

Beyond Global Regions: Religious Traditions and Modern Contraceptive Method Use

Claudia Geist

Wade M. Cole

University of Utah

Prior research has demonstrated temporal and regional heterogeneity in contraceptive method use. We test whether cultural zones, a novel classification of countries based on predominant or historically dominant religious traditions, can help us better understand variation in modern contraceptive method usage rates compared to geographic regions. Using data from 156 countries and net of economic development, women's education, geographic region, and time, we find that cultural zones explain cross-national variation in contraceptive practices beyond global region, economic development and women's education. Cultural zones integrate global regions and religious traditions and explain more than geographic regions in our understanding of the use of modern contraceptive methods.

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Background

The study of the population has often defined itself as the study of fertility, mortality, and migration. A comprehensive approach to studying fertility also includes the study of contraception. Contraception is an important way for women to time pregnancies, retain control over their lives and economic-well-being (Frejka, 2008; Presser, 2001; Sobotka, 2004).

Modern methods describe products or procedures that prevent pregnancy; this typically includes permanent contraception, hormonal methods, and barrier methods (see methods for a detailed description). Typically we expect that as economies expand, access to modern contraceptive products and procedures also increases (Gakidou & Vayena, 2007; Gertler & Molyneaux, 1994).

Women's status in society is another important factor in understanding family planning behavior. Women's access to education is used as a way to increase awareness about basic biology, contraception, as well as women's power to access to medical care and contraception (Ainsworth, Beegle, & Nyamete, 1996).

Much of the research on trends in contraceptive use have focused on regions of the world with high fertility and poverty levels, and where women are particularly marginalized. Global comparisons are typically done base done across regions (Darroch, 2013; Darroch & Singh, 2013; Ezeh, Bongaarts, & Mberu, 2012). Some research has also examined the low-fertility European context (Frejka, 2008; Sobotka, 2004, 2008). Frejka (2008) discussed an overview of changing regulations regarding contraceptive methods, specifically the decline of access limitations. Frejak also shows variation in modern method use across Europe.

Less attention has been paid to variation in contraceptive practices across larger social contexts other than global region. Some have regional trends that are based on a combination of geographic area and sociopolitical context, such as the case of high levels of induced abortion in post-soviet countries (Jilozian & Agadjanian, 2016). Attitudes are an important predictor of contraceptive method choice (Machiyama & Cleland, 2014), but the role of culture in understanding in cross-national differences has remained underexplored. The role of social resistance has been cited in research on unmet contraceptive need (Cleland, Harbison, & Shah, 2014). We build on the research that has demonstrated that economic development and women's access to education matter, and further refine our understanding of regional discrepancies. In this research note, we explore how countries' religious traditions explain differences in rates of modern contraceptive usage beyond economic development and women's status.

Our paper explores the extent to which cultural zones provide additional leverage in understanding contraceptive practices. Cultural zones represent areas of the world that have been shaped by a dominant religion (Cole, 2016). The combination of religious traditions and global regions allows for a more fine-tuned understanding of cultural context, i.e., by differentiating between Latin-American Catholicism and Western (European) Catholicism. Cultural zones have been shown to help us understand variation in women's equality beyond economic development (Cole & Geist, 2018). Thus, we expect cultural zones to also shape access to contraceptive methods, and their use as religious traditions do not merely put forth specific ideas about the roles of women and men, but also appropriate sexuality and often contraceptive practices.

Methods

Our dataset contains information on 156 countries, spanning the years 1970 to 2009. Data on *contraceptive use* come from the World Contraceptive Use survey administered by the United Nations Department of Economic and Social Affairs, Population Division (United Nations, 2016). Modern contraceptive methods include permanent contraception (male and female sterilization), barrier methods (male and female condoms, diaphragm, cervical caps, foams, jelly, cream and sponge), pills, injectables, IUDs, and implants (Hubacher & Trussell, 2015) as well as other methods such as the “patch,” and emergency contraception. The United Nations categorization also includes the Lactational Amenorrhea Method as a modern method, but groups fertility awareness methods, which can be highly effective when used correctly, within the “traditional” rhythm methods and withdrawal (see (Lopez-del Burgo & de Irala, 2016). Our outcome measures modern method prevalence (for any modern method and for specific modern methods) as a percentage of married or in-union women of reproductive age (United Nations, 2016).

