Appendix – Not intended for publication

A Data Source and Sample Makeup

Income (ANRR) Data are taken from the World Bank World Development Indicators (WDI) database for real GDP per capita in year 2000 US$. The GDPpc variable is transformed into logarithms and multiplied by 100, which eases the interpretation of the coefficients on the democracy dummy.

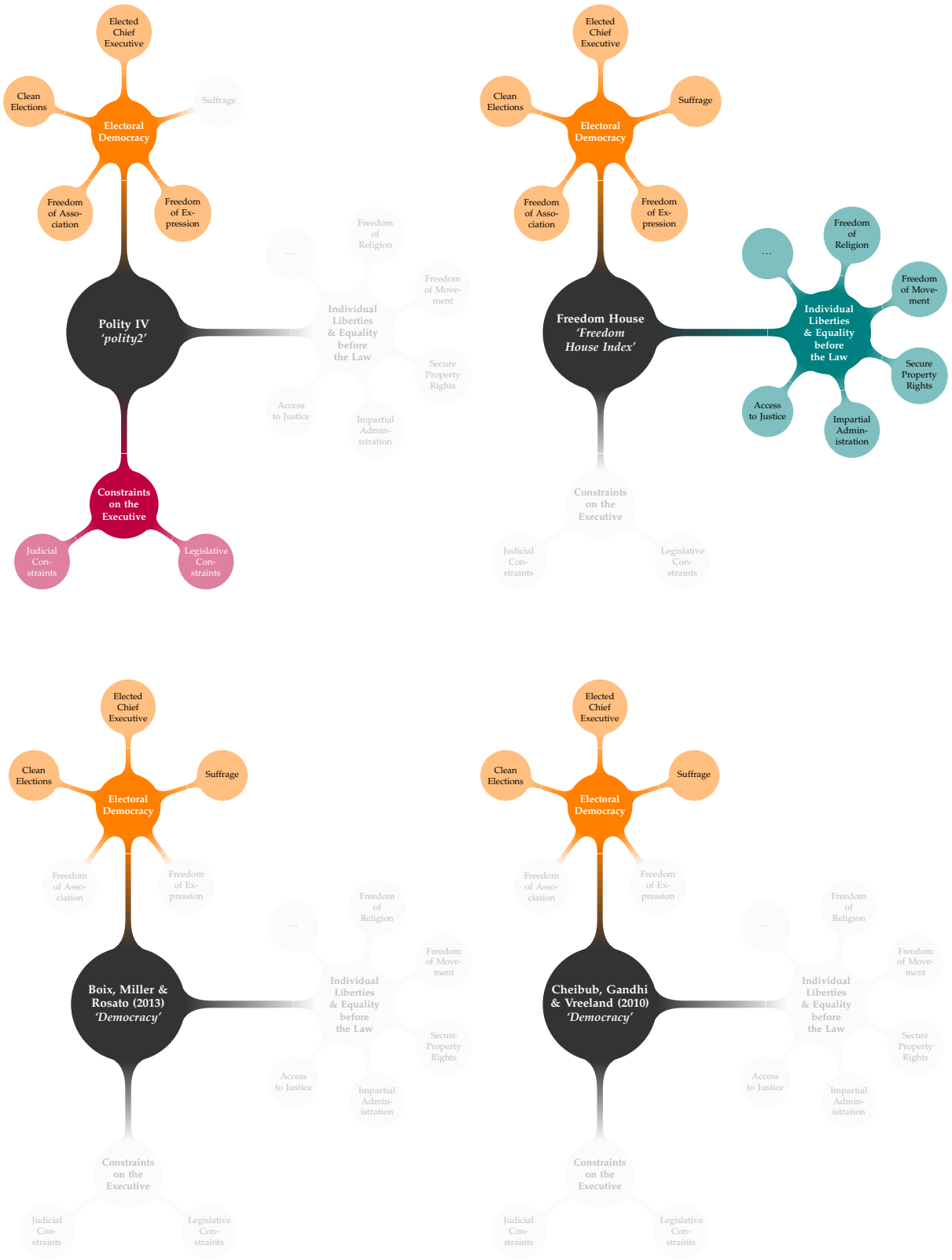
Democracy (ANRR) Data are combined from the Polity IV project, Freedom House and a number of alternative sources. The primary strategy for construction of the democracy dummy prescribes a positive Polity score in addition to a 'free' or 'partially free' label in Freedom House. Further strategies are described in detail in an appendix to ANRR. In Figure A-1 below I highlight the 'coverage' of BMR, CGV as well as the polity2 (PolityIV) and FHI measures in terms of different aspects of political institutions: by combining the latter two measures ANRR come closer to the V-Dem definition of 'liberal democracy' which captures electoral democracy, individual liberties and constraints to the executive.

Investment (ANRR) Data are taken from the World Bank World Development Indicators (WDI) database for the share of gross investment in GDP.

Trade Openness (ANRR) Data are taken from the World Bank World Development Indicators (WDI) database for the sum of imports and exports expressed as a share of GDP.

All of the above variables are compiled by ANRR and provided for download (along with the Stata do-files used in the analysis) from Daron Acemoglu's personal website. Table A-2 indicates the sample makeup for the analysis of each of the four definitions of democracy (treatment sample), focusing on the dynamic specifications presented in the main section of the paper. Table A-1 presents the 38 countries which make up the control group (countries which never transitioned into democracy.) For reference, I also provide the sample makeup (treated sample) for static specifications in Table A-3.

Figure A-1: Alternative Empirical Measures of Democracy



Notes: The figure compares four popular measures for democracy with the V-Dem conceptual framework for 'liberal democracy', where faint gray aspects are not covered by the democracy measure in question. Note that for the Freedom House FHI the index *does* include aspects of executive constraints but that these are given much less significance than in the Polity IV or V-Dem data. This visualisation merely covers the elements covered by each measure for democracy, not the substantial variation in the aggregation procedure. The ANRR measure is a combination of the PolityIV and FHI, checked against the PS measure for permanent democratisation.

Table A-1: Control Sample — Dynamic Specifications

	wbcode	obs	start	end	M		wbcode	obs	start	end	M
Angola	AGO	23	1986	2010	2	Oman	OMN	39	1968	2008	2
Bahrain	BHR	28	1981	2008		Qatar	QAT	10	2000	2009	
Bosnia & Herzegovina	BIH	16	1995	2010		Rwanda	RWA	49	1962	2010	
Brunei Darussalam	BRN	20	1990	2009		Saudi Arabia	SAU	42	1969	2010	
PR China	CHN	40	1971	2010		Singapore	SIN	45	1966	2010	
Cameroon	CMR	45	1966	2010		Swaziland	SWZ	35	1976	2010	
Cuba	CUB	40	1971	2010		Syria	SYR	50	1961	2010	
Algeria	DZA	49	1962	2010		Chad	TCD	47	1961	2010	3
Egypt	EGY	50	1961	2010		Togo	TGO	50	1961	2010	
Eritrea	ERI	15	1993	2007		Tajikistan	TJK	22	1989	2010	
Gabon	GAB	38	1970	2007		Turkmenistan	TKM	16	1993	2010	2
Equatorial Guinea	GNQ	19	1990	2010	2	Tonga	TON	30	1981	2010	
Iran	IRN	42	1966	2007		Tunisia	TUN	49	1962	2010	
Jordan	JOR	34	1977	2010		Tanzania	TZA	20	1991	2010	
Kazakhstan	KAZ	18	1993	2010		Uzbekistan	UZB	20	1991	2010	
Kuwait	KWT	13	1995	2007		Vietnam	VNM	24	1987	2010	
Lao PDR	LAO	15	1985	2010	11	Yemen	YEM	20	1991	2010	
Libya	LBY	10	1999	2008							
Morocco	MAR	50	1961	2010		Totals	38	1,194			
Maldives	MDV	11	1995	2005							
Malaysia	MYS	50	1961	2010							

Notes: This table provides sample details for the set of control countries from which the common factor proxies are constructed (cross-section averages for per capita GDP, gross investment rate, trade openness). M indicates the number of missing observations in the time series.

Table A-2: Regression Sample — Dynamic Specifications

		ANRR (1961-2010)						BMR (1961-2007)						CGV (1961-2008)						PS (1961-2010)					
			In Democracy			Events			In Democracy			Events			In Democracy			Events			In Democracy			Events	
			0	1	Obs	D	A		0	1	Obs	D	A		0	1	Obs	D	A		0	1	Obs	D	A
1	Albania	**ALB**	9	18	27	2	1	**ALB**	9	15	24	2	1	**ALB**	7	18	25	1	0	**ALB**	8	19	27	1	0
2	Argentina	**ARG**	16	31	47	2	1	**ARG**	14	30	44	2	2	**ARG**	14	31	45	2	2	**ARG**	19	28	47	1	0
3	Antigua & Barbuda	ATG						**ATG**	19	4	23	1	0	ATG						ATG					
4	Burundi	**BDI**	38	8	46	1	0	**BDI**	40	3	43	1	0	**BDI**	37	7	44	2	1	BDI					
5	Benin	**BEN**	27	20	47	1	0	**BEN**	27	17	44	1	0	**BEN**	27	18	45	1	0	**BEN**	27	20	47	1	0
6	Burkina Faso	**BFA**	44	3	47	1	1	BFA						BFA						BFA					
7	Bangladesh	**BGD**	18	18	36	2	1	**BGD**	13	21	34	1	1	**BGD**	14	21	35	1	1	**BGD**	16	20	36	1	0
8	Bulgaria	**BGR**	7	20	27	1	0	**BGR**	6	18	24	1	0	**BGR**	6	19	25	1	0	**BGR**	7	20	27	1	0
9	Bolivia	**BOL**	8	29	37	1	0	**BOL**	7	27	34	2	1	**BOL**	7	28	35	2	1	**BOL**	8	29	37	1	0
10	Brazil	**BRA**	21	26	47	1	1	**BRA**	15	29	44	1	1	**BRA**	21	24	45	1	1	**BRA**	21	26	47	1	0
11	Bhutan	**BTN**	24	3	27	1	0	BTN						BTN						BTN					
12	Central African Rep	**CAF**	37	10	47	1	1	**CAF**	34	10	44	1	1	**CAF**	35	10	45	1	1	CAF					
13	Chile	**CHL**	17	30	47	1	1	**CHL**	17	27	44	1	1	**CHL**	17	28	45	1	1	**CHL**	26	21	47	1	0
14	Cote d'Ivoire	**CIV**	43	2	45	1	1	CIV						CIV						CIV					
15	Rep of Congo	**COG**	42	5	47	1	1	**COM**	22	2	24	1	0	**COM**	40	5	45	1	1	COM					
16	Comores	**COM**	10	16	26	3	2	COM						**COM**	15	10	25	2	1	COM					
17	Cape Verde	**CPV**	7	20	27	1	0	**CPV**	7	17	24	1	0	**CPV**	6	19	25	1	0	**CPV**	7	20	27	1	0
18	Cyprus	CYP						CYP						**CYP**	4	26	30	1	0	CYP					
19	Dominican Rep	**DOM**	14	33	47	1	0	**DOM**	2	42	44	1	0	**DOM**	2	43	45	1	0	**DOM**	14	33	47	1	0
20	Ecuador	**ECU**	15	32	47	1	0	**ECU**	18	26	44	2	1	**ECU**	17	28	45	2	1	**ECU**	15	32	47	1	0
21	Spain	**ESP**	5	33	38	1	0	**ESP**	4	31	35	1	0	**ESP**	4	32	36	1	0	**ESP**	5	33	38	1	0
22	Ethiopia	**ETH**	11	15	26	1	1	ETH						ETH						**ETH**	10	16	26	1	0
23	Fiji	**FJI**	6	30	36	1	2	**FJI**‡	21	14	35	0	1	**FJI**	28	8	36	1	1	FJI					
24	Ghana	**GHA**	28	19	47	3	2	**GHA**	29	15	44	3	2	**GHA**	24	21	45	3	2	**GHA**	32	15	47	1	0
25	Gambia	**GMB**‡	17	24	41	0	1	**GMB**	16	22	38	1	1	GMB						GMB					
26	Guinea-Bissau	**GNB**	18	8	26	2	1	**GNB**	22	4	26	1	1	**GNB**	23	3	26	1	0	GNB					
27	Greece	**GRC**	7	36	43	1	0	**GRC**	6	34	40	1	0	**GRC**	6	35	41	1	0	**GRC**	7	36	43	1	0
28	Granada	**GRD**	3	27	30	1	0	**GRD**	3	24	27	1	0	**GRD**	3	25	28	1	0	**GRD**	3	27	30	1	0
29	Guatemala	**GTM**	14	33	47	2	1	**GTM**	6	38	44	2	1	**GTM**	6	39	45	2	1	**GTM**	32	15	47	1	0
30	Guyana	**GUY**	23	14	37	1	0	**GUY**	23	14	37	1	0	GUY						**GUY**	23	14	37	1	0
31	Honduras	**HND**	18	29	47	1	0	**HND**	17	27	44	2	1	**HND**	17	28	45	2	1	**HND**	18	29	47	1	0
32	Hungary	**HUN**	25	21	46	1	0	**HUN**	25	18	43	1	0	**HUN**	25	19	44	1	0	**HUN**	25	21	46	1	0
33	Indonesi	**IDN**	35	12	47	1	0	**IDN**	35	9	44	1	0	**IDN**	35	10	45	1	0	**IDN**	35	12	47	1	0
34	Kenya	**KEN**	36	9	45	1	0	**KEN**	36	6	42	1	0	**KEN**	32	11	43	1	0	KEN					
35	South Korea	**KOR**	24	23	47	1	0	**KOR**	24	20	44	1	0	**KOR**	24	21	45	1	0	**KOR**	24	23	47	1	0

