CESifo Working Papers
www.cesifo.org/wp

Democracy and Countries with Muslim Majorities: A Reply and Update

Niklas Potrafke

CESIFO WORKING PAPER NO. 4039
CATEGORY 2: PUBLIC CHOICE
DECEMBER 2012

CESifo *Working Paper No. 4039*

Democracy and Countries with Muslim Majorities: A Reply and Update

Abstract

My empirical results in Potrafke (2012) confirm past conclusions that Muslim-majority countries are less likely to be democratic. Hanusch takes issue with my results – and by inference with all past empirical results on the relation between Islam and democracy. In his comment on my study, Hanusch indicates that he believes I was using the POLITY IV index. He has not realized, as I made most clear, that the purpose of my study was to show results based on new data from Cheibub et al. (2010). Hanusch claims to have reversed the conclusion that having a Muslim majority is associated with having autocratic government. He establishes his conclusion by excluding the heartland of Islam from the estimation sample. For his estimates, Hanusch moreover uses data that do not appear to exist, at least in the claimed sources. I update my estimates to address issues that Hanusch raises. My new results confirm the conclusion that countries with Muslim majorities are less likely to be democracies. In deriving this result, I do not follow the strategy proposed by Hanusch of excluding from the data sample the countries in the heartland of Islam.

JEL-Code: Z120, O110, P160, P480, F590.

Keywords: political institutions, Islam.

Niklas Potrafke
Ifo Institute – Leibniz-Institute for
Economic Research at the
University of Munich
Poschingerstraße 5
Germany - 81679 Munich
potrafke@ifo.de

6 December 2012
A revised version of this paper is forthcoming in Public Choice.

1. Introduction

Marek Hanusch (this issue) takes exception to my empirical results (Potrafke 2012) which show that countries with Muslim majorities are less likely to be democratic. Actually, my study is one of many studies that come to the same conclusion: see Lipset (1994); Midlarsky (1998); Barro (1999); Karatnycky (2002); Fish (2002); Ross (2001, 2009, 2012); Donno and Russett (2004); Voigt (2005); Borooah and Paldam (2007); Rowley and Smith (2009); Facchini (2010); and Kalyvitis and Vlachaki (2012). Maseland and van Hoorn (2011: 483) propose, based on this literature, that "the fact that Muslim-majority countries tend to be significantly less democratic than other societies…is readily accepted".

My purpose was to determine whether that conclusion would change if a new measure of political institutions provided by Cheibub et al. (2010) were used. The Cheibub et al. (2010) measure has produced new conclusions from research investigating other interesting questions.[2] It therefore seemed to be worthwhile to check whether the negative relation between Muslim population shares and democracy are sensitive to how one characterizes national political institutions. My empirical results confirm the past results showing that countries with Muslim majorities have been less likely to be democratic.

The attempt by Hanusch to deny the positive relation between Muslim populations and the absence of democracy relies on misleading empirical strategies.

2. Failure to understand the contribution of using new data

Hanusch has not understood that the contribution of my paper was to reevaluate past results using new data. He indicates in his paper that he believes my study to have been based on the widely used Polity IV dataset. He writes (Hanusch 2012: XXX; the emphasis is mine):

[2] See Cheibub et al. (2010), who elaborate on the influence of regime change on economic growth, the influence of political institutions on civil war, and the nexus between economic development and democratization.

> In fact, *according to the Polity IV measure Potrafke uses* to distinguish democracies from autocracies, only one country in the region, Israel, is democratic; and this country is not recognized by a number of other countries in the region.

Hanusch claims in his response to my paper to have used my data – but my dataset does not rely on the Polity IV index.

3. Exclude the State of Israel

Hanusch's manner of reference to the State of Israel in the statement quoted above and his treatment (or non-treatment) in the data of that nation are not readily understandable. Israel, as a non-Muslim democracy in a Muslim-dominated region, is a direct confirmation of the more general result that Hanusch seeks to deny, namely that Muslim-majority countries tend not to be democratic. It is not clear why Hanusch makes the point in the context of his comments that some Muslim-majority countries in the Middle East do not grant diplomatic recognition to Israel. The absence of diplomatic recognition by some Muslim-majority countries cannot change the fact that the State of Israel is a democracy in the non-democratic heartland of Islam. Hanusch excludes Israel from his dataset. There seems to be no objective reason for that exclusion.

