Online Appendices for: Bureaucracy and Growth

December 9, 2019

These online appendices contain tables and figures with various tests that were mentioned, but not reported, in the paper. The structure of the appendices are as follows:

Appendix A provides information pertaining to the validation of the V-Dem indicators, in the form of correlations with alternative bureaucracy indicators, as well as descriptive statistics for all key variables used in the regression analysis. Appendix B reports scatterplots and cross-country regressions on features of the bureaucracy and long-run growth throughout the long 19th century. Appendix C presents a table with results for the models used to construct Figure 5 in the paper. Appendix D provides analysis for the entire battery of indicators and indices of Weberian bureaucracy discussed in the paper. This appendix also contains a version of Table 1 from the paper (the cross-country replication of Evans and Rauch), substituting the impartial administration measure used in the paper with the meritocratic recruitment measure from V-Dem. Appendix E present a coefficient plot for the benchmark regression run on an alternative proxy for income related to nighttime light. Appendix F reports a series of tables for results on 5-year panel units, whereas Appendix G reports additional results for the meritocratic recruitment measures that are mentioned but not presented in tables in the paper. Appendix H reports versions of different tests (on alternative control sets, and assessing heterogeneity over time) that re-run the specifications using Miller and Fariss data on identical samples. Appendix I contains additional coefficient plot displaying results for different specifications of the lag-structure of the relationship. Appendix J displays additional figures and tables on the tests of heterogeneous relationships, both across regions of the world, levels of development and across time periods. Finally, Appendix K presents some of the core results, but now estimated only on independent polities.

A Validation of bureaucracy indicators and summary statistics for measures used in the regression analysis

Table A-1: Bivariate correlations (Pearson's r) between V-Dem indicators and QoG expert survey indicators

	Impartial administration (V-Dem)	Meritocratic recruitment (V-Dem)
Impartial bureaucracy (QoG)	0.77	0.75
Meritocratic recruitment (QoG)	0.73	0.77
Political recruitment (QoG)	-0.73	-0.74
Personal connections (QoG)	-0.75	-0.76

The two V-Dem indicators (v.9) are measured in 2014, which is also the year of the QoG survey. The exact formulation of the QoG's Impartial bureaucracy question is: "By a common definition, impartiality implies that when implementing policies, public sector employees should not take anything about the citizen/case into consideration that is not stipulated in the policy. Generally speaking, how often would you say that public sector employees today, in your chosen country, act impartially when deciding how to implement a policy in an individual case?" The response alternatives are on a scale running from hardly ever (1) to almost always (7). This battery of questions that underly the three other QoG measures is introduced with the following sentence: Thinking about the country you have chosen, how often would you say the following occurs today? The questions are formulated as follows: Question q2a: "When recruiting public sector employees, the skills and merits of the applicants decide who gets the job.", Question q2b: "When recruiting public sector employees, the political connections of the applicants decide who gets the job", Question q2c: "When recruiting public sector employees, the personal connections of the applicants (for example kinship or friendship) decide who gets the job."

Table A-2: Summary statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Source
			Bureaucracy measures.			
Impartial public administration	25,255	-.033	1.448	-3.631	4.623	V-Dem
Meritocratic recruitment	14,562	-.042	1.337	-2.686	3.374	V-Dem
Remuneration officials	8,422	.072	1.429	-3.239	1.622	V-Dem
Leader involvement administration	8,359	.079	1.381	-2.252	2.455	V-Dem
Public sector corrupt exchanges	25,193	.114	1.401	-2.987	3.905	V-Dem
Public sector theft	24,982	.224	1.456	-3.112	3.586	V-Dem
			Dependent variables.			
GDP per capita growth	13,215	1.509	6.593	-68.938	189.741	Miller
GDP per capita growth	20,622	1.203	9.975	-253.304	375.373	Farris
Ln GDP per capita	13,384	7.778	1.058	5.139	11.343	Miller
Ln GDP per capita	20,828	7.603	1.062	4.653	11.361	Farris
			Control Variables			
Polyarchy	24,115	.265	.262	.007	.940	V-Dem
Ln population	12,107	8.726	1.601	4.094	14.061	Miller
Ln population	21,000	8.506	1.692	.464	14.122	Maddison
Resource dependence	13,529	3.560	9.717	0	100	Miller

B Descriptive patterns during the 19th century: Scatter-plots and Cross-country regressions on long-term growth
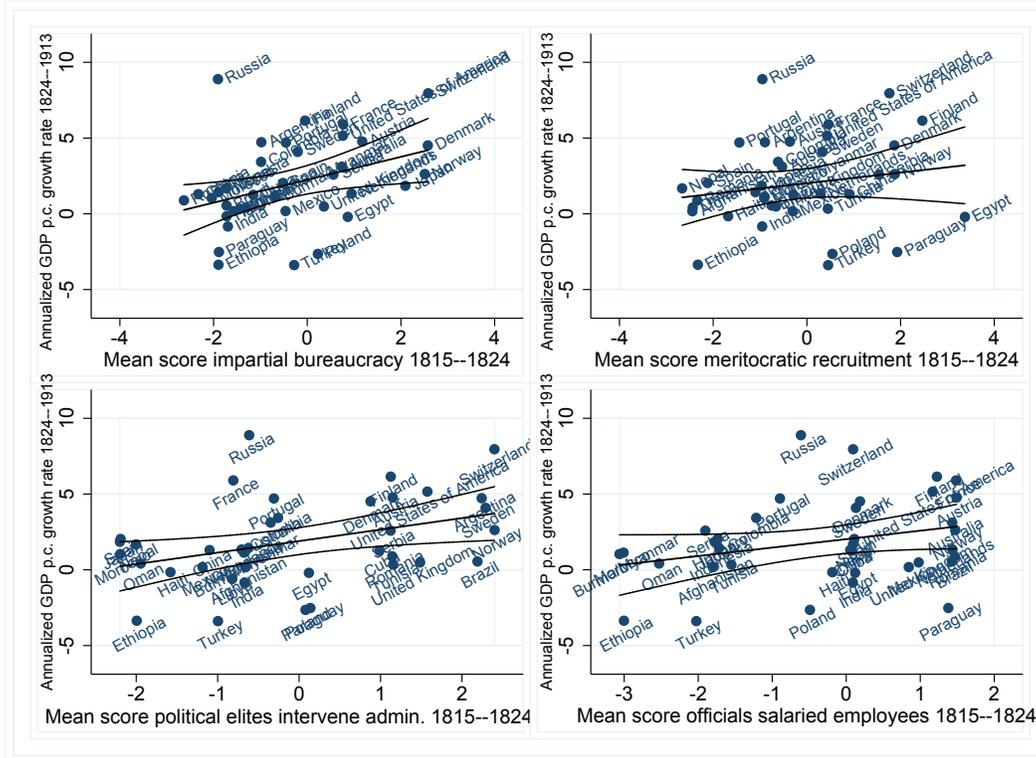

Figure A-1: Scatter-plots, overlaid with (bivariate) best-fit lines and 95% confidence intervals, for various features of the state administration (x-axes) during 1815–1824 and annualized GDP per capita growth rate from 1824–1913 (data taken from Farris 2017).

