Does Religious Diversity Make Us Unhappy?

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I investigate the effect of religious diversity on well-being using the World Values Survey data across 77 countries. Religious diversity is measured as fractionalization or polarization. People are unhappy in religiously diverse societies. One explanation is that people have a need to belong and like to live among like-minded individuals. Another explanation is that religion creates bonding social capital as opposed to bridging social capital. Directions for further research are discussed.

Keywords: Life Satisfaction, Religion, Fractionalization, Polarization, World Values Survey

Introduction

Religious people are happier than nonreligious people in religious countries, but not necessarily in non-religious countries (Okulicz-Kozaryn, 2010). On the other hand, the happiest countries (Denmark, Finland, and the Netherlands) are not very religious, and the most religious countries (Egypt, Bangladesh, and Indonesia) are not very happy. It also happens that religious countries tend to be poor. Yet, the question remains whether people are happy in religiously diverse societies. For instance, are Christians happy when there are Protestants and Muslim living in the same society? Can religion make people happy and societies unhappy?

Religiosity¹improves well-being by providing so-called "plausibility structures" (Ellison, 1991). Plausibility structure is more fundamental than social capital; it is a sociocultural context for systems of meanings and beliefs in a society (Swatos and Kivisto, 1998). Another similar theory is called "system justification theory" (Napier and Jost, 2008). Put plainly, religiosity helps with making sense of the world by providing explanations. People do have a need to believe in a just world (Benabou and Tirole, 2006). Religion provides individual values and social norms. People seem to be happiest living among like-minded others who share similar values and norms. Religiosity makes people happy in religious countries. Yet, it is not religiosity per se that affects our well-being, but rather a social function it offers; it satisfies the need to belong (Okulicz-Kozaryn, 2010). The need to belong is one of the most fundamental human needs (Baumeister and Leary, 1995). Religiosity offers not only membership in religion's social group but also provides social identity (Ysseldyk et al., 2010). But what happens if there are multiple religions offering alternative identities? I argue that religious diversity makes us unhappy. There are many reasons. First, there are two types of social capital: bonding and bridging. Bridging social capital bridges across diverse social groups, while bonding social capital cements only homogenous groups. That is, religion may provide social integration within a group but social disintegration across groups. Too much bonding social capital may have negative effects

^{*}Email: adam.okulicz.kozaryn@gmail.com. I am indebted to an anonymous reviewer for constructive comments. All mistakes are mine.

¹Religiosity can be defined in many ways. For a review see Koenig et al. (2001). In this section "religiosity" is used in a broad sense and simply defined as "being concerned with sacred matters or religion or the church." In the empirical part of this paper, I will use more specific measures of religiosity.

on a society as a whole, but may have positive effects on members of a group (Putnam, 2001). Whether religion produces more bonding or bridging social capital is an open and fascinating question². There is evidence, however, that religion may produce more bonding social capital than bridging social capital (Williams and de Mola, 2007). Some examples of negative effects of religious diversity follow. Religions differ in their explanations of the world (Netland, 1999), and there arises a question: which explanation is true? Religious diversity retards church participation (Land et al., 1991), and church participation is the form of religiosity that contributes most to well-being, because it promotes social capital (Okulicz-Kozaryn, 2010). Finally, value diversity (having different values) decreases satisfaction and commitment in workgroups (Jehn et al., 1999).

While the literature does not discuss the effect of religious diversity on life satisfaction³, there is literature about the effect of ethno-linguistic fractionalization on conflict and economic development. Let's review what we know and how we measure religious diversity.