4. Exclude the heartland of Islam

Hanusch also excludes countries in Islam's heartland. It is also not entirely clear why, in a study of the relation between Islam and democracy, data on Muslim-majority countries in the heartland of Islam should be excluded. My baseline sample comprised all 192 countries that were members of the United Nations General Assembly.[3] Hanusch's selectivity in choosing countries for empirical investigation does not seem to be random. He excludes the MENA (Middle East North Africa) region, which consists of Algeria, Bahrain, Djibouti, Egypt, Iran, Iraq, Israel, Jordan, Kuwait,

[3] The measure by Cheibub et al. (2010) is not available for Monaco. The sample thus is reduced to 191 countries.

Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, the United Arab Emirates, the West Bank and Gaza, and Yemen.[4] Table 1 shows that 18 of the MENA countries have been dictatorships (as measured by Cheibub et al. 2010). All 18 dictatorships have Muslim majorities. The only democracies are Israel and Malta, in both of which Muslims are a minority. The proposal that we delete data on the MENA region in a study concerned with the form of government in Muslim-majority countries is incomprehensible.

5. Oil and armed forces personnel

Hanusch claims that my results are subject to omitted variable bias because I did not properly control for oil production or income and ignored standing military forces or defense expenditures. He tells us that "Table 2 then presents the results for regressions that include the MENA region", but the specifications that Hanusch presents in Table 2 only have 167, 157 and 137 countries. Including his variables "Military", "Oil production", "Fuel exports" and "Commodity exports" – and assuming that the number of observations in Table 2 is correct – has again reduced the sample size. We are back with the issue of modifying the sample. Hanusch (2012: XXX) claims that:

> Thus, essentially, the analysis underlying Table 2 is identical to Potrafke's, only replacing his oil dummy with a continuous measure and including another variable capturing the potential for state repression.

This is simply is not true because Hanusch drops some of the countries from the sample I used.

Hanusch does not indicate the year to which his variables "Military", "Oil production", "Fuel exports" and "Commodity exports" refer. Hanusch writes that he takes his data for the variable "Military", measured as the number of members of a nation's armed forces as a percentage of its total labor force, from the World Bank's *World Development Indicators*. His dataset contains a value of zero for the armed forces of Andorra, Costa Rica, Dominica, Grenada, Haiti, Iceland, Kiribati,

[4] http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/MENAEXT/0,,menuPK:247619~pagePK:146748~piPK:146812~theSitePK:256299,00.html (accessed on November 2, 2012).

Liechtenstein, Marshall Islands, Micronesia, Monaco, Panama, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Solomon Islands and Vanuatu. However, for 14 of these 18 countries, the World Bank's *World Development Indicators* contain missing values (Andorra, Dominica, Grenada, Kiribati, Liechtenstein, Marshall Islands, Micronesia, Monaco, Saint Lucia, Saint Vincent and the Grenadines, Samoa, San Marino, Solomon Islands and Vanuatu). For Costa Rica, Haiti, Iceland and Panama, the World Bank's *World Development Indicators* contain nonzero observations.[5] In the case of the variable "Oil production", Hanusch inserts observations that do not exist and reports a total of 200 data points in a cross-section of 192 countries (Table A1).

Had Hanusch not inserted observations and replaced missing values by zeros, the sample sizes of his regressions in Table 2 would have been even smaller.

