Education and Democracy

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The Case for Education

- Cross-sectional results are at least as strong as for institutions– including using long lags.
- Timing suggests that education predicts institutions far better than the reverse
- Changes on changes are least clear, but still can be seen as supportive.
- A coherent framework linking education and democracy.

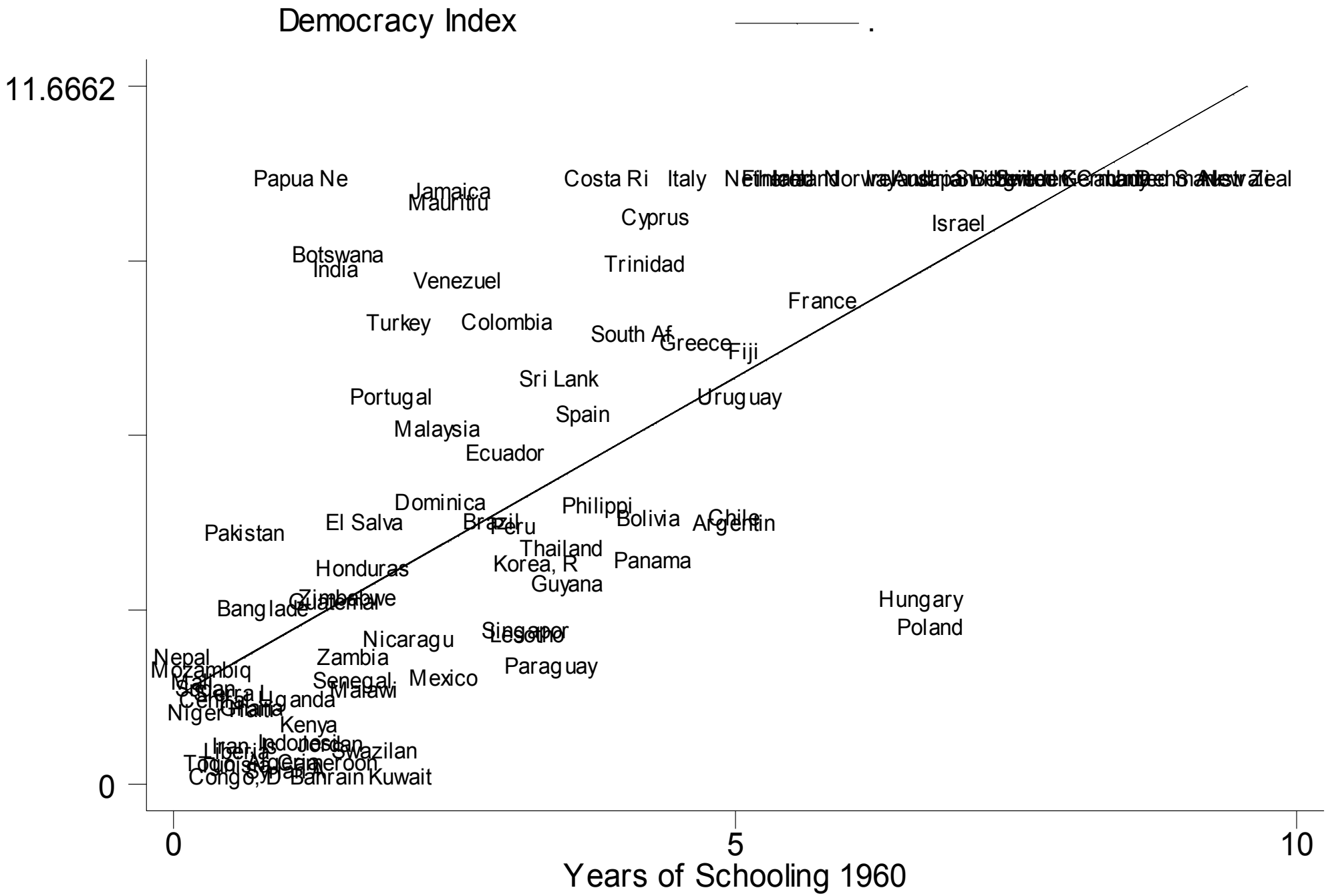


Figure 1: Education and Democracy

Causality and Timing

- Barro evidence on income and democracy
- Figure 2 shows the 66 percent correlation between the change in the Jaggers and Marshall (2003) democracy score and years of schooling in 1960 (from Barro and Lee) for countries that had low democracy ratings (zero or one) in 1960.

- For the entire sample (66 countries)

$$\text{Change in Democracy} = \underset{(.48)}{4.13} - \underset{(.09)}{.98} \bullet \text{Democracy in 1960} + \underset{(.15)}{.84} \bullet \text{Schooling in 1960}$$

R-squared is 67 percent.

In contrast, democracy does not predict growth in schooling.

$$\text{Change in Schooling} = \underset{(.28)}{2.80} + \underset{(.05)}{.07} \bullet \text{Democracy in 1960} - \underset{(.09)}{.08} \bullet \text{Schooling in 1960}$$