Table A-2: Regression Sample — Dynamic Specifications (continued)

			ANRR (1961-2010)						BMR (1961-2007)						CGV (1961-2008)						PS (1961-2010)					
			In Democracy			Events			In Democracy			Events			In Democracy			Events			In Democracy			Events		
			0	1	Obs	D	A		0	1	Obs	D	A		0	1	Obs	D	A		0	1	Obs	D	A	
36	Sri Lanka	LKA						**LKA**	14	26	40	1	1	**LKA**	12	29	41	1	1	LKA						
37	Lesotho	**LSO**	25	17	42	2	1	**LSO**	33	6	39	1	0	LSO						**LSO**	24	18	42	1	0	
38	Madagascar	**MDG**	30	16	46	1	1	**MDG**	29	15	44	1	0	**MDG**	29	16	45	1	0	**MDG**	29	17	46	1	0	
39	Mexico	**MEX**	33	14	47	1	0	**MEX**	36	8	44	1	0	**MEX**	36	9	45	1	0	**MEX**	33	14	47	1	0	
40	Mali	**MLI**	21	19	40	1	0	**MLI**	21	16	37	1	0	**MLI**	21	17	38	1	0	**MLI**	21	19	40	1	0	
41	Mongolia	**MNG**	8	18	26	1	0	**MNG**	5	18	23	1	0	**MNG**	5	19	24	1	0	**MNG**	8	18	26	1	0	
42	Mozambique	**MOZ**	10	17	27	1	0	**MOZ**	14	10	24	1	1	MOZ						**MOZ**	10	17	27	1	0	
43	Mauritania	**MRT**	46	1	47	1	1	MRT						MRT						MRT						
44	Malawi	**MWI**	27	13	40	1	0	**MWI**	27	10	37	1	0	**MWI**	27	11	38	1	0	**MWI**	27	13	40	1	0	
45	Niger	**NER**	30	12	42	2	1	**NER**	32	10	42	2	1	**NER**	33	9	42	2	1	NER						
46	Nicaragua	**NIC**	26	21	47	1	0	**NIC**	20	24	44	1	0	**NIC**	20	25	45	1	0	**NIC**	26	21	47	1	0	
47	Nepal	**NPL**	26	16	42	2	1	**NPL**	28	11	39	1	1	**NPL**	27	13	40	2	1	NPL						
48	Pakistan	**PAK**	21	19	40	3	2	**PAK**	21	16	37	2	2	**PAK**	21	17	38	3	2	PAK						
49	Panama	**PAN**	10	17	27	1	0	**PAN**	7	17	24	1	0	**PAN**	5	20	25	1	0	**PAN**	10	17	27	1	0	
50	Peru	**PER**	13	34	47	2	2	**PER**	23	21	44	2	2	**PER**	23	22	45	2	2	**PER**	16	31	47	1	0	
51	Philippines	**PHL**	22	25	47	1	1	**PHL**	21	23	44	1	1	**PHL**	21	24	45	1	1	**PHL**	23	24	47	1	0	
52	Portugal	**PRT**	3	35	38	1	0	**PRT**	3	32	35	1	0	**PRT**	3	33	36	1	0	**PRT**	3	35	38	1	0	
53	Sudan	**SDN**	30	3	33	1	1	**SDN**	27	3	30	1	1	**SDN**	28	3	31	1	1	SDN						
54	Senegal	**SEN**	36	11	47	1	0	**SEN**	36	8	44	1	0	**SEN**	36	9	45	1	0	**SEN**	36	11	47	1	0	
55	Sierra Leone	**SLE**	17	11	28	2	1	**SLE**	19	6	25	1	0	**SLE**	14	12	26	2	1	SLE						
56	Suriname	**SUR**	9	19	28	2	2	**SUR**	9	19	28	2	2	**SUR**	9	19	28	2	2	**SUR**	13	15	28	1	0	
57	Thailand	**THA**	15	32	47	4	3	**THA**	21	23	44	3	3	**THA**	17	28	45	4	3	**THA**	28	19	47	1	0	
58	Turkey	**TUR**	5	42	47	2	2	**TUR**	3	41	44	1	1	**TUR**	3	42	45	1	1	**TUR**	19	28	47	1	0	
59	Uganda	**UGA‡**	26	3	29	0	1	**UGA‡**	23	3	26	0	1	**UGA‡**	24	3	27	0	1	UGA						
60	Uruguay	**URY**	13	32	45	1	1	**URY**	12	32	44	1	1	**URY**	12	33	45	1	1	**URY**	21	24	45	1	0	
61	Venezuela	**VEN‡**	2	45	47	0	1	**VEN‡**	3	41	44	0	1	VEN						VEN						
62	South Africa	**ZAF**	30	17	47	1	0	**ZAF**	30	14	44	1	0	ZAF						**ZAF**	30	17	47	1	0	
63	Zambia	**ZMB**	24	20	44	1	0	ZMB						ZMB						**ZMB**	24	20	44	1	0	
64	Zimbabwe	**ZWE‡**	24	8	32	0	1	ZWE						ZWE						ZWE						
Totals		61	1,249	1,194	2,443	78	42	55	1,034	1,017	2,051	66	35	50	922	1,000	1,922	68	34	41	783	887	1,670	41	0	

Notes: This table presents the sample make-up of the dynamic regression models for the four alternative definitions of democracy (ANRR, BMR, CGV, PS). 'In Democracy' reports the number of observations in democracy (1) and autocracy (0) per country as well as the total observation count (obs). 'Events' refer to democratisations (D) and reversals to autocracy (A). For each of the four definitions a bold country isocode indicates that the country is included in the treatment sample. A number of countries only have reversals to democracy but no democratisation events — these are highlighted using ‡. Note that the PS sample is made up of countries which 'permanently' transitioned to democracy only.

Table A-3: Regression Sample — Static Specifications

		ANRR (1961-2010)					BMR (1961-2007)					CGV (1961-2008)					PS (1961-2010)				
			In Democracy		Events			In Democracy		Events			In Democracy		Events			In Democracy		Events	
			0	1	D	A		0	1	D	A		0	1	D	A		0	1	D	A
1	Albania	**ALB**	12	18	2	1	**ALB**	12	15	2	1	**ALB**	10	18	1	0	**ALB**	11	12	1	0
2	Argentina	**ARG**	19	31	2	1	**ARG**	15	32	3	3	**ARG**	15	33	3	3	**ARG**	22	21	1	0
3	Armenia	**ARM**	2	18	2	1	ARM					ARM					**ARM**	7	6	1	0
4	Antigua & Barbuda	ATG					**ATG**	22	4	1	0	ATG					ATG				
5	Azerbaidjan	**AZE**	19	1	1	1	AZE					AZE					AZE				
6	Burundi	**BDI**	41	8	1	0	**BDI**	43	3	1	0	**BDI**	40	7	2	1	BDI				
7	Benin	**BEN**	30	20	1	0	**BEN**	30	17	1	0	**BEN**	30	18	1	0	**BEN**	30	13	1	0
8	Burkina Faso	**BFA**	47	3	1	1	BFA					BFA					BFA				
9	Bangladesh	**BGD**	19	20	2	2	**BGD**	16	21	1	1	**BGD**	17	21	1	1	**BGD**	19	13	1	0
10	Bulgaria	**BGR**	10	20	1	0	**BGR**	9	18	1	0	**BGR**	9	19	1	0	**BGR**	10	13	1	0
11	Belarus	**BLR**	16	4	1	1	**BLR**	14	3	1	1	BLR					BLR				
12	Bolivia	**BOL**	11	29	1	0	**BOL**	10	27	2	1	**BOL**	10	28	2	1	**BOL**	11	22	1	0
13	Brazil	**BRA**	21	29	1	1	**BRA**	15	32	1	1	**BRA**	21	27	1	1	**BRA**	24	19	1	0
14	Bhutan	**BTN**	27	3	1	0	BTN					**BTN**	26	2	1	0	BTN				
15	Central African Rep	**CAF**	40	10	1	1	**CAF**	37	10	1	1	**CAF**	38	10	1	1	CAF				
16	Chile	**CHL**	17	33	1	1	**CHL**	17	30	1	1	**CHL**	17	31	1	1	**CHL**	29	14	1	0
17	Cote d'Ivoire	**CIV**	46	2	1	1	CIV					CIV					CIV				
18	Rep of Congo	**COG**	43	7	1	2	**COG**‡	45	2	0	1	**COG**	41	7	1	2	COG				
19	Comores	**COM**	13	16	3	2	**COM**	25	2	1	0	**COM**	18	10	2	1	COM				
20	Cape Verde	**CPV**	10	20	1	0	**CPV**	10	17	1	0	**CPV**	9	19	1	0	**CPV**	10	13	1	0
21	Cyprus	CYP					**CYP**	1	31	1	0	**CYP**	7	26	1	0	CYP				
22	Czech Rep	**CZE**	2	18	1	0	CZE					**CZE**	2	16	1	0	CZE				
23	Djibouti	**DJI**	8	9	1	0	DJI					DJI					**DJI**	8	5	1	0
24	Dominican Rep	**DOM**	17	33	1	0	**DOM**	5	42	1	0	**DOM**	5	43	1	0	**DOM**	17	26	1	0
25	Ecuador	**ECU**	18	32	1	1	**ECU**	19	28	2	2	**ECU**	18	30	2	2	**ECU**	18	25	1	0
26	Spain	**ESP**	8	33	1	0	**ESP**	7	31	1	0	**ESP**	7	32	1	0	**ESP**	8	26	1	0
27	Ethiopia	**ETH**	14	15	1	1	ETH					ETH					**ETH**	13	9	1	0
28	Fiji	**FJI**	6	33	1	2	**FJI**‡	21	17	0	1	**FJI**	31	8	1	1	FJI				
29	Georgia	**GEO**	7	16	1	0	**GEO**	16	4	1	0	**GEO**	16	5	1	0	**GEO**	4	9	1	0
30	Ghana	**GHA**	31	19	3	2	**GHA**	32	15	3	2	**GHA**	27	21	3	2	**GHA**	35	8	1	0

Table A-3: Regression Sample — Static Specifications (continued)

			ANRR (1961-2010)					BMR (1961-2007)					CGV (1961-2008)					PS (1961-2010)				
			In Democracy			Events		In Democracy			Events		In Democracy			Events		In Democracy			Events	
			0	1	Obs	D	A	0	1	Obs	D	A	0	1	Obs	D	A	0	1	Obs	D	A
31	Guinea	**GIN**	23	1	24	1	0	GIN					GIN					GIN				
32	Gambia	**GMB‡**	17	27	44	0	1	**GMB**	19	22	41	1	1	GMB					GMB				
33	Guinea-Bissau	**GNB**	21	8	29	2	1	**GNB**	25	4	29	1	1	**GNB**	26	3	29	1	0	GNB				
34	Greece	**GRC**	8	38	46	1	1	**GRC**	7	36	43	1	1	**GRC**	7	37	44	1	1	**GRC**	10	29	39	1	0
35	Granada	**GRD**	5	28	33	1	1	**GRD**	5	25	30	1	1	**GRD**	5	26	31	1	1	**GRD**	6	20	26	1	0
36	Guatemala	**GTM**	17	33	50	2	1	**GTM**	7	40	47	2	2	**GTM**	7	41	48	2	2	**GTM**	35	8	43	1	0
37	Guyana	**GUY**	26	14	40	1	0	**GUY**	26	14	40	1	0	GUY						**GUY**	26	12	38	1	0
38	Honduras	**HND**	21	29	50	1	0	**HND**	18	29	47	2	2	**HND**	18	30	48	2	2	**HND**	21	22	43	1	0
39	Croatia	**HRV**	8	11	19	1	0	**HRV**	8	8	16	1	0	HRV						**HRV**	8	4	12	1	0
40	Haiti	**HTI**	9	10	19	2	2	HTI						HTI						HTI					
41	Hungary	**HUN**	25	21	46	1	0	**HUN**	25	18	43	1	0	**HUN**	25	19	44	1	0	**HUN**	25	14	39	1	0
42	Indonesi	**IDN**	38	12	50	1	0	**IDN**	38	9	47	1	0	**IDN**	38	10	48	1	0	**IDN**	38	5	43	1	0
43	Kenya	**KEN**	39	9	48	1	0	**KEN**	39	6	45	1	0	**KEN**	35	11	46	1	0	KEN					
44	Kygrystan	**KGZ**	15	5	20	2	1	KGZ						**KGZ**	14	4	18	1	0	KGZ					
45	Cambodia	**KHM‡**	16	1	17	0	1	KHM						KHM						KHM					
46	South Korea	**KOR**	27	23	50	1	1	**KOR**	27	20	47	1	1	**KOR**	27	21	48	1	1	**KOR**	27	16	43	1	0
47	Lebanon	**LBN**	15	6	21	1	0	LBN						LBN						LBN					
48	Liberia	**LBR**	4	7	11	1	0	**LBR**	6	2	8	1	0	**LBR**	6	3	9	1	0	LBR					
49	Sri Lanka	LKA						**LKA**	14	29	43	1	1	**LKA**	12	32	44	1	1	LKA					
50	Lesotho	**LSO**	28	17	45	2	1	**LSO**	36	6	42	1	0	LSO						**LSO**	27	11	38	1	0
51	Lithuania	**LTU**	2	18	20	1	0	**LTU**	1	16	17	1	0	LTU						**LTU**	2	11	13	1	0
52	Latvia	**LVA**	2	18	20	1	0	**LVA**	2	15	17	1	0	LVA						**LVA**	2	11	13	1	0
53	Moldava	**MDA**	3	17	20	1	0	MDA						MDA						**MDA**	3	10	13	1	0
54	Madagascar	**MDG**	33	16	49	1	1	**MDG**	32	15	47	1	0	**MDG**	32	16	48	1	0	**MDG**	32	11	43	1	0
55	Mexico	**MEX**	36	14	50	1	0	**MEX**	39	8	47	1	0	**MEX**	39	9	48	1	0	**MEX**	36	7	43	1	0
56	Macedonia	MKD						MKD						MKD						MKD					
57	Mali	**MLI**	24	19	43	1	0	**MLI**	24	16	40	1	0	**MLI**	24	17	41	1	0	**MLI**	24	12	36	1	0
58	Mongolia	**MNG**	11	18	29	1	0	**MNG**	8	18	26	1	0	**MNG**	8	19	27	1	0	**MNG**	11	11	22	1	0
59	Mozambique	**MOZ**	13	17	30	1	0	**MOZ**	17	10	27	1	1	MOZ						**MOZ**	13	10	23	1	0
60	Mauritania	**MRT**	49	1	50	1	1	MRT						**MRT**	47	1	48	1	1	MRT					

