

Employment, wages and religious revivals in post-communist countries

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Abstract

The fall of communist regimes in the Central and Eastern Europe has profoundly changed the religious landscape in many countries. The rise and decline of religious beliefs and participation in the post-communist region has been studied mostly by sociologists; although, the approach of the economics of religion has not been neglected completely. This paper suggests to supplement the dominant theories - the demand-side explanation of secularization and the supply-side explanation of religious revivals - with a model of individual time allocation. The model presented in the paper predicts both the initial growth and the subsequent decline of religious participation in post-communist countries. The empirical part focuses on six Central European countries with different levels of religiosity. Data from the three waves of the ISSP survey support the model; although, they do not allow to dismiss alternative theories.

1 Introduction

The end of the communist regimes began a new era for religious life in Central and Eastern European countries. Religious freedom formerly only declared in constitutions has become reality. Religious markets were deregulated and opened to foreign competition. For one reason or another the post-communist countries have experienced religious revivals. For a short period of time, religious leaders in some countries could experience the ability similar to that of the legendary king Midas turning people into believers at an incredible rate. However, the surge of religion has not lasted long.

Indeed, religious participation in post-communist countries has changed significantly over the past two decades. Although the data for the pre-1989 period are scarce and unreliable, anecdotal evidence testifies to dramatic increase of religious participation in the early 1990s. At the beginning of new millennium, Greeley (2002) reports a consensus of researchers on religious revivals in Eastern Europe. In the following period, participation has either stabilized or even declined, possibly with the exception of Russia. Social scientists have provided several competing explanations for these phenomena. The most prominent are the demand-side explanations of secularization and the supply-side explanation of religious revivals. However, these theories have problem explaining either the boom or the subsequent bust. This paper offers another explanation that may account for both.

Secularization has been discussed for many decades. There are proponents and defenders of secularization theories (e.g. Martin 1980, 2005; Bruce 2002, 2011) as well as their opponents (e.g. Stark 1999; Berger 1999). Secularization means different thing, as is aptly shown by Casanova (1994), and it is useful to distinguished them. First, secularization

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means differentiation between religious and non-religious aspects of life and society. There is little discussion about this phenomenon following modernization of society. However, the two other theses associated with secularization, i.e. the decline of religion thesis and the privatization of religion thesis, are debatable and they are the core of the contemporary “secularization debate”. This is also where secularization theories could be useful for explaining the post-communist religious landscape.

The secularization theory in the narrow sense claims that religion will decline with modernization, both in society and the lives of individuals. There are several reasons why religion should have declined, particularly loss of faith and loss of purpose. A more recent theory by Norris and Inglehart (2004) attributes the decline of religion to existential security. There are good reasons to assume that post-communist countries would have become highly secularized. Communist regimes have focused on modernization, industrialization, and systematically attempted to eliminate religiosity and replace religion with atheist ideology and secular rituals. The transition period has brought certain decrease in existential security, especially in countries of the former Soviet Union. On the other hand, the Central European countries have implemented social security systems early in the transition and succeeded in maintaining people’s living standards at a reasonable level.

An alternative approach focuses on the supply-side. Iannaccone (1991) proposes to focus on competition on religious markets rather than the demand for religion. Secularization is attributed to the loss of competition in religious market that results in deteriorating quality of services provided by religious organization. Furthermore, lack of competition often arises from state regulation. On the other hand, an increase of competition should result in a religious revival, an increase of religiosity in society. This idea is reiterated by Finke and Iannaccone (1993) explaining religious revivals in America, and again in Iannaccone et al. (1997). There is an obvious application of the supply-side framework to the liberalized religious markets in the post-communist region. Indeed, new religious organizations have started missions in the Central and Eastern Europe and the extant churches strained to recapture the losses from communist era. On the other hand, the competition of state-sponsored atheism has disappeared with the revolution.

