tax collecting institutions in India, Dell (2011): *mita*
  - Gennaoili and Rainer (2007): pre-colonial Empires and public goods provision Africa

I. History Matters
Domestic Institutions as a Channel of Persistence

- Identification:
  - Regression Discontinuity: Dell (Ecma 2011). The issue: mechanism and external validity
  - Instrumental Variables. The issue: exclusion restriction
    - Legal origins associated with contract enforcement, military conscription…
- Role of culture: Settlers also took their values and beliefs with them: role of culture in shaping early institutions. David Hackett Fischer 1989: *Albion's Seeds: Four British Folkways in America*

II. Culture as a Channel of Historical Persistence
II.I. Definition of Culture

- "those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation." (Guiso, Sapienza and Zingales JEP 2006)
  - Working definition: Differences in culture as systematic variation in beliefs and preferences across time, space, or social group

  … "and the social norms and behavior derived from those beliefs"
  - Social capital as "good" culture (GSZ 2008): set of beliefs and values that facilitate cooperation

⇒ *Evolution: vertical (parental) and horizontal (peer groups) transmission*

- "Decision making heuristics or 'rules of thumb' that have evolved given our need to make decisions in complex and uncertain environments" (Nunn 2012)
  - If information acquisition is costly or imperfect the use of heuristics or rule of thumb decision making can arise optimally (Boyd and Richerson 2005
  - Benefit of "fast and frugal" may outweigh cost of imprecision in many environments

⇒ *Evolution: costs and benefits of different traits in different environments*

II. Culture as a Channel of Historical Persistence
II.II. Identification

- First task: Identification: does culture matter?
- 2 strategies:
  - Differences across groups that were brought into the same environment
    - Fisman and Miguel (2007): culture of corruption using parking violations among foreign diplomats in NY
    - Barr and Serra JPE (2010)
    - Fernandez and Fogli (2007, 2009): fertility and FLP among migrants to the US
  - Bring same (artifactual) environment to different groups:
    - Henrich et al. (2005, 2010): conduct ultimatum game in 15 small scale societies across the world
    - Jakiela (2011)

II. Culture as a Channel of Historical Persistence
II.III.A. Evidence from Africa's slave trades

- Long term impact of Africa's slave trades on contemporary trust: Nunn and Wantchekon 2011
- Estimates of number of slaves taken from each ethnic group between 1400 and 1900
- 2005 data on trust from Afrobarometer
- Negative relationship between individual trust in others and intensity of slave trades among their ethnic group

II.III.A. N&W 11: Persistence of slave trades Identification

1) **Selection on observables:**
   - Individual, district (inc ethnic fractionalization) and ethnic controls (initial conditions and colonial rule, disease environment)
   - Country fixed effects
2) **Gauge omitted variable bias on basis of selection on observable**
   - Compare coefficients with full set of controls (*F*) and no controls (*R*)
     $\hat{\beta}^F \Big/ \left(\hat{\beta}^R - \hat{\beta}^F\right)$
3) **Selection on unobservables:** IV: historic distance between the geographic location of ethnic groups and the coast as an instrument for the number of slaves taken from that group, while controlling for contemporaneous distance
4) **Falsification tests**

II.III.A. N&W 11: Persistence of slave trades Channels of Causality

- 2 possible mechanisms: 1) Culture and 2) Institutions

1) Internal: Slave trade affected cultural norms of the descendants of those exposed to slave trade, making them less trusting
2) External: long-term deterioration of (local) domestic institutions

- Identification:
  - Control for observables: quality of local institutions, trustworthiness of others
  - Include ethnicity-based (to capture internal norms) versus location-based (to capture external norms) slave export variables
- Gauge relative importance of culture versus institutions: Internal measure (culture) ~ twice effect of external measure (institutions)
- However: Institutions influenced endogenously by culture…

II. Culture as a Channel of Historical Persistence
II.III.B. Evidence from historical US migration

- Identity of early migrants important for subsequent development of particular location
- Cohen and Nisbett (1996): "culture of honor" rooted within economic differences in settlers' occupations:
  - US South settled by herders: "people from the fringes of Britain" and most particularly the "Scots-Irish"
- Grosjean (2011): variation across counties based on historical US Census and contemporary crime data
- Scots-Irish settlers associated with higher contemporary homicide rates, especially in areas where herding most prevalent, but only in the South

II. Culture as a Channel of Historical Persistence
II.III.B. Evidence from historical US migration

- Identification:
  - Selection on observables: slavery, contemporaneous determinants of crime
  - Assessment of omitted variable bias
  - Falsification tests:
    - relationship for other settlers? No.
    - Other type of crime? No
- Mechanisms of Cultural Persistence: Cultural trait transmitted only in certain areas where low quality of formal institutions (measured by historic population density, historic quality of judicial and political institutions)
- Suggestive that historical persistence may depend on interactions between culture and institutions
  - substitutability between formal law enforcement and a culture of violence
- … but causality difficult to establish since institutions influenced by culture of early migrants

Institutions and Culture: Open Questions

- How do culture and institutions interact?
- What is the effect of formal institutions on culture?
- Are they complements or substitutes?
- How do they co-evolve?

III. The Interplay of Culture and Institutions
III.I. A Theoretical Model: Tabellini QJE 2008

- Individuals randomly matched (pairs) on a circle
- Matched with another located at distance *y* with proba *g(y)*
- Observe distance *y* and play a prisoner's dilemma

	C	**NC**
C	*c, c*	*h-l, c+w*
NC	*c+w, h-l*	*h, h*

l≥w

- Non economic benefit of playing C: $de^{-\theta y}$
  - Non eco benefit decays at exponential rate with distance
- Two types of players: *k=0,1*. k=1: trustworthy, good: $\theta^1 < \theta^0$
  - Trustworthiness unobservable
  - Fraction of "good": n

III.I. Tabellini QJE 2008
Equilibrium

$\pi(y)$: Proba that partner plays *C*

Net expected material gain of playing NC rather than C: $T(\pi(y)) = [l - \pi(y)(l - w)] > 0$

