Causes of Financial Development

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Summary from last time

- Broad consensus that finance affects growth.
- Less broad consensus on how and when
- Unresolved issues:
  - Construct better measures of what financial development means (possibly many to capture the different aspects)
  - Identify which aspects matter more and which might actually be negative
  - Identify other effects/mechanism on financial development
    - Social mobility
    - Competition
    - Innovation

Question

- If finance is so good, why financially underdeveloped countries do not do anything about it?
- Of course, this question is very much connected to the type of financial development we think is best for growth

Question

- Question can be divided into 2 related questions:
- 1) Why countries at similar level of economic development have wildly different level of development of financial markets
  - Germany vs. US
  - Do we care?
  - Allen and Gale (2000) is all about comparing system. Not entirely clear whether this is a first order effect.
- 2) What determines the development of institutions (of which the financial system is only one)
  - Broader development question
- => let's focus on the latter

Causes of Financial Development

- **Proximate causes**
- *Legal system*
  - La Porta et al., 1997
- Social norms
  - Coffee 1999
- *Trust*
  - Guiso,Sapienza, and Zingales 2004, 2005
- Quality of the media
  - Dyck and Zingales 2004

- **Deep causes**
- Historical legacy
  - Legal tradition (LLSV)
  - Colonization tradition (ARJ, 2001)
- Political
  - Rajan Zingales, 2003 a,b
  - Roe 2003
  - Pagano and Volpin 2005
- Cultural
  - Guiso,Sapienza, and Zingales (2004)
  - Stulz and Williamson 2004

Is it really the law?

- Contrary to this view, some authors (legal scholar) interpret the legal system as proxy for social norms.
  - Coffee (2001): In Scandinavian countries lower private benefits not driven by prospect of external penalties but by strong norms/ internal police
  - Arguments against: not clear that can measure moral norms, not clear that this is a powerful force
  - Proxies: Coffee (2001): Extent of violent crime
  - Stulz and Willamson (2001): Catholic culture
  - How to distinguish the two?
- Trust and financial development

Trust as an explanation

- Does trust affect people's priors in investment decisions?
- How does it affect stock market participation and financial development?
  - Two ways to think about this question:
    - Microfoundation: is it true that at the micro level the extent people trust strangers affect their behavior and how? Specifically can trust affect the level of stock market participation within countries
    - At the macro level: could variation in the level of trust across countries explain limit stock market development?

Motivation:

The determinants of stock market participation are important for:

1) Asset pricing
   - # of people holdings determine price for risk
   - who holds also deter. variability of consumption
2) Corporate finance:
   - Equity market development
     - Liquidity
     - Size
   - Ownership concentration
3) Public finance
   - Retirement systems
   - Income inequality
   - Risk sharing – individual welfare

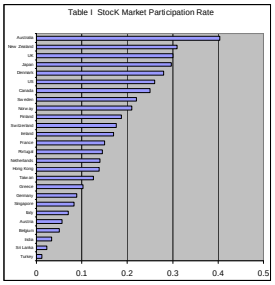
But existing models have limited explanatory power

Outline

1. Review the stylized facts
2. Argue existing theories cannot fully account for these facts
3. Propose an alternative/complementary explanation based on trust
4. Test it in 3 different scenarios:
   i. Dutch household data
   ii. Italian bank customers data
   iii. International data
5. Conclude

Fact 1: Stock Market Participation Varies a Lot Across Countries

Source: Giannetti and Koskinen (2005)



Fact 2: Even at high wealth not all participate

Direct Stockholding

	Quartile I	Quartile II	Quartile III	Quartile IV	Top 5 %	Average
U.S.	1.4	6.9	20.6	47.9	70.1	19.2
U.K.	0.0	4.4	28.3	53.6	67.9	21.6
Netherlands	1.5	7.4	20.0	40.3	60.2	17.2
Germany	0.6	4.1	16.1	36.1	50.5	14.0
Italy	0.0	0.8	3.1	12.4	30.8	4.0
Austria	0	1.7	2.8	15.6	25.7	5.0
Sweden	12.9	30.7	46.9	82.2	80.6	40.8
Spain	0	0.3	1.8	13.2	14.4	3.5
France	0.7	9.9	14.6	33.3	44.2	14.4
Denmark	6.3	25.9	36.4	55.6	68.4	31.0
Greece	0	0.7	3.2	17.3	23.5	4.9
Switzerland	2.8	12.2	30.3	54.2	63.2	24.9

Direct and Indirect Stockholding

	Quartile I	Quartile II	Quartile III	Quartile IV	Top 5 %	Average
U.S.	4.4	38.3	66.0	86.2	93.7	48.9
U.K.	4.9	11.9	37.8	71.1	83.9	31.5
Netherlands	1.7	11.0	31.3	52.8	72.0	24.1
Germany	6.6	17.6	22.1	29.3	41.6	22.9
Italy	0.0	0.8	5.2	27.5	64.8	8.2
Austria	0	1.9	8.1	25.5	33.8	8.8
Sweden	25.8	63.4	82.7	92.9	95.8	66.2
Spain	0	1.1	3.0	19.1	24.6	5.4
France	1.1	17.6	29.9	57.6	67.3	26.2
Denmark	6.6	30.8	44.8	65.7	75.4	37.0
Greece	0	0.7	4.0	22.2	32.9	6.3
Switzerland	2.8	20.0	38.2	63.7	65.8	31.4

Fact 3 Households diversify too little (few stocks in portfolio)

Table 9: Evidence on the Diversification of Stock Holdings

	1989	1992	1995	1998	2001
undiversified households (more than 50% of equity in brokerage acct with fewer than 10 stocks)					
% total equity reported	21.0	18.3	13.6	11.3	12.0
%of households with equity	32.5	23.7	17.8	14.8	13.7
mean % own company stock/total	35.0	31.5	30.5	25.2	29.2
mean age	50.9	51.0	53.9	51.7	50.3
mean equity/net worth	16.7	18.3	23.6	29.1	28.4
mean business/net worth	7.6	8.3	5.5	5.3	5.2
mean real estate/net worth	51.8	48.0	47.9	49.7	50.0
real net worth	461,327	413,194	392,998	429,649	517,481
diversified households					
mean % own company stock/total	1.4	1.9	1.2	1.7	1.5
mean age	47.0	47.6	46.0	47.2	47.1
mean equity/net worth	20.0	26.5	31.4	35.7	36.2
mean business/net worth	5.6	6.1	4.3	5.7	5.8
mean real estate/net worth	53.8	49.5	50.1	42.9	45.2
real net worth	466,896	360,744	341,218	433,978	549,104

Source: Curcuru, Heaton, Lucas, and Moore (2004) "Heterogeneity and Portfolio Choice: Theory and Evidence," prepared for the Handbook of Financial Econometrics.

