The influence of belief in God on fertility desires in Slovenia and the Czech Republic

Prior research on the association between religiosity and fertility has assumed *a priori* that the causal mechanisms involved are fundamentally social, and are embedded in formal religious structures. I question whether these premises are warranted by examining the effects of a spiritual belief generally associated with religion, in this case belief in God, on pronatalist attitudes in Slovenia and the Czech Republic, two countries that have relatively large populations of nonbelievers and people who believe in some form of God but who are not institutionally religious. I find that belief in God or a higher power has independent and significant effects on fertility desires even while controlling for self-reported religiosity. These results are robust across several measures of religiosity, suggesting that the social explanations invoked by the prior literature are not sufficient to explain the association between religiosity/spirituality and fertility desires.

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Introduction and Literature Review

The role of religiosity on fertility has been extensively investigated, with a virtually unanimous finding that women who self-identify as religious report higher fertility intentions and outcomes in the US (Hayford & Morgan, 2008), in Spain (Neuman, 2007a), in the OECD (Frejka & Westoff, 2007) and in Europe (Philipov & Berghammer, 2007).

Prior literature in this area has been largely empirical, with little in way of theorizing why these effects occur (Neuman, 2007b), usually simply referring to a nebulous nexus of pronatalist beliefs and norms: "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 & Morgan, 2008), "the high value the Church places on family" (Adsera, 2006), etc. The assumptions embedded in these generalization is perhaps one reason why most empirical analyses of the religiosity/fertility connection have treated religions that have explicitly pronatalist doctrines (Neuman, 2007b).

Despite the empirical emphasis, there has been some limited past theorizing about the underlying mechanisms behind this relationship. Goldscheider (1971) hypothesizes two mechanisms by which religion influences fertility "social characteristics" and "particularistic theology." The earliest literature emphasized the "particularistic theology" explanation for the effect. Connections between specific theological particulars have been drawn in the case of Catholics (Population Council, 1968; Westoff & Jones, 1979), Mormons (Heaton & Calkins, 1983), and indigenous African tribes (Caldwell & Caldwell, 1987).

McQuillan (2004) argues that the emphasis on theological particulars is too narrow and reductionist, and that the influence of religions on fertility should be analyzed more holistically, taking into account the social, cultural, and psychological dimensions of a denomination; treating religion not just as a set of regulations, but as a socio-cultural grouping with a host of informal

but specific norms and values. While these norms and values may interact with the theology, they are conceptually distinct and may influence fertility even in the absence of codified pro-fertility theological injunctions. More specifically, McQuillan (2004) posits that a religious organization influences fertility once three conditions are met: the religion has specific fertility-related norms, the religion has the ability to promote these norms within its population of followers, and this religion forms a core social identity of its followers.

While McQuillan (2004) disconnects from the focus on the theological variation among denominations, he still ascribes differential to denomination-specific characteristics, albeit non-theological ones. Generalizing the effect even more, Hayford & Morgan (2008) argue that the culture of religion in the US in general is associated with a broad, family-centered socio-cultural outlook, and they posit that it is this vague notion more than specific doctrines that is responsible for the fertilty/religiosity connection.

I propose that the story is more complicated, and that prior scholars have tended to "oversimplify how conservative religious traditions might affect family life" (Bulanda, 2011) either in their explicit theorizing, or in the premises they assume to be undergirding their empirical results. While religion in general does tend to emphasize pronatalist, family-centered lifestyles and behaviors, these effects should not be assumed to tell the whole story simply because they present a *prima facie* plausible explanation. Additionally, prior literature has exclusively focused on the more formal, institutional variations of religion, never bothering to investigate the effects of more individuated, less structured, religious beliefs on fertility, as unaffiliated religious or spiritual beliefs lack the communities of belief and practice that might disseminate and reinforce such family-centric frameworks and, more specifically, pronatalist norms.

Examining the influence of spiritual beliefs, and not just institutional religious involvement, on fertility norms helps tease out whether the fertility variation is indeed wholly attributable to pronatalist schemas situated within larger religious communities (the assumption undergirding the prior literature), or whether some or all of the mechanisms connecting religiosity to fertility operate on a personal, psychological level. Demonstrating that these effects exist independent of formal religiosity would challenge some of the assumptions and conclusions of much of the prior literature on the subject.