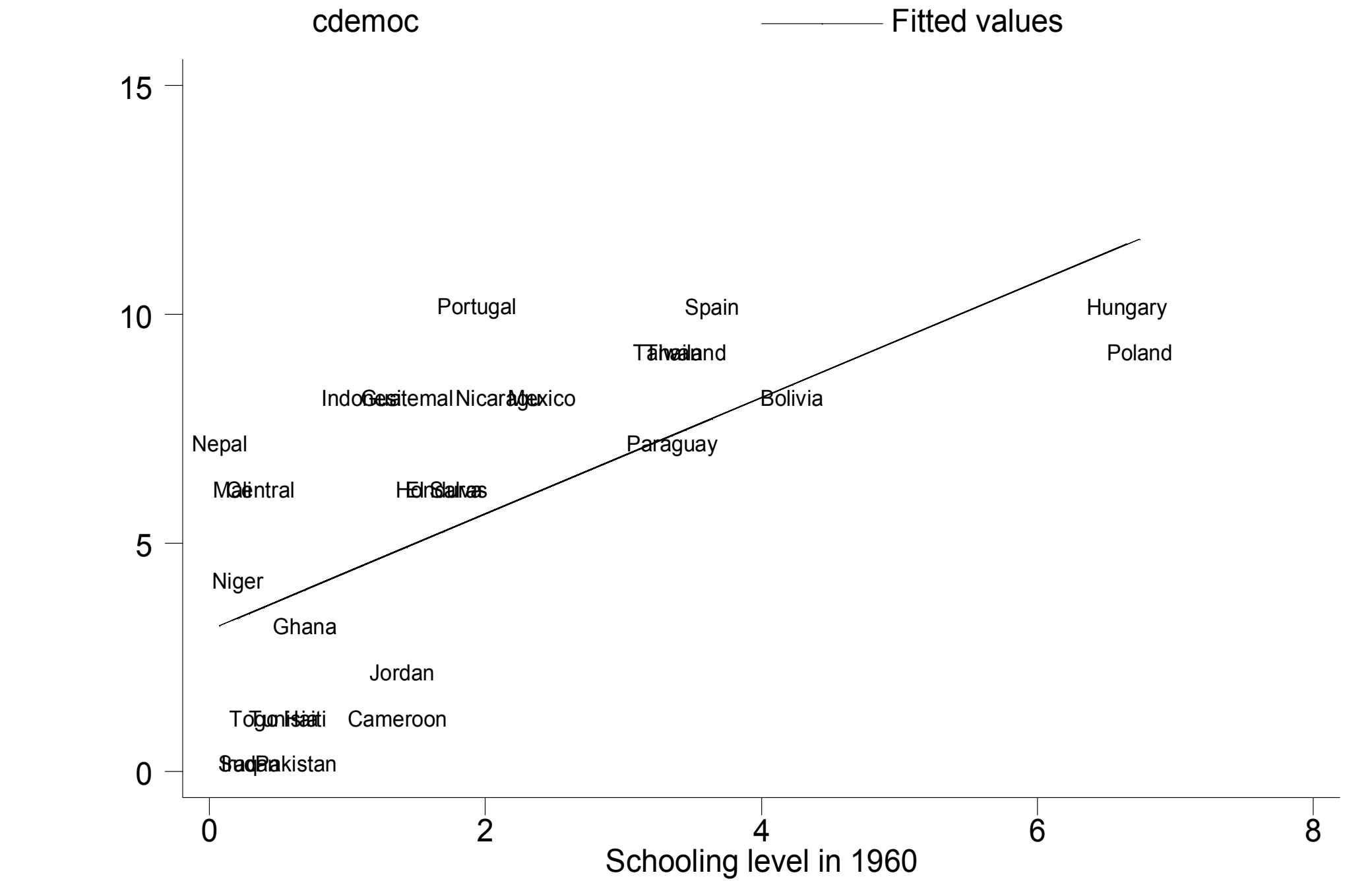


Figure 2: Schooling and the Growth of Democracy 1960-2000

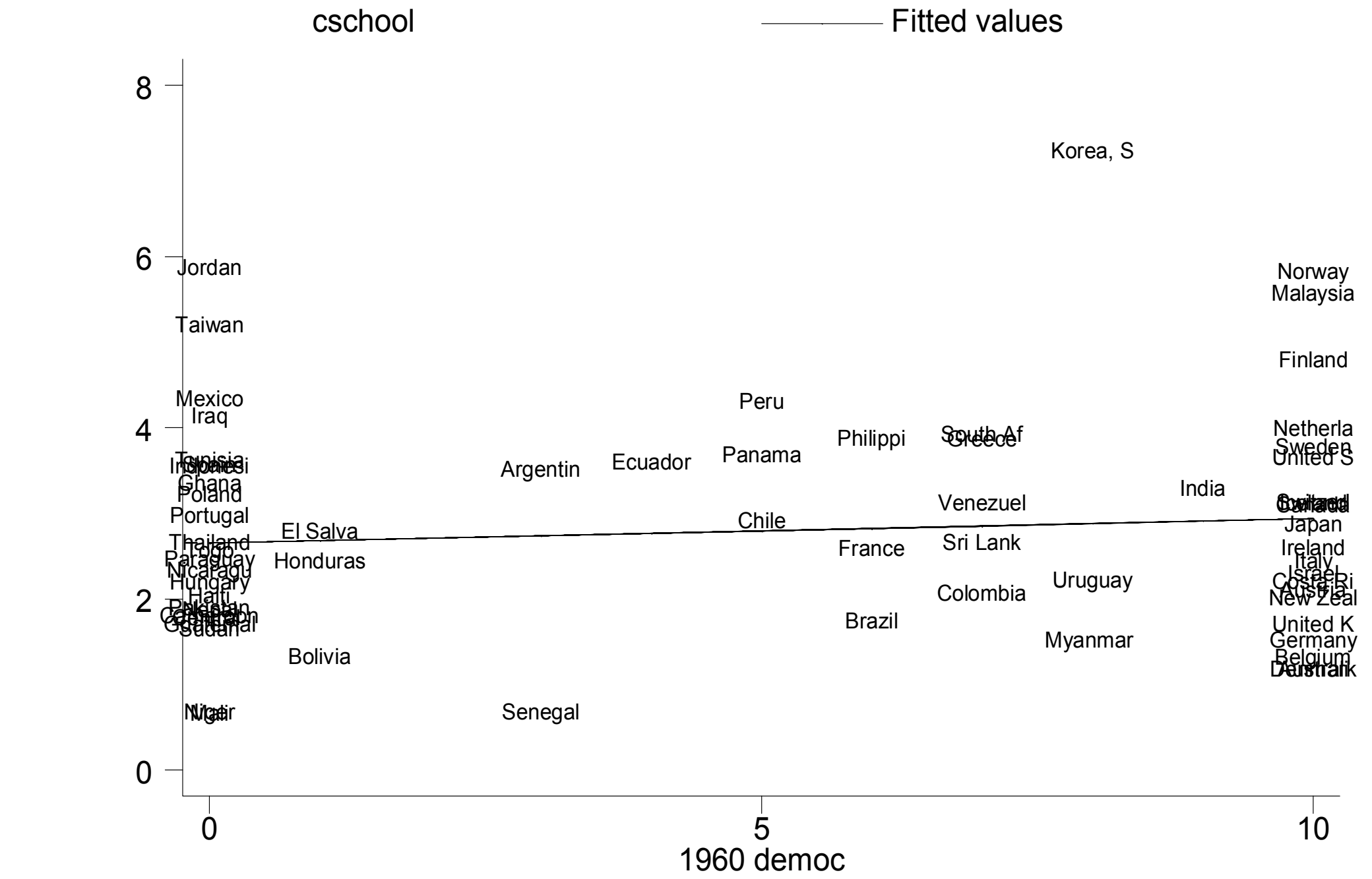


Figure 3: Democracy and the Growth of Schooling 1960-2000

	Panel A: Dependent variable is the 5-year change in years of schooling (t+5,t)			
Years of schooling (t)	-0.0721[a]	-0.0460	-0.0707[a]	-0.0691[a]
	(0.0237)	(0.0339)	(0.0250)	(0.0239)
Log GDP per capita (t)	0.2839[a]	0.3978[a]	0.2809[a]	0.2825[a]
	(0.0790)	(0.1055)	(0.0797)	(0.0793)
Executive constraints (t)	-0.0099			
	(0.0118)			
Autocracy -- Polity IV (t)		0.0373		
		(0.0391)		
Autocracy -- Alvarez (t)			0.0065	
			(0.0080)	
Democracy (t)				-0.0094
				(0.0074)
Observations	514	420	514	514
R^2	0.24	0.26	0.24	0.24
	Panel B: Dependent variables are the 5-year changes in political institutions (t+5,t)			
	Change executive constraints	Change autocracy -- Polity IV	Change autocracy -- Alvarez	Change democracy
Years of schooling (t)	0.4975[a]	-0.9092[a]	-0.0958	0.7004[a]
	(0.1191)	(0.1790)	(0.0707)	(0.1804)
Log GDP per capita (t)	0.0382	0.5075	-0.2675	0.2918
	(0.4035)	(0.6295)	(0.2022)	(0.6055)
Executive constraints (t)	-0.5724[a]			
	(0.0716)			
Autocracy -- Polity IV (t)		-0.5471[a]		
		(0.0680)		
Autocracy -- Alvarez (t)			-0.8642[a]	
			(0.1032)	
Democracy (t)				-0.5145[a]
				(0.0650)
Observations	499	499	349	499
R^2	0.33	0.32	0.47	0.30

a=significant at 1 percent; b=significant at 5 percent; c=significant at 10 percent.

Finally, Fixed Effects

- These are by far the least compelling results– primarily because of the permanence of education.

- Still, it is a reasonable testable hypothesis that over a long enough period, changes in education and changes in democracy should go together.

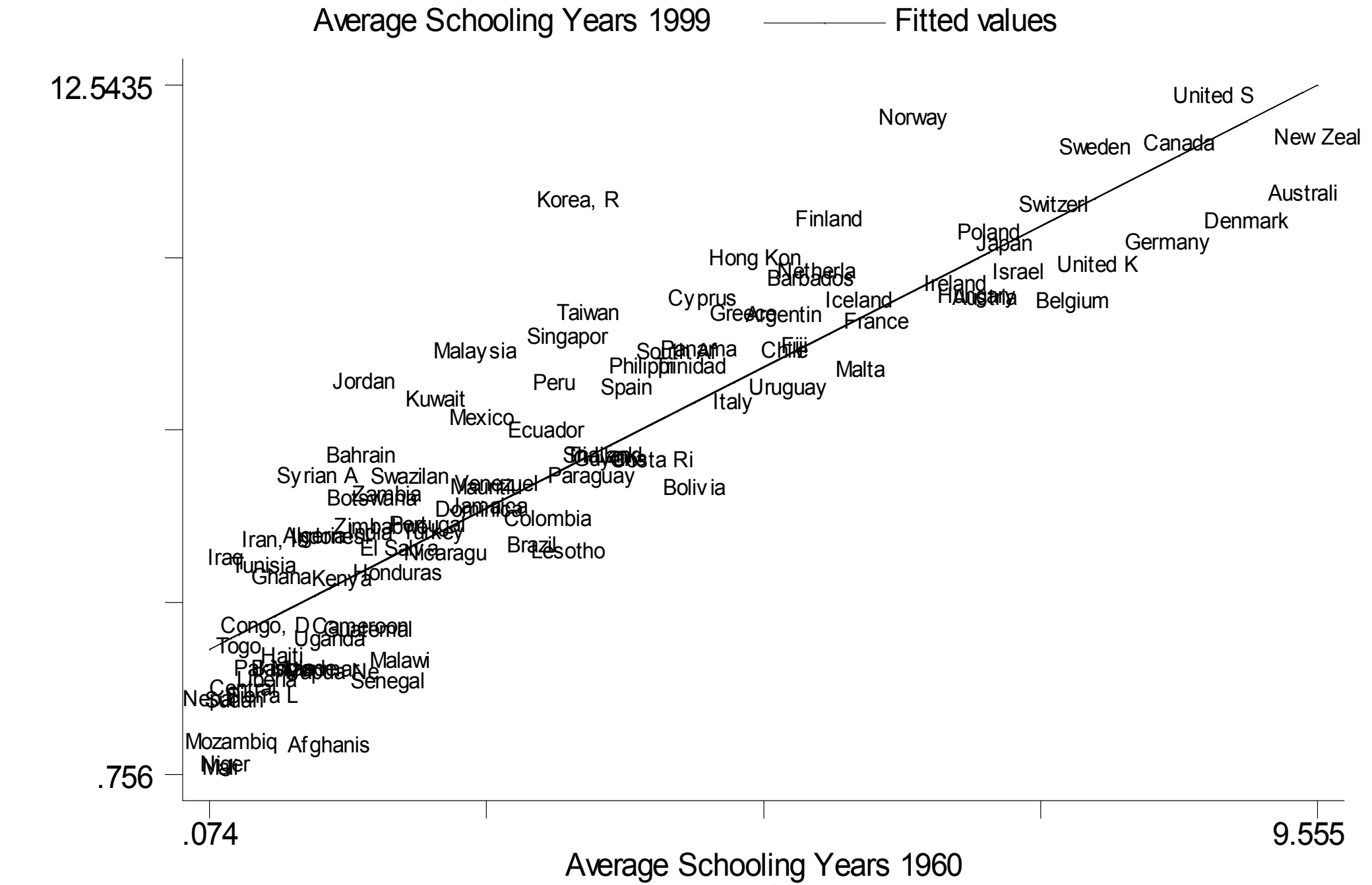

Average Schooling Years 1999
Fitted values
12.5435
.756
.074
9.555
Average Schooling Years 1960
United S
Norway
Sweden
Canada
New Zeal
Korea, R
Australi
Switzerl
Finland
Denmark
Poland
Japan
Germany
Hong Kon
United K
Israel
Barbados
Ireland
Cyprus
Iceland
Belgium
France
Taiwan
Singapor
Malaysia
Malta
Jordan
Peru
Spain
Uruguay
Italy
Kuwait
Mexico
Ecuador
Bahrain
Paraguay
Bolivia
Colombia
Brazil
Lesotho
Honduras
Ghana
Kenya
Tunisia
Iraq
Togo
Uganda
Haiti
Malawi
Senegal
Mozambiq
Afghanis
Niger
Average Schooling Years 1960
The Permanence of Education