2) Can Existing Models Explain ALLThese Facts?

- Frictionless EU portfolio model
  - holdings only determined by risk aversion
  - everybody participates
- + fixed participation cost
  - explains lack of full participation
  - inferred fixed costs seem plausible
- Non expected utility models
  - Minimax may imply expected return less than risk free
  - ⇒ not full participation (e.g. Dow *et. al.*,1993)
- Behavioral:
  - No formal predictions.
  - More optimistic will participate more

Existing Puzzles

1) Lack of participation also at high level of wealth (Vissing-Jørgensen, 2003)
   - Fixed costs are not enough
2) Driving variables in many theoretical explanations (risk and ambiguity aversion, participation costs) are not observable and hence theory lacks predictive power
3) Stockholdings across Italy correlated with local level of social capital (GSZ, 2004a)
4) Foreign portfolio allocations a function of relative trust (GSZ, 2004b)

Our Approach

Try to explain these facts using the idea that people are afraid to enter unknown gambles.

- Why most people do not play the three card game in the street?
- How much do we trust the data that are given to us?

=> Explicitly model the role of trust in the decision to participate in the stock market.

Test it in 3 different scenarios:

- Dutch sample
- Italian sample
- International sample

Model

- Consider two assets: stock (*S*) and short term Government notes.
- Short term notes are riskless and have a return r_f
- Stock is risky along two dimensions:
  - the return, $\tilde{r}$ is risky : mean $\bar{r}$ and variance σ^2
  - there is a **perceived** probability that the entire capital could be lost as a result of
    - » stock broker absconding it
    - » expropriation by the company's managers
    - » unknown event

Model

The perceived probability of expropriation (p) depends on

- objective characteristics (legal framework, corporate governance)
- subjective characteristics of the person trusting (individual trust)
  - Differences in educational background rooted in past history (GSZ, 2004)
  - or in religious upbringing can create considerable differences in trust across individuals and countries (GSZ, 2003)
  - Characteristics of the community the individual lives in (Alesina and La Ferrara, 2001)

Optimization problem

The optimization problem is :

$$Max_{\alpha}(1-p)EU(\alpha\tilde{r}W+(1-\alpha)r_fW)+pU((1-\alpha)r_fW)$$

The two terms reflect final utility if no cheating and cheating occurs, respectively. The FOC (if solution is internal) is:

$$(1-p)EU'(\alpha\tilde{r}W+(1-\alpha)r_fW)(\tilde{r}-r_f)=pU'((1-\alpha)r_fW)r_f$$

Define $\bar{p}$ as $\bar{p}=(\bar{r}-r_f)/\bar{r}$

Stock market participation and optimal fraction invested in stocks

Proposition 1: If the subjective probability *p* is above

$$\overline{p} = (\bar{r} - r_f)/\bar{r}$$

then the investor will NOT hold stocks.

For $p < \overline{p}$ (trust is high enough), the investor will participate in the stock market

Proposition 2: When trust declines the fraction of wealth invested in stock declines as well.

Lowering trust marginally (i.e. increasing *p*) reduce the LHS of

$$(1-p)EU'(\alpha\tilde{r}W + (1-\alpha)r_f W)(\tilde{r} - r_f) = pU'((1-\alpha)r_f W)r_f$$

while increase the RHS. To re-establish optimality, alpha should change; since the utility fct is concave the LHS is decreasing in alpha while the RHS is increasing; thus alpha has to decline

⇒ When trust declines the fraction of wealth invested in stock declines as well.

Is this story plausible?

With no costs of participations the probability of being cheated has to be lower than

$$(\bar{r} - r_f)/\bar{r} = (1.12 - 1.05)/1.12 = .0625$$

to induce participation.

How much confidence do you have in major companies? (WVS)

Country	No confidence (1)	Not very much confidence (2)	Total fraction with limited confidence (1)+(2)
USA (51% do not invest in stocks; 4% of the wealthy do not invest)			
Total sample	7.22	41.54	48.76
Top 30%	6.46	41.78	48.24
Top 10%	5.03	43.55	48.58
Italy (82% do not invest in stocks; 35% of the wealthy do not invest in stocks)			
Total sample	18.54	31.38	49.92
Top 30%	28.32	35.49	53.81
Top 10%	28.89	38.67	67.56
Netherland			
Total sample	12.03	47.29	59.32
Top 30%	8.66	48.38	57.04
Top 10%	3.45	40.23	43.68
Sweden (14% do not invest in stocks; 4% of the wealthy do not invest in stocks)			
Total sample	3.99	40.31	86.30
Top 30%	3.34	33.89	37.23
Top 10%	2.0	20.0	22.0

Implications

Only investors with high trust will hold stock.

The more the investor trusts, the higher α^*

With costs of participation and partial trust the wealth threashold to induce participation is higher than with full trust (with a p=5%, the level of wealth has to be 8 times bigger than with p=0)

Participation is higher in more trusting countries; *i.e.* in those countries where the subjective belief of being cheated is lower.