5 Measurement and Data

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There are two popular measures of religious diversity: fractionalization and polarization. Alesina et al. (2003) developed fractionalization index based on data from Encyclopedia Britannica, 2001. Montalvo and Reynal-Querol (2002) used World Christian Encyclopedia to calculate polarization index. They are correlated but they differ conceptually. Fractionalization is measured by the probability that two randomly drawn individuals from the population belong to two different groups – it equals one if everybody belongs to different group and it equals zero if everybody belongs to the same group. Polarization, on the other hand, reaches maximum when two equally sized groups face each other⁴. Fractionalization and polarization measure different aspects of diversity. Fractionalization measures the degree to which religious groups are fragmented in a country – the higher the value of an index the more religious groups in a country. Polarization, on the other hand, measures the degree to which individuals in a country are divided into two religious groups the higher the value is the more equally individuals are divided. Again, both measures are correlated, but because they measure different aspects of diversity, the correlation differs along with the diversity. Correlation between the indices is close to one at low levels of diversity and close to zero at high levels of diversity⁵. A limitation of both measures is that under repressive regimes religiosity affiliation accounts may be biased if the repressive regimes promote some religion – religion can be banned and/or people can hide their religion (Alesina et al., 2003). Fractionalization and polarization are calculated as follows:

$$fractionalization_j = 1 - \sum_{i=1}^{N} s_{ij}^2 \tag{1}$$

²For instance, Beyerlein and Hipp (2005) shows that religious mainstream or liberals may create bridging social capital and conservatives may create bonding social capital. Furthermore, social capital creation varies by religious congregation.

³Happiness and life satisfaction are conceptually different. The former refers to cognition while the latter refers to affect. Life satisfaction is a cognitive aspect of happiness (Dorahy et al., 1998). Happiness taps transient assessments of life quality. Life satisfaction involves implicit comparisons between ideal and real life circumstances (Ellison, 1991). Life satisfaction is congruence between concrete life conditions, ideal circumstances and realistic expectations. This study discusses life satisfaction, but for simplicity, I use both terms interchangeably.

⁴A limitation of current polarization measures, as Alesina et al. (2003) note, is that in theory they should include a measure of distance, that is, how far the groups are from each other, but it is difficult to calculate for diverse societies and we do not have these measures.

⁵For discussion see Alesina et al. (2003), Montalvo and Reynal-Querol (2002, 2003, 2005b). In the sample analyzed here, however, correlation between fractionalization and polarization is <u>not</u> close to one at low levels of diversity and close to zero at high levels of diversity as shown in figure 4 in the appendix. For instance, there are countries with polarization of 0 - 0.2 and fractionalization grater than .6: CHE, DEU, CAN, GBR, NLD, NZL, and AUS. There are countries fractionalization lower than .3 and polarization greater than .8: PER, IDN, and DOM. For country codes see table 5 in the appendix.

$$polarization_{j} = 1 - \sum_{i=1}^{n} \left(\frac{0.5 - s_{ij}}{0.5}\right)^{2} s_{ij}$$
 (2)

where s_{ij} is the share of the group i (i=1...N) in country j.

Economists use ethno-linguistic fractionalization or polarization ⁶ to explain economic development (Alesina et al., 2003, Montalvo and Reynal-Querol, 2005a), governance (Lind, 2007) and civil wars (Montalvo and Reynal-Querol, 2005b, 2002). Religious fractionalization and polarization indices are less frequently used to explain politico-economic outcomes. For instance, Montalvo and Reynal-Querol (2003) find that polarization depresses economic growth. There are no studies using religious fractionalization/polarization measures to explain well-being⁷.

While ethno-linguistic fractionalization often correlates⁸ with bad economic outcomes and bad governance, religious fractionalization correlate with good governance (Alesina et al., 2003). Religious fractionalization is higher in tolerant and free societies. For instance, the U.S. is one of the most religiously fractionalized countries. Religious fractionalization is correlated with control of corruption (low corruption), efficient bureaucracy, tax compliance, infrastructure quality, lower infant mortality, lower illiteracy, school attainment, and political rights (Alesina et al., 2003). Religious diversity, surprisingly, does not increase the risk of civil conflict; it is rather ethnic dominance (Collier, 2000). Still, the effect of diversity on economic outcomes is not entirely clear (Alesina et al., 2003). Polarization, on the other hand, is expected to be less associated with freedoms, and predicts civil wars better than fractionalization (Montalvo and Reynal-Querol, 2002).

