

Institutional change and persistence: What does the long-run evidence tell us?

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This paper...

- Provides new evidence on long-run patterns of institutional change, focussing on four key economic and political institutions.
- Panel time series, 161 countries during 1800-2020.
- Evidence of non-stationarity.
- Economic and political institutions are cointegrated: there is a long-run relationship between them.
- The existence and nature of a long run relationship may be different for different types of institutions and for different regions.

Context

- Political and economic institutions are seen as important for long-term development...
 - Democracy and growth (Rodrik 2000; Acemoglu et al. 2019).
 - Executive constraints as a precondition for effective states (Besley and Persson 2011).
 - Property rights protection and following the rule of law are important to *ignite* growth (e.g., Rodrik 2000).
- Important issues remain
 - *Inclusive Vs Extractive* institutions (Acemoglu et al. 2005);
 - Whose property rights should we protect? (Change 2011);
 - Does democracy cause growth? (Bardhan 1999; Przeworsky 1993)

Context (2)

- Empirical research: institutions causal to growth
 - Many studies on the effects on economic growth, mostly supportive of the idea that institutions matter (e.g., Acemoglu et al. 2001, Rodrik et al. 2004). There is, however, very limited econometric evidence on how institutions change.
- Broad agreement that political and economic institutions matter. Yet relatively little is known on how to acquire and reform such institutions, for which one needs to know how institutions change.

Context (3)

- More evidence on institutional change is valuable
 - Need for stylised facts. For example, are economic and political institutions persistent and to what extent? Are changes permanent or temporary? Do they tend to co-evolve?
- Very limited econometric evidence on how institutions change
 - Existing work has mainly focused on explaining variation across countries and, when exploring dynamic aspects, has relied on fairly short temporal variation (e.g., Sobel and Coyne 2011).

