

Suffer for the Faith? Parental Religiosity and Children's Health

Olga Popova

Institute for East and Southeast European Studies (IOS), Regensburg
CERGE-EI, UrFU

UNU-WIDER

June 7, 2016

Outline

- 1 Introduction and research questions
- 2 Methodology
 - 1 Transmission mechanisms
 - 2 Empirical model and identification
- 3 Data
- 4 Results and conclusions
 - 1 Two-parent households
 - 2 One-parent (fatherless) households

Introduction and motivation

Institutional reforms and economic changes in Central and Eastern Europe (CEE) brought a challenge to health care systems:

- deterioration of the preventive medicine, sanitary and epidemiological system, and health care services
- social and psychological stress

Most countries in the region have experienced deteriorating health outcomes and increasing mortality

The most serious consequence of this situation is the deterioration of children's health due to its' implications for the future labor force

At the same time, the revival of religiosity in CEE is observed

This paper

Does self-assessed maternal and paternal religiosity affect children's health in Russia?

- subjective health status and anthropometric outcomes

Contribution:

- exploring the transmission channel between parental beliefs and kids' health
- providing causal evidence regarding the effect of parental religiosity on children's health in Russia, accounting for both maternal and paternal characteristics
- considering two- and one-parent households separately

Existing literature

Religiosity affects socioeconomic outcomes of adults

- leads to higher levels of education, income, and subjective well-being, higher levels of marriage, and lower levels of divorce (e.g., Gruber 2005, Campante and Yanagizawa-Drott 2013)
- insures against idiosyncratic and aggregate shocks (e.g., Clark and Lelkes 2006 and 2009; Dehejia et al. 2007; Popova 2014)
- reduces risky health behavior (e.g., Fletcher and Kumar 2013)

What about kids?

For adolescents, findings are similar to adults. Their *own* religiosity reduces their risky health behavior, improves educational outcomes, psychological and overall health (Gruber and Hungerman 2008; Fletcher and Kumar 2013; Chiswick and Mirtcheva 2013)

Evidence on parental religiosity and kids' health is mixed

- fasting of pregnant women during the Ramadan leads to lower birth weights, mental disabilities, and worse educational outcomes of children (Almond and Mazumder 2011; Majid 2013)
- maternal religiosity is negatively correlated with the child immunization (Ha et al. 2014)
- in India, infants from Christian families have better health status compared to infants from families with other religions (Menon and McQueeney 2015)

Transmission channels

Theory: Demand for health *a la* Grossman (1972) and Chiswick and Mirtcheva (2013)

Explaining a potential impact of religiosity on health from psychological, medical, sociological, and economic literature:

- 1 insurance effect
- 2 social network effect
- 3 regulating effect
- 4 internal psychological effect

Empirical model

$$H_{ij}^* = \beta_0 + \beta_1 MR_{pj}^* + \beta_2 FR_{pj}^* + \alpha \mathbf{M}_{pj} + \gamma \mathbf{F}_{pj} + \delta \mathbf{X}_{ij} + \theta \mathbf{HH}_{ijt} + \lambda_j + \mu_t + \varepsilon_{ij} \quad (1)$$

i is a child, j is a region, p is a parent

H_{ij}^* is child's health (subjective health, height-for-age, and BMI)

MR_{pj}^* and FR_{pj}^* are mother's and father's religiosity

\mathbf{M}_{pj} and \mathbf{F}_{pj} are mother's and father's socioeconomic characteristics (age, education, employment, and marital status)

\mathbf{X}_{ij} are child characteristics (age, gender, quarter of birth)

\mathbf{HH}_{ijt} are household characteristics (income and type of settlement)

λ_j and μ_t are regional and wave dummies

ε_{ij} is a stochastic disturbance

Identification strategy

Model with 2 binary endogenous regressors

OLS estimates are biased and inconsistent due to the endogeneity problem

- omitted variable problem, e.g. historical memory of a salutary effect
- measurement error in health may be related to religiosity
- temporal simultaneity
- selection on observable characteristics: Children of religious parents differ from children of non-religious parents

Identification strategy (cont.)