Let's define measurement of well-being. Life satisfaction is measured with answers to the following survey question "All things considered, how satisfied are you with your life as a whole these days?" Respondents were asked to answer this question on a scale from 1 to 10, where 10 is the most satisfied. Their responses are used as a dependent variable in this study. This is a standard measure used widely in the literature. This measure is valid. Only few respondents do not answer this question – most people intuitively understand happiness question (Clark et al., 2008). Happiness measure is relatively reliable (Krueger and Schkade, 2008). Happiness can be compared across cultures (Blanchflower, 2008, Oswald and Wu, 2009). Happiness measure and all other measures of individual characteristics come from the World Values Survey. The World Values Survey (WVS) was designed to enable a cross-cultural comparison of values and norms on a variety of topics, including religiosity. It is a unique dataset widely used by economists, but less popular among psychologists. Comparing 77 countries around the world requires that we account for the differences among them – I use two macroeconomic indicators: gross domestic product (gdp) and institutional quality index (kkz). I use data from:

- WVS, World Values Survey, person-level data http://www.worldvaluessurvey.org
- KKZ, country-level governance indicators, (Kaufmann et al., 2006) http://info.worldbank.org/governance/wgi/index.asp
- WDI, World Development Indicators, country-level economic data from the World Bank, http://www.worldbank.org/data
- Alesina et al. (2003) fractionalization index http://www.nsd.uib.no/macrodataguide/set.html?id=16&sub=1

⁶Ethno-linguistic fractionalization and polarization mean diversity in terms of ethnicity and language

⁷The exception is Mookerjee and Beron (2005). Mookerjee and Beron (2005), however, use only country level data for 60 countries (disregarding individual characteristics), operationalize religious diversity in a different way, and focus on macroeconomic issues. There is also an unpublished manuscript using similar approach to this study. May (2010), however, does not consider polarization index, does not control for institutional quality and individual health and takes a different, sociological perspective on the subject.

⁸By correlate i mean statistically significant at .05 level of significance positive correlation.

⁹A detailed description of the WVS is at http://www.worldvaluessurvey.org.

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 Montalvo and Reynal-Querol (2002) polarization index http://www.econ.upf.edu/~reynal/data_web.htm

The data structure is multilevel (hierarchical). There are two units of observation: persons nested within countries. The regression model is given by 10 :

$$LifeSatisfaction_{ij} = \mathbf{X}_{ij}\beta + \mathbf{Z}_{j}\gamma + \epsilon_{ij}$$
(3)

Life Satisfaction for individual i in country j is a function of person- and country-level characteristics. Vectors \mathbf{X} and \mathbf{Z} are the different combinations of individual- and country-level control variables shown in tables 1 and 2. These are the standard variables used in life satisfaction research¹¹. For simplicity all variables were recoded so that the higher value means "more". Frequency tables of variables are set down in figure 3 in the appendix.

Table 1: Person-level control variables included in X.

Variable	Definition and Source
	World Values Survey www.worldvaluessurvey.org/
income	income counting all wages, salaries, pensions and other incomes
health	state of health (subjective)
unemployed	1(unemployed); 0(otherwise)
female	1(female); 0(otherwise)
age	respondent's age
married	married or living together as married
divorced/separated/widowed	divorced or separated or widowed
social religiosity	
time with people at church	I'm going to ask how often you do certain things. For each activity, would you say you do them every week or nearly every week; once or twice a month; only a few times a year; or not at all? Spend time with people at your church, mosque or synagogue
belong to religious organization	Please look carefully at the following list of voluntary organizations and activities and saywhich, if any, do you belong to? Religious or church organizations
attend religious services	Apart from weddings, funerals and christenings, about how often do you attend religious services these days?
individual religiosity	
believe in: God	Which, if any, of the following do you believe in? (Read out and code one answer for each) God
importance of God	importance of God? Please use this scale to indicate- 10 means very important and 1 means not at all important.
belong to religious denomination	Do you belong to a religious denomination?
religion important in life	Please say, for each of the following, how important it is in your life: Religion
religious	Independently of whether you go to church or not, would you say you are (Reacout) 'A religious person'

Table 2: Country-level variables included in Z.