On institutional persistence and change

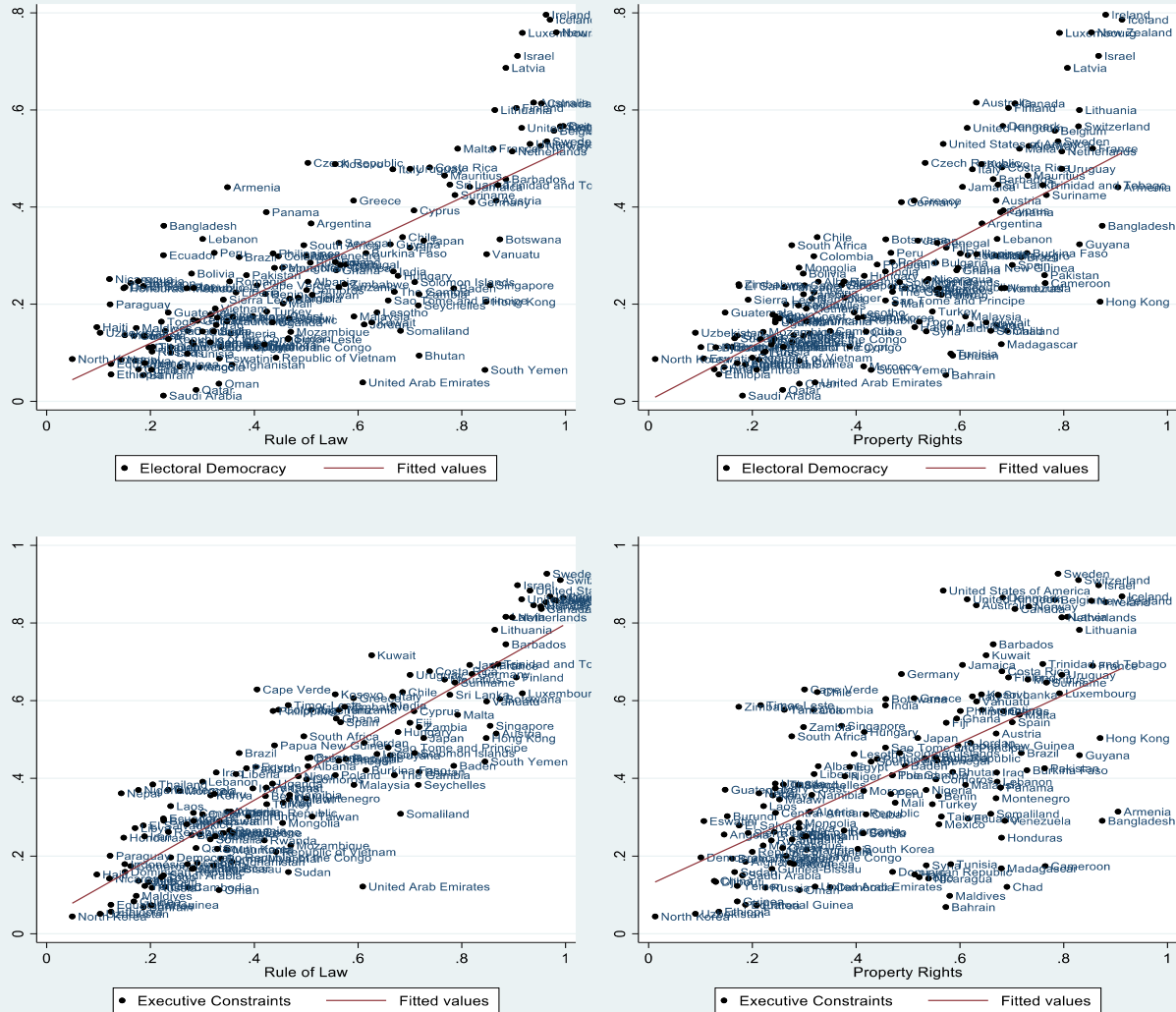
- Do we see institutional persistence or change?
 - **Institutional persistence.** Commitment problems (Acemoglu 2003). Incumbent elites' resistance (Acemoglu and Robinson 2008). Hence, measures are stationary and, if a shock occurs, it's reabsorbed after a while. Changes are temporary.
 - **Institutional change.** *Critical junctures* as positive/negative shocks (Acemoglu and Robinson 2012).
 - Outcome of distributive conflict between elites or elites and the people (Acemoglu et al. 2005).
- If they change, are institutions cointegrated?
 - Political institutions may support economic institutions. *Democratic* vs. *oligarchic* property rights (Acemoglu 2008). Bardhan (1999): secure property rights may not need democracy.
 - Dynamic relationship between economic and political institutions: are political and economic institutions in a long-run equilibrium?

Data

- Documenting long-run phenomena: focus on measures that have substantial time series variation.
 - *V-Dem Project* (Coppedge et al. 2020), 197 countries, 1800-2020
- Executive constraints. *Judicial* and *legislative* constraints.
- Electoral Democracy.
 - weighted average of the indices measuring freedom of association, clean elections, freedom of expression, elected officials, and suffrage
- Property Rights.
 - “Do citizens enjoy the right to private property?”
- Rule of Law.
 - “To what extent are laws transparently, independently, predictably, impartially, and equally enforced, and to what extent do the actions of government officials comply with the law?”

Data analysis: stylized facts

Figure 1. Political Institutions and Economic Institutions, levels against levels



Data analysis: stylized facts (2)