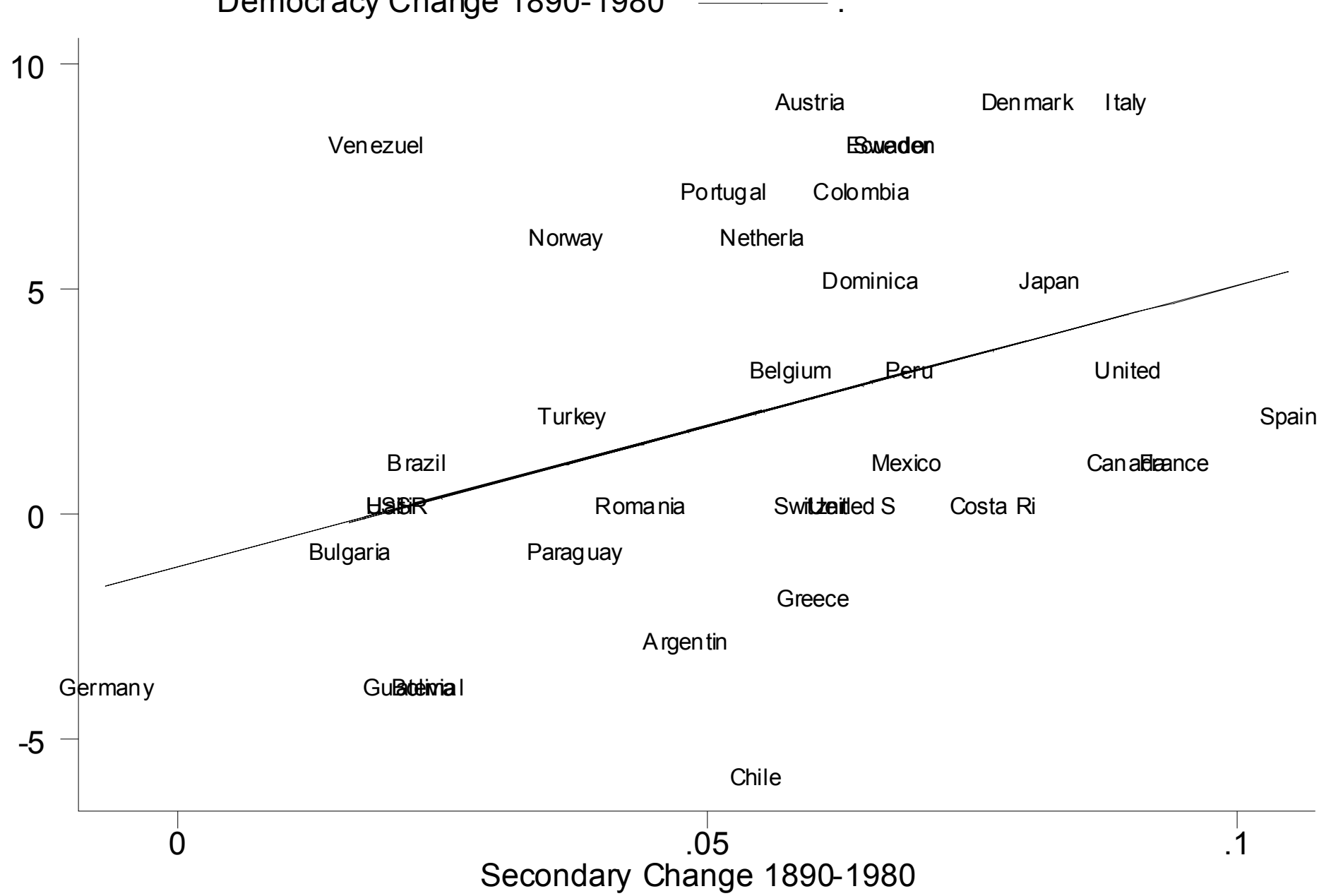
Table 2 - The Effect of Education on Democracy, 1865-2000

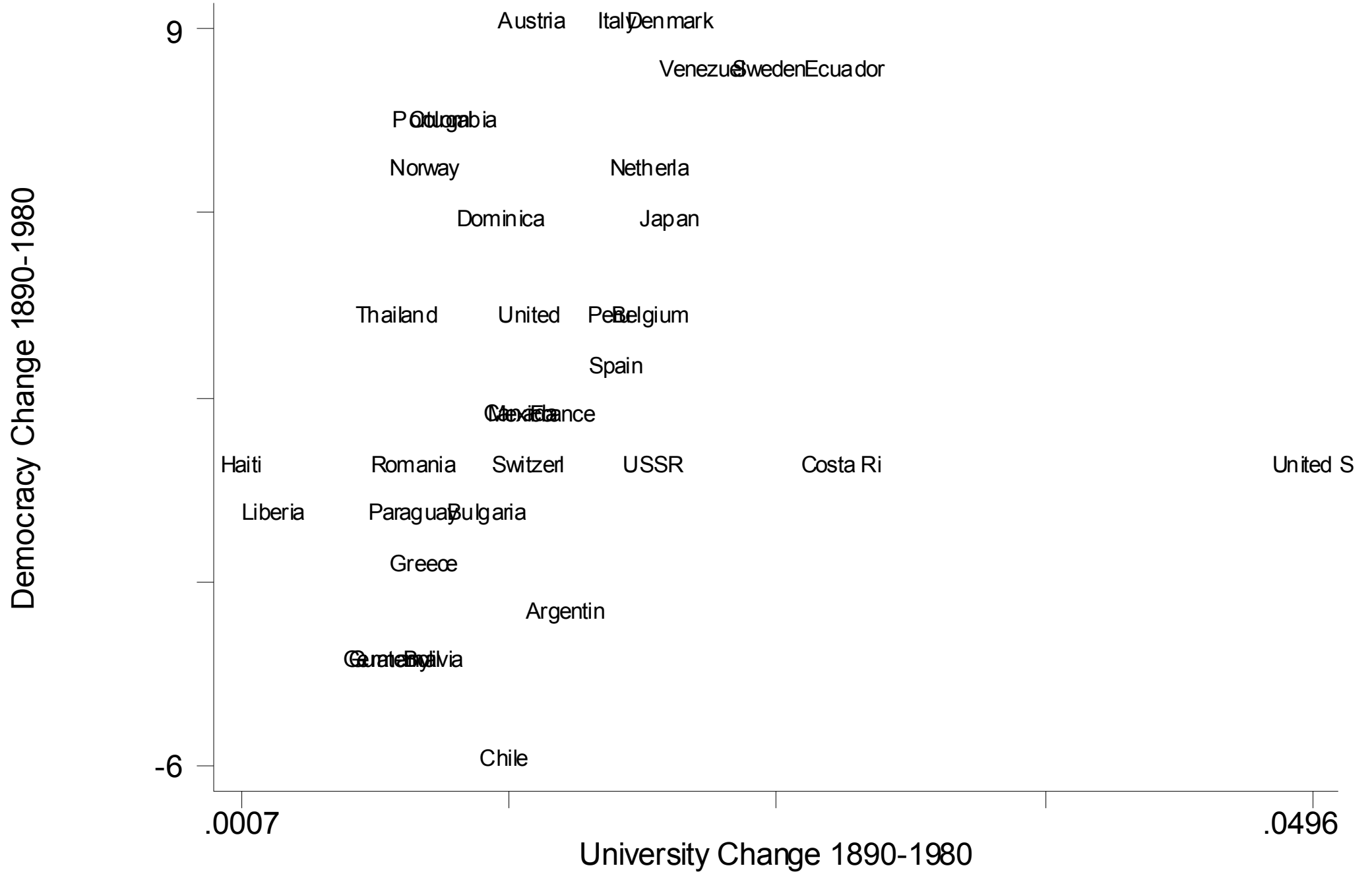
Independent Variable	1960-2000 Only	1960-2000 Only	1960-2000 Only	1865-2000	1865-2000	1865-2000 with no country clustering	1865-2000 with country clustering
Secondary Coefficient	-	0.181		0.290	-	0.238	0.499
		(0.053)		(0.046)		(0.496)	(0.136)
University Coefficient	-	-	0.633	-	0.850	0.532	1.825
			(0.196)		(0.172)	(0.183)	(0.430)
Years of Schooling	-0.237	-	-	-	-	-	-
	(0.150)						
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	No
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	101	132	132	133	133	133	133
Years	9	9	9	25	25	25	25
Observations	777	691	691	1316	1316	1316	1316
R-Squared	0.799	0.879	0.879	0.788	0.786	0.790	0.210

