

Does Religion Affect Economic Growth And Happiness? Evidence From Ramadan

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Abstract

"We study the economic effects of religious practices in the context of the observance of Ramadan fasting, one of the central tenets of Islam. To establish causality, we exploit variation in the length of daily fasting due to the interaction between the rotating Islamic calendar and a country's latitude. We report two key, quantitatively meaningful results: (i) longer Ramadan fasting has a negative effect on output growth in Muslim countries, and (ii) it increases subjective well-being among Muslims. We find evidence that these patterns are consistent with a standard club good explanation for the emergence of costly religious practices: increased strictness of fasting screens out the less committed members, while the more committed respond with an increase in their relative levels of participation. Together, our results underscore that religious practices can affect individual behavior and beliefs in ways that have negative implications for economic performance, but that nevertheless increase subjective well-being among followers."

Authors: Filipe Campante & David Yangizawa-Drott (2015)

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- 4 Basic Results
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Introduction

- One fundamental aspect that is common to all forms of religion is that they prescribe rules of behavior, or practices, that constrain followers, with varying degrees of strictness.
- The recent empirical literature that has studied the relationship between religion and economic performance has found a negative correlation between religious behavior and economic growth, and between religiosity and income at the cross- country and individual levels.

Introduction

- The intention is to estimate causal effect of the strictness of a religious practice on economic growth, focusing on the specific example of fasting in observance of the Islamic holy month of Ramadan.
- The case of Ramadan illustrates that religious practices can entail significant implications at the aggregate level, while still providing measurable benefits, at least partly due to their role as costly screening devices
- focus on costly religious practices, and other aspects of religion could have much different effects.

Introduction

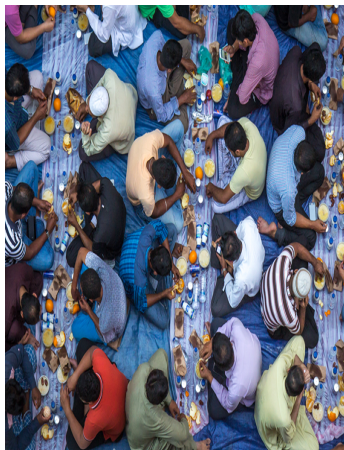
Related Literature

- Support of the club good theory of costly religious practices, showing that exogenous variation in strictness leads to screening, and changes in religious engagement, as predicted by the economic approach put forth and surveyed by Iannaccone (1992, 1998).
- Relates to a relatively small literature in economics that has studied the effects of Ramadan fasting.
- The text is in line with a recent and growing literature that looks at specific topics such as work ethic (Spenkuch 2011), entrepreneurship (Audretsch, Boente, and Tamvada 2007), loan repayment decisions (Baele, Farooq, and Ongena 2011), and human capital accumulation (Becker and Woessmann 2009), among others.

Background

What is Ramadan?

Ramadan is the ninth month of the Islamic calendar, and it is considered sacred as the month in which the Prophet Muhammad first received the revelations. It is mostly known because Muslims abstain from food, drink, smoking and sexual relations between dawn and sunset for the whole month. The daily routine includes *suhur* and *iftar* meals, which are a "unique opportunity for socializing".



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- Lifestyle: There is a considerable reduction in social interactions

Positive consequences

- Psychological: Tendency to participate in stress reduction and spiritual activities (Afifi, 1997)

Empirical Framework

Data

- They collect data from the Astronomical Applications Department of the U.S. Naval Observatory to calculate the number of stipulated fasting hours during Ramadan.
- To map historical Ramadan dates from the Islamic calendar to the Gregorian calendar, They use data from Islamic Philosophy Online.
- Match the data on Ramadan fasting hours with various data sets like: data from Version 1.1 of the World Religion Project, Penn World Tables 8.0 (PWT8.0), national-accounts data on real GDP growth per worker in constant 2005 prices.
- To asses whether Ramadan affects SWB, the authors use data from all six waves of the World Values Survey (WVS).