Figure 3a. Time-series plots: Rule of Law, by region

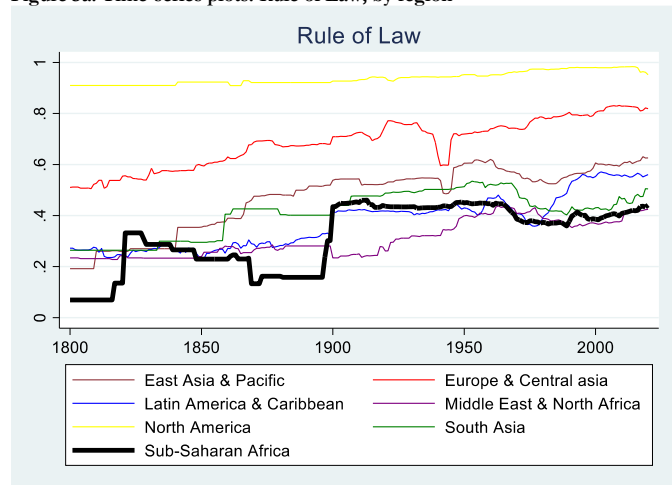


Figure 3c. Time-series plots: Executive Constraints, by region

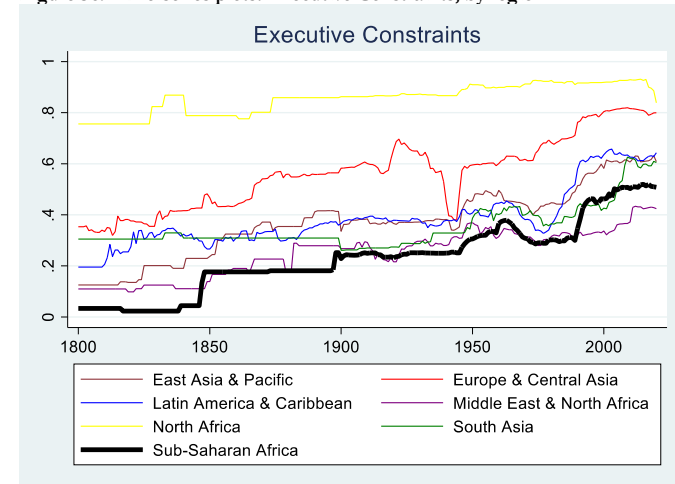


Figure 3b. Time-series plots: Property Rights, by region

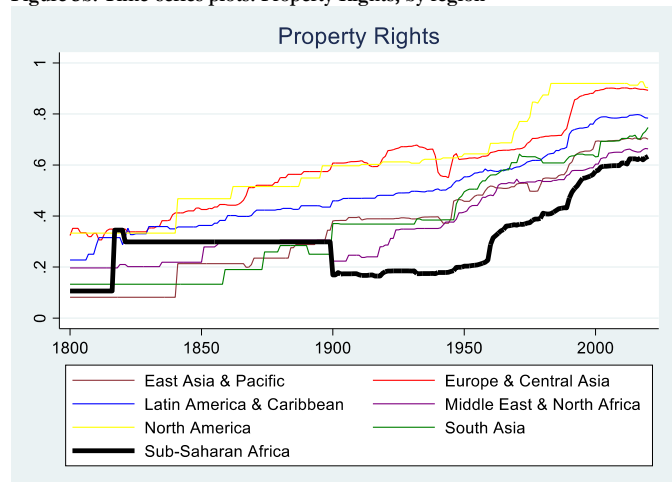
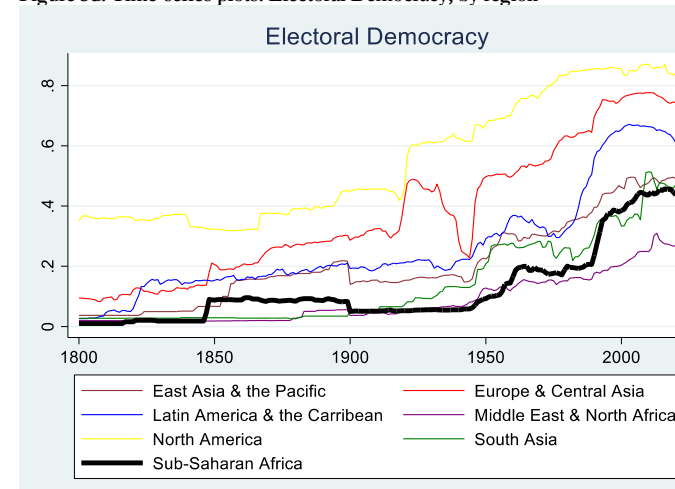


