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Church Attendance and Voluntary Engagement: The Anatomy of a Causal Mechanism †

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— PRELIMINARY DRAFT —

Abstract

Recent years have seen an increased interest in the role of voluntary engagement for the workings of democracy and the social integration of modern societies. Furthermore, much research suggests that next to education, religious involvement is the most powerful predictor for active engagement in voluntary organizations on the individual level. Although this finding is well established in the empirical literature, the exact causal relationship between religious involvement and voluntary engagement is far from clear. Norris and Inglehart (2004: 194) for instance state that "the reverse causal process could equally well be at work". Therefore, the aim of our paper is to resolve the debate on the causal mechanism, relying on the high quality panel data of the GSOEP. Results show that there is indeed a link between individual church attendance and voluntary work that cannot be attributed to third factors. Concerning the causal direction we find a reciprocal relationship. However, the effect of religious involvement on voluntary engagement is larger than vice versa.

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†The data used in this publication were made available to us by the German Socio-Economic Panel Study (SOEP) at the German Institute for Economic Research (DIW), Berlin. For more information visit: http://www.diw.de/deutsch/soep/26628.html

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Introduction

Recent years have seen an increased interest in the role of voluntary engagement for the workings of democracy and the social integration of modern societies. Thereby, much research suggests that next to education, religious involvement is the most powerful predictor for active engagement in voluntary organizations on the individual level. Religious people simply are more active and civically engaged. Although this finding is well established in the empirical literature, the exact causal relationship between religious involvement and voluntary engagement is far from clear. While theory suggests that people that attend religious services on a regular basis acquire important civic skills and are integrated in social networks that will eventually lead to voluntary work, the idea of a unidirectional causal link from religion to volunteering was not left without critics.

In general two alternative specifications of the relationship are argued for. The first category stresses the importance of hidden third factors which cause volunteering and attending religious service to be connected. So, when estimating the effect of attending religious service on volunteering the estimates are biased by unobserved heterogeneity or endogeneity. Another category of counter argumentations does not deny the existence of the relationship but questions the actually size of the effect and its direction. They state that the correlation one can observed between attending religious service and volunteering is either due to a reversed causal process – from volunteering to attending religious service or is caused by simultaneous effects in both directions.

Therefore, the aim of our paper is to empirically scrutinize the relationship between church attendance and voluntary work to resolve the debate on the causal mechanism. Does church attendance indeed lead to voluntary engagement as much of the literature suggests? Or is it just spurious, reciprocal, or the other way around? To disentangle the causal mechanism behind the observable link we make use of the properties of two types of statistical models, fixed effects and cross-lagged structural equation models. Of course these models cannot be estimated on cross-sectional data but rather require analyses of panel data. Therefore we rely on the high quality panel data from the German Socio-Economic Panel (GSOEP). The GSOEP provides information on both religious indicators and civil engagement for a high number of persons and a large number of waves.

The structure of the paper then is as follows. In the next section we lay our theoretical basement, explaining in-depth how religious social capital – acquired by attending religious services and therewiht being integrated in religious community – is thought to enhance social engagement namely doing voluntary work. After presenting the coun-

terarguments we then proceed with presenting our data and methods. In the results section then we provide evidence to evaluate our conception as well as the counterarguments. In the end we summarize the findings of our article in a short conclusion section.

Theory

The widely accepted knowledge that religion and religious actors play a crucial role in Amercian civil society can be traced back to the days of Tocqueville ([1862] 1954). More recently, Putnam (2000: 66) noted that "nearly half of all associational memberships in America are church related, half of all personal philanthropy is religious in character, and half of all volunteering occurs in a religious context." Indeed, the finding that religiosity and church attendance in particular is an important predictor for civic engagement and voluntary work is by now a well established fact in the literature (e.g. Campbell and Yonish 2003, Bekkers 2005, Borgonovi 2008). This positive association between church attendance and volunteering is by no means restricted to the American case as studies for Germany show. Rosenbladt (2000:61), for instance, reports that while only 8% of the group of 'not volunteering at all' have a strong church commitment, this proportion raises to 28% in the group of the 'most volunteering'. Gensicke (2006:76), in his follow up study, identifies church commitment as the second strongest effect on volunteering. More recently, Traunmüller (2009), also found regular attendance of religious services to increase the individual probability to engage in voluntary work.

