Supplementary Appendix for

Academic freedom and the onset of autocratization

April 6, 2023

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A Theories of autocratization

Agency-based theories of democratic regression centre on political leaders and ruling parties and their role in the process of autocratization by focusing on "contingent decisions made by political actors under relatively unconstrained conditions" (Waldner & Lust, 2018, p. 97). However, actors are constrained by political institutions, which is the second approach explaining the onset of autocratization or the absence thereof. Political institutions take effect through three mechanisms: horizontal, vertical, and diagonal accountability (Waldner & Lust, 2018, p. 99). In particular, Juan Linz's work on the "perils of presidentialism" theorizes that separate legislative and executive elections create a dual legitimacy that potentially results in political polarization, personalization of politics, and exclusion of losers (Linz, 1990). These problems increase the probability of military coups and other types of breakdown. However, as Boese et al. conclude, (Boese et al., 2021), how the executive is constrained affects not only presidential but also parliamentary systems. Overall, stronger constraints on the executive by the legislature and the judiciary should reduce the risk of an onset of autocratization.

Another explanatory approach is political culture, or its development over time. "Theories of political culture explain political outcomes by way of attitudes, beliefs, norms, practices, and rituals that are widely shared, have deep emotional resonance, and divide appropriate and socially sanctioned from inappropriate behavior" (Waldner & Lust, 2018, p. 98). Two literatures contribute to this approach. A more democratic history of a country improves the links between society and democratic processes and institutions. Boese et al. conclude that "everyday experiences living under democracy seem to promote democratic attitudes within society, making successful challenges to democracy less likely" (Boese et al., 2021, p. 895). Thus, a more democratic history is probably asso-

ciated with a lower onset probability. In addition, previous democratic experience also enhances the institutionalization of parties and party systems that are essential for democratic processes (e.g., Pérez-Liñán & Mainwaring, 2013). Second, public support for democracy helps democracy survive, as Easton (1965) and Lipset (1959) hypothesized. Claassen recently finds compelling empirical evidence for this hypothesis (Claassen, 2020).

Theories of political economy link structural-economic variables to an onset of autocratization. According to Waldner and Lust, previous literature "theorizes four distinct political-economic variables: level of income, distribution of income, source of income, and short-term macroeconomic performance" (Waldner & Lust, 2018, p. 101). Seminal work by Lipset on the long-term effects of economic development on society and citizens' behaviour has particularly shaped the discipline's thinking about how economic factors affect democracy (Lipset, 1959). Przeworksi and coauthors (1997) add empirical evidence to the well-known argument that "the more the well-to-do a nation, the greater the chances that it will sustain democracy" (Lipset, 1959, p. 75) by estimating a certain threshold level of income above which democracies did not collapse. In addition, several studies support the claim that economic development is beneficial for democratic stability (Feng, 1997; Gates et al., 2006; Svolik, 2008; Tomini & Wagemann, 2018). Overall, higher levels of economic development should reduce the risk of an onset of autocratization, especially in democracies.

Theories of social structures and political coalitions differentiate the preferences of the public for democratic survival. Their focus is "social heterogeneity" and their aim "explicitly conceptualizes the formation of groups of citizens, the potential for conflict among these groups, and the political implications of group formation and intergroup conflict" (Waldner & Lust, 2018, p. 103). However, division, interest- and identity-based theories vastly simplify reality and these

divisions do not spontaneously occur (Waldner & Lust, 2018, p. 103). Moreover, social structure approaches, as well as political coalitions, for explaining the onset of autocratization remain relatively underdeveloped theories.

Lastly, international factors may also affect onsets of autocratization through diffusion from neighbourhood countries. Waldner and Lust emphasize that international factors work primarily through the other channels described by the respective theories. However, one important international factor is how a democratic neighbourhood may be associated with the risk of an onset of autocratization. Empirical research suggests that democracies cluster in some regions and diffusion effects across countries are associated with democratic development (e.g., Brinks & Coppedge, 2006; Coppedge et al., 2022; Gleditsch & Ward, 2006; Tansey et al., 2017). Thus, in regions with a more democratic neighbourhood democratic regression may be more expensive in terms of regional cooperation. But at the same time, diffusion effects can increase autocratization onset risks for all countries. Thus, I remain agnostic about the association between a democratic neighbourhood and the onset of autocratization.

B Study I

In this Supplementary Appendix B, this study offers a wide range of robustness tests. The results of all robustness tests corroborate the main findings. First, the results do not change when I use five year socialization periods between respondents' aged 20 and 24 instead of ten-year socialization periods between respondents' aged 20 and 29 (Table B3 and Figures B1 and B2). The average marginal effect of academic freedom for graduates is predicted to be 0.05 (95% CI = [0.037; 0.062]) and 0.022 (95% CI = [0.013; 0.031]) for non-graduates.

Second, the results are not driven by the use of the democratic support index. Table B4 shows the effect of academic freedom during respondents' early adulthood for university graduates and non-graduates for the subcomponents of the democratic support index used in the main analyses. However, multi-item indices may measure attitudinal positions of respondents with less error than individual survey items (Ansolabehere et al., 2008). Nevertheless, all results from the sub-component analysis support our main findings.

Third, the results are not driven by missing observations in the World Values Survey. Missings are hardly *missing completely at random* or *missing at random*, especially in survey data across countries. Thus, missing data can substantially influence the results of any regression analysis. Therefore, Table B5 employs multiple imputations of individual-level missing values for all individual level variables, as described in King et al. (Honaker & King, 2010; King et al., 2001). The results remain unchanged when controlling for missings, as reported in Table A3.

Fourth, the results are robust to the use of clustered standard errors at the country-year instead of the clustered standard errors at the country-cohort level (Table B6).

B.1 Variables for Democratic Support Index

The variable **Having a democratic political system** was recoded to 1 "Very bad" to 4 "Very good". All four variables are estimated to a comprehensive measure of respondent's democratic support.

Table B1: Democratic Support

Variable	**# Categories**	**Question Wording**
Strong Leader	4	Having a strong leader who does not have to bother with parliament and elections
Expert Government	4	Having experts, not government, make decisions according to what they think is best for the country
Army Rule	4	Having the army rule
Democratic Pol. Syst	4	Having a democratic political system

Notes: All Variables come from the integrated World Values Survey Dataset

Table B2: Conceptual alignment across democratic support variables (CFA estimates).

Measure	Loadings	Standard Error	Variances
Strong leader	0.772	0.004	0.502
Expert Government	0.406	0.002	0.711
Army Rule	0.431	0.003	0.736
Democratic Political System	0.119	0.002	0.561

In addition, model fit statistics indicate a good model fit for the one-factor model presented in Table A2. In particular, Chi-Square is statistically significant at $p < 0.001$. In addition, the "Comparative Fit Index" (CFI) = 0.932 and the "Tucker-Lewis Index" (TLI) = 0.795 indicate a good model fit, as both are near to 1. Additional model fit statistics can be found in the Reproduction Materials under "Confirmatory_factor_analysis.txt".

B.2 Individual-Level Variables

B.2.1 Graduate

Variable name: graduate (0: non-graduate, 1 : graduate)
Source variables and dataset:

- World Value Survey (WVS)
  - X025
  - all under 8 [University with degree/Higher education - upper-level tertiary certificate] are code as = 0, 1 = Graduate

B.2.2 Sex

Variable name: sex (0: male, 1 : female)
Source variables and dataset:

- World Value Survey (WVS)
  - X001

B.2.3 Age

Variable name: Age (continuous)
Source variables and dataset:

- World Value Survey (WVS)
  - X003

B.2.4 Income Deciles

Variable name: Income Deciles (1-10)
Source variables and dataset:

- World Value Survey (WVS)
  - X047

B.2.5 Children

Variable name: children (0 no children; 1 children)
Source variables and dataset:

- World Value Survey (WVS)
  - X011

B.2.6 Employment Status

Variable name: employement (0 working; 1 unemployed)
Source variables and dataset:

- World Value Survey (WVS)
  - X028

B.3 Five-Year Socialization Period: 20-25 years

Figure B1: Predicted Democratic Support by different levels of academic freedom for respondents at the 1965-1969 education cohort (1945-1949 birth cohort) by university graduates and non-graduates with 95% confidence intervals

