# For God, Tsar and Fatherland? The Political Influence of Church\*

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#### Abstract

This paper investigates the influence of the Orthodox Church network in Post-Soviet Russia on individual political preferences and election results. I use the density of monks and nuns from the orthodox monasteries operated in the Russian Empire before the Revolution as historical religious markers to construct a Bartik-style instrument. I find that a wider Church network increases the average local approval rating of the current president and share of votes for the government candidate in presidential elections. Further analysis of mechanisms shows that nowadays the extending Church network is unable to attract people to church and increase the share of practicing believers. However, it does affect the political preferences of those who, regardless of their faith in God, self-identify as orthodox. One of potential channels used by the Church for persuasion could be media. However, I do not find a sufficient evidence in favor of this hypothesis that leaves a room for further research.

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## 1 Introduction

In many countries, religion still plays a significant role in different life spheres, despite official separation of Church and state. Scholars have documented the significant and, in many cases, mixed effects of religion on education (Becker and Woessmann 2009), health (Fletcher and Kumar 2014), pro-social behavior (Norenzayan 2013; Bottan and Perez-Truglia 2015), innovation (Bénabou, Ticchi, and Vindigni 2015), economic growth (Campante and Yanagizawa-Drott 2015; Bai and Kung 2015), and other areas. At the same time, as noted by (Iyer 2016) in his recent survey of economic literature on religion<sup>1</sup>, the relationships between religious beliefs, the Church as an Institute, and politics remains understudied. A particular question which needs scholarly attention is the nation-building role of the Church, and how this is utilized by politicians to gain wide public support and to remain in power.

I explore this question by analyzing the impact of the expanding Orthodox Church network in Post-Soviet Russia (measured by the regional density of orthodox organizations) on individual political preferences and election results. I apply an instrumental variable strategy, constructing a Bartik-style instrument. The instrument is based on the contemporary country-wide shock to the Russian Orthodox Church (ROC) network measured by the yearly average density of orthodox organizations in the country outside each region. For each region, the shock is weighted by the historical regional density of monks and nuns housed in orthodox monasteries in 1908.

The Russian context provides a great opportunity to exploit a natural experiment to identify causal relationships. More than 70 years of the Soviet Union completely reshaped Russia which allows me to argue that the spatial distribution of orthodox monasteries existed before the Russian Revolution is plausibly exogenous to contemporary individual political preferences and regional characteristics. At the same time, these monasteries defined (to some extent) the predisposition of each Russian region to the ROC revival after the Fall of Soviet Union, and nowadays presents a novel measure of historical exposure to the Church.

The results suggest that a denser Church network increases the average local approval rating of the current president. I also document the positive effect of this network on the share of votes for the government candidate in presidential elections. At the same time, I do not find evidence of any impact of the Church on trust in president or on the political popularity of other branches and levels of the government (regional governor, ruling party, Government, and Duma).

The potential mechanisms behind this effect on approval ratings and election results could be of both religious and secular nature. First of all, a denser Church network may increase the number of believers, especially those who visit a church on a regular basis,

<sup>&</sup>lt;sup>1</sup>See also Aldashev and Platteau (2014).

by increasing the number of churches within walking distance. At church, believers are exposed to the promotion of secular authorities organized by the Church leadership in exchange for resources from the state. In turn, more resources attracted by the wider Church network facilitates the spread of ideas transmitted by the state and appealing to the general public outside the church building too. This can occur, for example, via clerics who speak on the radio and TV, give interviews for newspapers, and actively post on the Internet.

However, analysis suggests that the current Church is not attracting many more potential believers to attend services and is not substantially increasing the share of practicing believers. On the other hand, it does influence the political preferences of those who, regardless of their faith in God, self-identify as orthodox. Orthodoxy has become a part of national identity, leading to the ROC's playing a nation-building role. Since only a small share of the population regularly attends church and is exposed to the propaganda on site, the ROC has to exploit other channels for persuading. The media could be such a channel, but I do not find sufficient evidence of this that leaves a room for further research along these lines.

This paper adds to the growing empirical literature on the channels used by politicians (in many cases, autocratic leaders) to gain support and to remain in power. Studies in this area have explored the political effects of violence and repression (Arce 2003), economic reforms and advertisement of economic achievements (Buendía 1996; Guriev and Treisman 2020), censorship and propaganda (Durante and Knight 2012; Adena et al. 2015; Chen and Yang 2019) including reactivation of collective memories (?; Belmonte and Rochlitz 2019). Religion and religious networks are another yet understudied channel. Bentzen and Gokmen (2020) use data on 1,265 premodern societies and 176 countries and find that countries which relied more on divine legitimization are more autocratic today and their populations tend to be more religious. My paper studies the casual effect of Church networks on individual political preferences for autocratic leader. It also discusses the potential mechanisms behind this effect, which align well with insights from the theoretical paper by Murphy and Shleifer (2004). The authors model the formation of social networks through which different ideas can be spread. These networks are usually organized around some core beliefs that bind members together; then, they could be "rented out" to politicians who seek support, in exchange for resources. In the case considered in my paper, the binding force can be both religious beliefs and the idea of a national identity that equates "being Russian" with "being orthodox"<sup>2</sup>.

My paper also contributes to the broader literature on the political influence of Church and religion. These studies document a significant positive effect of church

<sup>&</sup>lt;sup>2</sup>The share of people who identify as orthodox has constantly grown from around 30% in the early 90s to almost 80% in recent years. Meanwhile, the share of those who profess to believe in God has never reached 40%.

attendance and religious identification on voter turnout (Jones-Correa and Leal 2001; Gerber, Gruber, and Hungerman 2016; Smith 2017). The direction of their influence on political preferences and election results varies with the denomination and particular context studied. For example, Gerber, Gruber, and Hungerman (2016) find that decrease in church attendance due to repeal of blue laws in the U.S. leads to voter turnout decline, which negatively affects Democratic but not Republican vote shares. They also document that this effect is stronger for Catholics than for others. Hong and Paik (2021) study Protestants in South Korea and find that they profess stronger feelings against the North Korean regime. These feelings drive the wide support of Protestants for the conservative party. Spenkuch and Tillmann (2018) investigate the empirical predictors of Nazi vote shares in Weimar Germany and determine that Catholics were less likely to vote for the NSDAP than Protestants.