Methods used:

- 1 2SLS with excluded instruments
- 2 2SLS with generated instruments (Lewbel 2012)
- 3 2SLS with generated and excluded instruments

Excluded:

- **regional historical share of extremely cold days**
 - ▶ from 1980 to a year of child's conception
 - ▶ historically, people had superstitious beliefs that witches can influence the weather (e.g., Pesta and Poznanski, 2014; Oster, 2004)
- **regional Nr. of churches, mosques, and synagogues per capita**
Gruber (2005) and Popova (2014): religious density correlates with individual religiosity

Generated:

- Instruments are constructed by multiplying the first stage residuals on demeaned exogenous variables from Eq. 1.

Data

The Russia Longitudinal Monitoring Survey (HSE-RLMS), 2000-2003.
Children of 0-14 years old

Self-assessed parental religiosity

What do you think about religion? You are a believer/ You are more a believer than a non-believer/ You are more a non-believer than a believer/ You are a non-believer/ You are an atheist → **a dummy variable**
"Believer"

Children's health

- 1 How would you evaluate your child's health (1=very bad, 5=very good)
- 2 Height-for-age (normalized using the WHO's standards)
- 3 Body mass index (normalized using the WHO's standards)

Data

	Two-parent					
	Nr.	mean	min	max	% < -2 SD	% > 2 SD
HFA	2193	-0.571	-13.153	11.364	17.42%	5.52%
BMI	2136	0.668	-6.095	23.953	3.51%	15.96%
Subj. health	2651	3.619	1	5		
Mother is a believer	2718	0.793	0	1		
Father is a believer	2718	0.624	0	1		
Both parents are believers	2718	0.554	0	1		

	One-parent					
	Nr.	mean	min	max	% < -2 SD	% > 2 SD
HFA	828	-0.689	-11.864	7.582	19.81%	4.11%
BMI	785	0.604	-4.357	28.630	3.69%	14.90%
Subj. health	1078	3.583	1	5		
Mother is a believer	1080	0.771	0	1		

Results: Two-parent households

	Height-for-age			Body mass index			Subjective health		
	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)
	coef.	coef.	coef.	coef.	coef.	coef.	coef.	coef.	coef.
Mother is a believer	0.126	-1.335	0.477	-0.098	-0.198	-0.142	0.049	0.042	0.127
Father is a believer	-0.006	-0.522	-0.465	0.169	-0.736	0.954 **	-0.003	-0.134	0.373 ***
Child's gender	-0.191 **	-0.182	-0.211 **	0.326 ***	0.325 ***	0.328 ***	0.033	0.031	0.036
Child's age	0.016	0.009	0.019	-0.148 ***	-0.155 ***	-0.142 ***	-0.012 ***	-0.013 ***	-0.009 **
Live in an urban area	0.458 ***	0.460 ***	0.451 ***	-0.724 ***	-0.730 ***	-0.718 ***	-0.164 ***	-0.167 ***	-0.156 ***
Household size	-0.122 ***	-0.078	-0.118 ***	0.159 *	0.179 **	0.144 *	0.053 ***	0.056 ***	0.043 ***
Mother's age	0.020 *	0.016	0.016	-0.012	-0.014	-0.009	-0.006 *	-0.007 **	-0.005
Father's age	-0.023 **	-0.024 *	-0.023 **	0.023	0.025	0.022	0.005	0.005	0.004
Parents married/cohabitating	0.072	0.258	0.073	-0.392	-0.327	-0.434	0.168	0.183	0.119
Mother with higher education	0.309 ***	0.333 **	0.341 ***	0.092	0.107	0.077	-0.025	-0.023	-0.031
Father with higher education	0.135	0.187	0.135	-0.168	-0.165	-0.167	0.054	0.055	0.047
Mother employed	0.058	-0.037	0.031	-0.220 *	-0.290 **	-0.164	-0.063 **	-0.075 **	-0.028
Father employed	-0.057	-0.169	-0.093	-0.075	-0.180	0.012	-0.101 ***	-0.112 ***	-0.067 *
Ln(equalized household income)	0.126 **	0.158 ***	0.123 **	0.022	0.062	-0.009	0.052 ***	0.058 ***	0.031 **
Nr. of observations	2030	2030	2030	1980	1980	1980	2456	2456	2456
R-squared	0.071	0.040	0.059	0.111	0.081	0.091	0.081	0.070	0.015