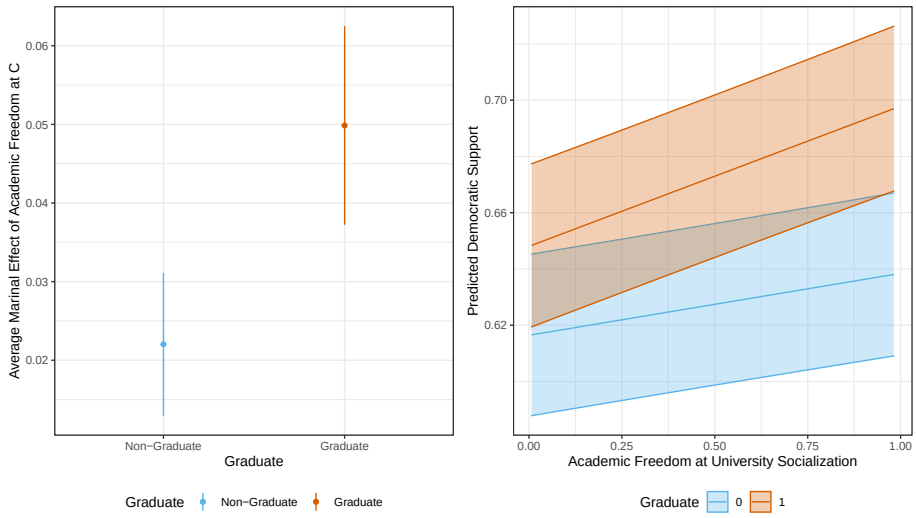
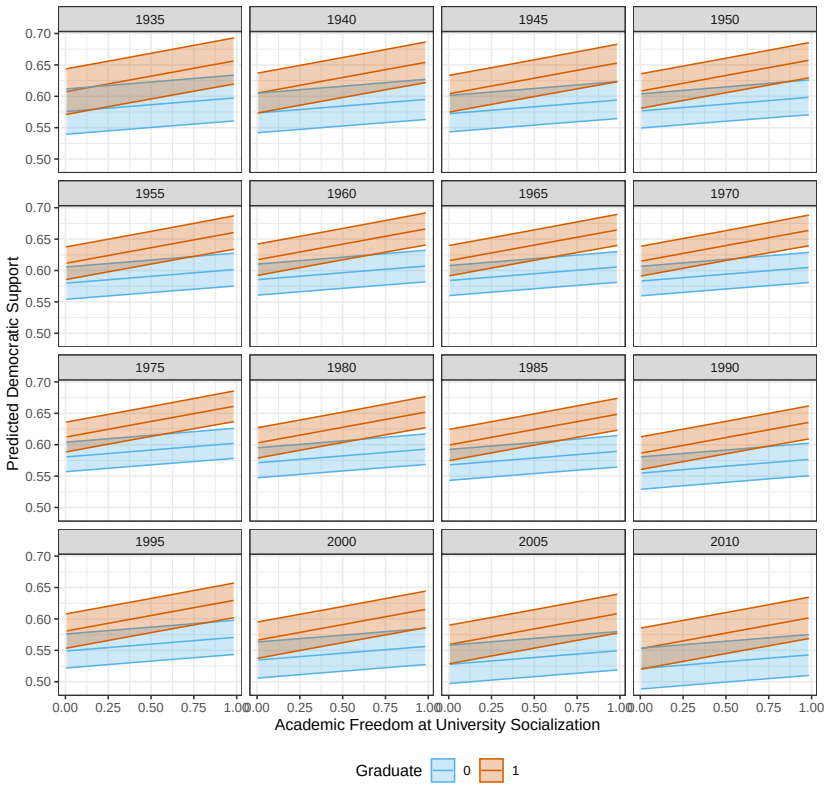


Table B3: Estimated effect of academic freedom during early adulthood for graduates and non-graduates

	Model 1	Model 2	Model 3
Graduate	0.046***	0.046***	0.032***
	[0.042, 0.050]	[0.042, 0.050]	[0.025, 0.038]
Sex	0.004**	0.003**	0.004**
	[0.001, 0.006]	[0.001, 0.006]	[0.001, 0.006]
Age	0.000	0.000	0.000
	[−0.001, 0.000]	[−0.001, 0.000]	[−0.001, 0.000]
Income (ten cat.)	0.002***	0.002***	0.002***
	[0.001, 0.003]	[0.001, 0.002]	[0.001, 0.002]
Children	−0.010***	−0.010***	−0.010***
	[−0.014, −0.007]	[−0.014, −0.006]	[−0.013, −0.006]
Unemployed	−0.012***	−0.012***	−0.012***
	[−0.015, −0.008]	[−0.016, −0.009]	[−0.016, −0.008]
Academic Freedom at C		0.027***	0.022***
		[0.018, 0.036]	[0.013, 0.031]
Electoral Democracy Score		−0.126***	−0.125***
		[−0.199, −0.052]	[−0.198, −0.052]
GDP pc(log)		−0.070**	−0.068*
		[−0.122, −0.018]	[−0.120, −0.016]
Population (log)		−0.082	−0.080
		[−0.267, 0.102]	[−0.264, 0.105]
Academic Freedom at C * Graduate			0.028***
			[0.018, 0.038]
Country FE	Y	Y	Y
Cohort FE	Y	Y	Y
Year/Period FE	Y	Y	Y
Observations	235 849	234 788	234 788
R2	0.171	0.172	0.172
R2 Adj.	0.171	0.172	0.172

Note: Standard errors clustered at country cohorts in parentheses $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Figure B2: Predicted Democratic Support by different levels of academic freedom by socialization cohorts and for university graduates and non-graduates with 95% confidence intervals.



B.4 Effect on sub-indicators

DV	Model 1 Army Rule	Model 2 Army Rule	Model 3 Strong leader	Model 4 Strong leader	Model 5 Expert Gov	Model 6 Expert Gov	Model 7 Demo. Sys.	Model 8 Demo. Sys.
Graduate	0.181***	0.155***	0.166***	0.115***	0.043***	0.017	0.126***	0.062***
	[0.168, 0.195]	[0.129, 0.181]	[0.150, 0.183]	[0.085, 0.144]	[0.031, 0.056]	[−0.007, 0.040]	[0.115, 0.137]	[0.043, 0.081]
Sex	0.034***	0.034***	0.005	0.005	−0.005	−0.005	0.038***	0.038***
	[0.025, 0.043]	[0.025, 0.043]	[−0.005, 0.014]	[−0.005, 0.014]	[−0.014, 0.004]	[−0.014, 0.004]	[0.031, 0.044]	[0.031, 0.045]
Age	0.003*	0.003*	0.001	0.001	0.001	0.001	0.002*	0.002*
	[0.001, 0.005]	[0.001, 0.005]	[−0.001, 0.003]	[−0.001, 0.003]	[−0.001, 0.003]	[−0.001, 0.003]	[0.000, 0.003]	[0.000, 0.003]
Income (ten cat.)	0.004*	0.003*	0.007***	0.006***	0.001	0.001	0.008***	0.008***
	[0.001, 0.006]	[0.001, 0.006]	[0.003, 0.010]	[0.003, 0.010]	[−0.002, 0.004]	[−0.002, 0.004]	[0.005, 0.010]	[0.005, 0.010]
Children	−0.024**	−0.024**	−0.041***	−0.040***	−0.009	−0.008	−0.023***	−0.023***
	[−0.039, −0.009]	[−0.039, −0.009]	[−0.057, −0.025]	[−0.056, −0.024]	[−0.023, 0.005]	[−0.022, 0.006]	[−0.033, −0.013]	[−0.033, −0.012]
Unemployed	−0.047***	−0.047***	−0.043***	−0.043***	−0.017*	−0.017*	−0.032***	−0.032***
	[−0.062, −0.032]	[−0.062, −0.032]	[−0.060, −0.026]	[−0.060, −0.026]	[−0.033, −0.002]	[−0.033, −0.001]	[−0.045, −0.020]	[−0.044, −0.020]
Academic_Freedom at C	0.081***	0.073**	0.088***	0.072***	0.118***	0.110***	0.065***	0.045**
	[0.036, 0.126]	[0.027, 0.119]	[0.047, 0.129]	[0.030, 0.114]	[0.077, 0.160]	[0.068, 0.153]	[0.033, 0.097]	[0.014, 0.077]
Electoral Democracy Score	−0.435*	−0.434*	−0.191	−0.189	−0.669***	−0.667***	−0.189**	−0.186**
	[−0.766, −0.104]	[−0.765, −0.103]	[−0.470, 0.088]	[−0.468, 0.090]	[−0.934, −0.404]	[−0.932, −0.402]	[−0.328, −0.049]	[−0.325, −0.046]
GDP pc(log)	0.359*	0.363**	−0.328***	−0.320***	−0.550***	−0.546***	−0.135+	−0.126+
	[0.084, 0.635]	[0.087, 0.639]	[−0.514, −0.142]	[−0.506, −0.135]	[−0.832, −0.268]	[−0.829, −0.263]	[−0.272, 0.002]	[−0.263, 0.012]
Population (log)	0.146	0.151	−0.860*	−0.850*	0.530	0.535	−0.767***	−0.755***
	[−0.554, 0.846]	[−0.549, 0.851]	[−1.632, −0.088]	[−1.620, −0.080]	[−0.129, 1.188]	[−0.123, 1.193]	[−1.108, −0.427]	[−1.096, −0.414]
Academic Freedom at C * Graduate		0.049*		0.098***		0.050*		0.122***
		[0.011, 0.088]		[0.051, 0.144]		[0.010, 0.090]		[0.087, 0.156]
Country FE	Y	Y	Y	Y	Y	Y	Y	Y

Cohort FE	Y	Y	Y	Y	Y	Y	Y	Y
Year/Period FE	Y	Y	Y	Y	Y	Y	Y	Y
Num.Obs.	221 333	221 333	223 625	223 625	218 381	218 381	226 111	226 111
R2	0.199	0.199	0.159	0.159	0.085	0.085	0.088	0.089
R2 Adj.	0.199	0.199	0.158	0.158	0.085	0.085	0.088	0.088