In contrast to existing studies, my paper analyses how the Church as an organization influences political preferences (if not through religious beliefs or communications taking place at church) when the majority of the population is not religious and does not attend religious services on a regular basis. In addition, while most papers in the field study Catholicism, Protestantism, or Islam in the U.S., Western Europe, or in developing countries, substantial parts of the world population with diverse cultural backgrounds remain unstudied. To the best of my knowledge, this paper is the first to apply rigorous analysis to studying the Orthodox denomination, which is a part of the world's largest religion, Christianity.

The rest of the paper is organized as follows. Historical background and data are discussed in Sections 2 and 3. In Section 4, I describe the empirical strategy. Section 5 presents the results, and Section 6 concludes.

# 2 Historical Background

#### 2.1 The Russian Orthodox Church and the State

The Russian Orthodox Church (ROC) emerged in the tenth century, after the Christianization of Kievan Rus', the first forerunner of the modern Russia state. In 988, Rus' Prince Vladimir baptised himself and ordered his people to be converted to Orthodox Christianity. Until 1448, the Russian Church operated under the authority of the Constantinople Patriarch and was headed by the Metropolitans of Kiev who resided in Moscow after 1328. In 1448, Russian bishops elected the Metropolitan without recourse to Constantinople, and, finally, in 1589, the Metropolitanate of Moscow was promoted to the Patriarchate of Moscow (Marsh 2013). This was an important milestone in the history of the ROC: Russia became home to the only Patriarchate whose ruler was Orthodox, and was thought of as the capital of the "Orthodox world". Though the Russian Church

was no longer dependent upon Constantinople, it continued the Byzantine tradition of authorizing the state's participation in the Church's administrative affairs.

In 1721, the Church was put under the direct control of the state when Tsar Peter I (the Great) dissolved the Patriarchate of Moscow and replaced it with the Holy Governing Synod (Marsh 2013). Nevertheless, the religion and Church were still crucial components of the society, especially, when there was a need for mobilization. In 1812, the slogan "For God (or Faith), Tsar, and Fatherland" was created and used to bring people together to protect Russia from the French invasion. In 1833, this slogan was reformulated by the minister of education, Uvarov, as "Orthodoxy, Autocracy, and Nationality", and then became a dominant ideological doctrine of Tsar Nicholas I (Gaida 2013). Later, the triad was used by Putin to reestablish Russian identity and distinguish Russia from the West.

In 1917, after the collapse of Tsarist regime, the Patriarchate of Moscow and pre-Petrine independent governance of the Church was reestablished. However, the new Soviet government soon declared the separation of state and Church. It nationalized all Church lands and imposed brutal repressions against clerics and destruction of churches or their conversion to secular use (Marsh 2013). The Church was severely suppressed because it was considered a powerful ideological and political opponent, the last bastion of Tsarism.

The revival of the ROC began in the late 1980s and intensified after the collapse of the Soviet Union. Under the 1990's law on "Freedom of conscience and religious belief", the ROC was allowed to resume its activity as before the Soviet era, but now it had to compete with other religious institutions. However, in 1997 after a personal meeting with Patriarch Aleksei II, president Yeltsin passed a law giving the ROC privileged status (Marsh 2013). Since then, during the presidencies of Putin and Medvedev, the ROC has consistently received significant support from the state in the form of direct financial transfers and fiscal subsidies, as well as via laws, policies and political privileges (Rosenthal 2019). This facilitated the relatively quick revival of the Russian Orthodox Church after the fall of the Soviet Union. In 1988, the ROC had 6,893 parishes across the whole Soviet Union (Metropolitan Kirill 2009)<sup>3</sup>, but by 2019 this number had grown to 38,649 (Patriarchia.ru 2019). This is still fewer than half of the pre-Revolution number of almost 78,000 (Patriarchia.ru 2005).

#### 2.2 Monasticism in Russia

Monasticism arrived in Russia together with the Christianization of Kievan Rus' in the tenth century. During the Turco-Mongol rule, most orthodox monasteries were destroyed, as they were primarily located in or near cities, which bore the brunt of the destruction of this period. The waning of monastic tradition was also influenced by a spiritual decline

<sup>&</sup>lt;sup>3</sup>Today, Kirill is Patriarch.

within Russian society, which was suffering from economic and political decline (Sinicyna 2002).

A revival of monasticism occurred around the end of fourteenth century and was associated with the personality of Sergiy Radonezhsky, a spiritual leader and monastic reformer who placed strong emphasis on asceticism. Large numbers of monasteries were founded in distant and obscure locations all across medieval Russia. Later, these small settlements expanded into larger centers, making monasticism one of the bases of social and economic life (Sinicyna 2002).

In 1917, after the Revolution, monasteries were among the first religious institutions abolished. In 1908, the ROC had 1,105 monasteries (Denisov 1908), but by 1930s almost all of them had been dissolved. Nowadays, the Church has almost restored its pre-Revolution number of monasteries: at the beginning of 2019, there were 972 monasteries (Patriarchia.ru 2019), with 536 currently functioning and located in Russia. Around 60% of these monasteries have been built before the Revolution and restored after the fall of the Soviet Union (Hramy Rossii nd).

## 3 Data

In this section, I describe my main variables and the data I use in their construction. The summary statistics and sample periods are presented in Appendix B, Table ??.

# 3.1 Political Popularity

Individual level information on approval, trust, electoral preferences, and core demographics is taken from the nationally representative opinion poll "Courier", conducted by the Levada Analytical Center. The main advantage of this survey is that it includes an identifier for regions, which is needed for merging these individual level data with the density of religious organizations measured at the regional level. I collect data for the 1997-2019 period, though for some measures of political popularity, these data are available only with gaps (Appendix B, Table ??).

Using "Courier", I construct several measures of political popularity. First, individual approval of the current president is captured by a dummy taking the value of 1 if a respondent answers "approve" to the following question: "In general, do you approve or disapprove of the actions of the president of Russia?". Approval ratings for the regional governor, Government, and Duma is determined in the same fashion. Second, trust in the president is measured by the question: "Name the 5-6 politicians you trust the most"<sup>4</sup>. Based on this question, I construct a dummy equal to 1 if the current president is named.

<sup>&</sup>lt;sup>4</sup>In contrast to other questions, the question on trust is open-ended, which could affect the results. I discuss this in more detail in Section 5.