Empirical material has been collected to support each of the alternative theories. In an early analysis of church attendance and religious beliefs in post-communist countries, Gautier (1997) uses the data from the ISSP 1991 to show the differences between East Germany, Hungary and Poland. She concludes that the Soviet oppression of religion had a profound effect on Protestants, but less so on Catholics. Greeley (2003) uses in his sociological profile of Europe at the end of the millennium the advantage of having an extra wave of the ISSP survey on religion. Comparing the results from 1991 and 1998 surveys, he notes the different paths among post-communist countries. He suggests that religion is quite well in these countries, possibly on the pre-communist levels. Greeley concludes that none of the countries follow predictions of the secularization model, and they are surely not catching up to Western European nations. Need and Evans (2001) use different data from mid-1990s to analyze religious participation in the post-communist Europe. The study finds some support for the secularization theory, especially with regard to church membership. However, the authors conclude that church attendance is hard to predict in terms of modernization or the effects of state atheism. Norris and Inglehart (2004) analyze the post-communist region in the light of their secularization theory. They admit that patterns of secularization differ in post-communist countries. In their interpretation, the data from the World Value Survey support the secularization hypothesis, and they claim that there is no evidence of the supply-side induced religious revivals.

Further, there are several country case studies available. As early as in 1994, Greeley wrote about religious revival in Russia; since then, the Russian case has been explored many times. More recently, different post-communist countries have been studied. Froese (2001) interprets the religious revival in Hungary from the supply-side perspective, while Froese and Pfaff (2001) investigate two seemingly anomalous cases of Poland and East Germany

using the same approach. Froese and Pfaff (2005) also provide a more detailed analysis of secularization in East Germany. On the other hand, Bruce (2000) attempts to use the supply-side framework to analyze Nordic and Baltic states and he finds no support for the this approach. Froese (2004) reminds us that the end of state-sponsored atheism as a competitor in the religious market has often resulted in a religious monopoly; furthermore, many post-communist states have re-regulated religious markets after the revolution (see also Sarkissian 2009). The evidence is mixed and neither theoretical framework is clearly dominant.

Beside the two approaches described above, there is another approach to the analysis of religious participation that provides a suitable explanation. Similar to the secularization hypothesis, it analyzes the demand side of a religious market. However, the focus is on individual choices. Following the classical model of Azzi and Ehrenberg (1975) as amended by Sullivan (1985), our approach deals with individual's allocation of time.¹ The most relevant variables determining religious activities in the model are individual's age and her wage rate. Following this model, we claim that the variations in religious participation in post-communist countries are well explained by variations in opportunity costs of religious activities, particularly by changes in real wage rates and employment. Although the model is not capable of fully explaining religious participation in the region, it is a good complement to other existing theories.

Our account of the development of religious life in the period of post-communist transition is organized in the following way. First, we introduce the model and its predictions; we specify hypotheses regarding the post-communist countries and compare them with the predictions of competing theories. Second, we provide some empirical evidence that supports our argument. Finally, we comment on several specific cases that deviate from our predictions.

2 Theoretical background

2.1 The model of time allocation

The paper of Azzi and Ehrenberg(1975) presents the first attempt by economists to analyze religious behavior. It is an extension of previous models dealing with household allocation of time. Unlike preceding studies, and unlike some later literature on religiosity, it explicitly includes afterlife benefits in the analysis. An individual derives utility not only from her worldly consumption but in her decisions she also takes into account the future utility of her expected afterlife consumption. However, as the model includes also secular goods produced as complements to religious goods, it allows similar predictions even if we dismiss the afterlife; this is shown by Sullivan (1985).

Azzi and Ehrenberg(1975) define three different motives of religious participation. First, there is the "salvation motive," i.e. individuals participate to achieve afterlife benefits. Following Sullivan's (1985) contribution, we may disregard the afterlife consumption as an unnecessary artifice. Even though this may be a valid motive, omission does not change the results of analysis. Second, religious participation may have some secular value, individuals may receive utility from social interactions and consumption of specific goods complementing religious activities. This is referred to as the "consumption motive." Finally, social pressure in a community may induce individual to participate in religious activities, hence there is the "social-pressure motive." The model focuses on the consumption motive to participate. However, we should be mindful of the social-pressure motive when confronted certain deviations from the model's predictions.²

¹A review of the model and its extension can be found in Iannaccone (1998). An important modification is the inclusion of religious human capital Iannaccone (1990) which is neglected in the classical model. Another major extension of the theory is the definition of religious consumption as club goods in Iannaccone (1992). However, the original model is still being used in the literature (e.g. Sawkins et al. 1997).