B.5 Accounting for Missing Individual-level data

Table B5: Estimated effect of academic freedom during early adulthood for graduates and non-graduates with **imputed missing data**

	Model 1	Model 2	Model 3
Graduate	0.039^{***}	0.039^{***}	0.025^{***}
	(0.001)	(0.002)	(0.003)
Sex	0.003^{***}	0.004^{***}	0.004^{***}
	(0.001)	(0.001)	(0.001)
Age	0.001^{***}	0.001^{***}	0.001^{***}
	(0.000)	(0.000)	(0.000)
Income (ten. cat.)	0.002^{***}	0.002^{***}	0.002^{***}
	(0.000)	(0.000)	(0.000)
Children	-0.015^{***}	-0.012^{***}	-0.011^{***}
	(0.002)	(0.002)	(0.002)
Unemployed	-0.012^{***}	-0.012^{***}	-0.012^{***}
	(0.002)	(0.002)	(0.002)
Academic Freedom at C		0.023^{***}	0.019^{***}
		(0.005)	(0.005)
Electoral Democracy Score		-0.141^{***}	-0.142^{***}
		(0.020)	(0.020)
GDP pc(log)		-0.062^{**}	-0.060^{**}
		(0.023)	(0.023)
Population (log)		-0.024	-0.021
		(0.049)	(0.049)
Academic Freedom at C * Graduate			0.027^{***}
			(0.005)

Note: Standard errors clustered at country cohorts in parentheses $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

B.6 Clustered Standard Errors at the country-year

Table B6: Estimated effect of academic freedom during early adulthood for graduates and non-graduates with standard errors clustered at the country-year

	Model 1	Model 2	Model 3
Graduate	0.046***	0.046***	0.031***
	[0.040, 0.053]	[0.040, 0.052]	[0.020, 0.042]
Sex	0.004*	0.004*	0.004*
	[0.001, 0.007]	[0.001, 0.007]	[0.001, 0.007]
Age	0.001*	0.000*	0.000*
	[0.000, 0.001]	[0.000, 0.001]	[0.000, 0.001]
Income (ten cat.)	0.002*	0.002*	0.002*
	[0.000, 0.003]	[0.000, 0.003]	[0.000, 0.003]
Children	−0.010***	−0.010***	−0.009***
	[−0.014, −0.006]	[−0.014, −0.006]	[−0.013, −0.005]
Unemployed	−0.012***	−0.012***	−0.012***
	[−0.017, −0.007]	[−0.017, −0.008]	[−0.017, −0.007]
Academic Freedom at C		0.029***	0.024***
		[0.014, 0.044]	[0.010, 0.039]
Electoral Democracy Score		−0.125	−0.124
		[−0.279, 0.029]	[−0.278, 0.030]
GDP pc(log)		−0.070	−0.067
		[−0.185, 0.046]	[−0.183, 0.049]
Population (log)		−0.082	−0.079
		[−0.514, 0.350]	[−0.511, 0.352]
Academic Freedom at C * Graduate			0.029**
			[0.011, 0.047]
Country FE	Y	Y	Y
Cohort FE	Y	Y	Y
Year/Period FE	Y	Y	Y
Observations	235 849	235 849	235 849
R2	0.171	0.172	0.173
R2 Adj.	0.171	0.172	0.172

Note: Standard errors clustered at country years in parentheses $^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

C Study II

In this Supplementary Appendix C, I ran a series of robustness test. These robustness tests support the main findings. First, the findings remain robust when I use a lower threshold of what defines an autocratization episode. As discussed in Pelke and Croissant (2021), different thresholds can be used to detect autocratization episodes. In Table C5 and Figure C2, I use autocratization episodes that have a cumulative drop of at least 0.05 on the EDI.

Second, the results are not driven by missing observations in the data. Missings are hardly *missing completely at random* or *missing at random*, especially in cross-sectional time-series data. Therefore, Table C6 employs multiple imputations of missing values for all variables for those country-years, as described in King et al. (Honaker & King, 2010; King et al., 2001), in which at least one higher-education institution was founded. The results are comparable in terms of the substantive effect and statistical significance when controlling for missings, as reported in Table C6.

Third, the results are robust to split-samples. In Appendix C8 and C9, I estimate the probability of an autocratization onset for democracies (Table C7 and Figure C3) and autocracies (Table C8 and Figure C4) separately. The findings indicate that the inverted u-shape relationship holds for democratic regression and for autocratic hardening. However, the interaction effect of academic freedom and democratic stock changed to some degree, but the basic pattern remains, as shown in Figure C3 and C4. In addition in Appendix C10, I recalculate the main results with a five-percent annual depreciation rate (1-δ) for democratic stock. The results as reported in Table C9 and Figure C5 support the main findings. Moreover, I re-estimate the findings from the main models splitting the sample into two periods: 1900-1989 and 1990-2020. As Table C.11 and Table C.11 show, the main results hold. After 1900, the inverted

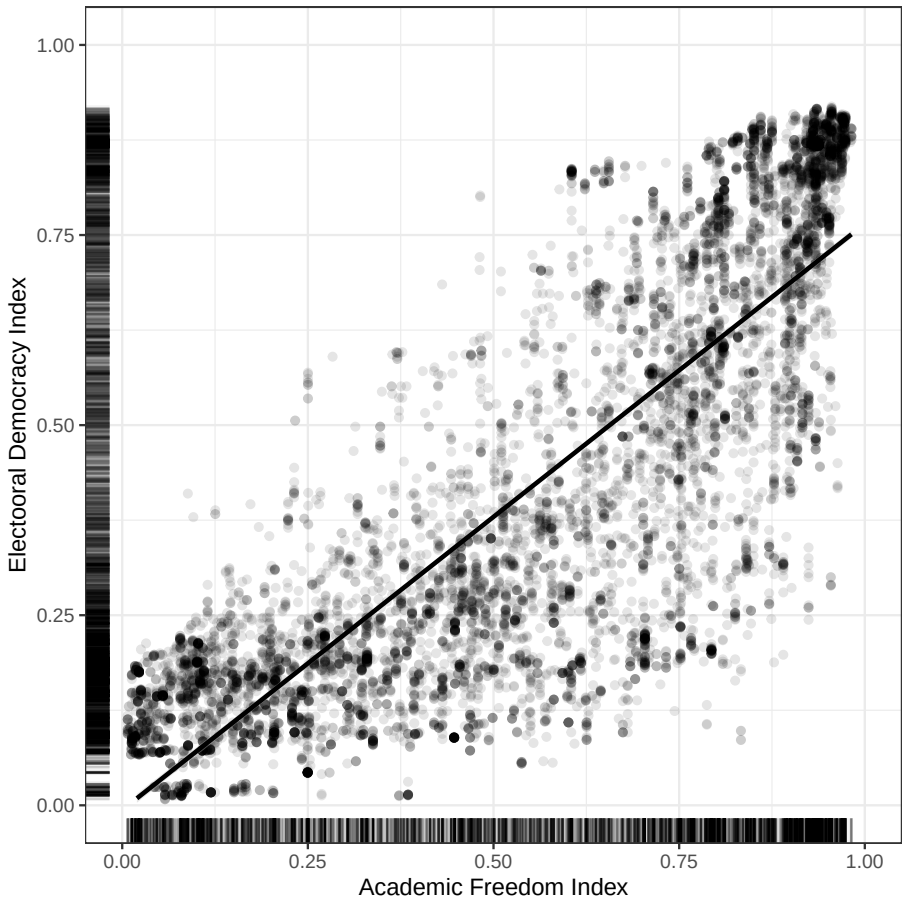
u-shape relationship between academic freedom and the probability of an onset of autocratization is less pronounced than between 1900 and 1989. However, the main effect persists.

C.1 Academic Freedom Index: Four-item BFA

Table C1: Conceptual alignment across this study's academic freedom indicators (BFA estimates).