To allocate countries into *geographical regions*, we use the categories created by the U.N. Statistics Division (<https://unstats.un.org/unsd/methodology/m49/>) . We distinguish between Northern & Western Europe (reference category), South & East Europe, the “British Settler” Region comprised of the US, Canada, Australia, and New Zealand, Latin American and the Caribbean, Middle East and North Africa (MENA), Sub-Saharan Africa, Southeast Asia, Central and South Asia, and Oceania. We measure *economic development* conventionally as gross domestic product (GDP) per capita, rendered in constant 2005 U.S. dollars and logged to reduce skew. We take this measure from the World Development Indicators database (World Bank 2013). *Women’s educational attainment* is defined as the average years of schooling for women in a country; this measure comes from Institute for Health Metrics and Evaluation, made

available through the Quality of Government database (Teorell, Charron, Dahlberg, Holmberg, Rothstein, Sundin, and Svensson 2013). We use Cole's (2016) classification of *cultural zones*, which in turn is based on country-level rates of religious adherence as reported in the World Religion Dataset (Maoz and Henderson 2013). We distinguish between Protestant (Western), Protestant (non-Western), Catholic (Western), Catholic (Latin American), Catholic (Other), Islamic (Middle Eastern), Islamic (Other), Orthodox, Buddhist, Hindu, Animist, Non-religious, and Confucian countries, see Table 2 for country classifications. In supplemental analyses we use a dynamic measure of cultural zone that allows for changes in cultural zone, but the findings are substantively identical (see table note). We also account for data collection year, which ranges from 1970 and 2009.

Table 1 about here

Table 2 about here

We estimate four OLS regressions with robust standard errors that correct for autocorrelation and heteroskedasticity. Based on multivariate models we graph expected rates of modern contraceptive use to illustrate adjusted variation across regions and cultural zones (with economic development, women's education and year held at sample means).

Results

Our results initially show the expected patterns. Model 1 (Table 3) demonstrates that rates of modern contraceptive use are similar in Northern and Western Europe, the US, Canada, Australia, and New Zealand. We find lower rates of modern contraceptive use in the countries of Southern and Eastern Europe, Latin America and the Caribbean, Southeast Asia, the Middle East

and North Africa, sub-Saharan Africa, Central and South Asia, and Oceania. There is also a clear trend over time towards increased usage of modern methods.

Table 3 about here

In Model 2 we included two key predictors that we expect to be associated with modern method use – GDP and female educational attainment. Once we control for these factors, the regional differences are reduced dramatically, as illustrated in Figure 1.

Figure 1 about here

Figure 1 shows that the very high level of modern contraceptive method prevalence found in the US, Canada, Australia, New Zealand (British Settler region), and Northern and Western Europe is less pronounced once we control for GDP per capita and women's educational attainment. In other words, much, but not all, of the baseline regional heterogeneity in modern contraceptive use is attributable to levels of economic development and women's years of schooling.

In Model 3 (Table 3) we replace the regional indicators with our set of dummy variables for cultural zone as an alternative way to understand global variation in contraceptive method use. Western Protestant countries are the reference group. This model has a better model fit and explains more of the variation in modern method use compared to models that include global region. Compared to the reference group, people living in non-Western Protestant countries have lower rates of modern methods, as do Catholic countries outside of Europe and Latin America. While Middle Eastern Islamic countries have rates of modern method use similar to Western Protestant countries, other Islamic countries, countries with Orthodox Christian traditions, and Animist countries have significantly lower rates of modern contraceptive usage. Countries classified as Confucian have significantly higher rates of modern methods usage compared to the

reference category. The final model is fully specified: it includes cultural zone indicators, region indicators, GDP per capita, women's educational attainment, and time. Including both cultural zone and global region further improves model fit across all conventional fit indicators (see Table 3). In this model, the effect of GDP and women's educational attainment remains positively associated with modern method use. Regional differences are further diminished, but variation across cultural zones remains pronounced (Figure 2).