Specifically, I argue that a metaphysical belief generally associated with religion, in this case a belief in God, has pronatalist attitudinal effects independent of whether or not it is channeled through an institutional faith. Specifically, here I examine the role of such beliefs on fertility while controlling for religiosity. In this way I hope to be able to starkly demonstrate that the effects of beliefs generally associated with religion also have effects on fertility aside from whatever effects may arise from family-centered socialization within institutional religion.

As I propose moving the causal mechanism from a sociological to a psychological level, this study sits at the intersection of psychology of religion and demography, two fields whose methods and approaches vary significantly from each other. There is a large literature on the effects of belief in God on mental health, optimism, and recovery from illness. However, the metaphysical worldview differences connecting belief to these outcomes are inherently vague and difficult to operationalize; consequently, this is a also a very empirical literature, with very little theorizing about the cognitive mechanisms underlying the relationships. Conversely, demography as a discipline generally relies on more easily quantifiable indicators to measure demographic behaviors and trends. This is perhaps why the literature on the fertility/religiosity

question has remained stalled on a vague notion of family-centric religiosity: it is a comfortable level of abstraction.

Even though these two fields are dispositionally different from each other, moving forward on the fertility and religiosity question requires drawing from both of them in order to go deeper than simply pointing out correlational conclusions. However, very few surveys have the relevant demographic and psychological instruments for such an investigation. Therefore, while there are some plausible reasons for such a connection that could be spun into preliminary hypotheses (for example, people who believe in God might have more optimism about their ability to provide for children or the type of world their children would come into), I am unable to confirm or falsify these causal particulars, and will not attempt to speculate about the psychological explanations for my results. What I simply hope to establish here is that the social explanations previously used to explain the fertility desires/religiosity connection are explanatorily insufficient (at least in the countries used here), and that an individual-level belief dimension accounts for much of the predictive power previously ascribed to conventional, social religiosity.

Data and Cases

The European Family and Fertility survey was a collaborative survey effort of various European countries in the 1990s that attempted to measure underlying rationales for fertility intentions and outcomes. In addition to a required core of questions, an optional module included questions on belief in God and various measures of religiosity. Only two of the participating countries: Slovenia and the Czech Republic, contained the whole set of religiosity and belief variables needed to test this hypothesis; however, these countries have female N-values of 953 and 2,268, respectively, are uniquely appropriate for the hypothesis I test here, and

serve to independently confirm each other's results. In Slovenia, 227 interviews took place in 1994, and 2,571 interviews took place in 1995. In the Czech Republic all interviews took place in 1997.

The prior literature has predominantly focused on Western European or American countries that have long-standing religious communities. Conversely, the Czech Republic and Slovenia, while both historically Catholic, are former Soviet bloc countries whose formal religious institutions and religious social structures were gutted during the Soviet occupation, leaving long-lasting effects on the religious landscape that see no signs of reversing (Pikel, 2008, 203). Both countries are now among the most secular in the world, with the Czech Republic having the highest proportion of atheists worldwide according to some surveys (Pikel, 2008, 189), and in both of these countries, more than half of those who do believe believe in a more some sort of spirit and life force, not the traditional God of Christianity (Tomka, 2011, 87, also see Tables 1 and 2). Similarly, a significant proportion of both the Czech (Berglunc, 2010, 346) and Slovenian (Tomka, 2011, 233) populations claim non-institutional, individualized spiritual beliefs, and there was a limited upswing in subjective, individual religiosity in the wake of the dissolution of the USSR (Pikel, 2008, 202). With the lack of a strong religious institutions or communities, a significant number of Czech and Slovenians adhere to informal spiritual beliefs or none at all. This allows me to test relationships among non-institutional believing or non-believing subpopulations that in other national contexts are too small to draw any meaningful conclusions from (for example, the 2006 US General Social Survey has 62 self-identified atheists).

Methods

The Fertility and Family survey contains an indicator of fertility desire. Of the three categories of determinants considered in Bongaarts' (1978) conceptual framework (exposure factors, deliberate fertility control factors, and natural factors), the deliberate fertility control, reflecting fertility desire, is the one with the apparent relevance (Hayford & Morgan, 2008).

Following the process undertaken by Hayford & Morgan (2008), I add the number additional children they desire to the number they already have to derive a measure of total desired fertility. The exact wording of the question varied depending on the woman's current fertility. Women who had never given birth were asked "how many children of your own do you want in all?" People who already had children were asked "how many more children do you want in all?", and pregnant women were asked "in addition to the child you are now expecting, how many more children do you want to have?"