Variable	Definition and Sources
0(low) to 1(high)	fractionalization http://www.nsd.uib.no/macrodataguide/set.html?id=16⊂=1
0(low) to 1(high)	polarization http://www.econ.upf.edu/~reynal/data_web.htm

 $^{^{10}}$ Discussion of multilevel modeling is beyond the scope of this paper; for a detailed discussion see Kreft and de Leeuw (1998), Rabe-Hesketh and Skrondal (2005).

¹¹For a review of the literature see Diener and Biswas-Diener (2002), Diener et al. (1993), Clark et al. (2008).

Table 2 continued

Variable	Definition and Sources
	world development indicators http://publications.worldbank.org/wdi/
gdp	gdp per capita based on purchasing power parity in constant 2000 international \$
-2.5(low) to 2.5(high)	governance indicators www.worldbank.org/wbi/governance/govdata/
voice and accountability	participation in politics, freedom of expression, freedom of association, and free media
political stability	likelihood that the government will be destabilized or overthrown
government effectiveness	the quality of public services, civil service, independence from political pressures
regulatory quality	implementation of sound policies and regulations
rule of law	the quality of contract enforcement, the police, and the courts, likelihood of crime and violence
control of corruption	the extent to which public power is exercised for private gain
kkz	the average of the governance indicators

The design of this study is cross-sectional, however, national survey data were collected over 1997-2004 (for details see table 6 in the appendix). Economic development (gdp) and institutional quality (kkz) data were matched on the year of survey for each country¹².

Results and Discussion

Figures 1 and 2 show the relationship between fractionalization, polarization and well-being. Polarization index is available for fewer countries than fractionalization index. Country codes shown in figures are explained in table 5 in the appendix.

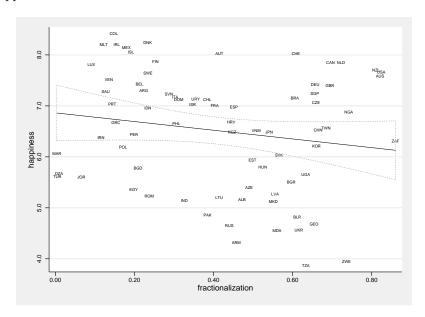


Figure 1: Religious fractionalization and well-being (linear fit and 95% confidence intervals

The bivariate relationship between fractionalization or polarization and well-being is weak and barely significant. These relationship, however, are both strong and significant when controlling for other variables. Table 3 shows bivariate correlations between well-being and country-level variables.

¹²Some missing values were imputed. If gdp (gross domestic product), inflation, or unemployment were missing for a given year, they were replaced with a value for previous/next year. Life expectancy was replaced with first non-missing value six years ahead or before.

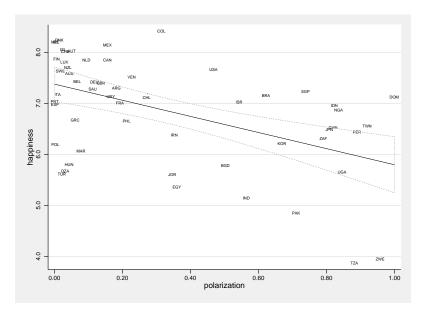


Figure 2: Religious polarization and well-being (linear fit and 95% confidence intervals)

Table 3:	Cross-correlation	table: p-va	alues in	parentheses.

Variables	fractionalization	polarization	gdp (10,000)	kkz	happiness
fractionalization	1.00				
polarization	0.40	1.00			
	(0.00)				
gdp (10,000)	0.03	-0.50	1.00		
	(0.82)	(0.00)			
kkz	0.09	-0.55	0.89	1.00	
	(0.43)	(0.00)	(0.00)		
happiness	-0.17	-0.51	0.69	0.69	1.00
	(0.15)	(0.00)	(0.00)	(0.00)	

As expected, well-being is positively related to level of economic development (gdp) and institutional quality (kkz). On the other hand, there is negative relationship between well being and polarization and fractionalization. Table 4 shows regression results.