Figure 2 about here

Figure 2 shows predicted levels of modern contraceptive use at global means; model 3 adjusts for time, GDP, and model 4 adjusts further for global region. We see that even net of global region, economic development and women's status in society, there is clear variation across cultural regions that exceed our findings from Figure 1. In supplemental analyses, we also explore models that exclude the United States and find substantively identical results.

Conclusions

Our research suggests that cultural zones are a useful approach to understand cross-national variation in contraceptive use, beyond the more commonly used global region, even as we account for economic development and women's access to education. We argue that cultural zones advantage over the traditional measure of geographic region is due to the importance of religious traditions that vary not only across but also within global regions.

Our findings suggest that scholars should continue to account for cultural context of demographic trends. Future research should explore additional ways to incorporate measures of cultural zones in the examination of demographic processes, especially fertility and family formation. Understanding variation in religious traditions within large global region, for

example in sub-Saharan Africa, is particularly important for scholars who examine family planning related outcomes, as socio-religious traditions are are likely to shape attitudes and practices related to family, gender, and sexuality.

Figures and Tables

Table 1: Descriptive Statistics for N=156 countries

Variable	Mean	Std. Dev.	Min	Max
Modern Method Use	37.52	22.12	.30	86.2
GDP/capita	7.52	1.48	4.78	10.79
Women's Education	5.19	3.52	.20	13.6
Time (0=1970)	25.19	9.94	0	39
<u>Cultural Zones</u>				
Western Protestant	.060		0	1
Other Protestant	.042		0	1
Western Catholic	.057		0	1
Latin American Catholic	.170		0	1
Other Catholic	.086		0	1
Middle Eastern Islamic	.125		0	1
Other Islamic	.189		0	1
Orthodox	.039		0	1
Buddhist	.094		0	1
Hindu	.038		0	1
Animist	.068		0	1
Confucian/Sinic	.032		0	1
<u>UN Regions</u>				

North & West Europe	.065	0	1
South & East Europe	.063	0	1
British settler	.026	0	1
Latin Amer & Carib	.185	0	1
Middle East & North Africa (MENA)	.119	0	1
Sub-Saharan Africa	.241	0	1
East Asia	.061		
SE Asia	.118	0	1
Central & South Asia	.109	0	1
Oceania	.013	0	1

Table 2: Countries' Cultural Zone and Region

Country	Cultural Zone	UN Region
Benin	Animist	Sub-Saharan Africa
Botswana	Animist	Sub-Saharan Africa
Central African Republic*	Animist	Sub-Saharan Africa
Cote d'Ivoire	Animist	Sub-Saharan Africa
Ghana*	Animist	Sub-Saharan Africa
Guinea-Bissau*	Animist	Sub-Saharan Africa
Liberia	Animist	Sub-Saharan Africa
Madagascar	Animist	Sub-Saharan Africa
Mozambique	Animist	Sub-Saharan Africa
Swaziland	Animist	Sub-Saharan Africa
Togo	Animist	Sub-Saharan Africa
Zimbabwe*	Animist	Sub-Saharan Africa
Cambodia	Buddhist	SE Asia
Japan	Buddhist	East Asia
Korea, Rep.*	Buddhist	East Asia
Lao PDR	Buddhist	SE Asia
Mongolia	Buddhist	East Asia
Sri Lanka	Buddhist	Central & South Asia
Thailand	Buddhist	SE Asia
Austria	Western Catholic	North & West Europe
Belgium	Western Catholic	North & West Europe
Czech Republic	Western Catholic	South & East Europe
France	Western Catholic	North & West Europe
Hungary	Western Catholic	South & East Europe
Ireland	Western Catholic	North & West Europe
Italy	Western Catholic	South & East Europe
Lithuania	Western Catholic	North & West Europe
Netherlands	Western Catholic	North & West Europe
Poland	Western Catholic	South & East Europe
Portugal	Western Catholic	South & East Europe
Slovenia	Western Catholic	South & East Europe
Spain	Western Catholic	South & East Europe
Switzerland	Western Catholic	North & West Europe
Belize	Latin American Catholic	Latin America & Carib.
Bolivia	Latin American Catholic	Latin America & Carib.
Brazil	Latin American Catholic	Latin America & Carib.
Colombia	Latin American Catholic	Latin America & Carib.