Third, electoral preferences for the government candidate is represented by a dummy equal to 1 if the respondent chooses this candidate in the question: "If presidential election were held this Sunday, which candidate would you be most likely to vote for?". Electoral preferences for the ruling party are determined in the same way.

I also construct several measures of the political popularity of a specific person - Vladimir Putin. I create a dummy for trust equal to 1 if the respondent names Putin as a politician s/he trusts, and a dummy for readiness to vote for Putin equal to 1 if the respondent chooses Putin from the list of politicians even if he does not (could not) run for office.

Data on actual election results are taken from the website of the Central Election Commission. They are presented in terms of the regional shares of votes for the government candidate in presidential elections (in 2000, 2004, 2008, 2012, 2018) and for the ruling party in parliamentary elections (in 2003, 2007, 2011, 2016).

## 3.2 Religious Organizations

According to a Russian law from 1997, any grouping of people formed for the purpose of joint worship and propagation of faith is called a religious organization and should be registered as a non-profit organization in the Unified State Register of Legal Entities. To be registered, a group must have at least 10 members, a physical address, and a name which includes its denomination. In this paper, data on religious organizations are collected from the Spark database, which contains rich information on all for-profit and non-profit organizations registered in Russia. It provides the name, address, and dates of establishment and dissolution of each religious organization, which allows me to calculate the current number of organizations by denomination, year, and region.

During the 1997-2019 period, around 20,000 orthodox religious organizations were registered in the Spark. 92% of them are entered into the database as "church parish", "parish" or "church", 2% - as "community", 3% - as "monastery", and 3% - as various organizations administrated by the ROC such as, for example, shelter, school, publishing house, etc.

To construct my measure of the Church network, I divide the annual number of orthodox organizations in a region by the regional population and obtain the regional density of churches. In the remainder of the paper, I refer to this measure simply as "orthodox density".

#### 3.3 Historical Data

To create the historical instrumental variable, I manually collect novel data on the number of monasteries and the number of monks and nuns in each Russian region before

the Russian Revolution. The information comes from the handbook "The Orthodox Monasteries of Russian Empire" compiled by Denisov (1908). Since the administrative division at that time was different from the one now, I use various Internet resources<sup>5</sup> to check the location of a monastery within contemporary regional borders.

According to Denisov (1908), in 1908, there were 1,098 monasteries and 90,403 monks and nuns in the Russian Empire. 829 monasteries were located within contemporary Russian borders. This number includes 475 men's monasteries and 354 women's monasteries. Meanwhile, there were considerably fewer monks than nuns: 16,482 monks to 57,892 nuns.

#### 3.4 Media

To construct the media measure, I explore the number of mentions of traditional family values and the ROC in all Russian media outlets covered by Integrum, a Russian media database. A publication is considered to contain information about traditional values and the Orthodox Church if it includes any two phrases from the following sets: "traditional values", "traditional family values", "family values" and "Orthodox Church", "Russian Orthodox Church", "ROC" (Russian Orthodox Church). In addition to the total number of mentions, I also collect the number of mentions found in regional sources separately. To account for the differences in the salience of this topic in media by region and year, I divide all numbers of mentions by the total number of weather reports following Belmonte and Rochlitz (2019).

#### 3.5 Other Data

All regional level data including population size, GDP per capita, and unemployment rate, along with 1990 regional characteristics come from the Federal State Statistic Service (Rosstat). This source also provides information on the regional shares of population with access to analog and digital TV, and the number of published newspapers per 1,000 inhabitants. I use these measures to construct their first principal component to proxy for the average media coverage by region and year.

# 4 Empirical Strategy

To examine the link between the density of orthodox religious organizations and political attitudes, I begin with the simplest specification, and gradually add individual level and then regional level controls. Controls help to correct for possible omitted variable bias;

<sup>&</sup>lt;sup>5</sup>For example, I use the website http://temples.ru, which collects information on orthodox churches for the project "Churches of Russia". I also use Wikipedia, Google and Yandex maps.

however, there could still be an endogeneity. To account for this potential issue, I use the instrumental variable strategy:

$$Approval_{ijt}^{IV} = \beta_1 Orthodox\_Density_{jt} + \mu_j + \delta_t + Ind\_Controls_{ijt} + Reg\_Controls_{jt} + \epsilon_{ijt},$$

$$(1)$$

where  $Approval_{ijt}$  is a dummy equal to 1 the respondent i in region j approves of the current president in year t,  $Ind\_Controls_{ijt}$  is the set of individual level controls,  $Reg\_Controls_{jt}$  is the set of regional level controls,  $\mu_j$  and  $\delta_t$  are region and year fixed effects. The variable of interest is  $Orthodox\_Density_{jt}$ , the average density of orthodox religious organizations (the number of organizations per 1,000 inhabitants) instrumented with the historical instrument.

To construct the instrumental variable, I employ "Bartik" approach (Bartik 1991), weighing country-wide shocks to the Orthodox Church network outside the region with the historical regional exposure to the ROC:

$$Instrument_{jt} = Orthodox\_Density\__{jt} \cdot Historical\_Exposure_{j}. \tag{2}$$

where  $Orthodox\_Density_{-jt}$  is the overall density of orthodox religious organizations in the country outside the region j in year t,  $Historical\_Exposure_j$  is the number of monks and nuns in the region j in 1908 divided by the regional population in 1997, the first year of my sample.  $Instrument_{jt}$  captures the overall presence of the Orthodox Church in the country in a given year, but this presence is assumed to have a greater impact in regions with more monasteries as historical religious markers. The number of monks and nuns in  $Historical\_Exposure_j$  gives a naturally weighted measure of monasteries in 1908, assigning higher weights to larger monasteries with more monks and nuns.

The instrument is based on two characteristics of the evolution of the Church network in Russia. First, as Figure 1 shows, the variation in the national density of orthodox organisations is not driven by business or political cycles, and there is a heterogeneity in the response of regional church networks (variable  $Orthodox\_Density_{jt}$  in the baseline specification (1)) to the country-wide shock.