Measure	Loadings	Uniqueness
Freedom to research and teach (**v2cafres**)	0.908	0.176
Freedom of academic exchange and dissemination (**v2cafexch**)	0.907	0.178
Institutional autonomy (**v2cainsaut**)	0.821	0.326
Campus integrity(**v2casurv**)	0.843	0.290

Figure C1: Scatterplot of Academic Freedom Index and Electoral Democracy Index



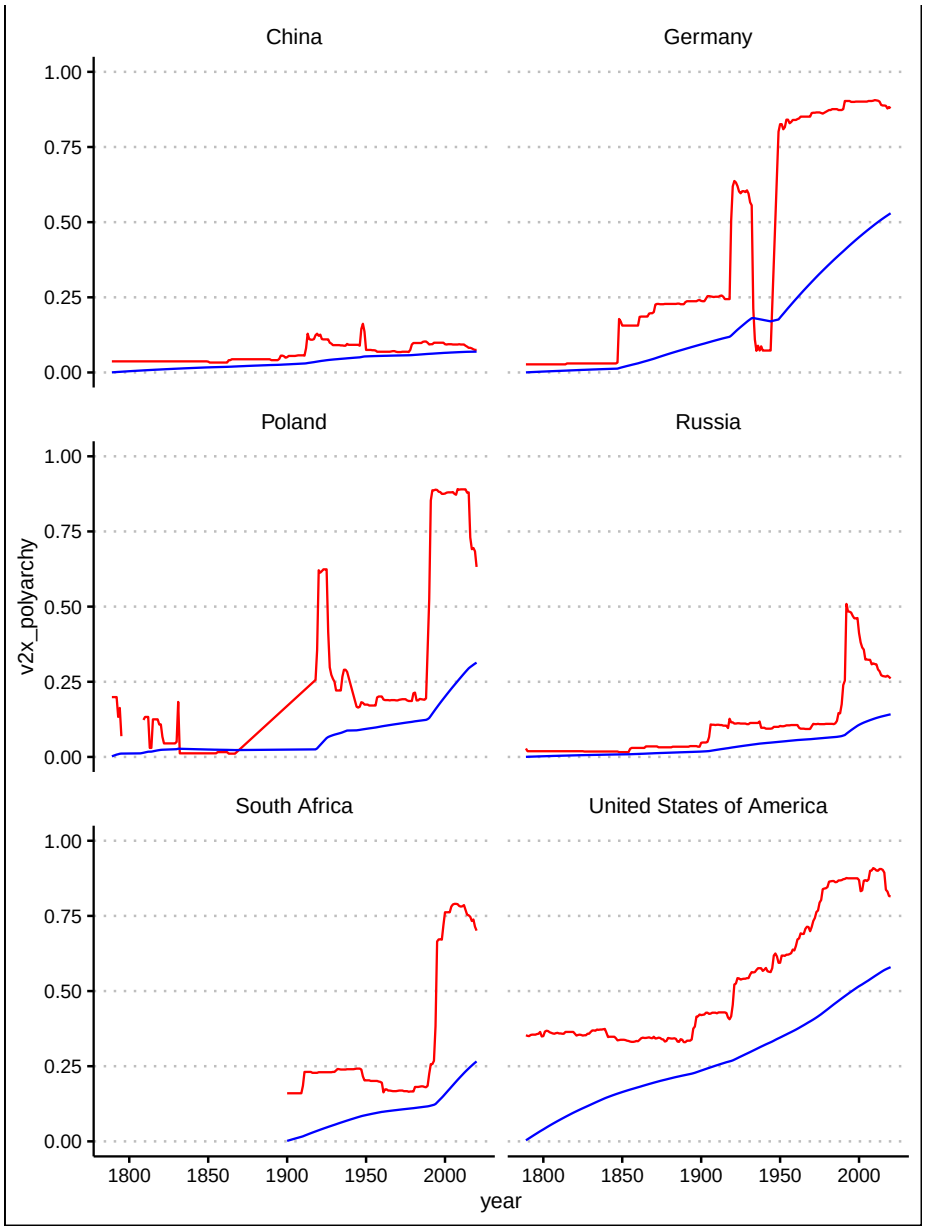
C.2 Democratic Stock Measure

Code for the function to generate the democratic stock variable:

```
annual_depricition_function <- function(year, var, decay) {
  last_time <- first(year)
  current_sum <- 0
  sums <- numeric(length(var))
  ldecay <- (1-decay)
  for (i in 1:length(var)) {
    delta <- as.numeric(year[i] - last_time)
    current_sum <- ldecay * (current_sum + decay * var[i])
    last_time <- year[i]
    sums[i] <- current_sum
  }
  sums
}
```

The democratic stock variable for a set of countries is shown in Figure C2.

Figure C2: Democratic Stock of six countries. Blue line shows democratic stock measure; red line shows the polyarchy index.



C.3 Country-years with Autocratization onsets

Table C2: List of country-years with autocratization onset

Country	Year
Suriname	1980
Ghana	1958
Ghana	1972
Ghana	1981
Burma/Myanmar	1942
Burma/Myanmar	1958
Russia	1993
Egypt	1952
Egypt	2013
Yemen	2013
Colombia	1948
Poland	1926
Poland	2014
Brazil	1930
Brazil	1964
Brazil	2016
Portugal	1926
Bangladesh	1982
Bangladesh	2002
Bangladesh	2011
Bolivia	1930
Bolivia	1964
Bolivia	2002
Haiti	1992
Haiti	2000
Honduras	1955
Honduras	2006
Mali	1964
Mali	2007
Pakistan	1977
Pakistan	1999

Peru	1948
Peru	1968
Peru	1985
Senegal	1961
Sudan	1958
Sudan	1989
Argentina	1930
Argentina	1943
Argentina	1950
Argentina	1962
Argentina	1966
Argentina	1975
India	1971
India	2000
South Korea	1961
South Korea	2008
Nigeria	1983
Philippines	1941
Philippines	1966
Philippines	2001
Philippines	2016
Tanzania	2015
Thailand	1976
Thailand	1991
Thailand	2005
Thailand	2013
Uganda	1966
Uganda	1985
Venezuela	1949
Venezuela	1999
Venezuela	2013
Benin	2018
Burkina Faso	1965
Burkina Faso	1980
Burkina Faso	2014
Cambodia	1970

Cambodia	2013
Indonesia	1957
Indonesia	2009
Nepal	2000
Nepal	2012
Nicaragua	2006
Niger	1996
Niger	1999
Niger	2009
Niger	2016
Zambia	1969
Zambia	2010
Zimbabwe	1978
Guinea	2017
Ivory Coast	1999
Mauritania	1978
Botswana	2013
Burundi	1965
Burundi	1987
Burundi	2010
Central African Republic	2003
Chile	1924
Chile	1972
Ecuador	1902
Ecuador	1932
Ecuador	1960
Ecuador	1970
Ecuador	2007
France	1939
France	1965
Germany	1930
Guatemala	1954
Iran	1953
Italy	1921
Latvia	1934
Lesotho	1969

Lesotho	1994
Lesotho	2015
Liberia	1980
Liberia	2003
Malawi	1999
Netherlands	1940
Panama	1964
Papua New Guinea	2004
Sierra Leone	1967
Spain	1923
Spain	1934
Syria	1949
Syria	1958
Syria	1963
Turkey	1956
Turkey	1980
Turkey	2005
Ukraine	1997
Ukraine	2010
Uruguay	1933
Uruguay	1963
Algeria	1965
Algeria	1992
Belarus	1995
Democratic Republic of the Congo	1965
Republic of the Congo	1963
Republic of the Congo	1994
Dominican Republic	1916
Dominican Republic	1930
Guinea-Bissau	2012
Laos	1975
Libya	2014
Madagascar	1972
Madagascar	1997
Madagascar	2009
Moldova	2000

Moldova	2012
Namibia	1994
Rwanda	1973
Rwanda	1993
Somalia	1965
Sri Lanka	1970
Sri Lanka	2004
Togo	1967
Togo	2017
Austria	1931
Bahrain	2011
Belgium	1914
Belgium	1940
Bulgaria	1934
Comoros	2015
Croatia	2013
Cuba	1906
Cuba	1927
Cuba	1951
Cuba	1959
Czech Republic	1938
Denmark	1940
Estonia	1932
Estonia	1991
Fiji	1987
Fiji	2000
Fiji	2006
Finland	1939
Greece	1910
Greece	1922
Greece	1925
Greece	1935
Greece	1966
Guyana	1969
Kuwait	1976
Kuwait	1986

Lithuania	1924
Luxembourg	1940
North Macedonia	2000
North Macedonia	2005
Malaysia	1964
Norway	1940
Paraguay	1940
Romania	1938
Serbia	2011
Slovenia	2012
Solomon Islands	2000
Hungary	1939
Hungary	2010

C.4 Descriptive Statistics Sample

Table C3: Descriptive Statistics Sample Study II

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
Autocratization Onset	2	0	0.017	0.130	0.000	0.000	1.000
Academic Freedom Measure	2052	0	0.553	0.307	0.007	0.596	0.982
Democracy Stock	10996	0	0.161	0.140	0.001	0.113	0.659
GDP pc log	7702	0	1.896	0.905	0.252	1.751	5.040
GDP pc Growth	10995	0	1.970	3.203	−25.413	1.863	36.108
Population log	10962	0	6.681	1.586	2.341	6.658	11.902
Regional Democracy Level	1010	0	0.394	0.228	0.035	0.359	0.885
Judicial Constraints	872	0	0.570	0.311	0.003	0.615	0.992
Legislative Constraints	855	0	0.503	0.322	0.014	0.525	0.986