The main theoretical argument for this relationship follows the ideas of Verba et al. (1995) who basically state that for volunteering and for participation, in whatever sector – social or political, generally three factors are required: *motivation*, *opportunity* and *resources*. The importance of these factors may differ depending on what level, type, particular person or organization is studied, but nevertheless all are necessary factors for individuals to become participants or volunteers.

Belonging to a religious group and especially being regularly present at religious services provides and enhances these factors. *Motivation* for example might be fostered in three ways. First, religion itself provides norms encouraging good deeds like helping the poor and so on. Second, religious services, especially the priest's sermons, reinforce these norms by preaching, repeating, and explaining its contents. Third, social pressure imposed by and on members of the community further motivates religious community members to behave in a norm conforming way which then eventually leads to voluntary work.

But church attendance and religious denomination can also build up *opportunity* to volunteer. Christian and Muslim churches usually provide a wide scope of social services. They run social organizations, hospitals, do poor feeding and are concerned with community and social issues in general. These already built up structures offer an easy way to participate and volunteer in different fields and organizations. So, if members of a religious community are motivated to volunteer they probably will do so because it is just easy for them having a lot of opportunities at hand provided by their community.

Concerning a individual's *resources* it is argued that religious factors contribute to resources of its members – especially civic skills – as well. Empirical studies find that religious communities actively help structural disadvantaged – from less educated and less rich background – to improve civic skills (see Brown and Brown 2003). Another source of civic skill improvement might be the easy access to volunteering itself – described in the above section. For a lot of voluntary work one needs at least some civic skills – organizational skills, the ability to be responsible, and e.g. some self-esteem and so on. Being integrated in a religious community can provide these features – besides directly training them – by volunteering step by step, from less to more demanding volunteer's responsibilities. Thereby further fostering volunteering and providing necessary skills to otherwise not recruited ones. This becomes even more evident if one considers that religious services are open to and practiced by a whole range of people from very different socio-economic backgrounds and from very young aged up to very old. This setting then results in both an early learning of the required skills by doing voluntary work itself and in addition to a strong socialization into volunteering.

Although theory provides several paths in which religion and being member of a religious community leads to volunteering and empirical findings seem to point in one direction the idea of a causal link from religion volunteering was not left without critics. Two alternative explanations of the empirical found correlation are mentioned in literature – endogeneity and reciprocity or in a extreme interpretation reversed causality. Endogeneity is produced by unobserved third factors causing both factors, reciprocity by the dependent variable having also an effect on the independent one. Oesterle, Johnson and Mortimer (2004) stress the endogeneity problem. Thy state that the motivation to volunteering is set up in earlier stages of the life course. Norris and Inglehart (2004:192, 194) instead argue for both a possible reversed or a endogenous relationship by stating: "people [...] in church-related organizations [...] learn to become more engaged in the social concerns [...] But the reverse causal process could equally well be at work - with people who are socially trusting 'joiners' being most likely to engage in civic activity and to belong to religious associations". A third possible mechanism, also stressing endogeneity, is provided by McIntosh et al. (2002) as well as by Stark and Finke (2000: 118ff) who explain attendance of religious services by the structure and influence of ones

social networks. Therewith the gap between the empirical fact that religious people are more volunteering and different theoretical interpretations of why they do so demands further investigating. We will provide this necessary analysis in a more and sufficient depth.

If our conception of the underlying mechanism and processes is right and the critics are to be rejected, we should be able to observe two things. (1) When controlling for unobserved heterogeneity the effect of attending religious service on volunteering does not vanish. (2) When estimating a model allowing effects to go simultaneously in both directions, there should be no effect to be found going in the other direction – from volunteering to attending religious service. For finding the first evidence we will make use of the properties of fixed effects models, for the second one we will build up a cross lagged structural equation model.