Table A-3: Regression Sample — Static Specifications (continued)

			ANRR (1961-2010)						BMR (1961-2007)						CGV (1961-2008)						PS (1961-2010)					
			In Democracy			Events			In Democracy			Events			In Democracy			Events			In Democracy			Events		
			0	1	Obs	D	A		0	1	Obs	D	A		0	1	Obs	D	A		0	1	Obs	D	A	
61	Malawi	**MWI**	30	16	46	1	0	**MWI**	30	13	43	1	0	**MWI**	30	14	44	1	0	**MWI**	30	9	39	1	0	
62	Niger	**NER**	33	12	45	2	1	**NER**	35	10	45	2	1	**NER**	36	9	45	2	1	NER						
63	Nicaragua	**NIC**	29	21	50	1	0	**NIC**	23	24	47	1	0	**NIC**	23	25	48	1	0	**NIC**	29	14	43	1	0	
64	Nepal	**NPL**	29	16	45	2	1	**NPL**	31	11	42	1	1	**NPL**	30	13	43	2	1	NPL						
65	Pakistan	**PAK**	24	19	43	3	2	**PAK**	24	16	40	2	2	**PAK**	24	17	41	3	2	PAK						
66	Panama	**PAN**	13	17	30	1	0	**PAN**	10	17	27	1	0	**PAN**	8	20	28	1	0	**PAN**	13	10	23	1	0	
67	Peru	**PER**	14	36	50	3	3	**PER**	24	23	47	3	3	**PER**	24	24	48	3	3	**PER**	19	24	43	1	0	
68	Philippines	**PHL**	22	28	50	1	1	**PHL**	21	26	47	1	1	**PHL**	21	27	48	1	1	**PHL**	26	17	43	1	0	
69	Portugal	**PRT**	6	35	41	1	0	**PRT**	6	32	38	1	0	**PRT**	6	33	39	1	0	**PRT**	6	28	34	1	0	
70	Paraguay	**PRY**	1	18	19	1	0	**PRY**	11	5	16	1	0	PRY						**PRY**	1	11	12	1	0	
71	Russia	**RUS**	10	11	21	1	1	**RUS**	11	7	18	1	1	RUS						**RUS**	2	11	13	1	0	
72	Sudan	**SDN**	36	3	39	1	1	**SDN**	33	3	36	1	1	**SDN**	34	3	37	1	1	SDN						
73	Senegal	**SEN**	39	11	50	1	0	**SEN**	39	8	47	1	0	**SEN**	39	9	48	1	0	**SEN**	39	4	43	1	0	
74	Solomon Isl.	**SLB**	4	7	11	1	1	**SLB**	6	5	11	1	1	SLB						SLB						
75	Sierra Leone	**SLE**	20	11	31	2	1	**SLE**	22	6	28	1	0	**SLE**	17	12	29	2	1	SLE						
76	El Salvador	SLV						SLV						SLV						**SLV**	7	10	17	1	0	
77	Suriname	**SUR**	9	22	31	2	2	**SUR**	9	22	31	2	2	**SUR**	9	22	31	2	2	**SUR**	16	13	29	1	0	
78	Slovakia	**SVK**	5	18	23	1	0	**SVK**	5	15	20	1	0	**SVK**	5	16	21	1	0	SVK						
79	Slovenia	**SVN**	1	19	20	1	0	SVN						SVN						**SVN**	1	12	13	1	0	
80	Thailand	**THA**	18	32	50	4	3	**THA**	24	23	47	3	3	**THA**	20	28	48	4	3	**THA**	31	12	43	1	0	
81	Turkey	**TUR**	5	45	50	3	2	**TUR**	3	44	47	2	1	**TUR**	3	45	48	2	1	**TUR**	22	21	43	1	0	
82	Tanzania	TZA						TZA						TZA						**TZA**	4	9	13	1	0	
83	Uganda	**UGA‡**	26	3	29	0	1	**UGA‡**	23	3	26	0	1	**UGA‡**	24	3	27	0	1	UGA						
84	Ukraine	**UKR**	4	17	21	1	0	**UKR**	1	17	18	1	0	**UKR**	1	18	19	1	0	**UKR**	3	10	13	1	0	
85	Uruguay	**URY**	13	35	48	1	1	**URY**	12	35	47	1	1	**URY**	12	36	48	1	1	**URY**	24	19	43	1	0	
86	Venezuela	**VEN‡**	2	48	50	0	1	**VEN‡**	3	44	47	0	1	VEN						VEN						
87	South Africa	**ZAF**	33	17	50	1	0	**ZAF**	33	14	47	1	0	ZAF						**ZAF**	33	10	43	1	0	
88	Zambia	**ZMB**	27	20	47	1	0	ZMB						ZMB						**ZMB**	27	13	40	1	0	
89	Zimbabwe	**ZWE**	26	9	35	1	1	ZWE						ZWE						ZWE						
Totals		83	1,568	1,484	3,052	105	58	68	1,283	1,190	2,473	81	47	58	1,150	1,104	2,254	79	44	54	955	735	1,690	54	0	

Notes: This table presents the sample make-up of the static regression models for the four alternative definitions of democracy (ANRR, BMR, CGV, PS). 'In Democracy' reports the number of observations in democracy (1) and autocracy (0) per country as well as the total observation count (obs). 'Events' refer to democratisations (D) and reversals to autocracy (A). For each of the four definitions a bold country isocode indicates that the country is included in the treatment sample. A number of countries only have reversals to democracy but no democratisation events — these are highlighted using ‡. Note that the PS sample is made up of countries which 'permanently' transitioned to democracy only.

B Schematic Review of the Literature

In Table B-1 I provide a schematic review of the empirical literature on democracy and growth.[39] This body of work can be categorised using two criteria: first, by the nature of the democracy proxy adopted, either in form of a continuous variable, or in form of a dichotomous variable; and second, by the identification strategy. Both of these criteria seem to follow a certain chronology, so this will be the main structural feature of this brief review.

Work published in the 1990s always adopts continuous variables for democracy (Bollen Index, Freedom House, early Polity data), in combination with either simple IV strategies arising from the panel structure (lagged variables as instruments) or even plain least squares. These studies show a wide range of results, typically pointing to a non-linear (concave) relationship between democracy and growth or no relationship at all. Papers published in the early 2000s adopt more refined democracy indicators or experiment with democracy stock variables, at times concluding a positive democratic dividend (Baum and Lake, 2003; Gerring et al, 2005); however, when implementation was more plausibly able to identify a *causal* relationship, such as in the work by Giavazzi and Tabellini (2005), the results become very fragile or disappear.[40] The latter authors were also among the first to adopt a dummy variable for democratisation, which became the standard in the economics literature thereafter (e.g. Rodrik and Wacziarg, 2005; Persson and Tabellini, 2006).[41] The first paper to make the dummy variable approach 'work' was the study by Papaioannou and Siourounis (2008), who found strongly positive growth effects for democratisation — since many sample characteristics are not dissimilar to those in the Giavazzi and Tabellini (2005) paper, who had failed to find robust positive effects, this seemed to highlight the importance of careful construction of democracy dummies, comparing indices across a number of data sources. The same is still true for the most recent democracy-dummy paper by Acemoglu et al (2019) — their paper furthermore adopts a number of empirical strategies which in their sum total are argued to address the problems inherent in cross-country analysis (endogeneity, dynamics, linearity assumptions).

The more recent contributions adopting continuous democracy indicators tended to adopt the Arellano and Bond (1991, AB) or Blundell and Bond (1998, BB) estimators to argue for causal identification: the positive result of Knutsen (2013) in a small post-WWII sample of 44 countries using AB were undermined by the results for 69 countries in Murtin and Wacziarg (2014) adopting BB. The latest contribution to this strand of the literature by Madsen et al (2015) adopts IV estimation (linguistic distance-weighted foreign democracy) to yield robustly positive and large effects for democratic change in historical and post-WWII samples.

Hence both strands adopting dichotomous and continuous measures for democratic change in the most recent iterations have yielded positive, large, and statistically significant causal effects.

[39] Many of these studies, in particular the early work, carried out analysis of the growth-democracy as well as the democracy-growth relationship. More generally, while I do not present all results from all papers I believe the selection below is representative of the respective study. This is a snapshot of the main contributions in political science and economics; a broader literature and surveys are discussed in Dodsworth and Ramshaw (2021).

[40] In terms of implementation the study by Tavares and Wacziarg (2001) is distinct from all others discussed, and while this does not diminish their contribution, it makes it difficult to compare with the other papers reviewed.

[41] The exception here is Persson and Tabellini (2009) who construct 'democratic capital' stock.

Table B-1: Literature on Democracy and Growth

Reference	Method	Democracy	Dep. variable	Specification	Sample	Results	Details
Helliwell (1994)	2SLS (lagged levels)	**Continuous**, Bollen index	ΔGDPpc 1960-85	GDP pc (log), investment, schooling (all in 1960, restrictions imposed following MRW)	N=n=90, 1960-85 (time-averaged or base year values)	– *(insign.)*	Table 3[2]
Barro (1996)	2SLS (lagged levels)	**Continuous**, Bollen and Gastil (Freedom House) indices	ΔGDPpc in non-overlapping 5-year periods	Elaborate controls, lagged levels as instruments	N=89, 1960-90	– *(insign.)*	Table 1[2]
	2SLS (lagged levels)	**Continuous**, Bollen and Gastil (Freedom House) indices, level and squared terms	dto.	dto.	N=89, 1960-90	**concave (5% level)**	Table 1[4]
Leblang (1997)	OLS w/ period FE	**Continuous**, institutionalised democracy from Polity II, lagged	Decadal average ΔGDPpc	GDP pc (log), primary and secondary school attainment (all in decade start year)	n=232, 1960-89	**+ (5% level)**	Table 2[2]
Minier (1998)	2SLS (lagged levels)	**Continuous**, Gastil (Freedom House) index, level and squared terms; dummies for positive and negative changes in democracy	ΔGDPpc in non-overlapping 5-year periods	GDP pc (log), schooling attainment, (all lagged by 5 years)	n=485, 1960-89	**concave (5% level)**; *insig. +ve changes*, **sig. –ve changes**	Table 2[1]
Tavares & Wacziarg (2001)	3SLS	**Continuous**, Bollen and Freedom House indices	Annual ΔGDPpc	HC, inequality, instability, distortions,…	N=n=65, 1970-89	**– (1% level)**	Table 3[4]

Table continued overleaf

Table B-1: Literature on Democracy and Growth (continued)

Reference	Method	Democracy	Dep. variable	Specification	Sample	Results	Details
Baum & Lake (2003)	OLS w/ country FE	**Continuous**, Polity 98 index	Annual ΔGDPpc	GDP pc (log), life expectancy, investment, labour force, HC (all lagged), various lags of ΔGDPpc	N=128, n=548, 1967-97	+ *(insign.)*	Table 1[2]
Gerring et al (2005)	OLS w/ country FE	**Continuous**, Democracy **stock** (1900-2000) based on continuous polity2 $(-10, +10)$	Annual ΔGDPpc	Lagged GDP pc (log)	N=180, n=6,264, 1950-2000	**+ (1% level)**	Table 2[1]
	dto.	**Continuous**, Democracy **stock** (1900-2000) based on dummy $(= 1$ if polity2$> 4)$	Annual ΔGDPpc	Lagged GDP pc (log)	N=180, n=6,264, 1950-2000	**+ (1% level)**	Table 2[6]
Giavazzi & Tabellini (2005)	Diff-in-Diff (OLS w/ year FE)	**Dummy** for polity2> 0, all democratisation	Annual ΔGDPpc	Dummy for socialist regimes (interacted with democratisation), continent dummies	N=138, n=4,388, 1960-2000	**+ (10% level)**	Table 1[7]
	Diff-in-Diff (OLS w/ year FE)	**Dummy** for polity2> 0, permanent democratisation	Annual ΔGDPpc	Dummy for socialist regimes (interacted with democratisation), continent dummies	N=138, n=4,387, 1960-2000	+ *(insign.)*	Table 1[8]
Rodrik & Wacziarg (2005)	OLS w/ country FE	**Dummy**: New Democracy, Established Democracy, etc (Polity IV-based)	Annual ΔGDPpc	Dummies for different regimes (new, established)	N=154, n=5,649, 1950-2000	**+ (5% level)** SR effect for democratisation in the past 5 yrs	Table 1[3]

