Are Individualistic Societies More Democratic? Evidence from a New Instrument

Boris Nikolaev[1]

Department of Economics, Oxford College of Emory University

Rauf Salahodjaev

Westminster International University in Tashkent

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Abstract

We test the hypothesis that individualistic societies are more likely to develop democratic institutions. To do this, we use the historical prevalence of infectious diseases as an instrument for individualistic values, which, in the next stage, influence the development of democratic institutions. Our results suggest that individualism is positively correlated with democracy. Moreover, we find evidence that democratic institutions have their deep origins in the historical prevalence of infectious diseases. Our evidence suggests a possible instrument that can be used for future research.

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[1] Address: 810 Whatcoat St., Oxford, GA 30054, Phone: 813.401.9756, E-mail: borisnikolaev@gmail.com

1. Introduction

Even though the literature on the causes and consequences of democracy has significantly advanced in the past three decades with the rapid democratization of many countries around the world and the development of new statistical methods, there is still significant disagreement about the causal mechanisms that underlie the democratization process. Previous empirical research suggests that economic development, urbanization, religion, climate, legal origins, and natural resources are all factors that play an important role in the development of democracy.[2] By now, there is also substantial empirical evidence for the so called modernization hypothesis first proposed by Martin Lipset (1959). Modernization is a syndrome of social changes that are linked to the process of industrialization, which brings high levels of specialization, urbanization, rising educational levels, higher life expectancy, and rapid economic growth. These changes transform the social and economic fabric of society, lead to higher levels of political participation, and in the long run increase the likelihood of democratic political institutions to develop and persist (Inglehard and Welzel, 2009). Many of these causal explanations for the democratization process, however, remain highly contested today (Geddes, 2013).

Our paper contributes to this line of research by investigating the deep origins of democratic institutions. Specifically, we test the provocative hypothesis that the historical prevalence of infectious diseases influenced the development of cultural traits and values associated with individualism, which then, in the next stage, led to the development of democratic institutions (Fincher and Thornhill, 2008). In that sense, our paper is closely related to the work of Acemoglu, Johnson and Robinson (2001), who suggest that settler's mortality of early European colonizers is one possible explanation for the large cross-sectional differences in political institutions today. We add to this line of research by suggesting one possible mechanism that works through the channel of cultural values. Our hypothesis is based on a causal mechanism that has been identified *a priori* by a rich literature in psychology, biology, and evolutionary theory and thus offers a promising new instrument that can be used for future research in the fields of economics and political science.

In human evolutionary history, parasitic (infectious=pathogenic) stress has been the major cause of mortality and natural selection accounting for more evolutionary action across the human genome than any other environmental factor such as climate, geography, or subsistence strategies (Fincher and Thornhill, 2008). One of the most important adaptations that has helped humans avoid pathogenic stress and manage the spread of infectious diseases has been the adaptation of the behavior immune system. Adaptive feelings of disgust, worry about contagion, and values towards in and out-group members (e.g., prejudice towards people who are perceived unfamiliar, unhealthy, or unclean) are examples of such behavioral adaptations.

Because host-parasitic arm races were geographically localized (Fincher et al. 2008), the host defense works most effectively against local parasites and less effectively towards out-group hosts. The so called parasite-stress theory of values (Thornhill and

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[2] For an excellent review of this literature, please see Geddes (2013).

Fincher, 2008) suggests that regions with high prevalence of pathogenic stress were more likely to favor the natural selection of personality traits such as nepotism, xenophobia, ethnocentrism, or values that disregard the well-being and liberties of out-group members. Such societies are more likely to develop ideologies associated with collectivist values that view more negatively novel ideas that threaten the established social norms and legitimize authoritarian political outcomes (Fincher et al., 2008). From an evolutionary standpoint such strategies played an important role to manage the pathogenic stress and spread of contagion.

Low parasitic stress, on the other hand, promotes the natural selection of cultural traits associated with tolerance and trust towards out-groups. Societies with lower prevalence of infectious diseases developed cultural traits and ideologies associated with openness to new ideas, inclusiveness of out-group members, and acceptance of differences regardless of social class, religion, or ethnicity. This evolutionary strategy was successful because it encouraged free trade, specialization, and the diffusion of new knowledge. Thornhill et al. (2009), for example, find a strong negative correlation between the prevalence of infectious diseases and democratization across contemporary countries.

Our hypothesis, then, is that societies with low prevalence of infectious diseases will be more likely to develop individualistic values, which in the next stage will predict differences in democratic institutions across countries.