The survey allowed for a range to be given if the respondent desired, so in these cases I recoded the range by taking the average of the two numbers (e.g. 2-3= 2.5 children wanted). Prior literature has taken a variety of modeling approaches for completed and intended fertility: standard OLS (Adsera, 2006; Hayford & Morgan, 2008) ordered logit (Philipov & Berghammer, 2007), logit (Frejka & Westoff, 2008), and comparison-of-means (Kaufmann, 2011). Tables 3 and 4 demonstrate that the curve is normally distributed, so I use a standard multivariate OLS, although my results are not substantively affected when I use these alternative procedures. Additionally, I control for education (recorded in country-specific levels and stages), age, and how many children the respondent currently has as baseline covariates in each model.

Because of the conceptual overlap between belief variables and religiosity, an argument based on differences between the two needs to demonstrate robustness to alternative measures in order to be compelling. Here I use three reports of self-rated religiosity to demonstrate the

robustness of my results to various alternative measures: a religiousness measure that asks how religious the respondents consider themselves (1=not religious, 2=somewhat religious, 3=religious), a question that asks how important of a role religion plays in the respondent's life (4= very important, 3= important role, 2= not important role, 1= no role at all), and a categorical measure of church attendance (1= practically never, 2= once a year, 3= at official holidays, 4= about once a month, 5= once a week, 6= more than once a week). While many sociological treatments of religion use religious service attendance as a measure of religious devotion, this particular measure is potentially endogenous with child number. Consequently, studies on the fertility/religiosity connection tend to use self-rated religiosity (Hayford & Morgan, 2008). However Berghammer (2012) shows the effect of church attendance on child number to be exogenous (at least in the Dutch case), so here I include it in two of the models.

I alternate among the three indicators and report all sets of results. Since the trichotomous measure is skewed (for the Czech Republic; religious=155, somewhat religious=162, not religious=883; for Slovenia, religious= 1,435, somewhat religious= 714, and not religious= 589), I use the "religious" and "somewhat religious" responses as my dummy variables, with "not religious" being the reference category in models 3 and 5. I employ the four point question and religious service attendance question as a standard ordinal control in models 2 and 4. The original coding for both the four point question and the religious attendance question was counter-intuitive, with the higher level of religiosity receiving the lower score, so I inverted the measures.

The close conceptual relationship also risks multicollinearity. To test for this possibility, I examined the variance inflation factor for each of my regression models, and find that no

variable has an independent VIF above 2, and the average VIF for the models range from 1.2-1.5, so multicollinearity does not appear to be a significant problem.

Tables 1 and 2 present the results of simple cross-tabulation tables (with statistics rounded) between belief in God and self-rated religiosity for both respective countries, further demonstrating that belief in God is not a subtle proxy for generic religiosity. Specifically, 29% of the Czech non-religious and 42% of the Slovenian non-religious believe in some sort of a higher power (although very few believe in a "personal God"). Conversely, 23% of the Czech and 40% of the Slovenian "somewhat religious" take an agnostic or atheist position towards the existence of God. Clearly these measures are capturing two distinct concepts.

Table 1: Czech Republic cross tabulation (God belief x religiosity)

	Religious		Somewhat Religious		Not Religious		Total	
	N	Col %	N	Col %	N	Col %	N	Col %
Personal God	83	54	33	20	36	4	152	13
Life Force	54	35	93	57	217	25	364	30
Agnostic	16	10	27	17	254	29	297	25
Atheist	2	1	9	6	376	43	387	32
Total	155	100	162	100	883	100	1200	100
N	1200							

Table 2: Slovenia cross tabulation (God belief x religiosity)

	Religious		Somewhat Religious		Not Religious		Total	
	N	Col %	N	Col %	N	Col %	N	Col %
Personal God	578	40	69	10	21	4	668	24
Life Force	589	41	359	50	226	38	1174	43
Agnostic	224	16	215	30	153	26	592	22
Atheist	44	3	71	10	189	32	304	11
Total	1435	100	714	100	589	100	2738	100
N	2738							

My primary independent variable of belief in God is derived from the question: "which of these statements comes closest to your beliefs?" With options of "there is a personal God," "there is some sort of a spirit or life force," "I don't really know what to think," and "I don't really think that there is any sort of spirit, God, or life force." I create a dummy variable for each

of these categories. While I maintain their distinctiveness in the summary statistics, I merge the agnostic ("I don't really know what to think,") with the atheist ("I don't really think that there is any sort of spirit, God or life force") measures to form a "no belief" categorical variable, which acts as my base reference category. I do this because the theoretical differences between these two is obscure, might have as much to do with individual's personal philosophy of epistemology as much as religious belief *per se*, and because their coefficients do not show significant differences when I use them separately in the model with believers as the omitted reference group. However, I include the categories separately in the summary statistics. As an optional module, the belief-in-God question was only asked of a subsample of the original sample. To maintain sample consistency across models, I only use cases that were asked the belief-in-God question, even if it was not used as a covariate in the respective model.