All columns show multilevel regressions with country-level random intercept. Columns a1 and a2 are the same except that a1 controls for fractionalization and a2 controls for polarization. Both columns control for a set of known predictors of life satisfaction (Diener and Biswas-Diener, 2002). Both fractionalization and polarization are negative. Control variables have the predicted signs and are significant except the institutional index, which turns out insignificant. Columns a3 and a4 add person-level religiosity ¹³measures to a1 and a2 models. Person-level religiosity measures can be grouped as social or individual religiosity ¹⁴. In general, social religiosity measures predict higher life satisfaction than individual religiosity measures. The relationship

 $^{^{13}}$ Religiosity can be defined in multiple ways, and depending on a particular definition conclusions may differ (Hackney and Sanders, 2003). This study uses multiple measures of religiosity.

¹⁴Social and individual religiosity types were defined by Okulicz-Kozaryn (2010): Social religiosity promotes social capital and satisfies 'the need to belong'; Social capital "refers to the collective value of all 'social networks' and the inclinations that arise from these networks to do things for each other" (Putnam, 2001). Individual religiosity, on the other hand, is about individual experience. There are alternative definitions of social capital. Putnam's definition of social capital was criticized by e.g. Bjornskov (2006). This study focuses on religious fractionalization/polarization, not social capital. For a broader perspective that is beyond the scope of this study see for instance Woolcock (1998), Woolcock and Narayan (2000).

Table 4: Happiness multilevel regression results: fractionalization and polarization

Variable	a1	a2	a3	a4	a5	a6
fractionalization	-1.00**		-1.25***		-2.55***	
polarization		-0.54		-1.17**		-1.45*
gdp (10,000)	1.01**	0.96**	0.85*	0.70	0.72	1.34
gdp squared	-0.14*	-0.13	-0.12	-0.09	-0.09	-0.31
kkz	0.25	-0.03	0.51*	0.29	0.47	0.21
age	-0.07***	-0.06***	-0.07***	-0.06***	-0.06***	-0.07***
age2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
income	0.16***	0.16***	0.18***	0.16***	0.19***	0.18***
married	0.31***	0.33***	0.27***	0.29***	0.25***	0.24***
divorced, separated or widowed	-0.20***	-0.15***	-0.25***	-0.20***	-0.16**	-0.13*
unemployed	-0.58***	-0.62***	-0.53***	-0.59***	-0.36***	-0.42***
belong to religious organization			0.10***	0.06*	0.10**	0.05
belong to religious denomination			-0.14***	-0.14***	-0.08	-0.07
religious			0.06*	0.08**	0.07	0.07
religion important			0.03*	0.02	0.08***	0.09***
attend services			0.03***	0.03***	0.02*	0.03***
go to church			0.07***	0.07***	0.05***	0.06***
believe in god			-0.23***	-0.29***	-0.38***	-0.53***
god important			0.05***	0.06***	0.05***	0.08***
health					0.56***	0.54***
N	91282	69373	42990	30901	21486	17250

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

between person-level religiosity and well-being does not appear to be moderated by fractionalization or polarization¹⁵. The effects of fractionalization and polarization remain negative and significant, and if anything, they are stronger. Columns a5 and a6 repeat columns a3 and a4 and add health status variable. Numbers of observation drop as there are many missing health status values. Still, fractionalization and polarization are both negative and significant. Estimates on polarization/fractionalization measures are consistently negative, but the magnitudes of the estimates are not very stable – it is difficult to tell whether fractionalization or polarization brings more unhappiness – more research is needed. Estimates on the fractionalization measure are more reliable, because the fractionalization measure is available for more countries.

Fractionalization and polarization are not only statistically but also practically significant. If we take a conservative estimate of 1 on fractionalization variable (from column a1), it means that if a country's fractionalization index goes up by .25, say from the level of .57 for Japan to .82 for the U.S., then life satisfaction for everybody in a country would drop by .25 on scale from 1 to 10. This is a big effect – it is similar to shifting 5% of a country's population from the mildly satisfied category (6) to most dissatisfied category (1). In case of Japan it would be 6 million people.

