Social Capital, Government Expenditures, and Growth

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Social Capital and Economic Performance

Social capital variously defined and measured

- Connectedness to social networks
- Membership of voluntary associations and civil-society organizations
- Interpersonal trust
- Civic engagement, newspaper readership

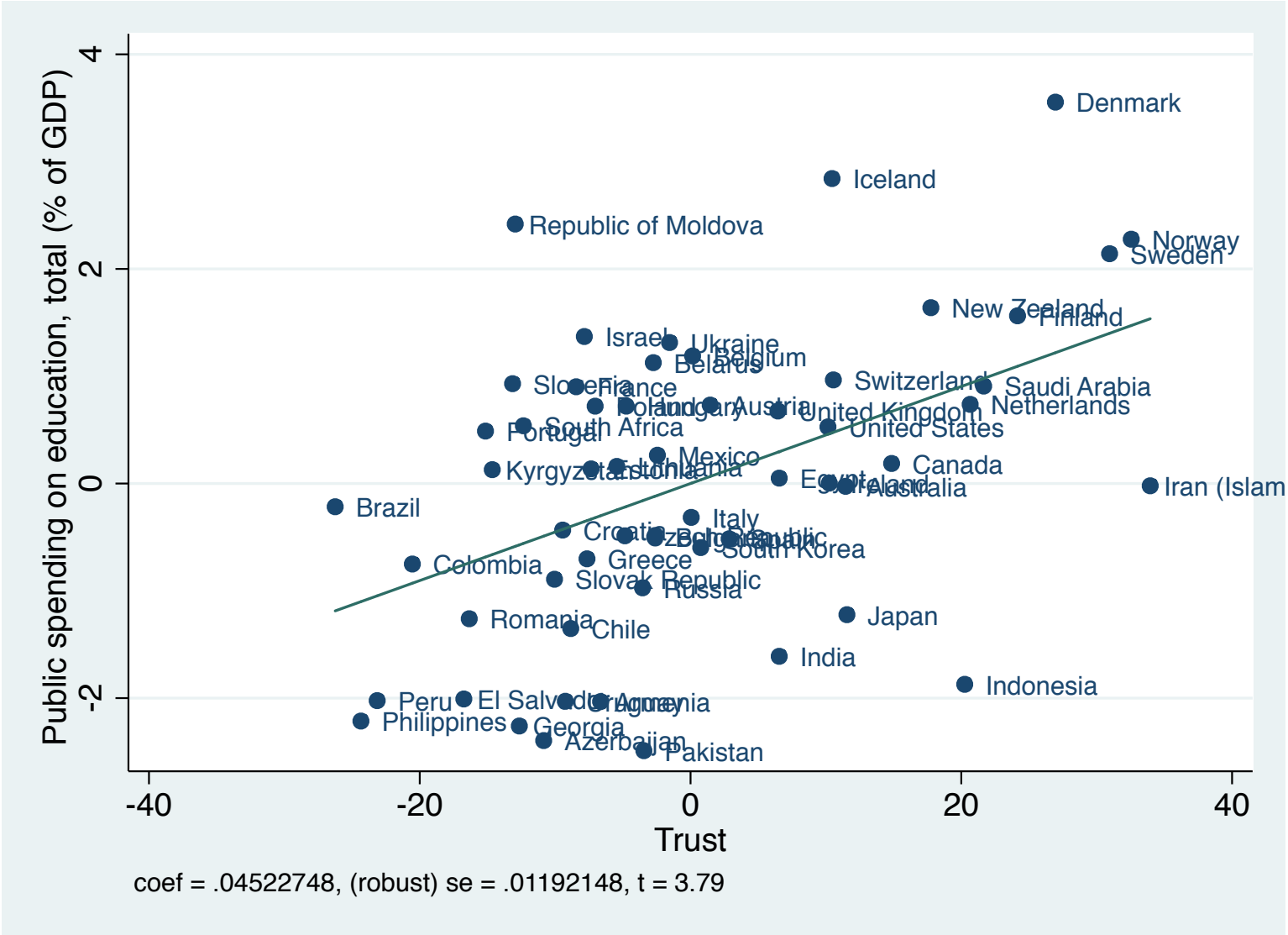
Associated empirically with a wide range of positive outcomes

- Economic and financial development
- Well-functioning institutions, quality of government
- Causal effect on growth (Algan and Cahuc 2010)