Second, historical weights defined by the 1908 density of monks and nuns could be considered plausibly exogenous to contemporary individual political preferences and regional characteristics. This is due to the Russian Revolution and more than 70 years of the Soviet Union, which completely reshaped Russia by changing regional borders, making people to move around the country and unifying the society both economically and culturally. One of the main objectives of the Soviet government was rapid industrialization. This began with the development of domestic natural resources which were mainly located in remote and underdeveloped regions in Siberia, the North,

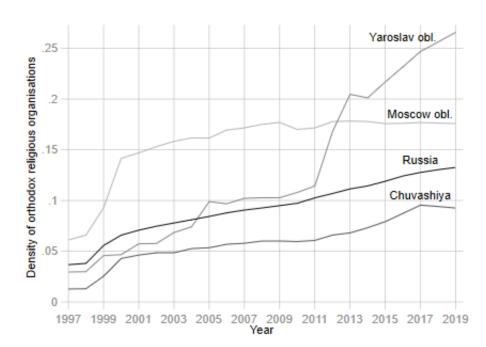


Figure 1: Density of orthodox religious organisations

Note: The graph presents time trends in the density of orthodox religious organisations in Russia and three Russian regions.

the Far East, and Central Asia. The construction of new plants, hydroelectric stations, road network, and cities near these natural resources fields required substantial human resources, which in the Russian Empire were mainly concentrated in the Western part of the country. Therefore, the Soviet government conducted a massive campaign to increase voluntary migration to the East, and established a system of forced-labor camps, the GULAG. There was also a system of forced settlements built for various deported categories of population ("anti-Soviet" citizens, including some entire nationalities) and migrants who were supposed to fill ethnically cleansed territories.

Table B2 in Appendix B presents the results of simple cross-sectional regressions of regional characteristics in 1990 on the density of orthodox monks and nuns in 1908 without (column (1)) and with (column (2)) economic district<sup>6</sup> fixed effects. It shows that, after controlling for district fixed effects, the socio-economic state of Russian regions in the last year before the collapse of the Soviet Union was mostly independent from the spatial distribution of monasteries in the Russian Empire.

<sup>&</sup>lt;sup>6</sup>In some exercises in the main analysis, I use federal unit fixed effects. However, the division by federal unit was only introduced in 2000. Therefore, in the models in Table B2, Appendix B, I turn to the Soviet Union division by economic district. The composition of these economic districts is similar to that of contemporary federal units.

# 5 Results

#### 5.1 Main Effects

Table 1 presents the results of OLS (columns (1)-(3)) and 2SLS (column (4)) analyses. They suggest that the denser Orthodox Church network increases the approval rating of the president. This effect is significant and holds across different specifications In the first stage of 2SLS, the cluster-robust Kleibergen-Paap F statistic is above 10. Nevertheless, I also report weak-instrument-robust Anderson-Rubin 90% confidence interval for the effect of the Orthodox Church network, which shows that the estimate is significant.

Table 1: The density of orthodox religious organizations and approval of president

	Approval of president			
	$\begin{array}{c} (1) \\ \text{OLS} \end{array}$	(2) OLS	(3) OLS	(4) 2SLS
Orthodox density	0.599*** (0.218)	$0.593^{***}$ $(0.216)$	0.568*** (0.208)	0.840** (0.341)
Individual controls Regional controls Region FEs	(0.210) ✓	<ul><li>(0.210)</li><li>✓</li></ul>	√ √ √	(0.011) ✓ ✓
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
1st stage coef.				$0.809^{***}$ $(0.242)$
$R^2$	0.276	0.281	0.281	
Kleibergen-Paap F				11.168
Anderson-Rubin 90% CI				[0.306, 1.543]
N	35395	35341	35341	35341

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

*Note*: Columns (1)-(3) present the results of OLS analysis. Column (4) shows the results of 2SLS analysis (specification (1)). Standard errors in parentheses are clustered by region.

To investigate whether there is a similar effect for other branches and levels of authority, I use the approval of regional governor (gubernator), Government, and Duma as dependent variables. Table B3 in Appendix B shows that the only significant estimate is for the approval rating of the Duma. Note, however, that the sample with responses to question about the Duma is much shorter, starting only in 2011.

Two other measures that are also used to define political popularity are trust and readiness to vote for the government candidate in presidential elections (ruling party in Duma elections). In contrast to approving of the president, I do not find any effect of the Church network on trust: the coefficient is unexpectedly negative and insignificant (column (1) in Table B4, Appendix B). This could be explained by several factors. As

noted in 2020 by Lev Gudkov, sociologist and the director of Levada Center, approval is a respondent's evaluation of a politician's plans and promises, his or her political line, especially in the area of foreign policy and protection of the country from external "enemies" such as Western culture. In contrast, trust is more about whether respondents perceive the politician as telling the truth (about the situation in the country, about his or her income and taxes paid, etc.) and being able to implement what s/he promised, especially in terms of domestic policies (Lipskiy 2020). This can be more easily influenced by state propaganda potentially also transmitted by the Church. Another factor that might affect the results is a difference in the types of questions used to measure trust and approval. An open-ended question is used to measure trust: the respondent needs to remember and name 5-6 politicians s/he trusts. For approval, the respondent is asked directly whether s/he approves of the actions of the current president (with the name of the current president closing the question).

Table B4 in Appendix B presents the results for electoral preferences. The estimates of the effect of the Church network on readiness to vote for the government candidate (columns (2)) or ruling party (column (3)) are also imprecise, but are in the same direction as approval and are of similar magnitude. When I turn to the analysis with the actual election results by regions instead of individual electoral preferences, I find support only for the insight on the government candidate and not on the ruling party (Appendix B, Table B5). Column (1) shows the positive (but still insignificant) estimate of the Church effect on the share of votes in presidential elections, which becomes significant when I interact orthodox density with year dummies (column(4)).

Of the 1997-2019 period studied in this paper, Putin was president for almost 16 years. This raises two questions: (i) could the estimated effect on approval be fully attributed to Putin himself? and (ii) will the effect on trust and electoral preferences become significant if I define these two measures of political popularity specifically for Putin?. Table B6 in the Appendix B shows that the estimate for the effect of church networks on approval ratings during Medvedev's presidency is actually slightly higher than during Putin's presidency (column (1)). These effects for Putin and Medvedev are not statistically significantly different, though. Columns (2) and (3) present insignificant estimates for the effect of the Church network on trust in and readiness to vote for Putin.

