RELIGION AS A MODERATOR IN THE FERTILITY/HAPPINESS RELATIONSHIP

FINAL PAPER/DISSERTATION CHAPTER

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The literature on children and happiness has progressed beyond simple associations and has begun to explore the roles of various attitudes and environmental factors that moderate the relationship. Here I specifically examine the role of religiosity as a moderator in the happiness/fertility relationship. This effect has not been examined before, which is surprising given the role that religion has been shown to play in fertility more generally. I draw on both the psychology and demography literature to make a theoretical case that, as religiosity in the United States tends to be associated with pronatalist norms and culture, and as happiness is positively associated with fulfilling sociocultural imperatives, then, all things being equal, the more religious will have a higher happiness effect (or lower unhappiness effect) from their children than the less religious. Using General Social Survey data, my empirical analyses empirically confirm this hypothesis, showing a significant interaction term between religion and child number. This interaction is partially explained by another interaction term between higher ideal family size (measuring pronatalist tendencies), but this second interaction does not explain all of the religiosity/children interactive effect.

Life decisions and events are framed and ordered by societally influenced schemas that help individuals make sense of events around them (Sewell 1992). One such life event affected by schemas is childbearing. The decision to become a parent does not come from a vacuum, but is influenced by group-specific norms about the desirability and roles of parenting. One institution in particular that has been shown to influence attitudes towards having children is religion. Women who self-identify as religious report higher fertility intentions and outcomes in the US (Hayford & Morgan 2008), in Spain (Neuman 2007), in the OECD countries (Frejka & Westoff 2007) and in Europe (Philipov & Berghammer 2007). Prior literature has emphasized the role of normative framing in these outcomes: "traditional religious teachings [that] advocate life in a sound traditional family with many children" (Philipov & Berghammer 2007), "the [strong] association between religion and conservative family values," (Hayford and Morgan 2008), "the high value the Church places on family" (Adsera 2006).

The perception-modulating function of schemas helps shape what individuals derive satisfaction from. People will derive more satisfaction from something if their schemas normatively value it (Oishi et al. 1999; Diener and Suh 2003). This principle applies to religious

frameworks; for example, the positive effect of religiosity on subjective well-being is much greater in countries where religiosity is normative (Stavrova, Fetchenhauer, and Schlösser 2013; Diener et al.2011), and Lelkes (2006) finds that in Hungary in the 1990s, the life satisfaction of the religious were less affected by the economic turmoil than that of the non-religious. This principle also applies to fertility; people who see parenthood and children as good for society tend to have a higher happiness payout from children than people who don't hold the same pronatalist views (Vanassche, Swicegood, and Matthijs 2012).

Consequently, I argue that religious frameworks have a significant part to play in the vast literature on fertility and happiness. While there are many studies that have measured simple associations between religion and happiness, recently some have called into question this approach, arguing that ideals, perceptions, and expectations about fertility moderate this effect so strongly so as to call into question the ability of simple association-based measures to inform our understanding of the subject (Kravdal 2013). I pursue this investigation in the spirit of helping take the literature beyond simple associations and incorporating attitudes towards childbearing as heavily moderating influences in the relationship.

As religion tends to support pronatalist schemas and norms, then ceteris paribus the religious should have a stronger positive relationship (or less of a negative one, as the case may be) than those who are in social milieus where childbearing does not necessarily fulfill a sociocultural imperative. These effects would be substantively significant given the important role that religion plays in the lives of a majority of the human population (Diener et al.2011).

Dataset and methods

To test this hypothesis, I will use the complete 1972-2012 cross-sectional cumulative General Social Survey dataset. The General Social Survey is a randomly selected, in-person sample of non-institutionalized adults in the United States. This dataset is especially appropriate for this purpose as the four relevant variables of fertility, fertility idealization, religiosity, and happiness have been measured nearly every year by consistently-worded questions, allowing for a relatively large dataset that allows me to appropriately capture these effects across a variety of contexts.