Table A-3: Cross-country regressions for four features of Weberian bureaucracy

DV: Average annual growth measured across:	1789–1913	1798–1913	1815–1913	1824–1913
Feature of bureaucracy measured in/as average across:	1789	1789–1798	1815	1815–1824

	Impartial and rule-following public administration			
Model	(1)	(2)	(3)	(4)
	b/(se)	b/(se)	b/(se)	b/(se)
Impartial public admi.	0.195***	0.178**	0.242***	0.338***
	(0.059)	(0.069)	(0.059)	(0.059)
Initial Ln GDP p.c.	-0.300	-0.349*	-0.481**	-0.684***
	(0.179)	(0.200)	(0.194)	(0.115)
Constant	2.666**	3.044**	4.066***	5.452***
	(1.210)	(1.351)	(1.314)	(0.799)
N	23	23	30	35
R^2	0.405	0.314	0.397	0.680

	Meritocratic recruitment			
Model	(5)	(6)	(7)	(8)
	b/(se)	b/(se)	b/(se)	b/(se)
Meritocratic recruit.	0.129	0.144	0.133*	0.181**
	(0.096)	(0.101)	(0.072)	(0.076)
Initial Ln GDP p.c	-0.221	-0.231	-0.150	-0.683***
	(0.220)	(0.226)	(0.217)	(0.151)
Constant	2.139	2.257	1.796	5.345***
	(1.475)	(1.513)	(1.462)	(1.046)
N	23	23	30	35
R^2	0.405	0.314	0.397	0.680

	Political leaders' involvement in decisions administration			
Model	(9)	(10)	(11)	(12)
	b/(se)	b/(se)	b/(se)	b/(se)
Leader involv. adm.	0.142	0.154*	0.172**	0.268***
	(0.083)	(0.088)	(0.068)	(0.070)
Initial Ln GDP p.c	-0.486***	-0.498**	-0.511***	-0.720***
	(0.169)	(0.180)	(0.185)	(0.129)
Constant	3.815***	3.945***	4.154***	5.544***
	(1.154)	(1.230)	(1.254)	(0.899)
N	24	24	31	36
R^2	0.369	0.356	0.313	0.589

	Remuneration of public officials			
Model	(13)	(14)	(15)	(16)
	b/(se)	b/(se)	b/(se)	b/(se)
Remuneration officials	0.186**	0.205**	0.233***	0.286***
	(0.073)	(0.078)	(0.069)	(0.069)
Initial Ln GDP p.c	-0.309	-0.337	-0.412*	-0.758***
	(0.194)	(0.199)	(0.203)	(0.132)
Constant	2.706*	2.942**	3.539**	5.839***
	(1.310)	(1.343)	(1.367)	(0.916)
N	23	23	29	34
R^2	0.303	0.318	0.327	0.593

Notes: $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$. Estimated by OLS.
Data from Farris (2017) are used for GDP and population variables.

C Tables with results for specifications in Figure 5 in the paper

Table A-4: Fixed effects OLS regressions on GDP per capita growth measured in $t + 5$

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Impartial pub. adm.	0.153	0.148*	0.170	0.123	0.162	0.037	0.284*	0.065
	(0.108)	(0.084)	(0.142)	(0.093)	(0.108)	(0.099)	(0.158)	(0.119)
Ln GDP p.c.	-2.263***	-1.092***	-2.369***	-1.165***	-2.217***	-1.078***	-2.579***	-1.101***
	(0.345)	(0.205)	(0.335)	(0.223)	(0.351)	(0.184)	(0.359)	(0.227)
Polyarchy			0.027	0.233			0.121	-0.250
			(0.842)	(0.580)			(0.821)	(0.764)
Resource dependence					-0.016	-0.047***	-0.024	-0.049***
					(0.015)	(0.017)	(0.016)	(0.016)
Ln population							-0.565**	-0.023
							(0.235)	(0.210)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	12048	19063	11796	18414	11734	12900	10373	12649
R²	0.060	0.028	0.061	0.027	0.063	0.129	0.062	0.127

Notes: *p<0.1; **p<0.05; ***p<0.01. Errors are clustered by country.

D Regressions using alternative measures of Weberian bureaucracy

Table A-5: Replicating Evans and Rauch/Table 1 of the paper, using the meritocratic recruitment measure from V-Dem instead of the impartial administration measure

Model	(1) Replication	(2) V-Dem measure	(3) Expand sample	(4) Measure bureaucr. before growth
	b/(se)	b/(se)	b/(se)	b/(se)
Weberianism (E. and R.)	0.410***			
	(0.078)			
Meritocratic recruitment (V-Dem)		0.913***	0.806***	0.120
		(0.246)	(0.208)	(0.166)
GDP per capita	-0.001***	-0.001***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Average years schooling	0.366	0.415*	0.168	0.399***
	(0.216)	(0.235)	(0.104)	(0.091)
Constant	0.167	2.779***	1.131***	0.854**
	(0.692)	(0.503)	(0.314)	(0.332)
N	31	30	95	94
R^2	0.624	0.517	0.362	0.267

Notes: *p<0.1; **p<0.05; ***p<0.01. All specifications are cross-country OLS
regressions with annual average GDP per capita growth across 1970–1990 as dependent variable.
For Models 1-3, Weberianism/Meritocratic Recruitment is measured in 1995,
and for Model 4 they are measured in 1965. Controls are always measured in 1965.
For these analyses, the meritocratic recruitment measure is taken from version 9 of V-Dem.

Table A-6: Tests across all bureaucracy measures for 1789–1920 sample. Fixed effects regressions on GDP per capita growth measured in $t + 5$

Model	(1) b/(se)	(2) b/(se)	(3) b/(se)	(4) b/(se)
Impartial public administration	0.025 (0.107)			
Meritocratic recruitment		-0.080 (0.121)		
Remuneration officials			-0.029 (0.154)	
Ruler involvement administration				-0.053 (0.145)
Ln GDP per capita	-1.589** (0.597)	-1.536** (0.611)	-1.587** (0.611)	-1.589** (0.603)
Country dummies	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y
N	3791	3791	3791	3791
Countries	49	49	49	49
Max years	114	114	114	114
R^2	0.102	0.102	0.102	0.102

Notes: $^*p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$. Errors are clustered by country.
Notes: All models run on same sample to facilitate comparison between measures.

Table A-7: Testing differently composed indices of Weberian bureaucracy, drawing on four indicators (v2strenadm, v3struinvadm, v2clrspct v2stcritrecadm). Fixed effects regressions on GDP per capita growth measured in $t + 5$

Model	(1)	(2)	(3)	(4)	(5)	(6)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Additive index, Weberian bur.	-0.469	0.174				
	(1.083)	(0.851)				
Multiplicative index, Weberian bur.			-0.129	0.666		
			(1.093)	(1.046)		
Principal component score, Weberian bur.					-0.051	0.013
					(0.125)	(0.104)
Ln GDP per capita	-1.602**	-0.422	-1.600**	-0.442	-1.599**	-0.422
	(0.600)	(0.300)	(0.603)	(0.302)	(0.598)	(0.300)
Country dummies	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y
N	3842	6669	3842	6669	3842	6669
R^2	0.101	0.061	0.101	0.061	0.101	0.061

Notes: *p<0.1; **p<0.05; ***p<0.01. Errors are clustered by country.

x

E Benchmark specifications on percent of area with nighttime light as alternative measure of income
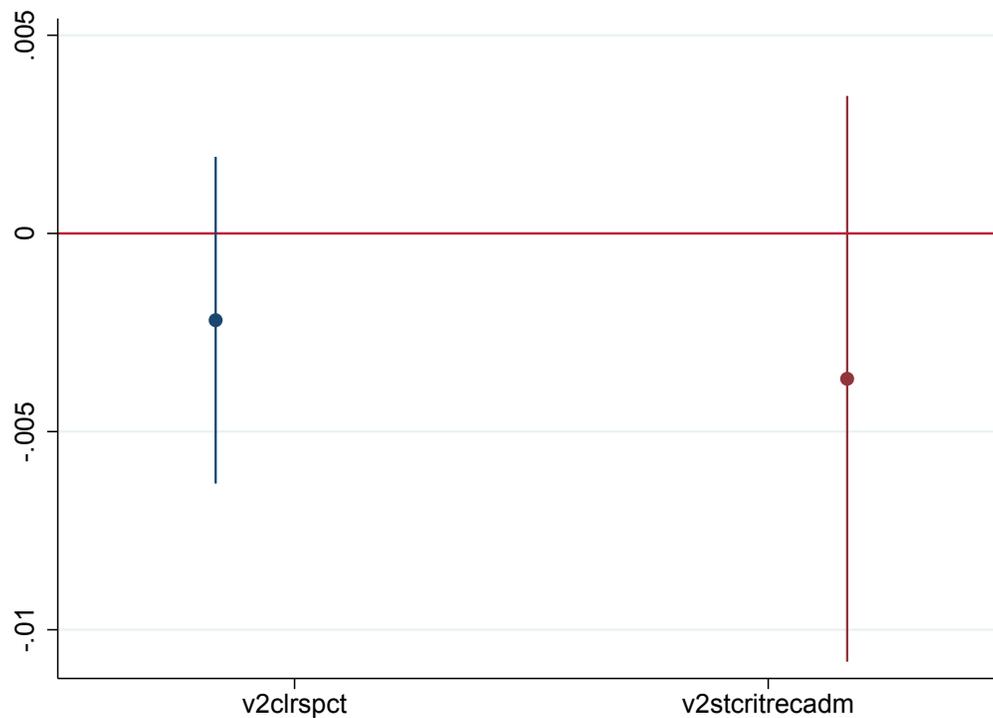