2. OLS Estimations

We start our analysis by using ordinary least squares (OLS) estimations to assess the relationship between democracy and individualism. Our model can be summarized by the following equation:

$$Democracy_i = \beta Individualism_i + \sum_k \delta_k x_{k,i} + \varepsilon_i \qquad (1)$$

As a measure of democracy, $Democracy_i$, we use two of the most commonly used indexes in the literature: (1) the Freedom House index of democracy which ranges from 1 (least democratic) to 7 (most democratic) and is estimated as the average of political and civil freedoms; and (2) we create an index of democracy using the Polity IV dataset as a weighted score of three sub-areas of the Polity IV index including competition in political participation, competitiveness and openness of executive recruitment and constraints on the chief executive. This latter index ranges from 0 to 10, with higher scores reflecting higher levels of democracy.

Our measure of individualism-collectivism (IC), $Individualism_i$, came from Hofstede (2001), who provides cross-sectional data for more than 100 contemporary societies. The IC scores are standardized and rescaled from 0 (most collectivistic) and 100 (most individualistic). On the collectivist end, the IC scores represent preferences for a society in which individuals can expect relatives and in-group members to look after them for unquestionable loyalty. On the individualistic end, the IC scores reflect preferences for a social framework in which individuals are supposed to take care only of themselves and their immediate families.

We furthermore control for a vector of control variables, which includes legal origins from La Porta et al. (2000), GDP per capita and percent of Muslim population from the World Bank Development Indicators, latitude and ethno-linguistic fractionalization (EF) index from Alesina et al. (2003), and the 2014 index of Economic Freedom from the Heritage Foundation.

Table 1: OLS Results, Freedom House

Variables	(1)	(2)	(3)	(4)
Individualism	0.0402***	0.0416***	0.0386***	0.0208***
	(0.00492)	(0.00593)	(0.00873)	(0.00702)
Latitude		-0.0115*	-0.0147**	0.00449
		(0.00654)	(0.00614)	(0.00468)
Legal origins: Socialist		-0.828*	-0.610	-0.375
		(0.452)	(0.472)	(0.393)
Legal origins: French		-1.225***	-0.968**	0.185
		(0.436)	(0.394)	(0.335)
Legal origins: UK		-1.790***	-1.492***	-0.625
		(0.408)	(0.513)	(0.413)
Legal origins: Scandinavian		-0.276	-0.229	-0.137
		(0.293)	(0.266)	(0.262)
GDP per capita (log)			0.167	-0.179
			(0.196)	(0.179)
EF Index			-0.594	0.216
			(0.828)	(0.649)
Economic Freedom				0.0756***
				(0.0182)
Percent Muslims				-0.0214***
				(0.00439)
Observations	98	98	95	93
R-squared	0.260	0.320	0.369	0.624

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Our OLS estimations are presented in Table 1. Column 1 shows a parsimonious model in which we use individualism as the sole regressor. The estimated coefficient suggests that individualism is positively and significantly correlated with democracy and explains more than 26 percent of the variation in democracy alone. Moreover, the magnitude and significance of the coefficient on democracy remain unchanged even when add a number of additional controls such as legal origins, latitude, GDP per capita, and ethno-linguistic fractionalization (columns 2 and 3). Finally, in column 4, we control for economic institutions using the index of Economic Freedom, which assesses the extent to which countries have strong rule of law, limited government, regulatory efficiency, and freedom to openly trade. Following Fish (2002), we also include a variable for the percent of Muslim population. Qualitatively our results remain unchanged. In an online appendix, we replicate these estimations using the Polity IV measure of democracy and find similar results (Table A1).

These results, of course, should be treated with caution as more democratic societies may provide an environment that nurtures individualistic values. Moreover, the positive

Table 2: 2SLS Results, Freedom House

	(1)	(2)	(3)	(4)
Panel A: 2SLS results	Dependent Variable: Individualism Index			
Individualism	0.0667***	0.0762***	0.0744***	0.0468**
	(0.0117)	(0.0156)	(0.0204)	(0.0192)
Latitude		-0.0229**	-0.0234**	-0.00431
		(0.00920)	(0.00934)	(0.00895)
Legal origins: Socialist		-0.478	-0.543	-0.412
		(0.806)	(0.759)	(0.569)
Legal origins: French		-0.962	-1.005	-0.0172
		(0.781)	(0.744)	(0.592)
Legal origins: UK		-1.803**	-1.868**	-1.037
		(0.790)	(0.808)	(0.664)
Legal origins: Scandinavian		-0.638	-0.616	-0.411
		(1.006)	(0.958)	(0.718)
GDP per capita (log)			-0.120	-0.288
			(0.251)	(0.183)
EF Index			-0.340	0.206
			(0.800)	(0.603)
Economic Freedom				0.0571***
				(0.0211)
Percent Muslims				-0.0176***
				(0.00513)
Observations	95	95	92	90
R-squared	0.170	0.194	0.259	0.565
IV F-stat	60.84	35.74	19.66	12.58