Variables used

For religion I use the variable "reliten" that asks about the strength of the respondent's affiliation with the religion they specified in a previous question ("Would you call yourself a strong [religious preference named in prior religion question] or a not very strong [religious preference named]"). The available responses are: strong (coded as 1 – 38% of the entire sample), not very strong (coded as 2—40.23% of the sample), and somewhat strong (coded as 3—10% of the sample), with those specifying "no religion" in the prior question coded as a 4 (11% of the sample). This simple linear variable reflects a the linear continuum from no religion at being highly religious, and has often been used in the literature as a measure of baseline religiosity (Brace et al. 2002; Hunt and Hunt 2001; Djupe 2000; Strickler and Danigelis 2002; Marsden 2012).Hereafter I reverse the coding to make the ordering more intuitive ("no religion"=1, etc.).

To measure happiness I use a simple trichotomous measure of responses to the question "Taken all together, how would you say things are these days--would you say that you are very happy (1), pretty happy (2), or not too happy (3)?" Once again I invert the coding, with the "very happy" (32% of the total sample) outweighing the "not too happy" (13% of the sample). In my

analyses I employ standard OLS for ease of interpretability, although I report the results of the same models using ordered logistic in Table 4 in order to demonstrate that my results are not sensitive to modeling choice.

In some years responses to the happiness question have potentially been influenced by question ordering effects. Specifically, in some years a question about marital happiness, which has been shown to prime married respondents towards higher responses on overall happiness, preceded the general happiness question, and in some years a satisfaction scale, which has also been shown to prime people towards higher responses on overall happiness, preceded the global measure of happiness (Smith 1990). In all of my analyses I use year-fixed effects to absorb these variations and whatever other year-fixed effects may exist.

Fertility is measured by simply asking "how many children have you ever had? Please count all that were born alive at any time (including any you had from a previous marriage)." Finally, I include a measure of fertility ideals ("what do you think is the ideal number of children for a family to have?") to capture the degree to which the respondent's personal schemas are oriented towards childbearing. Although this indicator would perhaps have been more effective had it been a direct personal fertility intention question, I believe it adequately captures the degree to which the individual's personal frameworks are pronatalist, which will allow me to test the role of such frameworks in the interaction between religion and fertility.

I also include standard demographic controls of age (in units of ten years) sex (a dichotomous measure for being male or not) race (black and other race, with white as the reference category) marital status (widowed, married, separated, and divorced with single as the reference category), family income (in units of $10,000 year-2000, inflation-adjusted dollars), and years of education.

Summary statistics

While the interaction is difficult to discern, the simple summary statistics found in Table 1 and Table 2 support what the prior literature has said about the relationship between religiosity and other variables. Specifically, the religious tend to have more children, their abstract, ideal family is larger, and there is a slight happiness advantage to being religious. Some of the higher fertility is simply attributable to the religious being on average older and more likely to be married, but the fertility effect remains once these variables are controlled for.

Table 1: Descriptive statistics

	No religion	Somewhat strong	Not very strong	Strong
Dep. variable				
Happy	2.095	2.193	2.138	2.277
	(0.625)	(0.618)	(0.621)	(0.643)
Main ind. variables				
# of children	1.272	1.991	1.851	2.211
	(1.484)	(1.755)	(1.709)	(1.878)
Ideal # of children	2.742	3.010	2.739	3.188
	(1.807)	(1.750)	(1.494)	(1.783)
Control variables				
Age (/10)	3.921	4.660	4.395	4.938
	(1.526)	(1.768)	(1.680)	(1.793)
Male	0.572	0.425	0.476	0.360
	(0.495)	(0.494)	(0.499)	(0.480)
Black	0.102	0.144	0.108	0.180
	(0.303)	(0.351)	(0.310)	(0.384)
Other Race	0.0696	0.0562	0.0530	0.0421
	(0.255)	(0.230)	(0.224)	(0.201)
Family income	4.638	4.544	4.548	4.341
	(4.000)	(3.664)	(3.592)	(3.557)
Yrs of educ	13.55	12.76	12.73	12.73
	(3.081)	(3.136)	(2.983)	(3.307)
Widowed	0.0377	0.109	0.0785	0.133
	(0.190)	(0.312)	(0.269)	(0.339)
Divorced	0.152	0.121	0.143	0.109
	(0.359)	(0.326)	(0.350)	(0.312)
Separated	0.0387	0.0366	0.0369	0.0313
	(0.193)	(0.188)	(0.189)	(0.174)
Married	0.394	0.549	0.529	0.566
	(0.489)	(0.498)	(0.499)	(0.496)
Observations	5946	5299	20962	19894

