

Democracy and Foreign Education

April 2008

Antonio Spilimbergo

Research Department, IMF; CEPR; WDI

Appendix

This appendix provides background material for the paper “Democracy and Foreign Education.” The appendix is organized as follows:

- 1) Tables A1a to A2b present the basic regression using two alternative measures of democracy:
 - a) the **composite polity II index from the Polity IV dataset**, which is the difference between the Polity’s democracy and autocracy indices.¹ Polity IV dataset contains coded annual information on regime and authority characteristics for all independent states (with greater than 500,000 total population) in the global state system and covers the years 1800-2003.
 - b) the dichotomous **democracy index proposed by Przeworski, Alvarez, Cheibub, and Limongi** (1990) and extended by Boix and Rosato (2001); a key aspect of this index is that a country is not considered a democracy unless a political party has lost power.
In order to make the results easier to interpret, I normalize the indices so that 1 corresponds to the maximum degree of democracy and 0 to the least.
- 2) Table A3 presents alternative specifications for students using the Przeworski and the polity II indices
- 3) Table A4 presents the standard regression without the lagged dependent variable. In this case OLS estimators are consistent
- 4) Tables A5a, A5b, A5c present the standard regressions controlling for domestic educational attainment.
- 5) Table A6 presents regressions using two sub-samples: one for the period before 1985, the other for the period post 1985
- 6) Table A7 presents regressions using two sub-samples: one for countries with a population of less than 2 million, the other for countries with population of more than 2 million.
- 7) Table A8 presents the education of world leaders in 1990.
- 8) Figures A1, A2, A3 present the evolution of democracy at home and in host countries for Argentina, Iran, and Korea.
- 9) Table A9 presents the correspondence between country names and three-letter names used in Figure A4.
- 10) Figure A4 shows the correlation between changes in democracy at home and in host countries.

¹ The data are available from the Polity IV’s website (<http://www.cidcm.umd.edu/inscr/polity/>). Note that the name of the variable is polity II in the dataset and throughout the paper. See Marshall and Jaggers (2006) for details on how the variable was constructed.

Table A1a. Dependent Variable: Polity2 - Levels

	Pooled OLS (1)	Fixed Effects (2)	System GMM (3)	System GMM (4)	System GMM (5)	System GMM (6)	System GMM (7)	System GMM (7)	System GMM (9)
Democracy _{t-5}	.830*** (.022)	.452*** (.047)	.411*** (.063)	.491*** (.061)	.288*** (.073)	.424*** (.065)	.338*** (.078)	.497*** (.085)	.300*** (.082)
Students Abroad _{t-5}	2.487 (5.964)	24.229*** (8.621)	-12.350 (12.107)	-9.658 (11.136)	-18.645 (12.150)	-15.735 (13.321)	-35.058*** (12.645)	-15.377 (19.694)	-53.085** (25.672)
Democracy in host countries _{t-5}	.100*** (.036)	.116** (.052)	.355*** (.072)	.310*** (.074)	.409*** (.098)	.349*** (.074)	.327*** (.110)	.298*** (.087)	.416*** (.125)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	-3.880 (7.044)	-33.712*** (12.458)	25.586** (12.884)	20.544* (12.274)	25.473* (13.190)	29.379** (14.635)	51.619*** (18.916)	22.729 (22.992)	56.921* (29.623)
Democracy in Neighboring countries _{t-5}				.015 (.076)					.113 (.120)
Educational Attainment _{t-5}					4.064*** (.844)				5.169*** (1.184)
Democracy in trading partners _{t-5}									
Tertiary enrollment _{t-5}								6.482*** (1.306)	.219 (1.612)
GDP per capita _{t-5}								7.519** (3.303)	-1.858 (2.739)
Total Effect of Democracy in host countries	.096*** (.036)	.094* (.050)	.098*** (.035)	.323*** (.074)	.426*** (.097)	.348*** (.070)	.361*** (.108)	.313*** (.088)	.453*** (.124)
Total Effect of Students Abroad	-.719 (3.187)	-3.629 (7.882)	-.719 (3.186)	7.319 (5.276)	2.404 (6.944)	6.469 (5.508)	7.598 (6.914)	3.405 (5.993)	-6.048 (7.444)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(1) Test			.00	.00	.00	.00	.00	.00	.00
AR(2) Test			.76	.66	.73	.73	.49	.51	.49
Hansen's J test			.15	.20	.32	.18	.05	.27	.44
No. of Instr.			138	142	114	135	110	132	106
No. of countries		158	158	157	114	150	152	147	106
Observations	1,107	1,107	1,107	1,084	781	976	724	861	528
R-squared	.76	.41							

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. AR(1) and AR(2) are Arellano-Bond test for serial correlations. The sample is an unbalanced panel, comprising data at five year interval between 1960 and 2000. Students abroad, democracy in host countries, and all other control variables are treated as predetermined and are instrumented for using their own first to third lags. The total effect of democracy in host countries is calculated summing the coefficient on 'democracy in host countries' and on the interaction between 'students abroad' and 'democracy in host countries', evaluated at average level of students abroad. The total effect of students is calculated summing the coefficient on 'students abroad' and on the interaction between 'students abroad' and 'democracy in host countries', evaluated at average democracy in host countries.

Table A1b. Dependent Variable: Polity2 – Differences

	Change in Democracy _t (5 years) OLS (1)	Change in Democracy _t (5 years) Fixed Effects (2)	Change in Democracy _t (10 years) OLS (3)	Change in Democracy _t (10 years) Fixed Effects (4)	Change in Democracy _t (40 years) OLS (5)	Change in Democracy _t (40 years) OLS (6)
5-Year Change in Students Abroad _{t-5}	-2.913 (3.625)	-2.808 (3.580)				
5-Year Change Democracy in Host countries _{t-5}	.052 (.039)	.057 (.041)				
5-Year Change in (Students Abroad _{t-5} * Democ. in host countries _{t-5})	-2.846 (6.881)	-4.231 (5.781)				
10-Year Change in Students Abroad _t			-2.260 (5.757)	1.027 (7.847)		
10-Year Change in Democ. in Host Countries _t			.184** (.076)	.285*** (.107)		
10-Year Change in (Students Abroad _{t-10} * Democ. in Host Countries _{t-10})			-4.678 (10.700)	-11.803 (13.370)		
40-Year Change in Students Abroad _t					-179.260 (189.415)	189.408 (265.104)
40-Year Change Democracy in Host Countries _t					.320* (.172)	.293 (.238)
40-Year Change in (Students Abroad _t * Democ. in Host Countries _t)					173.318 (195.401)	-207.936 (274.063)
40-Year Change in Educational Attainment _t						-1.931 (2.958)
Country Effects		Yes		Yes		
No. of countries	138	138	135	135		
Observations	846	846	340	340	97	74
R-squared	.00	.00	.01	.03	.06	.04

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. The sample is an unbalanced panel, comprising data between 1955 and 2000.