#### 5.2 Robustness

To ensure that the results obtained for the approval rating of the current president can be interpreted as causal, I redo the analysis modifying the baseline specification as described further in this section and present the estimates in Appendix B, Table B7.

First, there could be a concern that the results are driven by differential region-level dynamics that could be correlated with my instrument. Year x region fixed effects would help to control for this dynamics; however, since my variable of interest and my IV are measured at the regional level, a specification with these interacted fixed effects is too demanding. Therefore, I include region fixed effects and allow time fixed effects to vary by federal unit<sup>7</sup>. The estimate is presented in column (1). Even after partialing out the significant part of the variation in the density of orthodox religious organizations, the Orthodox Church network remains an important determinant of the approval of the president.

I also check whether my results are robust to an alternative assumption about the correlation between the error terms. For that, I apply my baseline specification (1) with clustering standard errors by year x federal unit, in addition to region. Column (2) shows that standard errors in this case are just slightly higher than the baseline estimate and the coefficient remains significant at the 5% level.

In column (3), I check whether the results hold if I control for the larger federal units instead of small regions as I did in the analysis of the correlations between the historical density of monks and nuns and socio-economic characteristics of Russian regions in Table B2, Appendix B. The coefficient is of lower magnitude, but remains positive and significant.

Column (4) presents evidence that my results are not driven by Moscow and St.Petersburg. The Point estimate is close to the baseline one even after dropping these two administrative units. Its significance decreases slightly, but this could be due to the substantial reduction of the sample.

#### 5.3 Mechanisms

In line with insights from the theoretical paper by Murphy and Shleifer (2004), the Orthodox Church in Russia can be considered a network initially organized around religious beliefs, which later became prone to being "rented out" by its leaders to politicians seeking support in exchange for resources. The amount of such resources received by the ROC from the state has been constantly growing over the past two decades, and includes both financial support and fiscal subsidies, and also laws, policies, and political privileges, which have advantaged the ROC over other religious institutions (Rosenthal 2019)<sup>8</sup>. In exchange for these resources, the ROC provides support to the state by both directly promoting the secular authority and by disseminating ideas transmitted by the secular authority and appealing to the general public.

<sup>&</sup>lt;sup>7</sup>The division by federal unit was introduced in 2000 and was similar to the established Soviet Union division by economic districts. Since their introduction, these federal units have undergone changes in the total number of units (from 7 to 8) and their composition. For consistency, I use federal districts as introduced in 2000 for the 1997-1999 period.

<sup>&</sup>lt;sup>8</sup>Rosenthal (2019) collects data on instances of preferential institutional, fiscal and political state support of the ROC and constructs a composite index of this support, which was increasing over the period studied in the paper (2002-2018).

This relationship between the Orthodox Church and the state was relatively stable until 2014, when Crimea was annexed and war in Ukraine began. The actions of the Russian authority were not officially supported by patriarch Kirill, because approving the annexation would mean that the Church borders would coincide with the state borders. In this case, the ROC would gain the Crimean section of the Ukrainian Orthodox Church, but lose the control over other orthodox parishes in Ukraine (Gorevoy 2019; Financial Times 2019). This geopolitical misalignment could disrupt the Church channel used for persuasion and to attract the support of the general public. To investigate this, I run an IV analysis (specification (1)) interacting  $Orthodox\_Density_{jt}$  with period dummies for years in 1997-2013, 2014-2015 and 2016-2019 intervals. The interactions are instrumented with my instrument interacted with the same set of dummies. I focus on the 2014-2015 period because the approval rating of president Putin spiked significantly in 2014, after the annexation of Crimea; however, the euphoria lasted only for approximately two years (Appendix A, Figure A1).

Table 2 presents the results of the estimation. They suggest that in 2014 and 2015, the Orthodox Church played a lesser role in managing the approval rating of the president than it did before and after the "Crimea effect" (column (1)). The insignificant estimates of the impact of the Church network during that period are obtained for all respondents living either in rural or urban area of the region (column (2)). However, this disappearance of the church effect during the 2014-2015 period is mainly driven by more urbanized regions, where at least 50% of the population lives in an urban area (column (3)). In these regions, people may have been exposed to a greater amount of information from various sources, which made them more aware of patriarch Kirill's position regarding Crimea annexation and potentially disrupted the Church channel.

When the Church channel is not disrupted, there are at least two ways statesupporting ideas can be spread by the Church. First, through local communities of believers, especially those who visit a church on regular basis. Second, the denser Church network attracts more resources, which allows it to transmit the ROC's support of the state and the state's ideas outside the church and beyond the community of believers. The latter may occur, for example, via clerics who speak on the radio and TV, give interviews for newspapers, and actively post on the Internet.

To explore these mechanisms, firstly, I check whether the wider Church network is able to effectively increase the numbers of those who self-identify as orthodox. Columns (1) in Table 3 present the results of IV estimation with a dummy for orthodox respondents as the dependent variable, which suggest that the network of orthodox churches does not affect self-identification. Moreover, column (2) shows that the impact of the ROC on the approval of the president is above and beyond its expected effect on self-identification. Even after controlling for being orthodox, the effect of the church network on the

Table 2: The annexation of Crimea and impact of church network on approval of president

	Approval of president				
	$(1) \qquad (2) \qquad (3)$				
	· /	Rural/urban individual	` '		
Orthodox density, 1997-2013:	1.058**		·		
	(0.448)				
rural		1.083**	1.214**		
		(0.481)	(0.482)		
urban		1.049**	1.095**		
		(0.447)	(0.452)		
Orthodox density, 2014-2015:	0.669	, ,	, ,		
	(0.439)				
rural	, ,	0.671	0.943**		
		(0.481)	(0.455)		
urban		0.668	0.540		
		(0.434)	(0.454)		
Orthodox density, 2016-2019:	1.008***	,	,		
•	(0.342)				
rural	, ,	1.044***	1.168***		
		(0.382)	(0.366)		
urban		0.997***	1.013***		
		(0.337)	(0.346)		
Individual controls	$\checkmark$	$\checkmark$	$\checkmark$		
Regional controls	$\checkmark$	$\checkmark$	$\checkmark$		
Region FEs	$\checkmark$	$\checkmark$	$\checkmark$		
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$		
Kleibergen-Paap F	2.563	1.280	1.361		
N	35341	35341	35341		

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Note: The table presents the results of the 2SLS analysis where the density of churches is interacted with period dummies. Model in column (2) distinguishes between respondents living in rural and urban part of the region, model in column (3) - between respondents living in more rural and more urban regions. Standard errors in parentheses are clustered by region.

presidential approval is positive and still significant at 10% level. In addition, in rural areas, this effect is of the same magnitude for both orthodox respondents and all other respondents, and almost three times greater than the one for orthodox individuals in urban area (columns (3)-(6)).