Means; sd in parentheses

Table 2: Average happiness by religiosity/children combination

	Child #										
Religiousness	0	1	2	3	4	5	6	7	7<	Total	
Strong	1.91	1.92	1.85	1.93	1.91	1.94	2	1.74	2.11	1.9	Mean
	2,302	903	1,083	521	251	110	37	19	19	5,245	N
Not very strong	1.81	1.81	1.78	1.79	1.84	1.89	1.84	1.96	1.87	1.81	Mean
	1,187	778	1,261	762	380	188	88	49	77	4,770	N
Somewhat strong	1.87	1.87	1.83	1.88	1.85	1.88	1.93	1.89	1.95	1.86	Mean
	5,466	3,212	4,833	2,890	1,505	649	331	158	232	19,276	N
No religion	1.75	1.74	1.7	1.69	1.7	1.76	1.69	1.83	1.76	1.72	Mean
	4,052	2,663	4,578	3,111	1,695	841	443	282	414	18,079	N
Total	1.83	1.82	1.77	1.8	1.79	1.83	1.81	1.86	1.84	1.81	Mean
	13,007	7,556	11,755	7,284	3,831	1,788	899	508	742	47,370	N

Sample size and non-response

All together, all of these questions were asked for 24 of the 29 years that the GSS was collected between 1972-2012, missing only 1972, 1973, 1980, 1984, and 1987, with a total N= 49,204. However, the question about fertility frameworks was not asked of all respondents in each wave, leaving a total N= 33,092. Item non-response (primarily because of the income measure with 3, 091 missing values, religiousness with 1,269 non mutually exclusive missing values, and 1,049 people answering "don't know" on the fertility ideal measure) leads to a final sample size of 28,956 for the multiple regression after listwise omission.

Results

I conduct various empirical tests confirm that religion acts as an interacting moderator in the child/happiness relationship. Such a relationship is logical given the results of Table 3, which shows a significant relationship between fertility ideals and religiousness (Model 1), and between the fertility ideal/fertility interaction and happiness (Model 3). Model 1's results simply confirm what has been found in prior literature (Hayford and Morgan 2008): that religious people tend to have higher fertility intentions. Model 2's results simply confirm the intuitive moderating effect that pronatalist norms have on the happiness/children relationship which, while not emphasized in the prior empirical literature, has potential in future literature to help predict variance in the effect of children on happiness. These two interactions theoretically support the case that religiosity (at least in the US context) acts as a moderator in the children/happiness relationship.

While country-level variables and other mediating factors may moderate the size of or even change the direction of the happiness/children relationship (Margolis and Myrskylä 2011), in the GSS the relationship between child number and happiness appears to be negative (Table 3,

Model 2); however, there is (understandably) a strong interaction here between ideal number of children in a family and the children/happiness relationship (Table 3, Model 3).

Table 3: Child idealization, religiosity and happiness/children effects; OLS

	Model 1 Child ideal	Model 2 Happiness	Model 3 Happiness
Religiousness	0.105***	0.051***	0.054***
	(0.010)	(0.003)	(0.004)
# children	0.157***	-0.004*	-0.023***
	(0.006)	(0.002)	(0.004)
Age (/10)	-0.174***	-0.128***	-0.120***
	(0.035)	(0.011)	(0.013)
Age $(/10)^2$	0.021***	0.015***	0.014***
	(0.004)	(0.001)	(0.001)
Male	0.021	-0.040***	-0.042***
	(0.019)	(0.006)	(0.007)
Black	0.404***	-0.120***	-0.114***
	(0.030)	(0.009)	(0.011)
Other race	0.133**	-0.029*	-0.016
	(0.047)	(0.014)	(0.018)
Family income	0.000	0.020***	0.019***
	(0.003)	(0.001)	(0.001)
Years of education	-0.004	0.013***	0.013***
	(0.004)	(0.001)	(0.001)
Widowed	-0.113*	-0.089***	-0.094***
	(0.047)	(0.014)	(0.018)
Divorced	-0.323***	-0.043***	-0.031*
	(0.037)	(0.011)	(0.014)
Separated	-0.294***	-0.126***	-0.126***
	(0.056)	(0.018)	(0.021)
Married	-0.239***	0.208***	0.203***
	(0.030)	(0.009)	(0.011)
Ideal # of children			0.004
			(0.003)
Child x ideal # Children			0.005***
			(0.001)
Constant	2.961***	1.984***	1.945***
	(0.106)	(0.034)	(0.040)
Observations	29076	42619	28956
R^2	0.055	0.093	0.091
Adjusted R^2	0.054	0.092	0.089
F	38.738	93.223	62.706
Prob>F	0.000	0.000	0.000