²Hull and Bold (1989) distinguish four benefits associated with religion: "temporal bliss, social goods,

Considering the motives for participation, we define the choice problem as a problem of allocation of time. An individual allocates her time between household production (or leisure), labor for money and religious activities. Individual's preferences are represented by a quasiconcave utility function

$$U = U(C_1, S_1, C_2, S_2, \dots, C_n, S_n), \quad (1)$$

where C_t represents the individual's consumption in period t , and S_t is the secular consumption value of religious participation in period t . We assume for simplicity that the individual knows the length of her life, an assumption that can be relaxed without significant impact on the results. Further, assume that individuals know their current and future wages and their choice of investment in human capital is predetermined.³

Individual's consumption in period t is given by a production function that combines a composite market good (x_t) and the time allocated to individual's consumption h_t (i.e. leisure time). For simplicity, we assume that this function does not change over time, it is continuously differentiable and concave:

$$C_t = C_t(x_t, h_t). \quad (2)$$

Individual's consumption value of religious participation in period t depends on her time spent in religious activities in the same period r_t and material resources she contributes to these activities y_t . The precise specification of the function is determined by the individual's beliefs, character of goods and services offered by a religious organization, as well as the environment in which it operates. The function is assumed to be continuously differentiable and concave:

$$S_t = S_t(y_t, r_t). \quad (3)$$

Further, let us define the income and time constraint for the individual. Expenditures of the individual are given by the price of market good p and its quantity x_t . Her revenue combines non-labor income v_t and labor income given by the wage rate w_t and hours of work per period l_t in each period t . Assuming that individual plans to leave no estate and the market interest rate i is constant over time, the individuals discounted income constraint is given by:

$$\sum_{t=1}^n [px_t + y_t / (1+i)^{t-1}] = \sum_{t=1}^n [(v_t + w_t l_t) / (1+i)^{t-1}]. \quad (4)$$

In any period the time allocated to consumption, religious activities and labor is exactly the total time available to the individual T . Hence, the time constraint is given by:

$$h_t + r_t + l_t = T, \quad (5)$$

where for all t

$$x_t, h_t, r_t, l_t \geq 0. \quad (6)$$

The preceding statements form a maximization problem. After substituting the respective production functions into the objective function and combining the time and income constraint, we can write the Lagrangian function for the problem:

$$L = U[C_1(x_1, h_1), S(y_1, r_1), \dots, C_n(x_n, h_n), S_n(y_n, r_n)] + \lambda \left(\sum_{t=1}^n [px_t + y_t / (1+i)^{t-1}] - \sum_{t=1}^n [(v_t + w_t(T - h_t - r_t)) / (1+i)^{t-1}] \right). \quad (7)$$

deferred perpetuity and altered fate." The social pressure motive can be interpreted as exclusion from the use of social goods (see also Iannaccone 1992) or as particular bads imposed on an individual who refuses to participate in religious activities.

³For a discussion of how the results change if we relax these assumptions, see Azzi and Ehrenberg (1975).

Considering two adjacent periods with different wage rates, the first-order condition allows us to formulate a relation between wage rate, interest rate and the marginal utility from religious activities. Assuming an interior solution, the first-order conditions require that at the optimum

$$\frac{w_t}{w_{t-1}} (1+i)^{-1} = \frac{(\partial U/\partial S_t)(\partial S_t/\partial r_t)}{(\partial U/\partial S_{t-1})(\partial S_{t-1}/\partial r_{t-1})}. \quad (8)$$

The relation between wage rates and the marginal utility from religious activities leads to several predictions concerning individual's allocation of time between labor, leisure and religious activities. First, let us consider two adjacent periods with a constant wage rate, i.e. $(w_t/w_{t-1}) = 1$. Since we assume diminishing marginal returns to religious participation, the first-order condition suggests that the individual relocate her time toward religious activities in the successive period. If the marginal product of an hour devoted to religious activities is the same in $t-1$ and t , then the time that individual spends on religious activities should increase with age.⁴ This prediction is quite intuitive; with approaching death the individual prefers to reallocate her time towards consumption, both secular and religious, rather than labor.