Costa Rica	Latin American Catholic	Latin America & Carib.
Cuba	Latin American Catholic	Latin America & Carib.
Dominican Republic	Latin American Catholic	Latin America & Carib.
Ecuador	Latin American Catholic	Latin America & Carib.
El Salvador	Latin American Catholic	Latin America & Carib.
Guatemala	Latin American Catholic	Latin America & Carib.
Haiti	Latin American Catholic	Latin America & Carib.
Honduras	Latin American Catholic	Latin America & Carib.
Mexico	Latin American Catholic	Latin America & Carib.
Nicaragua	Latin American Catholic	Latin America & Carib.
Panama	Latin American Catholic	Latin America & Carib.
Paraguay	Latin American Catholic	Latin America & Carib.
Peru	Latin American Catholic	Latin America & Carib.
St. Lucia	Latin American Catholic	Latin America & Carib.
Trinidad and Tobago	Latin American Catholic	Latin America & Carib.
Uruguay	Latin American Catholic	Latin America & Carib.
Venezuela, RB	Latin American Catholic	Latin America & Carib.
Angola	Other Catholic	Sub-Saharan Africa
Burundi	Other Catholic	Sub-Saharan Africa
Cameroon*	Other Catholic	Sub-Saharan Africa
Cape Verde	Other Catholic	Sub-Saharan Africa
Congo, Dem. Rep.	Other Catholic	Sub-Saharan Africa
Congo, Rep.	Other Catholic	Sub-Saharan Africa
Equatorial Guinea	Other Catholic	Sub-Saharan Africa
Gabon	Other Catholic	Sub-Saharan Africa
Lesotho	Other Catholic	Sub-Saharan Africa
Philippines	Other Catholic	SE Asia
Rwanda	Other Catholic	Sub-Saharan Africa
Sao Tome and Principe	Other Catholic	Sub-Saharan Africa
Timor-Leste	Other Catholic	SE Asia
Uganda	Other Catholic	Sub-Saharan Africa
Guyana	Hindu	Latin Amer & Carib
India	Hindu	Central & South Asia
Mauritius	Hindu	Sub-Saharan Africa
Nepal	Hindu	Central & South Asia
Suriname*	Hindu	Latin America & Carib
Algeria	Middle Eastern Islamic	MENA
Bahrain	Middle Eastern Islamic	MENA
Egypt, Arab Rep.	Middle Eastern Islamic	MENA
Iran, Islamic Rep.	Middle Eastern Islamic	Central & South Asia
Iraq	Middle Eastern Islamic	MENA
Jordan	Middle Eastern Islamic	MENA
Kuwait	Middle Eastern Islamic	MENA