This paper argues that religious fractionalization causes unhappiness. It is unlikely that fractionalization is endogenous in the well-being model. Alesina et al. (2003) note that religious fractionalization may not cause good governance or political freedom because repressive regimes may suppress religiosity. Well-being is not likely to affect fractionalization, but there are theoretical grounds discussed above to think that fractionalization depresses well-being.

We know that religious people are happier than non-religious people in religious countries (Okulicz-Kozaryn, 2010). People like to live among like-minded individuals – religion provide social identity (Ysseldyk et al., 2010) – and the need to belong is one of the most fundamental human needs (Baumeister and Leary, 1995). This paper probes further: are people happy in religiously diversified societies? The answer is no.

Religious diversity, on average, makes us unhappy. Yet this is a general cross-national pattern, and results may not be valid in specific nations. Specific nations should be treated on case by case basis. To be sure,

 $^{^{15}}$ I tried models that interact fractionalization/polarization with individual religiosity measures and results were not significant except few cases: belief in god seems to decrease happiness in fractionalized/polarized societies with gdp<10,000, and church attendance increases happiness in polarized/fractionalized societies with gdp>10,000. Both interactions disappear, however, when controlling for other forms of religiosity in the same equation. Since they are not robust to model specification I decided not to discuss them.

religious freedom or religious pluralism is fundamentally a good thing (at least in Western culture and at least in theory). In most democracies it is protected by law. For instance, the first amendment to the U.S. constitution says:

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the government for a redress of grievances.

This study by no means argues to prevent religious diversity. The goal of this study is simply to call attention to the effect of religious diversity on well-being. There is a need for research at more disaggregated level, say country or even zip-code level. Such disaggregated data is available at The Association of Religion Data Archives (www.thearda.com). It remains for the future research to determine if religious diversity make people unhappy at the local level.

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 Table 5: Means of main variables by country.