C.5 Comparing Functional Forms

Table C4: Comparing Functional Form

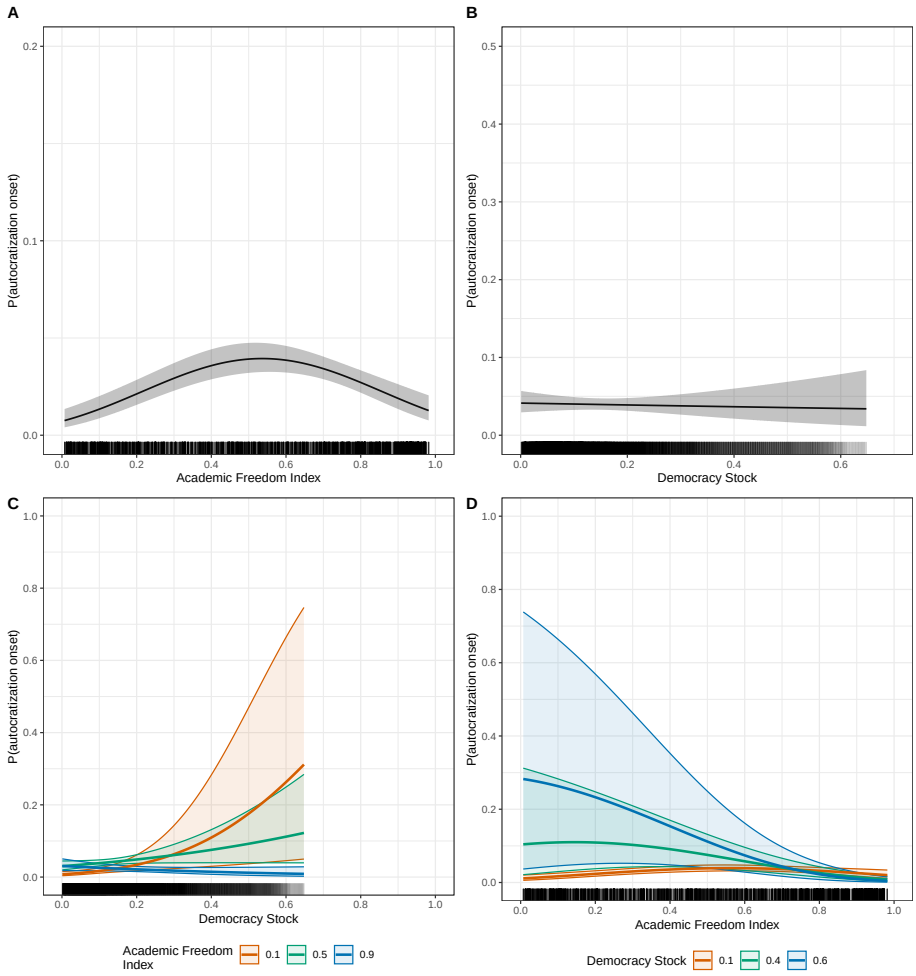
	Model 1 Linear	Model 2 Knots 3	Model 3 Knots 4	Model 4 Knots 5	Model 5 Poly 2	Model 6 Poly 3	Model 7 Poly 4	Model 8 Poly 5
Intercept	−2.596***	−3.548***	−3.876***	−4.106***	−2.825***	−2.816***	−2.864***	−2.858***
	[−2.972, −2.220]	[−4.056, −3.040]	[−4.484, −3.268]	[−4.835, −3.377]	[−3.234, −2.415]	[−3.227, −2.404]	[−3.275, −2.454]	[−3.267, −2.449]
Academic Freedom	0.137	1.507***	1.590***	1.477**	2.892	4.057	6.802	7.439
	[−0.215, 0.490]	[0.737, 2.277]	[0.789, 2.391]	[0.528, 2.426]	[−10.068, 15.852]	[−8.559, 16.673]	[−6.623, 20.226]	[−5.484, 20.362]
Academic Freedom K2		1.313***	1.255***	1.573***				
		[0.815, 1.811]	[0.739, 1.772]	[1.012, 2.135]				
Acadmeic Freedom K3		0.340	1.287***	1.642***				
		[−0.157, 0.836]	[0.618, 1.955]	[0.830, 2.454]				
Academic Freedom K4			0.446	1.160***				
			[−0.120, 1.011]	[0.486, 1.834]				
Academic Freedom K5				0.683				
				[−0.157, 1.523]				
Academic Freedom ^2					−29.694***	−29.994***	−35.752***	−36.029***
					[−37.445, −21.942]	[−37.669, −22.319]	[−44.991, −26.513]	[−44.933, −27.126]
Academic Freedom ^3						1.868	4.840	5.924
						[−4.674, 8.411]	[−2.587, 12.267]	[−2.473, 14.320]
Academic Freedom ^4							−7.896*	−8.391*
							[−15.565, −0.227]	[−16.077, −0.705]
Academic Freedom ^5								1.583
								[−6.187, 9.352]
Controls	Y	Y	Y	Y	Y	Y	Y	Y
Num.Obs.	10 996	10 996	10 996	10 996	10 996	10 996	10 996	10 996
AIC	1823.7	1776.0	1775.0	1776.2	1774.2	1776.0	1774.4	1776.3
BIC	1940.6	1907.5	1913.8	1922.3	1898.4	1907.5	1913.2	1922.4
F	10.034	14.046	12.786	12.352	14.371	14.046	12.656	12.795
Performance Score in %	26.39	54.63	50.02	40.45	79.82	54.63	52.01	41.62

C.6 Autocratization Definition: 0.05 cumulative drop

Table C5: Estimated effect of academic freedom on probability of autocratization onset (cumulative drop >= 0.05)

	Model 1	Model 2
Intercept	−1.886***	−1.960***
	[−2.229, −1.542]	[−2.299, −1.621]
Academic Freedom	3.648	20.649**
	[−6.639, 13.934]	[6.085, 35.212]
Academic Freedom ^2	−18.337***	−12.757***
	[−24.476, −12.198]	[−19.290, −6.225]
Democracy Stock	−0.139	3.446**
	[−0.930, 0.652]	[1.065, 5.827]
GDP pc log	−0.267***	−0.253***
	[−0.370, −0.164]	[−0.355, −0.152]
GDP growth	−0.040***	−0.042***
	[−0.056, −0.025]	[−0.058, −0.027]
Population log	0.024	0.024
	[−0.006, 0.054]	[−0.005, 0.054]
Regional democracy levels	−0.316	−0.098
	[−0.943, 0.312]	[−0.726, 0.529]
Judicial constraints on executive	−0.034	−0.063
	[−0.332, 0.264]	[−0.363, 0.236]
Legislative constraints on executive	0.534***	0.457**
	[0.226, 0.843]	[0.154, 0.760]
Western Europe and North America	−0.210	−0.208
	[−0.483, 0.062]	[−0.470, 0.055]
Subsaharan Africa	−0.307**	−0.194+
	[−0.518, −0.097]	[−0.414, 0.026]
Asia and Pacific	−0.321***	−0.227*
	[−0.510, −0.133]	[−0.420, −0.035]
Eastern Europe and Central Asia	0.058	0.087
	[−0.115, 0.231]	[−0.088, 0.261]
MENA	−0.286*	−0.141
	[−0.567, −0.004]	[−0.437, 0.154]
Year	0.005	0.005
	[−0.001, 0.012]	[−0.002, 0.011]
Year squared	0.000	0.000
	[0.000, 0.000]	[0.000, 0.000]
AFI * Democracy Stock		−4.688**
		[−7.616, −1.761]
Num.Obs.	10 738	10 738
AIC	2748.4	2739.9
BIC	2872.1	2871.0
Log.Lik.	−1357.181	−1351.944
F	13.870	12.324

Figure C3: Predicted Probabilities of autocratization onset by (A) Academic Freedom Index (Model 1); (B) Democracy Stock (Model 1); (C) Democracy Stock by Academic Freedom (Model 2); (D) Academic Freedom Index by Democracy Stock (Model 2).



C.7 Multiple Imputation

Table C6: Estimated effect of academic freedom on probability of autocratization onset (Multiple Imputation)

	Model 1	Model 2
Intercept	-2.972^*	-3.080^*
	$[-3.416; -2.529]$	$[-3.529; -2.631]$
Democratic Stock	-0.690	3.576^*
	$[-1.663; 0.283]$	$[1.229; 5.924]$
GDP growth	-0.034^*	-0.035^*
	$[-0.051; -0.016]$	$[-0.052; -0.017]$
GDP pc log	-0.208^*	-0.192^*
	$[-0.325; -0.090]$	$[-0.309; -0.075]$
Population log	0.031	0.033
	$[-0.008; 0.070]$	$[-0.006; 0.071]$
Academic Freedom	6.200	29.180^*
	$[-6.808; 19.207]$	$[11.306; 47.054]$
Academic Freedom ^{2}	-33.276^*	-25.106^*
	$[-42.725; -23.827]$	$[-34.961; -15.251]$
Eastern Europe and Central Asia	0.017	0.060
	$[-0.210; 0.244]$	$[-0.167; 0.287]$
MENA	-0.060	0.101
	$[-0.377; 0.258]$	$[-0.227; 0.428]$
Subsaharan Africa	-0.233	-0.097
	$[-0.487; 0.020]$	$[-0.359; 0.165]$
Western Europe and North America	-0.400^*	-0.388^*
	$[-0.727; -0.072]$	$[-0.711; -0.065]$
Asia and Pacific	-0.205	-0.103
	$[-0.434; 0.024]$	$[-0.334; 0.128]$
Regional democracy levels	0.606	0.811
	$[-0.219; 1.431]$	$[-0.009; 1.631]$
Judicial constraints on executive	0.361^*	0.325
	$[0.034; 0.689]$	$[-0.002; 0.653]$
Legislative constraints on executive	0.552^*	0.478^*
	$[0.227; 0.878]$	$[0.154; 0.801]$
Year	0.016^*	0.016^*
	$[0.008; 0.025]$	$[0.008; 0.024]$
Year squared	-0.000^*	-0.000^*
	$[-0.000; -0.000]$	$[-0.000; -0.000]$
AFI * Democratic Stock		-5.804^*
		$[-8.830; -2.779]$
Num.Obs.	13 833	13 833
AIC	2031.063	2020.324
Null Deviance	2039.346	2038.842