Figure A-2: Benchmark OLS FE specifications, using impartial administration (right) and meritocratic recruitment (v2stcritrecadm) as key independent variables. The dependent variable is percent of area lit in year $t + 5$. The regressions control for country- and year-fixed effects and percent area lit in year t. Time series on DV extend from 1997–2008

F   Robustness tests on five-year panels

Table A-8: Benchmark and extensive specifications, using 5-year panels, on GDP per capita growth or Ln GDP p.c. measured in $t + 5$

	DV: GDP p.c. growth in year t+5				DV: Ln GDP p.c. in year t+5			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Impartial public adm.	0.260	0.474	0.253	0.011	0.018***	0.014**	0.017**	0.006
	(0.257)	(0.358)	(0.340)	(0.129)	(0.006)	(0.005)	(0.008)	(0.005)
Ln GDP p.c.	-1.885***	-1.935***	-2.472***	-1.124***	0.894***	0.926***	0.886***	0.964***
	(0.626)	(0.739)	(0.587)	(0.226)	(0.021)	(0.019)	(0.021)	(0.009)
Polyarchy			1.319	-0.349			0.013	-0.017
			(1.636)	(0.806)			(0.042)	(0.038)
Ln population			-0.541*	-0.017			-0.024**	0.006
			(0.304)	(0.210)			(0.012)	(0.010)
Resource dependence			0.005	-0.054***			-0.001	-0.002**
			(0.028)	(0.020)			(0.001)	(0.001)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
5-yr period dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	2359	3784	1982	2572	2360	3789	1982	2573
R^2	0.054	0.020	0.065	0.187	0.950	0.934	0.954	0.968

Notes: *p<0.1; **p<0.05; ***p<0.01. 5-year panel units. Errors are clustered by country.

Table A-9: Controlling for lags on the DV Fixed effects OLS regressions on GDP per capita growth or Ln GDP p.c. measured in $t+5$

	DV: GDP p.c. growth in year t+5				DV: Ln GDP p.c. in year t+5			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Impartial public adm.	0.408	0.293	0.483	0.011	0.020***	0.009*	0.019**	0.003
	(0.316)	(0.278)	(0.426)	(0.135)	(0.006)	(0.005)	(0.008)	(0.005)
Ln GDP p.c.	-1.805**	-1.767***	-2.394***	-1.135***	0.946***	0.978***	0.988***	1.228***
	(0.775)	(0.522)	(0.748)	(0.244)	(0.047)	(0.082)	(0.056)	(0.035)
Polyarchy			0.576	-0.569			0.000	-0.005
			(1.816)	(0.821)			(0.043)	(0.031)
Ln population			-0.741**	0.003			-0.028**	0.002
			(0.355)	(0.216)			(0.013)	(0.008)
Resource dependence			-0.014	-0.058**			-0.001	-0.002**
			(0.025)	(0.023)			(0.001)	(0.001)
LDV 1 (t-5)	-0.043*	-0.049***	-0.041	0.000	-0.060	-0.022	-0.115**	-0.288***
	(0.025)	(0.019)	(0.025)	(0.007)	(0.051)	(0.058)	0.056)	(0.042)
LDV 2 (t-10)	-0.019	-0.038	-0.018	0.009	0.002	-0.012	0.003	0.009
	(0.030)	(0.022)	(0.030)	(0.008)	(0.038)	(0.029)	(0.040)	(0.025)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
5-yr period dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	2004	3337	1681	2460	2066	3439	1730	2503
R^2	0.060	0.038	0.073	0.192	0.951	0.951	0.956	0.971

Notes: *p<0.1; **p<0.05; ***p<0.01. 5-year panel units. Errors are clustered by country.

Table A-10: System GMM specifications GDP per capita growth or Ln GDP p.c. measured in $t+5$

	DV: GDP p.c. growth in year t+5				DV: Ln GDP p.c. in year t+5			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Impartial public adm.	0.605	1.521	0.843	1.137***	0.039**	0.024	0.036*	0.046**
	(0.614)	(1.453)	(0.810)	(0.418)	(0.015)	(0.016)	(0.019)	(0.020)
Ln GDP p.c.	-1.160	-3.280	-1.388	-0.766	0.943***	0.958***	0.947***	0.959***
	(0.826)	(2.872)	(1.140)	(0.785)	(0.026)	(0.031)	(0.027)	(0.026)
GDP p.c. growth	0.159	-0.180	0.093	-0.042				
	(0.134)	(0.266)	(0.145)	(0.075)				
Polyarchy			-2.961	-4.638			-0.029	-0.135
			(5.131)	(3.275)			(0.142)	(0.130)
Ln population			0.985	0.260			0.042**	0.027
			(0.663)	(0.569)			(0.019)	(0.022)
Resource dependence			-0.127	0.002			-0.002	0.001
			(0.089)	(0.047)			(0.003)	(0.002)
5-yr period dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	2298	3692	1935	2568	2360	3789	1982	2573
Lags used for IVs	2nd-3rd	2nd-3rd	2nd-3rd	2nd-3rd	2nd-3rd	2nd-3rd	2nd-3rd	2nd-3rd
Nr IVs	120	126	120	126	120	126	120	126
AR(2) test p-val.	0.549	0.468	0.238	0.888	0.603	0.883	0.354	0.159
Hansen J-test p-val.	0.362	0.618	0.586	0.590	0.096	0.389	0.382	0.428

Notes: *p<0.1; **p<0.05; ***p<0.01. 5-year panel units. Errors are robust. Impartial public adm. modelled as endogenous.

Table A-11: Measuring the DV ten years after regressors. Fixed effects OLS regressions on GDP per capita growth or Ln GDP p.c. measured in $t + 10$

	DV: GDP p.c. growth in year t+10				DV: Ln GDP p.c. in year t+10			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Impartial public adm.	0.155	0.505	0.321	0.012	0.025**	0.020**	0.023	0.011
	(0.211)	(0.349)	(0.297)	(0.147)	(0.010)	(0.009)	(0.014)	(0.011)
Ln GDP p.c.	-1.743***	-2.429***	-1.983***	-1.380***	0.802***	0.870***	0.779***	0.907***
	(0.619)	(0.738)	(0.588)	(0.269)	(0.038)	(0.029)	(0.041)	(0.021)
Polyarchy			-0.407	-0.471			0.075	-0.056
			(1.456)	(0.758)			(0.087)	(0.071)
Ln population			-0.702	-0.103			-0.043*	-0.006
			(0.440)	(0.208)			(0.024)	(0.019)
Resource dependence			-0.007	-0.044**			-0.002	-0.005***
			(0.028)	(0.020)			(0.001)	(0.002)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	2195	3597	1822	2412	2196	3602	18220	2413
R^2	0.056	0.025	0.064	0.193	0.909	0.888	0.911	0.922

Notes: *p<0.1; **p<0.05; ***p<0.01. 5-year panel units. Errors are clustered by country.

Table A-12: Measuring the DV twenty years after regressors. Fixed effects OLS regressions on GDP per capita growth measured in $t + 20$

Model	DV: GDP p.c. growth in year t+20				DV: Ln GDP p.c. in year t+20			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Impartial public adm.	0.063	0.080	0.011	0.018	0.023	0.022	0.023	0.022
	(0.155)	(0.186)	(0.252)	(0.128)	(0.015)	(0.015)	(0.019)	(0.020)
Ln GDP p.c.	-1.416*	-1.523***	-1.894**	-1.186***	0.638***	0.795***	0.593***	0.803***
	(0.723)	(0.354)	(0.755)	(0.256)	(0.063)	(0.043)	(0.069)	(0.044)
Polyarchy			1.620	0.135			0.115	-0.064
			(1.683)	(0.799)			(0.151)	(0.121)
Ln population			-0.308	-0.068			-0.063	-0.023
			(0.425)	(0.228)			(0.042)	(0.042)
Resource dependence			-0.015	0.035			-0.002	-0.006**
			(0.037)	(0.026)			(0.003)	(0.002)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	1911	3224	1549	2092	1912	3229	1549	2093
R^2	0.053	0.033	0.053	0.176	0.863	0.825	0.869	0.854

Notes: *p<0.1; **p<0.05; ***p<0.01. 5-year panel units. Errors are clustered by country.