Data and Method

Still, in the field of social capital literature, cross sectional data is usually used to study the relationships researchers are interested in. To tackle our research question – to shed light on the causal mechanism linking our meassures – and being confronted with some methodological demanding critiques we have to base our research on panel data. So, as data source we rely on the high quality panel data of the German Socio-Economic Panel (GSOEP). The GSOEP asks a wide range of questions every wave and is one of the largest panels worldwide. Information on volunteering was first collected in 1985, information on attending religious services since 1990. Information on volunteering and church attendance at the same time is provided in 9 of the SOEPS's waves, meaning that more than 150,000 person-years are available for analysis for our two most important variables. Its huge amount of information and its panel structure are surpassing for our analysis.

After introducing our data set we now introduce our measurements. Volunteering is understood as doing regularly voluntary unpaid work in associations, clubs, and so on. Religion as the main independent factor is considered to have two main dimensions important for analyzing. The first dimension is cultural and will be captured by a person's religious denomination. The second dimension, the structural one, focuses on a person's involvement in a religious community. It is assumed that the regular attendance at religious services proxies this dimension. Volunteering and attending religious service in the GSOEP are measured by the question: *"Which of the following activities do you take part in during your free time? Please check off how often you do each activity: at least once a week, at least once a month, less often, never."* – *"Volunteer work in clubs or social services"* – *"Attending church, religious events."* (in the 2005 questionnaire, e.g.,

to be found as question VP0307, VP0309, for example).

For our panel models to have straight forward interpretations of our most interesting variables at hand we choose to recode the four, sometimes five, answer categories into dichotomous values. '1' then denotes that the interviewed is doing regularly voluntary work, respectively is regularly attending religious services and '0' that volunteering or attendance is done sporadic or not at all. Besides giving a reasonably meaning to our variables, with this coding we do not have to argue whether or not our variables are 'quasi metric' so we may be allowed to use ordinary regression which than would be in fact a strong assumption but may be would lead to more efficient estimates and so forth. Nevertheless structural equation models are more data demanding which is why we had to choose another coding for volunteering and attending religious service for the analyses making use of them. Here, we choose to code both variables as frequencies. A value of '1' in volunteering now means that the interviewed did one day or a few more of volunteering in a annual period. A value of '52' then is assigned to somebody doing voluntary work once a week minimum or attends religious service minimum once a week, respectively.

Other measures might also influence the probability to volunteer and, if not accounted for, bias the estimation. Therefore we control for other possible factors by including several, usually used socioeconomic measures like education, income, age, and whether or not someone lived in GDR before 1989. For a list of variables used and a short description see table 1, for list of their statistics see table 2, below.

As mentioned before, we are confronted with two methodological problems when trying to answer our research questions. First, we have to sort out unobserved heterogeneity – second, we have to estimate a model allowing for the estimation of reciprocal effects simultaneously. Therefore two different estimation procedures are used. The fixed effects model is the tool at hand for the first problem (see Menard 2002, Halaby 2004, Finkel 2008, Greenberg 2008). Fixed Effects models, per definition, control for all time invariant factors by only incorporating time variant factors in the models. When we use them the model tells us which time variant factors cause a change in the dependent variable. Let us consider the cause of both volunteering and attending religious service to be rooted in childhood or adolescence. Then in cross sectional analysis, both would show a correlation which may look like a causal relationship. In this imaginary world it would not be the true because some childhood factors were responsible for their interrelatedness. Then imagine to apply a fixed effects model to the same relationship. The effect would vanish because the model is only concerned with temporal changes, not with general time invariant correlations due to other time invariant causes. So, if we observe an effect of attending religious service on volunteering in a fixed effects model we can be sure that unobserved time invariant factors are not the cause of that. Unobserved time