code	name	happiness	fractionalization	polarization	gdp ('000)	kkz
ATD	11 .		0.45	0.56		0.50
ALB	albania	5.2	0.47	0.10	4	-0.59
ARG	argentina	7.3	0.22	0.18	12	0.22
ARM	armenia	4.3	0.46	0.04	2	-0.52
AUS	australia	7.6	0.82	0.04	23	1.63
AUT	austria	8.0	0.41	0.05	28	1.53
AZE	azerbaijan	5.4	0.49	0.05	2	-0.99
BEL	belgium	7.4	0.21	0.07	26	1.14
BGD	bangladesh	5.8	0.21	0.50	2	-0.81
BGR	bulgaria	5.5	0.60		6	-0.04
BLR	belarus	4.8	0.61	0.60	5	-1.08
BRA	brazil	7.2	0.61	0.62	$\frac{7}{27}$	-0.06
CAN	canada	7.8	0.70	0.16		1.61
CHE	switzerland	8.0	0.61	0.03	29	1.88
CHL	chile	7.1	0.38	0.27	9	1.06
CHN	china	6.5	0.66	0.82	4	-0.39
COL	colombia	8.4	0.15	0.31	6	-0.48
CZE	czech republic	7.1	0.66	0.10	15	0.67
DEU	germany	7.4	0.66	0.12	25	1.53
DNK	denmark	8.2	0.23	0.01	28	1.70
DOM	dominican	7.1	0.31	1.00	5	-0.27
DZA	republic		0.01	0.00	0	0.00
DZA	algeria	5.7	0.01	0.03	6	-0.89
EGY	$\operatorname*{egypt}$	5.4	0.20	0.36	4	-0.19
ESP	spain	7.0	0.45	0.00	21	1.32
EST	estonia	5.9	0.50	0.01	9	0.75
FIN	finland	7.9	0.25	0.01	26	1.85
FRA	france	7.0	0.40	0.19	25	1.18
GBR	great britain	7.4	0.69	0.14	26	1.64
GEO	georgia	4.7	0.65	0.00	2	-0.82
GRC	greece	6.7	0.15	0.06	17	0.74
HRV	croatia	6.7	0.44	0.04	9	0.07
HUN	hungary	5.8	0.52	0.04	12	0.85
IDN	indonesia	7.0	0.23	0.82	3	-0.91
IND	india	5.1	0.33	0.56	3	-0.20
IRL	ireland	8.2	0.16	0.01	28	1.58
IRN	iran (islamic re-	6.4	0.12	0.35	6	-0.66
TOT	public of)	0.1	0.10	0.00	07	1.05
ISL	iceland	8.1	0.19	0.03	27	1.65
ISR	israel	7.0	0.35	0.54	23	0.60
ITA	italy	7.2	0.30	0.01	24	0.88
JOR	jordan	5.6	0.07	0.35	4	0.08
JPN	japan	6.5	0.54	0.81	26	1.12
KGZ	kyrgyzstan	6.5	0.45	0.05	2	-0.87
KOR	republic of korea	6.2	0.66	0.67	17	0.57
LTU	lithuania	5.2	0.41	0.00	8	0.34
LUX	luxembourg	7.8	0.09	0.03	50	1.69
LVA	latvia	5.3	0.56	0.00	7	0.31
MAR	morocco	6.1	0.00	0.08	4	-0.06
MDA	republic of moldova	4.6	0.56		1	-0.47
MEX	mexico	8.1	0.18	0.16	9	-0.05
MKD	macedonia, re-	5.1	0.55	0.10	6	-0.47
	public of		3.00		-	J. 11
MLT	malta	8.2	0.12	0.00	16	0.75
NGA	nigeria	6.9	0.74	0.84	1	-0.99
NLD	netherlands	7.8	0.72	0.09	28	1.83
NZL	new zealand	7.7	0.81	0.04	18	1.75
PAK	pakistan	4.9	0.38	0.71	2	-0.93
PER	peru	6.4	0.20	0.89	5	-0.26
PHL	philippines	6.7	0.31	0.21	4	-0.23
POL	poland	6.2	0.17	0.00	10	0.67
PRT	portugal	7.0	0.14	0.00	18	1.25
ROM	romania	5.2	0.24	0.00	6	-0.20
100111	- 311101110			d on next page	-	0.20

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Table 5 –	continued	from	previous	page

code	name	happiness	fractionalization	polarization	gdp ('000)	kkz
RUS	russian federa-	4.7	0.44		7	-0.77
	tion					
$_{\mathrm{SAU}}$	saudi arabia	7.3	0.13	0.11	12	-0.25
SGP	singapore	7.2	0.66	0.74	24	1.64
SVK	slovakia	6.0	0.57		11	0.31
SVN	slovenia	7.2	0.29		16	0.81
SWE	sweden	7.6	0.23	0.02	25	1.68
TUR	turkey	5.6	0.00	0.02	6	-0.33
TWN	taiwan province	6.6	0.68	0.92		0.90
	of china					
TZA	tanzania, united	3.9	0.63	0.88	1	-0.49
	republic of					
UGA	uganda	5.7	0.63	0.85	1	-0.73
UKR	ukraine	4.6	0.62		4	-0.77
URY	uruguay	7.1	0.35	0.17	9	0.66
USA	united states	7.7	0.82	0.47	33	1.48
VEN	venezuela	7.5	0.14	0.23	6	-0.67
VNM	viet nam	6.5	0.51		2	-0.61
ZAF	south africa	6.3	0.86	0.79	10	0.29
ZWE	zimbabwe	3.9	0.74	0.96	2	-1.31