This may be partially attributal to the fact that, for many people in Russia who self-identify as orthodox, Orthodoxy is an expression of Russianness which has little to do with actual faith and religious practice. According to the Levada Center (Appendix A, Figure A2), the share of "orthodox" Russians rose from 31% in 1991 to 77% in 2019. However, at the same time, not all of them choose "I believe in the existence of God without any doubts" when asked about their faith, and only 10-15% of respondents claim

Table 3: Personal religious beliefs and approval of president

	Orth. believer		Approval of president			
	(1)	(2)	(3)	(4)	(5)	(6)
	. ,	. ,	Ru		Urban	
			Orth. believers	Others	Orth. believers	Others
Orthodox density	-0.770	2.086*	6.012*	6.558**	1.969*	-3.273
	(1.878)	(1.084)	(3.534)	(2.646)	(1.090)	(2.157)
Orthodox believer		0.072***				
		(0.016)				
Other believer		0.039*				
		(0.022)				
Individual controls	✓	✓	✓	✓	$\checkmark$	$\checkmark$
Regional controls	$\checkmark$	✓	$\checkmark$	$\checkmark$	$\checkmark$	✓
Region FEs	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Kleibergen-Paap F	20.728	20.663	11.784	17.739	18.671	15.868
Anderson-Rubin 90% CI	[-3.707, 2.476]	[0.390, 3.961]	[1.100, 14.391]	[2.894, 11.946]	[0.266, 4.031]	[-8.051,-0.265
N	8531	8422	1485	755	4544	1634

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Note: The table presents the results of 2SLS analysis with the dummy for orthodox believers (column (1)) and the approval of the current president (columns (2)-(6)) as a dependent variable. In all columns, Anderson-Rubin 90% CI is constructed for the instrumented variable of interest - the density of Orthodox religious organizations. Columns (1) and (2) report estimates for the full sample in rounds, when the religion related question was asked. Columns (3)-(6) report estimates for the subsamples of orthodox believers and other respondents in rural and urban areas. Standard errors in parentheses are clustered by region.

that they attend church once a month or more often. While being unable to attract "churched" believers or even significantly increase the number of those who only self-identify as orthodox, the ROC takes an important part in strengthening the political preferences for the government candidate in these "orthodox" citizens.

Another channel for transmitting ROC's support of the state, which could be more relevant in this context than direct exposure at church, is that the denser Church network may be a source of more people and tools to spread ideas appealing to the general public outside the church. To study this aspect, first of all, I check whether the denser Church network increases the number of mentions of "orthodox church" and "traditional values" in various media outlets. These "values" have been used in state propaganda since 2012, mainly to promote traditional families and oppose same-sex marriage. Since then, this concept has been heavily exploited by Russian authorities to gain the support of conservative citizens, and the Orthodox Church has played a significant role in spreading these ideas. I run the baseline IV specification at the regional level for total number of mentions and for the total number of mentions in regional sources separately<sup>9</sup>. To control for the difference in media coverage between regions and over time, I add the first principal component of the shares of population who have an access to analog and digital

<sup>&</sup>lt;sup>9</sup>Following Belmonte and Rochlitz (2019), I divide all numbers of mentions by the total number of weather reports to account for the differences in salience of a particular topic studied in the media by region and year.

TV, and the number of published newspapers per capita. Next, I investigate whether controlling for this specific media presence of Church in the main model disturbs the effect of the Church network on the approval of the president established in Table 1.

The results of the analysis are presented in Table 4. Columns (1) and (2) suggest that the denser church network increases the propaganda on Internet and federal TV channels, radio stations, and in newspapers. This is an expected effect, because the ROC receives financial support primarily from the federal budget, and Internet, if available, is a more easily reachable platform for newly established religious organizations than regional media outlets. At the same time, as column (3) presents, promoting traditional family values on Internet and federal outlets does not affect the approval of the president. This result suggests that social propaganda in media is not the channel through which the Church influences political preferences. Meanwhile, column (4) shows that regional media sources are able to shift the approval rating. However, this channel is apparently not exploited by the Church.

Table 4: The density of orthodox religious organizations and media

	Mentions, scaled		Approval	of president
	(1)	(2)	(3)	(4)
	total	regional	with total mentions	with regional mentions
Orthodox density	6.546*	-0.207	0.875**	0.874**
	(3.289)	(0.258)	(0.336)	(0.336)
Total mentions, scl			-0.0005	
			(0.001)	
Regional mentions, scl			, ,	$0.006^{**}$
				(0.003)
Media coverage	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Individual controls			$\checkmark$	$\checkmark$
Regional controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Region FEs	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Kleibergen-Paap F	30.617	30.617	11.456	11.415
Anderson-Rubin 90% CI	[1.424, 12.207]	[-0.694, 0.153]	[0.349, 1.567]	[0.348, 1.566]
N	1820	1820	35334	35334

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Note: The table presents the results of 2SLS analysis with the scaled number of mentions (columns (1) and (2)) and the dummy for the approval of the president (columns (3) and (4)) as a dependent variable. All models include the regional media coverage index in addition to the baseline controls. Standard errors in parentheses are clustered by region.

# 6 Conclusion

This paper studies the influence of the Orthodox Church network in Post-Soviet Russia (measured by the regional density of orthodox organizations) on individual political

preferences and election results in 1997-2019. I apply an IV strategy, constructing a Bartik-style instrument. The instrument captures the overall presence of the Russian Orthodox Church in the country in a given year, but this presence is assumed to have a greater impact in regions with more historical religious markers (the orthodox monasteries operated in the Russian Empire before the Revolution).

I find that a denser Orthodox Church network does increase the average local approval rating of the current president and the shares of votes for the government candidate in presidential elections. At the same time, there is no evidence of any effect of the Church on trust in president or on the political popularity of other branches and levels of the government (regional governor, ruling party, Government, and Duma).