TABLE 1: Description of Variables Used – (1) Conception

Variable	Description
Volunteering (Panel)	regularly doing volunteers work, at least once a month, dichotomous
Volunteering (SEM)	frequency of doing voluntary work as days per year
Attending Religious Service (Panel)	regularly attending religious services, at least once in a month, dichotomous
Attending Religious Service (SEM)	frequency of attending religious service as days per year
Catholic	being catholic, dichotomous
Protestant	being protestant, dichotomous
Other Christian	being any other Christian, dichotomous
Other Religion	having a religious denomination but being not Christian, dichotomous
No Religion	being without any religion, dichotomous
Sex	sex, dichotomous, 1=male
Year of Birth	
Age	
Household Income	household income per month in Euro
Abitur	having ever got a German Abitur
East	having lived in GDR before 1989, dichotomous

variant factors still may bias our estimates but to our knowledge no such factor exists in literature and in addition we could not think about any time variant factor possibly causing both variables – otherwise we would have included it or them in our models. To have a more formal idea of the fixed effects model and how it is derived, a general panel model, a between model, and a fixed effects model are presented below. Note that the fixed effects model is derived from the general model by substraction of the between model.

General Panel Model:

$$Y_{it} = \alpha + \beta_1 * X_{1it} + \beta_2 * X_{2it} + \cdots + \beta_j * X_{jit} + u_i + \epsilon_{it}$$

Between Model:

$$\overline{Y}_i = \alpha + \beta_1 * \overline{X}_{1i} + \beta_2 * \overline{X}_{2i} + \cdots + \beta_j * \overline{X}_{ji} + \overline{\epsilon}_i$$

Fixed Effects Model:

$$Y_{it} - \overline{Y}_i = \beta_1(X_{1it} - \overline{X}_{1i}) + \beta_2(X_{2it} - \overline{X}_{2i}) + \cdots + \beta_j(X_{jit} - \overline{X}_{ji}) + (\epsilon_{it} - \overline{\epsilon}_i)$$

