Swords into Bank Shares:
Financial Innovation and Innovators in Solving the Political Economy Challenges of Development

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An old, but common story

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- ▶ Seeks to adopt best practice reforms
    - ▶ Liberalize banking
    - ▶ Meritocratic civil service, modern education.

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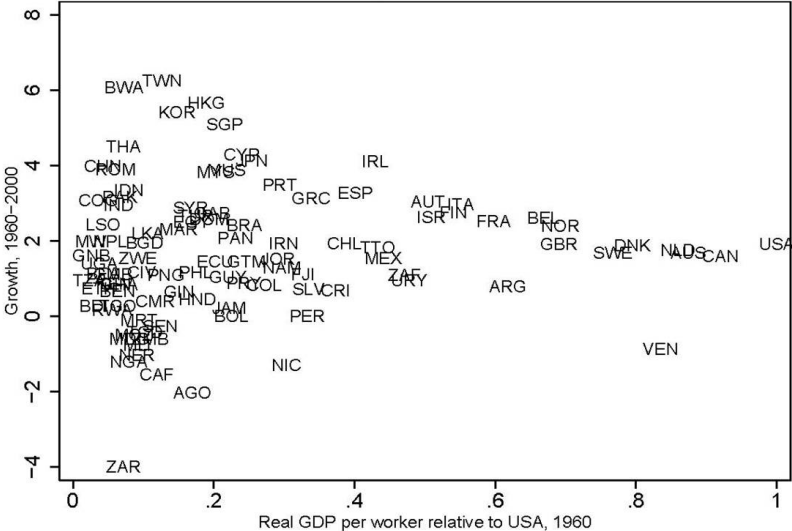# An old, but common story

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- ▶ But potential losers (civil service, existing elites) mobilize. . .
- ▶ "100 Days Reforms" Fail (1898)
- ▶ China faces years of violence, unrest, revolution before reforms occur.
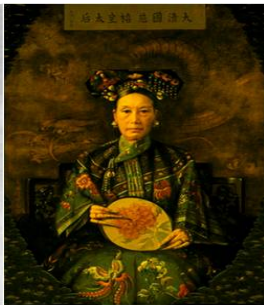
Underdevelopment persists

Source: Durlauf, Johnson and Temple 2005

A key challenge

Misaligned incentives among "self-interested" groups are a major cause of persistent underdevelopment around the world (Rajan, 2006)

- ▶ Potential losers (often elites) create barriers against beneficial reforms (AJR 2005, Rajan 2008, Pagano and Volpin 2005,Haber and Perotti 2010)
- ▶ Social divisions reduce public goods, growth, raise conflict (eg Alesina, et al 1999, Montalvo and Reynal-Querol 2005)
- ▶ Inequality may lead to poor institutions, financial repression (Ramcharan and Rajan, forthcoming, Engerman and Sokoloff)

Key policy challenge: to build broad coalitions in favour of beneficial reforms and policies across groups with different, often conflicting, initial interests.

How do we solve political economy problems in development?

The PE problem comes from conflict of interests and thus from differences in endowments which shape these interests.

- ▶ "Endowments" are broadly defined: e.g. property rights (eg North & Weingast 1989, Acemoglu & Robinson 2008), wealth, human capital, ethnicity, access to finance (Rajan)
- ▶ Further, an inability to credibly commit to compensate losers from the reforms often the justification for policy failures.
- ▶ "Homogenize" endowments? Redistribution may be blocked. Partition also problematic (Jha and Wilkinson 2011)
- ▶ Since endowments shape interests, institutional reform comes from shocks and historical accidents that change endowments.
- ▶ What is the role for policy?

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- ▶ "Homogenize" endowments? Redistribution may be blocked. Partition also problematic (Jha and Wilkinson 2011)
- ▶ Since endowments shape interests, institutional reform comes from shocks and historical accidents that change endowments.
- ▶ What is the role for policy? Not much. PE provides a "constraint" or worse, a straitjacket

But building of pro-reform coalitions is an old problem

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Three immodest goals for this paper.

1. To break the PE policy straitjacket.
2. To lay out a research agenda providing theory and empirical evidence on the nature of successful policies for solving the gravest PE problems of development.
3. To provide illustration of concept, of the successful use of financial innovation, often by PE problem-solvers, in three states that would subsequently lead the world in GDP growth: revolutionary England (C17) (carefully), US (C18)(in progress), Japan (C19)(in progress)

If you fall asleep now

Here are four core ideas to take-away.

1. Novel ideas can act as shocks that reshape interests. May in fact be easier, since harder to coordinate anti-reform coalitions. Jefferson vs Hamilton.

2. Financial PE solutions by technocratic reformers, have allowed risks and future opportunities from even conventionally-perceived "non-insurable" endowments like human capital, ethnicity, to be shared.

3. The financial revolutions of England, the US and Japan preceded economic growth, and in the latter two were (intentionally) designed to cause political and institutional development by building pro-reform coalitions.

4. More broadly, we can reduce the gravest political economy challenges to (often more) tractable problem of securitizing risks, reducing transaction costs.

A benchmark model

Assume: $j \in J^{(1 \times N)}$ agents, endowed with $i \in I$ different assets, $\{\omega_{1j} \ldots \omega_{Ij}\}$ (broadly defined), initially valued v_{ji}, with rate of return R^{ji}. Are risk averse, care about ex post utility:

$$U_j = E(\sum_i \tilde{R}^{ji} \omega_{ji} v_{ji}) - \frac{\delta_j}{2W^j} Var(\sum_i \tilde{R}^{ji} \omega_{ji} v_{ji}) \qquad (1)$$

where $W^j = \sum_i \omega_{ji} v_{ji}$, and $\delta_j > 0$.

- Socially beneficial reform r improves utilitarian SWF: $\sum_j \alpha_j U_{j|r} > \sum_j \alpha_j U_{j|-r}$, welfare weights $\alpha_j, \sum_j \alpha_j = 1$.
- Political rights: subset of "deciders" $g \in \{0, 1\}^N$, s.t. reform passes if $\sum_N g \geq \frac{N}{2}$.
  - dictatorship: $g = \{0, 1, 0 \ldots 0\}^N$
  - universal franchise: $g = \{1, \ldots, 1\}^N$

Complete markets solve the PE problem

Without markets, endowments determine interests.

- For any allocation of political rights, unless $\frac{1}{2}+$ of deciders g are made better off by the reform, the socially-beneficial reform will not be adopted for the broader population.

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- intuition: b/c $v_i = p_i$, problem reduces to canonical model of portfolio choice: to diversify, all agents (even with different wealth levels) hold the *market portfolio* of risky assets.

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PE problem reduced to filling in missing markets, reducing transaction costs.

Some concerns you are probably having right now.

Don't incumbents thrive on asymmetric information, transaction costs?

- ▶ True, and have often blocked such reforms. But, as we shall illustrate in both a democracy (US) and a dictatorship (Japan), new ideas introduced by technocratic reformers can surprise them or provide new opportunities that change their interests.

Surely we cannot diversify human capital or ethnicity risk?

- ▶ But reformers can (and have) created financial assets and institutions that allow individuals to share in the risks and the future revenue streams of non-tradeable endowments without them actually changing hands.

The "Long Parliament", 1640-1660, Sort of a big deal.

The Father of Parliaments, which first rendered Parliaments supreme, and has since set the world upon the chase of Parliaments. Thomas Carlyle, 1845

Before 1640:

- ▶ Crown calls/ dismisses parliament at will- "Crisis of parliaments" (1629-1640)
- ▶ Crown has independent finances, control over customs, foreign policy (innovation), war
- ▶ England peripheral to European commerce, with limited industry (e.g. *Alderman Cockayne's project*).