Figure 3d. Time-series plots: Electoral Democracy, by region



Data analysis: stylized facts (3)

Figure 4a. Time series plot: Electoral Democracy and Rule of Law, all countries

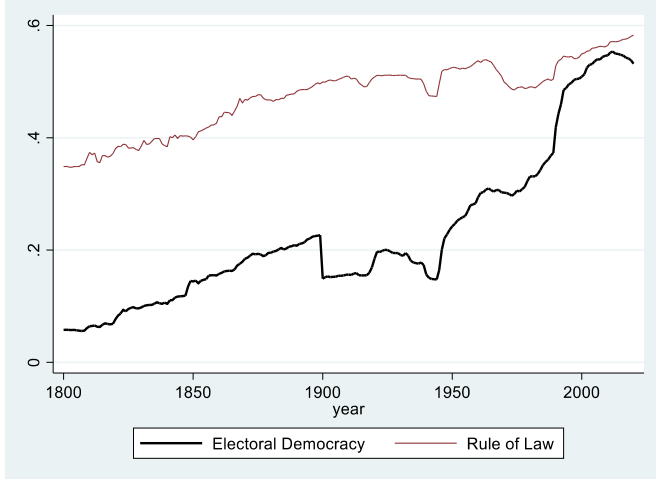


Figure 4c. Time series plot: Executive Constraints and Rule of Law, all countries

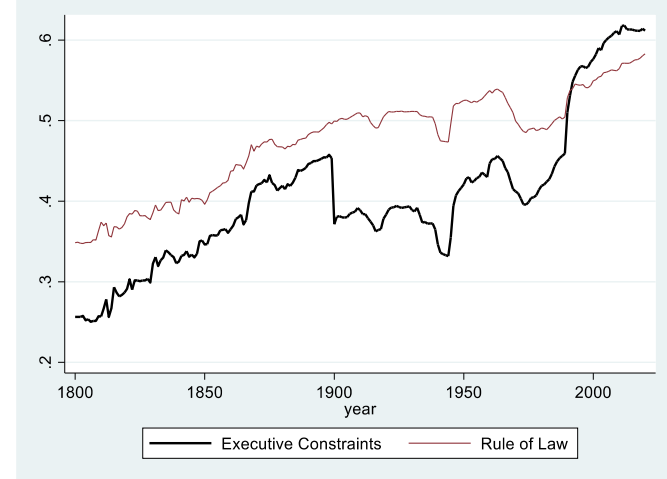


Figure 4b. Time series plot: Electoral Democracy and Property Rights, all countries