Independently of Hanusch not understanding the data I was using and independently of his selectivity in deciding which countries to include and which countries to exclude, and independently of the apparent problems with his dataset, we can still ask whether the influence of the Muslim variable vanishes when we control for oil production or income and armed forces personnel (again measured as a percentage of the total labor force). My previous specification included an oil exporter dummy variable that assumes the value 1 if exports of oil exceed 50% of total exports (Easterly and Sewadeh 2001). One can measure oil income more precisely. I therefore now have replaced (in a somewhat different model, see section 6) that binary variable with oil production values. Following Hanusch, I use the data on oil production by the U.S. Energy Information Administration (EIA). To compute a nominal oil production value (per capita), I use the following formula: [EIA crude oil production (1000 barrels per day)*1000*365*crude oil spot price]/Population. I measure the crude oil spot price as the average of the Brent spot price (US$ per barrel) and the West Texas Intermediate spot price (US$ per barrel) as provided by the EIA. I convert the nominal oil production value into real terms (constant 2000 US$) by using the US GDP deflator as employed by Michael L. Ross. I use

[5] For Haiti, there are data before 2003, and for the years 2006 and 2010.
http://search.worldbank.org/data?qterm=military&language=EN (accessed on November 2, 2012).

populations reported in the World Bank's *World Development Indicators*. In contrast to Hanusch, I do not scale oil production by GDP but by population. The oil production to GDP ratio of two countries with similar oil production volumes differs when their GDPs differ and scaling by GDP is likely to give rise to endogeneity problems (see Ross 2012: 15f.) The advantage of using the EIA's oil production values rather Ross's oil and gas income (per capita) variable is that the former is available for 183 countries, whereas the latter is available for 169 countries.[6] The correlation coefficients between my per capita oil production values and, respectively, the oil income (per capita) variable and the oil and gas income (per capita) variable are 1.00 and 0.95.[7] Oil production values are averaged over the 1999-2008 period. The results in Table 2 show that including that variable does not change the result that the Muslim population share is statistically significant in explaining the likelihood of non-democratic government.[8]

I also compiled data on armed forces personnel (as percentages of the total labor force) from the World Bank's *World Development Indicators*. These data are available for 169 of the 192 UN member countries (averaged over the period 1999-2008). Including an armed forces personnel variable may well give rise to endogeneity problems because, to maintain regime security, repressive dictatorships are likely to have larger standing armies than democracies. One may thus either not include that variable or deal later with the potential endogeneity problem. To address the issue of omitted variable bias raised by Hanusch, I include the armed forces personnel variable in my model as described in the next section. The results in Table 2 show that including armed forces personnel leaves unchanged the result that the Muslim population share is statistically significant in explaining the likelihood of non-democratic government.

[6] Michael L. Ross, 2011-04, "Replication data for: Oil and Gas Production and Value, 1932-2009", http://hdl.handle.net/1902.1/15828 UNF:5:Hwe3jAjxG7fgOMzpGQXOxw== V4 [Version] (accessed on November 2, 2012).

[7] The data of Ross include oil and gas income (per capita) and oil income. I have scaled Ross's oil income variable by population so as to compare it with mine.

[8] Ross (2009: 7) makes the following observation on oil and human development: *"many Muslim countries are also significant oil producers, which makes it easy to confuse the effects of Islam with the effects of oil production. The problem is compounded by the concentration of major oil producers in the Middle East and North Africa; conceivably it is the region's culture and history, not its oil wealth, that makes it persistently undemocratic"*.

6. An update

Regressing political institutions on a Muslim population share variable plus controls in a cross-sectional model is admittedly a simple empirical strategy. The results could be sensitive to this strategy.[9] Hanusch does not challenge my paper in this respect. However, in the light of Hanusch's allegations, I present here some robustness checks.

6.1 Cross sectional data for the average over the period 1999-2008

In Potrafke (2012), I used cross-sectional data referring to 2007. I used data for that year because when I wrote my paper, 2007 was the most recent and comprehensive data for per capita GDP available. My results could be sensitive to the choice of that particular year. A transition country, for example, could have been coded as democracy in 2007, although it has been coded as a dictatorship in 2006. I therefore replicate my results by regressing the average of Cheibub et al.'s (2010) political institutions variable over the 1999-2008 period (the last ten years for which that data were published) on the Muslim population share. The dependent variable thus assumes the value 1 when a country has been a democracy and the value 0 when a country has been a dictatorship over the 1999-2008 period. In 21 countries of the sample, political institutions changed over the period 1999-2008. For these countries, the dependent variable of my econometric model therefore assumes values between 0 and 1. To deal with this censored variable, I estimate a Tobit model with robust standard errors. I include the logarithms of per capita GDP, the oil production variable and armed forces personnel (percentage of total labor force) as measured by the average over the period 1999-2008. Because the