After Long Parliament (1640-1660):

- ▶ Parliament can convene itself.
- ▶ Parliament controls finances, and thus controls foreign policy (treaty of Dover).
- ▶ Navigation Acts, rise of English Navy, trade boom.
- ▶ Trajectory towards increasing representative government, Bill of Rights, transplantation of institutions around the world.

The First Bourgeois Revolution?

The reasons for England's political development in 17th century has been a subject of major debate ever since.

- ► Political shocks (avaricious Stuarts) $\Rightarrow$ mobilisation by wealthy to protect property. Leads to credible commitment, growth.

  North and Weingast (1989), Whigs

- ► Economic shocks $\Rightarrow$ new constituencies who mobilise to protect newly acquired property.

  'bourgeois' $\Leftrightarrow$ merchants, "new merchants" (Brenner 1993, AJR 2005), "newly commercialised" gentry (Barrington Moore 1969, Tawney 1942, Rajan 2006)

- ► Evidence appears mixed:
  - ► Little evidence for a fall in expropriation risk visible in rates of return to land, other assets

    (Sussman & Yafeh 2002, Clark 1996, Murrell 2009)

  - ► But Acts of Parliament become more responsive.

    (Bogart 2009, Bogart & Richardson 2010)

"Financial innovations and political development"

- First direct empirical evidence on support for Parliamentary control of government using novel data on endowments of 548 MPs in Long Parliament (1640-60) that spanned the Civil War.

- Rather than shocks to existing property, emphasises contest over rights to new/future opportunities (eg New World and Asia) + financial innovation (shares) that allows broad access.

- Measures effects of shareownership on support for reform using two strategies:
  - Use rich controls for potential deviations from benchmark canonical model of portfolio choice to establish (lower) bound estimates.
  - Use disproportionate shock to enthusiasm for shares among cohort who came of age just after Drake's voyages as exogenous source of variation in a Fuzzy RD setup.

Findings

- No evidence that existing property was important for support for reform.

- Instead, endowments that were most under ruler's discretion under the existing constitution have the most effect: court connections, religion and overseas interests (including shares)

- Evidence for an alignment effect of shares: Shares increase propensity to support reform by around 25 pp among non-merchants. Non-merchant (mainly sedentary landowning) shareholders act like overseas merchants.

- In fact, shares (under lower bound estimate of 12.5 pp) pushes support for Parliament from minority position to majority (from 42.4% to 59.0%).

- Shareownership may have been pivotal for 29 MPs (or 5.4% of all MPs), including Three of the "Five Members".

- Effects consistent across lifecycle of the struggle: pre-war legislative (1640), early war parliamentary contributions (1642), membership in Rump Parliament of victors (1648-53)
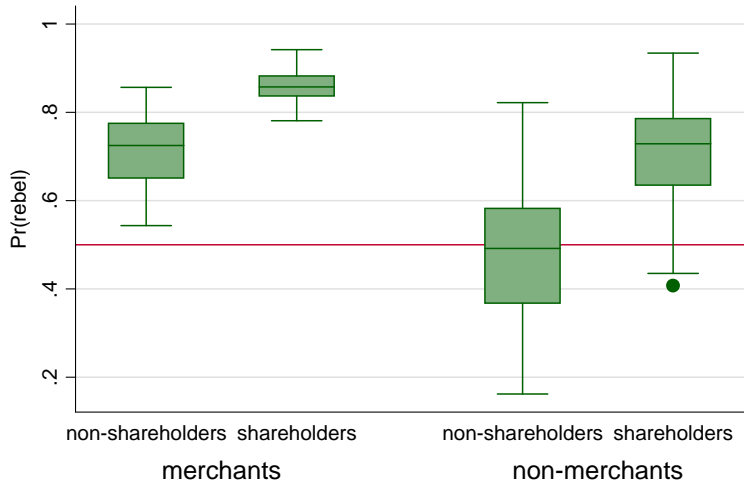
Historical interpretation

- Introduction of shares allowed non-merchants to benefit from new opportunities overseas (New World and Asia).

- BUT Crown, though constrained domestically, controlled "sovereignty" rights overseas- was gaining wealth.

- So shares aligned incentives of broad coalition in favour of constitutional reforms to acquire overseas rights.

- Reforms encouraged representative government and public goods overseas (Navy), proved crucial for England's growth.

Pre-Civil War overseas joint stock ventures unprofitable

EIC outbound tonnage

Foreign predation : Guiana Co, East India Co, Senegal Co, Gynney Bynney Co, Providence Island Co.

Crown raises customs : Bermuda Co, Levant Co, East India Co.

Crown revokes charter : Bermuda Co, Irish Co, Newfoundland Co, (Massachusetts Bay Co). (Table 11)

The rise of customs in Crown revenue

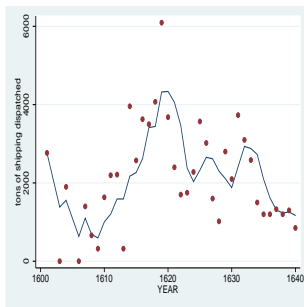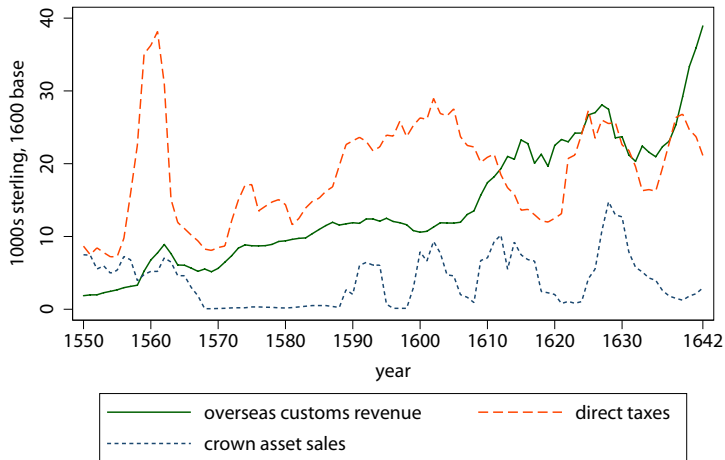# Ships in the Royal Navy and its rivals
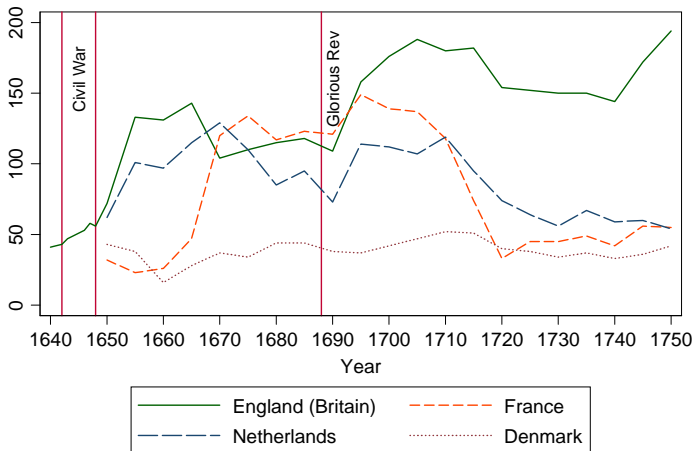
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A simple theoretical framework

▶ Assume additive expected utility for a member of parliament (MP):

$$U_i = \sum_j \beta_{j|z} x_{ij} + u_z$$

x_{ij}: individual endowments;
$\beta_{j|z}, z \in \{P, R\}$: rate of return on endowment j if R or P wins;
u_z: orthogonal factors influencing $U_i|z$.