FIGURE 1: Basic Structural Equation Model with all possible Constraints

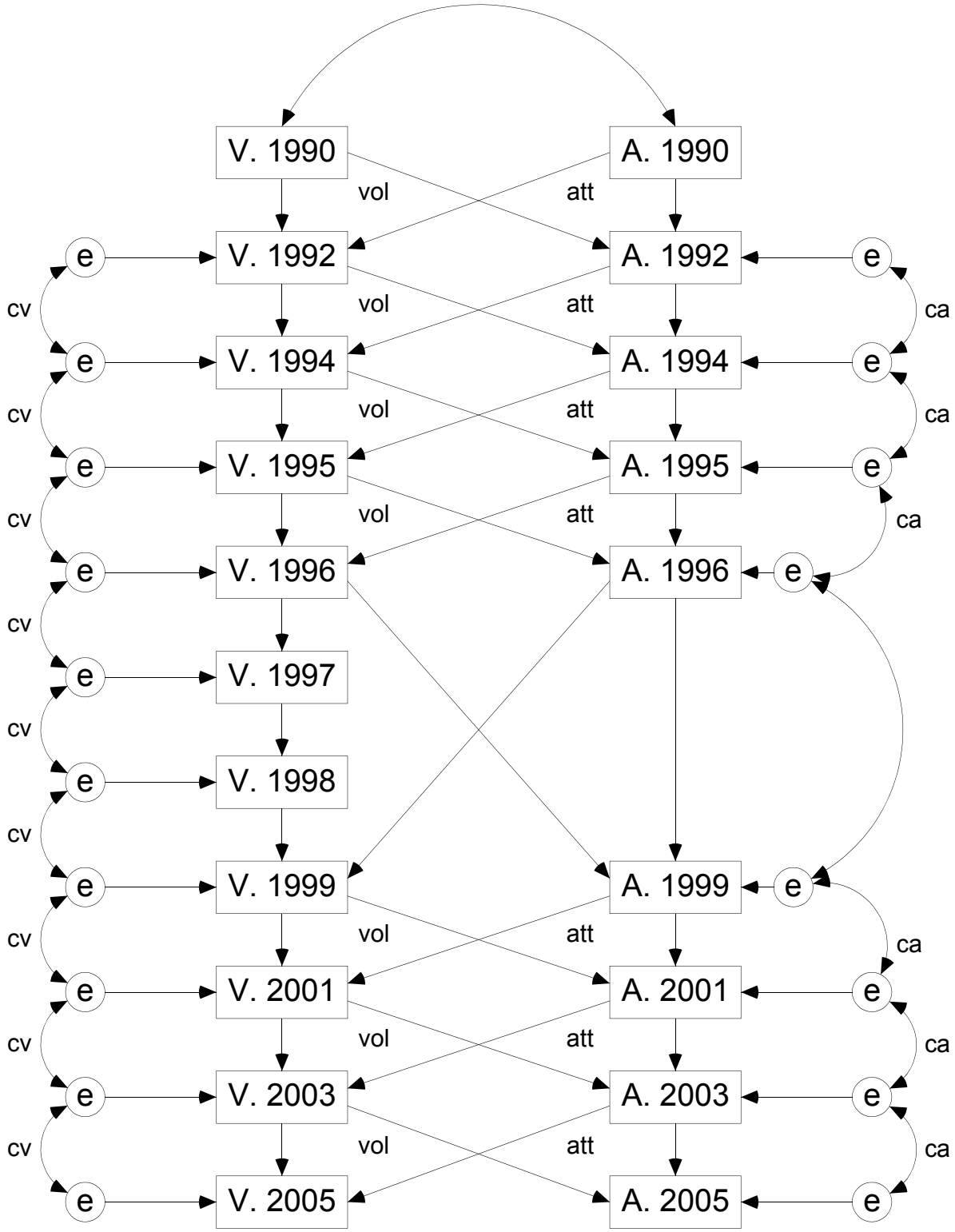

Table 2: Description of Variables Used – (2) Statistics

Variable	Statistics							
	N of Person-Years	N of Persons	min	max	mean	median	standard deviation	skewness
Volunteering (Panel)	201839	37291	0	1	.14	0	.26	2.03
Volunteering (SEM)	201839	37291	0	52	5.30	0	13.60	2.94
Attending Religious Service (Panel)	195009	33638	0	1	.20	0	.34	1.48
Attending Religious Service (SEM)	195009	33638	0	52	8.05	0	15.20	2.36
Catholic	153453	44347	0	1	.33	0	.47	.72
Protestant	153453	44345	0	1	.35	0	.48	.61
Other Christians	153453	31118	0	1	.08	0	.28	2.98
Other Religion	153453	12170	0	1	.06	0	.24	3.68
No Religion	153453	14058	0	1	.29	0	.45	.94
Sex	201839	20277	0	1	.48	0	.50	.06
Year of Birth	201839	17426	1888	1988	1951.99	1954	17.56	-.35
Age	201159	17426	18	99	44.31	42	16.51	.43
Household Income	199792	17426	0	45000	3631.90	3401	166.79	2.84
German Abitur	200545	17426	0	1	.13	0	.32	2.14
East	132863	17426	0	1	.31	0	.46	.81

For our second problem, the possible reciprocal effect, we rely on the work of Finkel (1995). Finkel proposes a cross-lagged structural equation model where both dependent variables are explained by their previous value and by the preceding years value of the second dependent variable (for an application example of this approach with a similar methodological problem see e.g. Schlueter et al. 2008). By including an effect of Y_{t-1} at time point $t-1$ on Y_t on time point t the model controls for auto-regression. Only the variance not explained by the stability of the variable itself is left for other variables for explanation[1]. In plus, structural equation models enables us to estimate reciprocal effects simultaneously which is in our particular case a big advantage over other estimation procedures. When we estimate the model and our conception of the mechanism linking volunteering and attending religious services is right, we should observe regression weights which are positive and significant going from attending religious service to volunteering. Next, we should observe regression weights pointing from volunteering to

[1]The Granger Causality Test e.g. also is based on the idea that a factor can only be causal for another one if it can explain variance in plus to that part already explained by preceding values of the factor (Granger 1969).