Strategic complementarity: *T(.)* decreasing in $\pi(y)$

Type *k=0,1* indifferent between C and NC with someone at distance y if:

$$T(\pi(\tilde{y}^k)) = de^{-\theta^k \tilde{y}^k}$$

$$\tilde{y}^k = \left\{\ln d - \ln\left[(w - l)\pi(\tilde{y}^k) + l\right]\right\} \Big/ \theta^k$$

Need to pin down $\pi(y)$ for all possible values of *y.* Restrict attention to Pareto superior equilibrium (with most optimistic expectations). If expect $\pi(y)$=1, 'bad' player k=0 plays *C* up to distance:

$$Y^0 = \left[\ln d - \ln w\right] / \theta^0$$

Good player also plays C up to *Y0*, and then plays *C* only if expect a good partner, with proba $\pi(y) = n$. Upper threshold of cooperation for good player:

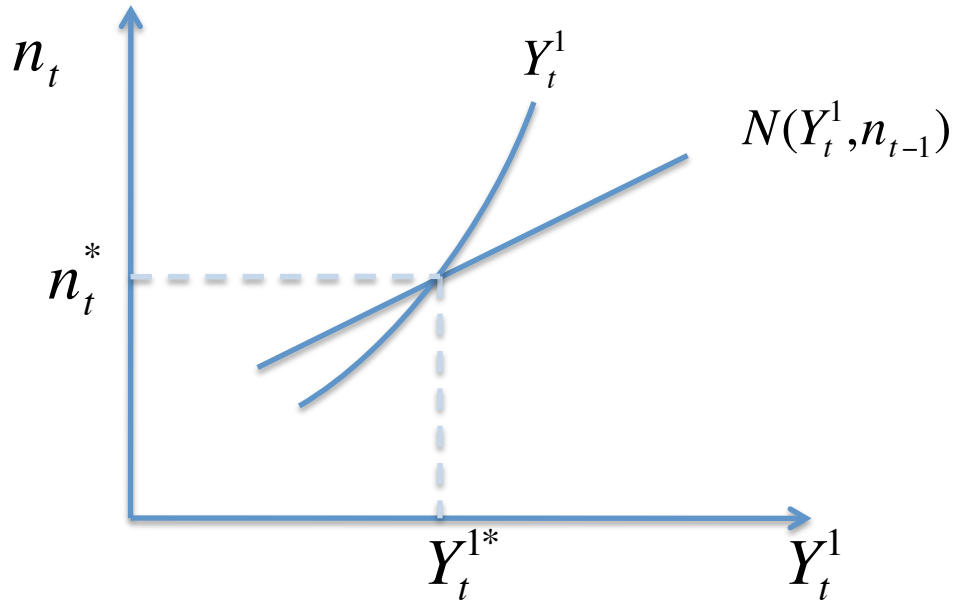
$$Y^1 = Max\left\{\tilde{y}^1 = \left\{\ln d - \ln\left[(w - l)n + l\right]\right\} \Big/ \theta^1, Y^0\right\}$$

- increases in n (straegic complemetarity)
- w and l reflects quality of institutions: Better external enforcement entails smaller benefit of cheating and smaller loss from being cheated, and hence larger scope for cooperation

III.I. Tabellini QJE 2008
Endogenous Values

- Whether an individual is of type *k=0,1*: result of nature draw (δ) and parental influence (λ).
- Imperfect empathy (Bisin and Verdier 2001): parents evaluate their kids' expected welfare with their own preferences. *Backward looking behavior, generates hysteresis in cultural evolution*.
  - Lemma 2: a parent always prefers a child of her own type
  - Corollary 3: a good parent exerts effort, a bad, none
- Parental education increases probability that the kid becomes good. Endogenous evolution of fraction of 'good' people: $n_t=\delta+\lambda n_{t-1}$
- Optimal choice of effort: trade off:
  - Increasing kid's trustworthiness hurts her material payoff (cheated more)
  - Brings non economic benefit to parent
- Eq Effort $F(Y_t^1)$ strictly increasing in Y_t^1

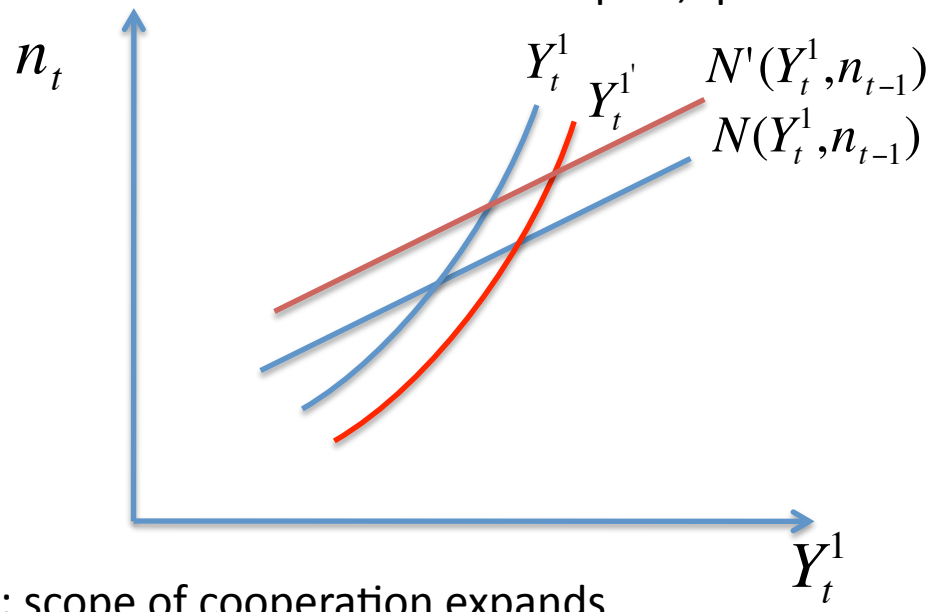
III.I. Tabellini QJE 2008
Equilibrium with Endogenous Values



- Multiple equilibria possible: complementarity between values and cooperation in both strategic interactions: among parents when choosing education and among kids when playing the matching game

- **External Enforcement** – Improvement in legal institutions: Better enforcement in distant matches