- ▶ Suppose support of an individual agent increases the chances of victory by an amount $s > 0$.
- ▶ Suppose that each agent believes that with probability μ, Parliament (P) will win the struggle against Royal authority (R).
- ▶ Agent's problem: support P or R:

$$
\max_{z \in \{P, R\}}
$$
$$
\left[(\mu + s) \left(\sum_j x_{ij} \beta_{j|P} + u_P \right) + (1 - \mu - s) \left(\sum_j x_{ij} \beta_{j|R} + u_R, \right) \right.
$$
$$
\left. (\mu - s) \left(\sum_j x_{ij} \beta_{j|P} + u_P \right) + (1 - \mu + s) \left(\sum_j x_{ij} \beta_{j|R} + u_R, \right) \right]
$$

The optimal choice implies a cut-off strategy.

Subtracting the values above reveals that an agent will choose to support political reform if:

$$s\left(\sum_j x_{ij}[\beta_{j|P} - \beta_{j|R}] + (u_P - u_R)\right) > 0 \qquad (2)$$

Sufficient condition for an agent's decision to support political reform to be invariant to the agent's exposure to any particular endowment x_{ij} is:

$$\beta_{j|P} = \beta_{j|R} \qquad (3)$$

(Necessary if $s > 0$: suggests joint invariance of all endowments: test rejected)

Thus the probability of supporting Parliament is:

$$\mathbb{P}\{P\} = F\left(\sum_j sx_{ij}[\beta_{j|P} - \beta_{j|R}]\right) \tag{4}$$

where $F(\cdot)$ is cdf of $u_P - u_R$.

- Assuming that u_z are normal or uniform, Equation (4) can be estimated using standard probit or OLS respectively.

Remarks:

- If rate of return on endowment unaffected by regime, then endowment should have no influence (e.g. secure property rights)
- Endowments most subject to executive discretion should have the greatest influence (e.g. overseas investment, but also court ties, religion.)

Long Parliament (1640-1660) data allows rich controls

Biographies of each of 500+ MPs in Commons allows link to investor lists of all major joint stock companies, 1575-1640.

- **class/ court interests**: apprenticed to merchant guild, inherited ties to court.
- **domestic wealth**: inherited land/ large estates, heir, father's titles, father's share investment, family in gentry before Tudors.
- **religion**: Puritan colleges/ seminary, Puritan ministers per capita in constituency, Catholic recusants per capita.
- **constituency data**: demesne, castle, borough, ports, county / borough wealth, town>5000, population density, County FE.

Empirical method 1: Direct matching

Claim: introduction of shares aligned agents' incentives for political reforms

- ▶ Benchmark (Markowitz): no transaction costs, no non-insurable risks: *everyone* should hold efficient (market) portfolio.
  So: no selection bias!

- ▶ BUT: individuals cannot buy stocks if do not know they exist. Leads to fixed cost differences, local biases (eg Merton 1987, Guiso et al 2003, Zhu 2003)
  So: can directly match shareholder MPs to other MPs along rich set of wealth and location endowments.

- ▶ BUT: Human capital often non-insurable
  Relevant difference: mercantile apprenticeships- can compare to non-merchants

Summary statistics (Table 2)

		Non-investors		Investors		Welch
	Obs	Mean	SD	Mean	SD	(Prob>|t|)
Outcomes						
Supporter of Parliamentary control	534	0.51	0.50	0.75	0.44	0.000
Contributor to London Defense	548	0.34	0.47	0.52	0.50	0.001
Amount for London Defense	547	90.05	222.39	155.30	242.36	0.010
Log(income) (wills/ fines)	270	6.72	1.12	7.11	1.29	0.047
Received court office	548	0.24	0.43	0.33	0.47	0.067
Individual endowment controls						
Father investor	548	0.23	0.42	0.31	0.46	0.111
Inductee into merchant guild/ co.	548	0.11	0.32	0.23	0.42	0.005
Inherited landed estate (``gentry")	548	0.72	0.45	0.69	0.46	0.564
Inherited 3+ manors	548	0.33	0.47	0.34	0.47	0.843
Heir	545	0.74	0.44	0.71	0.45	0.577
Father noble	548	0.10	0.30	0.05	0.22	0.071
Father knight or baronet	548	0.35	0.48	0.34	0.48	0.925
Landed prior to Tudor dynasty	548	0.21	0.40	0.16	0.36	0.194
Inherited tie to royal court	548	0.28	0.45	0.29	0.46	0.823
Religious endowment controls						
Puritan education	548	0.16	0.36	0.16	0.37	0.869
Puritan ministers per 10000 in county	548	0.43	0.70	0.62	0.84	0.030
Years of age after Drake (1585)	536	31.18	12.33	23.46	10.56	0.000

Family and MP investment
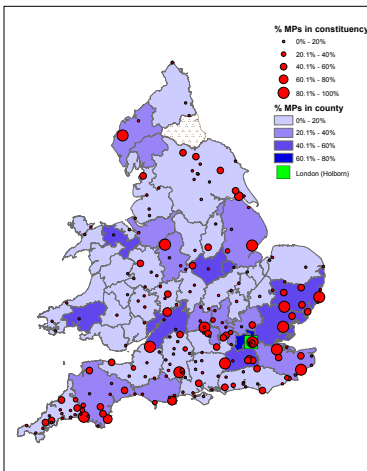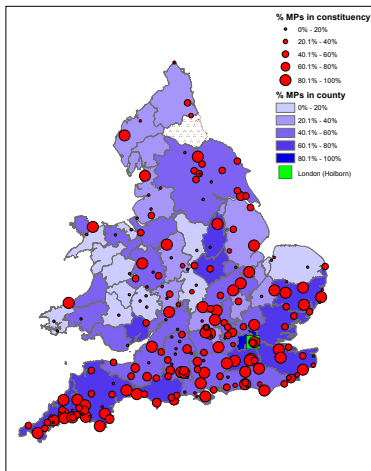
Probability of Holding Overseas Shares (Table 3)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	No controls	Personal		Constituency/ Geographic		Omitting Middlesex	County FE
	Probit dF/dX	Probit dF/dX	OLS	Probit dF/dX	OLS	OLS	OLS
Merchant (apprenticed)	0.171**	0.169**	0.169**	0.109*	0.113*	0.111*	0.113*
	[0.070]	[0.073]	[0.070]	[0.066]	[0.064]	[0.065]	[0.064]
Gentleman (inherited a manor)	0.013	0.011	0.012	0.020	0.016	0.021	0.001
	[0.039]	[0.059]	[0.057]	[0.058]	[0.055]	[0.056]	[0.059]
Inherited land		0.015	0.017	-0.005	0.003	-0.009	0.001
		[0.060]	[0.061]	[0.061]	[0.057]	[0.058]	[0.065]
Heir		-0.012	-0.010	-0.022	-0.022	-0.017	-0.016
		[0.059]	[0.059]	[0.059]	[0.056]	[0.057]	[0.057]
Father knight or baronet		-0.005	-0.005	-0.017	-0.017	-0.020	-0.023
		[0.038]	[0.038]	[0.037]	[0.037]	[0.039]	[0.043]
Father noble		-0.107*	-0.117*	-0.114**	-0.121*	-0.123*	-0.095
		[0.058]	[0.066]	[0.051]	[0.062]	[0.062]	[0.072]
Landed prior to Tudor dynasty		-0.029	-0.027	-0.042	-0.040	-0.038	-0.039
		[0.045]	[0.043]	[0.047]	[0.045]	[0.046]	[0.052]
Constituency dist to London (100km)			-0.034	-0.033	0.038	0.037	0.045*	-0.039
			[0.024]	[0.022]	[0.028]	[0.026]	[0.026]	[0.056]
Puritan education			0.040	0.041	0.032	0.033	0.036	0.038
			[0.049]	[0.047]	[0.044]	[0.043]	[0.043]	[0.043]
Observations	548	545	545	545	545	536	545
(Pseudo) R-squared	0.04	0.10	0.13	0.12	0.15	0.14	0.26

Robust standard errors, clustered at county level; * significant at 10%; ** 5%; *** 1%. All regressions include: Father investor, Inherited court connections.