Lebanon	Middle Eastern Islamic	MENA
Morocco	Middle Eastern Islamic	MENA
Oman	Middle Eastern Islamic	MENA
Saudi Arabia	Middle Eastern Islamic	MENA
Sudan	Middle Eastern Islamic	MENA
Syrian Arab Republic	Middle Eastern Islamic	MENA
Tunisia	Middle Eastern Islamic	MENA
Turkey	Middle Eastern Islamic	MENA
United Arab Emirates	Middle Eastern Islamic	MENA
Yemen, Rep.	Middle Eastern Islamic	MENA
Afghanistan	Other Islamic	Central & South Asia
Albania	Other Islamic	South & East Europe
Azerbaijan	Other Islamic	MENA
Bangladesh	Other Islamic	Central & South Asia
Bosnia and Herzegovina	Other Islamic	South & East Europe
Burkina Faso	Other Islamic	Sub-Saharan Africa
Chad	Other Islamic	Sub-Saharan Africa
Comoros	Other Islamic	Sub-Saharan Africa
Djibouti	Other Islamic	Sub-Saharan Africa
Eritrea	Other Islamic	Sub-Saharan Africa
Gambia, The	Other Islamic	Sub-Saharan Africa
Guinea	Other Islamic	Sub-Saharan Africa
Indonesia	Other Islamic	SE Asia
Kazakhstan	Other Islamic	Central & South Asia
Kyrgyz Republic	Other Islamic	Central & South Asia
Malaysia	Other Islamic	SE Asia
Maldives	Other Islamic	Central & South Asia
Mali	Other Islamic	Sub-Saharan Africa
Mauritania	Other Islamic	Sub-Saharan Africa
Niger	Other Islamic	Sub-Saharan Africa
Nigeria	Other Islamic	Sub-Saharan Africa
Pakistan	Other Islamic	Central & South Asia
Senegal	Other Islamic	Sub-Saharan Africa
Sierra Leone	Other Islamic	Sub-Saharan Africa
Tajikistan	Other Islamic	Central & South Asia
Tanzania	Other Islamic	Sub-Saharan Africa
Turkmenistan	Other Islamic	Central & South Asia
Uzbekistan	Other Islamic	Central & South Asia
China	Confucian/Sinic	East Asia
Singapore	Confucian/Sinic	SE Asia
Vietnam	Confucian/Sinic	SE Asia
Armenia	Orthodox	MENA
Belarus	Orthodox	South & East Europe

Bulgaria	Orthodox	South & East Europe
Ethiopia	Orthodox	Sub-Saharan Africa
Georgia	Orthodox	MENA
Greece	Orthodox	South & East Europe
Montenegro	Orthodox	South & East Europe
Romania	Orthodox	South & East Europe
Russian Federation	Orthodox	South & East Europe
Serbia	Orthodox	South & East Europe
Ukraine	Orthodox	South & East Europe
Australia	Western Protestant	British settler
Canada	Western Protestant	British settler
Denmark	Western Protestant	North & West Europe
Estonia	Western Protestant	North & West Europe
Finland	Western Protestant	North & West Europe
Germany*	Western Protestant	North & West Europe
Latvia	Western Protestant	North & West Europe
New Zealand	Western Protestant	British settler
Norway	Western Protestant	North & West Europe
United Kingdom*	Western Protestant	North & West Europe
United States	Western Protestant	British settler
Antigua and Barbuda	Other Protestant	Latin America & Carib
Bahamas, The	Other Protestant	Latin America & Carib
Fiji	Other Protestant	Oceania
Kenya	Other Protestant	Sub-Saharan Africa
Malawi*	Other Protestant	Sub-Saharan Africa
Marshall Islands	Other Protestant	Oceania
Namibia	Other Protestant	Sub-Saharan Africa
Papua New Guinea	Other Protestant	Oceania
Samoa	Other Protestant	Oceania
Solomon Islands	Other Protestant	Oceania
South Africa	Other Protestant	Sub-Saharan Africa
Vanuatu	Other Protestant	Oceania
Zambia*	Other Protestant	Sub-Saharan Africa

Note: * denotes a change in cultural zone over time. Supplemental analyses that allowed for temporal variation in the cultural zone membership yielded substantivel identical results compare to the static models.