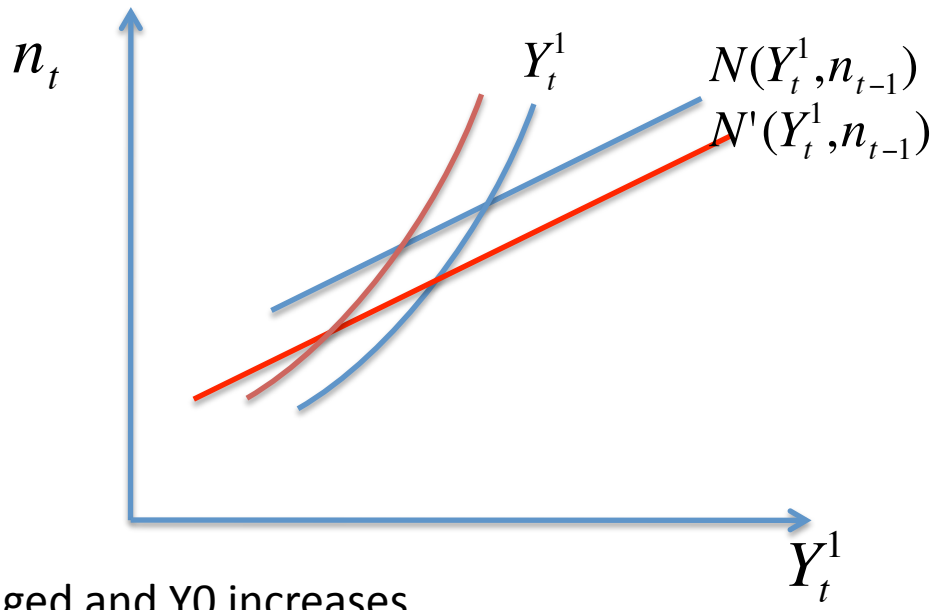
- Probability of detection of cheating: *q(y)*
- Better enforcement of distant matches: q1>0, q0=0



- Shift of Y1: scope of cooperation expands
- Parents then increase effort: shift of N
- Further increases scope of cooperation until new equilibrium with more cooperation and larger fraction of trustworthy people:
- Cultural forces and economic incentives have self-reinforcing effect. Improvement in legal institutions has long lasting effects through educational choices of parents

- **External Enforcement** – Improvement in informal institutions: Better local enforcement

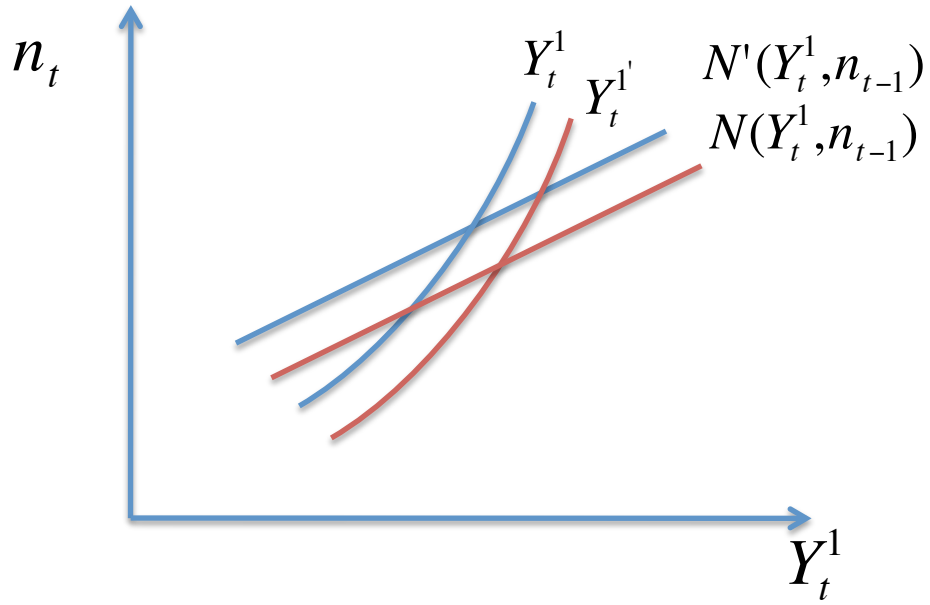
- Better local enforcement (informal institutions): lower q0 q1 (and Y1) unchanged



- Y1 unchanged and Y0 increases.
- Differences between bad and good types shrink => parents put less effort and N shifts down
- Good players have less incentives to cooperate because less of them around => Y1 shifts down

Better uniform Enforcement

- Both curves shift to right



- Better enforcement increases Y1-Y0 => more parental effort
- But improvement in Y0 reduces the opportunity cost of having a bad kid
- Net effect on education and values ambiguous

Tabellini 08: Conclusion

- Improvement in legal institutions (distant matches) crowds in better values and encourages diffusion of generalized morality
- Improvement in informal local institutions (when formal legal institutions weak) crowds out better values and discourages diffusion of generalized morality (amoral familism instead)
- Also models the endogenous formation of institutions through majority voting. Strong or weak enforcement chosen depends on initial conditions and parents' expectations. If expect large number of good players, effort, increase in number of good players, who may become the majority. Interdependence between beliefs and institutions (Piketty 1995)

Other theoretical references

- Piketty QJE 2005
- Guiso, Sapienza, and Zingales JEEA 2008
- Bidner and Francois EJ 2011
- Bidner and Jackson, in progress
- Jackson JLEO 2011
- Benabou and Tirole: Law and Norms NBER 2011

III. The Interplay of Culture and Institutions
III.II. Empirics: Cassar, D'Adda and Grosjean (in progress)

- Identification pb: co-determination, co-evolution of culture & institutions
- Experimental method: exogenous variation in the quality of legal institutions: impartial (IES) vs partial (PES) contract enforcement

1) Causal effect of institutions on trust, trustworthiness:
   - Identification: random allocation to different institutional environments and observe differences in trust
   - Result: impartial legal enforcement has a positive effect on trust, trustworthiness. Suggests that moral norms of cooperative behavior can result as a by-product of impartial institutions (as in Tabellini 08)
2) How do cultural traits interact with institutions and determine market behavior and efficiency?
   - Identification: hold institutions constant for people of different cultural backgrounds => identification of the role of cultural traits
   - Result: Cultural origin, initial trust and trustworthiness influence opportunistic behavior in markets, but only in absence of impartial institutions. (Substitutes).