Table A2a. Dependent Variable: Przeworski et al. Democracy Index - Levels

	Pooled OLS (1)	Fixed Effects OLS (2)	System GMM (3)	System GMM (4)	System GMM (5)	System GMM (6)	System GMM (7)	System GMM (8)	System GMM (9)
Democracy _{t-5}	.794*** (.032)	.281*** (.060)	.285*** (.063)	.353*** (.066)	.128* (.074)	.286*** (.066)	.188** (.087)	.412*** (.094)	.210** (.096)
Students Abroad _{t-5}	-3.810 (5.987)	5.975 (9.490)	-18.837** (8.654)	-17.258** (8.601)	-30.557** (13.853)	-28.516** (11.985)	-36.592** (15.701)	-32.759 (52.128)	-104.616*** (25.857)
Democracy in host countries _{t-5}	.078* (.040)	.082 (.060)	.234*** (.077)	.192** (.082)	.184 (.134)	.368*** (.083)	.224* (.129)	.191* (.110)	.140 (.169)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	14.059 (11.167)	12.480 (30.375)	45.605** (18.043)	40.499** (18.266)	42.946* (24.865)	56.304*** (21.157)	69.844*** (25.626)	41.014 (64.128)	131.429*** (36.506)
Democracy in Neighboring countries _{t-5}				.037 (.107)					.278* (.161)
Educational Attainment _{t-5}					7.228*** (1.702)				4.881** (2.066)
Democracy in trading partners _{t-5}						-.431** (.188)			-.362 (.317)
Tertiary enrollment _{t-5}							17.245*** (3.518)		9.358* (5.321)
GDP per capita _{t-5}								15.792** (6.307)	-2.343 (3.879)
Total Effect of Democracy in host countries	.089** (.040)	.092 (.058)	.089** (.040)	.222*** (.082)	.216* (.126)	.398*** (.077)	.277** (.125)	.222* (.117)	.240 (.167)
Total Effect of Students Abroad	7.584 (4.762)	16.090 (17.038)	7.585 (4.762)	15.572 (8.235)	4.251 (9.773)	15.218** (7.908)	20.016** (9.520)	.482 (11.558)	1.908 (11.088)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AR(1) Test			.00	.00	.00	.00	.00	.00	.01
AR(2) Test			.24	.19	.52	.34	.37	.24	.64
Hansen's J test			.02	.22	.25	.15	.03	.17	.26
No. of Instr.			124	152	114	133	91	133	102
No. of countries	157	157	157	154	114	137	138	143	102
Observations	1,022	1,022	1,022	995	688	863	603	768	436
R-squared	.66	.15							

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. AR(1) and AR(2) are Arellano-Bond test for serial correlations. The sample is an unbalanced panel, comprising data at five year interval between 1960 and 2000. Students abroad, democracy in host countries, and all other control variables are treated as predetermined and are instrumented for using their own first to third lags. The total effect of democracy in host countries is calculated summing the coefficient on 'democracy in host countries' and on the interaction between 'students abroad' and 'democracy in host countries', evaluated at average level of students abroad. The total effect of students is calculated summing the coefficient on 'students abroad' and on the interaction between 'students abroad' and 'democracy in host countries', evaluated at average democracy in host countries.

Table A2b. Dependent Variable: Przeworski et al. Democracy Index – Differences

	Change in Democracy _t (5 years) OLS (1)	Change in Democracy _t (5 years) Fixed Effects (2)	Change in Democracy _t (10 years) OLS (3)	Change in Democracy _t (10 years) Fixed Effects (4)	Change in Democracy _t (40 years) OLS (5)	Change in Democracy _t (40 years) OLS (6)
5-Year Change in Students Abroad _{t-5}	21.296 (21.635)	22.998 (22.022)				
5-Year Change Democracy in Host countries _{t-5}	.036 (.064)	.046 (.069)				
5-Year Change in (Students Abroad _{t-5} * Democ. in host countries _{t-5})	-12.258 (14.066)	-12.880 (14.442)				
10-Year Change in Students Abroad _t			3.020 (6.592)	12.684 (10.782)		
10-Year Change in Democ. in Host Countries _t			.047 (.112)	.209 (.181)		
10-Year Change in (Students Abroad _{t-10} * Democ. in Host Countries _{t-10})			11.734 (15.306)	5.494 (20.419)		
35-Year Change in Students Abroad _t					-238.231*** (88.980)	-120.223 (126.345)
35-Year Change Democracy in Host Countries _t					.466** (.182)	.413 (.282)
35-Year Change in (Students Abroad _t * Democ. in Host Countries _t)					251.348*** (90.284)	149.662 (130.489)
35-Year Change in Education Attainment _t						-3.973 (3.498)
Country Effects		Yes		Yes		
No. of countries	157	157	146	146		
Observations	764	764	361	361	103	78
R-squared	.00	.00	.01	.02	.08	.07

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. The sample is an unbalanced panel, comprising data between 1955 and 2000.

Table A3. Alternative Specification of the student variables
Dependent variable: Democracy indices

	Polity II	Przeworski et al.
	GMM (β)	GMM (δ)
Democracy _{t-5}	.371*** (.078)	.164** (.067)
Students to democratic countries _{t-5}	28.924* (17.176)	40.841*** (11.830)
Students to NON democratic countries _{t-5}	-12.257 (18.199)	-48.038*** (13.484)
Time effects	Yes	Yes
Country effects	Yes	Yes
AR(1) Test	.00	.00
AR(2) Test	.74	.48
Hansen's J test	.66	.14
No. of Instr.	106	95
No. of countries	158	157
Observations	1,099	1,017

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. The sample is an unbalanced panel, comprising data between 1960 and 2000. Students abroad are treated as predetermined and are instrumented for using their own first to third lags. Instrumental variables are described in the text.

Table A4. Regression without lag dependent variable
Dependent Variable: Freedom House Index of Political Freedom.