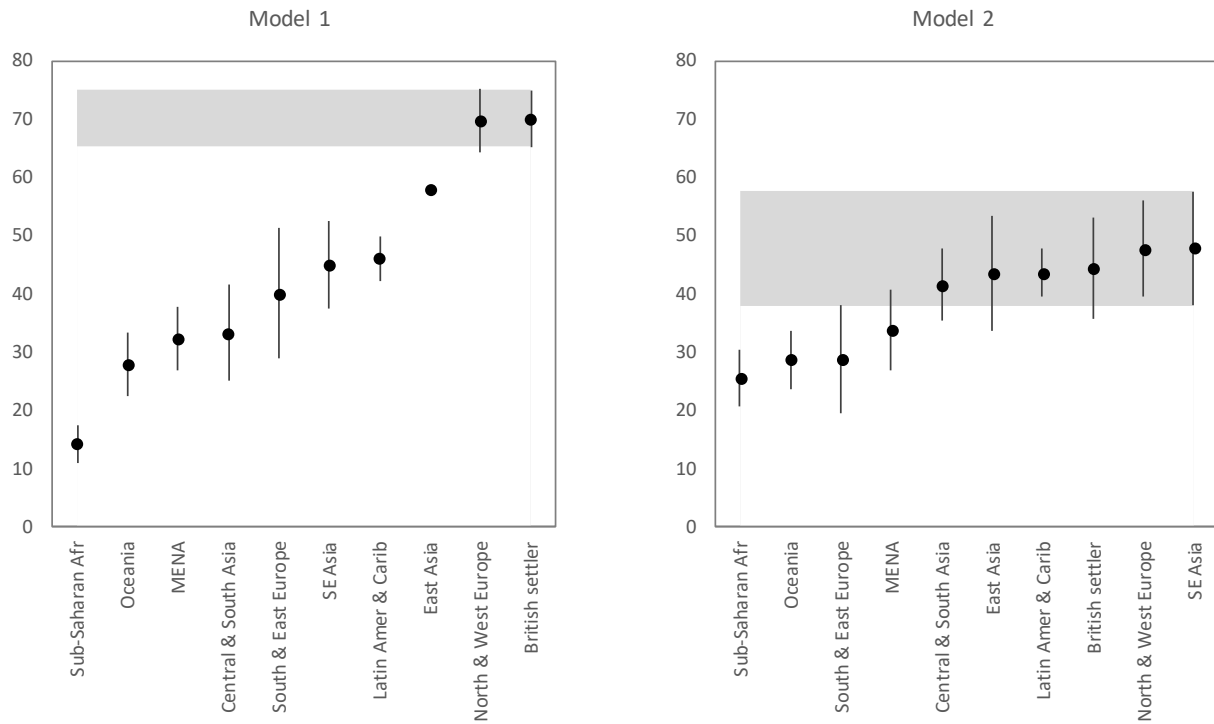
Table 3: Modern Method Use as Function of Region, Economic Development, Women's Education, and Cultural Zones

	Model 1	Model 2	Model 3	Model 4
North & West Europe (ref)				
South & East Europe	-29.72*** (6.28)	-19.00*** (5.45)		-6.32 (4.07)
British Settler	.30 (3.06)	-3.29 (1.71)		-6.06*** (.92)
Latin America & Carib	-23.69*** (3.42)	-4.07 (3.76)		.05 (5.18)
Mid East/N Africa	-37.41*** (3.99)	-13.80** (5.30)		-9.96 (6.54)
Sub-Saharan Africa	-55.56*** (3.13)	-22.08*** (6.36)		4.52 (7.93)
East Asia	-11.72*** (1.27)	-4.11 (3.71)		13.74 (9.95)
SE Asia	-24.70*** (4.66)	.12 (6.84)		20.20* (9.09)
Central & South Asia	-36.44*** (4.74)	-6.16 (5.01)		13.34 (7.23)
Oceania	-42.00*** (3.83)	-19.02*** (5.08)		-1.74 (8.01)
Time	.52*** (.08)	.34*** (.09)	.32*** (.06)	.34*** (.07)
GDP/cap		4.99*** (.97)	2.43* (1.01)	2.62** (1.01)
Female ed attain (yrs)		1.62*** (.49)	2.55*** (.47)	2.59*** (.45)
Protestant West (ref)				
Protestant other			-16.12*** (3.73)	-20.22*** (6.07)
Catholic West			-3.25 (2.50)	-2.91 (3.67)
Catholic Latin Amer			-3.17 (3.48)	-5.13 (4.58)
Catholic other			-22.79*** (4.84)	-33.53*** (7.58)
Islamic Mid East			-8.17 (4.66)	-2.78 (5.86)
Islamic other			-18.89** (6.91)	-30.30*** (6.88)
Orthodox			-27.48*** (4.34)	-24.49*** (5.44)
Buddhist			-3.87 (4.52)	-21.49* (10.52)
Hindu			-7.57 (4.98)	-17.49** (5.60)
Animist			-23.72*** (5.54)	-29.85*** (7.26)
Confucian			13.55** (4.23)	-7.65 (8.09)
Constant	56.73*** (3.32)	-6.86 (11.38)	8.88 (10.06)	8.64 (9.93)