Direct Stock Market Participation:

	Whole sample				Above median wealth
	(1)	(2)	(3)	(4)	(5)
Trust	0.065***	0.059***	0.057***	0.064	0.072**
	(0.023)	(0.022)	(0.022)	(0.051)	(0.036)
Risk aversion	0.055	0.061	0.061	0.012	0.113
	(0.052)	(0.047)	(0.047)	(0.122)	(0.085)
Ambiguity aversion		-0.002	-0.002	-0.001	-0.003
		(0.002)	(0.002)	(0.004)	(0.003)
Optimism			0.005	0.047*	0.023
			(0.010)	(0.025)	(0.019)
Stock market expected to go up				-0.02	
				(0.043)	
Financial wealth	0.001***	0.001***	0.001***	0.001**	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income	0.994	0.837	0.824	-7.001	3.831
	(1.325)	(1.190)	(1.189)	(20.720)	(3.662)
Male	0.039	0.036	0.036	0.025	0.047
Age	-0.005**	-0.004*	-0.005*	-0.010*	-0.006
Age square	0.000**	0.000**	0.000**	0.000*	0.000
Household size	-0.015	-0.014	-0.014	0.041	-0.075*
Number of children	0.040	0.037	0.037	0.009	0.121**
College education	0.072**	0.066**	0.063*	0.357***	0.072
High school education	0.041	0.038	0.036	0.169*	0.055
Employee	-0.002	-0.000	-0.002	-0.139**	-0.058
Observations	1,156	1,156	1,156	255	618

Portfolio Investments

	OLS	IV	OLS	IV	OLS	IV
Mean trust toward	0.1169**	0.2373**	0.1422**	0.2580**	0.1489**	0.2729**
people in destination country	(0.0383)	(0.1047)	(0.0480)	(0.1120)	(0.0476)	(0.1036)
Inverse Cov. of stock market returns	0.0130	0.0288	0.0025	0.0193	0.0002	0.0171
of country of origin and destination	(0.0278)	(0.0318)	(0.0373)	(0.0461)	(0.0338)	(0.0420)
Press coverage			0.6717**	0.7384**	0.6903**	0.7662**
			(0.2898)	(0.3162)	(0.2899)	(0.3280)
Common border	-0.0028	-0.0058	-0.0164	-0.0210	-0.0154	-0.0199
	(0.0315)	(0.0317)	(0.0342)	(0.0326)	(0.0332)	(0.0313)
Common language	0.0037	-0.0124	-0.0242	-0.0415	-0.0255	-0.0440
	(0.0189)	(0.0229)	(0.0219)	(0.0286)	(0.0236)	(0.0311)
Log (distance)	-0.0485	-0.0431	-0.0320	-0.0249	-0.0316	-0.0241
	(0.0372)	(0.0343)	(0.0344)	(0.0320)	(0.0342)	(0.0319)
Common origin of the law			0.0046	-0.0335		
			(0.0186)	(0.0313)		
Proximity of					-0.0039	-0.0051*
security laws					(0.0024)	(0.0028)
Investing country fixed effects	YES	YES	YES	YES	YES	YES
Destination country fixed effects	YES	YES	YES	YES	YES	YES
Observations	118	118	107	107	107	107
R-squared	0.374	0.325	0.418	0.376	0.427	0.379

Summary thus far

- Risk and ambiguity aversion show little predictive power
- Trust has explanatory power both for direct and overall stockholding :
  - 6.5 pp of direct stockholding (48% of sample mean)
  - 8.5 pp of total risky assets holding (20% of sample mean)
- Trust also affects the share invested conditional on participating ⇒ raises share in stocks by 3.4 pp (15.5% of mean share) and in risky assets by 3.8 pp (15% of mean share)
- Optimism helps somewhat predict overall stockholding (at least for the wealthiest) but has no effect on the share

Concerns and robustness

- Is trust a proxy for risk aversion?
  - Develop more predictions from the model
  - Check how demand for insurance is related to trust.
  - Check for holdings of your own stock
- Is trust a proxy for ambiguity aversion?
  - Look at the interaction between trust and education
- Read the paper for more details… essential to convince the reader, though.

An interesting corollary: Trust and Education

- If trust is driving results, than its impact should differ across education levels
  - More educated less dependent on cultural stereotypes and thus on trust if culture ⇒ trust
  - More educated need rely less on trust when making portfolio decisions: can understand better, do not need to delegate
- Ambiguity aversion has no prediction of the sort

Trust and Education

	Ownership of stock		Ownership of risky assets		Share of stocks		Share of risky assets	
	Low educ	High educ	Low educ	High educ	Low educ	High educ	Low educ	High educ
Trust	0.059**	0.014	0.095**	0.056	0.155***	0.071	0.119***	0.052
Risk aversion	0.018	0.229*	-0.094	-0.201	-0.004	0.288	-0.102	-0.174
Ambiguity aversion	-0.003***	-0.001	0.000	0.001	-0.007	-0.002	0.000	0.001
Optimism	-0.000	0.032	-0.001	0.021	-0.003	0.066	-0.006	0.021
Financial wealth	0.001***	0.002***	0.002***	0.003***	0.002***	0.002***	0.002***	0.002***
Obs.	858	298	748	259	740	259	740	259

Is it Generalized or Personalized Trust that Matters?

- Data from a survey on a sample of customers of a leading Italian bank
- Info on portfolio composition
- Asked to report how much they trust the bank

  "*How much do you trust your bank or broker as financial advisor for your investment decisions?*"

  » A lot; enough; so and so; not much; at all
- Information on risk attitudes

  "*In your view risk is*

  a) an uncertain event from which you can profit

  b) an uncertain event one should protect from "
- Look at risky assets ownership and allocation

Results

	dProbit for Ownership of risky Assets	Share invested in risky asset (Tobit)	Conditional share (second stage Heckman)
High personalized trust	0.1610***	0.0653***	0.0156
Medium personalized trust	0.0580	0.0226	0.0011
Averse to risk	-0.04*	-0.0883***	-0.0730***
Financial wealth	0.0010***	0.0001*** (0.000)	0.00002***
Male	0.1050***	0.0753***	
Age	0.0219***	0.0144***	0.0073***
Age2	-0.0002***	-0.0001***	-0.00006***
Education	0.0221***	0.0138***	
Observations	1,834	1,834	1,834