Table continued overleaf

Table B-1: Literature on Democracy and Growth (continued)

Reference	Method	Democracy	Dep. variable	Specification	Sample	Results	Details
Persson & Tabellini (2006)	OLS w/ period FE	**Dummy** for polity2>0	Annual ΔGDPpc	Continent dummies, legal origin, lagged GDP pc (log)	N=138, n=4,338, 1960-2000	**+ (5% level)**	Table 1[1]
	dto.	dto.	Annual ΔGDPpc	Continent dummies, legal origin, lagged GDP pc (log)	N=148, n=8,135, 1850-2000	**+ (10% level)**	Table 3[3]
Persson & Tabellini (2009)	2FE	**Continuous**, domestic and foreign democratic **stock** (PIM, 1800-2000) based on dummy (= 1 if polity2>0)	Annual ΔGDPpc	lagged GDP pc (log)	n=8,379, 1820-2000	**+ (1% level) domestic**; *insign. foreign*	Table 5[1]
Papaioannou & Siourounis (2008)	Diff-in-Diff	**Dummy** building on FHI and polity2	Annual ΔGDPpc	none	N=166, n=5,410, 1960-2005	**+ (1% level)**	Table 2[4]
	Diff-in-Diff	dto.	Annual ΔGDPpc	lagged GDP pc (log) and lagged growth rate, investment	N=166, n=5,410, 1960-2005	**+ (1% level)**	Table 3[1]
Knutsen (2013)	OLS w/ period FE	**Continuous**, Freedom House Index*	Annual ΔGDPpc	lagged GDP pc, population, regime duration (all in log)	N=44, n=1,289, 1972-2004	**+ (1% level)***	Table 2[2]
	GMM AB	dto.	Annual ΔGDPpc	lagged GDP pc, population, regime duration (all in log)	N=44, n=1,234, 1972-2004	**+ (1% level)***	Table 2[2]

Table continued overleaf

Table B-1: Literature on Democracy and Growth (continued)

Reference	Method	Democracy	Dep. variable	Specification	Sample	Results	Details
Murtin & Wacziarg (2014)	2FE	**Continuous**, re-scaled lagged polity2	Decadal GDPpc (log)	GDP pc (log), lagged by a decade	N=69, n=567, 1870-2000	+ *(insign.)*	Table 11[1]
	2FE	dto.	dto.	dto.	N=69, n=308, 1960-2000	– *(insign.)*	Table 11[10]
	GMM BB	dto.	dto.	dto.	N=69, n=489, 1870-2000	+ *(insign.)*	Table 11[3]
	GMM BB	dto.	dto.	dto.	N=68, n=275, 1960-2000	+ *(insign.)*	Table 11[12]
Madsen et al. (2015)	2SLS-2FE	**Continuous**, re-scaled polity2	Decadal average GDPpc (log)	lagged GDP pc (log); IV linguistic-distance weighted democracy	N=141, n=1,143, 1820-2000	**+ (5% level)**; **1sd → +96%**	Table 4[1]
	2SLS-2FE	dto.	Decadal average GDPpc (log)	dto.	N=141, n=595, 1950-2000	**+ (5% level)**	Table 4[3]
Acemoglu et al (2019)	2FE	**Dummy** for polity2>0 plus other conditions	Annual GDPpc (log)	4 lags of GDP pc (log)	N=175, n=6,790, 1960-2010	**+ (1% level): 21.2% LR effect**	Table 2[3]
	GMM AB	dto.	dto.	dto.	N=175, n=6,161, 1960-2010	**+ (5% level): 16.5% LR effect**	Table 2[7]
	2SLS	dto.	dto.	dto., IV regional waves of democratisation	N=174, n=6,309, 1960-2010	**+ (10% level): 31.5% LR effect**	Table 6[2], Panel A
	Non-para	dto.	dto.	4 lags of GDP pc (log)	1960-2010	**+ (1% level): 23.7% (20-24 yrs)**	Table 5 [6], Panel C

Notes: The table presents a subset of empirical results from the literature on democracy and growth. It is important to emphasise that I do not report all relevant results from each paper, but selectively picked the most general and most representative ones in each case. I highlight the distinction between a continuous and dichotomous proxy for democracy in bold. Regarding empirical results in the final column of the table, insignificant estimates are in italics, statistically significant estimates in bold. N refers to the number of countries, n the number of observations (if either or both are missing then it was not clearly reported in the study with reference to the specific result I present here), the time period of the sample is also indicated. $*$ The FHI has a reversed scale compared with polity2, but here I adjust the 'democracy effect' (result) to be in line with logic of other indicators (higher value = more democracy). The final columns reports the Table and column for the result in the respective paper.

C Additional Results

C.1 Main Results — Static Specification

Table C-1: Main Results – Static Specifications

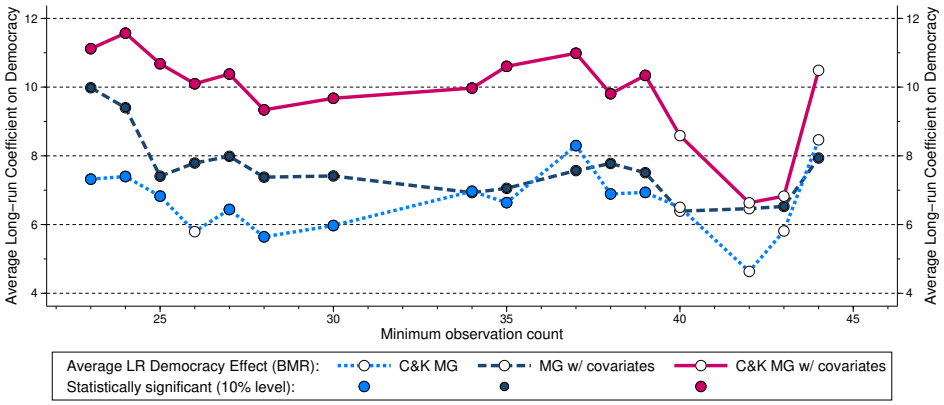
	Plain Vanilla		With Covariates	
	(1)	(2)	(3)	(4)
Implementation	MG	C&K MG	MG	C&K MG
Parameters estimated ‡	$2 \times N$	$5 \times N$	$4 \times N$	$7 \times N$
(a) Democracy (ANRR)	10.249	4.402	3.846	4.016
	(3.277)***	(2.088)**	(2.598)	(1.983)**
Observations	3052	3052	3052	3052
Countries (N)	83	83	83	83
Democratisations	105	105	105	105
Reversals	58	58	58	58
Avg Years in Dem	17.9	17.9	17.9	17.9
RMSE	21.860	11.492	13.606	8.791
(b) Democracy (BMR)	10.629	4.168	5.505	4.260
	(3.394)***	(2.242)*	(2.847)*	(2.166)*
Observations	2473	2473	2473	2473
Countries (N)	68	68	68	68
Democratisations	81	81	81	81
Reversals	47	47	47	47
Avg Years in Dem	18.5	18.5	18.5	18.5
RMSE	21.512	10.542	12.808	7.872
(c) Democracy (CGV)	12.849	2.862	6.853	4.991
	(3.739)***	(2.730)	(2.837)**	(2.383)**
Observations	2254	2254	2254	2254
Countries (N)	58	58	58	58
Democratisations	79	79	79	79
Reversals	44	44	44	44
Avg Years in Dem	19.0	19.0	19.0	19.0
RMSE	22.725	10.550	13.361	8.236
(d) Democracy (PS)	21.990	4.669	11.296	4.874
	(4.636)***	(3.146)	(3.538)***	(2.912)
Observations	2057	2057	2057	2057
Countries (N)	54	54	54	54
Democratisations	54	54	54	54
Reversals	0	0	0	0
Avg Years in Dem	20.3	20.3	20.3	20.3
RMSE	19.920	11.214	13.143	8.892

Notes: The table presents robust mean estimates from heterogeneous panel estimators using different definitions of democracy: (1) and (3) simple Mean Group estimator, (2) and (4) Chan and Kwok (C&K) DID Mean Group estimator — all are estimated using least squares. We hold the sample fixed across the four specifications, but not when comparing different definitions of democracy. All estimates presented are long-run (ATET) estimates for the causal effect of democracy on income per capita (in percent), derived from a CS-DL model (Chudik et al, 2016). The models in (3) and (4) include gross investment ratio and trade/GDP as additional covariates. The four alternative democracy dummies are by Acemoglu et al (2019) – ANRR, Boix et al (2013) – BMR, Cheibub et al (2010) – CGV, and Papaioannou and Siourounis (2008) – PS.

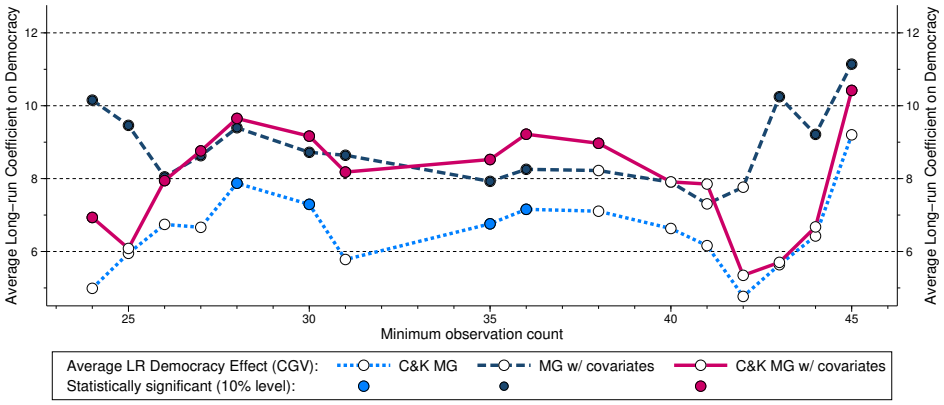
D Sample Reduction Exercises – More Results

D.1 Alternative Definitions of Democracy

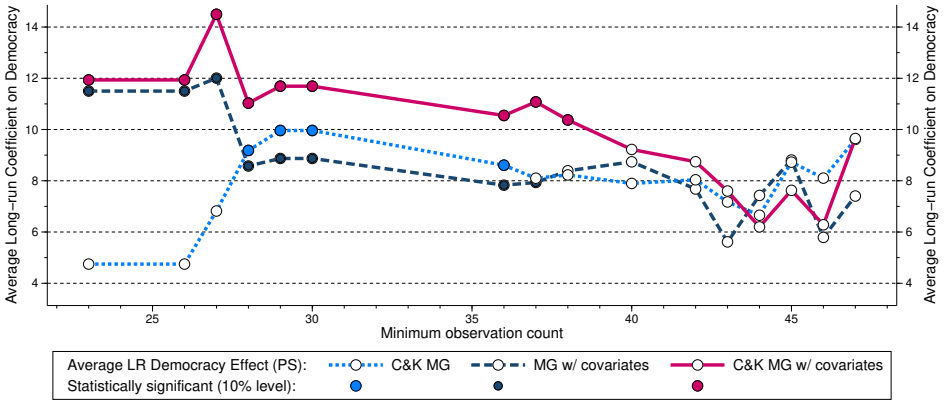
Figure D-1: Sample Reductions — minimum T_i



(a) Boix et al (2013)



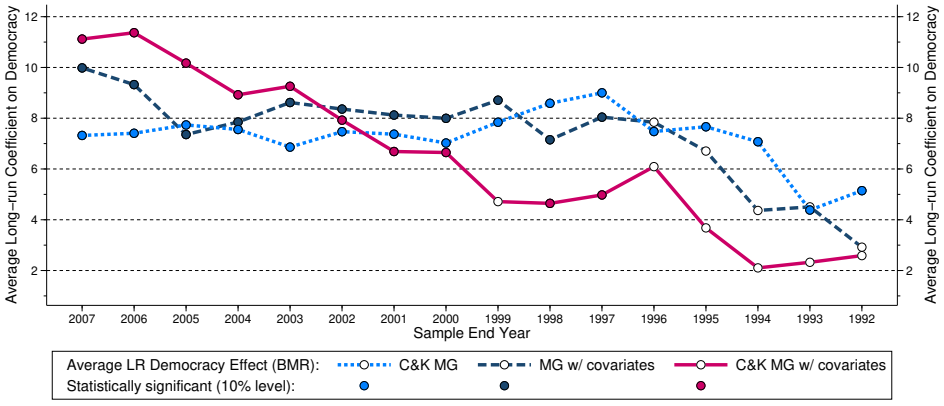
(b) Cheibub et al (2010)



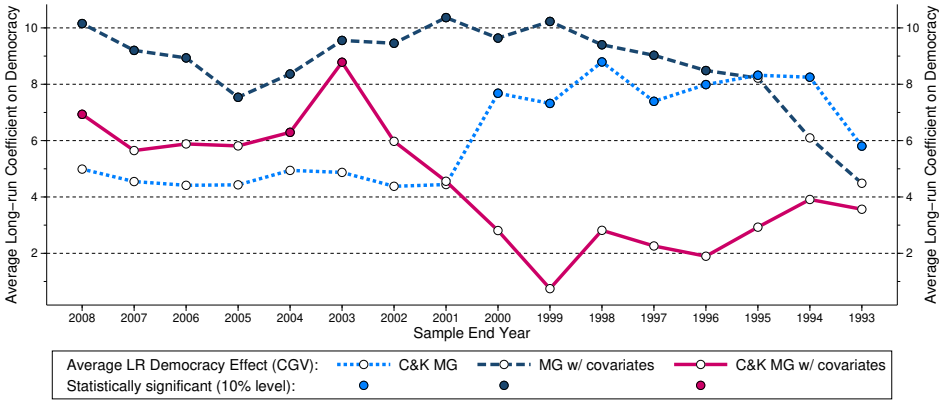
(c) Papaioannou and Siourounis (2008)

Notes: This figure provides sample reduction results for the static and dynamic Diff-in-Diff estimators using the alternative definition for democracy as indicated. This figure needs to be contrasted with Panel (a) of Figure 3 for a comparison with the results for the ANRR definition of democracy.