Supporter of Parliamentary control I (Table 4)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
						Omitting	County FE
	No controls	Personal		Constituency		Middlesex	
	Probit	Probit		Probit			
	dF/dX	dF/dX	OLS	dF/dX	OLS	OLS	OLS
Shareholder in joint stock	0.213***	0.205***	0.189***	0.197***	0.179***	0.182***	0.207***
	[0.045]	[0.046]	[0.042]	[0.045]	[0.042]	[0.043]	[0.044]
Merchant (apprenticed)	0.214**	0.183**	0.168**	0.203**	0.176**	0.179**	0.150*
	[0.089]	[0.090]	[0.080]	[0.085]	[0.073]	[0.074]	[0.078]
Gentleman (inherited a manor)	0.032	0.030	0.028	0.021	0.021	0.022	0.042
	[0.041]	[0.048]	[0.043]	[0.048]	[0.042]	[0.044]	[0.046]
Inherited land		0.007	0.001	0.006	-0.002	-0.002	0.008
		[0.054]	[0.049]	[0.056]	[0.051]	[0.053]	[0.057]
Heir		-0.001	0.003	0.002	0.006	0.005	0.007
		[0.055]	[0.049]	[0.054]	[0.049]	[0.049]	[0.050]
Father knight or baronet		-0.058	-0.050	-0.075	-0.061	-0.060	-0.084
		[0.057]	[0.053]	[0.062]	[0.055]	[0.056]	[0.057]
Father noble		-0.166*	-0.151*	-0.157*	-0.143*	-0.142*	-0.143
		[0.085]	[0.079]	[0.086]	[0.077]	[0.079]	[0.093]
Landed prior to Tudor dynasty		-0.017	-0.017	-0.014	-0.017	-0.017	-0.029
		[0.066]	[0.060]	[0.063]	[0.056]	[0.056]	[0.064]
Constituency dist to London (100km)		-0.123***	-0.114***	-0.071*	-0.068**	-0.071**	0.059
		[0.027]	[0.024]	[0.038]	[0.034]	[0.035]	[0.076]
Puritan education		0.168**	0.155**	0.148*	0.137*	0.137*	0.112
		[0.073]	[0.070]	[0.078]	[0.071]	[0.073]	[0.080]
Observations	534	531	531	531	531	522	531
(Pseudo) R-squared	0.04	0.10	0.13	0.12	0.15	0.14	0.26
AET Bias			0.055**		0.081*	0.060	0.082
			[0.026]		[0.042]	[0.037]	[0.052]
Implied Lower Bound			0.134		0.098	0.122	0.125
Ratio: Unobservables : Observables			3.469		2.200	3.019	2.512

ATE sensitivity to unobserved covariate (Imbens 2003)
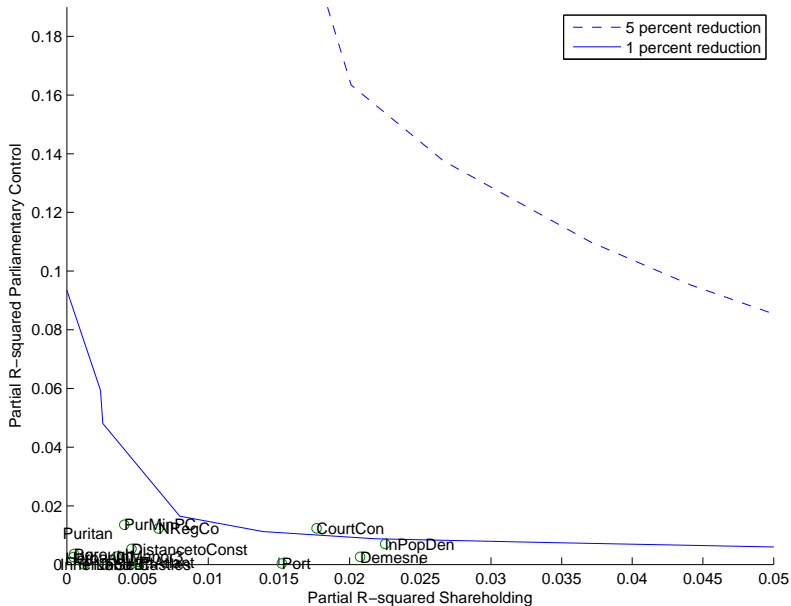
Supporter of Parliamentary control II (Table 5A) (interactions)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	No controls	Personal		Constituency		Omitting Middlesex	+ County FE
	Probit dF/dX	Probit dF/dX	OLS	Probit dF/dX	OLS	OLS	OLS
Panel A: All investors							
Shareholder in joint stock	0.264***	0.254***	0.242***	0.244***	0.231***	0.233***	0.270***
	[0.043]	[0.045]	[0.045]	[0.045]	[0.043]	[0.044]	[0.044]
Shareholder x merchant	-0.321**	-0.300**	-0.270**	-0.323**	-0.289**	-0.301**	-0.358**
	[0.135]	[0.138]	[0.126]	[0.135]	[0.122]	[0.137]	[0.124]
Merchant (apprenticed)	0.296***	0.265***	0.259***	0.286***	0.271***	0.277***	0.264***
	[0.067]	[0.073]	[0.072]	[0.072]	[0.069]	[0.070]	[0.068]
Gentleman (inherited a manor)	0.025	0.019	0.02	0.011	0.014	0.015	0.034
	[0.042]	[0.048]	[0.043]	[0.048]	[0.042]	[0.043]	[0.045]
Observations	534	531	531	531	531	522	531
(Pseudo) R-squared	0.05	0.11	0.14	0.13	0.16	0.15	0.27

Robust standard errors, clustered at county of constituency level; * significant at 10%; ** 5%; *** 1%; Personal controls include: Heir, Father -investor, -knight or baronet and -noble, Inherited land, inherited tie to royal court, Puritan education, landed prior to Tudor dynasty, constituency distance to London; Constituency controls include: Urban population>5000, borough, port, royal demesne, noble castles, puritan ministers per capita in county, log. population density of county.

Supporter of Parliamentary control III (Table 5B) (unprofitable companies only)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	No controls	Personal		Constituency		Omitting Middlesex	+ County FE
	Probit dF/dX	Probit dF/dX	OLS	Probit dF/dX	OLS	OLS	OLS
Unprofitable shareholder	0.284***	0.289***	0.280***	0.269***	0.257***	0.258***	0.271***
	[0.050]	[0.054]	[0.056]	[0.058]	[0.058]	[0.058]	[0.060]
Unprofitable JSC x merchant	-0.487***	-0.475***	-0.477***	-0.481***	-0.464***	-0.481***	-0.470***
	[0.070]	[0.077]	[0.145]	[0.076]	[0.134]	[0.140]	[0.143]
Merchant (apprenticed)	0.315***	0.281***	0.266***	0.289***	0.266***	0.272***	0.246***
	[0.065]	[0.072]	[0.070]	[0.075]	[0.072]	[0.073]	[0.076]
Gentleman (inherited a manor)	0.025	0.024	0.023	0.017	0.019	0.019	0.039
	[0.043]	[0.049]	[0.044]	[0.048]	[0.043]	[0.044]	[0.048]
Observations	534	531	531	531	531	522	531
(Pseudo) R-squared	0.05	0.11	0.14	0.13	0.16	0.15	0.26

Robust standard errors, clustered at county of constituency level; * significant at 10%; ** 5%; *** 1%; Personal controls include: Heir, Father -investor, -knight or baronet and -noble, Inherited land, inherited tie to royal court, Puritan education, landed prior to Tudor dynasty, constituency distance to London; Constituency controls include: Urban population>5000, borough, port, royal demesne, noble castles, puritan ministers per capita in county, log. population density of county.