Empirical Framework

Identification Strategy and Specification

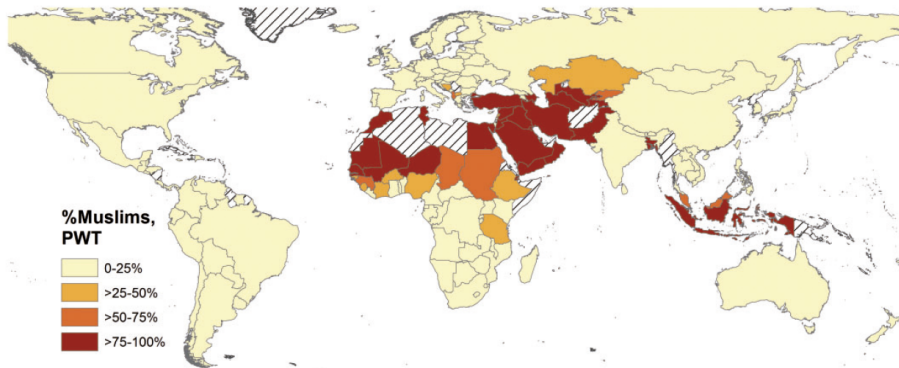


FIGURE I

Countries and Their Muslim Population Share (PWT8.0)

Hatched countries are not available in the PWT8.0 data set. The Muslim population share refers to the sample period mean, using data from the World Religion Project 1.1.

Empirical Framework

Identification Strategy and Specification

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- Location plays a huge role in fasting hours. The closer a country is to the equator, the less variant the fasting hours.
- Given that most of the Muslim countries are located in the northern hemisphere, fasting hours fluctuate with the northern seasons.

Empirical Framework

Identification Strategy and Specification

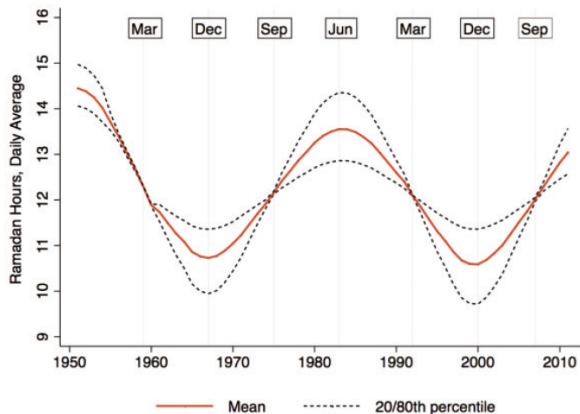


FIGURE III

Daily Ramadan Fasting Hours in Muslim Countries (PWT)

Empirical Framework

Identification Strategy and Specification

$$g_{ct} = \beta * RamadanHours_{ct} + \delta_c + \mu_t + \epsilon_{ct}$$

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- δ and μ = Country and year fixed effects respectively

Empirical Framework

Identification Strategy and Specification

$$g_{ct} = \beta(RamadanHours_{ct}) * (Muslim_{ct}) + \lambda(RamadanHours_{ct}) \\ + X_{ct}\gamma + \delta_c + \mu_t + \epsilon_{ct}$$

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- *Muslim* = Share of Muslims in the population
- *X* = Vector of covariates consisting of flexible controls of the Muslim population share

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$$y_{ict} = \beta * RamadanHours_{ct} * + X_{ict}\gamma + \delta_c + \mu_t + \epsilon_{ict}$$

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- y = subjective well-being for individual i , of country c and year t
- X = Vector of demographic control

Basic Results

Effects on Economic Growth

TABLE I
THE EFFECTS ON ECONOMIC GROWTH IN MUSLIM COUNTRIES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Real GDP per worker growth, constant 2005 prices							
Log(Ramadan hours)	-0.092*** (0.032)	-0.085** (0.031)	-0.138*** (0.034)	-0.127*** (0.036)	-0.125*** (0.037)	-0.138*** (0.042)	-0.011 (0.007)	0.008 (0.010)
Log(Ramadan hours) * %Muslim							-0.155*** (0.045)	
Log(Ramadan hours) * >0–25% Muslim								-0.023* (0.014)
Log(Ramadan hours) * >25–50% Muslim								-0.112* (0.065)
Log(Ramadan hours) * >50–75% Muslim								-0.193* (0.099)
Log(Ramadan hours) * >75% Muslim								-0.170*** (0.045)
Observations	1,181	1,181	1,181	1,181	1,181	1,181	6,864	6,864
R-squared	0.01	0.07	0.09	0.14	0.19	0.27	0.25	0.25
Sample countries	Muslim	Muslim	Muslim	Muslim	Muslim	Muslim	All	All
Country FE	No	Yes	No	Yes	Yes	Yes	Yes	Yes
Year FE	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Population control	No	No	No	No	Yes	Yes	Yes	Yes
Country trends	No	No	No	No	No	Yes	Yes	Yes
%Muslim-by-year FE	No	No	No	No	No	No	Yes	Yes
Standardized effect	-0.11	-0.10	-0.17	-0.15	-0.15	-0.17	N/A	N/A