Effect of trust on Stock Market Development

- Low level of trust should be reflected in prices
  - ⇒ Entrepreneurs are less interested in floating their companies because
    - » Perceived trust does not reflect entrepreneurs' trustworthiness
    - » Entrepreneurs have private benefits of control (Giannetti and Koskinen, 2005)
- Test two implications
  - Lower trust => more closely held companies
  - Lower trust => lower participation
- Control for legal enforcement

Trust & ownership structure: within country

	Firm has a single shareholder owning all the shares		
Trust	-0.394***	-0.468***	-0.394***
	(0.152)	(0.167)	(0.157)
North	-0.023	-0.015	
	(0.017)	(0.017)	
South	0.021	-0.029	
	(0.030)	(0.028)	
Judicial inefficiency	-0.039	-0.028	-0.026
	(0.029)	(0.030)	(0.029)
Judicial inefficiency squared	0.003	0.004	0.004
	(0.004)	(0.004)	(0.004)
Per capita GDP	0.324	0.319	0.286
	(0.402)	(0.483)	(0.420)
Pseudo-R^2	0.105	0.104	0.105
Observations	3,268	3,268	3,268

Trust & stock market participation: international evidence

	% population participating in the stock market			% stock market cap closely held		
	(1)	(2)	(1)	(2)	(2)	(2)
Trust (WVS)	0.272** (0.041)	0.399*** (0.001)	0.390 *** (0.000)	-42.65** (0.023)	-46.80*** (0.01)	-46.84 *** (0.01)
Legal Enforcement		0.246*** (0.003)	0.143* (0.08)		-23.95* (0.074)	-21.68 (0.20)
Common Law			0.091** (0.02)			-1.92 (0.82)
Observations	24	23	23	33	33	33
R-squared	0.18	0.50	0.62	0.15	0.24	0.25

The Effect of Trust on F. D.

Dependent variable	External equity over GNP	# domestic firms over population	IPO over population	Debt over GNP	# of companies publicly held
Log per capita GNP	0.026	-1.486	0.049	0.994**	0.144***
	(0.475)	(1.856)	(0.174)	(0.040)	(0.041)
Trust	0.011 *	0.470**	0.054***	0.003	0.012 **
	(0.005)	(0.204)	(0.019)	(0.004)	(0.005)
Rule of law	-0.055	1.701	-0.201	0.029	-0.02
	(0.035)	(1.365)	(0.136)	(0.031)	(0.038)
Constant	0.115	7.523	-1.352	-0.958 **	-1.751***
	(0.534)	(20.860)	(2.005)	(0.455)	(0.59)
R-squared	0.14	0.47	0.4	0.44	0.48
Observations	30	30	27	28	30

Summary so far

- Two competing "superficial" explanations:
  - Legal rules affect people's expectations and thus financial development
  - Trust toward strangers (i.e. subjective beliefs) affects people's expectations behavior and financial development.
  - Criticism:
    - » What do legal rules and trust really stand for?

Legal rules and trust are the effect of some underlying causes

- Legal tradition (LLSV)
  - Can it be considered an ultimate cause?
- Political
  - Rajan Zingales, 2003 a,b
  - Roe 2003
  - Pagano and Volpin 2005
- Geography (ARJ, 2001)
- Cultural
  - Guiso,Sapienza, and Zingales (2004)
  - Stulz and Williamson 2004

The origin of the law as an ultimate explanation

- In countries with common law, private benefits are smaller and this seems to have contributed to the development of markets. But unclear whether the mechanism is really the law.
- Even less clear that the cause is legal origin
- Is legal origin simply proxying for better law and order tradition or is it adding something else?
- If it is proxying for something else, what is it?
- Do countries need common law to become financially developed?

How can we tell whether law really matters for financial development?

- Look historically. Two very interesting papers:
  - Rajan and Zingales (2003) "The great reversals: the politics of financial development in the 20th century" (JFE 2003).
    - Legal origin fixed. Is it also true that the cross sectional pattern of financial development is fixed across different time periods?
    - Look at the evolution of financial systems over the 20th century
- They propose an interest group theory of financial development where incumbents oppose financial development because it breeds competition.
- The theory predicts that incumbents' opposition will be weaker when an economy allows both cross-border trade and capital flows.
- This theory can go some way in accounting for the cross-country differences in, and the time series variation of, financial development.

More evidence on the political view - I

Roe (1994) and Bebchuck and Roe (1999):

- The composition of the group of company "insiders" (employees, managers and controlling shareholders) differs across countries.
  - American companies do not have controlling shareholders. Without a controlling shareholder, managers have considerably more power and can protect their rents by lobbying politicians. This may explain the U.S. regulatory effort in the 20th century to restrain the power of large blockholders and banks and prevent the emergence of controlling shareholders. (Roe, 1994).
  - In Continental Europe ownership has historically been concentrated and managers have always been weak. Hence, no such regulation has been introduced. This explanation naturally predicts path dependence because corporate structures are created by a certain (stable) political balance
- This may explain the divergence in corporate governance

More evidence on the political view - II

- Pagano and Volpin (2005): the relevant stakeholders are controlling shareholders, noncontrolling shareholders, and employees. Controlling shareholders ("entrepreneurs") want low investor protection to extract larger private benefits of control, and may obtain it with the political support of workers. To win support in electoral competition, they have to make some concession to workers (limiting firing ability).
- The feasibility of this "corporatist" agreement – or "stakeholder society" depends on the distribution of equity ownership (and other things) in the economy. If workers own little equity, entrepreneurs and workers will strike a political agreement whereby workers trade low shareholder protection for high job security.
- Path dependence.

The political view

Summary:

- Historical pattern of development is inconsistent with legal origin theory
- Consistent with a private interest view, but not with LLSV.
- Are legal origin and political evolution of private interests connected?
- How do institutions get transmitted? May be through education?

Is geography the ultimate cause?

- Acemoglu et al. (AER, 2001): long lasting effects of colonial powers.
- Select areas where colonization happened and compare colonies development today.
- If it is the origin of the law, you should see that colonies colonized by common law countries indeed do better (confirming LLSV results).
- However, an alternative story is that the colonizers put in place good institutions in places where they were planning to stay.
  - » But which institutions?
    - Legal
    - Political
    - Education
- Use settler's mortality as an instrument to decide whether it is worth staying or not. Use that as an explanation of good institutional settings.
- Ultimately, the interpretation is that geography matters!