We focus on one causal mechanism

- Social capital induces productive public investment

Social Capital and Government Investment in Education



Social Capital and Government Investment in Education

Dependent variable:	Public expenditure on education (% of GDP)			
	(1)	(2)	(3)	(4)
Trust	0.04	0.03	0.03	0.03
	$(0.01)^{***}$	$(0.01)^{**}$	$(0.01)^{***}$	$(0.01)^{***}$
GDP per capita		0.80	0.88	0.77
		$(0.29)^{***}$	$(0.30)^{***}$	$(0.34)^{***}$
Government share of GDP			0.21	0.22
			(0.35)	(0.37)
Population				−1.17
				(0.71)
R^2	0.22	0.38	0.39	0.40
Number of obs.	55	55	55	55

$^{*}p \leq 0.1$, $^{**}p \leq 0.05$, $^{***}p \leq 0.01$. Standard errors are robust. The dependent variable is from the World Development Indicators. Trust is from the World Values Survey. GDP per capita, Government share of GDP and Population are from the Penn World Table.

Tabellini Language Instrument

Dependent variable:	(1) & (3): Trust (2) & (4): Public exp. on education (% of GDP)			
	First Stage	IV LIML	First Stage	IV LIML
	(1)	(2)	(3)	(4)
Pronoun drop	−12.72		−8.72	
	(4.79)**		(3.89)**	
Trust		0.11		0.08
		(0.01)***		(0.05)*
GDP per capita			7.65	0.27
			(2.82)**	(0.76)
Government share			0.39	0.07
of GDP			(0.32)	(0.03)**
Population			20.10	−2.33
			(5.82)***	(1.22)*
R^2	0.17		0.34	
Instrument F-statistic	7.08		5.01	
Number of obs.	42	42	42	42

$^{*}p \leq 0.1$, $^{**}p \leq 0.05$, $^{***}p \leq 0.01$. Standard errors are robust and clustered by language. Trust is from from the World Values Survey. Public expenditure on education (% of GDP) is from the World Development Indicators. The language instrument Pronoun drop is from Tabellini (2009). GDP per capita, Government share of GDP and Population are from the Penn World Table.

Political Agency with Imperfectly Informed Voters

- Benevolent but office-seeking politicians
- Stochastic ability and career concerns
- Two types of public goods
  1. Public services that generate immediate utility (social spending)
  2. Public investment that raises future productivity (education, R&D)
- Asymmetric visibility
  1. Everyone observes public services through the utility function
  2. Only some voters are informed of public investment
     - ★ Improvements to productivity, and with a delay

$\Rightarrow$ Suboptimal allocation of government spending

- *Panem et circenses*
- Insufficient long-term investment
- Failure of democracy

From Social Capital to Growth through Political Agency

1. Social capital increases voter information
   - Greater civic engagement $\Rightarrow$ information acquisition
   - Greater social connectedness $\Rightarrow$ information sharing
2. More homogeneous visibility of public goods
   - Less biased electoral incentives
   - Less biased electoral screening
3. Greater public investment
   - Higher share of government expenditures
   - Higher efficiency in managing investment spending
4. Higher steady-state growth rate

The Political Economy of Pandering

Existing literature on sub-optimal populism

1. Pandering (Harrington '93; Canes-Wrone et al. '01; Morris '01; Maskin and Tirole '04)
   - The voters rationally expect one policy to be optimal
   - Refrain from choosing the unexpected truly optimal policy
2. Political cost of reforms (Bonfiglioli and Gancia 2011)
   - Low output signals laziness or incompetence
   - Refrain from beneficial reforms that depress output in the short run

- Similar to our mechanism ...
  - Elections induce myopic bias from benevolent politicians
  - Term limits are optimal if the distortion is too high
- ... but opposite
  - Politicians pander to voters' actual perceived short-run preferences
  - Distortions decline when voters are *less* informed

Private Sector

- Infinitely lived representative household with utility

$$U_t = \sum_{s=0}^{\infty} \beta^t \mathbb{E}\left[(1-\gamma)\log c_{t+s} + \gamma \log g_{t+s}\right]$$

  - Private consumption c_t; government-provided public services g_t

- Aggregate production function

$$y_t = A_t k_t^{\alpha}$$

  - Competitive firms with Cobb-Douglas technology $Y_{i,t} = A_t K_{i,t}^{\alpha} L_{i,t}^{1-\alpha}$