Notes. Country-year panel data from Penn World Tables 8.0, 1950–2011. Ramadan hours is the average number of sunrise to sunset hours during the month of Ramadan, measured in the country's capital. In columns (1)–(6) the sample consists of the 29 countries with at least 75% muslims on average in the World Religion Project (WRP) database. In columns (7)–(8) all countries are included (162 countries), and the %Muslim variable is a yearly variable using interpolated WRP data. Population control is the yearly growth in population. %Muslim-by-year FE controls for the muslim population share bin dummies and their interactions with year dummies. Robust standard errors in parentheses, clustered at the country level. *** $p < .01$, ** $p < .05$, * $p < .1$.

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 - ▶ Not including country FE and/or not controlling for population growth generate an overestimation of the coefficient that explains the effect of $RamadanHours_{ct}$ in the GDP per worker of Muslim countries

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 - ▶ The opposite effect is happens when not including year FE or not controlling for country linear trends
 - ▶ We show that the quantity of fasting hours have a negative effect on the GDP per worker in every case

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Effects on Economic Growth

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- Results from column (8) show the following (altered specification 2):
 - ▶ This regression is a lot more precise in terms of the share that Muslims should represent in the population for Ramadans fasting hours to have an effect. We can see that, with a 5% as a level of significance, only countries with a 75% or higher are truly affected.

Basic Results

Effects on Economic Growth

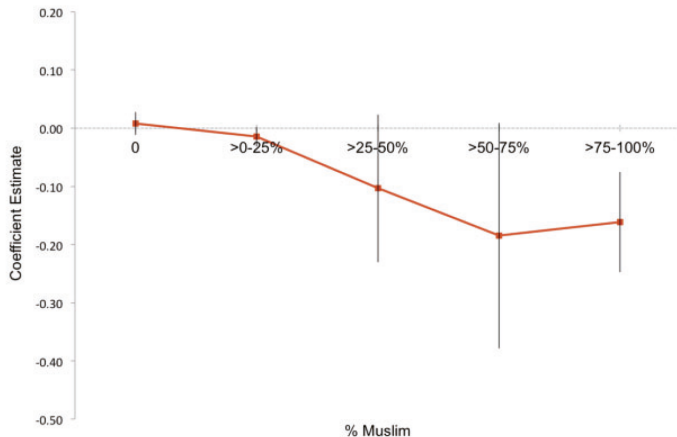


FIGURE V

The Effects of Ramadan Hours on Economic Growth, Nonlinear Estimates

Basic Results

Effects on Subjective Well-Being

TABLE II
THE EFFECTS ON SUBJECTIVE WELL-BEING AMONG MUSLIMS

	(1)	(2)	(3) Happiness			(5)	(6)	(7) Life satisfaction					(12)
	Dummy	Dummy	Dummy	Dummy	Dummy	Likert, ologit	Dummy	Dummy	Dummy	Dummy	Dummy	10p scale	
Log (Ramadan hours)	0.54*** (0.11)	0.52*** (0.11)	0.41*** (0.09)	0.45*** (0.09)	0.37*** (0.11)	1.95*** (0.49)	1.47*** (0.19)	1.44*** (0.19)	1.25*** (0.199)	1.35*** (0.22)	1.18*** (0.18)	6.03*** (0.78)	
Observations	71,256	69,959	69,959	35,051	34,908	69,959	70,510	69,254	69,254	34,656	34,598	69,254	
R-squared	0.08	0.10	0.12	0.13	0.13	0.07	0.10	0.12	0.16	0.16	0.16	0.17	
Sample gender	Both	Both	Both	Female	Male	Both	Both	Both	Both	Female	Male	Both	
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Baseline controls	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	
Additional controls	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	
Standardized effect	0.17	0.16	0.14	0.15	0.13	N/A	0.37	0.37	0.35	0.34	0.37	0.32	

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- The results are robust to two-way clustering of the standard errors and controls for country-specific trends.
- In summer Ramadans, Muslims would be about 5 percentage points likelier to report they are happy.

