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On the democratic and demographic transitions

Seminar tables

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Region	Death rate	Birth rate	Rate of natural increase	Life expectancy (years)	Total fertility (births per woman)	Median age (years)	Percent urban
Africa	12.5	36.0	2.4	54.1	4.6	19.7	39.9
Asia	7.4	19.0	1.2	69.0	2.4	29.0	42.5
Latin America	6.0	19.0	1.3	73.4	2.3	27.7	79.4
Europe	11.4	10.5	-0.1	75.1	1.5	40.2	72.6
North America	7.8	13.8	0.6	79.3	2.0	36.9	82.1
World	8.6	20.3	1.2	67.6	2.6	29.1	50.6

Notes: The death and birth rates refer to 2005-10 and are expressed per 1000 population. The rates of natural increase (i.e. the birth rate minus the death rate) are expressed as percentages. The life expectancy and total fertility estimates refer to 2005-10, while the median ages and percent urban figures refer to 2010. Latin America includes the Caribbean. *Sources:* United Nations (2008, 2009).

	Median age	Life expectancy	Percent urban	Total fertility
Life expectancy	0.782			
Percent urban	0.662	0.746		
Total fertility	-0.870	-0.866	-0.679	
Rate of natural increase	-0.954	-0.694	-0.605	0.910

Note: All coefficients are significant at the 1 percent level. *Data sources:* United Nations (2008, 2009).

Table 3 Trends in the age-adjusted index of democratization (AID), urbanization, median age, and GDP per capita of Europe, 1850-2005

Year	AID (ID, n)	Percent urban	Median age (years)	Per capita GDP
1850	2.3 (1.3, 12)	11.5	23.4	-
1860	1.1 (0.6, 13)	<i>13.8</i>	23.0	-
1870	3.8 (2.1, 15)	<i>16.5</i>	22.9	1,516
1880	5.3 (2.9, 17)	<i>19.8</i>	22.3	1,708
1890	5.9 (3.2, 17)	23.7	22.1	1,924
1900	7.3 (4.0, 17)	28.4	22.3	2,167
1910	9.9 (5.6, 18)	<i>31.6</i>	23.6	2,460
1920	14.8 (8.7, 21)	<i>35.1</i>	24.8	2,682
1925	15.4 (9.2, 21)	37.0	25.5	3,053
1930	17.5 (10.7, 21)	39.3	26.3	2,924
1940	7.9 (4.8, 15)	<i>44.5</i>	26.2	3,328
1950	25.3 (16.7, 22)	50.3	29.7	3,651
1955	25.0 (16.6, 22)	54.0	30.1	4,429
1960	21.9 (14.7, 22)	56.9	30.7	5,285
1965	23.2 (15.7, 22)	60.0	31.1	6,396
1970	23.0 (15.8, 22)	62.8	31.8	7,652
1975	26.1 (18.0, 22)	65.7	32.1	8,803
1980	29.5 (20.6, 22)	68.0	32.7	9,602
1985	29.3 (20.8, 22)	69.4	33.7	10,177
1990	35.1 (25.4, 21)	70.5	34.8	11,732
1995	43.8 (32.3, 24)	71.0	36.1	11,945
2000	41.8 (31.5, 24)	71.4	37.6	13,579
2005	37.6 (28.9, 24)	71.9	38.9	15,323