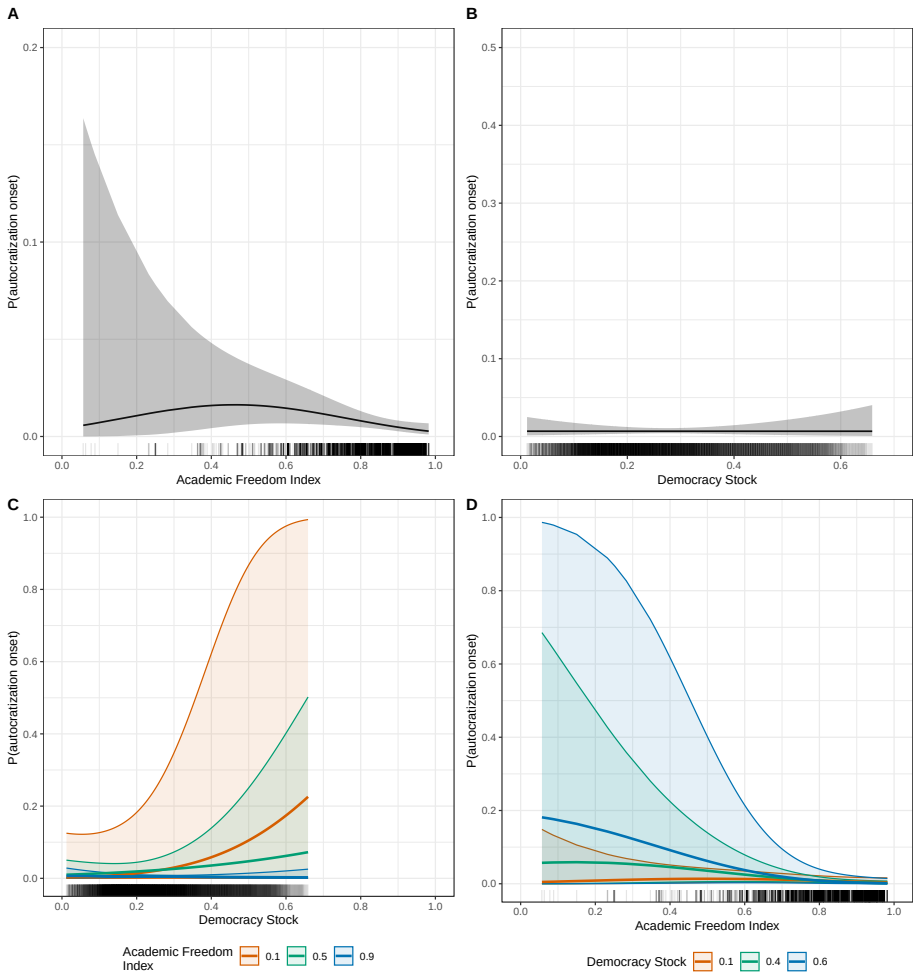
* Null hypothesis value outside the confidence interval.

C.8 Autocratization Onset Probability in Democracies

Table C7: Estimated effect of academic freedom on probability of autocratization onset (in democracies)

	Model 1	Model 2
Intercept	−1.784***	−1.822***
	[−2.518, −1.050]	[−2.536, −1.108]
Academic Freedom	−10.636**	−3.701
	[−17.569, −3.702]	[−15.603, 8.202]
Academic Freedom ^2	−4.294+	−3.448+
	[−8.742, 0.153]	[−7.304, 0.408]
Democracy Stock	−0.005	3.601
	[−1.498, 1.488]	[−1.540, 8.741]
GDP pc log	−0.202*	−0.216*
	[−0.398, −0.007]	[−0.408, −0.023]
GDP growth	−0.033*	−0.036*
	[−0.067, 0.000]	[−0.070, −0.003]
Population log	0.114***	0.114***
	[0.068, 0.161]	[0.068, 0.160]
Regional democracy levels	−1.564*	−1.457*
	[−2.760, −0.368]	[−2.627, −0.286]
Judicial constraints on executive	−0.480	−0.436
	[−1.290, 0.330]	[−1.251, 0.379]
Legislative constraints on executive	0.354	0.320
	[−0.463, 1.171]	[−0.496, 1.135]
Western Europe and North America	0.061	0.103
	[−0.432, 0.553]	[−0.414, 0.621]
Subsaharan Africa	−0.425+	−0.411+
	[−0.886, 0.036]	[−0.865, 0.044]
Asia and Pacific	−0.346+	−0.338+
	[−0.758, 0.065]	[−0.736, 0.061]
Eastern Europe and Central Asia	0.438**	0.452**
	[0.131, 0.745]	[0.145, 0.760]
MENA	−0.594+	−0.580+
	[−1.223, 0.036]	[−1.201, 0.041]
Year	−0.008	−0.007
	[−0.022, 0.005]	[−0.021, 0.007]
Year squared	0.000*	0.000*
	[0.000, 0.000]	[0.000, 0.000]
AFI * Democracy Stock		−4.517
		[−10.656, 1.622]
Num.Obs.	4306	4306
AIC	514.7	515.9
BIC	623.0	630.5
Log.Lik.	−240.351	−239.945
F	10.070	9.771

Figure C4: Predicted Probabilities of autocratization onset in democracies by (A) Academic Freedom Index (Model 1); (B) Democracy Stock (Model 1); (C) Democracy Stock by Academic Freedom (Model 2); (D) Academic Freedom Index by Democracy Stock (Model 2).

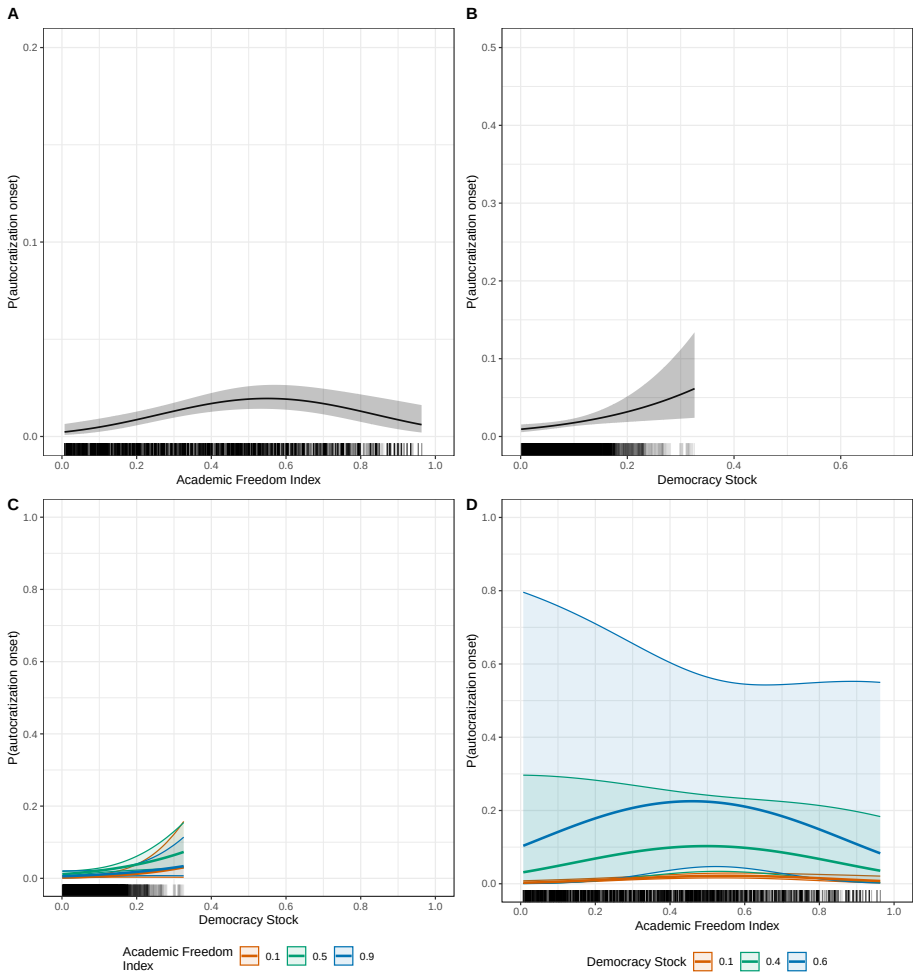


C.9 Autocratization Onset Probability in Autocracies

Table C8: Estimated effect of academic freedom on probability of autocratization onset (in autocracies)