Two-parent by age groups

	Height-for-age			Body Mass Index			Subjective health		
	0-3 y.o. coef.	4-7 y.o. coef.	8-14 y.o. coef.	0-3 y.o. coef.	4-7 y.o. coef.	8-14 y.o. coef.	0-3 y.o. coef.	4-7 y.o. coef.	8-14 y.o. coef.
Mother is a believer	-0.110	0.045	0.250	0.599	0.346	-0.045	-0.018	0.139	0.033
Father is a believer	-0.397	-0.438	0.120	0.669	-0.017	0.849 ***	0.298 **	0.114	0.522 ***
Child's gender	-0.480 **	-0.146	-0.129	0.385	0.069	0.398 ***	-0.063	0.004	0.092 **
Child's age	-0.269 **	0.268 ***	-0.015	0.394 **	-0.561 ***	-0.120 ***	-0.065 **	0.001	0.007
Live in an urban area	0.538 *	0.656 ***	0.312 ***	-0.425	-1.614 ***	-0.489 ***	-0.115 *	-0.225 ***	-0.147 ***
Household size	-0.187	-0.087	-0.082 **	0.263	0.348 *	-0.050	0.052 **	0.067 ***	0.025
Mother's age	0.027	0.006	0.011	-0.025	-0.006	-0.017	0.002	-0.006	-0.011 **
Father's age	-0.039 *	-0.021	-0.007	0.020	-0.008	0.040 ***	0.000	0.002	0.011 **
Parents married/cohabitating	0.055	0.432	-0.097	-0.771	-0.612	-0.201	0.204	-0.020	0.104
Mother with higher education	0.526 *	0.539 **	0.103	0.037	0.417	0.026	-0.117	0.068	-0.057
Father with higher education	0.593 *	0.014	0.102	-0.697 *	-0.191	-0.167	0.066	0.015	0.053
Mother employed	0.064	0.071	0.065	-0.475	-0.301	-0.108	-0.007	0.017	-0.070
Father employed	-0.136	0.050	-0.071	-0.162	0.069	0.099	-0.091	-0.143 **	-0.021
Ln(equalized household income)	0.005	0.187	0.141 **	-0.067	-0.157	0.044	0.044	0.040	0.025
No. of observations	424	486	1120	420	475	1085	496	599	1361
R-squared	0.104	0.147	0.058	0.040	0.175	0.090	0.050	0.102	0.082

Results: Two-parent households (both believe)

	Height-for-age			Body mass index			Subjective health		
	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)
	coef.	coef.	coef.	coef.	coef.	coef.	coef.	coef.	coef.
Both parents are believers	0.035	-1.473 ***	-0.548 *	0.154	2.964 ***	1.157 ***	0.045 *	1.119 ***	0.604 ***
Child's gender	-0.189 **	-0.202 **	-0.202 **	0.324 ***	0.329 ***	0.326 ***	0.034	0.046	0.040
Child's age	0.016	0.008	0.015	-0.148 ***	-0.127 ***	-0.140 ***	-0.012 ***	-0.004	-0.008 *
Live in an urban area	0.459 ***	0.441 ***	0.450 ***	-0.724 ***	-0.693 ***	-0.713 ***	-0.163 ***	-0.141 ***	-0.152 ***
Household size	-0.120 ***	-0.074 *	-0.102 **	0.156 *	0.078	0.128	0.052 ***	0.022	0.037 ***
Mother's age	0.020 *	0.014	0.016	-0.012	-0.006	-0.010	-0.006 *	-0.003	-0.005
Father's age	-0.024 **	-0.022 **	-0.023 **	0.024	0.022	0.023	0.005	0.004	0.004
Parents married/cohabitating	0.082	0.186	0.127	-0.401	-0.577	-0.464	0.170	0.067	0.117
Mother with higher education	0.307 ***	0.373 ***	0.344 ***	0.092	0.022	0.067	-0.027	-0.055	-0.041
Father with higher education	0.138	0.171	0.155	-0.173	-0.210	-0.186	0.054	0.030	0.042
Mother employed	0.057	-0.091	-0.003	-0.215 *	0.048	-0.121	-0.060 **	0.047	-0.004
Father employed	-0.058	-0.208	-0.117	-0.074	0.219	0.031	-0.099 ***	-0.007	-0.051
Ln(equalized household income)	0.126 **	0.184 ***	0.140 **	0.019	-0.123	-0.031	0.050 ***	-0.010	0.019
Nr. of observations	2030	2030	2030	1980	1980	1980	2456	2456	2456
R-squared	0.070	0.069	0.051	0.111	0.103	0.077	0.081	0.064	0.112