Counterfactual exercises

All MPs faced stark (and symmetric) choice: for Parliament implies being against the Crown, and vice versa.

- ▶ So can consider those pushed over 50% probability threshold in favor of Parliament as likely switchers of allegiance.

- ▶ If we subtract the lower bound estimate of effect of shares (12.5 pp) on shareholders, the median MP had a probability of supporting Parliament of 43.6%, with a majority of 58.6% of MPs in favor of the Crown.

- ▶ With shares, median MP has probability of 56.7% of supporting Parliament, with a majority of 59.0% for Parliament.

- ▶ Extensive margin: those individual MPs that were likely to have been pushed over the threshold towards support for constitutional reform due to shares: ranges from 20 (LB) to 29 (or 5.4% of all MPs) using the conventional estimates.

Parliamentary supporters for whom shares pivotal

Name	Constituency	Predicted Prob (Support for Parliament)	Mercantile/ Gentry endowments?	Joint Stock Company		
				Incursion into Spanish/ Portuguese monopolies	Colonization	New Trades
Robert Harley	Herefordshire	0.504			Virginia	
Nathaniel Stephens	Gloucestershire	0.518	Gentry			East India
Edward Stephens	Tewkesbury, Gloucestershire	0.536	Gentry			East India
Denzil Holles	Dorchester, Dorset	0.598	Gentry		Dorchester	
Henry Darley	Northallerton, Yorkshire	0.600	Gentry	Providence Island	Mass Bay	
Arthur Ingram	Callington, Cornwall	0.603	Merchant	Guiana	Virginia	
Thomas Walsingham	Rochester, Kent	0.604	Gentry		Virginia	East India
John Pym	Tavistock, Devon	0.604	Gentry	Providence Island	Saybrook	
John Wylde	Worcestershire	0.618		Privateering		East India
Peregrine Pelham	Hull, Yorkshire	0.620	Merchant		Virginia	
John Hippisley	Cockermouth, Cumberland	0.622		Privateering		
John Fenwick	Cockermouth, Cumberland	0.663			Virginia	
John Downes	Arundel, Sussex	0.664				
John Browne	Dorset	0.674	Gentry	Privateering	Dorchester, Mass Bay, New England, Newfoundland	East India, Levant
Oliver St John	Totness, Devon	0.681		Providence Island	Virginia	Africa (Gynney Bynney)
William Strode	Berealston, Devon	0.689			Dorchester	
Edmund Fowell	Ashburton, Devon	0.692		Privateering		
John Rolle	Truro, Cornwall	0.697	Merchant			Levant
John Harris	Launceston, Cornwall	0.714	Gentry		Virginia	
Benjamin Rudyard	Wilton, Wiltshire	0.714		Providence Island		

Above the line: shareholder MPs who actually rebeled but were likely to support the Crown in the absence of shares, based upon the lower bound share effect with personal, constituency controls and county fixed effects from Table 4. Below the line: additional switchers based on the conventional estimate. Endowments are coded ``merchant'' if the MP was apprenticed in a merchant company as a child; ``gentry'': if inherited a manor.

OLS	(1) No controls	(2) Personal	(3) Constituency	(4) Omitting Middlesex	(5) County FE	(6) Personal	(7) Constituency	(8) Omitting Middlesex	(9) County FE
Panel A: Supporter of Crown Advisor (Strafford) (1640)									
Shareholder in joint stock	-0.070***	-0.060***	-0.055**	-0.055**	-0.052*	-0.074***	-0.074**	-0.068**	-0.077**
	[0.022]	[0.021]	[0.022]	[0.024]	[0.027]	[0.027]	[0.030]	[0.030]	[0.034]
Shareholder x merchant						0.070*	0.106*	0.079	0.141**
						[0.041]	[0.054]	[0.052]	[0.060]
Merchant (apprenticed)	-0.129***	-0.119***	-0.098***	-0.109***	-0.093***	-0.142***	-0.133***	-0.134***	-0.137***
	[0.019]	[0.029]	[0.026]	[0.028]	[0.029]	[0.032]	[0.033]	[0.034]	[0.034]
Gentleman (inherited a manor)	-0.011	0.014	0.01	0.02	0.03	0.016	0.013	0.022	0.034
	[0.035]	[0.046]	[0.044]	[0.044]	[0.048]	[0.046]	[0.044]	[0.043]	[0.047]
Observations	548	545	545	536	545	545	545	536	545
R-squared	0.03	0.08	0.09	0.10	0.21	0.08	0.09	0.10	0.21
AET Bias	-0.017*	-0.028*	-0.040**	-0.036*	-0.054**				
	[0.009]	[0.014]	[0.019]	[0.020]	[0.025]				
Implied Lower Bound	-0.053	-0.032	-0.015	-0.019	0.002				
Ratio: Unobservables : Observables	4.107	2.123	1.380	1.530	0.958				

Lifecycle- Early Contributor: Parliamentary Defense (1642)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OLS	No controls	Personal	Constituency	Omitting Middlesex	County FE	Personal	Constituency	Omitting Middlesex	County FE
Panel B: Contributor to Defense of London (1642)									
Shareholder in joint stock	0.167***	0.159***	0.145***	0.143***	0.173***	0.168***	0.161***	0.160***	0.183***
	[0.049]	[0.047]	[0.049]	[0.050]	[0.055]	[0.049]	[0.051]	[0.052]	[0.055]
Shareholder x merchant						-0.046	-0.089	-0.098	-0.054
						[0.114]	[0.113]	[0.115]	[0.111]
Merchant (apprenticed)	0.109	0.014	-0.007	0.011	-0.005	0.029	0.022	0.043	0.012
	[0.069]	[0.065]	[0.060]	[0.059]	[0.064]	[0.086]	[0.079]	[0.078]	[0.079]
Gentleman (inherited a manor)	0.03	0.042	0.042	0.042	0.044	0.041	0.04	0.04	0.042
	[0.045]	[0.048]	[0.048]	[0.049]	[0.056]	[0.051]	[0.049]	[0.049]	[0.056]
Observations	548	545	545	536	545	545	545	536	545
R-squared	0.03	0.12	0.13	0.13	0.26	0.12	0.14	0.13	0.26
AET Bias	0.016	0.035	0.063*	0.044	0.059				
	[0.011]	[0.023]	[0.036]	[0.029]	[0.044]				
Implied Lower Bound	0.151	0.119	0.082	0.099	0.114				
Ratio: Unobservables : Observables	10.296	4.549	2.304	3.260	2.922				

Lifecycle- Served in Rump (1648-53)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OLS	No controls	Personal	Constituency	Omitting Middlesex	County FE	Personal	Constituency	Omitting Middlesex	County FE
Panel C: Served in the Rump Parliament (1648-53)									
Shareholder in joint stock	0.057	0.061	0.069	0.07	0.092**	0.121***	0.123***	0.127***	0.143***
	[0.042]	[0.040]	[0.041]	[0.043]	[0.044]	[0.042]	[0.039]	[0.040]	[0.041]
Shareholder x merchant						-0.303***	-0.295***	-0.330***	-0.281**
						[0.105]	[0.103]	[0.104]	[0.115]
Merchant (apprenticed)	0.144**	0.113	0.081	0.064	0.079	0.211***	0.177**	0.171**	0.168**
	[0.070]	[0.075]	[0.074]	[0.073]	[0.078]	[0.076]	[0.075]	[0.075]	[0.082]
Gentleman (inherited a manor)	-0.005	-0.016	-0.016	-0.013	-0.017	-0.027	-0.024	-0.022	-0.025
	[0.027]	[0.037]	[0.037]	[0.038]	[0.040]	[0.039]	[0.038]	[0.039]	[0.041]
Observations	535	532	532	523	532	532	532	523	532
R-squared	0.02	0.04	0.05	0.04	0.12	0.05	0.06	0.05	0.13
AET Bias	0.019	0.021	0.018	0.004	0.013				
	[0.012]	[0.018]	[0.025]	[0.018]	[0.032]				
Implied Lower Bound	0.038	0.040	0.051	0.066	0.079				
Ratio: Unobservables : Observables	3.019	2.845	3.838	16.547	6.827				

Empirical method 2: The holdup problem and downward bias

So far have sought to establish lower bounds on effect of shares. But effect may also be downward biased:

- ▶ Those encouraged to take advantage of overseas shares face holdup: king controls property rights.
- ▶ So agents may be motivated to support political change due to shares but delay actual investment until after the change (eg Cromwell).
- ▶ Thus using pre-war investment to measure effect of opportunity to invest would bias OLS **downwards**.
- ▶ So use differential exposure to nationwide enthusiasm for overseas investment due to Drake's voyages as IV and Fuzzy RD.