	Model 1	Model 2
Intercept	−3.754***	−3.761***
	[−4.416, −3.092]	[−4.414, −3.109]
Academic Freedom	14.079**	15.771*
	[5.415, 22.744]	[0.700, 30.842]
Academic Freedom ^2	−12.467***	−11.905***
	[−18.387, −6.548]	[−18.291, −5.519]
Democracy Stock	2.487**	3.007
	[0.918, 4.055]	[−0.759, 6.773]
GDP pc log	−0.153*	−0.152*
	[−0.296, −0.010]	[−0.295, −0.010]
GDP growth	−0.039***	−0.039***
	[−0.057, −0.020]	[−0.057, −0.020]
Population log	0.004	0.005
	[−0.050, 0.057]	[−0.049, 0.058]
Regional democracy levels	2.531***	2.520***
	[1.506, 3.556]	[1.507, 3.533]
Judicial constraints on executive	0.519**	0.518**
	[0.163, 0.876]	[0.163, 0.874]
Legislative constraints on executive	0.569**	0.563**
	[0.215, 0.923]	[0.209, 0.917]
Western Europe and North America	−0.538*	−0.534*
	[−0.960, −0.115]	[−0.951, −0.116]
Subsaharan Africa	0.354*	0.358*
	[0.059, 0.649]	[0.064, 0.653]
Asia and Pacific	0.268*	0.273*
	[0.007, 0.528]	[0.009, 0.536]
Eastern Europe and Central Asia	−0.126	−0.127
	[−0.431, 0.178]	[−0.428, 0.175]
MENA	0.571**	0.579**
	[0.194, 0.948]	[0.192, 0.966]
Year	0.023***	0.023***
	[0.013, 0.034]	[0.012, 0.034]
Year squared	0.000***	0.000***
	[0.000, 0.000]	[0.000, 0.000]
AFI * Democracy Stock		−0.943
		[−7.249, 5.363]
Num.Obs.	6684	6684
AIC	1191.6	1193.6
BIC	1307.4	1316.1
Log.Lik.	−578.814	−578.802
F	11.443	10.907

Figure C5: Predicted Probabilities of autocratization onset in autocracies by (A) Academic Freedom Index (Model 1); (B) Democracy Stock (Model 1); (C) Democracy Stock by Academic Freedom (Model 2); (D) Academic Freedom Index by Democracy Stock (Model 2).

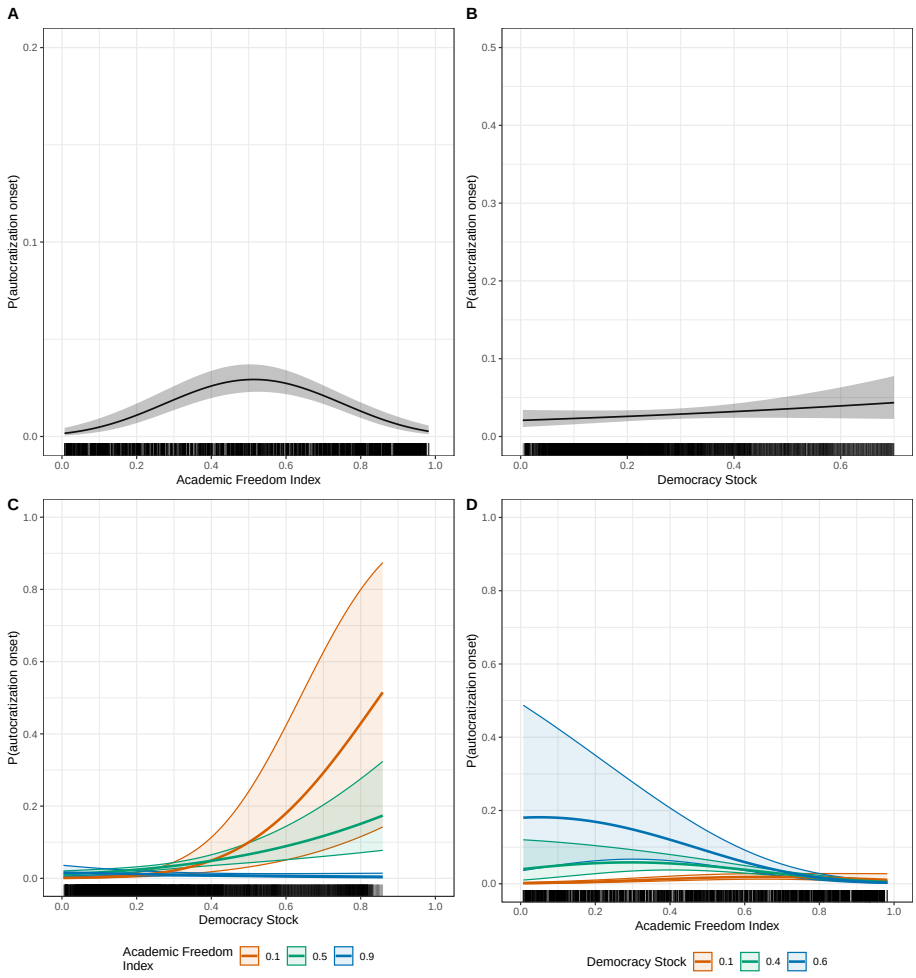


C.10 Democratic Stock 0.05 Depreciation Rate

Table C9: Estimated effect of academic freedom on probability of autocratization onset

	Model 1	Model 2
Intercept	−2.791***	−2.846***
	[−3.197, −2.385]	[−3.232, −2.461]
Academic Freedom	0.283	37.546***
	[−13.147, 13.713]	[18.822, 56.271]
Academic Freedom ^2	−31.440***	−16.677***
	[−39.205, −23.675]	[−25.150, −8.204]
Democracy Stock	0.467	4.206***
	[−0.166, 1.101]	[2.572, 5.839]
GDP pc log	−0.291***	−0.269***
	[−0.423, −0.159]	[−0.398, −0.141]
GDP growth	−0.039***	−0.042***
	[−0.057, −0.021]	[−0.060, −0.024]
Population log	0.038*	0.039*
	[0.004, 0.072]	[0.006, 0.071]
Regional democracy levels	0.130	0.278
	[−0.634, 0.893]	[−0.488, 1.045]
Judicial constraints on executive	0.307+	0.265
	[−0.032, 0.646]	[−0.073, 0.603]
Legislative constraints on executive	0.475*	0.379*
	[0.106, 0.844]	[0.031, 0.728]
Western Europe and North America	−0.351*	−0.307+
	[−0.679, −0.023]	[−0.622, 0.008]
Subsaharan Africa	−0.191	−0.094
	[−0.430, 0.047]	[−0.333, 0.145]
Asia and Pacific	−0.174	−0.112
	[−0.390, 0.042]	[−0.321, 0.097]
Eastern Europe and Central Asia	0.111	0.126
	[−0.095, 0.318]	[−0.078, 0.329]
MENA	−0.006	0.104
	[−0.321, 0.309]	[−0.216, 0.424]
Year	0.013**	0.013**
	[0.005, 0.021]	[0.005, 0.021]
Year squared	0.000*	0.000**
	[0.000, 0.000]	[0.000, 0.000]
AFI * Democracy Stock		−5.270***
		[−7.478, −3.062]
Num.Obs.	10 996	10 996
AIC	1773.6	1757.1
BIC	1897.8	1888.6
Log.Lik.	−869.797	−860.530
F	14.073	13.635

Figure C6: Predicted Probabilities of autocratization onset in autocracies by (A) Academic Freedom Index (Model 1); (B) Democracy Stock (Model 1); (C) Democracy Stock by Academic Freedom (Model 2); (D) Academic Freedom Index by Democracy Stock (Model 2).



C.11 Split Sample: 1900-1989 and 1990 - 2021

Table C10: Estimated effect of academic freedom on probability of autocratization onset

	Model 1 1900-1989	Model 2 1900-1989
Intercept	−3.320*** [−3.905, −2.736]	−3.441*** [−4.022, −2.860]
Academic Freedom	−6.470 [−18.568, 5.628]	13.132 [−2.927, 29.190]
Academic Freedom ^2	−26.556*** [−34.316, −18.795]	−20.277*** [−28.359, −12.195]
Democracy Stock	−0.968 [−2.190, 0.254]	4.141* [0.773, 7.510]
GDP pc log	−0.288** [−0.481, −0.094]	−0.276** [−0.465, −0.086]
GDP growth	−0.062*** [−0.088, −0.036]	−0.065*** [−0.090, −0.039]
Population log	0.031 [−0.014, 0.076]	0.032 [−0.012, 0.076]
Regional democracy levels	0.883+ [−0.137, 1.904]	1.065* [0.030, 2.100]
Judicial constraints on executive	0.390* [0.005, 0.775]	0.357+ [−0.027, 0.740]
Legislative constraints on executive	0.930*** [0.499, 1.362]	0.796*** [0.376, 1.215]
Western Europe and North America	−0.416+ [−0.855, 0.023]	−0.414+ [−0.842, 0.014]
Subsaharan Africa	−0.166 [−0.442, 0.111]	0.025 [−0.282, 0.333]
Asia and Pacific	−0.492*** [−0.752, −0.233]	−0.341* [−0.610, −0.072]
Eastern Europe and Central Asia	−0.140 [−0.435, 0.155]	−0.120 [−0.410, 0.171]
MENA	−0.197 [−0.542, 0.148]	0.016 [−0.367, 0.399]
Year	0.038*** [0.023, 0.053]	0.038*** [0.023, 0.053]
Year squared	0.000*** [0.000, 0.000]	0.000*** [−0.001, 0.000]
AFI * Democracy Stock		−6.962** [−11.321, −2.603]
Num.Obs.	6687	6687
AIC	1052.4	1047.6
BIC	1168.1	1170.1
Log.Lik.	−509.179	−505.794
F	13.962	12.999
Std.Errors	Stata	Stata

Figure C7: Predicted Probabilities of autocratization onset in autocracies by (A) Academic Freedom Index (Model 1); (B) Democracy Stock (Model 1); (C) Democracy Stock by Academic Freedom (Model 2); (D) Academic Freedom Index by Democracy Stock (Model 2).