Table 6: Sample description

country	year	sample size	country	year	sample size
Albania	2002	1000	Jordan	2001	1223
Algeria	2002	1282	Kyrgyzstan	2003	1043
Argentina	1999	1280	Latvia	1999	1013
Armenia	1997	2000	Lithuania	1999	1018
Australia	1995	2048	Luxembourg	1999	1211
Austria	1999	1522	Macedonia, Republic Of	2001	1055
Azerbaijan	1997	2002	Malta	1999	1002
Bangladesh	2002	1500	Mexico	2000	1535
Belarus	2000	1000	Morocco	2001	2264
Belgium	1999	1912	Netherlands	1999	1003
Bosnia And Herzegovina	2001	1200	New Zealand	1998	1201
Brazil	1997	1149	Nigeria	2000	2022
Bulgaria	1999	1000	Pakistan	2001	2000
Canada	2000	1931	Peru	2001	1501
Chile	2000	1200	Philippines	2001	1200
China	2001	1000	Poland	1999	1095
Colombia	1998	2996	Portugal	1999	1000
Croatia	1999	1003	Puerto Rico	2001	720
Czech Republic	1999	1908	Republic Of Korea	2001	1200
Denmark	1999	1023	Republic Of Moldova	2002	1008
Dominican Republic	1996	417	Romania	1999	1146
Egypt	2000	3000	Russian Federation	1999	2500
Estonia	1999	1005	Saudi Arabia	2003	1502
Finland	2000	1038	Serbia And Montenegro	2001	2260
France	1999	1615	Singapore	2002	1512
Georgia	1996	2008	Slovakia	1999	1331
Germany	1999	2036	Slovenia	1999	1006
Great Britain	1999	1000	South Africa	2001	3000
Greece	1999	1142	Spain	2000	1209
Hungary	1999	1000	Sweden	1999	1015
Iceland	1999	968	Switzerland	1996	1212
India	2001	2002	Tanzania, United Republic Of	2001	1171
Indonesia	2001	1004	Turkey	2001	4607
Iran (Islamic Republic Of)	2000	2532	Uganda	2001	1002
Iraq	2004	2325	Ukraine	1999	1195
Ireland	1999	1012	United States	1999	1200
Israel	2001	1199	Uruguay	1996	1000
Italy	1999	2000	Venezuela	2000	1200
Japan	2000	1362	Viet Nam	2001	1000
			Zimbabwe	2001	1002

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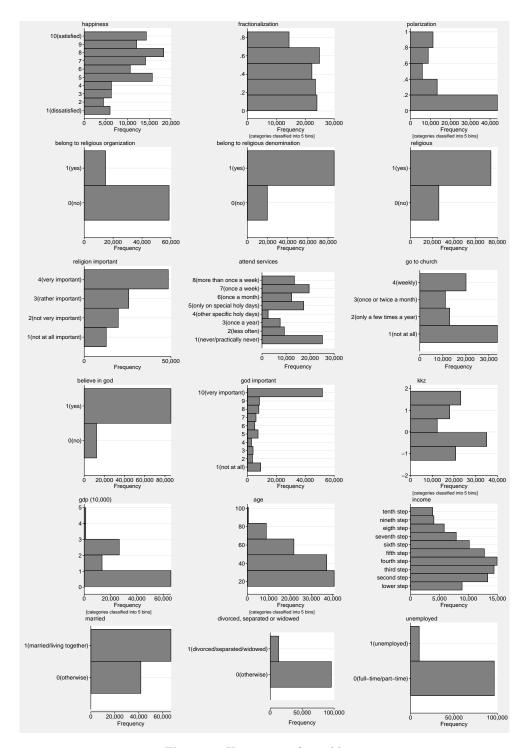


Figure 3: Histograms of variables

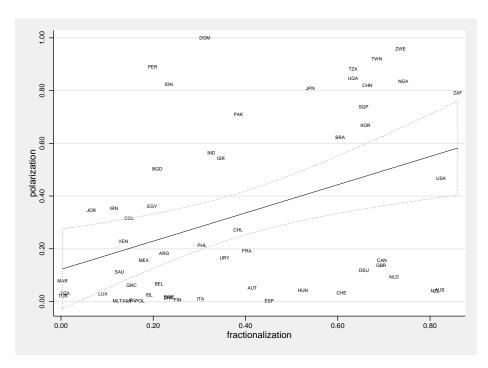


Figure 4: Relationship between polarization and fractionalization (linear fit and 95% confidence intervals)