	Pooled OLS (1)	Fixed Effects OLS (2)	Fixed Effects OLS (3)
Students Abroad _{t-5}	12.295 (26.537)	9.921 (15.018)	30.169 (33.996)
Democracy in host countries _{t-5}	.775*** (.081)	.264*** (.055)	.438*** (.115)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	23.824 (29.312)	-13.531 (17.995)	-64.480* (38.541)
Democracy in Neighboring countries _{t-5}			-.328 (2.361)
Educational Attainment _{t-5}			-.262 (.191)
Democracy in trading partners _{t-5}			.643 (1.712)
Tertiary enrollment _{t-5}			.162 (6.109)
GDP per capita _{t-5}			.206* (.104)
Total Effect of Democracy in host countries	.799*** (.078)	.250*** (.050)	.372*** (.113)
Total Effect of Students Abroad	32.252*** (5.518)	-1.413 (3.967)	-23.844** (9.84)
Time effects	Yes	Yes	Yes
Country effects		Yes	Yes
No. of countries	183	183	108
Observations	1,393	1,393	614
R-squared	.24	.12	.16

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. The sample is an unbalanced panel, comprising data at five year interval between 1960 and 2000. The total effect of democracy in host countries is calculated summing the coefficient on 'democracy in host countries' and on the interaction between 'students abroad' and 'democracy in host countries', evaluated at average level of students abroad. The total effect of students is calculated summing the coefficient on 'students abroad' and on the interaction between 'students abroad' and 'democracy in host countries', evaluated at average democracy in host countries.

**Table A5a. Dependent Variable: Freedom House Index of Political Freedom –
(controlling for domestic education)**

	Pooled OLS	Fixed Effects OLS	System GMM	System GMM	System GMM	System GMM	System GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Democracy _{t-5}	0.774*** (0.032)	.353*** (.050)	.403*** (.069)	.427*** (.066)	.228*** (.073)	.446*** (.067)	.330*** (.070)
Students Abroad _{t-5}	6.138 (9.247)	35.432 26.337	-15.462 (15.272)	-5.007 (15.579)	-.406 (15.248)	3.622 (16.701)	-15.006 24.194
Democracy in host countries _{t-5}	0.115** (0.052)	0.241*** (0.075)	0.257*** (0.099)	0.272*** (0.096)	0.392*** (0.107)	.289*** (.088)	.236* (.133)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	-2.749 (10.745)	-56.848** (28.276)	36.875* 21.133	22.486 (20.686)	4.540 (20.940)	6.938 (22.444)	34.730 (29.325)
Tertiary enrollment _{t-5}	2.263*** (0.491)	-0.755 (1.027)	6.741*** 1.032	6.231*** (.965)	0.603 (1.384)	5.980*** (.971)	6.882*** (1.189)
Democracy in Neighboring countries _{t-5}				.085 (.083)			
Educational Attainment _{t-5}					6.155*** (1.209)		
Democracy in trading partners _{t-5}						.059 (.146)	
GDP per capita _{t-5}							3.388 (2.522)
Total Effect of Democracy in host countries	.112** (.050)	.182*** (.070)	.295*** (.095)	.295*** (.090)	.396*** (.101)	.296*** (.084)	.272** (.126)
Total Effect of Students Abroad	3.815 (2.990)	-12.592 (6.165)	15.689*** (5.312)	13.988*** (5.050)	3.429 (6.355)	9.483 (6.430)	14.332** (6.207)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects		Yes	Yes	Yes	Yes	Yes	Yes
AR(1) Test			.00	.00	.00	.00	.00
AR(2) Test			.53	.68	.92	.63	.35
Hansen's J test			.05	.06	.61	.06	.06
No. of Instr.			127	128	128	128	128
No. of countries		163	163	163	114	152	156
Observations	877	877	877	874	675	834	794
R-squared	0.75	0.65					

Table A5b. Dependent Variable: Polity2 – (controlling for domestic education)

	Pooled OLS (1)	Fixed Effects OLS (2)	System GMM (3)	System GMM (4)	System GMM (5)	System GMM (6)	System GMM (7)
Democracy _{t-5}	.763*** (.035)	.313*** (.054)	.338*** (.078)	.397*** (.075)	.259*** (.087)	.370*** (.079)	.379*** (.079)
Students Abroad _{t-5}	-12.253 (7.574)	25.427 (16.028)	- 35.058*** (12.645)	-27.340** (12.108)	-27.477*** (9.021)	-45.340*** (15.833)	-30.117 20.315
Democracy in host countries _{t-5}	.102* (.058)	.276*** (.095)	.327*** (.110)	.341*** (.106)	.437*** (.126)	.381*** (.102)	.309** (.125)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	12.615 (11.222)	-51.428** (23.127)	51.619*** (18.916)	39.587** (18.439)	32.403** (14.571)	61.065*** (21.105)	45.177* (23.987)
Tertiary enrollment _{t-5}	2.150*** (.573)	-3.331* (1.794)	6.482*** (1.306)	5.863*** (1.264)	-.091 (1.574)	6.082*** (1.271)	7.491*** (1.715)
Democracy in Neighboring countries _{t-5}				-.031 (.095)			
Educational Attainment _{t-5}					5.263*** (1.266)		
Democracy in trading partners _{t-5}						-.309 (.200)	
GDP per capita _{t-5}							-1.268 (2.967)
Total Effect of Democracy in host countries	.113** (.057)	.234*** (.089)	.369*** (.107)	.373*** (.102)	.463*** (.123)	.345*** (.122)	.462*** (.124)
Total Effect of Students Abroad	-1.678 (3.898)	-17.683* (9.311)	8.213 (7.053)	5.844 (6.930)	-.314 (6.193)	7.753 (6.929)	-5.369 (7.447)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects		Yes	Yes	Yes	Yes	Yes	Yes
AR(1) Test			.00	.00	.00	.00	.00
AR(2) Test			.49	.37	.78	.26	.23
Hansen's J test			.05	.16	.80	.22	.30
No. of Instr.			110	131	131	131	131
No. of countries		152	152	152	112	146	145
Observations	724	724	724	721	585	699	650
R-squared	0.75	0.50					

Table A5b. Dependent Variable: Przeworski et al. Democracy Index – (controlling for domestic education)