Second, there is a relation between wage rate and participation indicated by the model. Let us consider two individuals who differ only in their wage rates; i.e. they have identical preferences and production functions. The first-order condition requires that the individual with higher wage devotes less time to religious activities than the one with lower wage rate. Again, this is not surprising because the wage rate represents the opportunity costs of religious activities. The relation between wage rates and time allocated to religious activities well explains the common situation of higher participation among women and minorities.⁵ Since women and minority members usually earn less than men and members of the majority population, their opportunity costs of religious participation are lower. For the same reason, we expect people who are not employed to participate more in religious activities than those who have a job.⁶

The predictions of the model concerning religious participation are following. Generally, religious participation should increase with age. It should be higher among people with lower wage rates, typically women and minorities. Combining these two factors, we could expect slightly higher participation among very young people who have low wage rates or do not work for money at all; indeed, the model is not able to predict which effect is stronger and it is a matter for empirical analysis. Also the social pressure motive may have a significant role among young people. The relation between age and participation can be partially offset by increasing wages over time. The age-participation curve should be steeper for those whose wages do not increase as they advance in their careers. After the retirement age, religious participation should increase rapidly.

Let us reformulate the predictions for the specific conditions of the post-communist countries. First, the age-participation schedule should not be different from other countries. Second, there is a notable change in the secular value of religious consumption related to the 1989 revolutions. Under the communist regimes, religious practice has been discouraged and often punished by the government (see, e.g., Froese 2004; Weigel 2003). Thus, religious consumption could actually decrease individual's utility. Even if the secular value of the religious consumption was positive, it was definitely reduced by the government oppression.⁷ The revolution of 1989 eliminated government control of religion and allowed churches and

⁴Formally, this requires that $(\partial S_t/\partial r_t) = (\partial S_{t-1}/\partial r_{t-1})$ when $r_t = r_{t-1}$.

⁵Regarding the minorities, especially the Gypsies in the Central Europe, it has to be noted that their spirituality is often different from the majority population. One has to be very careful when applying the model to explain the participation of minorities.

⁶What if wages are very low? People may prefer labor to religion in order to provide enough for subsistence. Is this relevant in post-com countries of Central and Eastern Europe?

⁷On the other hand... there is Iannaccone (1994) - Why strict churches are strong. However, in this case membership costs are high, but the ability of the group to provide club goods is reduced by the oppression or clandestine operation. Also strict churches may be fast growing but generally they are small.

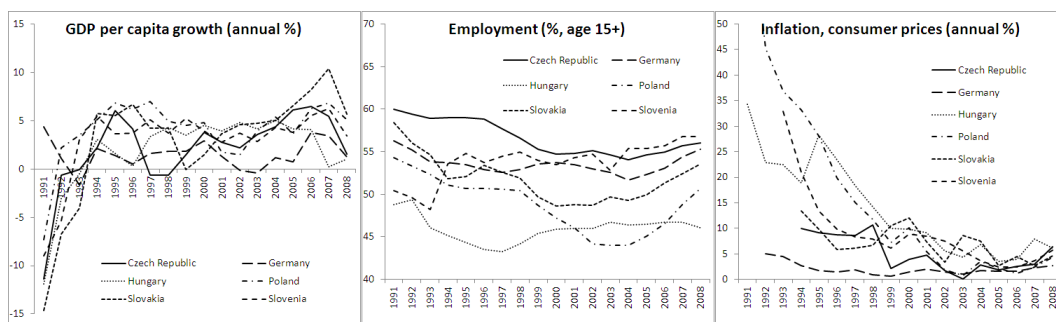


Figure 1: Economic growth, employment and inflation in the Central European countries

religious organizations to broaden the portfolio of services they could offer. Therefore, there is a good reason to assume that the secular value of religious consumption (per hour spent in religious activities) increased compared to the period of communist rule. Further, there are several changes in economic conditions of the post-communist countries relevant to our analysis.