F	180.84	73.48	305.21	38.51
df	10	12	14	23
Adjusted R-squared	.56	.64	.66	.71
aic	5650.96	5517.55	5489.27	5371.21
bic	5691.76	5562.89	5552.74	5443.75
N (county-years)	688	688	688	688
N (countries)	156	156	156	156

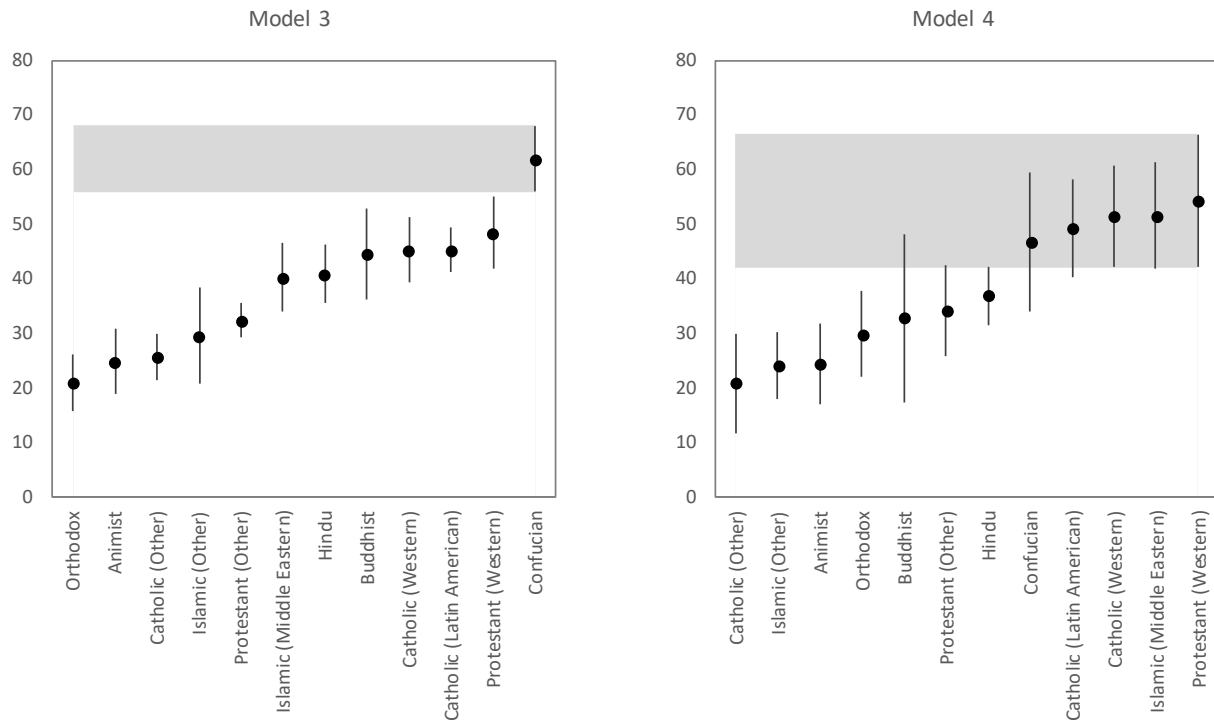
Standard errors, robust to autocorrelation and heteroscedasticity, in parentheses. * p<.05, ** p<.01, *** p<.001