Notes and sources: The figures in italics are interpolated values. The AID and ID values are 3-year averages. The figures in brackets are respectively the population-weighted ID values and the number of countries on which they are based. The ID values are derived from Vanhanen (2009). For the equation used to adjust these ID values see endnote 11. See Maddison (2009) for the populations used to provide the weights. The percent urban figures for 1850-1925 are taken from Grauman (1977); those for 1955-2005 are from United Nations (2008). The 1950 figure is the mean of Grauman's estimate of 49.3 percent (which, as with his estimates for 1850-1925, are inclusive of Turkey and the former Soviet Union (FSU)) and the UN estimate of 51.2 percent (which excludes Turkey and the FSU). The median ages for 1950-2005 are from United Nations (2009). The median ages for 1850-1940 are based on population-weighted averages of estimates made for 15 countries (Austria, Belgium, Britain, Bulgaria, Denmark, France, Germany, Greece, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland) on the basis of age data in United Nations (1956). Data are available for six countries in 1850, but by 1900 the number is twelve. Estimates of median ages from both UN sources (i.e. 1956 and 2009) can be compared for 1950, and the correspondence is close—the weighted averages for the countries with historical data being 32.9 and 32.6 years respectively. But these countries are mostly in western Europe, and in 1950 they contained only 47.8 percent of Europe's population. Also, the UN's (2009) estimate of the median age in Europe in 1950 is 29.7 years (compared to 32.6). This lower figure reflects the inclusion of countries in eastern Europe (e.g. Poland, Russia, Ukraine) which had somewhat higher fertility in the nineteenth century, and somewhat later fertility declines. Therefore, to produce a consistent time series of median ages, the estimates for 1850-1940 made on the basis of the 15 countries were prorated by 0.90 (i.e. 29.7/32.9). The GDP estimates are expressed in 1990 international Geary-Khamis dollars, and are derived from Maddison (2009). Other small changes and qualifications relate to the above series, but are of little consequence for present purposes.

	Dependent variable = AID	Dependent variable = Democ
Percent urban	-0.017 (0.161)	-0.039 (0.043)
Median age	2.370** (0.856)	0.140 (0.226)
Log (GDP)	0.000 (0.001)	0.0003* (0.0002)
R-squared	0.927	0.723
Observations	21	21

Note: Standard errors in parentheses. Significance at the 5 and 10 percent levels is indicated by ** and * respectively. The interpolated values in Table 3 were used in the regressions. *Data:* See Table 3.

	AID (ID)		Median age	
	1890	1930	1890	1930
Austria	0.3 (0.2)	49.0 (32.3)	23.70	29.72
Belgium	1.0 (0.6)	26.2 (17.8)	24.30	31.19
Britain	6.2 (3.4)	43.1 (28.6)	22.56	30.06
Denmark	2.2 (1.3)	36.1 (23.5)	23.94	29.05
France	14.5 (9.5)	23.7 (16.3)	29.18	31.85
Germany	5.2 (2.9)	48.7 (32.3)	23.19	30.07
Greece	1.4 (0.7)	15.3 (8.7)	20.58	23.74
Netherlands	4.6 (2.6)	50.6 (30.4)	23.21	25.64
Portugal	0.3 (0.2)	0.0 (0.0)	24.74	24.35
Sweden	0.4 (0.2)	37.4 (24.4)	25.26	29.27
Switzerland	11.8 (7.0)	48.3 (31.5)	25.14	29.17

Note: See United Nations (1956) for the data used to compute the median ages, and endnote 11 for the equation used to adjust the values of ID.

Table 6 Trends in the age-adjusted index of democratization (AID), urbanization, median age, and GDP per capita, United States, 1850-2005

Year	AID (ID)	Percent urban	Median age (years)	Per capita GDP
1850	14.4 (6.9)	16.5	18.9	1,806
1860	17.5 (8.6)	21.2	19.4	2,178
1870	13.9 (7.0)	27.5	20.2	2,445
1880	18.3 (9.5)	30.2	20.9	3,184
1890	18.2 (9.8)	37.6	22.0	3,392
1900	18.2 (10.1)	42.4	22.9	4,091
1910	29.5 (17.0)	48.8	24.1	4,964
1920	32.3 (19.2)	54.8	25.3	5,552
1930	36.7 (22.5)	60.0	26.5	6,213
1940	36.6 (23.8)	60.5	29.0	7,010
1950	35.2 (23.4)	64.2	30.1	9,561
1955	33.3 (22.2)	67.2	30.2	10,897
1960	34.5 (22.7)	70.0	29.6	11,328
1965	27.8 (17.8)	71.9	28.4	13,419
1970	42.1 (26.9)	73.6	28.2	15,030
1975	32.8 (21.2)	73.7	28.8	16,284
1980	40.6 (27.0)	73.7	30.1	18,577
1985	35.0 (23.9)	74.5	31.5	20,717
1990	41.3 (28.9)	75.3	32.8	23,201
1995	53.1 (37.9)	77.3	34.0	24,603
2000	47.0 (34.1)	79.1	35.1	28,467
2005	46.8 (34.5)	80.8	36.0	30,481