The beginning 1990s is characterized by profound socioeconomic changes in the Central and Eastern Europe. A period of economic instability ensued the fall of communism; the GDP fell significantly in the first years and the subsequent recovery came only at a moderate pace (see Figure 1). The first decade of transition is also marked by high inflation rates in most countries and sharp rise of unemployment due to structural changes. Especially the decline of unemployment seems relevant for religious participation. In line with the model, we shall expect increase of religious participation, a religious revival, at least as measured by attendance. The effect of inflation could have been twofold. It has reduced savings and thus produced a negative non-labor incomes to many individuals which would decrease “consumption of religion” (assuming it is a normal good). On the other hand, inflation together with high unemployment has also decreased real wages and thus it could have promoted more religious participation. The overall effect of economic situation in the 1990s should have been in favor of religious participation, especially in the year after the revolutions.

By the end of 1990s socioeconomic conditions have improved in the post-communist countries of the Central Europe. The situation in the following period is characterized by economic growth and low inflation, although the employment rate continued to decline in several countries well into the new millennium. High unemployment rates persisted due to structural changes. On the other hand, social security programs maintained above subsistence living standards even for those who were not able to find a job. For those who were employed, real income has been rising on average in the period after 2000. Following the logic of our model, the situation has turned worse for religion. We shall expect a decrease of religious participation in the first decade of the new millennium.

2.2 The model versus alternative theories

Predictions of the model and those of alternative theories are not necessarily different. Several empirical phenomena allow for different interpretations. The model predicts an increasing age-participation curve. However, we can reach the same prediction with the demand-side secularization theory. As each new generation is raised in more secure conditions, in a more modernized society with more advanced scientific knowledge and better access to education, each generation is supposed to be less religious than the previous. The process has been gradual in the West; in post-communist countries we would expect a flat curve for the cohorts raised under the communism and a sharp rise in participation rate for the oldest cohorts raised in the pre-communist era.

Similarly, it is hard to distinguish whether the more active participation is a result of decreased opportunity costs or an increased missionary effort due to competition. The prediction of model is virtually the same as the prediction of the supply-side theory. Even the higher participation rate of the youngest cohorts may have different explanations. The model would attribute this to lower wage (and opportunity costs) of the youth. However, if we believe that people are more accessible to religion in the early age, we could interpret this as a result of more missionary effort targeted to this group.

Furthermore, the model predicts higher participation rates among unemployed. The reason is, of course, that their opportunity costs are low. On the hand, the same empirical results could be interpreted in terms of lower existential security. Especially in the transition period with persistently high unemployment rates this may be a plausible explanation.

The problem of explanations described above is that they are often used ad hoc to explain different phenomena. On the other hand, the model proposed here suffers from the obvious weakness of focusing on the demand side only; this is similar to the demand-side secularization theories. Indeed, the complete model of a religious market - and any market - requires both a model of demand and supply. We proceed with an assumption that the changes in the post-communist countries are due to the demand-side of the market. However, we should be mindful of possible shifts in the supply of religion.

3 Church attendance in the post-communist countries

3.1 Data

The model of time allocation as well as the competing theories provide several testable predictions. We use the data from International Social Survey Program (ISSP) to test some of them. The purpose of this section is to illustrate the theory and support it with data rather than to provide a clear-cut evidence for the model proposed above. First, we introduce the ISSP data and variables used in the analysis. Second, we comment on the overall trends in religious participation in the post-communist countries.

The ISSP is a continuing program of cross-national surveys on various social issues. So far three waves have been concerned with religion; the surveys were conducted in 1991, 1998 and 2008. Due to cultural homogeneity of the countries analyzed here, there should be no doubt about similar interpretation of different religious and social concepts. Moreover, we focus on religious participation rather than opinions and beliefs. The key variables concern attendance of religious services and several demographic and socioeconomic characteristics, such as age, work status and income.

Several variables used below deserve a more precise definition. First, two levels of attendance are distinguished in the analysis based on the question “How often do you attend religious services?” Weekly attendance means that a respondent claims to attend a religious service at least once a week, yearly attendance signifies participation at least once a year. Second, employment status distinguishes those who are employed (full-time and part-time) from the rest of the population that includes unemployed, students, retired and other people not in labor force. Note that permanently disabled people were excluded from the sample as their participation in religious services is significantly lower than the rest of the population, presumably due to the disability. Third, the ISSP survey does not ask about wages. Wage rates were estimated using respondents’ reported incomes and worked hours per week. Of course, such approach does not differentiate between labor and non-labor income; however, the survey does not offer any better data to approximate wages.⁸ The regression analysis uses relative wages (wages divided by country mean in each wave) to account for cross-country differences in wage rates and changes in price levels over time.