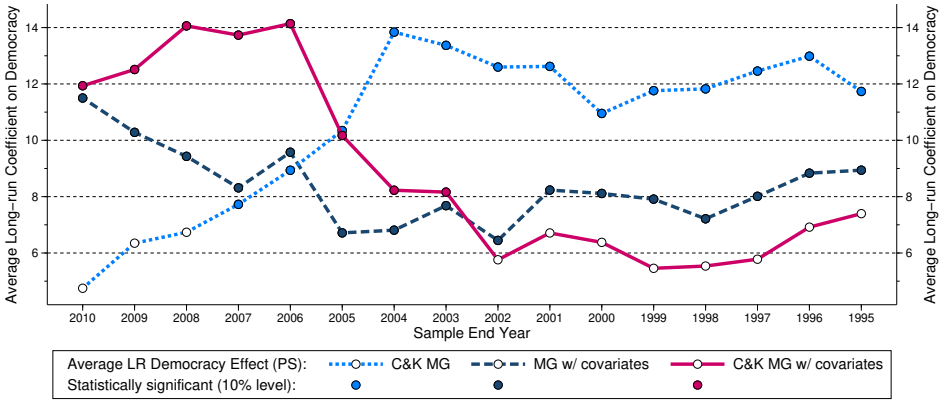
Figure D-2: Sample Reductions — end year



(a) Boix et al (2013)



(b) Cheibub et al (2010)



(c) Papaioannou and Siourounis (2008)

Notes: This figure provides sample reduction results for the static and dynamic Diff-in-Diff estimators using the alternative definition for democracy as indicated. This figure needs to be contrasted with Panel (b) of Figure 3 for a comparison with the results for the ANRR definition of democracy.

E Sample Reduction Exercises – ANRR and Madsen et al (2015)

E.1 ANRR

In this section I discuss results from two sample reduction exercises presented in Figure E-2. Table 4 summarizes the estimates and sample makeup of five *ad hoc* 'thresholds' in the long-run estimates for democracy: in Panel A for the full ANRR sample, in B the sample which yields an insignificant estimate, in C when the estimate falls below 5% in magnitude (less than one quarter of the full sample result), in D when the reduced sample estimate is outside the confidence interval of the full sample one, and in E the balanced panel estimate. Columns [1]-[4] and [5]-[8] are for the respective sample reduction strategies. Using results in Figure **??** I speculate about one potential souce of the patterns observed.

ANRR adopt a variety of empirical implementations for an empirical model which captures country-specific fixed effects and the dynamics of per capita GDP:[42]

$$y_{it} = \alpha_i + \gamma_t + \beta \, \text{Democracy}_{it} + \sum_{\ell=1}^{p} \rho_\ell \, y_{i,t-\ell} + \varepsilon_{it}, \tag{6}$$

where y is log per capita GDP (multiplied by 100), Democracy is a dummy variable, α_i and γ_t are country and time dummies, respectively, and ε is the error term.[43] In order to allow for a causal interpretation of the results they devise an instrumentation strategy which builds on regional waves of democratisation and reversal. The findings from these 2SLS models are shown to be in line with results adopting country fixed effects (2FE), the Arellano and Bond (1991, AB) and the Hahn, Hausman, and Kuersteiner (2001, HHK) estimators.

Sample reduction by minimum observation count I begin with the strategy which drops countries by their sample observation count. A major concern for this non-random sample reduction strategy is that even though the 'small-T' countries may only account for a very small share of overall observations they may represent a disporportionate share of the democratisation and reversal events. If this were the case then the sample reduction strategy *by construction* makes it harder and harder for the estimators to identify a democracy effect. The histogram in Panel (a) of Figure E-1 speaks to this concern — this plot is based on the AB/HHK sample (the 2SLS sample typically has one additional observation per country), detailed information about the countries dropped in these sample reduction exercises are contained in an Appendix. Along the x-axis we can see the minimum observation count for inclusion in the sample; the thin gray bars indicate the total observation count (left scale, in logarithms). This highlights that over 60% of the full sample (around 4,000 observations) have data for all years, and for reference I report the results for this 'balanced panel' below. The coloured bars indicate the distribution of democratisation and reversal events by minimum observation count: again roughly 60%

[42] My presentation is limited to the parametric results. The semi-parametric results for sample reduction strategy (i) yield confidence intervals which always include zero when around 20% of observations are omitted; for strategy (ii) results appear much less affected, if anything confidence intervals become *tighter* as respective end years are omitted. The source of this robustness relative to all other ANRR results is beyond the scope of this note, results are relegated to the Online Appendix.

[43] ANRR test a variety of lag structures (p) but favour the specification with four lags.

of these events occur in the balanced panel sample, while the remainder are sprinkled thinly across other minimum observation samples.

Panel (b) presents the full and reduced sample results for the FE, AB, HHK and 2SLS estimators — all results are for the specification with four lags of GDP, which is preferred by ANRR.[44] In this and the equivalent plot in Panel (b) of Figure **??** a filled coloured (white) circle indicates statistical (in)significance at the 10% level. The left-most estimates correspond to the full sample results reported in the ANRR paper, the right-most to the estimates for a balanced panel. The x-axis is identical to the plot in panel (a), the y-axis indicates the long-run effect (in percent) of democracy on per capita GDP. For the 2FE estimator this sample reduction exercise has virtually no impact on the long-run democracy estimate: as we move to the right countries with fewer observations than the minimum number indicated on the x-axis are omitted from the regression sample, but the 2FE long-run estimate for democracy is virtually unchanged. The exception is the balanced panel result which is statistically insignificant, though at 15.6% still reasonably close to the full sample estimate of 21.2%.[45]

The patterns for the AB and HHK estimates are very different: both decline and turn statistically insignificant when the minimum observation count is 17 and thereafter fall (more or less monotonically) towards and beyond zero. Results in Columns [2] and [3] of Table 4 indicate that the AB and HHK estimates are statistically insignificant and reduced by a quarter and two-thirds, respectively, once 5% of the full sample observations are dropped. The balanced panel results for these two estimators (-5.3 and -12.4) are derived from a sample where just over 40% of observations are dropped.

Democracy estimates based on the 2SLS estimator initially maintain a high and stable level in excess of 30%, but turn insignificant once countries with fewer than 21 observations are omitted (7% of the full sample of 6,300 observations). The magnitude of 2SLS estimates drops quite rapidly, such that it falls below 5% in magnitude and also outside the full sample 90% confidence interval once 18% of observations are dropped. In contrast to the patterns for the AB and HHK estimators the 2SLS estimates increase again if further countries are dropped.

Two aspects are worth emphasising comparing these findings to the results in ANRR: first, the parity between results for the within estimator on the one hand, and the AB, HHK and 2SLS estimators on the other, as presented in Tables 2 and 6 of ANRR, is not given in my sample reduction exercises: the within estimates clearly deviate from all others and the "triangulation of evidence" (ANRR: 8) is thus not given; second, all of the estimators intended to address endogeneity concerns show rapidly declining, at times even negative, long-run growth implications of democracy as the sample is reduced.[46]

[44] Results for one and two lags are presented in an Appendix, where I also provide 2SLS estimates for the alternative construction of the long-run estimate with qualitatively identical results.

[45] Note that many researchers have serious reservations about the fixed effects estimator for causal inference in panel data (e.g. Gibbons, Suarez-Serratoz and Urbancic, 2019; Imai and Kim, 2019). A recent paper by Chen, Chernozhukov and Fernandez-Val (2019, CCF-V) builds on ANRR and employs AB and FE estimators but with bias-correction for the many instruments and incidental parameter problems, respectively, confirming the AB/FE results of ANRR. Note however that CCF-V's sample choice (balanced panel from 1987-2009) leads to long-run estimate for democracy of 179.4 (t=1.57) if I adopt the ANRR 2SLS estimator!

[46] ANRR note that the long-run estimates computed from their dynamic regressions are subject to small sample (attenuation) bias. Increasing the average time-series of sample countries by discarding countries with few observations should if anything *reduce* this bias and thus cannot account for the findings of my sample reduction exercise.

Sample reduction by sample end year Figure E-2 presents the results when observations are omitted by sample end year. The primary focus here is on the impact of the Global Financial Crisis in 2007/8 and its aftermath. Panel (b) of Figure E-1 charts the distribution of sample observations and democratisation/reversal events by year — here and in panel (b) of Figure E-2 the x-axis is in reverse chronological order. We can see that the annual sample observation count rises from the 1960s until peaking in the mid-2000s. The final three sample years 2008-10 account for around 8% of all observations (2010: 3%, 2009: 2%, 2008: 3%). The first 25 years of the sample indicate typically two to three democratisation/reversal events per annum, before a wave of events in the early 1990s following the collapse of the Soviet Union. The final three sample years 2008-10 indicate 14 events, around 9% of the total number of events over 1965-2010.[47]

Panel (b) of Figure E-2 presents the sample reduction results, where the x-axis indicates the final year included in the sample, and the y-axis indicates the long-run effect (in percent) of democracy on per capita GDP — again all estimates are for the 4-lag specification preferred by ANRR. I only chart end years down to 1995, since omitting 1996-2010 amounts to around 40% of observations, similar to the 40% of observations omitted in the balanced panel of the 'small T_i' exercise presented above.

As before the 2FE estimates are found to be fairly robust to sample reduction, only turning insignificant when 30% of observations are dropped. The AB/HHK estimates, in contrast, turn insignificant if the post-GFC years 2009 and 2010 are omitted, thereafter declining and eventually diverging, with HHK remaining positive (albeit insignificant throughout) while AB estimates turn negative (dto.). The 2SLS estimates are generally falling with earlier sample end years, but display curious patterns in the aftermath of the GFC: omitting only 2010 (3% of observations) yields a statistically insignificant long-run coefficient on democracy. Omitting both 2010 and 2009 (together 5% of observations) however restores the full sample coefficient in terms of magnitude and statistical significance, whereas the omission of further end years always yields statistically insignificant long-run democracy estimates. Table 4 provides all the details on estimates, standard errors and samples of the various 'thresholds' as defined above.

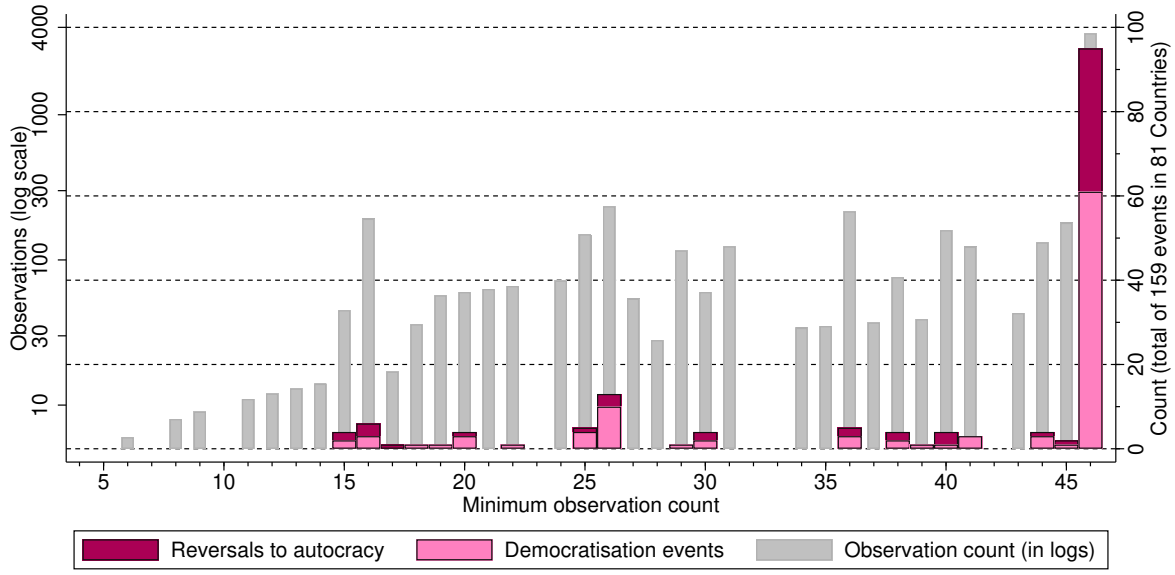
Sample reduction by trial and error The focus of the sample reduction exercises is primarily on the magnitudes of estimated coefficients, though statistical insignificance *can* indicate that underlying country estimates are heterogeneous and vary substantially across countries. If the focus of the exercise were more narrowly on the smallest sample reduction yielding a statistically insignificant long-run estimate for democracy, then the number of countries that would need to be dropped is very small: three for AB/HHK and four for 2SLS, amounting to fewer than 1% of observations in each case — see Table E-3.