Standard errors in parentheses
Region-fixed effects controlled for in every model
$^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

The addition of religiosity to the model empirically confirms this. The interaction terms for religion and child number are significant in both the OLS (Table 4) and ordered logistic models (Table 5). The inclusion of an ideal fertility/fertility interaction (Model 4, both tables) reduces the overall size of the religion/fertility interaction coefficient, supporting the hypothesis that the child/religion interaction effect operates via pronatalist frameworks. However, most of the effect still remains significant and unexplained even after the inclusion of the interaction term. While this could be due to most of the effect not being attributable something other than pronatalist norms (what, specifically, this could be is difficult to say), another valid possibility is that the survey question used does not completely capture pronatalist dispositions (although it does appear to capture something, based on its intuitive interactions and relations with other variables). Again, it would perhaps have been more precise had it been a straightforward fertility intention question.

Table 4: Child/Happiness with religion interaction effect; OLS

	Model 1	Model 2	Model 3	Model 4
Religiousness	0.058***	0.051***	0.037***	0.043***
	(0.003)	(0.003)	(0.004)	(0.005)
# of children	-0.001	-0.004*	-0.031***	-0.042***
	(0.002)	(0.002)	(0.006)	(0.008)
Ideal # of children				0.004
				(0.003)
Child ideal x # Children				0.004***
				(0.001)
Religiousness x # Children			0.008***	0.006**
			(0.002)	(0.002)
Age (/10)		-0.128***	-0.126***	-0.119***
		(0.011)	(0.011)	(0.013)
Age^2 (/10)		0.015***	0.015***	0.014***
		(0.001)	(0.001)	(0.001)
Male		-0.040***	-0.040***	-0.042***
		(0.006)	(0.006)	(0.007)
Black		-0.120***	-0.120***	-0.114***
		(0.009)	(0.009)	(0.011)
Other race		-0.029*	-0.029*	-0.016
		(0.014)	(0.014)	(0.018)
Family income		0.020***	0.020***	0.019***
		(0.001)	(0.001)	(0.001)
Years of education		0.013***	0.012***	0.013***
		(0.001)	(0.001)	(0.001)
Widowed		-0.089***	-0.087***	-0.091***
		(0.014)	(0.014)	(0.018)
Divorced		-0.043***	-0.039***	-0.028*
		(0.011)	(0.012)	(0.014)
Separated		-0.126***	-0.122***	-0.123***
		(0.018)	(0.018)	(0.021)
Married		0.208***	0.211***	0.206***
		(0.009)	(0.009)	(0.011)
Constant	2.068***	1.984***	2.022***	1.973***
	(0.019)	(0.034)	(0.035)	(0.042)
Observations	47370	42619	42619	28956
R^2	0.010	0.093	0.094	0.091
Adjusted R^2	0.010	0.092	0.093	0.090
F	17.495	93.223	91.765	61.568
Prob>F	0.000	0.000	0.000	0.000