Need a shock to propensity to invest

- Individuals more likely to buy stocks when paying attention, "in the news", have extreme returns, are advertised, when others do too (Grullon et al 2004, Hong et al 2001, Guiso and Jappelli 2004)
- Inexperienced investors respond more to bursts of high returns (Greenwood and Nagel 2008),

So specific macro event, with social effects, advertising can lead to disproportionate investment shock, greatest for inexperienced investors without existing exposure.

Drake's voyage and shareholding in England

1552 : First joint-stock company: attempt to trade directly with Indies.

1577-80 : Drake's circumnavigation. Direct English trade with Indies feasible. Kept secret

1585 : Drake intercepts Spanish silver fleet. Drake's exploits
". . . inflamed the whole country with a desire to adventure upon the seas, in hope of like success [so] a great number prepared ships, mariners and soldiers and travelled every place where any profit may be had " –Thomas Hooker of Exeter, 1585

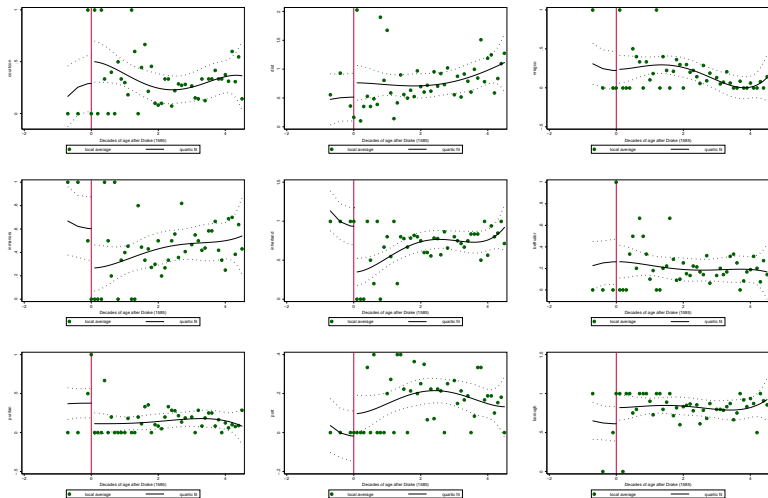# Drake's exploits and probability of MP investment
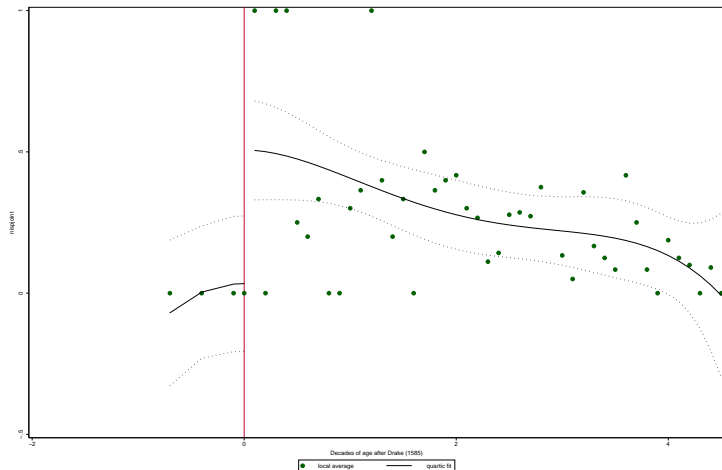
Effects of Drake's Voyage on Shareholding

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
OLS	No controls	Personal	+Constituency	Omitting Middlesex	+County FE	Personal	+Constituency	Omitting Middlesex	+County FE
Merchant (apprenticed)	0.116	0.123*	0.082	0.071	0.075	0.129*	0.087	0.075	0.079
	[0.070]	[0.071]	[0.064]	[0.064]	[0.063]	[0.070]	[0.063]	[0.063]	[0.063]
Gentleman (inherited a manor)	0.013	0.014	0.017	0.022	0.005	0.020	0.022	0.028	0.012
	[0.034]	[0.053]	[0.051]	[0.052]	[0.056]	[0.050]	[0.052]	[0.052]	[0.055]
Adult after 1585						0.415***	0.421***	0.418***	0.337**
						[0.122]	[0.116]	[0.115]	[0.130]
(Adult after 1585) x Age						-0.243	-0.133	-0.077	-0.333
						[0.303]	[0.330]	[0.329]	[0.316]
(Adult after 1585) x Age^2						-0.416***	-0.353**	-0.334**	-0.466***
						[0.142]	[0.156]	[0.155]	[0.163]
Age (decades)	-0.013	0.003	-0.020	-0.016	-0.043	0.240	0.107	0.060	0.298
	[0.053]	[0.054]	[0.052]	[0.053]	[0.057]	[0.299]	[0.322]	[0.321]	[0.321]
Age^2 (decades^2)	-0.012	-0.015*	-0.010	-0.010	-0.006	0.401***	0.343***	0.324**	0.458***
	[0.009]	[0.009]	[0.009]	[0.009]	[0.010]	[0.142]	[0.157]	[0.155]	[0.161]
Observations	536	533	533	525	533	533	533	525	533
R-squared	0.08	0.09	0.14	0.12	0.24	0.11	0.15	0.13	0.24
Joint F-test (1585 variables)						47.07	39.95	41.44	27.86
Probability> F						0.000	0.000	0.000	0.000