[9] Gassebner et al. (2012) have used extreme bounds analysis (EBA) to investigate the determinants of democracy. Their results show that the Muslim variable has a negative influence on democracy in the full sample. However, that variable lacks statistical significance when the oil exporting countries are excluded. The oil exporting countries, as classified by Easterly and Sewadeh (2001), are Algeria, Angola, Bahrain, Brunei Darussalam, Democratic Republic of the Congo, Gabon, Iran, Iraq, Lybia, Nigeria, Oman, Qatar, Saudia Arabia, Trinidad and Tobago, Turkmenistan, the United Arab Emirates and Venezuela. Since most of these oil-exporting countries are dictatorships with Muslim majorities, it is not surprising that the Muslim variable loses statistical significance when excluding these countries.

oil production variable and the armed forces personnel data are not available for the entire sample, I show results both including and excluding these variables.[10]

Table 2 shows the coefficient estimates of the Tobit model. The coefficient of the Muslim share variable has a negative sign and is statistically significant at the 1% level in columns (1) to (4), at the 5% level in columns (5) and (6) and at the 10% level in column (7). The log oil production variable and the log armed forces personnel variable have the expected negative signs and are statistically significant at the 1% level. Including the armed forces personnel variable reduces the sample size to 165 countries.

I have also estimated the model using OLS with robust standard errors. The Muslim share variable is statistically significant in every specification. The t-statistics of the Muslim share variable are somewhat larger than in the Tobit model.

When I use the more expansive democracy coding (type 2) by Cheibub et al. (2010) as the dependent variable and re-estimate the specification as in Table 2, the Muslim share variable is statistically significant in columns (1) to (5) and lacks statistical significance in columns (6) and (7). The specifications in columns (6) and (7) include 165 countries. Entering the armed forces personnel variable reduces the sample size and is likely to cause endogeneity problems. The more expansive democracy coding considers 41 countries to be democratic that are coded as dictatorships in the standard democracy measures. Examples include Algeria, Chad, Egypt, the Russian Federation, Tunisia, and Yemen. Table 3 shows descriptive statistics for all included variables.[11]

[10] I use logarithms of the oil production value and the armed forces personnel variable to better account for outliers and smooth the distributions of both variables. Inferences do not change when I enter the levels of the oil production value and the armed forces personnel instead of the logarithms.

[11] Compared to my 2012 paper, I make four coding changes: For Oman, I used only the population share of Sunni Muslims, I now include the share of all Muslims. I did not consider the legal origin of the Democratic Republic of the Congo, Germany and Saint Kitts and Nevis.

6.2 More recent data on Muslim population

To measure the Muslim share I have relied on the data of Alesina et al. (2003). One could use more recent or alternative data on religious affiliations. The report by the Pew Research Center on *The future of the global Muslim population* shows that Muslim population shares have not changed a great deal over the last 20 years. Table 1 shows, for example, the Muslim share in the MENA region as measured by Alesina (2003) for the 1980-1998 period and the Muslims shares as measured by the Pew Research Center for 1990 and 2010. Using this alternative data to control for Muslim shares of national populations does not change the conclusions.