III.II. CDG
Experimental set up

Initial trust game

Market game with no institutions (NOES) (10 rounds)

Random matching with anonymous partner each round

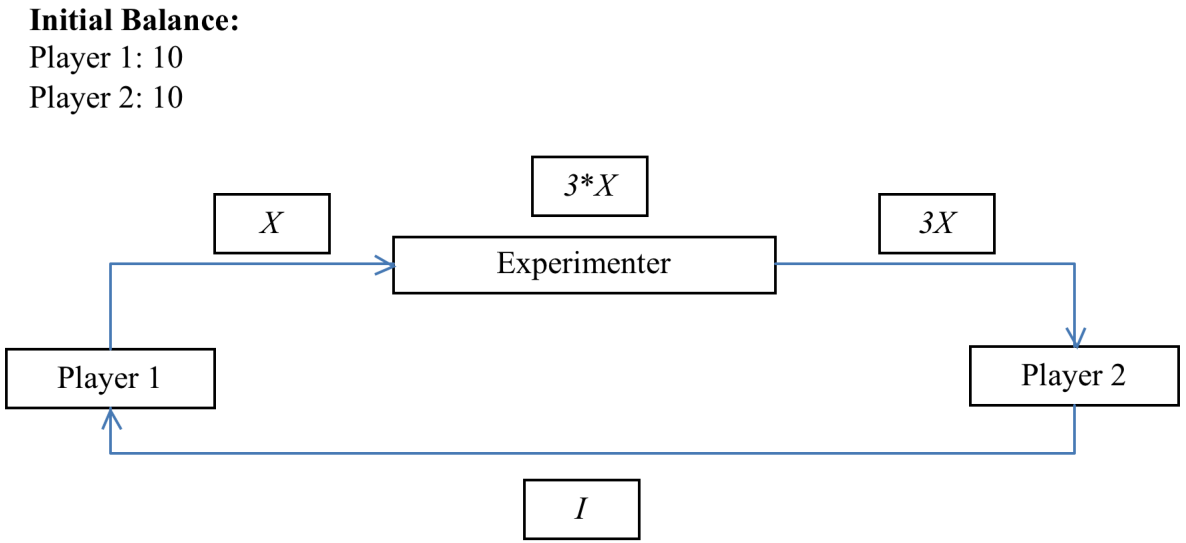
Institutional treatment 1:	**Institutional treatment 2:**
Partial Enforcement Institutions (PES) (10 rounds)	Impartial Enforcement Institutions (IES) (10 rounds)

Final trust game

Groups of 8-10. Paid or 1 of the 24 tasks, selected randomly

Trust game

- Subjects play both the role of Sender and Receiver
- No revelation of what other player did to limit correlation across tasks
- Sender can send any integer amount between 0 and 10 Euro



- Strategy method for receiver

Trading Game – No Institutions

- 3 strategies: Trade honestly, Cheat, Out (no trade at all)
- Decision taken for each of 10 rounds

	Trade	**Cheat**	**Out**
Trade	20,20	0,30	1,1
Cheat	30,0	**10,10**	1,1
Out	1,1	1,1	**1,1**

- Prisoner's dilemma
- 2 equilibria: (Cheat, Cheat); (Out, Out)

Impartial Enforcement Institutions: IES

- Subjects can take a cheating partner to court (cost: 2). Court enforces fair order: who cheats has to pay full price plus a fine of 5
- Start of each day: enroll in court; Trade honestly, Cheat, Out

Impartial Enforcement Institutions: IES

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- Start of each day: enroll in court; Trade honestly, Cheat, Out

	Court,Cheat	**Court,Hon**	**Court,Out**	**NoCourt,Cheat**	**NoCourt,Hon**	**NoCourt,Out**
Court,Cheat	13,13	15,18	1,1	13,13	30,0	1,1
Court,Honest	18,15	**20,20**	1,1	18,15	20,20	1,1
Court,Out	1,1	1,1	1,1	1,1	1,1	1,1
NoCourt,Cheat	13,13	15,18	1,1	10,10	30,0	1,1
NoCourt,Hon	0,30	20,20	1,1	0,30	20,20	1,1
NoCourt,Out	1,1	1,1	1,1	1,1	1,1	1,1

- {(Court, Trade honestly) , (Court, Trade honestly)}: Nash equilibrium
- Not unique

Partial Enforcement Institutions: PES

- Subjects can buy “protection” at a cost of 5
- Start of each day: buy protection or not; Cheat, Trade honestly, Out

Partial Enforcement Institutions: PES

- Subjects can buy “protection” at a cost of 5
- Start of each day: buy protection or not; Cheat, Trade honestly, Out