|	Personal, Constituency, County FE	Personal	Personal, Constituency, County FE	Personal, Constituency, County FE	Personal Constituency, County FE	Personal, Constituency, County FE	Personal, Constituency, County FE	Personal	Personal Constituency, County FE	Personal, Constituency, County FE	Personal	Personal, Constituency, County FE
	OLS	2SLS-RD	2SLS-RD	OLS	2SLS-RD	2SLS-RD	OLS	2SLS-RD	2SLS-RD	OLS	2SLS-RD	2SLS-RD
	Supported Parliament in Civil War (1642-1648)			Supporter of Crown Advisor (1640)			Contributor to Defense of London (1642)			Served in Rump Parliament (1648-53)		
Shareholder in joint stock	0.212***	0.549*	0.173	-0.054	-0.277	-0.197**	0.138**	0.918***	0.235	0.132***	0.208	0.269*
	[0.051]	[0.307]	[0.204]	[0.037]	[0.194]	[0.096]	[0.060]	[0.262]	[0.266]	[0.045]	[0.170]	[0.139]
Shareholder x merchant	-0.332**		0.269	0.134**		0.455*	-0.043		-0.161	-0.244*		-0.632
	[0.130]		[0.460]	[0.066]		[0.235]	[0.124]		[0.471]	[0.131]		[0.474]
Merchant (apprenticed)	0.232***	0.064	0.037	-0.119***	-0.066	-0.228***	-0.018	-0.134	0.020	0.120	0.062	0.263
	[0.070]	[0.082]	[0.169]	[0.035]	[0.046]	[0.081]	[0.087]	[0.083]	[0.178]	[0.085]	[0.062]	[0.174]
Gentleman (inherited a manor	0.047	0.036	0.069*	0.032	0.015	0.040	0.050	0.024	0.037	-0.019	-0.006	-0.024
	[0.045]	[0.043]	[0.041]	[0.048]	[0.047]	[0.042]	[0.057]	[0.049]	[0.052]	[0.043]	[0.038]	[0.044]
Age(decades)	-0.057	-0.026	-0.059	0.011	-0.009	0.013	-0.015	0.017	-0.003	0.078	0.097***	0.129***
	[0.066]	[0.048]	[0.039]	[0.028]	[0.031]	[0.020]	[0.049]	[0.042]	[0.055]	[0.063]	[0.026]	[0.030]
Age^2 ($decades^2$)	-0.004	-0.002	-0.003	0.003	0.003	0.002	-0.008	-0.002	-0.009	-0.015	-0.015***	-0.021***
	[0.011]	[0.005]	[0.006]	[0.006]	[0.005]	[0.005]	[0.008]	[0.004]	[0.007]	[0.010]	[0.005]	[0.004]

Age and other covariates

Alternative Channels: Income

OLS	Personal	County FE	Personal	County FE	Personal	Personal	Constituency	Omitting Middlesex	County FE
	OLS	OLS	OLS	OLS	2SLS-RD	2SLS-RD	2SLS-RD	2SLS-RD	2SLS-RD
Shareholder in joint stock	0.486**	0.383*	0.363*	0.264	0.95	0.858	0.062	0.062	0.452
	[0.205]	[0.202]	[0.208]	[0.183]	[0.738]	[0.995]	[0.864]	[0.864]	[1.008]
Shareholder x merchant			0.987***	1.263**		0.341	0.924	0.924	1.202
			[0.359]	[0.572]		[1.203]	[1.062]	[1.062]	[1.244]
Merchant (apprenticed)	0.472	0.840**	0.048	0.274	0.353	0.219	0.254	0.254	0.245
	[0.317]	[0.403]	[0.301]	[0.412]	[0.409]	[0.403]	[0.394]	[0.394]	[0.497]
Gentleman (inherited a manor)	0.081	-0.054	0.083	-0.061	0.063	0.066	0.098	0.098	-0.075
	[0.135]	[0.182]	[0.137]	[0.184]	[0.140]	[0.140]	[0.127]	[0.127]	[0.151]
Inherited land	0.785***	0.942***	0.790***	0.975***	0.779***	0.781***	0.830***	0.830***	0.980***
	[0.285]	[0.324]	[0.292]	[0.329]	[0.276]	[0.281]	[0.275]	[0.275]	[0.287]
Heir	0.266	0.393*	0.251	0.347	0.231	0.229	0.235	0.235	0.331
	[0.184]	[0.223]	[0.180]	[0.216]	[0.202]	[0.199]	[0.191]	[0.191]	[0.236]
Father knight or baronet	0.438***	0.368***	0.454***	0.389***	0.432***	0.438***	0.368***	0.368***	0.393***
	[0.117]	[0.144]	[0.117]	[0.142]	[0.121]	[0.119]	[0.096]	[0.096]	[0.126]
Father noble	0.759**	1.105***	0.772***	1.067***	0.749**	0.755**	0.755***	0.755***	1.073***
	[0.305]	[0.400]	[0.301]	[0.394]	[0.315]	[0.306]	[0.287]	[0.287]	[0.355]
Landed prior to Tudor dynasty	0.024	-0.013	0.019	-0.017	0.039	0.036	0.007	0.007	-0.014
	[0.180]	[0.204]	[0.176]	[0.201]	[0.171]	[0.168]	[0.137]	[0.137]	[0.166]
Observations	265	265	265	265	265	265	265	265	265
R-squared	0.25	0.52	0.27	0.53					

OLS	Personal County FE		Personal County FE		Personal	Personal	Constituency	Omitting Middlesex	County FE
	OLS	OLS	OLS	OLS	2SLS-RD	2SLS-RD	2SLS-RD	2SLS-RD	2SLS-RD
Shareholder in joint stock	0.066	0.067	0.030	0.031	0.470***	0.528***	0.528***	0.559***	0.794***
	[0.049]	[0.060]	[0.055]	[0.064]	[0.145]	[0.113]	[0.144]	[0.134]	[0.160]
Shareholder x merchant guild			0.192*	0.216*		-0.345	-0.392	-0.452*	-0.558**
			[0.106]	[0.124]		[0.225]	[0.248]	[0.275]	[0.260]
Merchant (apprenticed)	-0.111**	-0.091	-0.176***	-0.161***	-0.162***	-0.044	-0.009	0.011	0.055
	[0.047]	[0.057]	[0.038]	[0.050]	[0.056]	[0.087]	[0.093]	[0.100]	[0.106]
Gentleman (inherited a manor)	-0.027	-0.035	-0.020	-0.030	-0.033	-0.043	-0.041	-0.035	-0.056
	[0.035]	[0.039]	[0.035]	[0.040]	[0.038]	[0.040]	[0.036]	[0.036]	[0.042]
Age(decades)	0.020	0.024	0.021	0.026	0.000	0.011	0.020	0.027	0.064**
	[0.041]	[0.052]	[0.042]	[0.053]	[0.025]	[0.018]	[0.023]	[0.021]	[0.029]
Age^2 (decades^2)	-0.011	-0.012	-0.011	-0.013	-0.002	-0.004	-0.006	-0.007*	-0.010**
	[0.007]	[0.009]	[0.008]	[0.009]	[0.005]	[0.004]	[0.005]	[0.004]	[0.005]
Inherited tie to royal court	0.488***	0.484***	0.487***	0.482***	0.475***	0.478***	0.464***	0.473***	0.473***
	[0.037]	[0.042]	[0.038]	[0.043]	[0.038]	[0.038]	[0.037]	[0.038]	[0.042]
Constituency dist to London (100km)	0.021	-0.057	0.021	-0.060	0.029*	0.029*	-0.003	-0.010	-0.049
	[0.014]	[0.056]	[0.014]	[0.058]	[0.017]	[0.016]	[0.026]	[0.025]	[0.043]
Observations	533	533	533	533	533	533	533	525	533
R-squared	0.29	0.36	0.3	0.37					

Alternative Identification
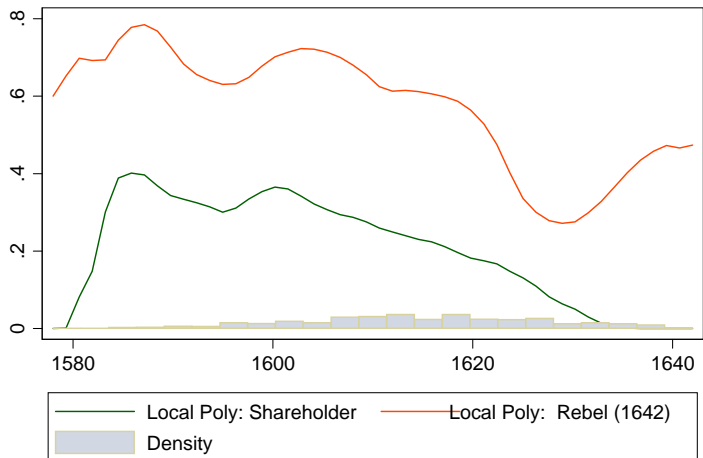
Discussion

- ▶ This paper: future opportunities + introduction of shares played major role in aligning incentives of broad coalition in favour of political reforms in 17th century England. Potentially easier for policy?