7. Causality

In my paper (Potrafke 2012), I made a purely empirical point in confirming that the well-established conclusion that countries with Muslim majorities are less likely to be democracies, is robust to using new democracy-dictatorship data. Others have explored the underlying reasons why Islam impedes democracy, such as supreme values and female subordination (Lewis 1993; Bernholz 1995; Midlarsky 1998; Fish 2002).[12]

8. Conclusion

Hanusch has challenged the conclusion that countries with Muslim majorities are less likely to have democratic governments. He has not realized, though, that my objective was to reevaluate the results of past studies by using an alternative measure of democracy and he attributes to me a measure of democracy that I did not use. He reverses past results by selective exclusion of Muslim-majority countries in the heartland of Islam and also excluding the State of Israel, which is a non-Muslim

[12] The absence of democracy impedes economic development because of the incentives of autocratic rulers to ensure that economic progress does not give rise to a viable opposition (Hillman, 2007a). On Islam as an impediment to economic development, see Kuran (1997, 2005, 2011), Hillman (2007b), Kuran and Singh (2012), and Kuran and Lustig (2012). Kuran (2011: 294) observes with respect to Islam that "the weaknesses of private sectors and civil societies, which are rooted in the region's institutional history, breed complacency toward autocratic rule".

democracy in Islam's heartland. To generate his empirical estimates, Hanusch uses data that do not appear to exist or cannot be found in the data sources to which he refers. In the light of Hanusch's quest to reverse the past conclusions, I have rechecked and extended my empirical study and addressed issues he raised. After further empirical testing, the conclusion remains robust that Islam and democracy have tended to be incompatible.

Acknowledgments

I thank Alexander Ebertz, Daniel Mannfeld, Chang Woon Nam, Markus Reischmann, Christoph Schinke, Heinrich Ursprung and Joachim Winter for helpful comments.

References

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

Barro, R. (1999). Determinants of democracy. *Journal of Political Economy* 107, S158-S183.

Bernholz. P. (1995). Supreme values, tolerance, and the constitution of liberty. In G. Radnitzky and H. Bouillon (eds.). *Values and the Social Order, Values and Society, vol. 1*, Brookfield, VT: Avery Publishing, 235-250.

Borooah, V.K., & Paldam, M. (2007). Why is the world short of democracy? A cross-country analysis of barriers to representative government. *European Journal of Political Economy* 23, 582-604.

Cheibub, J., Gandhi, J., & Vreeland, J.R. (2010). Democracy and dictatorship revisited. *Public Choice* 143, 67-101.

Donno, D., & Russett, B. (2004). Islam, authoritarianism, and female empowerment. *World Politics* 56, 582-607.

Easterly, W., & Sewadeh, M. (2001). *Global Development Network Growth Database*. Worldbank Economic and Development Research Group, Washington, D. C.

Fish, S. (2002). Islam and authoritarism. *World Politics* 55, 4-37.

Facchini, F. (2010). Religion, law and development: Islam and Christianity – Why is it in occident and not in the orient that man invented the institutions of freedom? *European Journal of Law and Economics* 29, 103-129.

Gassebner, M., Lamla, M.J., & Vreeland, J.R. (2012). Extreme bounds of democracy. *Journal of Conflict Resolution*, forthcoming.

Hanusch, M. (2012). Islam and democracy: A response. *Public Choice*, this issue.

Hillman, A.L. (2007a). Democracy and low-income countries". In J.C. Pardo and P. Schwartz (eds.). *Public Choice and Challenges of Democracy*, Edward Elgar, Cheltenham, U.K., 277-294.

Hillman, A.L. (2007b). Economic and security consequences of supreme values. *Public Choice* 30, 259 – 280.

Kalyvitis, S., & Vlachaki, I. (2012). When does more aid imply less democracy? An empirical examination. *European Journal of Political Economy* 28, 132-146.

Karatnycky, A. (2002). Muslim countries and the democracy gap. *Journal of Democracy* 13, 99-112.

Kuran, T. (1997). Islam and underdevelopment: an old puzzle revisited. *Journal of Institutional and Theoretical Economics* 153, 41-71.

Kuran, T. (2005). The logic of financial westernization in the Middle East. *Journal of Economic Behavior & Organization* 56, 593-615.

Kuran, T. (2011). *The long divergence – how Islamic law held back the Middle East.* Princeton University Press, Princeton and Oxford.

Kuran, T., & Lustig, S. (2012). Judicial biases in Ottoman Istanbul - Islamic justice and its compatibility with modern economic life. *Journal of Law and Economics*, forthcoming.