Results: Fatherless households

	Height-for-age			Body mass index			Subjective health		
	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)	OLS	2SLS (exog. IVs)	2SLS (exog. and generic IVs)
	coef.	coef.	coef.	coef.	coef.	coef.	coef.	coef.	coef.
Mother is a believer	0.371 **	-0.008	0.074	-0.076	-0.268	-0.121	-0.024	0.161	0.200
Child's gender	0.008	-0.008	-0.005	0.026	0.016	0.023	0.007	0.016	0.018
Child's age	0.024	0.025	0.025	-0.119 ***	-0.119 ***	-0.119 ***	-0.007	-0.008	-0.008
Live in an urban area	0.783 ***	0.792 ***	0.790 ***	-0.720 ***	-0.717 ***	-0.719 ***	-0.186 ***	-0.187 ***	-0.187 ***
Household size	-0.045	-0.060	-0.057	0.103	0.095	0.102	0.004	0.011	0.012
Mother's age	0.014	0.017	0.016	0.004	0.006	0.005	-0.010 **	-0.011 ***	-0.011 ***
Mother with higher education	0.492 ***	0.475 ***	0.479 ***	-0.063	-0.070	-0.064	-0.074	-0.062	-0.059
Mother employed	0.019	0.014	0.015	-0.078	-0.080	-0.078	0.065	0.071	0.072
Ln(equalized household income)	0.101	0.098	0.099	0.194 *	0.193 *	0.194 *	0.065 ***	0.064 **	0.064 **
Nr. of observations	779	779	779	739	739	739	1014	1014	1014
R-squared	0.099	0.093	0.096	0.073	0.072	0.073	0.052	0.038	0.032

One-parent by age groups

	Height-for-age			Body mass index			Subjective health		
	0-3 y.o. coef.	4-7 y.o. coef.	8-14 y.o. coef.	0-3 y.o. coef.	4-7 y.o. coef.	8-14 y.o. coef.	0-3 y.o. coef.	4-7 y.o. coef.	8-14 y.o. coef.
Mother is a believer	1.679 **	-0.521	0.639	-1.547	-0.555	0.213	-0.012	-0.051	-0.008
Child's gender	-1.009 **	0.580	0.106	0.477	-0.903 *	0.116	-0.128	-0.145 *	0.054
Child's age	0.105	0.182	-0.099 **	0.227	0.137	-0.045	-0.108 ***	0.010	0.030 *
Live in an urban area	0.393	1.150 *	0.743 ***	-1.119	-0.651	-0.173	-0.276 **	-0.124	-0.202 ***
Household size	0.219 *	-0.228	-0.033	-0.347 *	0.410 **	0.070	-0.027	-0.019	0.048 *
Mother's age	-0.064	0.042	0.032 **	0.032	0.025	-0.009	-0.014	-0.016 **	-0.011 **
Mother with higher education	0.767	0.792 **	0.212	-1.557 **	-0.433	0.430 **	0.286 *	-0.071	-0.140 **
Mother employed	0.387	0.347	-0.217	-0.983	-0.091	0.157	0.129	-0.021	0.147 **
Ln(equalized household income)	0.133	0.001	0.142 *	0.582	0.092	0.051	0.004	0.060	0.073 **
Nr. of observations	129	167	483	123	160	456	162	234	618
R-squared	0.231	0.203	0.183	0.209	0.126	0.068	0.160	0.105	0.074

Results: Other characteristics

Two-parent households

- Boys and older children are generally less healthy
- No effect of mother's age, + effect of father's age (for older children)
- + effect of education, no effect of employment
- In larger families, children have lower height, but are healthier subjectively than in smaller families
- + effect of household income, no effect of marital status
- Children living in an urban area have higher height, but are less healthy subjectively

One-parent households

- Stronger + effect of mother's education and household income
- Other characteristics have similar effects

Summary and conclusions

- After accounting for the endogeneity, parental religiosity does not affect children's height and long-term health, but does affect children's weight and subjective health.
- If both parents are religious, this results in a better subjective health of their children, but worse anthropometric outcomes
- In one parent (fatherless) families, children's health is more strongly affected by mother's education than in two-parent households, but is not affected by mother's religiosity.
- All findings are stronger for older children.

Thank you!

popova@ios-regensburg.de

This paper is available as IOS Working Paper Nr. 356