- ▶ Also likely that joint stock form helped organise the coalition (Parliament's early leaders ⇔ company directors)

- ▶ Development of secondary markets (1660s) may have allowed *losers* to also benefit from national policy: broadening support for parliamentary supremacy by 1688 (Carlos and Jha- in progress).

The US Republic, 1790

The idea of an uncompounded republick, on an average, one thousand miles in length, and eight hundred in breadth, and containing six millions of white inhabitants all reduced to the same standard of morals, or habits, and of laws, is in itself an absurdity, and contrary to the whole experience of mankind.

- James Winthrop, 1790
Vermont, New England, Tennessee Valley
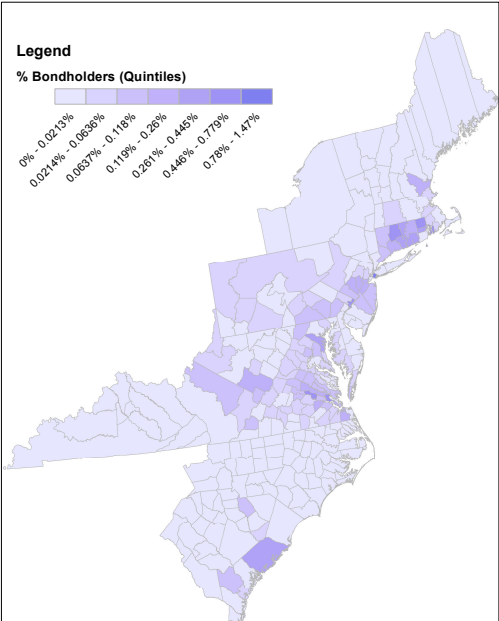
The 'Compromise of 1790'

"The biggest political mistake of my life" - Thomas Jefferson.

- ► Hamilton wants: federal government to "assume" $ 25 million of debt owed by individual states to revolutionary war veterans.
- ► In exchange: support capital of the US on the Potomac.

Aftermath

- ▶ Of US debt of $80 million (40% of GDP), debts to war veterans represented $65 million.
- ▶ Unlikely coalition of war veterans and speculators in favour of supporting Federalist program (Jha, in progress)
- ▶ Appears to generate broad support for Bank of the United States, branches and competitive chartering.

  1781-91 : 28 JSCs,
  1791-1800 : 295 JSCs,
  1800-1830 : 3500 in Northeast alone (Sylla, 2008)

- ▶ In NYC, proportion holding stock goes from 6% (1790) to 11% (1826) despite high population growth (Hilt and Valentine 2011), across a broader dist'n of wealth.

Bondholders in 1795

Legend

% Bondholders (Quintiles)

0% - 0.0213%
0.0214% - 0.0636%
0.0637% - 0.118%
0.119% - 0.26%
0.261% - 0.445%
0.446% - 0.779%
0.78% - 1.47%

While our government was still in its most infant state, it enabled Hamilton so to strengthen himself by corrupt services to many that he could afterwards carry his bank scheme, and every measure he proposed in defiance of all opposition. In fact it was the principal ground whereon was reared up that speculating phalanx, in and out of Congress, which has since been able to give laws to change the political complexion of the United States- Jefferson, 1793.

► "Speculating phalanx" of within and cross-state investors survives Jefferson's terms of president, Andrew Jackson's veto of BoUS, 1832.

► Financial institutions and assets change political interests that can create persistence.

Japan, 1867-1880

source: The Last Samurai (2003)

- "Japan, which began the Meiji period as one of the world's most fractured polities, emerged within a generation as one of its most centralized states"- Marius Jansen, 2000

- 1,800,000 samurai (endogamous) caste, hereditary warriors-administrators, recently re-militarized, biggest potential losers.

Jha and Mitchener (in progress)
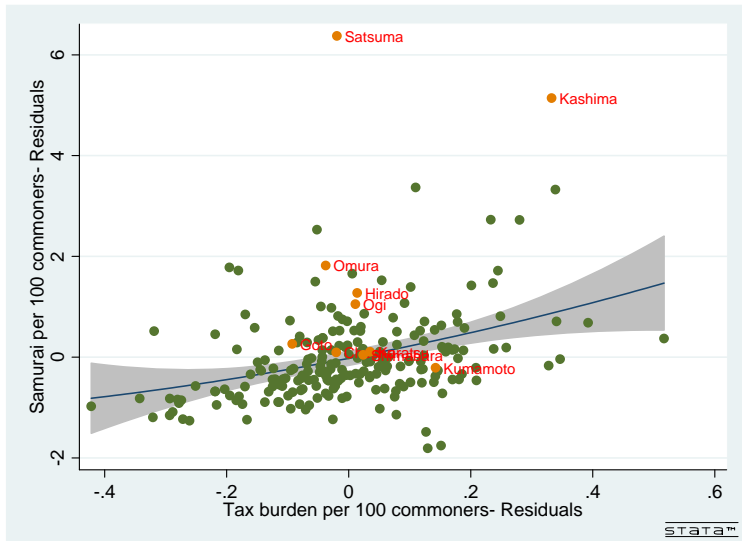
Jha and Mitchener (in progress)
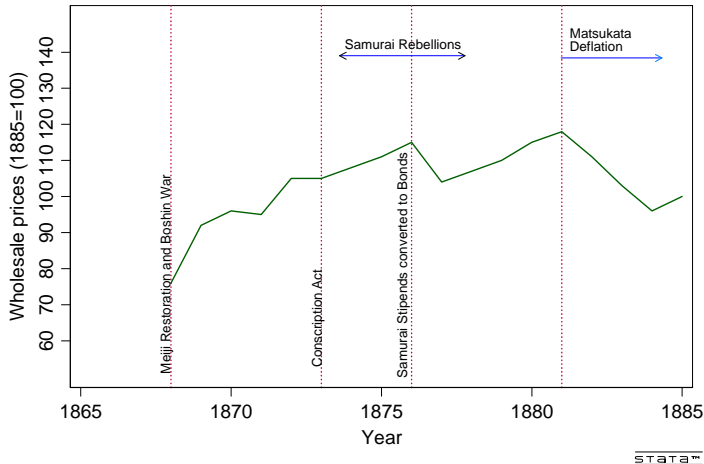
310,971 ex-samurai receive public bonds worth ¥113,000,000.
Bank owners required to capitalize banks using 80%
government (samurai) bonds, 20% currency (from commoners)

Aftermath

- ▶ Dramatic expansion of bank branches: 7 to 150 between 1876-1878.
- ▶ Cross- ethnic institutions: In 1878, 29,360 ex-samurai and nobles controlled ¥30,580,000 in bank stock, compared with ¥8,870,000 held by 4730 commoners. ex-samurai proportion decreasing over time but still 75% in 1882.
- ▶ Violent samurai revolts end, "popular rights" movements, "debtors' parties".

"If the government remained an onlooker to the plight of the samurai, it would have certainly meant that the government did not understand the relationship between peace and rebellion" - Matsukata, *Memo Explaining the Way to Eliminate Bank Notes*, 1883.

In case you're just waking up

Here are four core ideas to take away.

1. To escape the policy straitjacket of PE, recall that new (or newly-introduced) ideas can also act as shocks that reshape interests.

2. In fact, Financial PE solutions by technocratic reformers, have allowed risks and future opportunities from even conventionally-perceived "non-insurable" endowments like human capital, ethnicity, to be shared.

3. The financial revolutions of England, the US and Japan preceded economic growth, and in the latter two were (intentionally) designed to cause political and institutional development by building pro-reform coalitions. True in both a democracy (legislative resistance), dictatorship (violent resistance).

4. Much work to be done: theoretical, experimental and empirical.