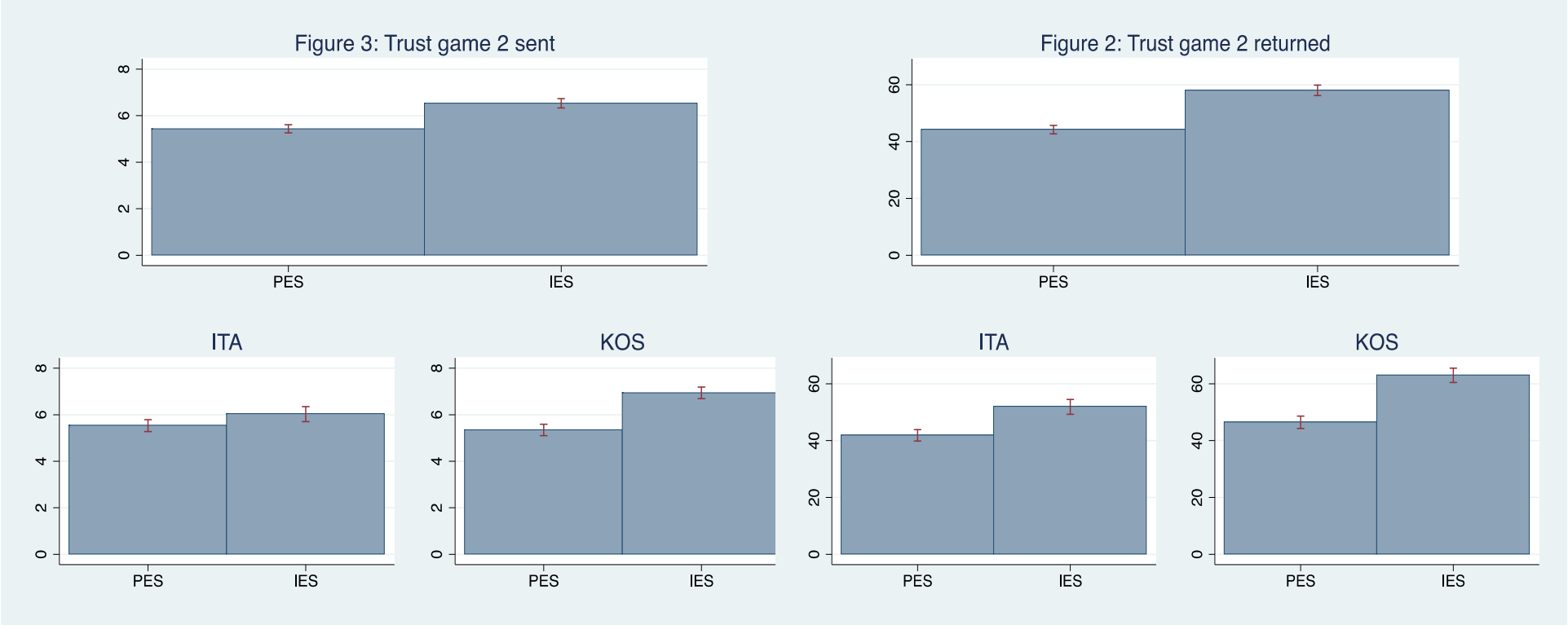
	Prot,Cheat	**Prot,Hon.**	**Prot,Out**	**NoProt,Cheat**	**NoProt,Hon**	**NoProt,Out**
Prot,Cheat	12,12	12,15	-4,-4	25,-3	25,0	-4,1
Prot,Hon.	15,12	15,15	-4,-4	15,-3	15,20	-4,1
Prot,Out	-4,-4	-4,-4	-4,-4	-4,1	-4,1	-4,1
NoProt,Cheat	-3,25	-3,15	1,-4	10,10	30,0	1,1
NoProt,Hon	0,25	20,15	1,-4	0,30	20,20	1,1
NoProt,Out	1,-4	1,-4	1,-4	1,1	1,1	1,1

- One equilibrium in pure strategy: {(No Prot, Out); (No Prot Out)}
- Many equilibria in mixed strategies

Implementation and Sample

- Artefactual field - Lab experiment in the field
- 37 sessions of 6-12 players (avg. 9.56). Majority: 10 or 8
- Recruitment:
  - 169 subjects (19 sessions) in North Italy, Sicily; 178 in Kosovo (18 sessions)
  - Italy: Producers and workers associations sent invitations to their members in Lombardia, Sicily and Liguria
  - Kosovo: random invitation every 5^{th} doorway (10 locations)
- Double translation
- Anonymity & Random re-matching
- Show-up fee: euro 5, avg. payment ~ euro 20
- Only one task chosen at random for payment

Causal Effect of Contract Enforcement Institutions on Trust and Trustworthiness: across subjects



Trust

Trustworthiness

Causal Effect of Contract Enforcement Institutions on Trust and Trustworthiness: within subject variation: First differences

Trust diff.

Trustworthiness diff.

Causal Effect of Contract Enforcement Institutions on Trust: Empirical Model

- OLS estimation (1 obs. per subject - comparison across treatments):

$$T_{2i} = \alpha + \beta D + \varepsilon_i$$

$$T_{2i} = \alpha + \beta D + \theta C + \delta X_i + \varepsilon_i$$

T_{2i} : individual behavior in 2d Trust Game (Amount sent – Amount returned)

D : treatment dummy: 0 for PES, 1 for IES

C : country dummy (potential differences in implementation, enumerators, etc.)

X_i : vector individual controls for robustness (behavior in the first trust game, age, gender, marital status, education, individual income, employment status and survey risk aversion)

- Robust standard errors clustered at session level (37 clusters) – potential correlation among individual errors of same session participants

Results – Impartial Enforcement Institutions: positive effect on amounts sent and returned in trust game

Table 2: Trust and Trustworthiness Results

OLS estimation

Dependent variable	Amount Sent						Amount Returned					
	(1)	(3)	(4)	(5)	(6)	(7)	(8)	(10)	(11)	(12)	(13)	(14)
			Sub-samples:						Sub-samples:			
			Italy		Kosovo				Italy		Kosovo	
Mean dep var	5.92		4.76		5.76		49.95		46.43		53.3	
IES	1.08***	0.71***	0.49	0.67*	1.64***	0.98***	15.72***	9.80***	12.68***	10.29*	18.64***	9.05***
	[0.28]	[0.26]	[0.41]	[0.39]	[0.38]	[0.34]	[3.04]	[3.03]	[4.86]	[6.04]	[3.70]	[3.02]
	{0.34}	{0.25}					{3.80}	{3.47}				
Kosovo	0.33	0.44					7.19**	4.58				
	[0.28]	[0.35]					[2.90]	[2.90]				
	{0.33}	{0.39}					{3.70}	{3.64}				
Amount sent in TG 1		0.60***		0.50***		0.68***						
		[0.06]		[0.11]		[0.06]						
% return in TG 1								0.73***		0.71***		0.75***
								[0.07]		[0.15]		[0.08]
Controls	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Observations	346	334	169	165	177	169	346	334	169	165	177	169
R-squared	0.05	0.39	0.01	0.30	0.10	0.58	0.09	0.39	0.04	0.28	0.13	0.62

Robust standard errors in brackets. Robust standard errors clustered at the session level (37 clusters) reported in curly brackets for main variables of interest. Individual controls: age, gender, marital status, education, employment, socio-economic status, risky lottery choice. All regression with a constant. *** p<0.01, ** p<0.05, * p<0.1.

Effect of Contract Enforcement Institutions on Trust & Trustworthiness

- 12-18% increase in amounts sent (part. significant in Kosovo)
- 20-31% increase in amounts returned
- Effect of institution outweighs regional origin, individual char.