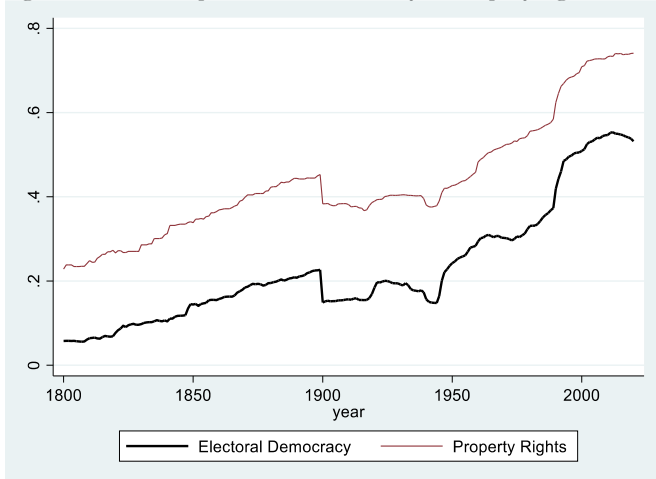
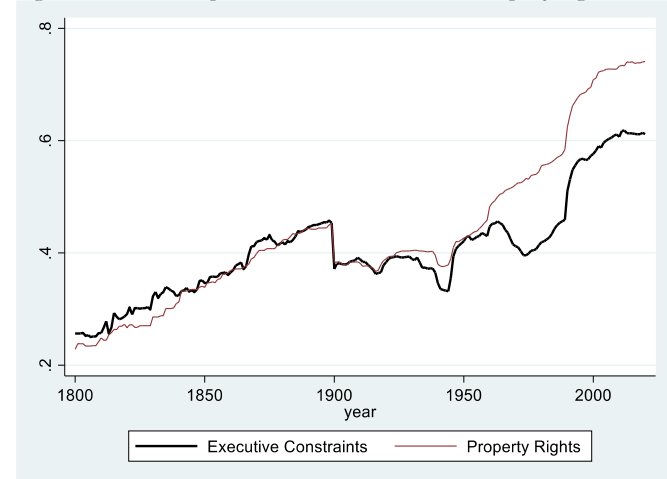


Figure 4d. Time series plot: Executive Constraints and Property Rights, all countries



Empirical specifications

- Non-stationarity. 'CIPS' test accounts for cross-section dependence.
- Cointegration tests, common factor framework, based on conditional ECM of the form:

$$\Delta EI_{it} = \alpha_i EI_{it-1} + \gamma'_{1i} PI_{it-1} + \gamma'_{2i} f_{it-1} + \sum_{s=0}^{p_i} \pi'_{1is} \Delta PI_{it-s} + \sum_{s=1}^{p_i} \pi'_{2is} \Delta EI_{it-s} + \sum_{s=0}^{p_i} \pi'_{3is} \Delta f_{it-s} + \varepsilon_{it}$$

- It allows for: the vector of parameter coefficients (α_i) to differ across countries; unobserved heterogeneity, fixed effects; and unobserved common factors (f_i) with factor loadings that can differ across countries.

Results: panel unit roots tests

Table 1: Panel Unit Roots Tests

Levels: CIPS test with intercept only								
Variable	Electoral Democracy		Rule of Law		Property Rights		Executive Constraints	
Lags	Ztbar	p	Ztbar	p	Ztbar	p	Ztbar	p
0	-4.98	0.00	3.72	1.00	1.04	0.85	-8.65	0.00
1	-11.25	0.00	-0.33	0.37	1.12	0.87	-9.39	0.00
2	-7.71	0.00	0.86	0.81	1.85	0.97	-6.36	0.00
3	-6.79	0.00	0.84	0.80	1.32	0.91	-5.87	0.00
4	-5.83	0.00	2.02	0.98	2.69	0.996	-3.10	0.00
5	-4.28	0.00	2.30	0.99	2.83	0.998	-1.90	0.03
6	-3.09	0.00	4.02	1.00	3.21	0.999	-0.56	0.29
Levels: CIPS test with intercept & trend								
Variable	Electoral Democracy		Rule of Law		Property Rights		Executive Constraints	
Lags	Ztbar	p	Ztbar	p	Ztbar	p	Ztbar	p
0	-2.77	0.00	4.91	1.00	2.92	0.998	-5.44	0.00
1	-9.94	0.00	-0.57	0.28	2.81	0.998	-6.67	0.00
2	-5.95	0.00	0.86	0.80	3.58	1.00	-3.07	0.00
3	-4.84	0.00	0.64	0.74	2.87	0.998	-2.81	0.00
4	-4.08	0.00	1.67	0.95	4.43	1.00	0.30	0.62
5	-2.55	0.01	2.21	0.99	4.90	1.00	1.46	0.93
6	-1.05	0.15	4.21	1.00	5.74	1.00	2.96	0.998
Differences: CIPS test with drift								
Variable	Electoral Democracy		Rule of Law		Property Rights		Executive Constraints	
Lags	Ztbar	p	Ztbar	p	Ztbar	p	Ztbar	p
0	-60.20	0.00	-60.27	0.00	-59.84	0.00	-60.37	0.00
1	-58.98	0.00	-57.69	0.00	-57.66	0.00	-58.47	0.00
2	-54.83	0.00	-52.77	0.00	-53.76	0.00	-54.55	0.00
3	-49.41	0.00	-47.97	0.00	-47.64	0.00	-49.80	0.00
4	-44.94	0.00	-43.05	0.00	-41.78	0.00	-44.55	0.00
5	-40.15	0.00	-38.50	0.00	-37.03	0.00	-39.43	0.00
6	-34.59	0.00	-32.77	0.00	-31.59	0.00	-33.66	0.00