Culture as an explanation?

•Culture= "*those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation.* "

• It leaves out many aspects that ordinary people would identify as culture

• It emphasizes some dimensions that are important for its application in economics.

•Why culture as an explanation? The remarkable results of trust as a superficial explanation and the huge differences in trust across cultures point at culture as an explanation.

A new approach

- Follow a three step procedure:
  - Step 1: show that culture => beliefs (priors) and preferences
  - Step 2: show that outcomes are affected by beliefs (priors) or preferences
  - Step 3: Try to get at the causal link by instrumenting beliefs and preferences with measures of culture.

"We always have been, we are, and I hope that we always shall be detested in France". Duke of Wellington

	Britain	Germany	France	Italy	Spain
British view	1	2	4	5	3
German view	2	1	3	5	4
French view	4	1	2	5	3
Italian view	3	1	3	4	5
Spanish view	2	1	4	5	3

How do we measure trust?

- Eurobarometer: In each EU country it asks :
- "How much trust you have in people from various countries. For each, please tell me whether you have
  - 1: "no trust at all",
  - 2: "not very much trust",
  - 3: "some trust",
  - 4: "a lot of trust"
- Nationalities: EU countries, but also: Bulgaria, China, Czech Republic, Japan, Romania, Russia, Slovakia, Hungary, Poland, Slovenia, Switzerland, Turkey, United States

Trust from:

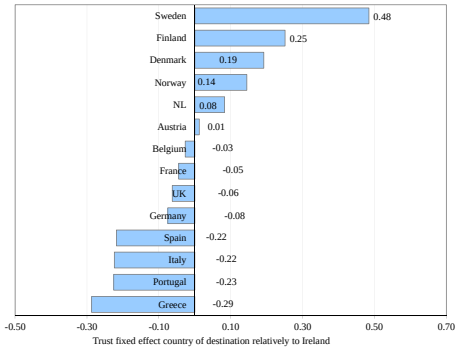
	Aus	Bel	UK	Den	NL	Fin	Fra	W. Ger	Gre	Ire	Ita	Nor	Por	Spa	Swe	Average
Aus	3.56	2.83	2.89	3.22	2.90	3.29	2.70	2.98	2.32	2.93	2.66	.	2.13	2.65	3.53	2.90
Bel	2.95	3.28	2.91	3.18	3.18	3.07	3.07	2.84	2.60	2.93	2.64	3.18	2.66	2.73	3.23	2.96
UK	2.61	2.84	3.29	3.22	3.00	3.18	2.55	2.69	2.34	2.81	2.51	3.27	2.66	2.31	3.43	2.85
Den	2.95	3.01	3.13	3.39	3.29	3.30	2.96	2.97	2.56	2.99	2.70	3.53	2.66	2.73	3.57	3.05
NL	2.95	2.90	3.16	3.33	3.28	3.14	2.94	2.90	2.55	3.00	2.77	3.26	2.70	2.85	3.33	3.00
Fin	2.94	2.92	2.98	3.20	3.25	3.69	2.91	2.85	2.42	2.92	2.78	.	2.18	2.71	3.49	2.95
Fra	2.62	2.92	2.32	2.86	2.72	2.92	3.18	2.85	2.78	2.81	2.66	2.93	2.91	2.37	3.04	2.79
W. Ger	3.09	2.75	2.62	3.12	2.84	2.89	2.74	3.50	2.31	2.78	2.63	2.99	2.54	2.66	3.13	2.84
Gre	2.52	2.45	2.54	2.61	2.59	2.68	2.53	2.51	3.21	2.50	2.40	2.52	2.41	2.47	2.88	2.59
Ire	2.55	2.75	2.61	3.02	2.80	2.92	2.72	2.59	2.55	3.33	2.37	3.01	2.51	2.57	3.26	2.77
Ita	2.43	2.40	2.51	2.53	2.35	2.51	2.43	2.36	2.33	2.65	2.80	2.65	2.55	2.61	2.81	2.53
Nor	3.00	2.91	3.06	3.50	3.30	3.48	2.97	2.92	2.40	2.93	2.78	.	2.22	2.79	3.65	2.99
Por	2.50	2.53	2.74	2.67	2.74	2.67	2.59	2.48	2.60	2.65	2.32	2.60	3.29	2.51	2.97	2.66
Spa	2.58	2.59	2.47	2.66	2.64	2.61	2.68	2.66	2.71	2.64	2.64	2.56	2.59	3.32	2.86	2.68
Swe	3.05	2.99	3.03	3.41	3.34	3.35	2.99	2.99	2.51	2.92	2.89	.	2.24	2.84	3.59	3.01
Average	2.82	2.80	2.82	3.06	2.95	3.05	2.80	2.81	2.55	2.85	2.64	2.95	2.55	2.67	3.25	

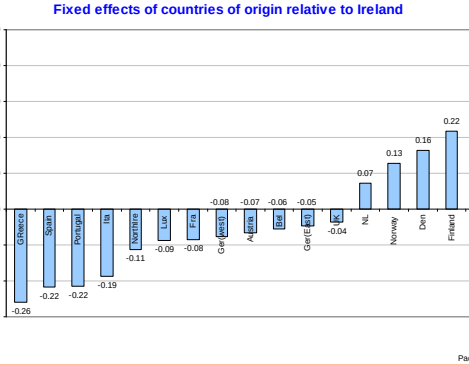
Preliminary observations

- Considerable variation in the level of trust
- Home bias in trust
- Systematic differences in trust (citizens of some countries trust more than others, citizens of some countries are trusted more than others).

To isolate systematic differences in trust:

$$Trust_{ijt} = \kappa_i + \lambda_j + \sum_{t}^{n} \gamma_t Year_t + \epsilon_{ijt}$$





Preliminary observations

- Country fixed effects (origin and destination) explain only 64% of the variability in trust.
- There remains a considerable portion to be explained with match-specific variables. This variability is pair specific.
- The British, for instance, tend to trust the French even less than they trust the Italians and the Spanish and much less than they trust the Belgians and the Dutch. The French reciprocate, trusting the British as much as they trust (little) the Greeks.