- Within Italy, effect of impartial vs. partial institutions on trustworthiness: equivalent to 3/4ths difference Milan - Palermo
- In Kosovo: equivalent to 3/4ths difference Pristina - Mitrovica

- Robust to controlling for events in NoES (first 10 rounds)
- Results robust to Difference-in-Differences specification (within subject)

The influence of institutions on trust: Mechanism

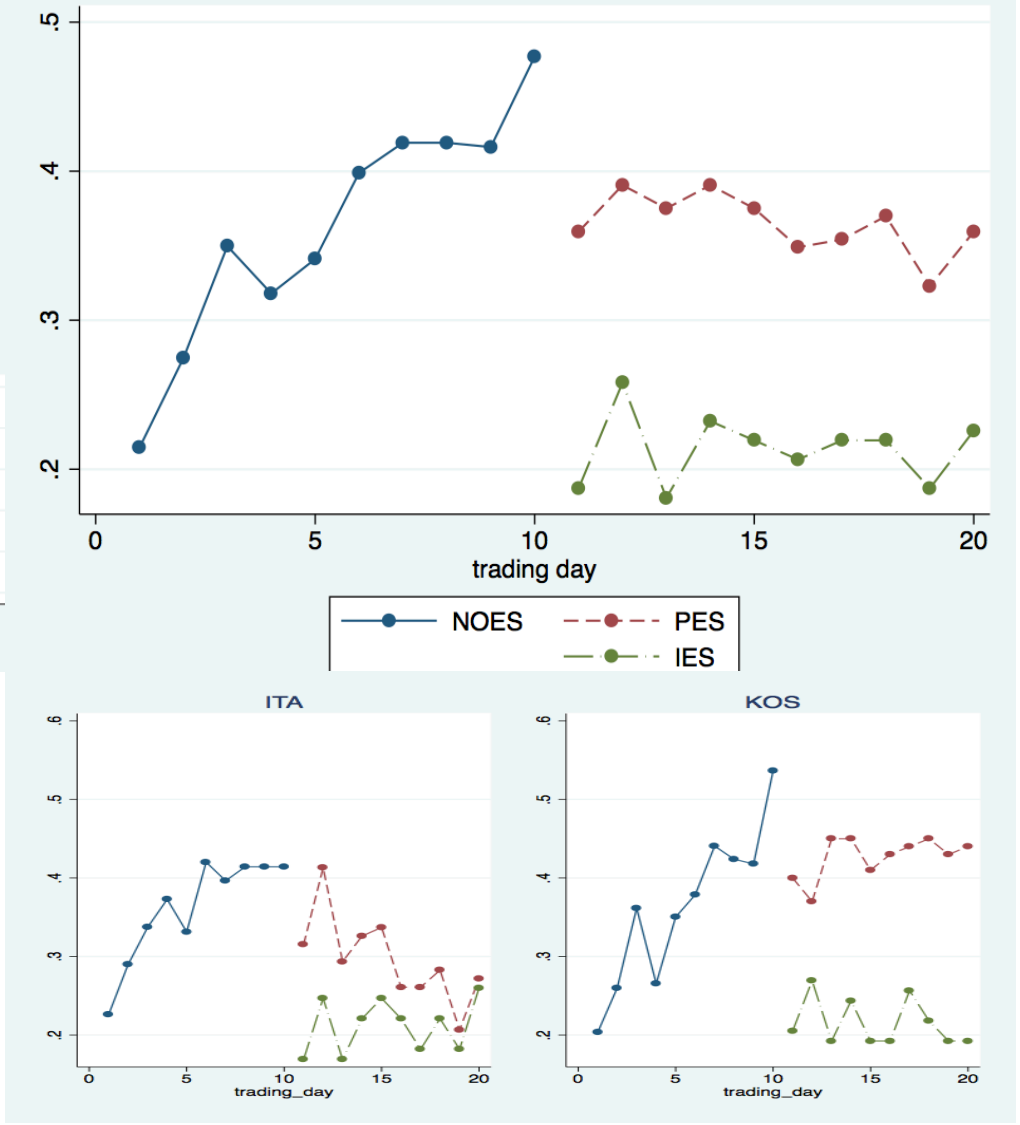
- Number of times matched with cheating partner and number of times stood up (partner out) negatively associated with evolution of trust (⇔ Number of times matched with honest trading partner positively associated with evolution of trust)
  - Institutions improve trust by reducing the costs of interacting with strangers

- Profit correlated positively with evolution of trust and trustworthiness

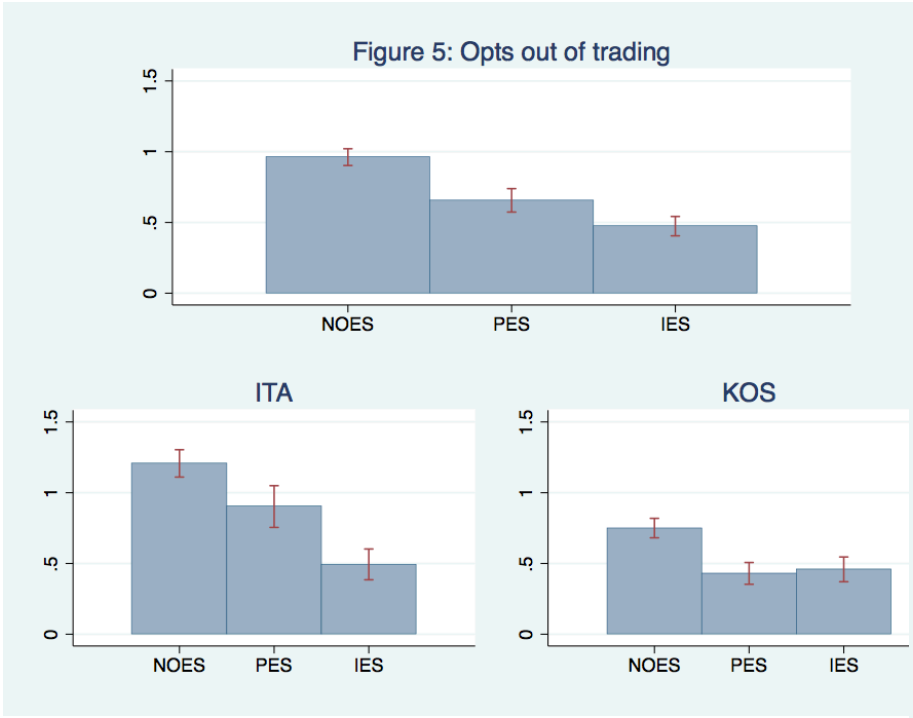
- Others' use of institutions has no significant effect