Table 3: Czech Republic frequencies

	Personal God		Life Force		Agnostic		Atheist		Total	
	N	Col %	N	Col %	N	Col %	N	Col %	N	Col %
0	0	0	4	1	1	0	3	1	8	1
1	10	9	30	10	24	10	41	13	105	11
1.5	1	1	3	1	5	2	5	2	14	1
2	53	47	175	60	166	70	206	66	600	63
2.5	2	2	4	1	2	1	5	2	13	1
3	35	31	62	21	34	14	48	15	179	19
3.5	2	2	2	1	1	0	0	0	5	1
4	7	6	5	2	4	2	4	1	20	2
4.5	0	0	1	0	0	0	0	0	1	0
5	2	2	3	1	0	0	0	0	5	1
6	0	0	2	1	0	0	1	0	3	0
Total	112	100	291	100	237	100	313	100	953	100
N	953									

Table 4: Slovenia frequencies

	Personal God		Life Force		Agnostic		Atheist		Total	
	N	Col %	N	Col %	N	Col %	N	Col %	N	Col %
0	3	1	6	1	7	1	4	2	20	1
1	33	6	104	11	57	11	37	15	231	10
1.5	4	1	13	1	6	1	4	2	27	1
2	295	54	532	55	307	61	135	54	1269	56
2.5	17	3	25	3	12	2	7	3	61	3
3	142	26	228	24	86	17	51	20	507	22
3.5	8	1	11	1	3	1	3	1	25	1
4	28	5	29	3	11	2	4	2	72	3
4.5	2	0	3	0	1	0	1	0	7	0
5	13	2	14	1	8	2	3	1	38	2
6	2	0	2	0	1	0	1	0	6	0
7	1	0	0	0	1	0	0	0	2	0
8	1	0	1	0	0	0	0	0	2	0
9	1	0	0	0	0	0	0	0	1	0
Total	550	100	968	100	500	100	250	100	2268	100
N	2268									

Results

Table 5: Czech Republic fertility desires-OLS

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Life Force	0.145***		0.106**		0.122**		0.102**
	(0.038)		(0.040)		(0.041)		(0.039)
Personal God	0.293***		0.195**		0.191**		0.182**
	(0.054)		(0.064)		(0.065)		(0.060)
Number of Children	0.602***	0.605***	0.602***	0.607***	0.605***	0.604***	0.601***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Age	-0.039***	-0.039***	-0.039***	-0.038***	-0.039***	-0.039***	-0.039***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Education	0.008	0.015	0.011	0.016	0.009	0.013	0.009
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)	(0.013)	(0.014)
Importance of Religion		0.120***	0.071**				
		(0.021)	(0.026)				
Religious				0.288***	0.181**		
				(0.054)	(0.064)		
Somewhat Religious				0.112*	0.036		
				(0.052)	(0.056)		
Religious Attendance						0.096***	0.070***
						(0.015)	(0.017)
Constant	2.300***	2.152***	2.200***	2.280***	2.267***	2.195***	2.209***
	(0.087)	(0.094)	(0.094)	(0.088)	(0.088)	(0.090)	(0.089)
Observations	951	951	951	937	937	951	951
R^2	0.484	0.481	0.488	0.487	0.494	0.486	0.493
Adjusted R^2	0.481	0.479	0.485	0.484	0.490	0.484	0.490
F	176.969	219.523	149.822	176.669	129.510	223.835	152.830
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors in parentheses
$^{+}$ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6: Slovenia fertility desires-OLS