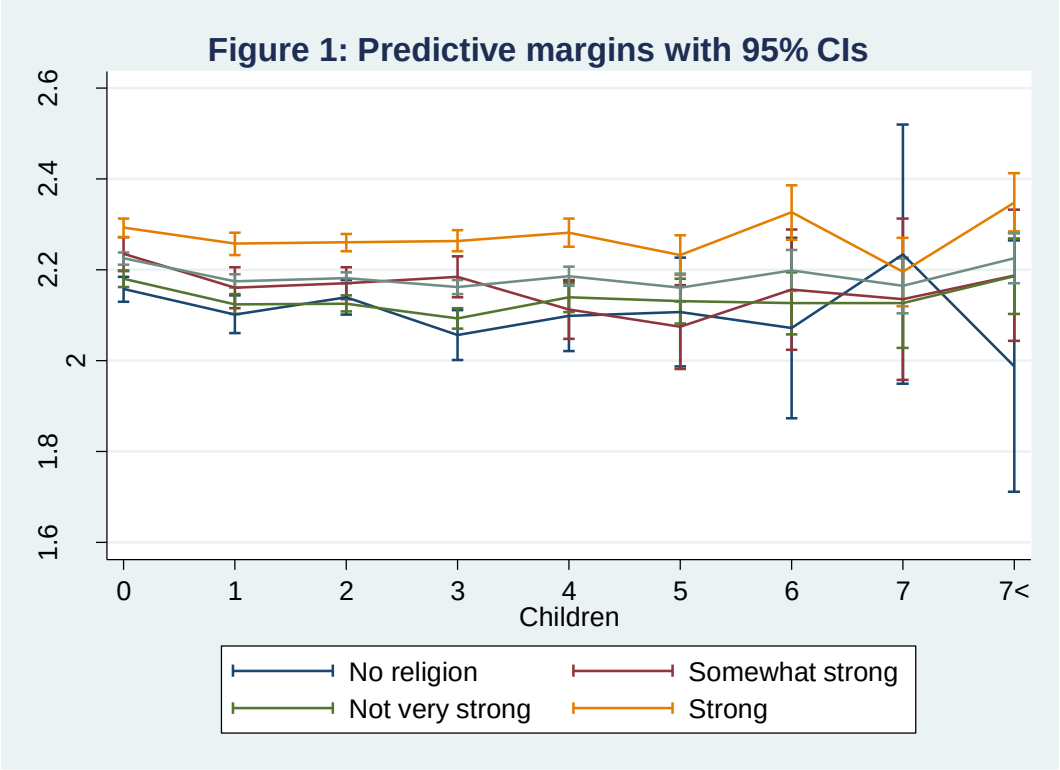
Standard errors in parentheses
Region-fixed effects controlled for in every model
$^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .00$

Table 5: Child/Happiness with religion interaction effect; ordered logistic

	Model 1	Model 2	Model 3	Model 4
Religiousness	1.203***	1.185***	1.131***	1.160***
	(0.012)	(0.012)	(0.016)	(0.021)
# of children	1.002	0.986*	0.901***	0.866***
	(0.005)	(0.006)	(0.018)	(0.023)
Ideal # of children				1.013
				(0.011)
Child ideal x # Children				1.015***
				(0.004)
Religiousness x # Children			1.029***	1.022**
			(0.006)	(0.008)
Age (/10)		0.654***	0.658***	0.668***
		(0.024)	(0.024)	(0.030)
Age^2 (/10)		1.051***	1.050***	1.049***
		(0.004)	(0.004)	(0.005)
Male		0.876***	0.876***	0.868***
		(0.017)	(0.017)	(0.021)
Black		0.672***	0.673***	0.682***
		(0.021)	(0.021)	(0.026)
Other race		0.915+	0.916+	0.958
		(0.044)	(0.044)	(0.057)
Family income		1.066***	1.066***	1.063***
		(0.003)	(0.003)	(0.004)
Years of education		1.041***	1.041***	1.043***
		(0.004)	(0.004)	(0.005)
Widowed		0.738***	0.744***	0.728***
		(0.036)	(0.036)	(0.043)
Divorced		0.872***	0.883**	0.915+
		(0.033)	(0.034)	(0.043)
Separated		0.652***	0.660***	0.651***
		(0.038)	(0.039)	(0.047)
Married		1.987***	2.009***	2.003***
		(0.061)	(0.062)	(0.075)
Observations	47370	42619	42619	28956
Pseudo R^2	0.006	0.051	0.051	0.051
AIC	89169.350	76373.921	76353.818	51298.298

Exponentiated coefficients; Standard errors in parentheses
Region-fixed effects controlled for in every model
+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 1 shows the predictive margins with 95% confidence intervals for each of the separate levels of religiosity with the same model specification in Table 4, Model 2, except that religion and children values treated as categorical and not continuous. The difference in slope is perhaps more apparent in Figure 2, which uses parental status instead of number of children, and shows the transition to being a parent by level of religiosity. Finally, Figure 3 plots the coefficients for children when Table 4, Model 2 is separated out by level of religiosity, starkly demonstrating the distinctions between the top two categories and the bottom two.