Kuran, T., & Singh, A. (2012). Economic modernization in late British India: Hindu-Muslim differences. *Economic Development and Cultural Change*, forthcoming.

La Porta, R., Lopez-di-Silanes, F., Shleifer, A., & Vishny, R. (1999). The quality of government. *Journal of Law, Economics and Organization* 15, 222-279.

Lewis, B. (1993). Islam and liberal democracy. *Atlantic Monthly* 271, 89-98.

Lipset, S.M. (1994). The social requisites of democracy revisited. *American Sociology Review* 59, 1-22.

Maseland, R., & van Hoorn, A. (2011). Why Muslims like democracy yet have so little of it. *Public Choice* 147, 481-496.

Midlarsky, M. (1998). Democracy and Islam: Implications for civilizational conflict and the democratic peace . *International Studies Quarterly* 42, 485-511.

Pew Research Center (2011). The future of the global Muslim population. *http://www.pewforum.org/uploadedFiles/Topics/Religious_Affiliation/Muslim/FutureGlobalMuslimPopulation-WebPDF-Feb10.pdf (assessed on November 2, 2012).*

Potrafke, N. (2012). Islam and democracy. *Public Choice* 151, 185-192.

Ross, M.L. (2001). Does oil hinder democracy? *World Politics* 53, 325-361.

Ross, M.L. (2009). Oil and democracy revisited. *Working Paper, UCLA, Los Angeles.*

Ross, M.L. (2012). *The oil curse: how petroleum wealth shapes the development of nations*. Princeton University Press, Princeton.

Rowley, C.K., & Smith, N. (2009). Islam´s democracy paradox: Muslims claim to like democracy, so why do they have so little? *Public Choice* 139, 273-299.

Summers, R., & Heston, A. (1991). The Penn World Table (Mark 5): an expanded set of international comparisons, 1950-1988. *Quarterly Journal of Economics* 106, 327-369.

U.S. Energy Information Administration (2012). Data on oil production. *http://www.eia.gov/cfapps/ipdbproject/iedindex3.cfm?tid=5&pid=57&aid=1&cid=regions&syid=2007&eyid=2011&unit=TBPD (assessed on November 14, 2012).*

Voigt, S. (2005). Islam and the institutions of a free society. *Independent Review* 10, 59-82.

Table 1: Countries Marek Hanusch proposes to ignore when investigating the nexus between Islam and democracy[13]

Country	Democracy In the year 2007 as measured by Cheibub et al. (2010)	Democracy Average over the period 1999-2008 as measured by Cheibub et al. (2010)	Muslim share Alesina et al. (2003)	Muslim share in 1990 Pew Research Center	Muslim share in 2010 Pew Research Center
Algeria	0	0	99.5	98.3	98.2
Bahrain	0	0	81.2	81.8	81.2
Djibouti	0	0	97.8	90	97
Egypt	0	0	89	93.2	94.7
Iran	0	0	99.6	99.6	99.7
Iraq	0	0	97	96	98.9
Israel	1	1	14.9	14.1	17.7
Jordan	0	0	96.6	96.8	98.8
Kuwait	0	0	75.3	91.7	86.4
Lebanon	0	0	55.3	60	59.7
Libya	0	0	97.1	98	96.6
Malta	1	1	0	0.2	0.3
Morocco	0	0	99.8	99	99.9
Oman	0	0	87.6	87.7	87.7
Qatar	0	0	95	90.6	77.5
Saudi Arabia	0	0	96.7	99	97.1
Syria	0	0	86	87	92.8
Tunisia	0	0	99.5	99	99.8
United Arab Emirates	0	0	96	87	76
Yemen	0	0	99.9	99	99

[13] The MENA region as classified by the World Bank includes 21 countries. Table 1 includes 20 countries because there are no data for West Bank and Gaza. Hanusch´s dataset includes only 19 countries: he does not code Malta as being a MENA country.