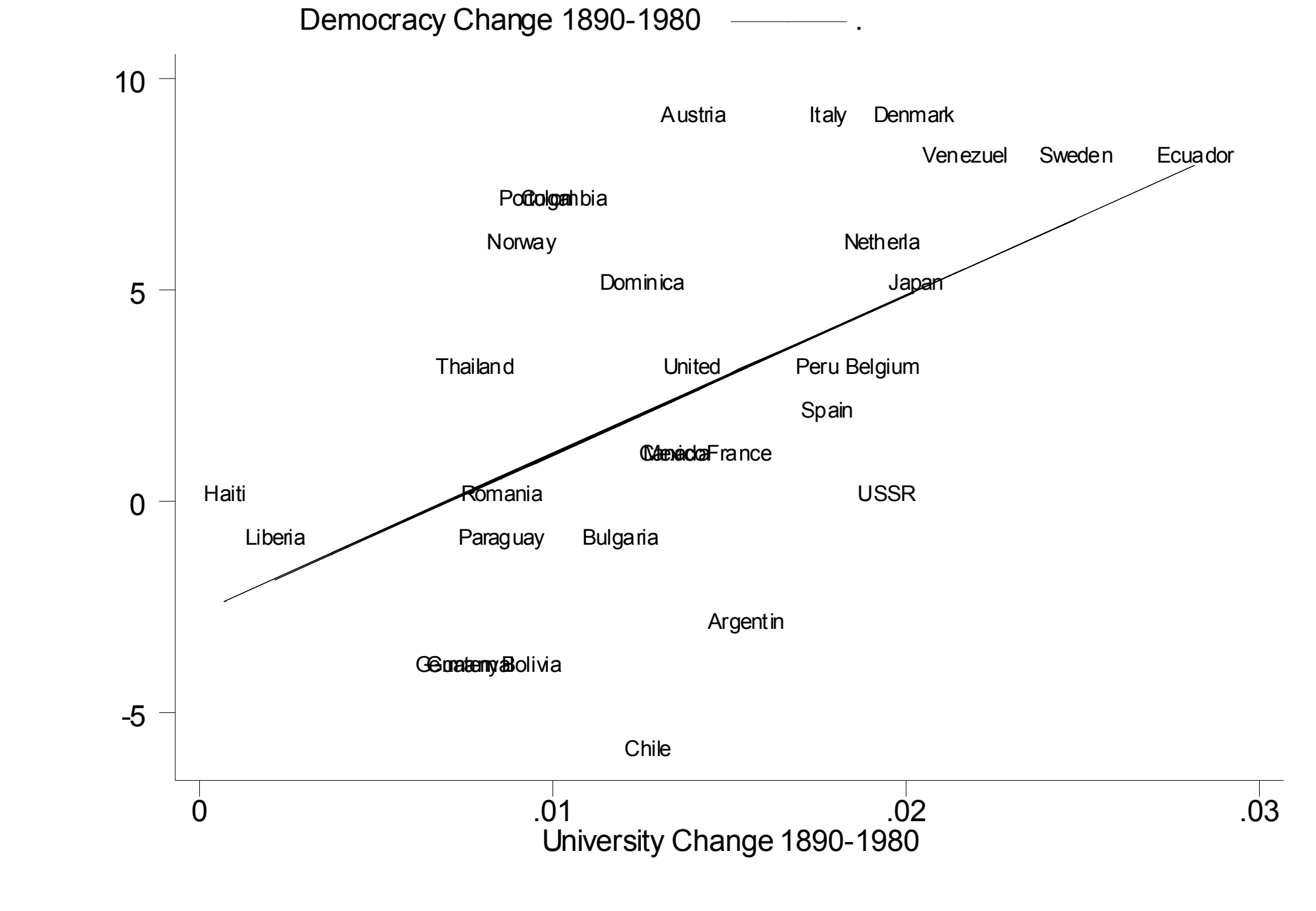
Dependent variable is the democracy score from: Jaggers, Keither and Monty G. Marshall (2003). "Polity IV Project." Center for International Development and Conflict Management, University of Maryland. Online at http://www.cidcm.umd.edu/inscr/polity/index.htm.

Average Years of Schooling data (column 1) from: Barro, Robert J. and Jong-Wha Lee, International Data on Educational Attainment: Updates and Implications. Source: Barro and Lee (2000) Data posted on http://www.cid.harvard.edu/ciddata/ciddata.html.
Enrollment data (columns 2-7) from: Banks, Arthur S (2004). *Cross National Time-Series Data Archive*. CD-ROM. Binghamton, New York: Arthur S. Banks.

Data are every 5 years from 1865 to 2000 with the exception of 1915, 1940, and 1945, for which data are unavailable.


Democracy Change 1890-1980
10
5
0
-5
0
.05
.1
Secondary Change 1890-1980
Austria
Denmark
Italy
Venezuel
Sweden
Portugal
Colombia
Norway
Netherla
Dominica
Japan
Belgium
Peru
United
Turkey
Spain
Brazil
Mexico
Canada
France
Romania
Costa Ri
Bulgaria
Paraguay
Greece
Argentin
Germany
Chile


9
-6
Democracy Change 1890-1980
.0007
.0496
University Change 1890-1980
Austria
Italy
Denmark
Venezue
Sweden
Ecuador
Norway
Netherla
Dominica
Japan
Thailand
United
Belgium
Spain
Haiti
Romania
Switzerl
USSR
Costa Ri
United S
Liberia
Paraguay
Bulgaria
Greece
Argentin
Chile


Democracy Change 1890-1980
10
5
0
-5
Austria
Italy
Denmark
Venezuel
Sweden
Ecuador
Colombia
Norway
Netherla
Dominica
Japan
Thailand
United
Peru
Belgium
Spain
France
Haiti
Romania
USSR
Liberia
Paraguay
Bulgaria
Argentin
Bolivia
Chile
0
.01
.02
.03
University Change 1890-1980

Initial Factors behind the Third Wave of Democratization

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October 2007

Presentation Overview

1. **Introduction**
   a. Theories on the determinants of democracy
   b. Previous empirical work
2. **New dataset**
   a. Discuss tricky issues in conceptualizing and measuring democracy
   b. Detail the algorithm in constructing a new dataset of successful democratic transitions during the Third Wave of democratisation
3. **Results**
4. **Conclusion**

Theories on the determinants of democracy

1. **Modernization hypothesis:** Education and income (Aristotle; Lipset, 1959, 1994; Glaeser, Ponzetto, and Shleifer, 2007; Bourguignon and Verdier, 2000)
2. **Social structure theories:** Religion, culture, fractionalization (Weber, 1930; Huntington, 1968, 1993; Aghion, Alesina, and Trebbi, 2004).
3. **Natural resource "curse":** dependence on easy-to-extract wealth, such as oil, gold, and diamonds (Ross, 2001; Acemoglu, Robinson and Verdier, 2003)
4. **Liberal hypothesis:** economic and political freedom mutually reinforcing (Friedman, 1962; Landes, 2000)
5. **"Early" institutions and history**
   a. **Identity of colonizer:** British heritage (Lipset, 1959)
   b. **Type of colonization:** "Extractive" colonial institutions (Acemoglu, *et al*. 2006, 2007)

Previous empirical work A

1. **Cross-sectional approaches:**
   - Regress the level of political freedom on income, education, religion, trade openness, oil, etc. (e.g. Barro, 1999; Bollen and Jackman, 1985, 1995)

Main Results

- Income and education are the most significant correlates of political freedom.
- Oil and some religion norms appear to be impediments to democratic rule.

Limitations

- Reverse causation (maybe democracy fosters economic development)
- Omitted variable (maybe both political and economic development are driven by a third, hard-to-quantify factor, such as geography, culture, history)

Previous empirical work B

2. **Panel approaches:**
   a. Dynamic panel studies, but with no country fixed-effects ("standard" in political science; e.g. Przeworski *et al*. 2000, Boix and Stokes, 2003).
   b. Panel studies (Glaeser, La Porta, Lopez-de-Silanes, and Shleifer, 2004; Acemoglu at al. 2006, 2007; Bobba and Coviello, 2006)

Main Results (mixed evidence)

— Correlation between income-education and democracy weakens.

Limitations

— Data quality – measurement issues (in "classical" error-in-variables cases attenuation can be large; also importance of time horizon, maybe it takes some time till improvements in education or growth bring democracy)

— Most of the variation is cross-sectional. Many theories emphasize the importance of (to a first approximation) time-invariant country characteristics (e.g. religion, natural resources)

This paper

1. **Emphasize important "measurement" issues in democracy and construct a new dataset of successful democratic transitions during the so-called Third Wave of Democratization and the nineties.**

2. **Present cross-sectional correlations, using initial (before the Third Wave began) conditions and focusing on countries that entered the Third Wave as non-democratic.**

   ➔ Enables to understand which factors explain why only (roughly) half of the countries that were non-democratically governed before the Third Wave (in mid-seventies) managed to transit and consolidate representative institutions.

   ➔ Also examine whether initial income, religion, oil, education, help predict the intensity of democratic reforms and the timing of successful transitions.

Measurement of democracy

Quotes

— Dahl (2000) "*..democracy has meant different things to different people in different periods*"

— Przeworski *et al*. (1996): "*just too interesting to be resolved by a definitional fiat*."

Practice

— Use mechanically one of the available political freedom indicators (e.g. Polity, Freedom House, etc.) ignoring measurement issues.

But:

— Important drawbacks of existing measures (see Munck and Verkuillen, 2003; Glaeser *et al*., 2004; fast-growing literature in political science)

— Using mis-measured variables may yield biased estimates (when democracy is in the RHS) or weaken the significance of the model (when democracy is in the LHS).

— Systematic biases (e.g. Freedom House indicators appear to be biased against "left-wing" governments and protectionist economies)

— Existing indicators aim to measure the level of political freedom, not transitions.

Our aim

- Construct a new dataset of successful democratic (and autocratic) transitions in the 1960-2005 period.

- Cover a gap in existing work that mainly quantifies the level of civil liberties and political rights (and thus by construction does not aim to capture political transitions).

Our approach - Concepts

Main Rule: actual and lasting transfer of power resulting after free and fair elections (as recognized by intentional observers) after a prolonged period of autocratic rule that the majority of the population was eligible for suffrage.

