

APPENDIX
Regression Equations for Enrollments, Growth,
and Political Regimes, 1881 - 1937

**Appendix Table A. Regression Equations for School Enrollment Rates
per 1000 Children 5-14 , 24 Countries in 1881 - 1937**

Dependent variables:	<u>Public-school enrollments per 1,000 children 5-14</u>				
	(1) primary only		(2) primary only		
	<u>coeff.</u>	<u> t </u>	<u>coeff.</u>	<u> t </u>	
School-age (5-14) share of total pop.	-7.80	(2.94) **	-4.59	(1.98) a	Primary enrol:
ln (GDP/capita), 8 years earlier	167.6	(8.71) **	117.3	(7.42) **	School-age (5
<i>Religion</i>					ln (GDP/capit
Catholic dominance	-418.7	(6.46) **			<i>Political regime v</i>
Protestant dominance	-154.9	(1.55)			Autocracy ind
<i>Political regime variables (see also "Effects" below):</i>					Did women vo
Autocracy index (0-10)	2.57	(1.11)	4.42	(2.48) *	Franchised as
Did women vote 8 years earlier?	-1.6	(0.10)	-3.4	(0.27)	Franchised sh:
Franchised as a % of population over 20	-0.8	(0.34)	-0.6	(0.36)	Franchised sh:
Franchised share, squared	0.060	(1.15)	0.1	(1.47)	Greece in the
Franchised share, cubed	-0.00050	(1.68) a	0.0	(2.10) *	Constant term
Constant term	-506.6	(2.87)	-149.6	(1.00)	
Allowing for 23 fixed country effects?	No		Yes		Allowing for :
"R sq.," equation F-statistic	.574	28.7	.879	46.6	"R sq.," equation
Mean of the dep. var., std. error of estim.	550.42	0.98	550.42	0.97	Mean of the dep.
					Number of non-z
<i>Effects of selected shifts toward more electoral democracy:</i>					<i>Effects of selectea</i>
(a) from benign non-democracy to 30% franchi	16.6	(0.51)	20.08	(0.85)	(a) from benign v
(b) from 30% franchise to 80% franchise	48.2	(1.49)	51.26	(2.11) *	(b) from 30% fra
(c) from benign non-democracy to 80% franchi	64.8	(3.21) **	71.35	(4.06) **	(c) from benign n
(d) from benign non-democracy to 100% franchi	21.3	(1.21)	31.15	(1.92) a	(d) from benign n
Type of equation	pooled GLS		pooled GLS		Type of equation
					(** = significant :
					a = significant

Notes and sources to Table A:

Appendix Table A, continued

Dependent variables:	<u>Enrollments per 1,000 children 5-14</u>			
	(3) primary plus secondary (public)		(4) university (public + private)	
	<u>coeff.</u>	<u> t </u>	<u>coeff.</u>	<u> t </u>
Enrollment rate, 8 years earlier	0.82	##### **	-0.0018	(0.52)
-14) share of total pop.	-2.8	(1.48)	-0.7	(4.21) **
Enrollment rate, 8 years earlier	79.3	(6.78) **	6.6	(5.63) **
<i>Control variables (see also "Effects" below):</i>				
Age (0-10)	1.2	(0.80)	-0.17	(1.16)
Enrollment rate 8 years earlier?	-3.8	(0.31)	5.0	(5.14) **
Share of population over 20	-0.78	(0.39)	0.43	(3.01) **
Area, squared	0.030	(0.63)	-0.011	(3.32) **
Area, cubed	#####	(0.77)	#####	(3.40) **
1920s (secondary overcounted)	101.1	(2.83) **	-5.6	(2.16) *
Constant	-421.3	(4.34)	-31.2	#####
23 fixed country effects?	Yes		Yes	
F-statistic	.983	338.0	.793	
var., std. error of estim.	581.8	0.97	5.6	3.09
Number of observations, out of 192			7	
<i>Shifts toward more electoral democracy:</i>				
Transition from non-democracy to 30% franchise	-2.6	(0.10)	1.5	(2.46) *
Transition from 30% to 80% franchise	18.8	(0.65)	-2.3	(3.44) **
Transition from non-democracy to 80% franchise	16.2	(0.99)	-0.8	(2.21) *
Transition from non-democracy to 100% franchise	1.3	(0.11)	-0.2	(0.56)
	pooled GLS		tobit	

at the 1% level, two-tail; * = significant at the 5% level;

t at the 7% level; b = significant at the 10% level.)