Further analysis of potential mechanisms behind these results suggests that the Church today is struggling to increase the numbers of "true" believers who genuinely subscribe to its tenets. Instead, it more effectively plays a nation-building role: the ROC attracts the attention of those who, regardless of their faith in God, self-identify as orthodox, because Orthodoxy is strongly associated in their minds with being Russian. The majority of these people approve of the ruling leader's actions, and the Church plays an important role in strengthening their political preferences for the Government's preferred candidate. Since only a small share of the population regularly attends church and is exposed to the propaganda on site, the ROC needs to find other channels for persuading. One such channel could be media appearances by church officials, but I do not find sufficient evidence of this in my study that leaves a room for further investigation along these lines.

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# A Appendix: Supplemental Figures

Figure A1: Approval of the current president

*Note*: The graph shows the average approval rating of the current president by year. The first significant shift in the approval in 2002 is associated with Putin being elected president for the first time, and the second, in 2014, is linked to the annexation of Crimea.

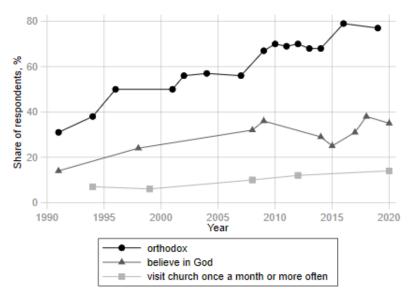


Figure A2: The shares of orthodox Russians, believers, and "churched" believers

*Note*: The graph shows the average shares of those who self-identify as orthodox, believe in God, and visit church once a month or more often. It uses aggregated data from an annual report by the Levada Center (Zorkaya, Gudkov, and Mihaleva 2021).

# B Appendix: Supplemental Tables

Table B1: Summary statistics

	Mean	SD	N	Years
Regional variables:	1,100,11	~2		10015
Density of orthodox org.	0.104	0.077	1840	1997-2019
Density of muslim org.	0.019	0.047	1840	1997-2019
Density of other relig. org.	0.056	0.046	1840	1997-2019
Density of 1908's monasteries	0.007	0.008	1840	1997-2019
Density of 1908's monks and nuns	0.545	0.610	1840	1997-2019
Log of real GDP	16.078	1.290	1830	1997-2019
Unemployment rate	9.122	6.429	1831	1997-2019
Population, thed	1800.763	1675.160	1840	1997-2019
Share of votes for gov. candidate	0.671	0.118	400	2000, 2004, 2008, 2012,
8	0.0, -	0.220		2018
Share of votes for ruling party	0.512	0.164	319	2003, 2007, 2011, 2016
Share of votes, combined	0.601	0.161	719	2000, 2003, 2004, 2007,
				2008, 2011, 2012, 2016,
				2018
Mentions in reg. sources, scl	0.058	0.307	1840	1997-2019
Total mentions, scl	12.740	13.423	1840	1997-2019
Media coverage index	-0.000	1.071	1829	1997-2019
_				
Individual variables:				
Approval of president	0.705	0.456	35395	1997-2019
Approval of gubernator	0.595	0.491	28666	2000-2016, 2018, 2019
Approval of Government	0.493	0.500	30054	1999-2016, 2018, 2019
Approval of Duma	0.420	0.494	12556	2011-2016, 2018, 2019
Trust in president	0.565	0.496	23177	2000-2016
Vote for gov. candidate	0.492	0.500	19008	1997, 1999-2003,
				2005-2007, 2009-2012,
				2014, 2017, 2019
Vote for ruling party	0.454	0.498	15545	2002-2007, 2010-2012,
				2014, 2017, 2019
Trust in Putin	0.595	0.491	23177	2000-2016
Vote for Putin	0.596	0.491	16679	1999-2003, 2005, 2006,
				2009-2012, 2014, 2017,
				2019
Female	0.547	0.498	36332	1997-2019
Age	44.814	16.809	36332	1997-2019
Higher education	0.226	0.418	36332	1997-2019
Employed	0.589	0.492	36276	1997-2019
Rural	0.249	0.433	36332	1997-2019
Orthodox	0.718	0.450	8542	2003, 2007, 2012, 2013,
				2015, 2018
Other denominations	0.152	0.359	8542	2003, 2007, 2012, 2013,
				2015, 2018

Table B2: Correlations between monks and monasteries in 1908 and regions' characteristics in 1990

	Monk de	ensity
	(1)	(2)
	without district FEs	with district FEs
Fixed capital investments, pc	-322.014**	-101.941
	(135.847)	(109.318)
Income, pc	-0.025***	-0.017
	(0.009)	(0.011)
Employment rate	-4.010	-1.713
	(3.744)	(1.693)
Housing, sq.m pc	1.727***	0.542
	(0.331)	(0.375)
Urban population	-0.013	-0.064*
	(0.021)	(0.034)
Paved roads, km per sq.km	3.935	2.633
	(2.502)	(3.035)
Elderly population	5.275***	1.755**
	(0.874)	(0.750)
Women	$1.566^{***}$	0.368
	(0.257)	(0.222)
Birth rate	-2.171***	-0.374
	(0.512)	(0.542)
Life expectancy, years	$0.606^{**}$	0.040
	(0.248)	(0.220)
Students, pc	-6.101	-32.548
	(12.610)	(34.323)
Museum visits, pc	156.739	-372.635
	(135.690)	(348.994)
Theatre visits, pc	-34.835	-126.432*
	(24.612)	(64.109)
Published newspapers, pc	-4.2e+04	-2.1e+05
	(3.6e+04)	(2.1e+05)
Marriage rate	-0.533***	-0.239
	(0.127)	(0.161)
Divorce rate	-0.490***	-0.297
	(0.181)	(0.184)
Crime rate	-198.238***	49.023
	(65.033)	(69.570)
P-value of the joint significance test	0.000	0.143

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Note: All coefficients are from simple cross-sectional regressions of regions' characteristics on the density of monks and nuns. Model in column (2) also includes economic district fixed effects. Robust standard errors are in parentheses. P-values in the last row are calculated within the F-test of joint significance of factors in the regressions of monks and nuns density on all regional characteristics.