4 specific criteria

1. "Free, competitive and fair" elections. (key ingredient of almost all democarcy definitions)
2. Actual transfer of power resulting from the elections. (since in many cases the military did not recognize the electoral outcome)
3. No sizable parts of the population excluded from the franchise. (as in South Africa)
4. Regime stability (exclude short-lived transitions, where after a couple of democratic years (1-3), autocracy was restored).

Data Sources

— **Existing political freedom (level) measures**

(1) Polity Project; (2) Freedom House; (3) Vanhaanen, 2000; (4) Mainwaring *et al*. 2000; (5) Przeworski *et al*., 2000.

— **Historical resources**

(1) The Freedom House and Polity Project country reports. (2) The Country Studies/Area Handbook Series of the Federal Research Division of the United States Library of Congress. (3) The Central Intelligence Agency World Factbook. (4) The U.S. Department of State "Background Country Notes". (4) Zarate's "Political Collection." (5) For some (mainly under-developed and small) we used other country-specific sources.

— **Electoral archives**

(1) Adam Carr's "Psephos" Election archive, (2) the "Elections around the World" dataset, (3) the "Election Results Archive" produced by the Center on Democratic Performance at Binghamton University, and (4) the "Database of Political Institutions", compiled by a World Bank team (Beck, Clarke, Groff, Keefer, and Walsh, 2001)

Algorithm - Step 1

1. **Identify sizable movements in the most-widely used freedom measures**

   (1) Polity Project: when the 21 scale index, ranging from -10 to +10, jumps from a negative to a positive range and remains there for three years.

   (*this measure does not cover some small countries*)

   (2) Freedom House: when there are changes in the trichotomous regime status classification ("not-free"; "partially-free"; "free") and remains there for three years. (*this index appears to be the most problematic, see Munck and Veruillen, 2003*)

   (3) Przeworski *et al*. (1996, 2000): when the index moves from autocratic to democratic status and remains at the new value for three years.

   (*this measure stops in 1990*)

   – Note: changing the stability requirement to four or five years makes no difference; what it matters is to exclude brief spikes that represent political instability to autocracies rather than a new political equilibrium (e.g. Nigeria (in the early eighties), Congo (in the early nineties), Burkina Faso (in 1978-1979))

   – Also go over some other indicators with narrower coverage (e.g. Mainwaring, *et al*. 2000 that though more complete only includes Latin America; and Vanhaanen's measure, 2003, that mainly focuses on electoral participation)

Algorithm - Step 2

2. **Go over historical resources and understand the political events, surrounding the years of the spike/fall in democracy measures. Also identify other important political changes, not necessarily captured by the democracy indexes.**

(1) The Freedom House and Polity Project country reports.

(2) The Country Studies/Area Handbook Series of the Federal Research Division of the United States Library of Congress.

(3) The Central Intelligence Agency World Factbook.

(4) The U.S. Department of State "Background Country Notes".

(4) Zarate's "Political Collection."

(5) For some (mainly under-developed and small nations) we used other country-specific sources.

Algorithm - Step 3

3. **Go over electoral datasets to identify the exact timing of legislative or presidential elections.**

(1) Adam Carr's "Psephos"
(2) the "Elections around the World" dataset
(3) the "Election Results Archive" produced by the Center on Democratic Performance at Binghamton University,
(4) the "Database of Political Institutions", compiled by a World Bank team (Beck, Clarke, Groff, Keefer, and Walsh, 2001)

Algorithm - Step 4

4. **Identify democratic transitions at the timing of presidential or legislative elections that follow a prolonged period (>5 years) of autocratic rule.**

Note (1): If there are sub-sequent elections (in the following 1-2 years), use latter date.

Note (2): In most cases jointly with the elections there is also a new democratic constitution that institutionalizes the change of power. The adoption of the new constitution and the elections usually coincide or differ by one (two) year (s). In this case we use the latter date. (e.g. South Korea, elections were held on December 1987. The new constitution that established a multi-party democracy came into effect the following year. We therefore use 1988 as the democratization year.)

Note (3): changing the time requirement to 3, 4, 6 or 7 years makes little difference. What it matters again is to exclude periods (one or two years) of instability.

Algorithm - Step 5

5. **Group transitions based on the intensity of reforms into "full" and "partial" democratizations.**

Criterion (to avoid self-selection)

To classify a country as experiencing a "full" democratization, we require that both the trichotomous Freedom House status designation is "free" and the Polity score (range from -10 to +10) is greater than +7. All other democratic transitions are thus classified as “partial” democartiztaions.

Note: Proponents of binary measures (e.g. Huntington, 1993; Epstein *et al*., 2006) explicitly advocate to also employ trichotomous measures.

New dataset of political transitions (174 countries)

1. **Democratic transitions (63 countries)**
   - — **"Full" democratization (39 countries):** successful political transition from autocracy to an almost perfect level of democracy

     [e.g. Spain (1978), Portugal (1976), Argentina (1983), South Korea (1987), Greece (1975)]
   - — **"Partial" democratization (24 countries):** Following a successful transition, representative institutions have been established, but the level of political liberties and civil rights (as measured by the Polity and Freedom House measures) has not reached a perfect level.

     [e.g. Albania (1992), Zambia (1991), Nigeria (1999)]

   - \+ **"Borderline" episodes of democratization (6 countries):** Some political change towards democracy has occurred, but still the level of civil rights protection and political liberties is quite low.

     [e.g. Central African Republic (1995), Niger (1999)]

New dataset of political transitions (174 countries)

2. **Autocratic (reverse) transitions (3-6 countries):** Political change from relatively stable democracy to autocracy.

   [(e.g. Zimbabwe (1987), Gambia (1994))

3. **"Always" non-democratic (autocratic) countries (59):** throughout the 1960-2005 period non-democratically governed.

   [e.g. Saudi Arabia, Iraq, Uganda, China.]

4. **"Always" democratic countries (41 countries):** throughout the 1960-2005 period democratically governed.

   [e.g. USA, Canada, Australia, United Kingdom, Sweden]

Note: recall that brief periods (less than three years) of democratic rule in non-democracies and brief periods (less than three years) of autocratic rule in democracies does not change the coding.

Empirical approach

Examine which initial (before the Third Wave began, mid-seventies) factors correlate with subsequent democratization path.

- Concentrate on countries that entered the Third Wave as non-democratic and examine whether education-income, religion, fragmentation, openness, and early institutions are significant determinants on subsequent democratization.
- Also examine whether these factors are important in determining how deep the reforms will be (using the ”full”-”partial” distinction) and how fast they occur (distinguishing between “early” transitions that occurred before 1990, when many democratizations occurred following the collapse of communism, and “late transitions” that occurred after 1990)

Note: Exclude from the analysis socialist countries (treat in a quasi-experimental setting in ongoing work).

Empirical results A.1 – Modernization Hypothesis

➔ **Strong support**

	Always non-democratic	**Democratization**		**Always Democratic**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Income (GDP p.c in 1975)	1,060.23 (1573,09) *28*	2,041.23 (2057.26) *39*	981.00 (443.74) ***(0.03)***	10,044.76 (7110.53) *37*	8,984.53 (1206.17) ***(0.00)***
Schooling (av. years in 1975)	1.72 (1.02) *25*	3.59 (1.92) *37*	1.87 (0.38) ***(0.00)***	6.41 (2.50) *34*	4.68 (0.47) ***(0.00)***
Literacy rate (in 1975)	48.87 (25.09) *41*	69.30 (27.13) *50*	20.43 (5.48) ***(0.00)***	77.80 (15.72) *17*	28.94 (5.47) ***(0.00)***

Empirical results A.2 – Modernization Hypothesis

➔ **Stronger support**

	Always non-democratic	**Full Democratization**		**Early Democratization**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Income (GDP p.c in 1975)	1,060.23 (1573,09) *28*	2,611.27 (2272,62) *26*	1,551.04 535.747 ***(0.01)***	3,337.36 (2627,88) *14*	2,277.13 (762.66) ***(0.01)***
Schooling (av. years in 1975)	1.72 (1.02) *25*	4.04 (1.94) *26*	2.31 (0.43) ***(0.00)***	4.13 (1.38) *14*	2.40 (0.42) ***(0.00)***
Literacy rate (in 1975)	48.87 (25.09) *41*	75.38 (25.59) *32*	26.52 (5.98) ***(0.00)***	77.70 (12.71) *13*	28.83 (5.27) ***(0.00)***

Empirical results A.3 – Modernization Hypothesis

Initial education and subsequent democratization path

Change in Democracy	Average Years of Schooling (in 1975)				
	< 1.0 years	< 2.0 years	< 3.0 years	< 4.0 years	>4.0 years
Always Authoritarian	Nepal[B], Niger[B], CAF, Sierra Leone, Togo, Afghanistan, Rwanda,Myanmar, Sudan	Haiti, Algeria, Iraq, Zaire, Liberia, Uganda, Tunisia, Egypt, Cameroon, Kenya, Congo, Iran[B], Pakistan[B]	Syria, Bahrain, UAE, Jordan	Swaziland, Kuwait, China	Singapore
Partial Democratization	Mozambique	Bangladesh, Guatemala	Zambia, Malawi Turkey, Indonesia, Nicaragua	Lesotho, Paraguay	
Full Democratization	Mali, Benin	Senegal	Ghana, Honduras, El Salvador, Brazil, Portugal	Dominican Republic, Mexico Thailand, Bolivia, Ecuador	Peru, South Africa, Guyana, Panama, Poland, Spain,, Philippines, Chile, Korea, Argentina, Uruguay, Greece, Hungary

Empirical results B.1 – Social Structure

The polarization index measures the distance from a bimodal distribution of groups. The index reaches a maximum when there are two groups of equal size and equals zero when there is just one group in the country.