Determinants of bilateral trust

- We take the residuals of regression (1) and try to explain them in terms of match specific variables.
- To avoid understating the standard errors due to repeated observations, we follow Bertrand, Duflo, and Mullainathan (2004) and collapse the data by averaging the residuals over time.

$$\bar{Resid\_Trust}_{ij} = \beta X_{ij} + \epsilon_{ij}$$

Determinants of Relative Trust

1) Information:
   - Distance (in kilometers between the two largest cities)
   - Common border
   - Common language
   - Transportation costs
   - Press coverage
2) Cultural:
   - Common religion (probability)
   - Number of years the countries have been at war(1000-1815, 1815-1970)
   - Commonality in ethnic origin: genetic distance
   - Commonality in somatic traits: somatic distance
3) Information or cultural?
   - Common origin of the law
   - Linguistic proximity

Genetic Distance

- Genetic distance is based on the difference between the frequencies of alleles in two populations.
- It relies on the existence of DNA polymorphisms (a situation in which a gene or a DNA sequence exist in at least two different forms (alleles)).
- Ex1: the ABO blood groups classification
- The O allele is frequent in
  - 61 percent of African population and
  - 98 percent in American Natives populations.
- Genetic distance within Europe correlates with migrations from Asia and Africa (evidence from correlation of archeological and genetic material).
- Despite admixture within Europe in the last millennium, genetic material today reflects migrations during the Neolithic period (Cavalli-Sforza, 2000)
- In general, genetic material correlates with anthropometric characteristics .

Somatic Distance

- Based on the average frequency of specific traits
  - Hair and skin color (pigmentation)
  - Heights
  - Cephalic index (the ratio of the length and width of the skull)

Genetic and Somatic Distance

- Note that besides measures of cultural distances these measures could be interpreted as measures of genetic dissimilarities.
- May be in the evolutionary process people have learned to differentiate between friends and enemies based on their appearance
- Either way we are interested in understanding whether those are a source of a potential bias that distorts the objective view of trustwortrthiness.

Determinants of Trust

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Common language	0.0469	0.0942*	0.1097*	0.0942*	0.0816	0.0208	0.0425	0.0461	0.071
	(0.0657)	(0.0526)	(0.0604)	(0.0525)	(0.0507)	(0.0553)	(0.0589)	(0.0584)	(0.063
Log (distance)	-0.1083***	-0.0427*	-0.0505*	-0.0428	-0.0136	-0.0094	0.0034	0.0097	-0.01
	(0.0344)	(0.0246)	(0.0291)	(0.0269)	(0.0238)	(0.0238)	(0.0260)	(0.0286)	(0.03
Common border	-0.0087	-0.0536	-0.0139	-0.0537	-0.0403	-0.0411	-0.0514	-0.0517	-0.03
	(0.0452)	(0.0362)	(0.0388)	(0.0377)	(0.0344)	(0.0348)	(0.0394)	(0.0389)	(0.03
Number of years at war 1000-1970		-0.0012***	-0.0011***	-0.0012***	-0.0011***	-0.0012***	-0.0013***	-0.0013***	-0.001
		(0.0003)	(0.0004)	(0.0003)	(0.0003)	(0.0003)	(0.0004)	(0.0004)	(0.00
Religious similarity		0.1537***	0.2360***	0.1537***	0.1521***	0.1090**	0.1283***	0.1262***	0.146
		(0.0442)	(0.0457)	(0.0440)	(0.0423)	(0.0441)	(0.0466)	(0.0474)	(0.04
Somatic distance		-0.0605***		-0.0605***	-0.0509***	-0.0439***	-0.0415***	-0.0413***	-0.02
		(0.0089)		(0.0098)	(0.0087)	(0.0085)	(0.0091)	(0.0090)	(0.00
Genetic distance			-9.9991*	0.0637					
			(5.9427)	(5.0743)					
Differences in gdp procapita (percentage)					-0.1353***	-0.1398***	-0.1297***	-0.1269***	-0.090
					(0.0355)	(0.0314)	(0.0328)	(0.0333)	(0.034
Same legal origin						0.0736**	0.0541	0.0494	0.049
						(0.0302)	(0.0328)	(0.0329)	(0.036
Linguistic common roots							0.2046*	0.2018*	0.210
							(0.1130)	(0.1126)	(0.107
Transportation costs								0.0006	-0.001
								(0.0010)	(0.001
Press Coverage									-0.733
									(0.344
Country of origin fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country of destination fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YE
	207	207	207	207	207	207	180	180	15

Results and Robustness

- The three cultural proxies are jointly statistically significant with an F-test of 21.6.
- Countries with a long history of wars tend to trust each other less.
- Religious similarity has a positive impact on trust: compared to a case where no common religion is shared, a match where 90% of the citizens share the same religion (e.g., Italy and Spain) raises trust by 15 percentage points (corresponding to 40% of its standard deviation).

Results and Robustness

- Citizens of a country tend to be more trusting of citizens of countries who are somatically closer. A one standard deviation increase in somatic distance lowers bilateral trust by one quarter of a standard deviation.
- Genetic distance has a stronger effect but the effect becomes insignificant when both genetic and somatic distance are included

Data on trade and investments

- **Trade:** Statistics of Canada data on trade and goods and services
  - Log of total export from country i to country j.
  - Only European Union countries to minimize the error in measurement accruing from bilateral agreement on trade.
- **Foreign direct investments:** Statistics on FDI transactions and positions are based on OECD
  - Log of the stock of FDI from country i to country j
  - Restricted to European countries after joining the EU.
- **Portfolio data:** Morningstar data on percentage of total equity investment of mutual funds of country *i* invested country *j*.
  - All types of funds that report their position to Morningstar have been included.