G Robustness tests for meritocratic recruitment measure

Table A-13: Fixed effects OLS regressions on GDP per capita growth measured in $t + 5$

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Meritocratic recruitment	0.137	0.074	0.178	0.082	0.135	0.032	0.233	0.091
	(0.132)	(0.129)	(0.142)	(0.138)	(0.125)	(0.123)	(0.154)	(0.114)
Ln GDP p.c.	-1.715***	-0.818***	-1.918***	-1.041***	-1.676***	-0.732***	-2.011***	-0.902***
	(0.508)	(0.264)	(0.440)	(0.292)	(0.521)	(0.229)	(0.448)	(0.272)
Polyarchy			0.511	0.575			0.283	0.155
			(0.777)	(0.642)			(0.831)	(0.838)
Resource dependence					-0.038	-0.045	-0.041	-0.043
					(0.042)	(0.038)	(0.043)	(0.038)
Ln population							-0.100	0.047
							(0.352)	(0.255)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
5-yr period dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	7023	11480	6793	10884	6909	7403	5820	7173
R^2	0.072	0.060	0.074	0.059	0.074	0.086	0.076	0.089

Notes: *p<0.1; **p<0.05; ***p<0.01. Errors are clustered by country.
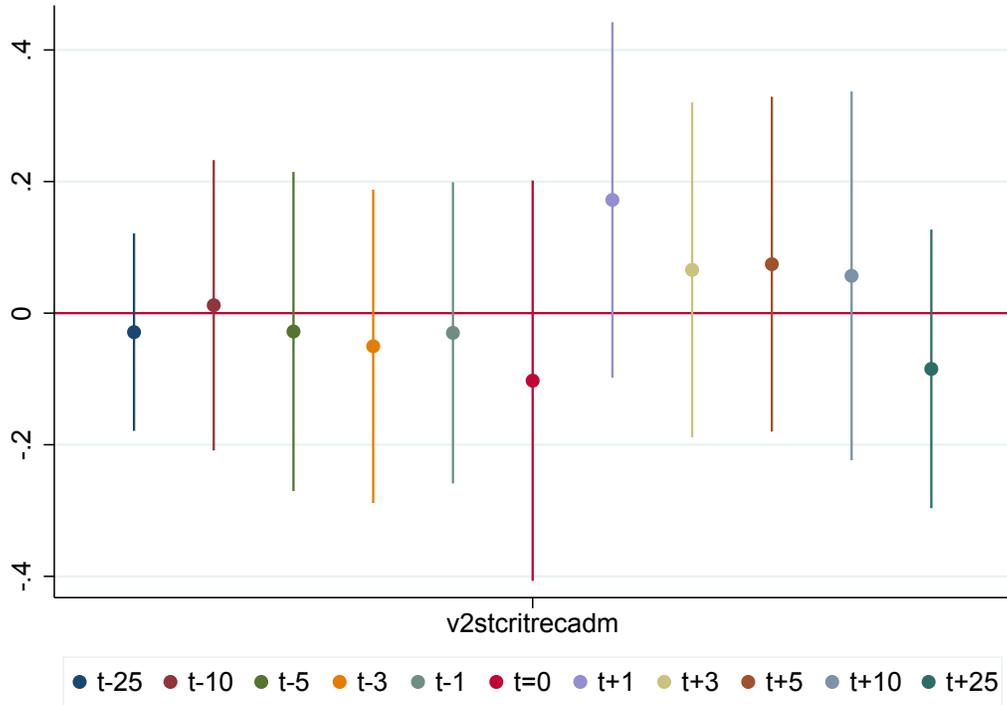
Figure A-3: Benchmark OLS FE specification, using meritocratic recruitment (v2stcritrecadm) as key independent variable and GDP data from Farris (2017), but with different temporal lags. The horizontal axis marks the year the outcome variable is measured when covariates are measured in year t.

Table A-14: Five-year panels, meritocratic recruitment. Fixed effects OLS regressions on GDP per capita growth or Ln GDP p.c. measured in $t+5$

	DV: GDP p.c. growth in year t+5				DV: Ln GDP p.c. in year t+5			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Meritocratic recruitment	0.608**	0.088	0.691**	0.154	0.012	0.009	0.011*	0.007
	(0.263)	(0.335)	(0.281)	(0.150)	(0.007)	(0.007)	(0.007)	(0.006)
Ln GDP pc	-1.870	-0.934**	-2.412*	-0.996***	0.931***	0.958***	0.924***	0.974***
	(1.487)	(0.395)	(1.415)	(0.283)	(0.035)	(0.015)	(0.032)	(0.012)
Polyarchy			2.768	0.307			0.061	0.019
			(3.088)	(0.907)			(0.048)	(0.041)
Ln population			0.097	-0.008			0.002	0.014
			(0.516)	(0.285)			(0.018)	(0.012)
Resource dependence			-0.046	-0.051			-0.002	-0.001
			(0.041)	(0.045)			(0.002)	(0.003)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	1400	2297	1139	1473	1400	2299	1139	1474
R^2	0.064	0.057	0.090	0.164	0.948	0.956	0.956	0.966

Notes: *p<0.1; **p<0.05; ***p<0.01. 5-year panel units. Errors are clustered by country.

Table A-15: Five-year panels, meritocratic recruitment. Measuring the DV ten years after regressors. Fixed effects OLS regressions on GDP per capita growth or Ln GDP p.c. measured in $t+10$

	DV: GDP p.c. growth in year t+10				DV: Ln GDP p.c. in year t+10			
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Data source GDP p.c.	Miller	Farris	Miller	Farris	Miller	Farris	Miller	Farris
	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)	b/(se)
Meritocratic recruitment	0.057	0.016	0.090	0.099	0.012	0.015	0.015	0.010
	(0.215)	(0.360)	(0.264)	(0.153)	(0.012)	(0.012)	(0.013)	(0.011)
Ln GDP p.c.	-1.697	-1.284***	-1.914*	-1.306***	0.860***	0.918***	0.839***	0.932***
	(1.133)	(0.414)	(1.048)	(0.336)	(0.052)	(0.028)	(0.045)	(0.026)
Polyarchy			-1.644	-0.780			0.065	-0.035
			(1.991)	(0.905)			(0.071)	(0.072)
Ln population			-0.116	-0.329			0.001	0.004
			(0.590)	(0.259)			(0.034)	(0.021)
Resource dependence			-0.048	-0.062**			-0.005**	-0.005
			(0.037)	(0.024)			(0.002)	(0.005)
Country dummies	Y	Y	Y	Y	Y	Y	Y	Y
Year dummies	Y	Y	Y	Y	Y	Y	Y	Y
N	1336	2198	1076	1394	1336	2200	1076	1395
R^2	0.068	0.058	0.082	0.168	0.904	0.901	0.915	0.909

Notes: *p<0.1; **p<0.05; ***p<0.01. 5-year panel units. Errors are clustered by country.

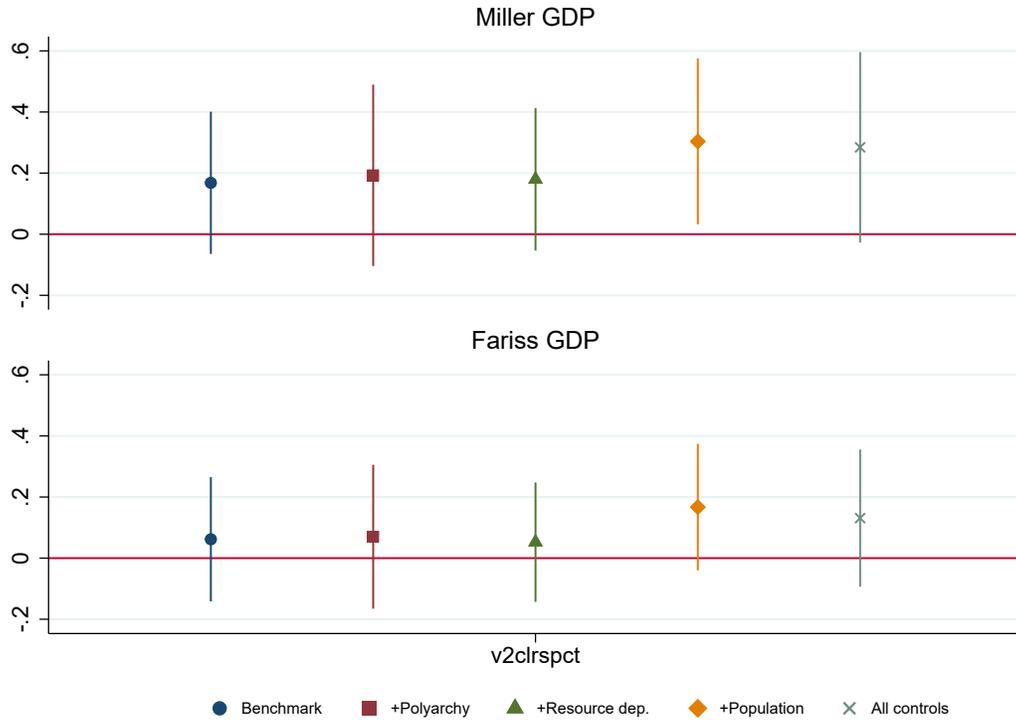# H   Assessing specifications using Miller and Fariss data on identical samples