	Always non-democratic	**Democratization**		**Always Democratic**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Etnic Polarization	53.33 (22.36) *39*	53.00 (25.35) *44*	-0.33 (5.24) ***(0.95)***	47.46 (26.20) *37*	-5.87 (5.60) ***(0.30)***
Religious Polarization	63.22 (33.27) *39*	49.64 (34.75) *44*	-13.58 (7.47) ***(0.07)***	26.69 (31.50) *37*	-36.52 (7.43) ***(0.00)***
Muslim Share	48.39 (41.51) *59*	15.10 (28.43) *63*	-33.29 (6.48) ***(0.00)***	2.51 (5.16) *41*	-45.87 (5.46) ***(0.00)***
Confucian Share	7.79 (22.72) *59*	3.42 (17.04) *63*	-4.37 (3.66) ***(0.23)***	4.05 (18.09) 41	-3.74 (4.09) ***(0.36)***

Empirical results B.2 – Social Structure

The polarization index measures the distance from a bimodal distribution of groups. The index reaches a maximum when there are two groups of equal size and equals zero when there is just one group in the country.

	Always non-democratic	**Full Democratization**		**Early Democratization**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Etnic Polarization	53.33 (22.36) *39*	54.94 (25.60) *28*	1.61 (6.02) ***(0.79)***	53.77 (29.50) *15*	0.44 (8.42) ***(0.96)***
Religious Polarization	63.22 (33.27) *39*	40.61 (34.67) *28*	-22.61 (8.45) ***(0.01)***	37.97 (37.12) *15*	-25.25 (10.97) ***(0.03)***
Muslim Share	48.39 (41.51) *59*	6.38 (20.29) *39*	-42.01 (6.31) ***(0.00)***	7.22 (25.63) *15*	-41.17 (8.54) ***(0.00)***
Confucian Share	7.79 (22.72) 59	5.50 (21.50) *39*	-2.29 (4.54) ***(0.61)***	1.59 (6.15) *15*	-6.20 (2.36) ***(0.07)***

Empirical results C.1 – Natural Resource Curse

➔ **Support (with oil)**

	Always non-democratic	**Democratization**		**Always Democratic**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Oil Producer (0-1 index for major producers)	0.24 (0.43) *59*	0.03 (0.18) *63*	-0.21 (0.06) ***(0.00)***	0.05 (0.22) *41*	-0.19 (0.07) ***(0.00)***
Diamond (0-1 index for major producers)	0.10 (0.30) *59*	0.08 (0.27) 63	-0.02 (0.05) ***(0.67)***	0.12 (0.33) *41*	0.02 (0.07) ***(0.76)***

Empirical results C.2 – Natural Resource Curse

➔ **Stronger Support (with oil)**

	Always non-democratic	**Full Democratization**		**Early Democratization**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Oil Producer (0-1 index for major producers)	0.24 (0.43) *59*	0.00 (0.00) *39*	-0.24 (0.06) ***(0.00)***	0.00 (0.00) *15*	-0.24 (0.06) ***(0.00)***
Diamond (0-1 index for major producers)	0.10 (0.30) *59*	0.0769 (0.27) *39*	-0.0248 (0.06) ***(0.67)***	0.0667 (0.26) *15*	-0.0350 (0.08) ***(0.66)***

Empirical results D.1 – Liberal Hypothesis

➔ **Mixed results**

	Always non-democratic	**Democratization**		**Always Democratic**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Trade Openness (Sachs-Warner 0-1 index)	0.07 (0.27) *39*	0.10 (0.31) *58*	0.03 (0.06) ***(0.65)***	0.61 (0.49) *34*	0.54 (0.09) ***(0.00)***
Trade share (imports + exports) / GDP	62.57 (33.93) *33*	53.84 (31.44) *37*	-8.74 (7.85) ***(0.27)***	71.52 (39.07) *35*	8.94 (8.86) ***(0.32)***

Empirical results D.2 – Liberal Hypothesis

➔ **inconclusive results**

	Always non-democratic	**Full Democratization**		**Early**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Trade Openness (Sachs-Warner 0-1 index)	0.07 (0.27) *39*	0.14 (0.35) *36*	0.06 (0.07) ***(0.40)***	0.29 (0.47) *14*	0.21 (0.13) ***(0.13)***
Trade share (imports + exports) / GDP	62.57 (33.93) *33*	51.30 (27.83) *25*	-11.28 (8.12) ***(0.17)***	41.80 (18.44) *14*	-20.78 (7.69) ***(0.01)***

Empirical results E.1 – Early institution theories

	Always non-democratic	**Democratization**		**Always Democratic**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Settler Mortality	233.68 (171.48) *28*	295.11 (632.88) *29*	61.43 (121.91) ***(0.62)***	67.88 (51.22) *17*	-165.80 (34.71) ***(0.00)***
Population Density (circa 1500)	8.53 (17.64) *33*	2.33 (4.02) *35*	-6.20 (3.14) ***(0.06)***	3.14 (6.24) *18*	-5.39 (3.40) ***(0.12)***
Executive Constraints at Independence	0.26 (0.26) 49	0.28 (0.28) 45	0.02 (0.05) ***(0.78)***	0.66 (0.42) 32	0.40 (0.08) ***(0.00)***
Year since independence	0.24 (0.21) *59*	0.41 (0.36) *63*	0.18 (0.05) ***(0.00)***	0.53 (0.38) *41*	0.29 (0.07) ***(0.00)***

Significant differences between autocratic and democratic countries

Empirical results E.2 – Early institution theories

	Always non-democratic	**Full Democratization**		**Early Democratization**	
	Mean (st. dev) # obs.	Mean (st. dev) # obs.	Test of Means	Mean (st. dev) # obs.	Test of Means
Settler Mortality	233.68 (171.48) *28*	283.34 (679.09) *18*	49.66 (163.31) ***(0.76)***	79.00 (20.78) *8*	-154.68 (33.23) ***(0.00)***
Population Density (circa 1500)	8.53 (17.64) *33*	1.54 (1.32) *21*	-6.98 (3.08) ***(0.03)***	1.10 (0.76) *10*	-7.42 (3.08) ***(0.02)***
Executive Constraints at Independence	0.26 (0.26) 49	0.27 (0.27) 29	0.01 (0.06) ***(0.90)***	0.20 (0.18) 14	-0.07 (0.06) ***(0.28)***
Year since independence	0.24 (0.21) *59*	0.50 (0.36) *39*	0.26 (0.06) ***(0.00)***	0.75 (0.28) *15*	0.51 (0.08) ***(0.00)***

Significant differences between autocratic and early (to a lesser extent with full) democratization countries

Empirical results (multivariate models)

1. The strong correlation between education (and income or life expectancy) and successful democratic transitions during the Third Wave is robust to various controls.

   It is also present when one just examines countries that entered the Third Wave as non-democratic.
2. (Ethnic and mainly religious polarization) is negatively correlated with democratization in multivariate models, but significance depends on the measure used.
3. The effect of Muslim share weakens considerably (although retains significance in most models) once one accounts for oil production (which enter always with a negative and significant coefficient).
4. Trade is not correlated with democratic transitions.
5. Of the various proxy measures of history and early institutions years since independence and population density before colonization are the most significant correlates of democratization.

Summary

Contribute on the literature on what determines successful democratic transitions, focusing on the Third Wave of Democratization.

1. Construct a new dataset of political transitions in the 1960-2005 period, addressing many of the limitations of existing measures of democracy (that do not aim to identify transitions, but measure the level of political freedom).
2. Investigate the significant correlates of democratization during the Third Wave and understand which initial condition help predict the subsequent political path.
   - Also examine the impact of education-income, social fragmentation, religion, trade openness, and early institution proxy measures on how deep and how fast political reforms will occur.

- **Ongoing work [building on old working paper]:** Focus on socialist economies and new independent states that emerged after the fall of the Iron Curtin; explore which initial (end of eighties) conditions predict the democratization path.

Appendix Table A.: Democratization in former centrally planned economies – Binary democracy index (44 countries)

	Linear	Probit	Logit
	(1)	(2)	(3)
Ln GDP p.c. in 1990	0.1666	0.5318	0.9356
p-value	*(0.03)*	*(0.05)*	*(0.05)*
Fraction Protestant	-0.0002	0.0008	0.0011
p-value	*(0.94)*	*(0.96)*	*(0.97)*
Fraction Catholic	0.0014	0.0081	0.0136
p-value	*(0.37)*	*(0.25)*	*(0.26)*
Fraction Muslim	-0.0044	-0.0194	-0.0338
p-value	*(0.02)*	*(0.03)*	*(0.05)*
Natural Resources	-0.0159	-0.0481	-0.0705
p-value	*(0.30)*	*(0.37)*	*(0.45)*
Natural Trade Openess	0.2077	0.7533	1.3148
p-value	*(0.11)*	*(0.10)*	*(0.12)*
R-squared	0.465	0.413	0.412
Countries	44	44	44

Appendix Table B.: Democratization in former centrally planned economies – Ordered (0, 1, 2) Analysis (44 countries)

	Linear	Ord. Probit	Ord. Logit
	(1)	(2)	(3)
Ln GDP p.c. in 1990	0.2398	0.7281	1.2495
	(0.02)	*(0.04)*	*(0.06)*
Ethnic Fragmentation	0.0052	0.0214	0.0353
(probab. two individuals same group)	*(0.20)*	*(0.13)*	*(0.15)*
Religious Fragmentation	-0.0034	-0.0107	-0.0194
(probab. two individuals same group)	*(0.47)*	*(0.49)*	*(0.51)*
Fraction Protestant	-0.0017	-0.0050	-0.0069
	(0.66)	*(0.80)*	*(0.88)*
Fraction Catholic	0.0008	0.0047	0.0083
	(0.60)	*(0.47)*	*(0.45)*
Fraction Muslim	-0.0062	-0.0291	-0.0508
	(0.02)	*(0.02)*	*(0.03)*
Natural Resources	-0.0112	-0.0394	-0.0609
(Oil and Natural Gas)	*(0.50)*	*(0.47)*	*(0.53)*
Natural Trade Openess	0.2015	0.7797	1.2931
(geographical propensity to trade)	*(0.21)*	*(0.14)*	*(0.20)*
Former republics dummy	-0.0474	0.0040	0.1241
	(0.76)	*(1.00)*	*(0.91)*
R-squared	0.484	0.435	0.434
Countries	44	44	44

Why Should Democracy and Education be Correlated?