- Dynamic budget constraint

$$k_{t+1} = \left[1 - (1-\alpha)\tau_t\right] y_t - c_t$$

  - Capital depreciates fully every period

Public Sector

- Public capital à la Barro (1990)

$$A_t = A h_t^{1-\alpha}$$

  - Also depreciates fully every period

- Balanced-budget constraint

$$x_t^g + x_t^h = (1-\alpha)\,\tau_t y_t$$

- Stochastic technology

$$g_t = x_t^g \exp\left(\eta_t^g\right) \text{ and } h_{t+1} = x_t^h \exp\left(\eta_t^h\right)$$

- MA(1) competence of the ruling politician

$$\eta_t^g = \varepsilon_t^g + \varepsilon_{t-1}^g \text{ and } \eta_t^h = \varepsilon_t^h + \varepsilon_{t-1}^h$$

  - I.i.d. innovations with $\mathbb{E}\varepsilon_t^i = 0$ and $\mathbb{E}\left[\left(\varepsilon_t^i\right)^2\right] = \sigma_i^2$ for $i \in \{g, h\}$

Information and Decision-Making

1. Capital (k_t, h_t) and the incumbent's $\left(\varepsilon^g_{t-1}, \varepsilon^h_{t-1}\right)$ are publicly observed
2. The incumbent sets the tax rate τ_t, which everyone observes
3. Citizens choose (c_t, k_{t+1}). The incumbent chooses $\left(x^g_t, x^h_t\right)$
   - Nobody can observe directly the allocation of the government budget
4. The provision of public goods (g_t, h_{t+1}) is realized
   - $\left(\varepsilon^g_t, \varepsilon^h_t\right)$ is not directly observable until period $t+1$
5. g_t is publicly observed. Voter i observes h_{t+1} with probability θ
   - The arrival of information about h_{t+1} is independent across agents
   - Information θ is an increasing function of social capital
6. The incumbent runs for reelection against a random challenger

Social Capital and Voter Information

1. Each individual directly observes h_{t+1} with probability $\nu \in (0,1)$
2. He belongs to a network of $n > 1$ trusted agents he shares information with

- Eventual information

$$\theta(\nu, n) = 1 - (1-\nu)^n > \nu$$

  - Increasing in information acquisition ν and information sharing n
  - Complementarity between the two channels
  - Decreasing returns $\Rightarrow$ social costs of inequality
- Individual information acquisition as civic engagement
  - Newspaper readership is a classic measure of social capital
- n measures social connectedness and reflects one facet of trust
  - Whose cheap talk can you believe?

Political Career Concerns

- Politicians internalize the welfare of the representative household
  - Benevolent, or simply belonging to a representative household
- Additional ego rent $z > 0$ for every period in office
  - If defeated, never return to power
- No private information about ability
  - Past competence $\left(\varepsilon^g_{t-1}, \varepsilon^h_{t-1}\right)$ is public information
  - Current shock $\left(\varepsilon^g_t, \varepsilon^h_t\right)$ not realized when $\left(x^g_t, x^h_t\right)$

$\Rightarrow$ Career concerns à la Holmström ([1982] 1999)

1. Higher $x^g_t \Rightarrow g_t$ signals higher ε^g_t to all voters
2. Higher $x^h_t \Rightarrow h_{t+1}$ signals higher ε^h_t to informed voters only

Probabilistic Voting

Additively separable voting preferences

1. Policy preferences

$$\Delta_t^i \equiv \mathbb{E}_i \left(U_{t+1} | I_t \right) - \mathbb{E}_i \left(U_{t+1} | C_t \right)$$

2. Non-policy tastes

$$\xi_{C_t}^i - \xi_{I_t}^i \equiv \Psi_t + \psi_t^i$$

   - Uniform common shock $\Psi_t \sim U\left[-1/\left(2\phi\right), 1/\left(2\phi\right)\right]$
   - Uniform idiosyncratic shock $\psi_t^i \sim U\left[-\bar{\psi}, \bar{\psi}\right]$

$\Rightarrow$ Voter i supports the incumbent I_t against the challenger C_t iff

$$\Delta_t^i \geq \Psi_t + \psi_t^i$$

- Neither the election nor anyone's vote can be predicted with certainty

Retrospective Voting with an Intensive Margin

- A novel combination of three features of electoral competition
  1. Political career concerns
  2. Probabilistic voting
  3. Heterogeneous information
- Politicians cannot commit to platforms and are judged on their record
  - Unlike the textbook model of probabilistic voting
- All voters matter in the political support function
  - Unlike standard Downsian models of career concerns
  - Tractable and realistic model of voter heterogeneity

$\Rightarrow$ Politicians care about the expected perception of their ability

- Elections with an intensive margin identical to a market for talent

$\Rightarrow$ Informed and uninformed voters matter in proportion to their numbers