Source: Authors' calculations based on V-Dem data.

Results (2): cointegration

Table 2. Gengenbach, Urbain and Westerlund (2009) Cointegration Test: political and economic institutions

	Test Statistic, $\bar{\tau}^*$	10%	5%	1%
<i>Panel A – Rule of Law</i>				
<i>Electoral democracy and rule of law</i>				
Model 1	-2.038*	-1.995	-2.065	-2.190
Model 2	-2.683***	-2.458	-2.517	-2.611
Model 3	-2.937**	-2.875	-2.925	-3.010
<i>Executive Constraints and rule of law</i>				
Model 1	-2.038*	-1.995	-2.065	-2.190
Model 2	-2.533**	-2.458	-2.517	-2.611
Model 3	-3.008**	-2.875	-2.925	-3.010
<i>Panel B – Property Rights</i>				
	Test Statistic, $\bar{\tau}^*$	10%	5%	1%
<i>Electoral democracy and property rights</i>				
Model 1	-1.726	-2.048	-2.133	-2.287
Model 2	-2.327	-2.530	-2.601	-2.735
Model 3	-2.768	-2.875	-2.925	-3.010
<i>Executive Constraints and property rights</i>				
Model 1	-1.716	-1.995	-2.065	-2.190
Model 2	-2.654***	-2.458	-2.517	-2.611
Model 3	-2.940**	-2.875	-2.925	-3.010

Note: ***, **, * indicate significance at 1 percent, 5 percent and 10 percent, respectively. Significance will indicate rejection of the null hypothesis. H_0 : no error correction, hence, no cointegration, H_1 : error correction, hence cointegration. Model 1 – 3 refers to an ECM without any deterministic terms, with intercept and with intercept and trend, respectively.

Results (3): long-run and short-run effects

Table 3: ECM estimates

<i>Panel A - Electoral democracy and economic institutions</i>		
	<i>Rule of Law</i>	<i>Property Rights</i>
Long run		
Electoral democracy	0.299*** [0.055]	0.206*** [0.054]
Short run		
Electoral democracy	0.283*** [0.028]	0.119*** [0.015]
<i>EC Coefficient</i>		
y_{it-1}	-0.138*** [0.009]	-0.097*** [0.008]
<i>t</i> -statistic	-15.27	-11.87
<i>Diagnostics</i>		
RMSE	0.023	0.023
<i>CD</i> test	-4.610	-3.708
(<i>p</i> -value)	(0.000)	(0.000)
Observations	22,522	22,639

Notes: The results are based on ECM for 161 countries with the respective economic institutional variables as dependent variable. The long-run and short-run averages are reported, with standard errors reported below the averages (the standard errors are generated following Pesaran and Shin, 1995). RMSE is the root mean square error. *CD* test is the Pesaran (2015) test distributed $N(0,1)$ under the null of weak cross-section independence (*p*-values reported below). *, ** and *** indicate significance at 10%, 5% and 1%, respectively.

Results (3): long-run and short-run effects...