	Pooled OLS (1)	Fixed Effects OLS (2)	System GMM (3)	System GMM (4)	System GMM (5)	System GMM (6)	System GMM (7)
Democracy _{t-5}	.709*** (.046)	.204*** (.075)	.188** (.087)	.245*** (.085)	.144 (.090)	.187** (.087)	.213** (.088)
Students Abroad _{t-5}	-12.128 (7.937)	22.435 (16.873)	-36.592** (15.701)	-33.266*** (14.442)	-37.892*** (13.984)	-54.18*** (19.45)	-131.9*** (44.104)
Democracy in host countries _{t-5}	.107 (.066)	.380** (.147)	.224* (.129)	.171 (.120)	.156 (.159)	.384*** (.120)	-.051 (.159)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	27.547** (13.458)	-51.323** (20.036)	69.844*** (25.626)	62.916*** (25.249)	51.466*** (25.162)	81.174*** (32.359)	176.31*** (54.402)
Tertiary enrollment _{t-5}	6.332*** (1.447)	2.130 (3.938)	17.245*** (3.518)	16.442*** (3.345)	6.782 (4.374)	16.444*** (3.246)	18.869*** (4.422)
Democracy in Neighboring countries _{t-5}				.150 (.124)			
Educational Attainment _{t-5}					6.829*** (2.352)		
Democracy in trading partners _{t-5}						-.674*** (.228)	
GDP per capita _{t-5}							1.225 (4.538)
Total Effect of Democracy in host countries	.133** (.065)	.331** (.137)	.290** (.124)	.231** (.115)	.205 (.148)	.462*** (.115)	.116 (.156)
Total Effect of Students Abroad	10.152* (5.762)	-19.086 (18.314)	19.898** (9.489)	17.621* (10.141)	3.734 (11.785)	11.478 (12.221)	10.699 (7.601)
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country effects		Yes	Yes	Yes	Yes	Yes	Yes
AR(1) Test			.00	.00	.01	.00	.01
AR(2) Test			.37	.22	.77	.31	.36
Hansen's J test			.04	.07	.34	.10	.11
No. of Instr.			93	110	108	110	110
No. of countries		138	138	137	110	129	130
Observations	603	603	603	600	487	576	534
R-squared	0.75	0.50					

Table A6. Earlier Versus Later Periods (cut-off 1985)

	Freedom House <i>Year</i> ≤ 1985 (1)	Freedom House <i>Year</i> > 1985 (2)	Polity II <i>Year</i> ≤ 1985 (3)	Polity II <i>Year</i> > 1985 (4)	Przeworski et al. <i>Year</i> ≤ 1985 (5)	Przeworski et al. <i>Year</i> > 1985 (6)
Democracy _{t-5}	.528*** (.064)	.644*** (.043)	.401*** (.091)	.525*** (.057)	.172** (0.084)	0.590*** (.061)
Students Abroad _{t-5}	-22.946** (9.941)	4.739 (17.856)	-19.066 (11.958)	-34.188 (20.196)	-20.656* (11.623)	-24.980 (26.032)
Democracy in host countries _{t-5}	.315*** (.071)	.061 (.084)	.383*** (.086)	.222** (.105)	.389*** (0.086)	.072 (.119)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	52.690*** (16.305)	9.147 (19.340)	39.678** (15.575)	44.768* (23.727)	60.147*** (23.046)	39.111 (30.758)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
AR(1) Test	0	0	0	0	0	0
AR(2) Test	.97	.51	.63	.18	.26	.25
Hansen's J test	.01	0	.03	0	0	.04
No. of Instruments	90	92	90	78	90	65
No. of countries	154	182	136	156	147	156
Observations	707	672	685	422	719	303

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. AR(1) and AR(2) are Arellano-Bond test for serial correlations. The sample is an unbalanced panel, comprising data at five year interval between 1960 and 1985 for specifications (1), (2), and (3), between 1990 and 2005 for specification (2), and between 1990 and 2000 for specifications (4) and (6). Students abroad and democracy in host countries are considered predetermined and are instrumented for using their own first and second lags.

Table A7. Small Versus Large Countries (cut-off 2 million)

	Freedom House <i>Population</i> < 2 mil (1)	Freedom House <i>Population</i> > 2 mil (2)	Polity II <i>Population</i> < 2 mil (3)	Polity II <i>Population</i> > 2 mil (4)	Przeworski et al. <i>Population</i> < 2 mil (5)	Przeworski et al. <i>Population</i> > 2 mil (6)
Democracy _{t-5}	.652*** (.072)	.547*** (.052)	.766*** (.085)	.439*** (.063)	.508*** (.096)	.364*** (.070)
Students Abroad _{t-5}	-11.936 (10.872)	7.463 (16.118)	-2.467 (8.472)	-20.624 (22.508)	-10.512 (6.957)	7.542 (19.879)
Democracy in host countries _{t-5}	.164** (.077)	.238*** (.064)	.091 (.066)	.365*** (.074)	.196* (.104)	.367*** (.087)
Students Abroad _{t-5} * Democracy in host countries _{t-5}	30.384** (14.633)	-4.904 (26.627)	11.826 (10.079)	29.739 (40.415)	50.415*** (11.101)	-36.169 (54.140)
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
AR(1) Test	.00	.00	.01	.00	.07	.00
AR(2) Test	.52	.78	.80	.67	.04	.18
Hansen's J test	1.00	.38	1.00	.53	1.00	.35
No. of Instruments	140	155	137	141	117	128
No. of countries	60	180	39	138	55	121
Observations	266	1,113	160	947	204	818

* significant at 10%; ** significant at 5%, *** significant at 1%. Robust standard errors clustered by country in parentheses. AR(1) and AR(2) are Arellano-Bond test for serial correlations. The sample is an unbalanced panel, comprising data at five year interval between 1960 and 2005. Students abroad and democracy in host countries are considered predetermined and are instrumented for using their own first and second lags and their differences.