- More information means less "noise voting"

Equilibrium

- Social optimum = planner's solution
  - Essentially King, Plosser, and Rebelo (1988)
  - Log utility, Cobb-Douglas technology, one-period depreciation
  - Endogenous growth with two types of capital
- Endogenous stochastic productivity
  - Bad incumbents can be replaced with a fresh draw
- Markov-perfect decentralized equilibrium
  - Infer $\left(\varepsilon_t^g, \varepsilon_t^h\right)$, no reputation for ignoring career concerns
- Analogous closed-form solution
  - Value function for the representative household

$$V\left(s_t\right) = v_0 + v_k \log k_t + v_h \log h_t + v_\varepsilon^g \varepsilon_{t-1}^g + v_\varepsilon^h \varepsilon_{t-1}^h$$

  - Value of incumbency $Z\left(s_t\right) = Z$: nobody can be fooled

Allocation of Output

- Invariant allocation of output y_t
- Private consumption and investment

$$c_t = (1-\beta)(1-\gamma) y_t \text{ and } k_{t+1} = \alpha\beta y_t$$

- Invariant tax rate

$$\tau = \beta + \frac{(1-\beta)\gamma}{1-\alpha}$$

- Government expenditures

$$x_t^g = [(1-\beta)\gamma + \zeta(\theta)] y_t \text{ and } [(1-\alpha)\beta - \zeta(\theta)] y_t$$

- Bias $\zeta(\theta)$ such that $\zeta'(\theta) < 0$
  - Greater voter information increases public investment
  - The first best is reached when voters are perfectly informed: $\zeta(1) = 0$

Productivity Shocks with Electoral Screening

- Government competence $\left(\hat{\eta}_t^g, \hat{\eta}_t^h\right)$ is endogenously determined by elections
- Efficiency of public services $\hat{\eta}_t^g$ independent of θ
- Efficiency of public investment $\hat{\eta}_t^h$ increasing in θ
  - First-order stochastic dominance
- The first-best level of screening is unattainable
  - Voters always have idiosyncratic non-policy preferences
  - Unpredictable elections: the worst incumbent may win or the best lose
- The intensive margin also explains the invariance of $\hat{\eta}_t^g$
  - No trade-off between selecting by ability $\hat{\eta}_t^g$ or $\hat{\eta}_t^h$
  - Margin between either ability and non-policy tastes

Stochastic Balanced Growth Path

- No transitional dynamics: immediate steady state given $y_0 > 0$
- Stochastic growth rate

$$\log y_{t+1} - \log y_t = \log A + \log \beta + \alpha \log \alpha + (1-\alpha) \log \left[1 - \alpha - \zeta(s)/\beta\right] + (1-\alpha)\hat{\eta}_t^h$$

  - Trend total factor productivity A
  - Patience $\beta \Rightarrow$ savings rate
- Voter information permanently raises the growth rate
  - Higher public investment rate (lower $\zeta(\theta)$)
  - Upward shift in the distribution of productivity shocks $\hat{\eta}_t^h$
- Voter information tends to reduce the variance of the growth rate
  - If, but not only if, the innovation ε_t^h does not have positive skew

Term Limits

- Trade-off in having elections
  - Retain better incumbents, replace worse ones
  - Distort the incentives of benevolent politicians
- For low θ, screening is poor and incentives highly distorted
- For $\theta < \bar{\theta}\left(\sigma_g^2, \sigma_h^2, z\right)$, term limits (no elections) are welfare-increasing
- Less likely when ability is highly variable: $\partial\bar{\theta}/\partial\sigma_i^2 < 0$ for $i \in \{g, h\}$
  - Selection is more valuable for any level of information
- More likely when ego rents are large: $\partial\bar{\theta}/\partial z > 0$
  - Incentives are more distorted for any level of information

Endogenous Social Capital and Development Traps

- So far: social capital $\Rightarrow$ public investment
  - Particularly: public investment in education $\Rightarrow$ human capital
- But also: human capital $\Rightarrow$ social capital
  - Investment in education $\Rightarrow$ social capital (Algan, Cahuc, Shleifer 2010)
- Multiple steady states and feedback loops
  1. High investment $\Leftrightarrow$ high social capital $\Leftrightarrow$ high growth
  2. Low investment $\Leftrightarrow$ low social capital $\Leftrightarrow$ low growth
- Failure of democracy (Glaeser, Ponzetto, Shleifer 2007)
  - No malevolent dictator, kleptocrat, or oligarchic elite
  - But an extraordinary politician can be the way out of the trap