attending religious service to be zero and insignificant or negative. If we can find those things described before, our conception gains formal evidence while the other, alternative explanations can be rejected. The basic structure of our model can be seen in figure 1, below. Note that: Rectangles denote variables; circles error terms; the arrows between the rectangles a effect from one variable to another; double-headed arrows a correlation; variables on the left side of the structural model, named *V. 1990*, *V.1992*, ... contain volunteering values for different points in time; the variables on the right side, named *A. 1990*, *A 1992*, ... contain values for attending religious service for different points in time; *cv*, *ca*, *vol*, *att*, denote different possible restrictions; *cv* and *ca* are restrictions for the size of the correlation of the error terms of volunteering and attending religious service; *vol* and *att* are restrictions of the size of the regression weights for volunteering on attending religious service and vice versa.

Results

Unobserved Heterogeneity

The results of our panel models are presented in table 3. Before we go on to test the first counterargument, we present a between model. This model explains the variation between individuals. It is basically an ordinary logit model using means of time varying variables and the constant value of variables not varying over time. As Finkel (2008) e.g. puts it this is the counter part to the fixed effects models. The between or mean model estimates the individual's intercepts which are unconsidered by fixed effects models. So, this model tells us the determinants of a general mean tendency to volunteer – the fixed effects model afterwards tells us what determines a deviation from this general mean tendency. Moreover, this model also replicates the usually referred to results in the field – a cross sectional model – although our model should be more reliable because measurement error decreases by using the mean of the variables. So, the between model gives us a general overview and replicates already known facts. One short remark before discussing the results: Using the mean of dichotomous variables now slightly changes the meaning of our variables. *Volunteering* e.g. does not capture anymore whether or not somebody is, in the year of observation, doing regularly voluntary work but the proportion of years in which someone did voluntary work compared to all years under observation[2], respectively this interpretation holds for attending

[2]Because the Stata `logit` command has some problems to except non-dichotomous variables for a logit regression we estimated the model by using the `glm ... , family(binomial) link(logit)` command instead. This command does exactly the same as the `logit` command but accepts also values below '1' and above '0' which might be the case if you choose to use proportions as dependent variable values.

TABLE 3: The Effect of Regularly Attending Religious Services on Volunteering

Model/Sample	(1)	(2)	(3)	(4)	(5)	(6)
Type	BE	FE	FE	FE	FE	FE
Sample	All	All	Protes-tant	Catholic	Other Christian	Other Religion
Att. Rel. Service		2.336	2.204	2.329	2.669	2.679
		18.07***	9.38***	10.83***	4.77***	5.67***
Age		1.137	1.146	1.213	1.150	1.065
		12.94***	8.26***	10.65***	2.69**	1.45
Squared Age		0.999	0.999	0.998	0.999	1.000
		-12.77***	-8.33***	-9.93***	-2.40*	-0.20
Houshold Income		1.000	1.000	1.000	1.000	1.000
		-3.42***	-1.81	1.61	1.26	0.63
Abitur		0.692	0.667	0.751	0.485	0.879
		-3.89***	-2.34*	-1.48	-1.29	-0.34
Mean of Att. Rel. Service	5.087					
	20.43***					
Catholic	0.750					
	-3.15**					
Protestant	1.231					
	2.74**					
Other Religion	0.362					
	-6.68***					
Other Christians	0.506					
	-3.40***					
Sex, 1=Man	0.499					
	-12.56***					
Year of Birth	1.047					
	4.39***					
Mean Age	1.124					
	8.26***					
Mean squared Age	0.999					
	-7.12***					
Log of Mean HH-Income	1.399					
	4.94***					
Abitur, going to get it	1.450					
	5.16***					
Lived in GDR before 1989	0.965					
	-0.46					
Constant	0.000					
	-4.675***					
Number of Person-Years		41504	13069	11189	1448	2296
Number of Persons	13219	6491	1624	1409	189	290
χ^2	765.2	517.6	164.2	236.2	31.7	57.0
df	12	5	5	5	5	5
Prob > χ^2	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Note: Odds-Ratios and z-statistics are reported, while stars denoting following p-values for the z-statistics: * for p<.05, ** for p<.01, and *** for p<.001.

religious service as well. As expected, model 1 shows us that attending religious service has a high and significant effect on volunteering. All dummy variables indicating that somebody adheres to a religion are significant too but pointing in different directions depending which religion somebody belongs to.