Table A8. Education of World Leaders in 1990

Country	Last name	First name	Primary	Secondary	Tertiary	Other
Angola	Dos Santos	Jose Eduardo	.	.	Russia	.
Argentina	Menem	Carlos	Argentina	Argentina	Argentina	.
Australia	Hawke	Robert James Lee	Australia	Australia	Australia	UK
Austria	Vranitzky	Franz	Austria	Austria	Austria	.
Bangladesh	Ershad	Hossain Mohammad	Bangladesh	Bangladesh	Bangladesh	India
Barbados	Sandiford	Lloyd Erskine	.	.	Jamaica	UK
Belgium	Martens	Wilfried	.	.	Belgium	.
Benin	Kerekou	Mathieu	.	.	France	.
Bolivia	Paz (Zamora)	Jaime	Bolivia	Bolivia	Chile	.
Brazil	Sarnay	Jose	Brazil	Brazil	Brazil	.
Cameroon	Biya	Paul	.	.	France	.
Canada	Mulroney	Martin Brian	Canada	Canada	Canada	.
Chad	Habre	Hissene	Chad	Chad	France	.
Chile	Pinochet (Ugarte)	Augusto	Chile	Chile	.	Chile
China	Xiaoping	Deng	China	China	France	Russia
Colombia	Gaviria(Trujillo)	Cesar	.	.	Colombia	.
Congo, Dem. Rep.	Seko	Mobutu Sese (Joseph)	Congo, Dem. Rep.	Congo, Dem. Rep.	.	Belgium
Congo, Republic of	Sassou-Nguesso	Denis	.	.	.	Algeria
Costa Rica	Sanchez	Oscar Rafael de Jesus Arias	Costa Rica	Costa Rica	US	France Costa Rica
Côte d'Ivoire	Houphouet-Boigny	Felix	Côte d'Ivoire	Côte d'Ivoire	Senegal	.
Denmark	Schluter	Poul Holmskov	.	.	Denmark	Denmark
Dominica	Charles	Mary Eugenia	Dominica	Dominica	Canada	UK Grenada France
Dominican Republic	Balaguer y Ricardo	Joaquin Amparo	Dominican Republic	Dominican Republic	Dominican Republic	.
Ecuador	Borja (Cevallos)	Rodrigo	Ecuador	Ecuador	Ecuador	Ecuador
Egypt	Mubarak	Hosni	Egypt	Egypt	Egypt	.
El Salvador	Burkard	Alfredo Felix Cristiani	El Salvador	El Salvador	US	.
Equatorial Guinea	Obiang Nguema	Teodoro	Equatorial Guinea	Equatorial Guinea	Spain	.
Ethiopia	Haile Mariam	Mengistu	Ethiopia	Ethiopia	Ethiopia	.

(Continues)

Source: Author's research. The list of leaders is from the list of world leaders from Jones and Olken (2005). The table includes leaders who were in power in 1990. The information was collected by checking biography of each leader. If no information was available a missing value is indicated. Therefore, the numbers are a lower bound for the actual number of foreign-educated leaders.

Table A8. (Continuation) Education of world leaders in 1990

Country	Last name	First name	Primary	Secondary	Tertiary	Other
Fiji	Mara	Kamisese	.	.	New Zealand	UK
Finland	Koivisto	Mauno Henrik	Finland	Finland	Finland	Finland
France	Mitterrand	Francois	France	France	France	.
Gabon	Bongo	Omar	Congo, Rep.	Congo, Rep.	.	Chad
Gambia, The	Jawara	Sir Dawda	.	.	UK	.
Ghana	Rawlings	Jerry	Ghana	Ghana	.	Ghana
Greece	Mitsotakis	Konstantinos Kiriakou	.	.	Greece	.
Guatemala	Arevalo	Marco Vinicio Cerezo	Guatemala	Guatemala	Guatemala	.
Guinea	Conte	Lansana	.	Côte d'Ivoire	.	.
Honduras	Romero	.	.	.	US	.
Hungary	Antall	Jozsef	Hungary	Hungary	Hungary	.
Iceland	Hermannsson	Steingrimur	Iceland	Iceland	US	US
India	Shekhar	Chandra	.	.	.	India
Indonesia	Suharto	.	.	.	Indonesia	.
Iran	Khamenei	Sayyed Mohammad Ali Hoseyn	Iran	Iran	Iran	.
Ireland	Haughey	Charles James	Ireland	Ireland	Ireland	.
Israel	Shamir	Yitzhak	.	Poland	Palestine	.
Italy	Andreotti	Giulio	.	.	Italy	.
Jamaica	Manley	Michael Norman	.	.	UK	.
Japan	Kaifu	Toshiki	.	.	Japan	.
Jordan	Al-Hashimi	Hussein ibn Talal	.	UK	UK	.
Kenya	Moi	Daniel Arap	.	Kenya	Kenya	.
Korea, Republic of	Roh	Tae Woo	.	Korea, Republic of	Korea, Republic of	.
Lesotho	Lekhanya	Justin	.	.	.	.
Liberia	Doe	Samuel K.	.	.	.	.
Liberia	Sawyer	Amos	.	.	.	US
Luxembourg	Santer	Jacques	.	.	France	France
Madagascar	Ratsiraka	Didier	.	Madagascar	France	.
Malawi	Banda	Hastings K.	.	US	US	UK
Malaysia	Mohamad	Datuk Ser Mahathir Bin	.	.	Malaysia	Singapore
Mali	Traore	Moussa	.	Mali	France	.

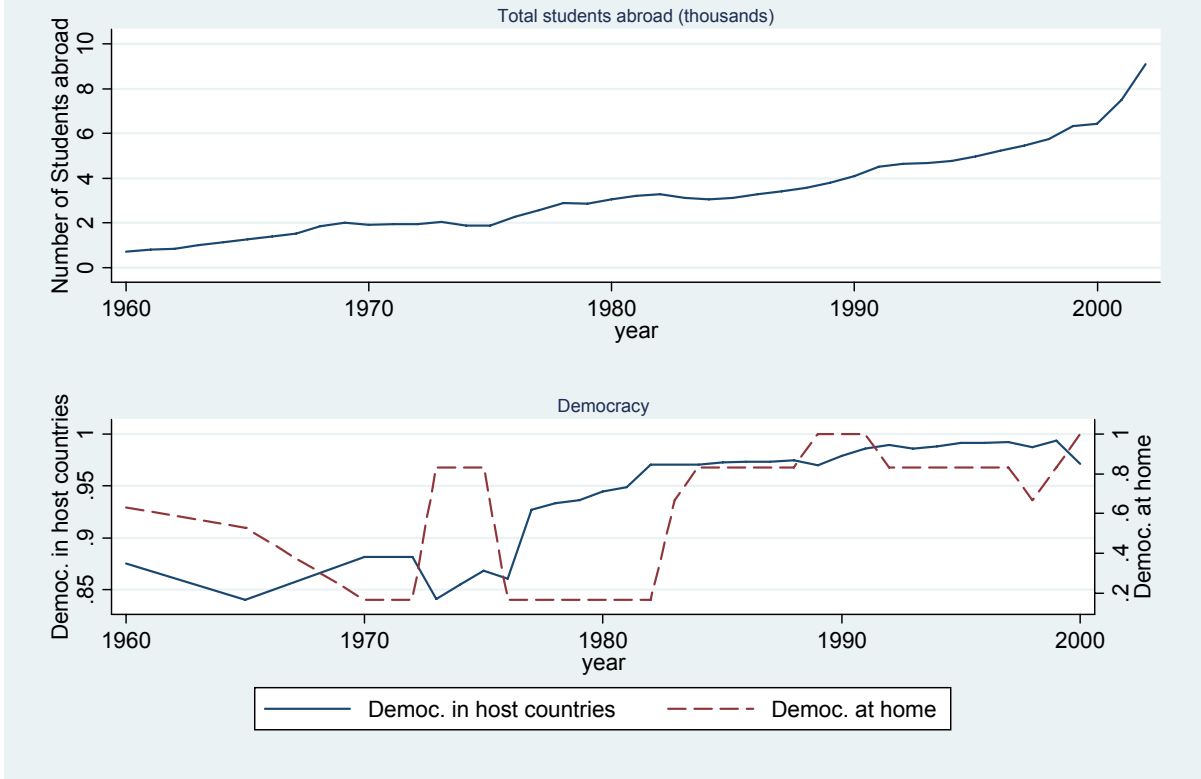
Table A8. (Continuation) Education of World Leaders in 1990