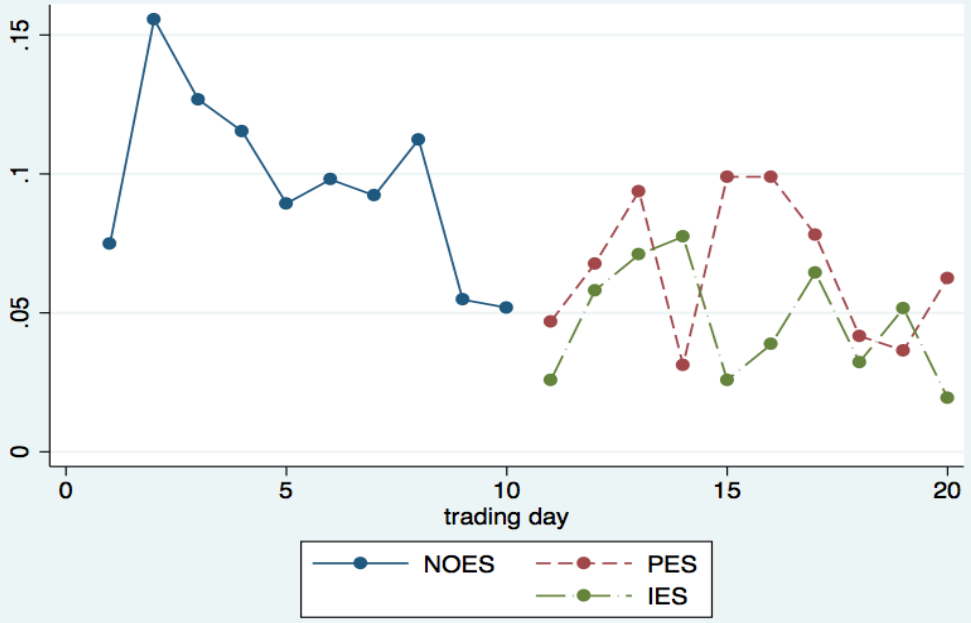
- Behavior of partner in previous NoES rounds has no effect on trust

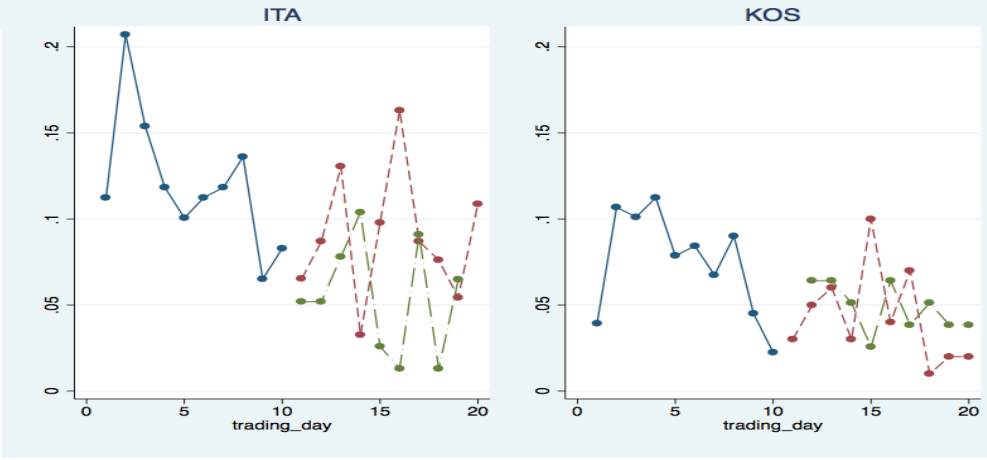
The Effect of Contract Enforcement Institutions on Opportunistic Behaviour