⁸Also wages are only calculated for those who are employed. Non-labor income may have an impact on participation (assuming religious consumption is a normal good), however, it is not the focus of this study.

Table 1: Overall trends in participation

	% attend weekly			% attend yearly		
	1991	1998	2008	1991	1998	2008
East Germany	3.59	6.71	1.91	18.29	40.89	15.08
Czech Republic		7.43	5.12		40.79	20.7
Hungary	12.25	15.02	6.97	37.04	40.04	23.78
Poland	58.09	39.3	48.2	88.55	92.11	80.5
Slovakia		29.75	31.6		59.27	59.27
Slovenia		13.14	15.57		41.32	62.94

Let us begin the analysis by looking at the overall trends in participation. Table 1 presents the percentage of people attending religious services at least once a week and at least once a year. Unfortunately, only three of the six countries were included in the first wave; thus, the overall picture is quite incomplete. East Germany and Hungary present a similar pattern with increasing attendance in 1990s followed by a drop in the next decade. On the other hand, Poland has followed this pattern only with regard to yearly attendance; weekly participation presents a different trajectory. The Czech Republic and Slovenia represent two quite interesting cases, one country being a mirror image of the other. Both countries had roughly similar participation rates in 1998; however, in the following period attendance increased in Slovenia while decreasing in the Czech Republic. In both countries, the change is more pronounced in yearly attendance rates. Overall participation in Slovakia has remained quite stable between 1998 and 2008.

3.2 The impact of age, employment and wages

Following the literature, let us begin with examining the age-participation relation. Figure 2 and Figure 3 show the weekly and yearly religious participation by age and the change of the age-participation pattern in time. Differences between the countries are quite obvious. Roughly, it is possible to divide these countries into three groups. First, three dominantly Catholic countries, i.e. Poland, Slovakia and Slovenia, have quite high yearly participation across all ages. Second, in Hungary and Czech Republic yearly religious participation is a function of age. Finally, East Germany has very low participation rates; combined with the rather smaller sample size, it is quite difficult to make any definite statements regarding the age-participation pattern.⁹

Both weekly and yearly participation-by-age curves and the difference between them provide interesting information. We may well assume that the percentage of those who participate at least once a year represents the size of religious market relevant for religious organizations present in a country.¹⁰ Accordingly, the weekly participation rate represent those more willing to participate in religious services; either because they are more deeply convinced of the necessity of participation (i.e. the perceived benefits are higher) or because their opportunity costs are lower.

The pattern in dominantly Catholic countries is characterized by similar yearly participation rates across different age groups. Weekly participation follows the predictions of the model; although, except for Slovenia the participation-by-age curve is relatively flat. In the Czech Republic and Hungary both yearly and weekly participation-by-age curves are increasing and they are relatively steep for the oldest cohorts. Further, the ratio of weekly to yearly participation rates increases more rapidly with age in these countries compared to the first group.

⁹Moreover, the 1998 data on participation are flawed because those collecting data only asked about attendance if a respondent claimed religious affiliation (Greeley, 2003).

¹⁰Of course, if a new religious organization enters the market it may actually extend its size as it may serve a group that has not been in the market before. See, e.g., Ekelund et al. (2006) for a description of religious markets and their niches.