	(1)	(2)	(3)	(4)
Panel B: First stage	Dependent Variable: Individualism Index			
Pathogens	-21.10***	-19.64***	-18.95***	-15.75***
	(2.705)	(3.286)	(4.273)	(4.440)
Latitude		0.150*	0.159*	0.243**
		(0.0873)	(0.0904)	(0.0946)
Legal origins: Socialist		-8.439	-5.570	-3.478
		(8.494)	(8.452)	(8.433)
Legal origins: French		-1.430	3.794	8.873
		(8.339)	(8.296)	(8.388)
Legal origins: UK		7.757	13.58	17.26**
		(8.575)	(8.623)	(8.558)
Legal origins: Scandinavian		4.577	3.656	4.256
		(10.70)	(10.45)	(10.25)
GDP per capita (log)			1.285	-0.360
			(2.584)	(2.722)
EF Index			-11.73	-8.829
			(8.773)	(8.858)
Economic Freedom				0.369
				(0.262)
Percent Muslims				-0.132**
				(0.0621)
Observations	95	95	92	90
R-squared	0.395	0.463	0.523	0.563

Note: Standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

association between individualism and democracy may be driven by omitted variables that are correlated with both cultural values and democracy.

3. Two-Stage Least Squares Estimates

In this section, we use a two-stage least squares estimator in which we use the historical prevalence of infectious diseases as an instrument for individualism, which could potentially be an endogenous regressor in our main equation. This index measures the rate of prevalence of nine pathogens harmful to human reproductive fitness (leishmanias, trypanosomes, malaria, schistosomes, filariae, leprosy, dengue, typhus and tuberculosis) and comes from Murray & Schaller (2010). The resulting index runs from -1.5 to +1.5, with higher values denoting disease prevalence that is higher than the mean. A good instrument should be strongly correlated with individualism and uncorrelated with the error term in our second stage equation (i.e., it should not affect democracy directly). Based on the parasite-stress theory of values, we believe that the historical prevalence of infectious diseases affects democracy only indirectly through the channel of cultural values, which we proxy with individualism.

Our 2SLS results are presented in Table 2. Panel A of Table 2 shows the second stage regression estimates while Panel B presents the first stage results. Across all specification we find evidence for our hypothesis: the historical prevalence of infectious diseases is a strong determinant of individualistic values, which in the second stage is significantly correlated with democratic institutions. The IV F-statistics from the second stage regressions exceed the threshold value of 10 providing additional evidence for the choice of IV. In an online appendix, we furthermore replicate our main results using an alternative measure of democracy from Polity IV (Table 2A).

4. Conclusion

We test the hypothesis that individualistic societies are more likely to develop democratic institutions. To do this, we use the historical prevalence of infectious diseases as an instrument for individualistic values, which, in the next stage, influence the development of democratic institutions. Our results suggest that individualism is positively correlated with democracy. Moreover, we find evidence that democratic institutions have their deep origins in the historical prevalence of infectious diseases. Our evidence suggests a possible instrument that can be used for future research.

5. References

Acemoglu, D. K., Robinson, J., & Johnson, S. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. American Economic Review, 91(5), 1369-1401.

Alesina, A., Devleeschauwer, A., Easterly, W., Kurlat, S., & Wacziarg, R. (2003). Fractionalization. Journal of Economic Growth, 8(2), 155-194.

Fincher, C. L., Thornhill, R., Murray, D. R., & Schaller, M. (2008). Pathogen prevalence predicts human cross-cultural variability in individualism/collectivism. Proceedings of the Royal Society of London B: Biological Sciences, 275(1640), 1279-1285.

Fish, M. S.(2002) "Islam and authoritarianism". World Politics, 55: 4–37.

Geddes, Barbara "What Causes Democratization." Oxford Handbooks Online. 2013-09-05. Oxford University Press. Date of access 7 May. 2016, <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199604456.001.0001/oxfordhb-9780199604456-e-029>

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations. Second Edition, Thousand Oaks CA: Sage Publications.