The Effect of Contract Enforcement Institutions on Market Participation

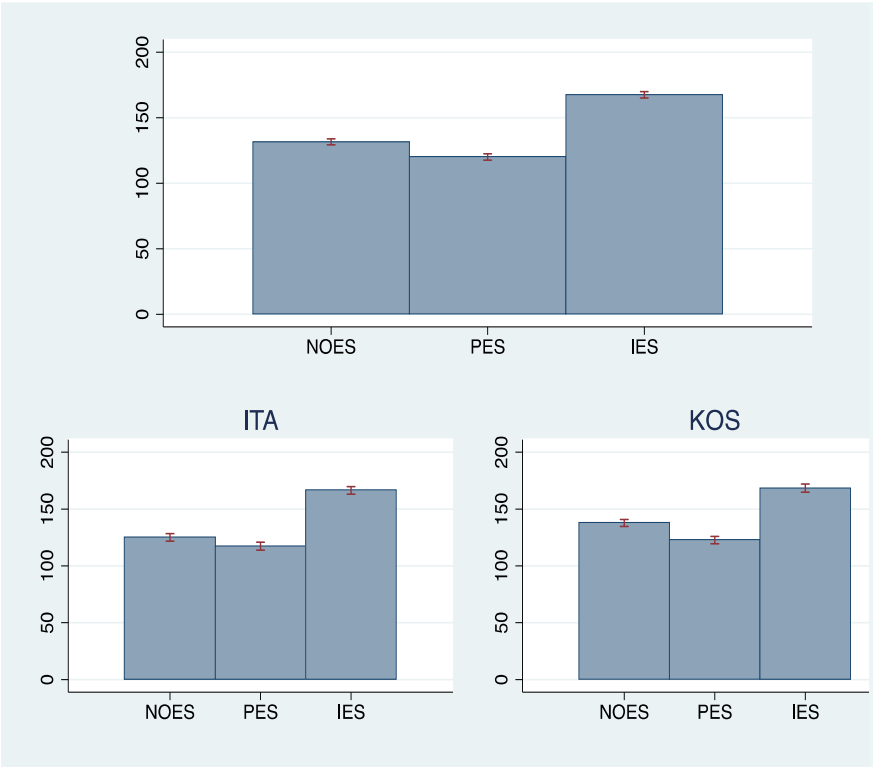


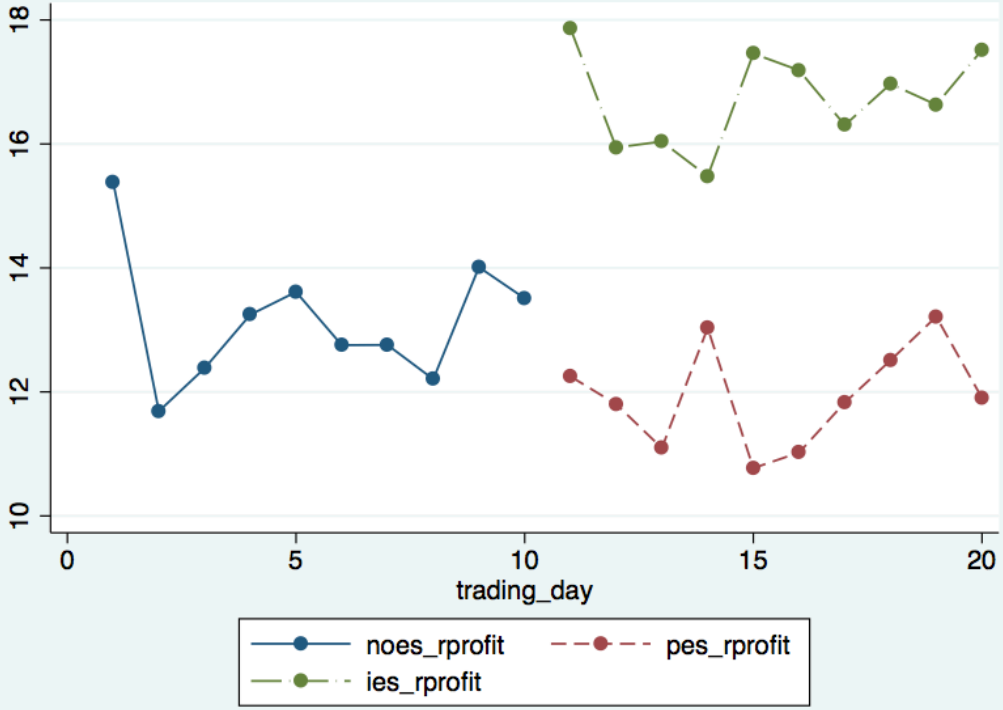




The Effect of Contract Enforcement Institutions on Market Efficiency (Profits)

- Institutional development encourages participation, but only impartial institutions consistently deter cheating
- Non monotonic effect on trading profits (caveat specific payoffs)





Causal Effect of Contract Enforcement Institutions on Exchange: Empirical Model

- Panel of individuals over 10*2 rounds:

$$MBehavy_{it} = \beta_0 + \beta D + \theta C + \alpha_i + \gamma_t + \varepsilon_{it}$$

$$MBehav_{it} = \beta_0 + \beta D + \delta T_{i0} + \theta C + \xi X_i + \alpha_i + \gamma_t + \varepsilon_{it}$$

Dependent variable: cheating, participation and trading profit of individual *i* on day *t* of trading

D={NoES, PES, IES}

C: country fixed effect

Individual (random and fixed) and time effects

Robust standard errors clustered at session level (37) in pooled sample, robust in subsamples (too few clusters)

T_{i0} behavior in TG1

Results:

Institutional development encourages trade

Impartial institutions consistently deter cheating

Profit lower under PES, higher under IES

Random-effect GLS estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Cheat				**Out**				**Profit**			
			Italy	Kosovo			Italy	Kosovo			Italy	Kosovo
pes	-0.06***	-0.06***	-0.12***	-0.01	-0.03***	-0.03***	-0.03**	-0.03***	-1.18***	-1.02***	-0.75	-1.56***
	[0.02]	[0.02]	[0.02]	[0.03]	[0.01]	[0.01]	[0.02]	[0.01]	[0.31]	[0.28]	[0.53]	[0.32]
ies	-0.15***	-0.15***	-0.19***	-0.12***	-0.05***	-0.05***	-0.07***	-0.03***	3.38***	3.17***	4.10***	2.80***
	[0.02]	[0.02]	[0.03]	[0.03]	[0.01]	[0.01]	[0.01]	[0.01]	[0.31]	[0.32]	[0.40]	[0.39]
Kosovo	0.03	-0.03			-0.04***	-0.02			0.74	0.30		
	[0.04]	[0.05]			[0.01]	[0.02]			[0.46]	[0.46]		
ind controls	no	yes	no	no	no	yes	no	no	no	yes	no	no
trading day	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	6,938	6,656	3,175	3,763	7,300	7,000	3,380	3,920	7,289	6,999	3,379	3,910
Number of idnum	365	350	169	196	365	350	169	196	365	350	169	196

Effect of treatment robust to controlling for behavior and events up to round *t*, behavior and events in NoES round

The interaction between Trust and Institutions in supporting exchange

- Initial trust and trustworthiness matter, but only in the absence of institutions
  - Deter cheating in the absence of formal institutions
  - Again, true even if control for trading history

- Trust and Trustworthiness play larger role in first rounds of trading and in larger groups of participants

The role of cultural origins: only matter in the absence of impartial institutions

- 'Culture' proxied by regional origins: North Italy, South Italy, Kosovo
- Cheating more prevalent in absence of institutions (NOES) in South Italy
- As a result: profits much lower in Southern Italy in absence of institutions

- Cheating more prevalent under partial institutions (PES) in Kosovo
  - Subjects more exposed to crime in town where live or born cheat more under PES

- However: No differences in behavior or profits under IES

CDG: Conclusion

- ‘Good’ contract enforcement institutions have causal positive effect on trust and trustworthiness – norms of good behavior as byproduct of impartial institutions
- Institutional development encourages trade, only impartial contract enforcement institutions consistently deter cheating
- Trust (or cultural origin) matters to support trade, but only in absence of impartial institutions (here trust may act as substitute for formal institutions)
- Very rapid change in trust – small economy, where each player expected to trade with all others