After having this short introduction of the general 'cross-sectional' relationship, we now turn to the fixed effects models to decide about the first counterargument. Model 2 in table 3 shows a fixed effects model including the whole sample. Although it is only half of the size as before and in contrast to the argumentation that the effect is a spurious one, attending religious service still has an significant effect on volunteering. Therefore we can clearly reject the counterargument of a spurious unobserved heterogeneity explanation. The effect found in cross-sectional analyzes does decrease but does not vanish controlling for unobserved heterogeneity as one would expect when the relationship is spurious. In addition, to further test the relationship found to be robust to a control of unobserved heterogeneity, we specified four fixed effects models each using one of our religious groups as sample. Here too, we find the relationship to be robust and approximately equal in effect size. This additional finding underpins that our findings did not emerge by chance but that a causal mechanism is at work which nearly has the same effects for different religious subgroups.

Reciprocity

Now we turn towards the second counterargument namely that the relationship goes in the other direction or at least is a reciprocal one with both factors having effects on each other. Before we start to really test the counterargument we first have to find a baseline model with a good fit. Therefore we tried out several different specifications of the restrictions shown in figure 1. The different specifications we tried out are as follows: Model 1 does not have any restrictions at all, Model 2 restricts the error term correlations to be constant over time, Model 3 restricts the cross-lagged regression weights to be constant over time and model 4 restricts the correlation as well as the regression weights to be constant over time. The fit statistics of these models are reported in table 4. Regarding the χ^2 values the best fit achieves model 1. This is not surprising because this model imposes the least of all restrictions. A model that comes close to the fit of model 1 is model 3 with restricting the regression weights to be constant over time. This model is interesting because while only having only a 4.5 % higher χ^2 value compared to model 1 it saves due to restricting the regression weights a lot of degrees of freedom. This perception is confirmed by two other fit measures, CFI/df (Comparative Fit Index divided by the degrees of freedom) being smaller and the PCFI (the Parsimony adjusted CFI) being larger. So, if parsimony is taken into account model 1 has the best overall fit but model 3 is more parsimonious while showing quite a good fit. Therefore estimates of the regression weights in table 5 are reported for both models, see below. All in all,

taken the huge sample size into account, all models show a good fit while some are fitting better than others. Having found model 3 as a good baseline model we now – in plus to the restriction that regression weights are constant over time – put further restrictions on the model. These restrictions aim to gain additional knowledge on the relationship under study. First, in model 5 we force the model to assume that the effect of our main variables on each other is equal. This worsens the fit by a χ^2 value of 68.3 compared to model 3. Next, in model 6 we assume the effect of attending religious service to be zero. This too worsens the fit but by a far bigger step. The difference to model 3 now adds up to a 549.3 higher χ^2 value. In a last step, in model 7 we assume that the effect of volunteering is zero and too the fit worsens. The χ^2 difference now amounts 73.8.

Table 4: Model Fit

Model Nr.	Specification	χ^2	df	χ^2/df	$\Delta\chi^2$	CFI	PCFI	RMSEA*	Hoelter p > 0.05
1	no specification at all	1359.2	139	9.77	0	.993	.657	.014	5484
2	cv = constant over time ca = constant over time	1645.5	152	10.82	286.3	.992	.718	.015	4912
3	vol = constant over time att = constant over time	1423.7	151	9.43	64.5	.993	.714	.014	5643
4	vol = constant over time att = constant over time cv = constant over time ca = constant over time	1724.3	164	10.51	365.1	.991	.774	.015	5026
5	model 3 specifications vol=att	1492.0	152	9.81	132.8	.992	.718	.014	5418
6	model 3 specifications att=0	1973.0	154	12.81	613.8	.990	.726	.016	4146
7	model 3 specifications vol=0	1497.5	154	9.72	138.3	.992	.728	.014	5463

Note: * All models have a p-close value of 1.000.