Mauritania	Taya	Maaouya Ould Sid'ahmed	Mauritania	Mauritania	Mauritania	
Mauritius	Jugnauth	Aneerood	.	.	UK	.
Mexico	de Gortari	Carlos Salinas	.	.	Mexico	US
Morocco	Mohammed	Mawlay al-Hasan II ibn	.	.	Morocco	France
Mozambique	Chissano	Joaquim	Mozambique	Mozambique	France	Portugal
Namibia	Nujoma	Sam	Namibia	Namibia	.	.
Nepal	Birendra	Mohan Shumshere J.B.	.	UK	US	Japan
Netherlands	Lubbers	Rudolphus Frans Marie (Ruud)	.	.	Netherlands	.
New Zealand	Palmer	Geoffrey Winston Russel	.	New Zealand	New Zealand	US
Nicaragua	Saavedra	Jose Daniel Ortega	Nicaragua	Nicaragua	Nicaragua	.
Niger	Seibou	Ali	.	Senegal	Niger	.
Nigeria	Babangida	Ibrahim	Nigeria	Nigeria	UK	.
Norway	Brundtland	Gro Harlem	.	.	Norway	US
Pakistan	Sharif	Nawaz	.	Pakistan	Pakistan	Pakistan
Pakistan	Bhutto	Benazir	Pakistan	Pakistan	US	UK
Panama	Galimany	Guillermo David Endara	.	.	Panama	US
Papua New Guinea	Namaliu	Rabbie	.	.	Papua New Guinea	Canada
Paraguay	Rodriguez (Pedotti)	Andres	.	.	.	.
Peru	Garcia (Perez)	Alan	Peru	Peru	Peru	Spain
Philippines	Aquino	Corazon	US	US	US	Philippines
Poland	Walesa	Lech	Poland	.	.	.
Portugal	Silva	Anibal Cavaco	.	.	US	UK
Romania	Iliescu	Ion	Romania	Romania	Russia	.
Rwanda	Habyarimana	Juvenal	.	.	Zaire	Zaire
São Tomé and Príncipe	Costa	Manuel Pinto Da	.	.	.	.
Senegal	Diouf	Abdul	.	.	.	.
Seychelles	Rene	France Albert	.	.	UK	UK
Sierra Leone	Momoh	Joseph Saidu	.	.	.	Ghana, Nigeria, UK

Table A8. (Continuation) Education of world leaders in 1990

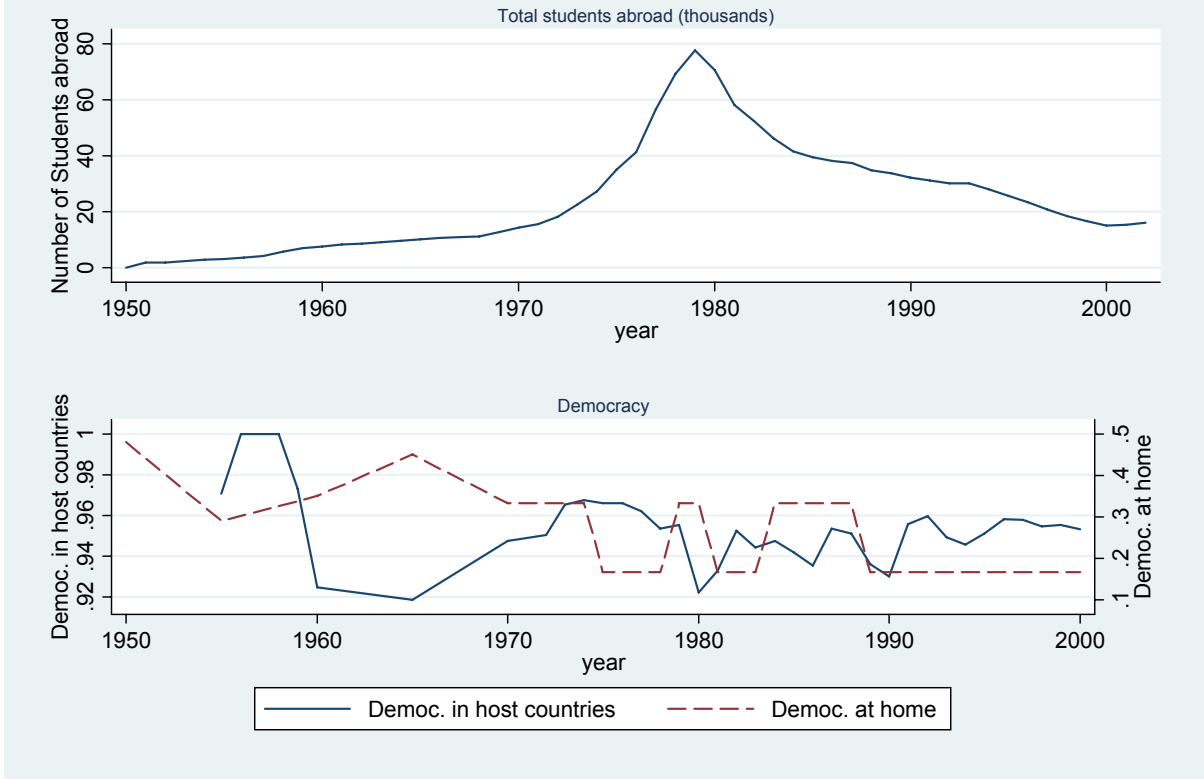
Singapore	Lee	Kuan Yew	Singapore	Singapore	Singapore	UK
Singapore	Goh	Chok Tong	.	.	Singapore	US
Somalia	Barre	Mohammed Siad	.	.	.	Italy
South Africa	de Klerk	F.W.	.	.	South Africa	.
Spain	Marquez	Felipe Gonzales	.	.	Spain	Spain
Sri Lanka	Premadasa	Ranasinghe	.	.	Sri Lanka	.
St. Kitts & Nevis	Simmonds	Kennedy	St. Kitts & Nevis	St. Kitts & Nevis	Jamaica	Bahamas
St. Lucia	Compton	John	.	.	.	UK
St. Vincent & Grenadines	Mitchell	James Fitz-Allen	.	.	Trinidad & Tobago	Canada
Sudan	Al-Bashir	Omar	.	.	.	Egypt
Sweden	Carlsson	Ingvar Gosta	Sweden	Sweden	US	.
Switzerland	Koller	Arnold	.	.	.	.
Syria	al-Assad	Abu Sulayman Hafiz	Syria	Syria	.	Syria
Taiwan, Province of China	Teng-Hui	Lee	Taiwan, Province of China	Taiwan, Province of China	Japan	Taiwan, Province of China
Tanzania	Mwinyi	Ali Hassan	Tanzania	Tanzania	Tanzania	UK
Thailand	Choonhavan	Chatichai	Thailand	Thailand	Thailand	US
Togo	Eyadema	Gnassingbe	Togo	Togo	.	.
Trinidad & Tobago	Robinson	Arthur Napoleon	Trinidad & Tobago	Trinidad & Tobago	UK	UK
Tunisia	Ali	Zine El Abidine Ben	.	.	France	US
Turkey	Ozal	Turgut	Turkey	Turkey	Turkey	US
Uganda	Museveni	Yoweri	Uganda	Uganda	Tanzania	.
United Kingdom	Major	John Roy	UK	UK	.	.
United Kingdom	Thatcher	Margaret Hilda	UK	UK	UK	.
United States	Bush	George H.	US	US	US	.
Uruguay	Lacalle	Luis	.	.	Uruguay	.
Uruguay	Sanguinetti (Cairola)	Julio	.	.	Uruguay	.
Venezuela	Perez	Carlos Andres	.	Venezuela	Venezuela	.
Yemen	al-Hashidi	Ali 'Abd Allah Saleh	Yemen	Yemen	Yemen	.
Zimbabwe	Mugabe	Robert	.	.	South Africa	UK