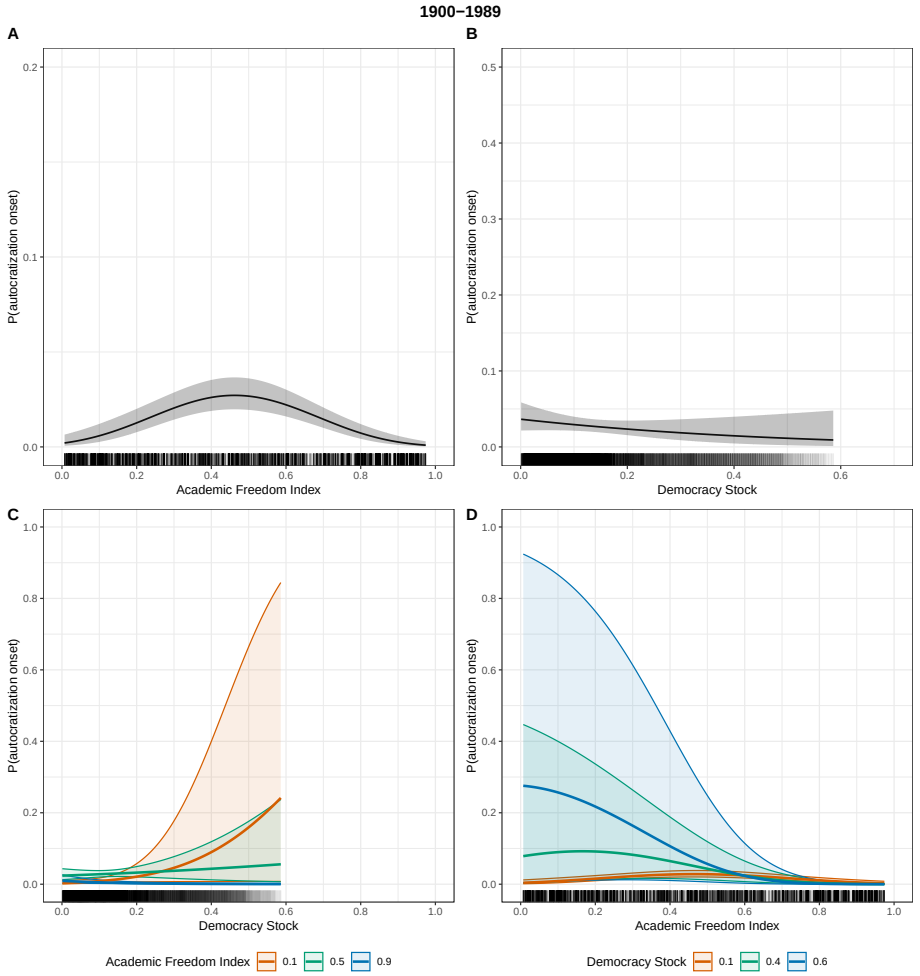
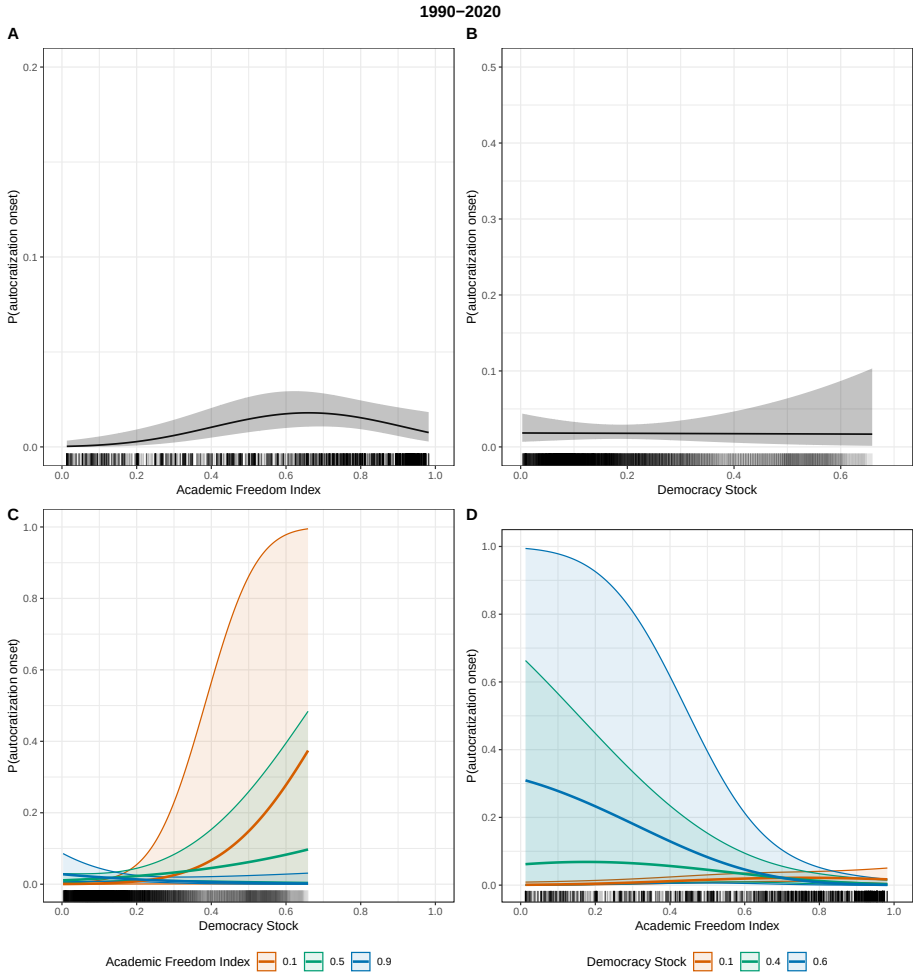


Table C11: Estimated effect of academic freedom on probability of autocratization onset

	Model 1 1990-2020	Model 2 1990-2020
Intercept	−15.331+ [−33.216, 2.554]	−15.513+ [−33.138, 2.113]
Academic Freedom	14.504* [2.817, 26.190]	30.806*** [12.627, 48.984]
Academic Freedom ^2	−15.120*** [−21.992, −8.248]	−9.247** [−16.174, −2.321]
Democracy Stock	−0.053 [−1.453, 1.346]	5.301* [0.517, 10.086]
GDP pc log	−0.218** [−0.358, −0.079]	−0.218** [−0.358, −0.078]
GDP growth	−0.053*** [−0.080, −0.025]	−0.054*** [−0.082, −0.027]
Population log	0.087** [0.035, 0.140]	0.089*** [0.037, 0.141]
Regional democracy levels	0.836 [−0.986, 2.658]	0.556 [−1.235, 2.347]
Judicial constraints on executive	0.458 [−0.177, 1.093]	0.442 [−0.179, 1.063]
Legislative constraints on executive	−0.141 [−0.675, 0.394]	−0.157 [−0.670, 0.355]
Western Europe and North America	−1.006*** [−1.489, −0.523]	−0.559* [−1.073, −0.045]
Subsaharan Africa	0.162 [−0.382, 0.706]	0.058 [−0.471, 0.587]
Asia and Pacific	0.443+ [−0.069, 0.955]	0.317 [−0.173, 0.807]
Eastern Europe and Central Asia	0.404* [0.032, 0.777]	0.327+ [−0.032, 0.687]
MENA	0.581 [−0.256, 1.418]	0.448 [−0.362, 1.258]
Year	0.224 [−0.120, 0.568]	0.231 [−0.109, 0.570]
Year squared	−0.001 [−0.003, 0.001]	−0.001 [−0.003, 0.001]
AFI * Democracy Stock		−7.558* [−13.732, −1.384]
Num.Obs.	4309	4309
AIC	695.4	693.9
BIC	803.6	808.5
Log.Lik.	−330.679	−328.949
F	52.784	46.042
Std.Errors	Stata	Stata

Figure C8: Predicted Probabilities of autocratization onset in autocracies by (A) Academic Freedom Index (Model 1); (B) Democracy Stock (Model 1); (C) Democracy Stock by Academic Freedom (Model 2); (D) Academic Freedom Index by Democracy Stock (Model 2).



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