- A non-political theory– freedom and education are economic complements.
  - But wage data doesn't support this view.

- Education increases the benefits/reduces the costs of social interaction and civic participation.
  - This is the critical assumption in the model and we justify it first.

Empirics on Education and Civic Participation

- In the General Social Survey, College graduates are 27 percent than HS dropouts to vote in local elections and 29 percent more likely to say that they help solve local problems.
- Glaeser and Sacerdote (2001) show that college graduates are more likely to join formal groups for 15 out of 16 group types (except unions).
- Schooling positive predicts group membership in almost every country.
- Fifty percent of American college graduates attend church more than several times per year; thirty-six percent of high school graduates attend that often.

Education and Military Engagement

- Education and training are closely linked to military discipline and group coherence under fire (Hanson, 2002, Keegan, 1976).
- Costa and Kahn (2003) show that illiteracy strongly predicts desertion among Union soldiers in the American Civil War.
- Ferguson (1999) uses ratio of prisoners of war to total casualties across countries in WWI as a measure of willingness to surrender.
- Across major combatant countries, this ratio was lowest for the United Kingdom, the United States, and Germany (1.4%, 6.7% and 9% respectively), and highest for Russians, Austro-Hungarians and Italians (51.8%, 31.8% and 25.8%). A reasonable correlation with schooling.

Student Uprisings

- Perhaps the most dramatic place to see the effect of education on political participation is student activism (education with low costs of time?).
- Students rioted against authority at Oxford, Bologna, and Paris even in the Middle Ages.
- Students played key roles in liberal movements and revolutions in Europe in the middle of the 19th century.
- “If the revolution had a core, it was the young educated elite” (Randers-Pehrson, 1999, p. 145)

Student Uprisings in the 20th Century

More recently, student demonstrations played a role:

the overthrow of Peron in Argentina in 1955,

the downfall of Perez Jimenez in Venezuela in 1958,

the resistance to Diem in Vietnam in 1963,

the resignation of the Kishi government in Japan in 1960,

the anti-Sukarno movement in Indonesia in 1966,

Student Uprisings in the 20th Century

the downfall of Ayub Khan in Pakistan in 1969,

the October demonstration in Poland in 1956,

the Hungarian Revolution in 1956,

the Prague Spring in 1968, and

the toppling of the Rhee government in Korea in 1966.

Students and Democracy

- Don’t conclude from these examples that students have a preference for democratic government – perhaps because they value freedom, information, or elections
- The 1919 hep-hep anti-semitic riots started when “during an academic ceremony an aged professor who had recently come out in favor of civic rights for Jews had to run for his life as angry students assaulted him.”
- Mussolini and Hitler both had big student movement support.
- More recently, Che– no friend of democracy– was a hero to the student movements.

Why Should Education increase Civic/Social Participation?

- Hypothesis # 1: Selection. Schooling doesn't make people socially active it selects them,
- But Millian, Moretti, and Oleopolos (2004) find that exogenous increases in education due to compulsory schooling laws raise voter turnout.
- Dee (2004) finds that increased availability of junior and community colleges increase subsequent voting.
- And then there is the cross-country evidence.

Education as Socialization

- Much of lower education is socialization—teaching people how to interact successfully-- learning reading and writing and not causing trouble.
- Teachers certainly have a strong private interest to induce children to play well with others.
- Successful interaction requires people to control and innate anti-social tendencies, and become more productive participants in group activities (Bowles and Gintis, 1976).

Textbooks and Socialization

- Driscoll and Nagel (2005) describe several curricular approaches to primary education:
- “the children will develop cooperative relationships, reflecting both social skills and understanding the perspectives of others” (the Kamii and DeVries approach);
- “socialization of children. Self-regulation of behavior is necessary to participation in forms of society and in relationship with others” (the Bank Street approach); and
- “conditions that promote or strengthen relationship between children, and between children and adults” (the Waldorf approach).

Textbooks

- Gordon and Browne (2004) write that “a major role for the early childhood teacher is to see that children have enjoyable social contacts and to help motivate children toward a desire to be with others,” because “enhancing social intelligence builds a set of skills that may be among the most essential for life success of many kinds.”

The Model's Core Assumptions

- Education decreases the private costs or raises the private benefits of civic participation.
- Democracy is defined by the number of insiders in the regime.
- This definition follows OED (government by the people), but not Schumpeter (political competition).

Model

Population: measure 1 of homogeneous citizens

Each has human capital h

no inequality

A regime has G insiders, with g being measure of G.

Larger g $\Leftrightarrow$ more democratic

g=1 $\Leftrightarrow$ perfect democracy

Initial regime G_0 of size g_0

Challenger regime G_1 of size g_1

Both regimes have exogenous membership

Ask whether regime members choose to participate in politics. Very much a free-rider perspective.

Let S_0 be measure of people supporting G_0

S_1 be measure of people supporting G_1

Challenger wins iff $\varepsilon_0 s_0 \leq \varepsilon_1 s_1$ where $\varepsilon_0, \varepsilon_1$ are

effectiveness shocks $r \equiv \frac{\varepsilon_0}{\varepsilon_1}$ has distribution

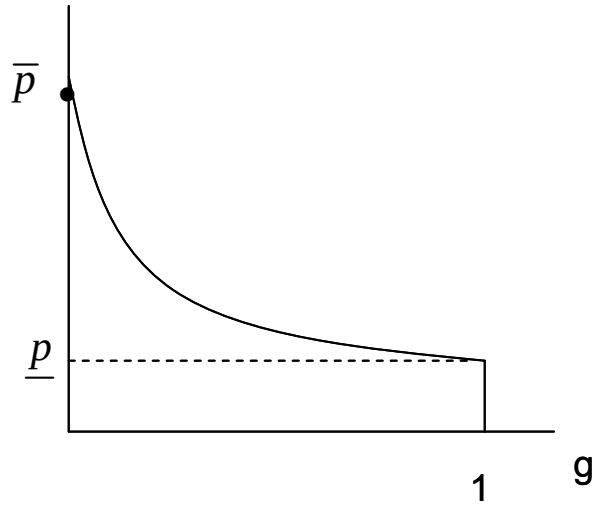
$Z(r)$ on $\mathbb{R}^+$

An individual has no effect on regime success. Trades off cost of participation against risk of punishment for non-participitation in support of own regime.

Punishment

Let loss from punishment be p(g)

$$p' < 0,\ p(0) = \overline{p},\ p(1) = \underline{p} \geq 0$$

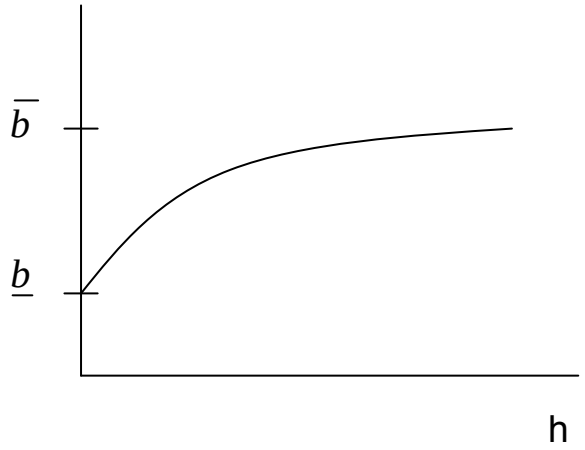


Olson: small groups punish more effectively

Also: will assume incumbency advantage. Free riding members of G_0 pay an additional expected utility cost *a*

Benefit to insiders from participating

b(h) increasing in *h*



Socialization: as *h*↑, can cajole people to participate but also enjoy the interaction better.

This is our model of human capital.

Note: there is nothing specific to democracy; just participation in groups.

Cost of Participation c+η

η is iid $F(\eta)$ on $[\underline{\eta}, \overline{\eta}]$

Assume always stay on intensive margin of participation

Assume $F(\eta)$ log concave, i.e.

$\frac{f(\eta)}{F(\eta)}$ monotonically decreasing in η.

The more supporters a regime already has, the more expensive it becomes to attract additional ones. Standard assumption (see Laffont-Tirole, Bagnoli-Bergstrom)

KEY IMPLICATION: increasing h always helps a group with weaker initial incentives to participate. Usually, this is a larger group, but not necessarily if there is a significant incumbency advantage.