What do our findings tell us about the counterarguments? First of all, we can reject the idea of a reversed effect. Model 6 was designed to not allow any kind of effect from attending religious service to volunteering – which then basically means that only volunteering has an effect on attending religious service – and the model shows by far the worst model fit statistics of all models. Second, concerning the statement

that there is a reciprocal relationship the answer is not so obvious in the first place. Regarding the model fit statistics of model 5 and 7 we can conclude, that the restriction of the volunteering effect to zero and to equal the attending religious service effect have nearly the same and bad fit. Therefore both variants are unlikely to be true to the same probability. So, if the volunteering effect has not the same size as that of attending religious service and neither it is zero it has to be somewhere in between. How much in between and how big in relation to attending religious service we can see in table 6. Regarding the estimates of model 1 we can observe that the effects from attending religious service on volunteering are always bigger than the other way around. In model 3, restricting the effect sizes to be constant over time we see that the effect of attending religious service is three times larger than that of volunteering. To conclude, we have to admit that there seems to be reciprocity but attending religious service is clearly the variable with the larger effect – so there is a dominant direction of the relationship and that is from attending religious service to volunteering and not the other way around.

Table 5: Regression Weights: Model 1 and Model 3

	Model 1			Model 3		
	Estimate	S.E.	P	Estimate	S.E.	P
A. 1990 → V. 1992	.055	.005	<.001	.027	.001	<.001
A. 1992 → V. 1994	.018	.006	.002	.027	.001	<.001
A. 1994 → V. 1995	.019	.006	<.001	.027	.001	<.001
A. 1995 → V. 1996	.022	.005	<.001	.027	.001	<.001
A. 1996 → V. 1999	.028	.006	<.001	.027	.005	<.001
A. 1999 → V. 2001	.027	.006	<.001	.027	.001	<.001
A. 2001 → V. 2003	.017	.006	.003	.027	.001	<.001
A. 2003 → V. 2005	.039	.006	<.001	.027	.001	<.001
V. 1990 → A. 1992	.028	.007	<.001	.009	.002	<.001
V. 1992 → A. 1994	.000	.007	.970	.009	.002	<.001
V. 1994 → A. 1995	.006	.006	.312	.009	.002	<.001
V. 1995 → A. 1996	.012	.006	.029	.009	.002	<.001
V. 1996 → A. 1999	.019	.006	.002	.023	.006	<.001
V. 1999 → A. 2001	.024	.005	<.001	.009	.002	<.001
V. 2001 → A. 2003	-.009	.005	.044	.009	.002	<.001
V. 2003 → A. 2005	.012	.005	.013	.009	.002	<.001

Conclusion

The aim of our analysis was to shed light on the causal mechanism working between attending religious services and voluntary work. Besides having a clear theoretical reasoning why attending religious service should lead to voluntary work and empirical findings

pointing in one direction we were confronted with some counterarguments challenging our reasoning. Mainly two alternative explanations of the link could be identified. First, that the relation is spurious, caused by unobserved heterogeneity. Second, that the relation is reciprocal or reversed. By using fixed effects models to sort out unobserved heterogeneity and structural equation models to simultaneously estimate effects in both directions we cold solve the puzzles. First, the relationship is robust controlling for unobserved heterogeneity. Second, the relationship is not reversed but reciprocal although with attending religious service having a three times higher effect on volunteering than the other way around.

For social capital literature our analysis contributes by making a firm statement about the relationship of religion and voluntary work. For future research it might be of interest to answer the question of what exactly happens in the religious community black box leading to more volunteering. Does the effect stem more from providing resources, opportunity, or motivation? Does the religious involvement foster religious beliefs, does it motivate people to start voluntary work more often or prevents them from quitting. Why is it that the effect is so constant across different religious backgrounds? And, does this finding holds true for a more 'exotic', in our analysis not specifically considered religion like Islam and its different faiths?

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