Figure A-4: Coefficient plots for v2clrspct (impartial public adm.) with 95% CIs for identical specification to in Figure 5 in the paper (alternative control specifications), but with Miller and Fariss models run on identical samples (for otherwise similar specifications)
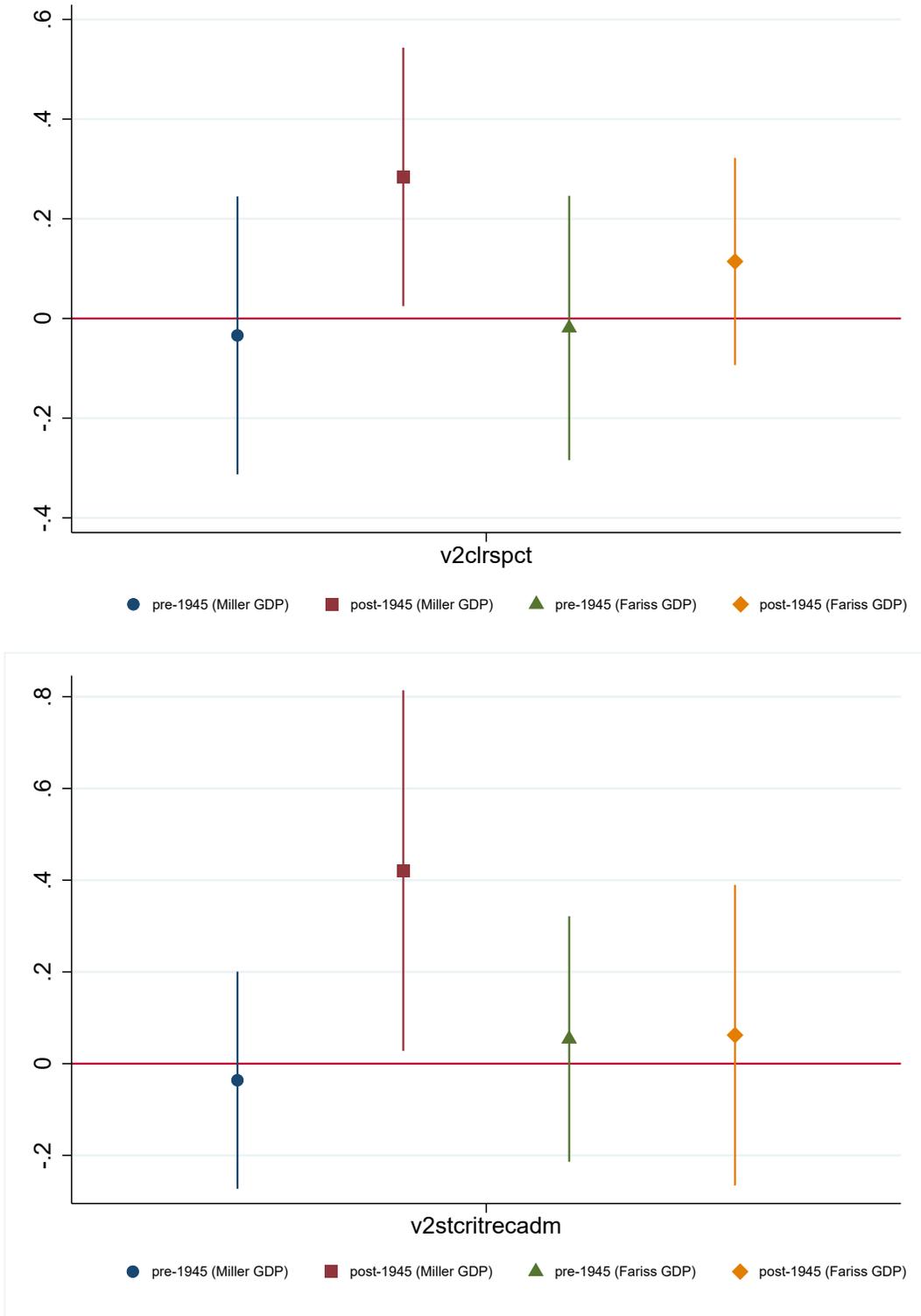
Figure A-5: Coefficient plots for v2clrspct (impartial public adm.; top) and v2stcritrecadm (meritocratic recruitment; bottom) with 95% CIs for identical specification to in Figure 6 in the paper (temporal heterogeneity), but with Miller and Fariss models run on identical samples (for otherwise similar specifications)