Table 3: ECM estimates

<i>Panel B - Executive constraints and economic institutions</i>		
	<i>Rule of Law</i>	<i>Property Rights</i>
Long run		
Executive constraints	0.456*** [0.061]	0.232*** [0.040]
Short run		
Executive constraints	0.334*** [0.045]	0.110*** [0.014]
<i>EC Coefficient</i>		
y_{it-1}	-0.136*** [0.009]	-0.118*** [0.008]
<i>t</i> -statistic	-14.85	-14.75
<i>Diagnostics</i>		
RMSE	0.020	0.023
<i>CD</i> test	-4.103	-3.815
(<i>p</i> -value)	(0.000)	(0.000)
Observations	22,571	22,601

Notes: The results are based on ECM for 161 countries with the respective economic institutional variables as dependent variable. The long-run and short-run averages are reported, with standard errors reported below the averages (the standard errors are generated following Pesaran and Shin, 1995). RMSE is the root mean square error. *CD* test is the Pesaran (2015) test distributed $N(0,1)$ under the null of weak cross-section independence (*p*-values reported below). *, ** and *** indicate significance at 10%, 5% and 1%, respectively.

Results (4): causality tests

Table 4: Weak exogeneity tests

	<i>GM</i>	<i>p</i> -value	Mean $\hat{\theta}_i$	<i>t</i> -stat
<i>Electoral democracy</i>				
Electoral democracy to rule of law	-2.136**	0.033	-0.143	-13.992
<i>Rule of law to electoral democracy</i>	-0.313	0.754	0.033	3.958
Electoral democracy to property rights	-1.801*	0.072	-0.095	-11.007
<i>Property rights to electoral democracy</i>	0.480	0.631	0.018	2.476
<i>Executive constraints</i>				
Executive constraints to rule of law	-1.635	0.102	-0.121	-11.177
<i>Rule of law to electoral democracy</i>	0.483	0.629	0.051	3.486
Executive constraints to property rights	-2.272**	0.023	-0.141	-12.379
<i>Property rights to electoral democracy</i>	0.247	0.805	0.031	3.323

Notes: we report the *GM* statistic from Canning and Pedroni (2008). *GM* is the group-mean statistic, which is the average of the country-specific *t*-ratios on the disequilibrium term which is distributed $N(0,1)$. The null hypothesis is of ‘no causal impact’ and is interpreted as the political institutions variable not having a long-run causal impact on the economic institutions variable.

Conclusions

- Institutional quality, for four key measures of the quality of political and economic institutions, has historically improved everywhere.
- Institutions change, in the long run. For the same four measures, non-stationarity cannot be rejected.
- Evidence of a long run relationship between political and economic institutions: strong for the *rule of law*, but less so for *property rights*.
- Whether economic and political institutions are cointegrated depends on the regional context, suggesting that the nature of their long-run relationship may be heterogeneous.

List of countries

- **East Asia and the Pacific:** Australia, Cambodia, China, Fiji, Hong Kong, Indonesia, Japan, Laos PDR, Malaysia, Mongolia, Myanmar, New Zealand, Papua New Guinea, Philippines, Singapore, Solomon Islands, South Korea, Thailand, Timor-Leste, Vanuatu, Vietnam.
- **Europe and Central Asia:** Albania, Armenia, Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, Uzbekistan.
- **Latin America and the Caribbean:** Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Trinidad and Tobago, Uruguay, Venezuela.
- **Middle East and North Africa:** Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, United Arab Emirates, Yemen.
- **North America:** Canada, United States of America.
- **South Asia:** Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka.
- **Sub-Saharan Africa:** Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Rep., Congo Dem. Rep., Cote d'Ivoire, Equatorial Guinea, Eritrea, Eswatini, Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, The Gambia, Togo, Uganda, Zambia, Zimbabwe.