Discussion

Costly Religious Practices

What explains the effect of religion on subjective well-being?

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- A key idea in literature is that the utility obtained by an individual from her religious activities increase in function of the engagement of her fellow worshipers.

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 - ▶ Strict practices work as a screening device to keep out relatively less committed members or potential members.

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 - ▶ May increase the relative cost of engaging in activities outside the group.
 - ▶ Strict practices work as a screening device to keep out relatively less committed members or potential members.
- Increasing the strictness of fasting requirements is economically costly, as demonstrated by the impact on economic performance, but can nevertheless be associated with increased SWB.

Discussion

Costly Religious Practices: Membership and Engagement

TABLE III
THE EFFECTS ON MEMBERSHIP IN RELIGIOUS AND NONRELIGIOUS ORGANIZATIONS

	(1) Mosque or other religious organization	(2) Mosque or other religious organization	(3) Nonreligious organization	(4) Nonreligious organization	(5) Any organization	(6) Any organization
Log(Ramadan hours)	-0.463*** (0.127)	-0.530*** (0.119)	0.423* (0.216)	0.443** (0.181)	-0.158 (0.178)	-0.204 (0.137)
Observations	43,777	42,904	42,771	42,078	43,056	42,330
R-squared	0.26	0.27	0.11	0.17	0.22	0.25
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Baseline controls	No	Yes	No	Yes	No	Yes
Additional controls	No	Yes	No	Yes	No	Yes
Standardized effect	-0.14	-0.16	0.11	0.11	-0.04	-0.05

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Increasing the strictness of the Ramadan fasting requirement reduces membership of Muslim individuals in religious groups and induces a corresponding increase in membership of other kinds of organizations.

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Costly Religious Practices: Membership and Engagement

TABLE IV
THE EFFECTS ON ATTENDANCE AT RELIGIOUS SERVICES

	(1) ≥ Monthly	(2) > Weekly	(3) Likert	(4) ≥ Monthly	(5) > Weekly	(6) Likert
Log(Ramadan hours)	-0.417 (0.252)	-0.067 (0.356)	0.356 (1.722)	-0.754*** (0.276)	-0.249 (0.336)	-0.901 (1.60)
Log(Ramadan hours) * Religious commitment, med.				0.595** (0.232)	0.440** (0.170)	2.90** (0.97)
Log(Ramadan hours) * Religious commitment, high				1.224*** (0.338)	0.897*** (0.275)	5.71*** (1.59)
Observations	66,254	66,254	66,254	66,254	66,254	66,254
R-squared	0.25	0.25	0.24	0.25	0.26	0.10
Regression type	OLS	OLS	O-Logit	OLS	OLS	O-Logit
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes
Religious commitment dummies	No	No	No	Yes	Yes	Yes
Standardized effect	-0.11	-0.02	N/A	N/A	N/A	N/A

Discussion

Costly Religious Practices: Membership and Engagement

The stricter fasting requirement induces less committed individuals to disengage with religious activity:

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The stricter fasting requirement induces less committed individuals to disengage with religious activity:

- No significant effect of increased Ramadan fasting on attendance.
- Those who remain committed to the group may actually increase their engagement with in-group activities, as the reduction in free-riding will make participation more appealing
- The negative main effect of fasting hours, which, means that those individuals who are predicted to be less committed actually reduce their likelihood of attending a mosque.