Table 2. Regression Results. Coefficient estimates.
Tobit, robust standard errors.
Dependent variable: Democracy-Dictatorship Variable. Average over the period 1999-2008.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Muslim	-0.0488***	-0.0394***	-0.0310***	-0.0295***	-0.0161**	-0.0187**	-0.0131*
	(-3.92)	(-3.65)	(-3.36)	(-3.14)	(-2.13)	(-2.25)	(-1.87)
log GDP per capita		0.6873***	0.9875***	0.9585***	0.1252	0.0442	0.5613**
		(2.97)	(3.58)	(3.61)	(0.48)	(0.20)	(2.11)
log Oil production value per capita			-0.3443***		-0.3056***		-0.3441***
			(-3.17)		(-3.13)		(-3.41)
log Armed forces personnel				-0.9334***		-0.8449***	-0.9068***
				(-2.82)		(-2.69)	(-2.91)
Asia					1.3220*	2.1193**	1.7816**
					(1.81)	(2.59)	(2.34)
America					3.5924***	2.9779***	2.7617***
					(3.40)	(3.03)	(2.93)
Oceania					1.9759	2.6931**	2.4337*
					(1.56)	(2.05)	(1.74)
Europe					5.5572***	5.9390***	4.9394***
					(3.66)	(3.96)	(3.57)
Legal origin (British)					-0.2547	-0.4263	-0.7117
					(-0.46)	(-0.80)	(-1.25)
Legal origin (Socialist)					-2.2354**	-2.3566**	-2.0726**
					(-2.33)	(-2.60)	(-2.46)
Constant	2.3175***	-3.7168**	-5.7565***	-6.3180***	-0.5861	-0.6255	-3.9470**
	(5.03)	(-1.99)	(-2.74)	(-2.97)	(-0.31)	(-0.38)	(-2.03)
Observations	191	184	181	167	178	165	165
Pseudo R-squared	0.1238	0.1605	0.1937	0.2103	0.3173	0.3210	0.3658

t statistics in parentheses
* p < 0.10, ** p < 0.05, *** p < 0.01

Table 3. Summary Statistics

Variable	Observations	Mean	Std. Dev.	Min	Max	Source
Democracy-Dictatorship	191	0.58	0.48	0	1	Cheibub et al. (2010)
Democracy-Dictatorship (type 2 coding)	191	0.79	0.38	0	1	Cheibub et al. (2010)
Muslim	192	24.03	36.44	0	100	Alesina et al. (2003)
Muslim (1990)	192	23.47	35.80	0	99.9	Pew Research Center (2010)
Muslim (2010)	192	24.74	36.74	0	99.9	Pew Research Center (2010)
GDP per capita (real)	184	10774.83	13026.29	206.92	69361.05	Penn World Tables 7.0 Summers and Heston (1991)
Oil production value (per capita) (constant 2000 US$)	183	545.35	1991.16	0	15372.77	U.S. Energy Information Administration / Own calculation
Oil income (per capita) (constant 2000 US$)	169	574.96	2003.75	0	15049.98	Ross / Own calculation
Oil/gas income (per capita) (constant 2000 US$)	169	881.49	2998.01	0	25619.18	Ross
Armed forces personnel (percentage of total labor force)	169	1.69	1.84	0.06	9.99	World Bank's *World Development Indicators*
Africa	192	0.28	0.45	0	1	Own Calculation
Asia	192	0.24	0.43	0	1	Own Calculation
America	192	0.18	0.39	0	1	Own Calculation
Oceania	192	0.07	0.26	0	1	Own Calculation
Europe	192	0.23	0.42	0	1	Own Calculation
Legal Origin (British)	188	0.34	0.47	0	1	La Porta et al. (1999)
Legal Origin (German)	188	0.03	0.18	0	1	La Porta et al. (1999)
Legal Origin (French)	188	0.43	0.50	0	1	La Porta et al. (1999)
Legal Origin (Scandinavian)	188	0.03	0.16	0	1	La Porta et al. (1999)
Legal Origin (Socialist)	188	0.18	0.39	0	1	La Porta et al. (1999)