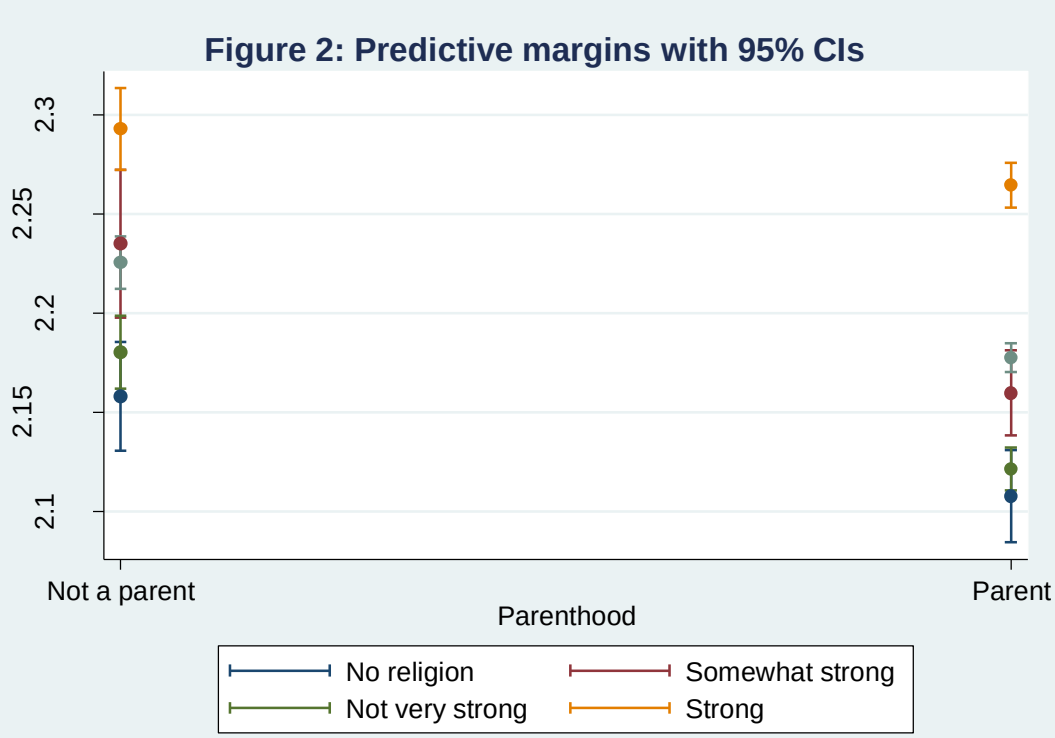
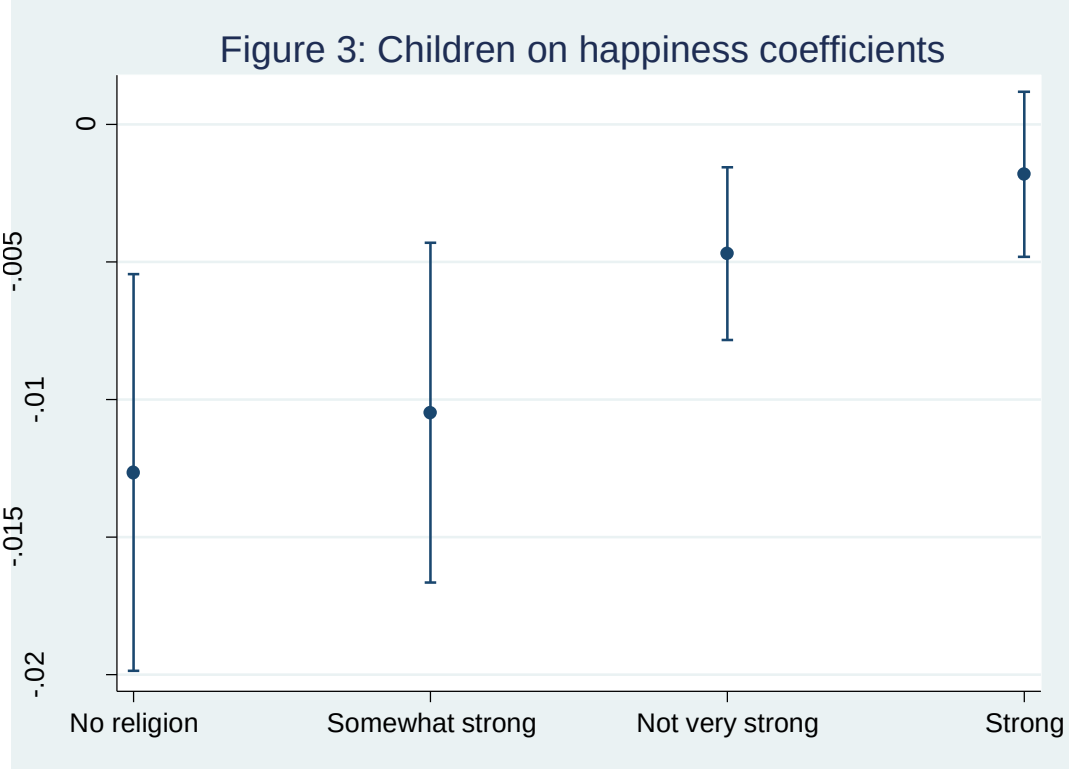