Figure A1. Argentina



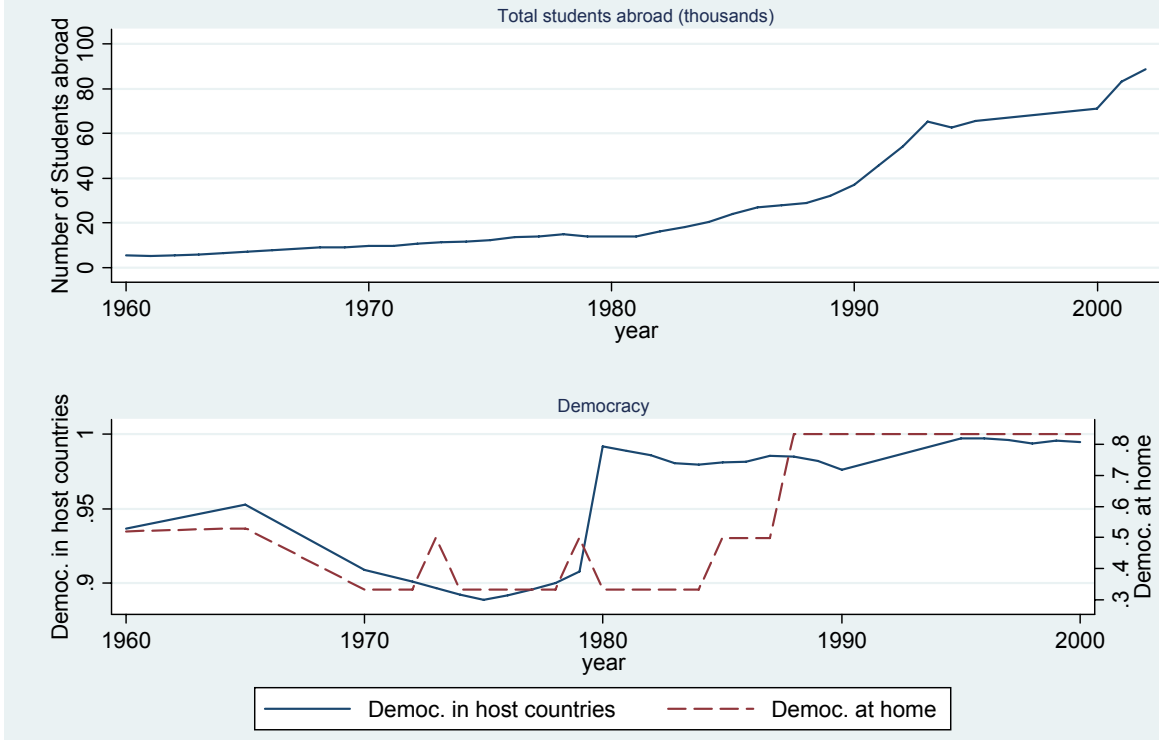
Note: the top panel shows total number of Argentinean students abroad in expressed in thousands. The bottom panel shows the level of democracy in home country and in students' host countries, i.e. the average level of democracy in countries where Argentinean students are. Both indices are constructed using the Freedom House index of democracy normalized so it lies between 0 and 1. The construction of the data is described in the data appendix.

Figure A2. Iran



Note: the top panel shows total number of Iranian students abroad in expressed in thousands. The bottom panel shows the level of democracy in home country and in students' host countries, i.e. the average level of democracy in countries where Iranian students are. Both indices are constructed using the Freedom House index of democracy normalized so it lies between 0 and 1. The construction of the data is described in the data appendix.