Mexico, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Siam/Thailand, the United Kingdom, and the United States. The eight benchmark years are spaced eight years apart: 1881, 1889, 1897, 1905, 1913, 1921, 1929, and 1937.

The fact that territorial boundaries changed across World War I (e.g. from the Austrian half of the Austro-Hungarian Empire to Austria alone) should pose no problem here, given that the sample is intended to capture political changes. The only likely violation of the usual statistical assumptions comes from the fact that serial correlation behavior might not be consistent if the geography of the country changed.

The enrollment rates are from Lindert, "Democracy, Decentralization, and Mass Schooling before 1914," University of California - Davis, Working Papers 104 and 105 (April 2001), Appendix A. To interpolate between my decadal benchmark estimates, I used some of the enrollment figures from the Arthur S. Banks CD-ROM for 1815-1999. But in some cases, especially the UK, I prefer my own estimates over those than Banks presents without citing his sources.

The franchise are the shares of the over-20 population legally entitled to vote, in settings where I judged the voting power to be real (see below). For years when women were not yet entitled to vote, the over-20 population refers to men only. Alternative regressions used the actual voter turnout instead of the franchise share used here. The results were qualitatively the same, both in the regressions using voter turnout and in similar regressions on the 1880-1930 decadal sample results reported in Agricultural History Center Working Papers 104 and 105. The franchise and voting shares are from the Arthur S. Banks cross-polity CD-ROM for 1815-1999, which draws them mainly from Mackie and Rose (1991). The autocracy index is from the Polity 98 version of the Gurr-Jagers Polity data set.

The franchise voting power was judged to be illusory and not real in cases where the Banks indexes and the Mackie description of franchise institutions suggested that voters had little power over the legislature and the chief executive, despite their actually voting in legislative elections. Thus I entered zeroes for the franchise in these cases where elections were actually held: Belgium, Germany and Italy up to World War I; Norway to 1882, and Sweden to 1907.

Both the autocracy index and the franchise shares are predicted values, rather than actual observed values. The instrumental-variable equations generating these predictions are the political-regime equations in Appendix Table C.

Protestant dominance = the corresponding majority margin for Protestant countries, with some cases judged to involve no dominance despite a Protestant majority. It equals nearly 0.50 for Denmark, Finland, Norway, and Sweden. It equals 0.16 for the UK before the separation of Ireland, and 0.10 for 1921-1937.

The religion data are mostly from *Annuaire Statistique de la France* for the 1930s. Those from France, the UK and a few other countries are from encyclopedias, in some cases for postwar years.

"Benign" non-democracy here refers to a polity with an autocracy rating of zero, but with enough impediments to legislative effectiveness and enough power of the monarch for me to disregard any suffrage rates, setting them at zero despite the occurrence of elections. The only pure example in the sample is Norway 1898-1913, though prewar Belgium came close, with autocracy = 1.

For Greece in the 1920s, I used the Banks data series on secondary and higher education rather than the less complete Mitchell series. However, the Banks series seems to overcount secondary enrollments, partly at the expense of tertiary enrollments. This necessitated adding the "Greece in the 1920s" variable to capture the temporary miscount.

The test statistics listed under "effects" at the bottom of the table start from the most limited autocracies, those with a Polity AUTOC index of 0, combined with my judgment that they were nonetheless not democracies. For stricter autocracies, note the autocracy index coefficient.

Regressions were run using the POOL command in SHAZAM 8.0, using the option that sets the same first-order rho coefficient for all countries in making the Cochrane-Orcutt transformation.