Executive constraints \neq “democracy”

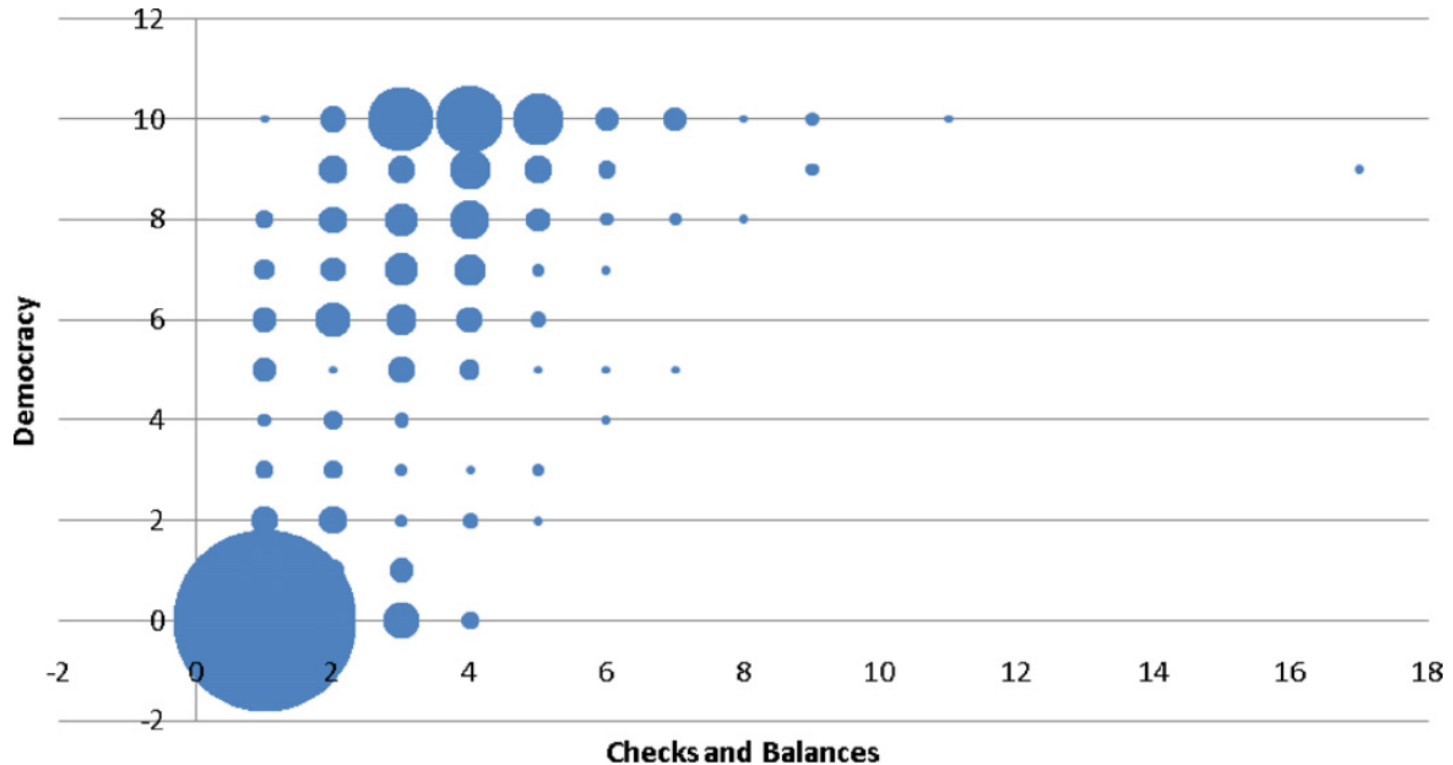


Fig. 1. Checks and balances and democracy.

From: Paul Collier, Anke Hoeffler, “Testing the neocon agenda: Democracy in resource-rich societies”, *European Economic Review*, Volume 53, Issue 3, 2009, Pages 293-308.