Table B3: The density of orthodox religious organizations and approval of regional governor (gubernator), Government and Duma

	Approval of gubernator	Approval of Government	Approval of Duma
	(1)	(2)	(3)
Orthodox density	1.941	0.115	4.839*
	(1.559)	(0.692)	(2.779)
Individual controls	$\checkmark$	$\checkmark$	$\checkmark$
Regional controls	✓	$\checkmark$	$\checkmark$
Region FEs	✓	$\checkmark$	$\checkmark$
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$
Kleibergen-Paap F	20.091	18.628	9.893
Anderson-Rubin 90% CI	[-0.244, 4.897]	[-1.083, 1.312]	[1.407, 12.389]
N	28612	30001	12556

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

*Note*: The table presents the results of 2SLS analysis of the effect of orthodox density on approval rating of gubernator (regional governor, column (1)), Government (column (2)) and Duma (column (3)). Standard errors in parentheses are clustered by region.

Table B4: The density of orthodox religious organizations, trust in president and electoral preferences

	Trust in president	Vote for gov. candidate	Vote for ruling party
	(1)	(2)	(3)
Orthodox density	-0.612	0.514	0.735
	(1.563)	(0.651)	(1.126)
Individual controls	$\checkmark$	$\checkmark$	$\checkmark$
Regional controls	$\checkmark$	$\checkmark$	$\checkmark$
Region FEs	$\checkmark$	$\checkmark$	$\checkmark$
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$
Kleibergen-Paap F	15.642	10.662	21.015
Anderson-Rubin 90% CI	[-3.572, 1.8322]	[-0.3392, 1.658]	[-0.842, 2.868]
N	23128	17062	15505

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Note: The table presents the results of 2SLS analysis of the effect of orthodox density on trust in the current president (column (1)), readiness to vote for the government candidate in presidential elections (column (2)) or ruling party in Duma elections (column (3)). Standard errors in parentheses are clustered by region.

Table B5: The density of orthodox religious organizations and election results

	Shares of votes				
	(1)	(2)	(3)	(4)	
	for gov. candidate	for ruling party	combined	combined	
Orthodox density:	0.090	-0.295	-0.091		
	(0.353)	(0.678)	(0.394)		
2000, presidential election				$0.926^{*}$	
				(0.540)	
2003, Duma election				0.608*	
				(0.343)	
2004, presidential election				0.444	
				(0.366)	
2007, Duma election				0.410	
				(0.288)	
2008, presidential election				0.585**	
_				(0.288)	
2011, Duma election				0.236	
				(0.301)	
2012, presidential election				0.395	
2010 D				(0.268)	
2016, Duma election				0.320	
				(0.317)	
2018, presidential election				0.600**	
				(0.286)	
Regional controls	$\checkmark$	✓	$\checkmark$	$\checkmark$	
Region FEs	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
Kleibergen-Paap F	26.781	20.588	24.935	8.474	
Anderson-Rubin 90% CI	[-0.516, 0.638]	[-1.459, 0.869]	[-0.834, 0.522]		
N	398	318	716	716	

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Note: The table presents the results of 2SLS analysis. Presidential elections (in 2000, 2004, 2008, 2012, 2018) are covered in column (1), Duma elections (in 2003, 2007, 2011, 2016) - in column (2). The dependent variable in columns (3) and (4) is pooled shares of votes for government candidate or ruling party. Model in column (4) interacts orthodox density with the dummy for each year and instruments these interactions with interactions of the instrument with the same dummies. Standard errors in parentheses are clustered by region.

Table B6: The density of orthodox religious organizations and Putin's personality

	Approval of president	Trust in Putin	Vote for Putin
	(1)	(2)	(3)
	(1)	( )	
Orthodox density:		-0.675	0.803
		(1.555)	(0.702)
Yeltsin period	1.776		
	(1.100)		
Putin period	1.093**		
	(0.511)		
Medvedev period	$1.419^{**}$		
	(0.545)		
Individual controls	$\checkmark$	✓	$\checkmark$
Regional controls	$\checkmark$	$\checkmark$	$\checkmark$
Region FEs	$\checkmark$	$\checkmark$	$\checkmark$
Year FEs	$\checkmark$	$\checkmark$	$\checkmark$
Kleibergen-Paap F	6.290	15.642	19.863
Anderson-Rubin 90% CI		[-3.363, 1.757]	[-0.180, 2.133]
N	35341	23128	16651

Standard errors in parentheses

Note: The table presents the results of 2SLS analysis of the effect of orthodox density on the approval rating of the current president (column (1)), trust in Putin (column (2)) and readiness to vote for Putin (column (3)). Model in column (1) interacts orthodox density with the period dummy for the presidency of Yeltsin (1997-1999), Putin (2000-2003, 2008-2019), Medvedev (2004-2007), and instruments these interactions with interactions of the instrument with the same dummies. Standard errors in parentheses are clustered by region.

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Table B7: Robustness checks

	Approval of president					
	(1)	(2)	(3)	(4)		
	year x fed. unit	clusters by	fed. unit FEs,	without Moscow,		
	FEs	year x fed. unit	robust s.e.	St.Petersburg		
Orthodox density	1.301***	0.840**	0.247***	0.690*		
	(0.399)	(0.385)	(0.091)	(0.397)		
Individual controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		
Regional controls	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$		
Region FEs	$\checkmark$	$\checkmark$		$\checkmark$		
Year FEs		$\checkmark$	$\checkmark$	$\checkmark$		
Fed. unit FEs			$\checkmark$			
Year x Fed. unit FEs	$\checkmark$					
Kleibergen-Paap F	5.234	10.562	8534.105	9.679		
Anderson-Rubin 90% CI	[0.808, 2.843]	[0.237, 1.634]	[0.104, 0.390]	[0.069, 1.507]		
N	35341	35341	31498	35341		

<sup>\*</sup> p < 0.10, \*\* p < 0.05, \*\*\* p < 0.01

Note: The table presents the results of 2SLS analysis with various modifications of the baseline specification (1): column (1) - year x federal unit fixed effects are instead of year fixed effects; column (2) - standard errors are clustered by year x federal unit in addition to region; column (3) - federal unit FEs are instead of region FEs, standard errors are robust; column (3) - Moscow and St.Petersburg are dropped. Standard errors in parentheses are clustered by region in columns (1), (4) and by regions and year x federal unit - in column (2).