Discussion

Costly Religious Practices: Beliefs

TABLE V
THE EFFECTS ON BELIEFS

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Religious beliefs								
	God	Heaven	Hell	Afterlife	Soul	Average beliefs	Generalized trust, dummy		
Log(Ramadan hours)	-0.024 (0.058)	-0.049 (0.103)	-0.123 (0.241)	-0.220 (0.144)	0.027 (0.069)	0.012 (0.120)	-0.45** (0.17)	-0.44** (0.17)	-0.43*** (0.14)
Observations	47,896	29,608	47,196	29,589	29,736	29,139	68,625	67,385	67,385
R-squared	0.06	0.28	0.23	0.29	0.17	0.31	0.11	0.11	0.12
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline controls	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Additional controls	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes
Standardized effect	-0.03	-0.01	-0.06	-0.05	0.01	0.01	-0.13	-0.13	-0.12

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Increased strictness of fasting requirements has an effect on beliefs and attitudes, not so much in the strictly religious domain, but likely as a result of their impact on patterns of socialization:

- No evidence of an effect of increased Ramadan fasting requirements over the prevalence of any of these religious beliefs, nor on the average over the different kinds.
- Longer Ramadan fasting actually has a significant negative effect on generalized trust, with and without the different sets of demographic controls.

Discussion

Productivity and Labor Supply

Are effects in economic growth due to an impact on productivity or on input supply decisions?

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- We face a pattern of competing for time and resources between production and religious practices, thereby affecting input supply.

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Are effects in economic growth due to an impact on productivity or on input supply decisions?

- We face a pattern of competing for time and resources between production and religious practices, thereby affecting input supply.
- It is evident the existence of psychological consequences, that, although there is a possibility of mitigation given an increased networking, will produce a negative effect on labor productivity.

Discussion

Productivity and Labor Supply

Are effects in economic growth due to an impact on productivity or on input supply decisions?

- We face a pattern of competing for time and resources between production and religious practices, thereby affecting input supply.
- It is evident the existence of psychological consequences, that, although there is a possibility of mitigation given an increased networking, will produce a negative effect on labor productivity.
- Given the presented data, we can show that Ramadan has longer-lasting effects beyond the given month

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TABLE VI
THE EFFECTS ON EMPLOYMENT AND WAGE GROWTH IN MUSLIM COUNTRIES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Employment growth, number of workers				Wage growth, average wages			
Sample countries	Muslim	Muslim	All	All	Muslim	Muslim	All	All
Log(Ramadan hours)	-0.181 (0.117)	-0.187* (0.107)	-0.004 (0.018)	-0.007 (0.019)	0.447** (0.184)	0.521* (0.257)	0.034 (0.024)	0.018 (0.025)
Log(Ramadan hours) * Muslim country			-0.176* (0.104)				0.486** (0.242)	
Log(Ramadan hours) * %Muslim				-0.106 (0.134)				0.479** (0.241)
Observations	551	551	3,224	3,224	551	551	3,224	3,224
R-squared	0.21	0.28	0.24	0.28	0.22	0.26	0.23	0.30
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Population control	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Country trends	No	Yes	Yes	Yes	No	Yes	Yes	Yes
%Muslim-by-year FE	No	No	Yes	Yes	No	No	Yes	Yes
Standardized effect	-0.15	-0.16	-0.15	-0.09	0.23	0.27	0.25	0.25

Note: Country-year unbalanced panel data on employment and average wages from UNIDO INDSTAT manufacturing data set, 1963–2010. All independent variables are defined as in Table I. The full sample consists of 130 countries, of which 25 are Muslim countries (>75% Muslim). The standardized effects are calculated for Muslim countries (in columns (4) and (8) they refer to the predicted effect when the Muslim population share is 100%). Standard errors clustered at the country level. *** $p < .01$, ** $p < .05$, * $p < .1$.

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- Still the paper's appendix shows that Ramadan causes a positive effect on people willingness to put religion over work or leisure.
- There is a possibility of endogeneity due to a measurement error, given that most of the Muslim countries are emerging economies and a fairly share of its labor market is not formal.

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Note: Productivity reduction proof is given earlier on the presentation.

Concluding Remarks

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- There is causal evidence for a positive effect of the length of Ramadan fasting on the self-reported happiness and life satisfaction.
- There is a bunch of channels in which fasting affects economic performance and becomes a costly religious practice within the economy or even the culture itself
- This article provides new insights for the ongoing debate regarding how to assess the effects of policy interventions on welfare.

References

Campante, F. and Yanagizawa-Drott, D., 2015. "Does religion affect economic growth and happiness? Evidence from Ramadan. The Quarterly Journal of Economics, 130(2), pp.615-658.

- [Paper link](#)
- [Appendix](#)
- [Filipe Campante personal website](#)
- [David Yanagizawa-Drott personal website](#)