Political Competition

Let $\hat{g}_0$ be members of G_0 and not G_1

Abstain: cost = $p(g_0) + a$

participate for G_0: cost = $c+\eta - b(h)$

Let $\hat{g}_1$ be members of G_1 and not G_0

Abstain: cost = $p(g_1)$

Participate for G_1: cost = $c+\eta - b(h)$

Members of both regimes

Abstain: cost = $p(g_0) + p(g_1) + a$

Support G_0 : cost = $p(g_1) + c + \eta - b(h)$

Support G_1 : cost = $p(g_0) + c + \eta - b(h) + a$

Note: If $g_1 > g_0$, then all members of G_0 support G_0

Compute levels of support

- Suppose $a > p(g_1) - p(g_0)$

incumbent support $g_0 F\left(p(g_0) + a + b(h) - c\right)$

challenger support $\hat{g}_1 F\left(p(g_1) + b(h) - c\right)$

- Suppose $g_1 < g_0$ and $0 \le a \le p(g_1) - p(g_0)$

incumbent support $\hat{g}_0 F\left(p(g_0) + a + b(h) - c\right)$

challenger support $g_1 F\left(p(g_1) + b(h) - c\right)$

Probability challenger wins is:

$$\pi = \begin{cases} Z\left(\dfrac{g_1 F\left(p(g_1) + b(h) - c\right)}{\hat{g}_0 F\left(p(g_0) + a + b(h) - c\right)}\right) & 0 \le a \le p(g_1) - p(g_0) \\ Z\left(\dfrac{\hat{g}_1 F\left(p(g_1) + b(h) - c\right)}{g_0 F\left(p(g_0) + a + b(h) - c\right)}\right) & a > \max\left\{0, p(g_1) - p(g_0)\right\} \end{cases}$$

Proposition 1:

(a) If $g_1 > g_0$, or $g_1 < g_0$ and $0 \le a \le p(g_1) - p(g_0)$, then the probability that the more inclusive regime succeeds is increasing in h.

(a) If $g_1 < g_0$ and $a > p(g_1) - p(g_0) \ge 0$, then the probability that the less inclusive challenger regime succeeds is rising in h.

For part (a) see Figure 5.

Notes: If $g_1 = 1$, we are always in part (a) so human capital helps democracy. If $g_1 < 1$, attempts to overturn $g_0 = 1$, then a coup succeeds only in part (a) so the likelihood that it does falls with h.

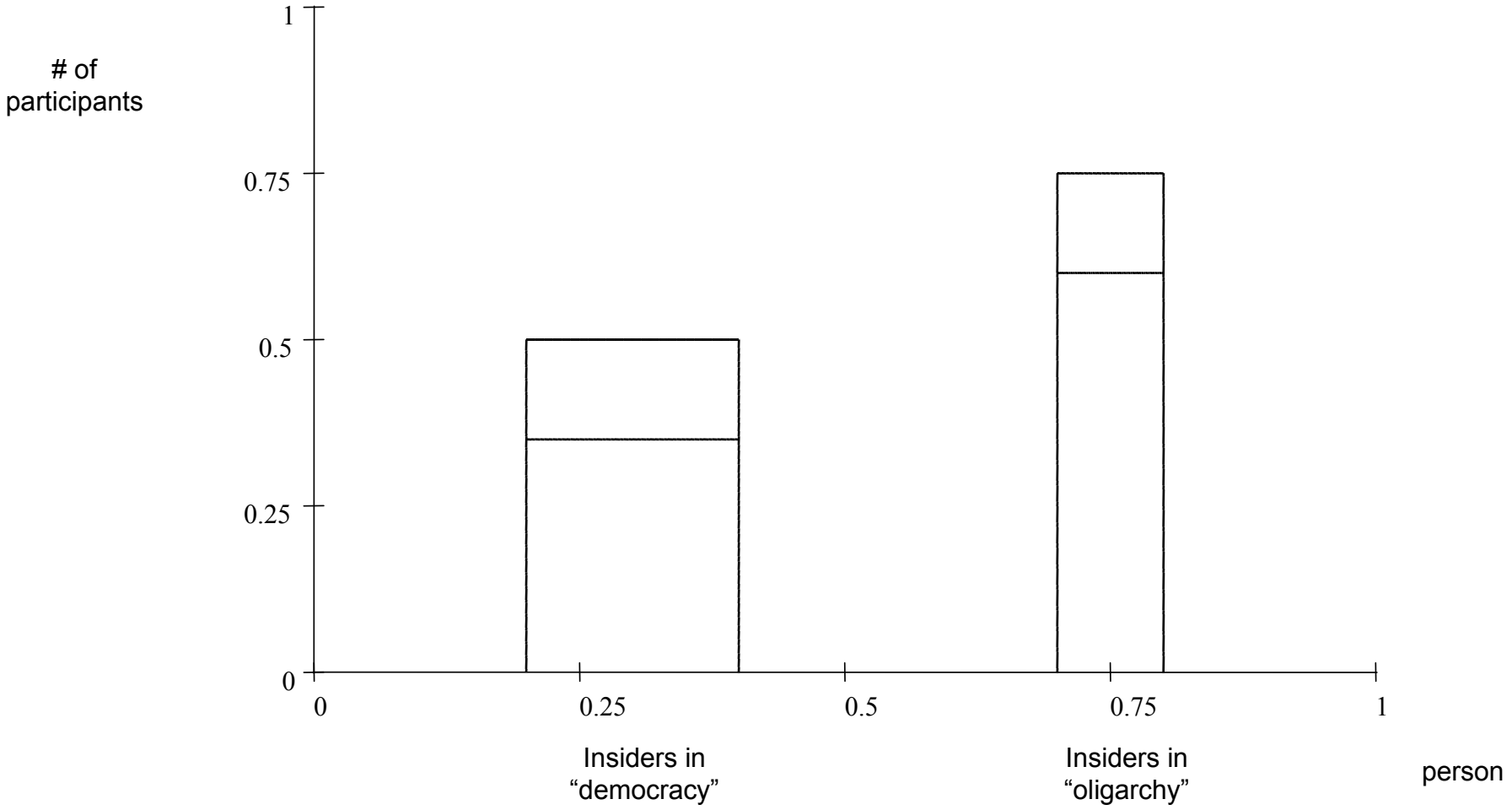


Figure 5: Support for two regimes as a function of *h*

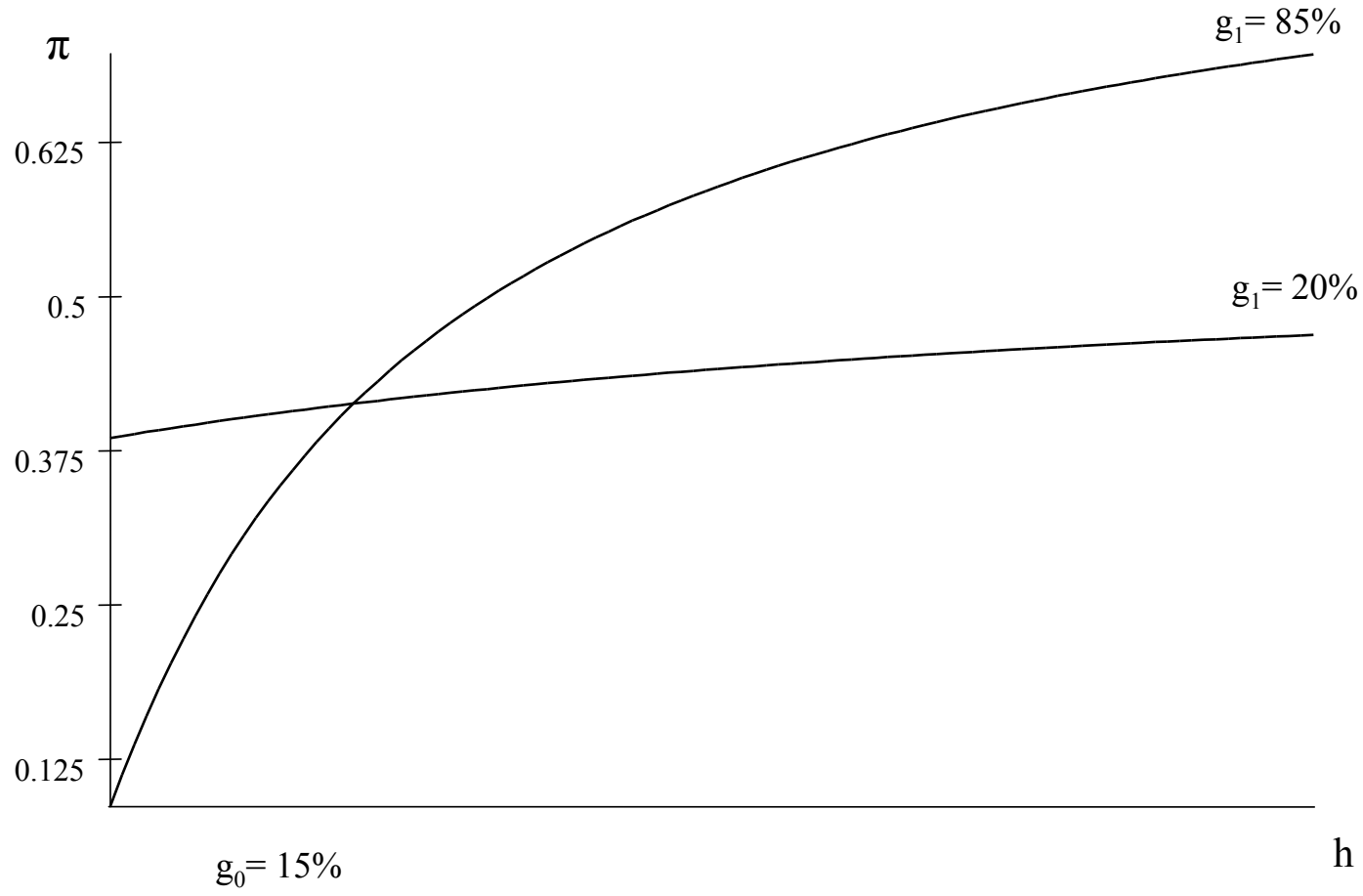


Figure 6: Probability of success for a more democratic regime