Notes and sources: For the equation used to adjust the ID values, see endnote 11. The ID values are from Vanhanen (2009). The percent urban figures for 1950-2005 are from United Nations (2008). The figures for 1850-1940 are based on the previous definition of an urban area, and they have been adjusted upwards by 1.07 to make them consistent with the definition used in relation to the figures for 1950-2005 (for the original figures see United States Census Bureau 2008). The median ages for 1850-1940 are from Haines and Steckel (2000); the figures for 1950-2005 are from United Nations (2009). The GDP estimates are from Maddison (2009).

	Dependent variable = AID
Percent urban	0.164 (0.202)
Median age	1.783** (0.762)
Log (GDP)	-2.184 (5.706)
R-squared	0.863
Observations	22

Note: Standard errors in parentheses. Significance at the 5 level is indicated by **. *Data:* See Table 6.

Year	Latin America		Asia		Africa	
	AID (ID)	Median age	AID (ID)	Median age	AID (ID)	Median age
1950	11.2 (5.6)	20.0	4.4 (2.4)	22.3	-	19.2
1955	10.6 (5.2)	19.6	12.6 (6.7)	21.5	-	18.9
1960	18.6 (9.0)	19.2	11.5 (6.0)	21.0	3.9 (1.8)	18.4
1965	10.7 (5.1)	18.8	11.3 (5.7)	20.1	3.9 (1.8)	18.0
1970	8.0 (3.8)	18.9	12.9 (6.4)	19.7	1.5 (0.7)	17.7
1975	7.6 (3.7)	19.3	12.9 (6.5)	20.2	0.9 (0.4)	17.5
1980	6.0 (3.0)	20.0	12.4 (6.5)	21.1	7.4 (3.3)	17.5
1985	14.1 (7.3)	20.9	12.0 (6.5)	22.1	2.2 (1.0)	17.4
1990	31.0 (16.7)	22.0	16.2 (9.0)	23.0	2.7 (1.2)	17.5
1995	34.8 (19.5)	23.2	16.9 (9.8)	24.3	10.7 (4.9)	18.0
2000	35.7 (20.8)	24.5	15.1 (9.1)	25.8	14.5 (6.8)	18.5
2005	35.2 (21.3)	26.0	20.6 (12.9)	27.4	15.3 (7.4)	19.1

Note: For the equation used to adjust the AID values, see endnote 11. There are insufficient data to provide democracy measures for Africa in the 1950s. *Sources:* Vanhanen (2009) and United Nations (2009).

Table 9 Democracy, urbanization, median age, and per capita GDP, 1950-2005				
	Dependent variable = AID			
	1950	1970	1990	2005
Percent urban	0.249 (0.173)	0.237* (0.138)	0.133 (0.107)	-0.009 (0.095)
Median age	1.050** (0.421)	0.963*** (0.304)	0.941*** (0.301)	0.758** (0.292)
Log (GDP)	4.651 (3.957)	6.143* (3.386)	6.589** (2.978)	3.011 (2.530)
R-squared	0.527	0.618	0.657	0.346
Observations	64	98	100	108
	Dependent variable = Democ			
Percent urban	0.035 (0.044)	-0.015 (0.035)	-0.001 (0.024)	0.002 (0.023)
Median age	0.288*** (0.107)	0.046 (0.074)	0.152** (0.066)	0.144** (0.071)
Log (GDP)	0.627 (1.024)	2.505*** (0.865)	2.005*** (0.668)	0.896 (0.649)
R-squared	0.396	0.383	0.617	0.358
Observations	62	92	98	98
Notes: Standard errors in parentheses. Significance at the 1, 5 and 10 percent levels indicated by ***, **, and * respectively.				