Econometric specification

- Standard gravity equation:

$$LogExport_{jit} = \kappa_i + \lambda_j + \alpha_1 logY_{jt} + \alpha_2 logY_{it} + \beta Trust_{ijt} + \sum_{t}^{n} \gamma_t Year_t + \delta X_{ij} + \epsilon_{ijt}$$

Trade

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IVGMM	(6) OLS
Mean trust of people in importing country to people in exporting cou	0.3425*** (0.1281)	0.2851** (0.1162)	0.2495* (0.1336)	0.3066** (0.1260)	1.2195*** (0.3681)	0.0630 (0.1691)
Interaction between trust and diversified good						0.8308*** (0.0492)
Common language	0.5764** (0.2420)	0.3307* (0.1795)	0.3950** (0.1856)	0.7838*** (0.2233)	0.9323*** (0.2466)	1.0394*** (0.2829)
Log (distance)	-0.3187*** (0.0972)	-0.4361*** (0.0932)	-0.4298*** (0.0957)	-0.5600*** (0.1086)	-0.5754*** (0.1089)	-0.6748*** (0.1430)
Common border	0.4954*** (0.1340)	0.4364*** (0.1225)	0.4130*** (0.1356)	0.4351*** (0.1294)	0.3861*** (0.1337)	0.3644** (0.1561)
Press coverage	0.3445 (1.1095)	0.1495 (1.1495)	0.1804 (1.1492)	-1.4282 (1.2923)	0.8366 (1.3006)	-2.8710** (1.2774)
Transportation costs	-1.7941** (0.8802)	-0.3335 (0.7518)	0.2621 (0.7773)	0.0548 (0.7695)	0.5874 (0.8190)	-2.1674 (1.4173)
Output exporter	0.0000* (0.0000)	0.0000 (0.0000)	0.0000 (0.0000)	0.0000* (0.0000)	0.0001** (0.0000)	0.0000 (0.0000)
Output importer	0.0001** (0.0000)	0.0000** (0.0000)	0.0000* (0.0000)	0.0001*** (0.0000)	0.0000 (0.0000)	0.0001 (0.0000)
Same legal origin		0.4303*** (0.1137)	0.4023*** (0.1169)	0.3608*** (0.1305)	0.2184 (0.1427)	0.5812*** (0.1819)
Linguistic common roots			0.1426 (0.3160)			
Correlation of consumption between the two countries				-0.8518 (0.8473)	-0.8799 (0.8030)	-1.5488 (1.2274)
Exporting country fixed effects	YES	YES	YES	YES	YES	YES
Importing country fixed effects	YES	YES	YES	YES	YES	YES
Years fixed effects	YES	YES	YES	YES	YES	YES
Observations	595	595	573	474	474	951
R-squared	0.960	0.964	0.965	0.963		0.845

Results

- After controlling for all these variables, our measure of trust has a positive and statistically significant effect on trade. One standard deviation increase in trust increases exports to a country by 10 percentage points, equal to 1.6 standard deviations.

Foreign Direct Investments

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IVGMM
Mean trust toward people in destination country	1.0331** (0.4567)	0.7153 (0.4412)	0.7037* (0.3994)	0.7514* (0.4014)	5.5487*** (1.6267)
Common language	-0.1768 (0.4042)	-0.0387 (0.3712)	-0.8231** (0.3597)	-1.1636*** (0.4035)	-2.3570*** (0.7668)
Log (distance)	-1.0944*** (0.2650)	-0.7798*** (0.2913)	-0.9274*** (0.2417)	-1.0449*** (0.2471)	-1.2234*** (0.3739)
Common border	0.1543 (0.2456)	0.1044 (0.2482)	0.0238 (0.2180)	0.2278 (0.2181)	-0.0455 (0.3944)
Press coverage	2.0996 (2.4079)	1.1636 (2.2838)	0.4573 (2.1717)	0.6988 (2.2532)	8.1918* (4.2484)
Transportations costs		-5.0760** (2.5742)	-0.7686 (2.5404)	-0.5021 (2.2436)	3.6934 (2.4460)
Dummy equal to one if countries have same origin of law			1.2623*** (0.2843)	1.4595*** (0.2855)	1.5667*** (0.3890)
Linguistic common roots				-1.5925*** (0.5644)	-2.4847** (1.1703)
Investing country fixed effects	YES	YES	YES	YES	YES
Destination country fixed effects	YES	YES	YES	YES	YES
Years fixed effects	YES	YES	YES	YES	YES
Observations	439	439	439	413	413
R-squared	0.831	0.838	0.862	0.846	
Prob > F					0.001
Hansen J statistic					0.160
Chi-sq P-val					0.689
Test of excluded instruments in first stage:					F(2,71)= 7.22

Foreign direct investment

- Controlling for various measures of information, trust has a positive impact on foreign direct investment.
- The impact of trust is twice as large as the impact on trade.
- The effect is six times bigger when we instruments with the determinant of relative trust (weak instrument problem?)

A possible alternative interpretation

- A channel through preferences, rather than beliefs
- Behavior with trading partners does not need to be consistent across trading partners.
- Portfolio investments involve investments in minority positions in foreign companies: CEOs of foreign companies cannot hurt only one category of investors without hurting the others.
- Very demanding test: regulation and data