I Assessing temporal dimension of relationship: Leads and lags
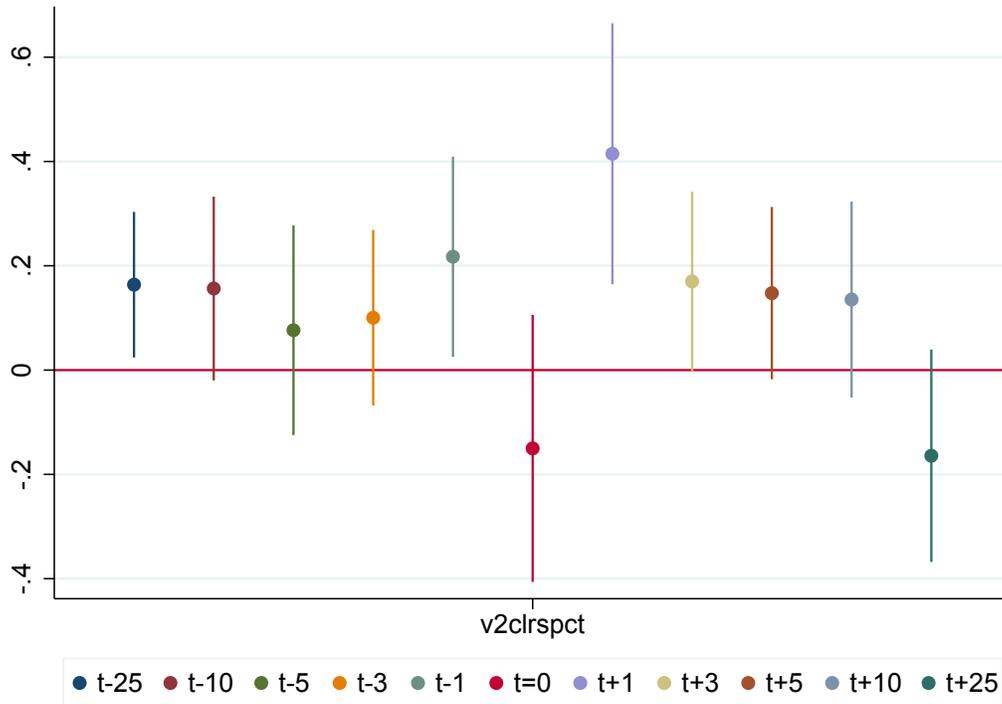
Figure A-6: Benchmark OLS FE specification, using *v2clrspct* as key independent variable and GDP data from Farris (2017),for different temporal lags. Horizontal axis marks year the outcome variable is measured when covariates are measured in year t.
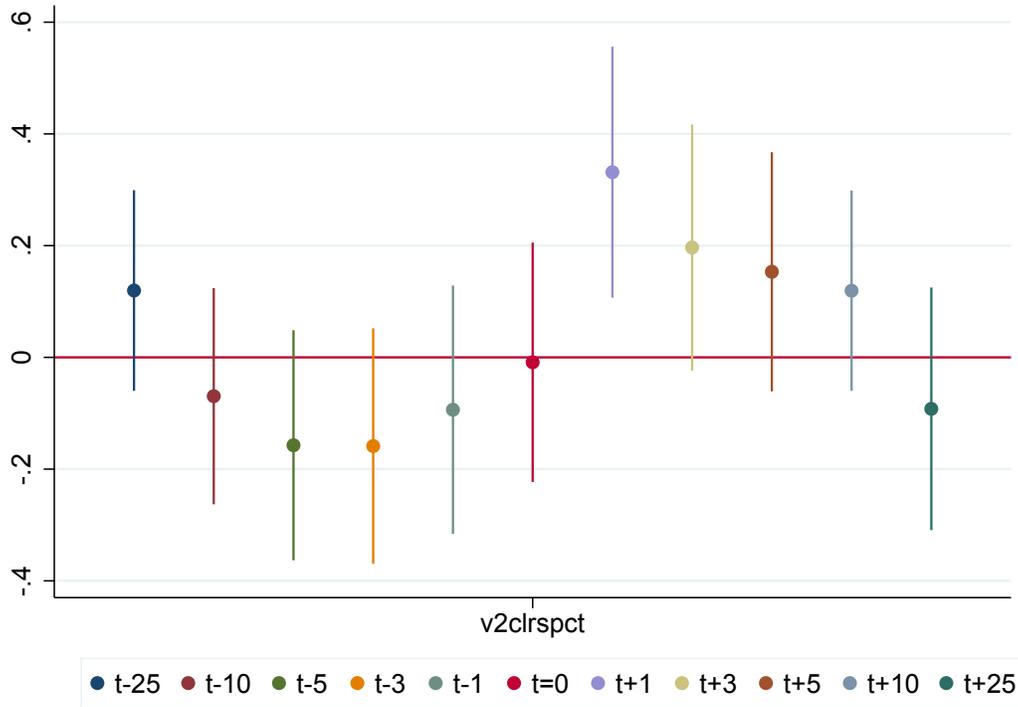
Figure A-7: Benchmark OLS FE specification, using *v2clrspct* as key independent variable and GDP data from Miller (2015),for different temporal lags. Horizontal axis marks year the outcome variable is measured when covariates are measured in year t.
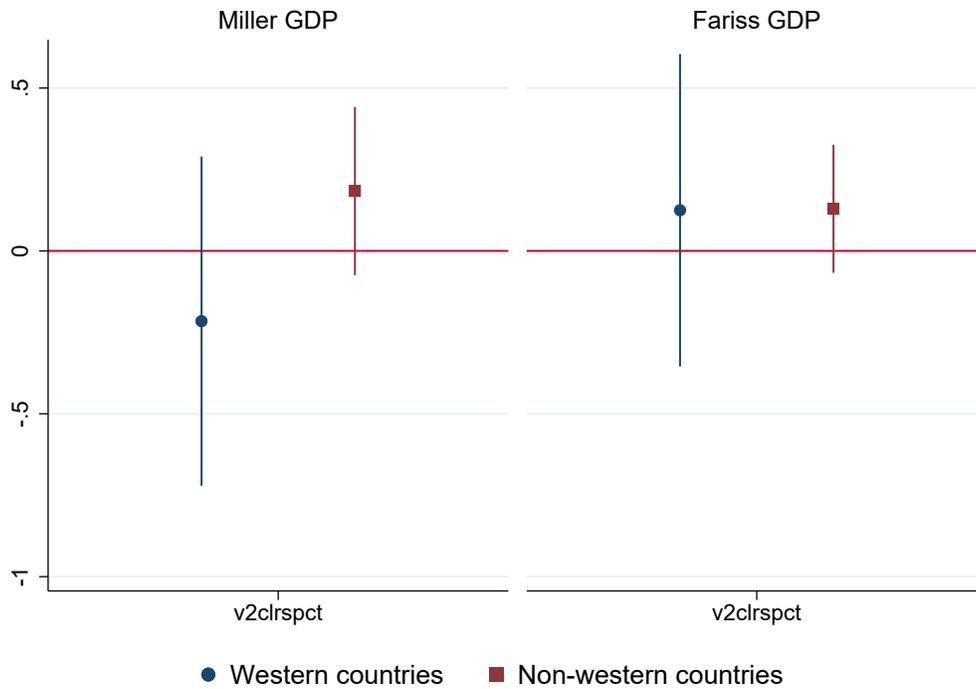
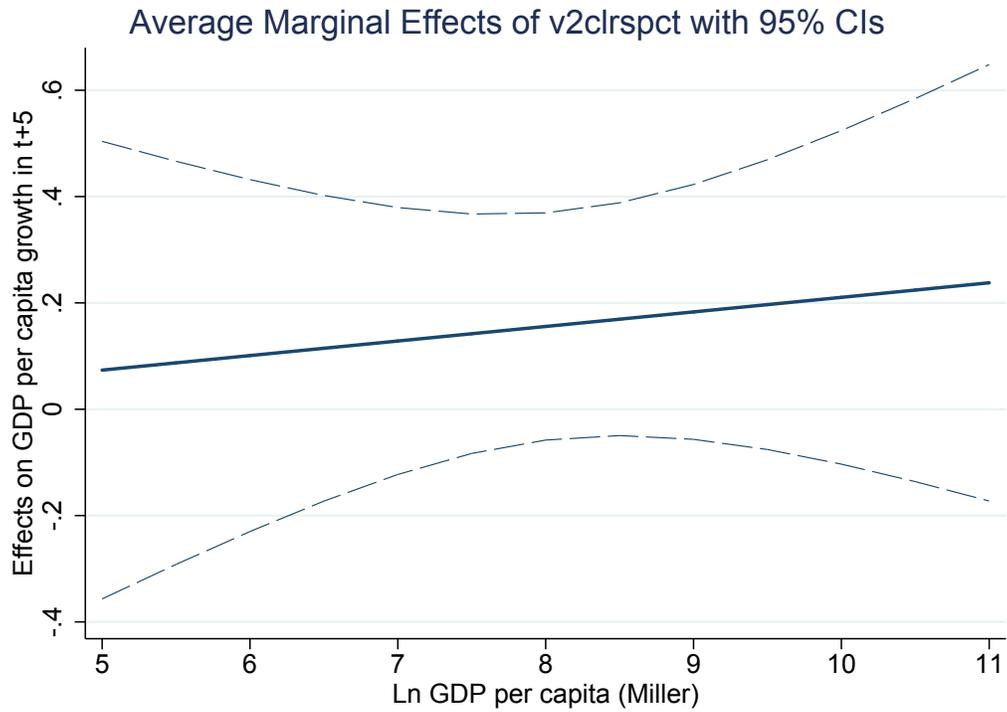# J   Assessing Heterogeneity: Rich and poor countries and time periods
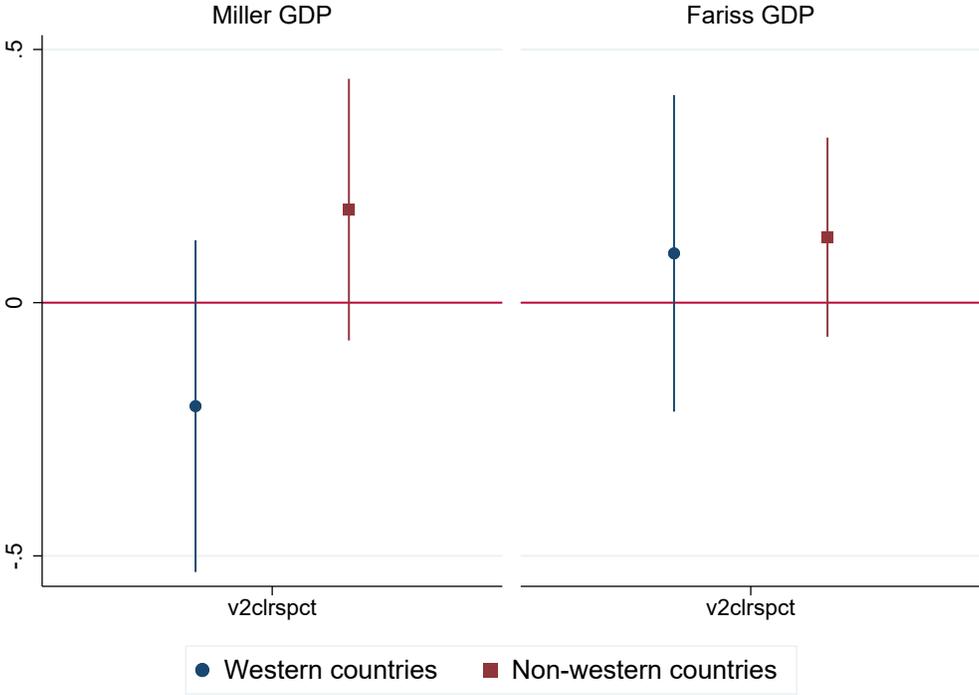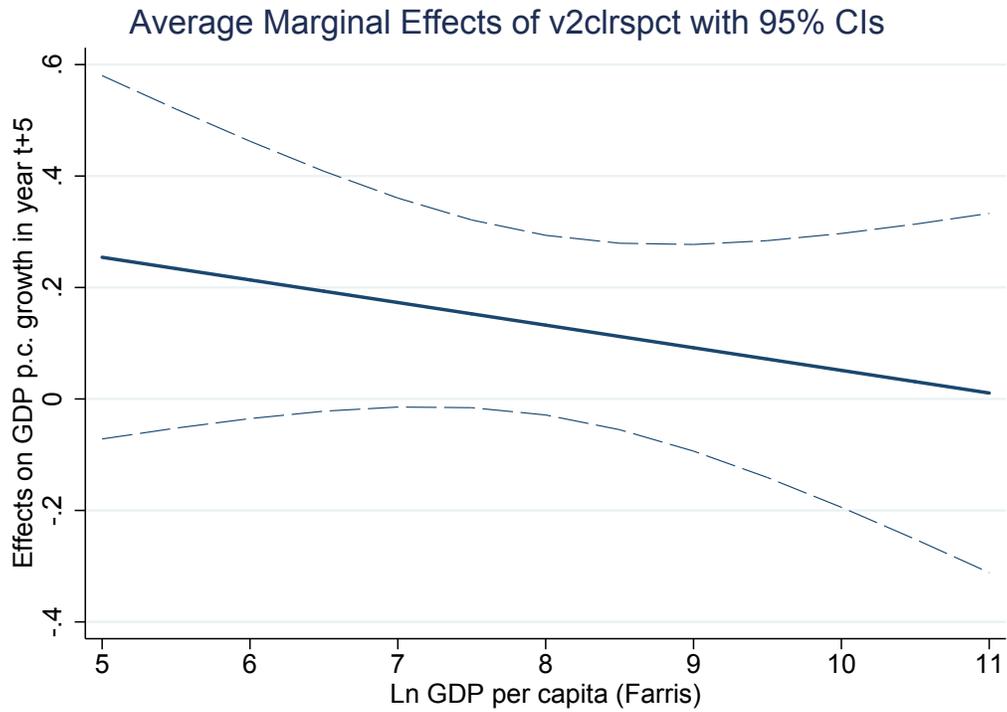