Recent work by Young (2018) has highlighted the fragility of IV estimates, demonstrating that many findings of statistical significance are driven by few observations. Here, it should be emphasised that the results derive from a purposeful exercise in sample selection (by trial and error), and further dropping a small number of countries may similarly *restore* the statistical signficance of the estimates. Nevertheless, in practical terms as well as conceptually, it is worrisome that empirical results of a supposedly 'robust' democracy-growth nexus can be made

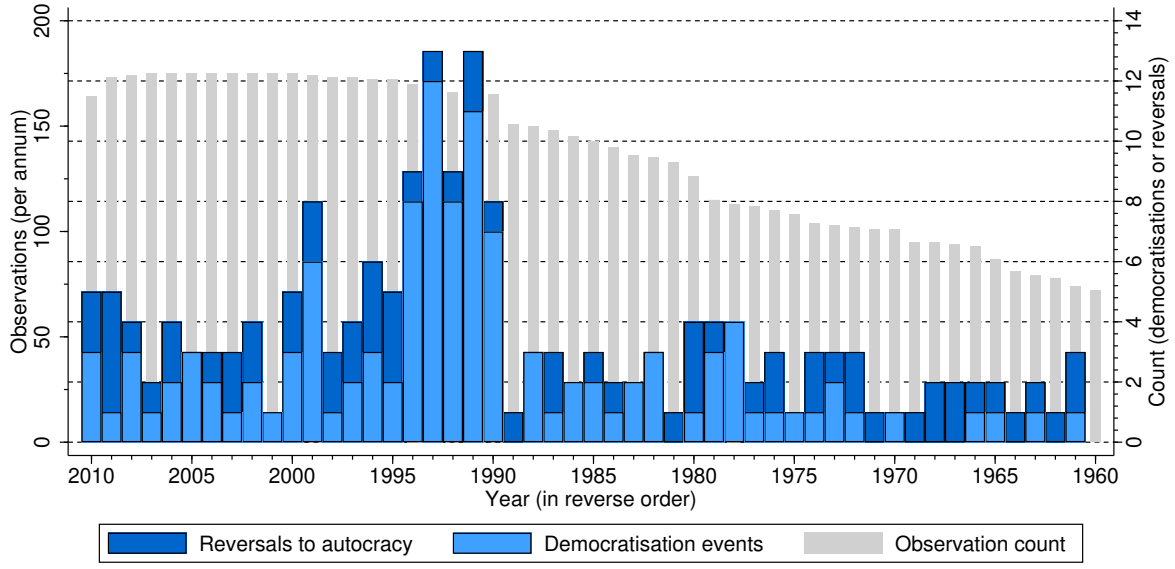
[47] This is once again the AB/HHK sample for the four-lag specification, hence the 1965 start year.

to (statistically-speaking) disappear by the omission of three former Soviet Republics with 20 observations each, two of which (Turkmenistan and Uzbekistan) have no experience of democracy and the third (Ukraine) only has three sample years in autocracy.

Figure E-1: Sample and Event Distribution – ANRR



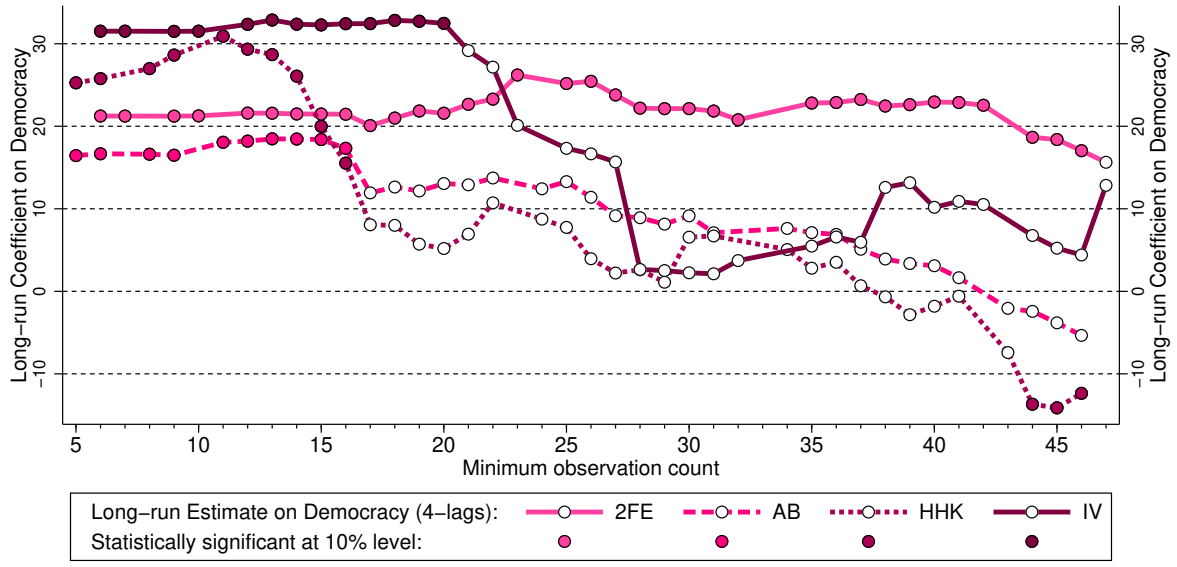
(a) Sample Reduction by T_i count



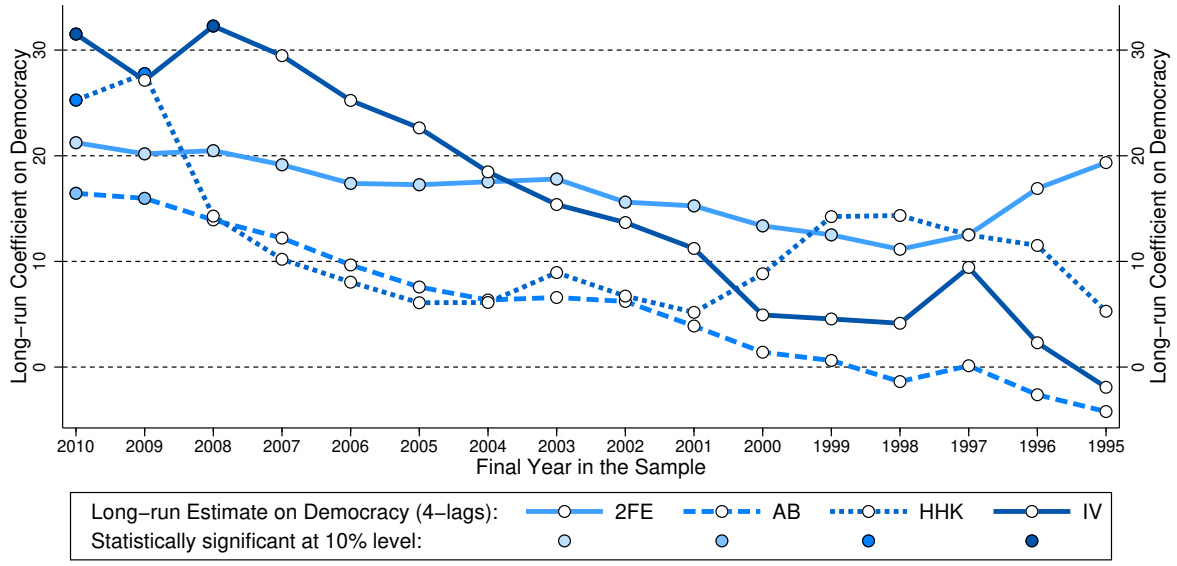
(b) Sample Reduction by end year

Notes: The figure presents the sample distribution for democratisation from varying empirical samples. The x-axis in panel (a) indicates the minimum number of observations required to be included in the sample, in panel (b) the sample end year (in reverse chronological order). The thin gray bars indicate the distribution of observations (log scale in panel (a), left axis) while the coloured bars indicate democratisation and reversal events (right scale). These distributions are for the AB/HHK samples.

Figure E-2: Sample Reductions — ANRR



(a) Sample reduction by T_i count



(b) Sample reduction by end year

Notes: The figure presents the long-run estimates for democracy from varying empirical samples for the 2FE, AB, HHK and 2SLS estimators, computed as $\hat{\beta}^{LR} = \hat{\beta}/(1 - \sum_{\ell=1}^{4} \hat{\rho}_{i,t-\ell})$, where $\hat{\beta}$ is the estimate on the democracy dummy and the $\hat{\rho}$ are estimates for the lags of per capita GDP (standard errors are constructed via the Delta method). A filled (white) circle marker indicates that the long-run coefficient is statistically (in)significant at the 10% level. All estimates are for the specification with four lags of GDP (and four lags of the instrument for 2SLS) preferred by ANRR. Alternative specifications yield qualitatively identical results (available on request). The 'left-most' estimates replicate the results in ANRR's Table 2, column (3) for 2FE, (7) for AB, and (11) for HHK, and Table 6, column (2) Panel A for 2SLS. In Panel (a) the x-axis indicates the minimum number of observations required to be included in the sample, in Panel (b) it indicates the end year included in the sample. In panel (a) the 2FE, AB, HHK and IV estimates turn statistically insignificant when 41%, 5%, 5% and 7% of country-observations are excluded. In panel (b) the equivalent figures are 30%, 25%, 5% and 3%.

Table E-1: Regression Sample — ANRR data (AB/HHK 4-lag specification)

obs	Transitioned into/out of democracy							Never a democracy			Always a democracy		
5								QAT					
6								LBY					
8								KWT					
9								IRQ					
11								MDV					
12								BIH					
13								KHM					
14								ERI					
15	DJI	HTI									PLW		
16	ARM	HRV	SLB					AZE	BLR	KAZ	CZE	LTU	MKD
								YEM			POL	SVN	
17	RUS												
18	LBN							TZA					
19	UKR							TKM	UZB				
20	GIN	KGZ									NAM		
21								AGO	GNQ	TJK			
22	SVK							LAO	VNM				
24								BHR	UGA	WSM			
25	BTN	CPV	ETH	MNG				BRN	TON				
26	ALB	BGR	COM	EST	MDA	MOZ	ROM				CHE	LCA	
27											KNA	VUT	
28											NZL		
29	GRD										ATG	BLZ	DMA
30	SUR										MUS		
31								JOR			CYP	KIR	VCT
34								SYC					
35											PNG		
36	GNB							CUB	SWZ		DEU	IRL	MLT
37											BHS		
38	BGD							SAU					
39	MLI												
40	FJI	GMB						IRN			JAM		
41	GEO	HUN	LVA										
43											BRB		
44	GUY	LSO									BWA		
45	ZWE							OMN	SIN	TUN			
46	ARG	BDI	BEN	BFA	BOL	BRA	CAF	CHN	CMR	DZA	AUS	AUT	BEL
	CHL	CIV	COG	DOM	ECU	ESP	GHA	EGY	GAB	MAR	CAN	COL	CRI
	GRC	GTM	HND	IDN	KEN	KOR	LBR	MYS	RWA	SYR	DNK	FIN	FRA
	MDG	MEX	MRT	MWI	NER	NGA	NIC	TCD	TGO	ZAR	GBR	IND	ISL
	NPL	PAK	PAN	PER	PHL	PRT	PRY				ISR	ITA	JPN
	SDN	SEN	SLE	SLV	THA	TUR	URY				LKA	LUX	NLD
	VEN	ZAF	ZMB								NOR	SWE	TTO
											USA		

Notes: The three samples contain 80, 46, and 49 countries, respectively. The analysis is based on the AB/HHK samples; for the 2SLS estimates the minimum observation count is typically increased by one observation.