Inglehart, Ronald, and Christian Welzel (2009) "How development leads to democracy." Foreign Affairs 88: 33-48.

La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2008). The Economic Consequences of Legal Origins. Journal of Economic Literature, 46(2), 285-332.

Lipset, S. M. (1959) "Some social requisites of democracy: economic development and political legitimacy" American Political Science Review. 53: 69–105

Murray, D. R. and Schaller, M. (2010). Historical prevalence of infectious diseases within 230 geopolitical regions: A tool for investigating origins of culture. Journal of Cross-Cultural Psychology, 41(1):99–108.

Thornhill, Randy, Corey L. Fincher, and Devaraj Aran (2009) "Parasites, democratization, and the liberalization of values across contemporary countries." Biological Reviews 84(1): 113-131.

Online Appendix

Table 1A: OLS Estimations, Polity IV

Variables	(1)	(2)	(3)	(4)
Individualism	0.0674***	0.0703***	0.0667***	0.0305*
	(0.0103)	(0.0124)	(0.0188)	(0.0181)
Latitude		-0.0189	-0.0187	0.0171
		(0.0124)	(0.0123)	(0.0109)
Legal origins: Socialist		-1.198	-0.999	-0.593
		(0.743)	(0.829)	(0.758)
Legal origins: French		-2.011**	-1.493**	0.589
		(0.773)	(0.750)	(0.623)
Legal origins: UK		-3.016***	-2.563**	-0.627
		(0.737)	(0.978)	(0.892)
Legal origins: Scandinavian		-0.556	-0.587	-0.375
		(0.426)	(0.436)	(0.442)
GDP per capita (log)			0.0787	-0.537
			(0.503)	(0.415)
EF Index			-1.044	-0.246
			(1.761)	(1.178)
Economic Freedom				0.124***
				(0.0410)
Percent Muslims				-0.0497***
				(0.0123)
Observations	94	94	92	91
R-squared	0.201	0.251	0.264	0.512

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2A: 2SLS Estimations, Polity IV

	(1)	(2)	(3)	(4)
Panel A: 2SLS results	Dependent Variable: Individualism Index			
Individualism	0.106***	0.114***	0.138***	0.0927**
	(0.0222)	(0.0280)	(0.0427)	(0.0445)
Latitude		-0.0336*	-0.0356*	-0.00372
		(0.0175)	(0.0195)	(0.0207)
Legal origins: Socialist		-0.757	-0.858	-0.663
		(1.535)	(1.589)	(1.323)
Legal origins: French		-1.783	-1.536	0.124
		(1.500)	(1.570)	(1.380)
Legal origins: UK		-3.042**	-3.304*	-1.611
		(1.510)	(1.691)	(1.536)
Legal origins: Scandinavian		-1.094	-1.482	-1.132
		(2.036)	(2.135)	(1.781)
GDP per capita (log)			-0.459	-0.772*
			(0.524)	(0.425)
EF Index			-0.414	-0.107
			(1.728)	(1.418)
Economic Freedom				0.0818*
				(0.0488)
Percent Muslims				-0.0404***
				(0.0119)
Observations	91	91	89	88
R-squared	0.157	0.207	0.141	0.419
IV F-stat	66.19	42.58	19.07	12.51
Panel B: First stage	Dependent Variable: Individualism Index			
Pathogens	-22.38***	-21.47***	-19.06***	-15.96***
	(2.750)	(3.291)	(4.364)	(4.512)
Latitude		0.157*	0.157*	0.242**
		(0.0854)	(0.0917)	(0.0955)
Legal origins: Socialist		-8.358	-5.646	-3.627
		(8.272)	(8.562)	(8.505)
Legal origins: French		0.944	3.354	8.595
		(8.246)	(8.486)	(8.545)
Legal origins: UK		9.243	13.43	17.08*
		(8.382)	(8.774)	(8.673)
Legal origins: Scandinavian		6.810	6.733	7.074
		(11.03)	(11.15)	(10.88)
GDP per capita (log)			1.184	-0.419
			(2.632)	(2.754)
EF Index			-11.71	-8.542
			(9.230)	(9.086)
Economic Freedom				0.363
				(0.264)
Percent Muslims				-0.130**
				(0.0628)
Observations	91	91	89	88
R-squared	0.427	0.499	0.519	0.559

Note: Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1