Figure A-8: Predictions on the relationship between impartial public administration and growth from benchmark OLS FE specification, split-samples for Western (Western Europe + USA, Canada, Australia, New Zealand) and all other countries. Please note that the Miller and Fariss specifications are run on different samples.

Figure A-9: Predictions (based on reduced samples) on the relationship between impartial public administration and growth from benchmark OLS FE specification, split-samples for Western (Western Europe + USA, Canada, Australia, New Zealand) and all other countries. The Miller and Fariss specifications are here run on identical samples.

Figure A-10: Predictions on the relationship between impartial public administration and growth from benchmark OLS FE specification, including an interaction between impartial public administration and income level. Drawing on GDP data from Miller.

Figure A-11: Predictions on the relationship between impartial public administration and growth from benchmark OLS FE specification, including an interaction between impartial public administration and income level. Drawing on GDP data from Farris et al.

Table A-16: Interactions between bureaucracy measures and distance to "frontier". OLS Fixed Effects regression with GDP per capita growth in t+5 as DV.

Model	(1) b/(se)	(2) b/(se)	(3) b/(se)	(4) b/(se)
Data source GDP p.c.	Miller	Farris	Miller	Farris
Impartial public administration	0.136** (0.056)	0.160** (0.071)		
Distance to frontier	0.063*** (0.016)	0.070*** (0.013)	0.076*** (0.024)	0.033* (0.018)
Impartial public administration *Distance to frontier	0.006 (0.029)	0.007 (0.028)		
Meritocratic recruitment			0.102* (0.056)	-0.038 (0.080)
Meritocratic recruitment*Distance to frontier			-0.028 (0.047)	0.060 (0.042)
Ln GDP p.c.	0.986*** (0.008)	1.039*** (0.007)	0.984*** (0.009)	1.052*** (0.007)
Country dummies	Y	Y	Y	Y
N	12052	19064	7025	11481
R²	0.947	0.944	0.941	0.956

Notes: *p<0.1; **p<0.05; ***p<0.01. Errors clustered by country.
Distance to frontier measured: Ln GDP p.c. of richest country that year - Ln GDP p.c. in country.
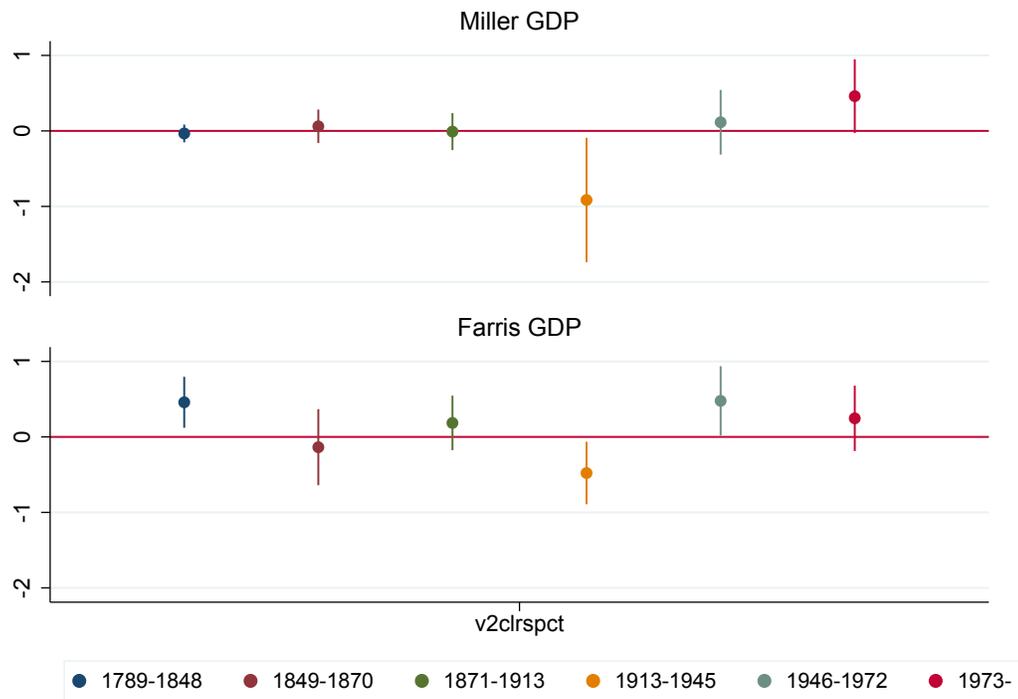The two bureaucracy measures are normalized to 0–1 (min and max from all observations in dataset).