Portfolio Investments

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) OLS	(6) IVGMM
Mean trust toward people in destination country	0.1083*** (0.0388)	0.1410*** (0.0462)	0.0390 (0.0341)	0.1492*** (0.0462)	0.0938** (0.0462)	0.2682** (0.1099)
Inverse Cov. of stock market returns of country of origin and destination	0.0135 (0.0299)	-0.0030 (0.0359)	-0.0508 (0.0372)	-0.0070 (0.0363)	-0.0480 (0.0582)	0.0101 (0.0683)
Common language	0.0161 (0.0180)	-0.0178 (0.0262)	-0.0539* (0.0291)	-0.0182 (0.0259)	-0.0061 (0.0263)	-0.0446 (0.0290)
Log (distance)	-0.0552** (0.0270)	-0.0362 (0.0252)	-0.0290 (0.0206)	-0.0348 (0.0248)	-0.0368 (0.0287)	-0.0261 (0.0291)
Common border	-0.0104 (0.0257)	-0.0207 (0.0268)	-0.0297 (0.0244)	-0.0197 (0.0263)	-0.0487* (0.0255)	-0.0330 (0.0304)
Press coverage		0.6338** (0.2516)	0.2984 (0.1984)	0.6719** (0.2562)	0.5743** (0.2636)	0.8970*** (0.3345)
Same legal origin			0.0847*** (0.0203)			
Distance in security law regulation				0.0042 (0.0026)	0.0086*** (0.0026)	0.0085*** (0.0030)
Linguistic common roots					0.1365*** (0.0490)	0.0271 (0.0776)
Investing country fixed effects	YES	YES	YES	YES	YES	YES
Destination country fixed effects	YES	YES	YES	YES	YES	YES
Observations	108	98	98	98	80	80
R-squared	0.371	0.402	0.519	0.412	0.407	
Prob > F						0.000
Hansen J statistic						2.277
Chi-sq P-val						0.131
Test of excluded instruments in first stage:						F(2,44)= 10.18

Portfolio investments

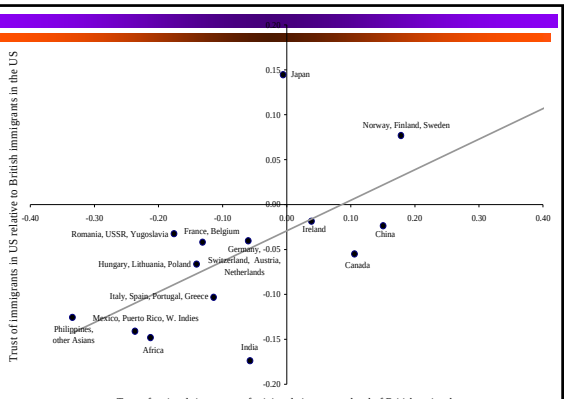
- Trust has a positive impact on portfolio allocation controlling for
  - covariance between the stock markets returns
  - various measures of information.
- The effect almost doubles when we instrument for the determinant of trust (genetic distance, similar religion).

Conclusions

- The difference in relative trust between people of two countries is affected by several cultural variables.
- Results are consistent with a view based on biased prior, but also with preferences
- This difference affects the level of trade and investments between countries, even after controlling for
  - objective characteristics of these two countries (fixed effect)
  - standard bilateral determinants of trade and investments
- Effect a lot bigger when we instrument

Can we show that this predisposition to trust is transmitted intergenerationally?

Can we show that this predisposition to trust is transmitted intergenerationally?



From culture to preferences

Look at effect of culture on importance of thriftness as a value

- Use WVS: how important is to teach thriftiness to your children?

- Relate responses to religious denominations
- Always control for income, gender, age (linear & square), health status, race, education (linear & square)

Effect of culture on preferences for saving

- Should thrift be taught to children?

	Thrift to be taught to children
Catholic	0.0122***
Protestant	0.0085**
Jew	0.0205
Muslim	-0.0002
Hindu	0.0230
Buddhist	0.0230
Others	0.0028

From GSZ JME (2003)

From preferences to economic outcomes

1. Use cross country data on savings
2. Run a life-cycle type regressions controlling for
   - A country growth rate
   - Dependency rate
   - Government savings
3. Add percent of people in a country who consider thrift a value
   - instrument with religious composition

Economic impact:

- One st. dev. increase in the share of people who teach thriftiness to kids increases the saving rate by 3.92 % points (about 18% of the sample mean).
- Same order of magnitude as joint effect of
  - increasing the growth rate of income by one st. dev.: 0.92 % points
  - lowering the dependency ratio by one st. dev. 3.18 basis points.

From culture to political preferences

- Use GSS data on individuals preferences for redistribution:
  - *"Some people think that the government in Washington ought to reduce the income differences between the rich and the poor, perhaps by raising the taxes of wealthy families or by giving income assistance to the poor. Others think that the government should not concern itself with reducing this income difference between the rich and the poor. Here is a card with a scale from 1 to 7. … What score between 1 and 7 comes closest to the way you feel?"*
- Regress responses on religion and ancestors' origin

From political preferences to political outcomes

- Use State-level variation in fiscal policy:
- Measure the intensity of redistribution of a State fiscal policy by ratio of direct/indirect state taxes
- Compute averages of preference for redistribution by State
- Regress actual policy on preferences
- Instrument with religious composition and ancestors' origin

Bridging the two views?

	(1)	(2)	(3)	(4)	(5)	(6)
TRUST	-1.616*** (0.307)	-1.146*** (0.30)	-1.159*** (0.341)	-2.986*** (0.830)	-2.481*** (0.903)	-2.026*** (0.757)
GDP		-0.106*** (0.05)	-0.190*** (0.044)		-0.107 (0.078)	-0.127* (0.073)
POPULATION			0.091*** (0.022)			0.103*** (0.024)
COMMON LAW			-.456*** (0.136)			-.424*** (0.144)
method	OLS	OLS	OLS	IV	IV	IV
obs.	78	76	76	76	75	75
R-squared	0.22	0.36	0.52			
F-stat.	17.40***	18.68***	17.35***	12.54***	19.40***	19.04***
first stage F-stat.				22.46***	19.93***	17.57***

Notes: The dependent variable is the (log of) number of procedures required to start a new business. The estimation method is Ordered Least Squares in columns (1) to (3) and Instrumental Variables in columns (4) to (6). In the Instrumental Variable regressions, the fraction of population professing either Catholic or Muslim religion is used as an instrument for *TRUST*. Robust standard errors are presented (in parenthesis). The first stage F-statistic refers to the null hypothesis that the coefficient of the first stage instrument excluded from the second stage is equal to 0. *, ** and *** denote rejection of the null hypothesis of the coefficient being equal to 0 at 10%, 5% and 1% significance level, respectively.

Conclusions

- Proximate causes of financial development have been studied at length.
- Much harder to identify deeper causes. At the "deep level" evidence becomes foggier
- We have a limited understanding on how politics, law and culture interact with each other.
- How can we distinguish legal tradition from culture?
- To investigate deeper causes historical data are in much need.