Table 6

	Coef	SE
No religion	-0.0127	0.0072
Somewhat strong	-0.0105	0.0062
Not very strong	-0.0047	0.0031
Strong	-0.0018	0.003



While here I pool data from a wide range of years, the coefficients retain their positive direction when I conduct these analyses in separate ten-year intervals. Specifically, the coefficient for the religiosity/children interaction in the Table 4, Model 4 is .008 from 1973-1982, .003 from 1983-1992, .003 from 1993-2002, and .009 from 2003-2012. The respective coefficients for the ideal number of children/children interaction in the same model are .009, .002, .002, and .004. When these coefficients are tested against each other by pooling them in a full model and interacting them with respective ten-year increment dummies (with the most recent decade as the omitted reference category), none of the three-way interactions are significant (results available upon request), suggesting that, while the averages of these values have undoubtedly changed over the time period used, the interrelationships between these variables have not changed enough to threaten the validity of my pooled model.

If the results are not significantly altered by the time component, it raises the question of why the pooled data is being used at all, and why the sample isn't restricted to only the most recent years. Because interaction terms are closely related to their component variables, their inclusion in a model hazards multicollinearity (Sasaki and Smith 1979). In my final model I include two interactions, both of which are interacting with the same variable, making the specter of multicollinearity especially problematic. This is confirmed by a simple VIF test for the full model, which shows a variance inflation factor of 16.6 for the children variable, and a VIF of 15.27 for the child/religiosity interaction. Both of these values are above the commonly-used benchmark of 10, but not by much, and high VIF levels are tolerable if accompanied by relatively high N-values (O'Brien 2007). Consequently, I use the complete set of extant GSS data in order to most effectively draw out the relationships between both interaction terms used in my model. It is worth noting that when I run the full model using the most recent decade of data, the positive religiosity/fertility interaction is still statistically significant at the .05 level. However, the main theoretical mechanism underlying the relationship: the interaction between children idealization and number of children falls into insignificance when the N-value is lowered from truncating the range of the data.

Conclusion

The moderating role of religion in the children/happiness connection is conceptually simple. What we derive happiness from is in large part determined by what our surroundings tell us is valuable. Religious communities and frameworks tend to highly regard childbearing and rearing; therefore, all other things being equal, people who are more religious will have a more positive (or less negative) association between children and happiness than people who are not religious. My analysis validates this hypothesis, showing significant positive interactions

between religion and fertility in models predicting happiness. The inclusion of an additional interaction term measuring ideal family size reduces the size of the religiosity/fertility interaction, suggesting that some of this effect is directly attributable to higher fertility ideals, but much of the effect remains even after this control is included. Further investigating the theoretically causal chain running from socially-informed schemas to fertility attitudes to fertility/well-being associations is a potentially fruitful area for future research.

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