Figure A-12: Split-sample tests. Coefficient plots for v2clrspct (impartial public adm.) with 95% CIs for benchmark OLS specification, drawing on the different GDP data sources. Time periods for the samples are marked along the x-axis. Please note that the samples differ between models drawing on different GDP measures.
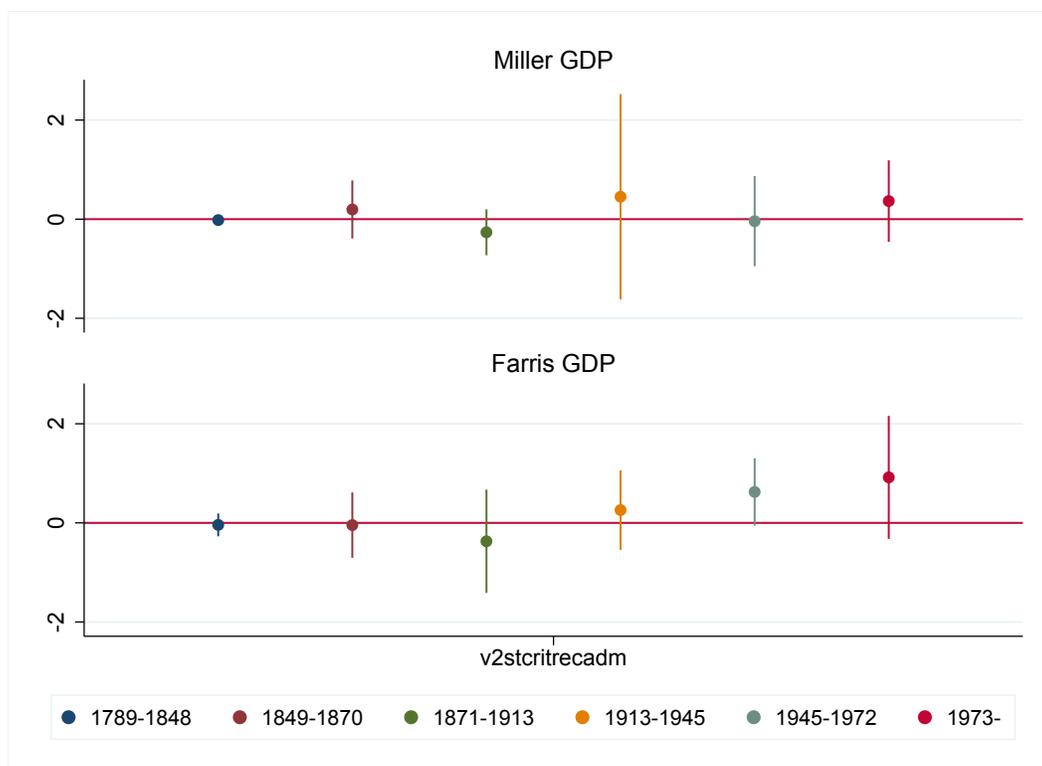
Figure A-13: Split-sample tests. Coefficient plots for v2stcritrecadm (meritocratic recruitment) with 95% CIs for benchmark OLS specification, drawing on the different GDP data sources. Time periods for the samples are marked along the x-axis. Please note that the samples differ between models drawing on different GDP measures.

K Replicating results when omitting polities that are not independent states

Table A-17: Replicating Table 2 in the paper, but excluding colonies and semi-autonomous polities.

Model	(1)	(2)	(3)	(4)
	b/(se)	b/(se)	b/(se)	b/(se)
Data source GDP p.c.	Miller	Miller	Miller	Miller
Impartial public administration	0.181***	0.189***	0.165	
	(0.062)	(0.062)	(0.109)	
Meritocratic recruitment				0.123
				(0.134)
Ln GDP per capita	0.083	-0.074	-2.307***	-1.698***
	(0.096)	(0.111)	(0.351)	(0.513)
Year dummies		Y	Y	Y
Country dummies			Y	Y
N	11801	11801	11801	6801
R^2	0.003	0.050	0.061	0.073

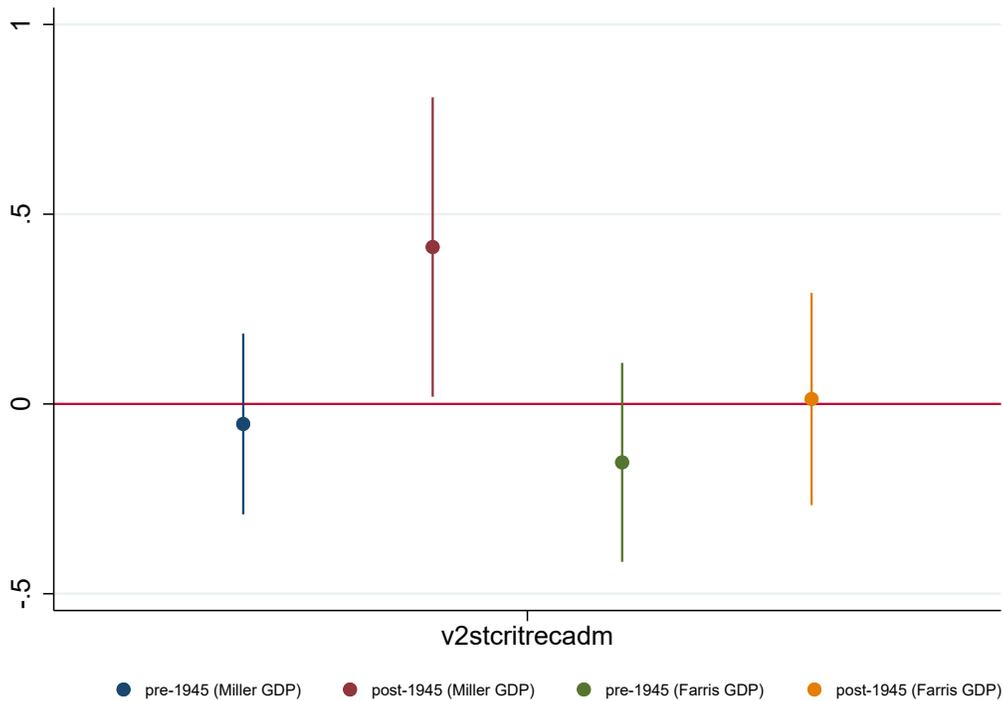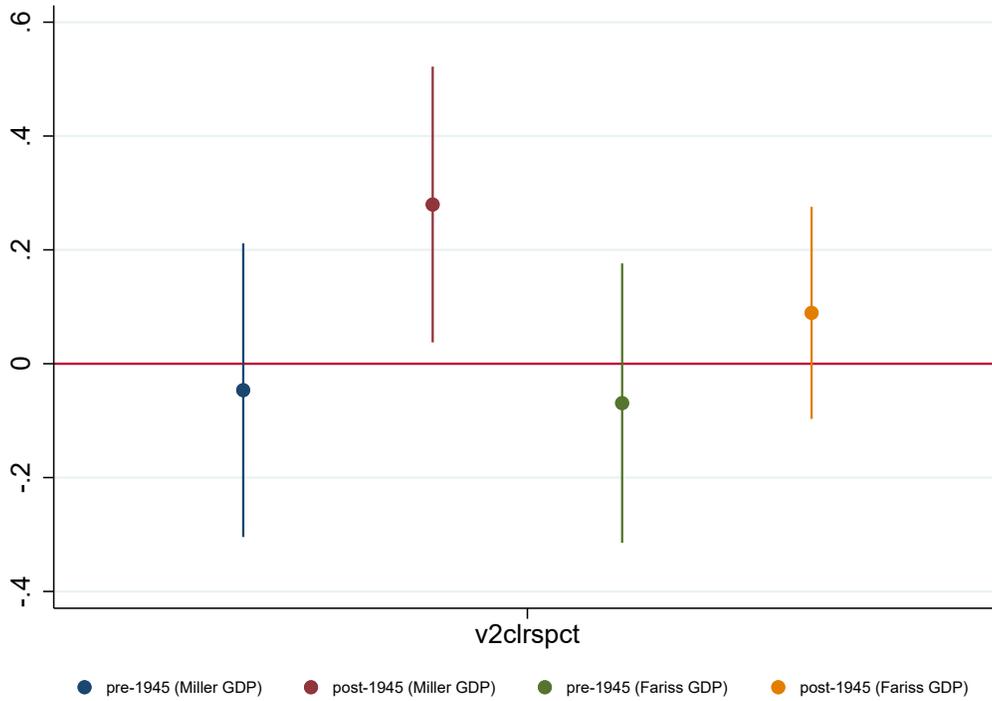Notes: *p<0.1; **p<0.05; ***p<0.01. Errors clustered by country.

Figure A-14: Coefficient plots for v2clrspct (impartial public adm.; top) and v2stcritrecadm (meritocratic recruitment; bottom) with 95% CIs for identical specification to in Figure 6 in the paper (temporal heterogeneity), but with Miller and Fariss models run only on independent states (i.e., excluding colonies and semi-autonomous polities.