Figure 1: Adjusted Predicted Modern Contraceptive Use by Region



Note: Vertical lines represent 95% confidence intervals based on models 1 and 2 presented in Table 3; shaded gray regions delimit the confidence interval for the region with the highest estimated rate of modern contraceptive use.

Figure 2: Adjusted Predicted Modern Contraceptive Use by Cultural Zone



Note: Vertical lines represent 95% confidence intervals based on models 3 and 4 presented in Table 3; shaded gray regions delimit the confidence interval for the region with the highest estimated rate of modern contraceptive use.

References:

- Ainsworth, M., Beegle, K., & Nyamete, A. (1996). The impact of women's schooling on fertility and contraceptive use: A study of fourteen sub-Saharan African countries. *The World Bank Economic Review*, 10(1), 85-122.
- Cleland, J., Harbison, S., & Shah, I. H. (2014). Unmet need for contraception: issues and challenges. *Studies in family planning*, 45(2), 105-122.
- Cole, W. M. (2016). Human Rights and the Individual: Cross-Cultural Variation in Human Rights Scores, 1980 to 2010. *Social Forces*, 95(2), 721-752.
- Cole, W. M., & Geist, C. (2018). Progress without Progressives? The Effects of Development on Women's Educational and Political Equality in Cultural Context, 1980 to 2010. *Sociology of Development*, 4(1), 1-69.
- Darroch, J. E. (2013). Trends in contraceptive use. *Contraception*, 87(3), 259-263.
- Darroch, J. E., & Singh, S. (2013). Trends in contraceptive need and use in developing countries in 2003, 2008, and 2012: an analysis of national surveys. *The Lancet*, 381(9879), 1756-1762.
- Ezeh, A. C., Bongaarts, J., & Mberu, B. (2012). Global population trends and policy options. *The Lancet*, 380(9837), 142-148.
- Frejka, T. (2008). Overview Chapter 3: Birth regulation in Europe: Completing the contraceptive revolution. *DEMOGRAPHIC RESEARCH*, 19(5), 73-84.
- Gakidou, E., & Vayena, E. (2007). Use of modern contraception by the poor is falling behind. *PLoS Medicine*, 4(2), e31.
- Gertler, P. J., & Molyneaux, J. W. (1994). How economic development and family planning programs combined to reduce Indonesian fertility. *Demography*, 31(1), 33-63.
- Hubacher, D., & Trussell, J. (2015). A definition of modern contraceptive methods. *Contraception*, 92(5), 420-421.
- Jilozian, A., & Agadjanian, V. (2016). Is Induced Abortion Really Declining in Armenia? *Studies in family planning*, 47(2), 163-178.
- Lopez-del Burgo, C., & de Irala, J. (2016). Modern contraceptive methods: a new misleading definition. *Contraception*, 93(6), 565-566.
- Machiyama, K., & Cleland, J. (2014). Unmet need for family planning in Ghana: the shifting contributions of lack of access and attitudinal resistance. *Studies in family planning*, 45(2), 203-226.
- Presser, H. B. (2001). Comment: A gender perspective for understanding low fertility in post-transitional societies. *Population and Development Review*, 27, 177-183.
- Sobotka, T. (2004). Is lowest-low fertility in Europe explained by the postponement of childbearing? *Population and Development Review*, 30(2), 195-+.

Sobotka, T. (2008). The diverse faces of the second demographic transition in Europe.
DEMOGRAPHIC RESEARCH, 19, 171-224. doi:8

United Nations, Department of Economic and Social Affairs, Population Division (2016). World
Contraceptive Use 2016 (POP/DB/CP/Rev2016).