Table E-2: Sample Reduction Estimates — ANRR

	Sample reduction by T_i count				Sample reduction by end year			
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Estimator	2FE	AB	HHK	2SLS	2FE	AB	HHK	2SLS
Panel A: Full ANRR sample estimates								
Long-Run Democracy Effect	21.240	16.448	25.268	31.521	21.240	16.448	25.268	31.521
	[7.215]***	[8.436]*	[10.869]**	[17.425]*	[7.215]***	[8.436]*	[10.869]**	[17.425]*
min T_i/End year	6	5	5	6	2010	2010	2010	2010
Countries	175	175	175	174	175	175	175	174
Observations	6,336	6,161	6,161	6,309	6,336	6,161	6,161	6,309
Share of ANRR sample	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Panel B: Estimate insignificant (10% significance level)								
Long-Run Democracy Effect	15.637	11.932	8.066	29.168	12.516	3.891	14.293	27.145
	[9.867]	[8.071]	[7.047]	[17.733]	[7.386]	[8.131]	[11.504]	[17.309]
min T_i/End year	47	17	17	21	1999	2001	2008	2009
Countries	79	152	152	146	172	172	175	174
Observations	3,713	5,846	5,846	5,873	4,433	4,605	5,824	6,146
Share of ANRR sample	0.59	0.95	0.95	0.93	0.70	0.75	0.95	0.97
Panel C: Estimate below 5% in magnitude								
Long-Run Democracy Effect	n/a	3.918	3.949	2.651	1.160	3.891	-22.917	4.936
		[7.622]	[5.670]	[16.519]	[6.157]	[8.131]	[28.970]	[17.275]
min T_i/End year		38	26	28	1991	2001	1994	2000
Countries		97	128	119	149	172	152	171
Observations		4,387	5,325	5,202	3,119	4,605	3,422	4,588
Share of ANRR sample		0.71	0.86	0.82	0.49	0.75	0.56	0.73
Panel D: Estimate outside 90% CI of full sample estimate								
Long-Run Democracy Effect	n/a	1.650	5.718	2.651	1.160	1.411	6.091	2.305
		[8.722]	[6.287]	[16.519]	[6.157]	[8.409]	[8.090]	[23.466]
min T_i/End year		41	19	28	1991	2000	2005	1996
Countries		90	149	119	149	172	175	166
Observations		4,112	5,793	5,202	3,119	4,433	5,300	3,908
Share of ANRR sample		0.67	0.94	0.82	0.49	0.72	0.86	0.62
Panel E: Estimate for balanced panel								
Long-Run Democracy Effect	15.637	-5.337	-12.358	12.843	n/a	n/a	n/a	n/a
	[9.867]	[8.484]	[6.899]*	[23.009]				
min T_i	47	46	46	47				
Countries	79	79	79	78				
Observations	3,713	3,634	3,634	3,666				
Share of ANRR sample	0.59	0.59	0.59	0.58				

Notes: The table presents estimates for the two sample reduction exercises in columns [1]-[4] and [5]-[8], respectivly (estimator as indicated). All estimates are based on specifications with four lags of per capita GDP and in case of the 2SLS using four lags of the instrument — these are the prefered specifications by ANRR. Long-run estimates are computed as $\hat{\beta}^{LR} = \hat{\beta}/(1 - \sum_{\ell=1}^{4} \hat{\rho}_{i,t-\ell})$, where $\hat{\beta}$ is the estimate on the democracy dummy and the $\hat{\rho}$ are estimates for the lags of per capita GDP (standard errors are computed via the Delta method). Results in Panel A are identical to those in ANRR Tables 2 (2FE, AB, HHK) and 6 (2SLS). The 2FE estimate in column [1] never drops below 5% in magnitude or outside the 90% confidence interval of the full sample estimate. The sample end year reduction strategy in columns [5]-[8] does not lead to a balanced panel like the sample reduction by minimum observation count in columns [1]-[4]. Statistical significance at the 10%, 5% and 1% level are indicated as *, **, and ***, respectively.

Table E-3: Minimal Sample Reduction

	Sample reduction by T_i count							
	[1]		[2]		[3]		[4]	
	2FE		AB		HHK		2SLS	
ANRR Reference	Table 2(3)		Table 2(7)		Table 2(11)		Table 6(2)A	
	(a)	(b)	(a)	(b)	(a)	(b)	(a)	(b)
Long-run effect of democracy	21.240 [7.215]***	15.637 [9.867]	16.448 [8.436]*	12.846 [8.023]	25.032 [10.581]***	9.221 [5.830]	31.521 [17.425]*	28.574 [17.394]
Observations	6,336	3,713	6,161	6,113	6,161	6,100	6,309	6,249
Obs dropped	none	2,623	none	48	none	61	none	60
dto. (in %)	0%	41.4%	0%	0.78%	0%	0.99%	0%	0.95%
Countries	175	79	175	172	175	171	174	171
Countries dropped	none	96	none	ARM, AZE, SLB	none	AZE, BLR, ERI, HTI	none	TKM, UKR, UZB
dto. (in %)	0%	54.9%	0%	1.7%	0%	2.3%	0%	1.7%

Notes: The table presents full sample estimates in columns marked (a) and reduced sample estimates in columns marked (b) for the 2FE, AB, HHK and 2SLS estimators. In a purposeful exercise I determine (via trial and error) the minimum set of countries that need to be dropped from the sample for the long-run democracy estimate to turn statistically insignificant (AB, HHK and 2SLS only). The countries dropped are indicated in the bottom of the table — for instance, the 2SLS estimate turns insignificant if Turkmenistan (TKM; 20 sample years in autocracy, none in democracy), the Ukraine (UKR; 3, 17), and Uzbekistan (UZB; 20, 0) are dropped from the sample. Statistical significance at the 10%, 5% and 1% level are indicated as *, **, and ***, respectively.

E.2 Madsen, Raschky and Skali (2015)

Their dataset of decadal observations for up to 141 countries covers 1820-2000. The empirical specification mirrors that of ANRR, though given the decadal data the dynamics are simpler (just a single lag for GDP, as opposed to four lags in ANRR), which seems intuitive. For country i and decade t (values are said to be averaged 'within each interval' but the range of these intervals is not entirely clear, most likely 1991-2000, 1981-1990, etc.):

$$y_{it} = \alpha_i + \gamma_t + \beta \,\text{Democracy}_{i,t-1} + \delta HC_{i,t-1} + \rho y_{i,t-1} + \varepsilon_{it}, \tag{7}$$

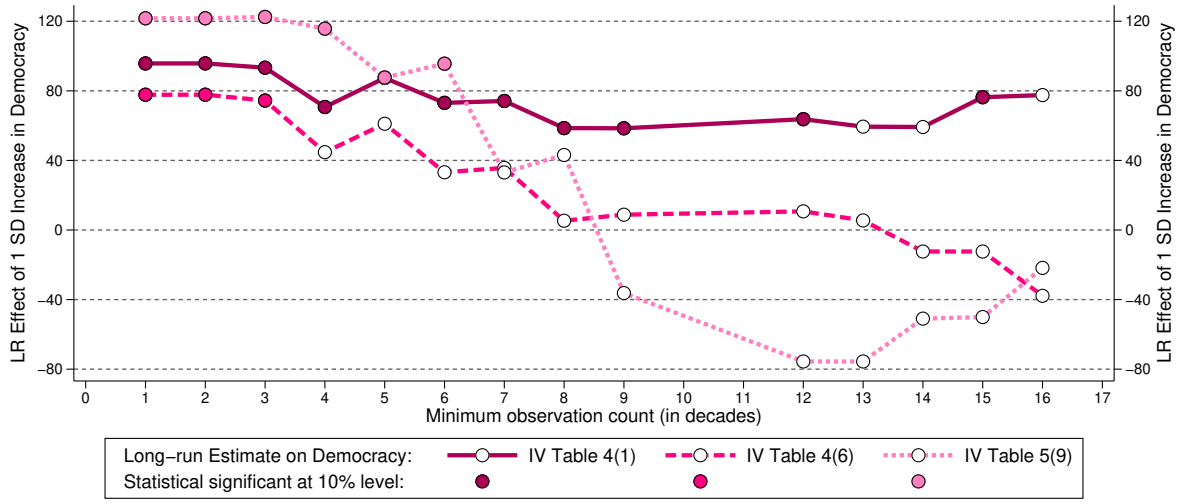
where y is the log of real per capita GDP (in PPP values), Democracy is a the (continuous) polity2 variable, α_i and γ_t are country and time dummies, respectively, and HC is human capital proxied by literacy. Democracy is instrumented using the linguistic distance-weighted average of 'foreign' democracy, if HC is included in the model, then it is instrumented using the interaction of minimal working age legislation (a dummy) with the number of compulsory schooling years. Alternative instruments are used in additional robustness checks.

I focus on three specifications, namely (i) a benchmark specification which excludes HC in Table 4, column 1 of the paper, (ii) the specification as presented in equation (7) in Table 4, column 6, and (iii) the same as the benchmark specification but with contemporaneous instead of lagged democracy in Table 5, column 9.

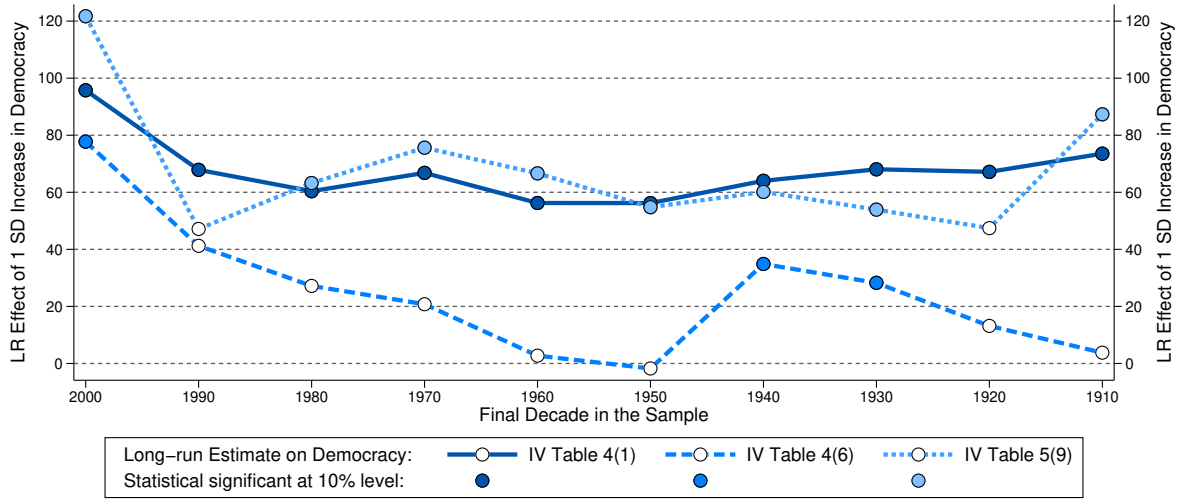
Sample reduction by minimum observation count Panel (a) of Figure E-3 provides the decade-by-decade results for the sample reduction by minimum observation count, columns [1] to [3] of Table E-4 the results for the full sample, for the sample when the democracy estimate turns statistically insignificant and the sample when the estimate falls outside the 90% confidence interval of the full sample result. While the more elaborate specification with human capital (itself also instrumented) as well as the model using the contemporaneous value of democracy drop substantially and turn insignificant when 13% and 26% of observations are omitted, respectively, the benchmark specification holds up much better, only turning insignificant when over one-third of observations are omitted, while its coefficient magnitude is also comparatively stable.

Sample reduction by sample end year In panel (b) of the same figure I present results for the second sample reduction exercise where the benchmark results (solid blue line) once again perform best: these are statistically significant throught, even when the sample is reduced to 1820-1910, whilst maintaining a remarkably stable democracy effect of 60-80% higher per capita GDP for a one standard deviation increase in the democracy index. Both the models with contemporaneous democracy and the additional HC covariate see the democracy coefficient turn insignificant when a single decade, 2000, is omitted, but while the former then remains statistically significant and fairly stable (similar in magnitude to the benchmark results) the latter drops substantially and is mostly statistically insignificant.

Figure E-3: Sample Reductions — Madsen et al (2015)



(a) Sample reduction by T_i count



(b) Sample reduction by end year

Notes: The plots present long-run estimates for democracy from various specifications, computed as $\hat{\beta}^{LR} = \hat{\beta}/(1 - \hat{\rho}_{i,t-1})$, where $\hat{\beta}$ is the estimate on the (lagged or contemporaneous) democracy dummy and $\hat{\rho}$ that for the lag of per capita GDP (standard errors are constructed via the Delta method). The model for which estimates are presented by the solid line plots is for Madsen et al (2015) Table 4, Column 1 (baseline); the dashed line plots are for Table 4, Column 6, which includes lagged literacy as additional covariate; the short-dashed line plots are for Table 5, Column 9, which uses the contemporaneous term of democracy instead of its lag as in the above two specifications. The x-axis in panel (a) indicates the minimum observation count for countries to be included in the sample, in (b) the end year/decade of the sample. A filled (white) marker indicates that the coefficient on democracy is statistically (in)significant at the 10% level. In panel (a) the estimates in the three models presented turn insignificant when 35%, 10%, and 24% of observations are excluded in the models in Table 4(1), Table 4(6) and Table 5(9), respectively. In panel (b) the equivalent figures are 12% for both the latter two, while the baseline Table 4(1) model is always significant in the time frame considered here.