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Life Force	0.128***		0.109**		0.125***		0.102**
	(0.036)		(0.037)		(0.037)		(0.036)
Personal God	0.248***		0.198***		0.224***		0.180***
	(0.041)		(0.047)		(0.046)		(0.044)
Number of Children	0.574***	0.565***	0.566***	0.568***	0.571***	0.557***	0.559***
	(0.020)	(0.020)	(0.020)	(0.021)	(0.020)	(0.020)	(0.020)
Age	-0.052***	-0.052***	-0.052***	-0.052***	-0.052***	-0.051***	-0.051***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Education	0.024+	0.035**	0.030*	0.033*	0.026+	0.036**	0.033*
	(0.013)	(0.013)	(0.014)	(0.014)	(0.014)	(0.013)	(0.013)
Importance of Religion		0.093***	0.052*				
		(0.018)	(0.021)				
Religious				0.124**	0.030		
				(0.042)	(0.046)		
Somewhat Religious				-0.012	-0.047		
				(0.046)	(0.047)		
Religious Attendance						0.067***	0.049***
						(0.011)	(0.012)
Constant	2.878***	2.720***	2.747***	2.903***	2.870***	2.738***	2.714***
	(0.077)	(0.094)	(0.094)	(0.086)	(0.086)	(0.086)	(0.086)
Observations	2251	2234	2234	2215	2215	2249	2249
R^2	0.281	0.277	0.283	0.277	0.285	0.281	0.287
Adjusted R^2	0.279	0.276	0.281	0.275	0.282	0.280	0.285
F	175.559	213.422	146.428	169.047	125.446	219.599	150.326
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Standard errors in parentheses
+ $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

The analysis of both the Czech Republic (Table 5) and Slovakia (Table 6), confirm that metaphysical beliefs—and not just traditional, institutional religiosity, influence fertility desires. For the Czech Republic, the effect of attendance decreases by nearly a third, and the effect of the four-level religiosity measure on fertility intentions and the effect of labeling one's self as "religious" decreases by nearly half when the belief variables are included (Table 1, Models 2-7). The effect of being "somewhat religious" drops into insignificance when the belief variables are controlled for (Table 1, Models 4-5), suggesting that the differences in fertility desires between the marginally religious and the non-religious could be attributed to differences in belief than in their religious practice *per se*.

In Slovenia, the effect of attendance decreases by about a quarter (Table 4, Models 6 and 7) and the size of the "importance of religion" effect is also almost cut in half when belief is controlled for (Table 4, Models 2 and 3). Labeling one's self as "religious" becomes insignificant once belief in God is controlled for. Being marginally religious does not seem to have an effect, whether or not belief in God is controlled for.

In all models, both belief in personal God and the less traditional belief in a "life force" are statistically significantly different than the non-believing reference group to the .01 level, even while controlling for measures of conventional religiosity. With the religiosity controls, these effects range from +.1 to +.2 additional children depending on the model. While nominally this might not seem like much, the extremely low fertility in these countries makes this a proportionally significant difference; the 1997 Czech total fertility rate was 1.2, and the 1995 Slovenian total fertility rate was 1.3 (World Bank, 2013).

In each case, the inclusion of the God covariate either significantly reduces the effect of the conventional religious covariate, or it makes it insignificant altogether. These results are derived from two separate countries that, while sharing some historical characteristics, are completely separate and distinct political and socio-cultural communities.

This existence of an independent relationship between metaphysical beliefs associated with religion and fertility challenges the various hypotheses and assumptions of the prior literature. Belief in a "life force" alone does not provide a mechanism for the dissemination and adherence to theological dogma, nor does it provide a community to create and reinforce social norms and worldviews, nor is it associated with a broader schema of "family values." Ultimately, the relationship between an individualized belief and a pronatalist disposition requires an individual-level explanation. While I have demonstrated that these effects do exist (at least in some country-level contexts), future research would do well to use different methodological, perhaps qualitative, tools to further investigate the why behind this relationship; what I simply demonstrate here is that in these cases the social explanations taken for granted in most of the literature are in fact in part spuriously picking up the effect of belief, and that much of the religiosity/fertility connection is attributable to the individual-level effect of generalized metaphysical belief.

This study also contributes to the literature by using two countries that have previously not been studied in regards to the fertility/religiosity question. (Indeed, Eastern Europe in general has been largely ignored in the prior literature on the subject). The lack of formal institutional religious influence and the relatively high portion of their population maintaining agnostic, atheist, or individualized spiritual beliefs make these two countries ideal for challenging the

hypothesis that organized, conventional religiosity is the necessary and sufficient mechanism for driving religiosity/fertility differentials.

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