Figure A3. Korea



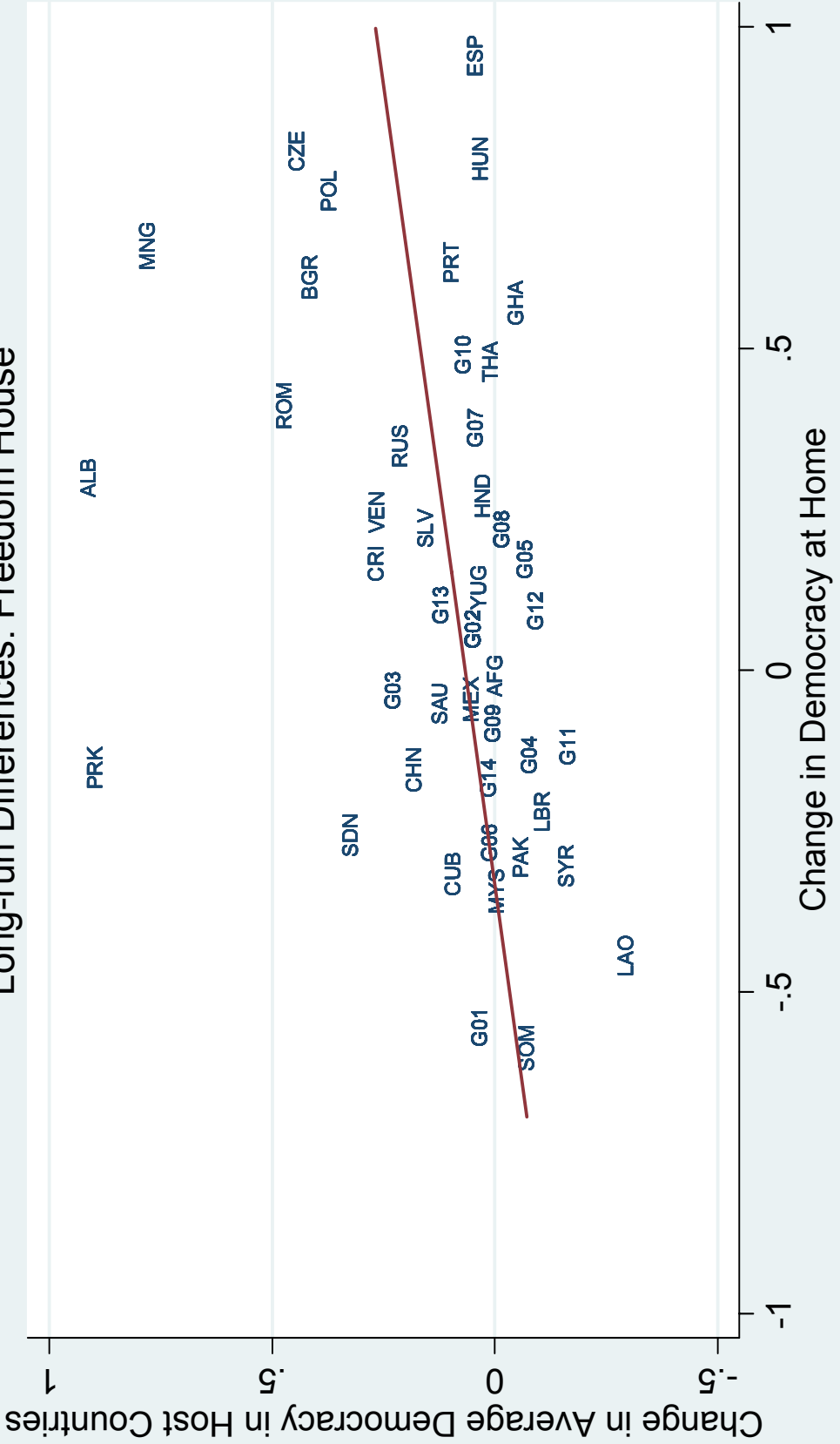
Note: the top panel shows total number of Korean students abroad in expressed in thousands. The bottom panel shows the level of democracy in home country and in students' host countries, i.e. the average level of democracy in countries where Korean students are. Some outliers in the 90s were excluded in the graph and in the regressions. Both indices are constructed using the Freedom House index of democracy normalized so it lies between 0 and 1. The construction of the data is described in the data appendix.

Table A9. Country codes used in Figure A4

Afghanistan	AFG	Haiti	HTI	Pakistan	PAK
Albania	ALB	Honduras	HND	Panama	PAN
Argentina	ARG	Hungary	HUN	Paraguay	PRY
Australia	AUS	Iceland	ISL	Peru	PER
Austria	AUT	India	IND	Philippines	PHL
Belgium	BEL	Indonesia	IDN	Poland	POL
Bolivia	BOL	Iran	IRN	Portugal	PRT
Brazil	BRA	Iraq	IRQ	Romania	ROM
Bulgaria	BGR	Ireland	IRL	Russia	RUS
Cambodia	KHM	Israel	ISR	San Marino	SMR
Canada	CAN	Italy	ITA	Saudi Arabia	SAU
Chile	CHL	Japan	JPN	Somalia	SOM
China	CHN	Jordan	JOR	South Africa	ZAF
Colombia	COL	Korea	KOR	Spain	ESP
Costa Rica	CRI	Korea, North	PRK	Sri Lanka	LKA
Cuba	CUB	Lao	LAO	Sudan	SDN
Cyprus	CYP	Lebanon	LBN	Sweden	SWE
Czech Rep.	CZE	Liberia	LBR	Switzerland	CHE
Denmark	DNK	Libya	LBY	Syria	SYR
Dominican Rep.	DOM	Luxembourg	LUX	Thailand	THA
Ecuador	ECU	Malaysia	MYS	Tunisia	TUN
Egypt	EGY	Mexico	MEX	Turkey	TUR
El Salvador	SLV	Mongolia	MNG	UK	GBR
Ethiopia	ETH	Morocco	MAR	US	USA
Finland	FIN	Nepal	NPL	Uruguay	URY
France	FRA	Netherlands	NLD	Venezuela	VEN
Germany	DEU	New Zealand	NZL		
Ghana	GHA	Nicaragua	NIC		
Greece	GRC	Nigeria	NGA		
Guatemala	GTM	Norway	NOR		

Figure A4. Democracy in Home vs. Host Countries

Long-run Differences. Freedom House



Note: Changes are total differences between 1960 and 2000. See Appendix Table A9 for data definitions. The regression represented by the fitted line yields a coefficient of 0.032 (standard error=0.058), N=102, R2=0.00. The "G" prefix corresponds to the average for groups of countries. G01 comprises TUN and LBN; G02 comprises BEL, IRL, URY, FIN, DNK, AUS, LUX, GBR, AUT, SMR, NOR, NZL, NLD, USA, ISL, CHE, CAN, ITA, DEU, JPN, FRA, SWE, ISR, BRA, and CHL"; G03 comprises COL and PER; G04 comprises NGA and KHM; G05 comprises PRY and CYP; G06 comprises LBY and LKA; G07 comprises KOR and BOL; G08 comprises NIC, ETH, NPL, GRC, ZAF, and IDN"; G09 comprises TUR, PHL, and HTI; G10 comprises ARG and DOM; G11 comprises IRQ and EGY; G12 comprises GTM and JOR; G13 comprises ECU, MAR, and PAN; G14 comprises IND and IRN.