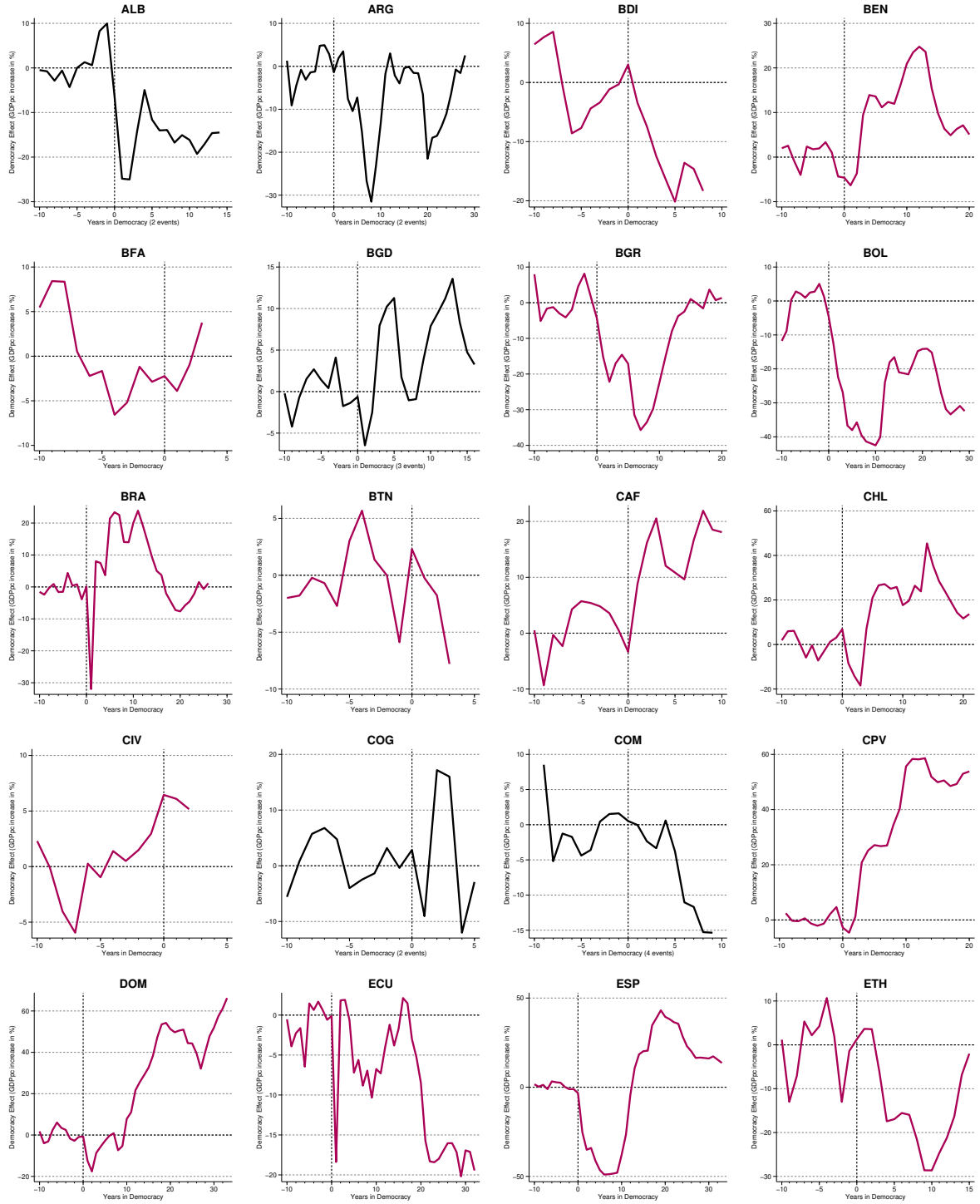
Table E-4: Sample Reduction Estimates — Madsen et al (2015)

	Sample reduction by T_i count			Sample reduction by end year		
	[1]	[2]	[3]	[4]	[5]	[6]
Estimator	IV	IV	IV	IV	IV	IV
Specification	Benchmark	Add Lit_{t-1}	Dem_t	Benchmark	Add Lit_{t-1}	Dem_t
Reference	Table 4(1)	Table 4(6)	Table 5(9)	Table 4(1)	Table 4(6)	Table 5(9)
Panel A: Full Madsen et al sample estimates						
Long-Run Coefficient	95.758	77.763	121.708	95.758	77.763	121.708
	[25.745]***	[30.512]**	[35.549]***	[25.745]***	[30.512]**	[35.549]***
Countries	141	141	141	141	141	141
min T_i/End year	1	1	1	2000	2000	2000
Observations	1,143	869	1,276	1,143	869	1,276
Share of full sample	1.00	1.00	1.00	1.00	1.00	1.00
Panel B: Estimate insignificant (10% significance level)						
Long-Run Coefficient	59.417	44.752	33.093	n/a	41.243	47.151
	[40.168]	[28.707]	[61.963]		[26.932]	[35.022]
Countries	45	95	62		124	139
min T_i/End year	13	4	7		1990	1990
Observations	749	755	945		725	1,138
Share of full sample	0.66	0.87	0.74		0.83	0.89
Panel C: Estimate outside 90% CI of full sample estimate						
Long-Run Coefficient	n/a	5.328	33.093	n/a	27.189	47.151
		[8.722]	[61.963]		[24.587]	[35.022]
Countries		50	62		102	139
min T_i/End year		8	7		1980	1990
Observations		538	945		589	1,138
Share of full sample		0.62	0.74		0.68	0.89

Notes: The table presents estimates for the two sample reduction exercises in columns (1)-(3) and (4)-(6), respectivly (estimator as indicated). Statistical significance at the 10%, 5% and 1% level are indicated as *, **, and ***, respectively. All models use the decadal data from 1820-2000. The models in (1) and (4) includes only Dem_{t-1}, which is instrumented using linguistic distance-weighted 'foreign' democracy; in (2) and (5) literacy in the previous decade is included as additional covariate; (3) and (6) are like the benchmark in (1) and (4) but use contemporaneous democracy. Min T_i here refers to the minimal number of decadal observations included in the regression.

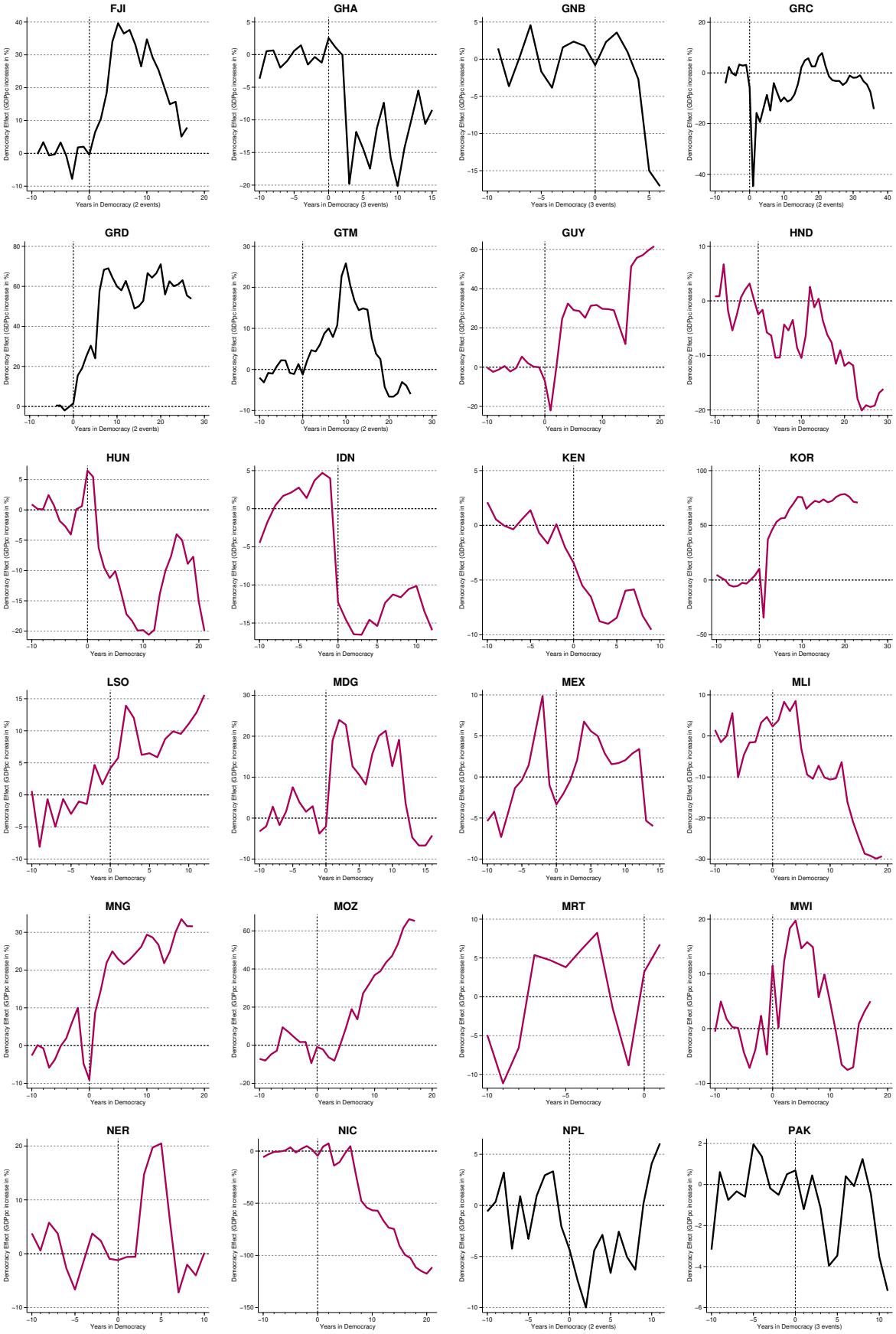
F Generalised Synthetic Control — Country Results

Figure F-1: Country results — Generalised Synthetic Control method



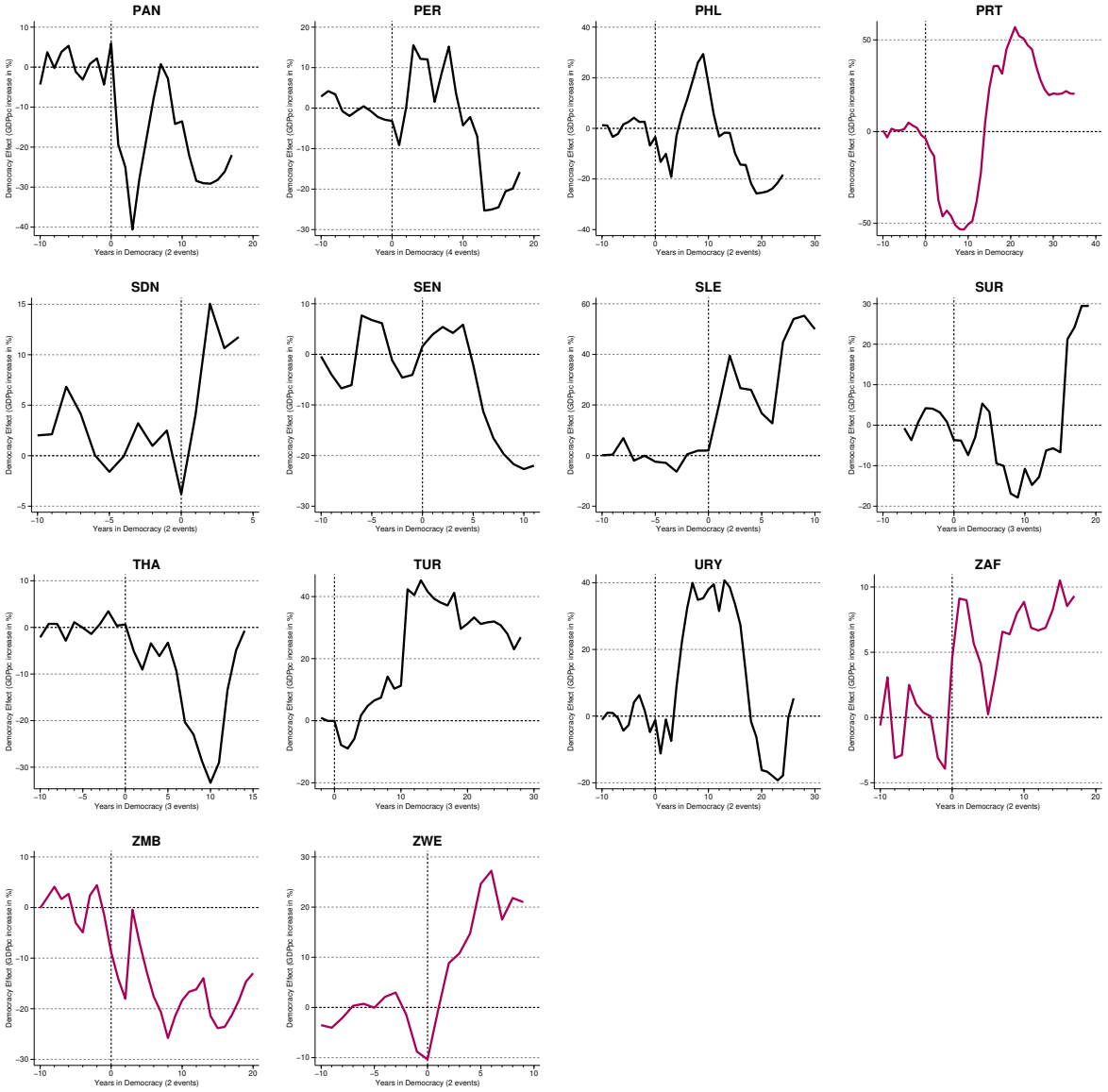
Continued Overleaf

Figure F-1: Country results — Generalised Synthetic Control method (Continued)



Continued Overleaf

Figure F-1: Country results — Generalised Synthetic Control method (Continued)



Notes: These plots show the country-specific results from a generalised synthetic control approach following Xu (2017) with the same covariates as in my Chan & Kwok (2021) approach in the main text and four common factors. The period prior to regime change is cut at a maximum of 10 years. The x-axis indicates the years before and after the democratic regime change following the ANRR definition. No additional allowances are made for countries with repeated democratisation events, though country results where just a single democratic regime change occurred are highlighted in dark pink.