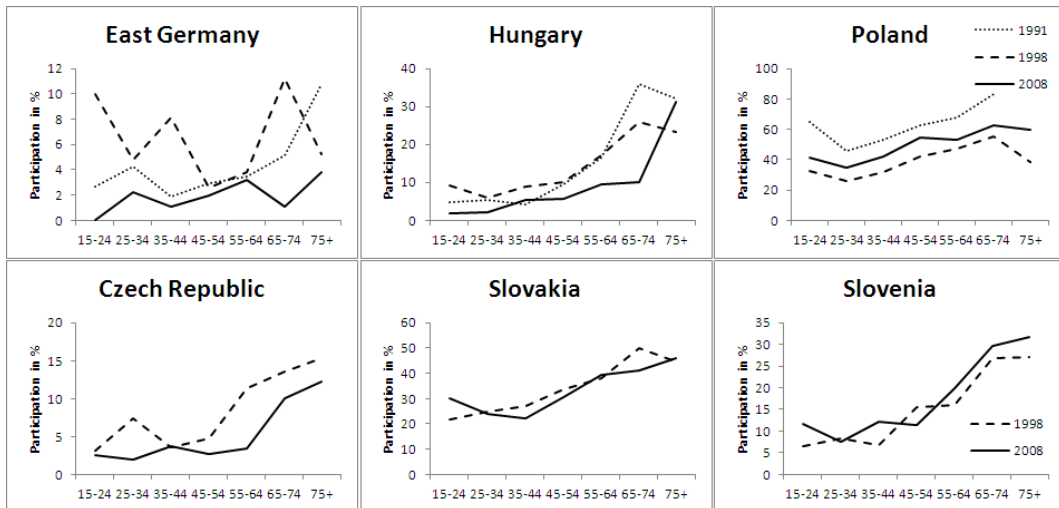


Figure 2: Weekly religious participation by age

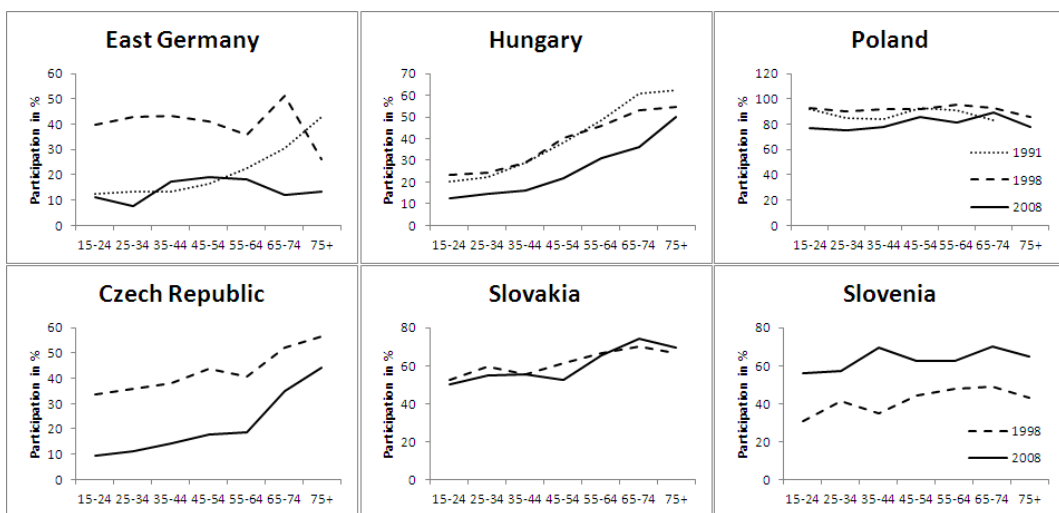


Figure 3: Yearly religious participation by age

Table 2: Weekly and yearly participation by employment status (%)

	Attending weekly					
	1991		1998		2008	
	Employed	Not empl	Employed	Not empl	Employed	Not empl
East Germany	2.82	5.57	(5.69)	(7.37)*	1.69	2.19*
Czech Republic			5.27	10.65	2.58	7.83
Hungary	5.81	23.10	7.93	21.65	4.05	10.85
Poland	54.05	64.68	33.22	45.82	42.86	56.36
Slovakia			24.59	42.02	26.80	39.05
Slovenia			8.65	20.58	10.03	23.97

	Attending yearly					
	1991		1998		2008	
	Employed	Not empl	Employed	Not empl	Employed	Not empl
East Germany	15.15	26.39	(40.65)	(41.05)*	16.55	13.16*
Czech Republic			39.46	43.91*	14.39	29.04
Hungary	29.35	50.00	29.96	49.13	17.13	31.01
Poland	87.18	90.80	92.03	92.18*	80.03	81.21*
Slovakia			56.97	64.15	53.90	67.41
Slovenia			38.34	45.91	63.06	62.71*

* Participation rates not statistically different at $\alpha = 0.05$ (Student's t-test, two-tailed).

Changes in time also provide some insights regarding the validity of different theories. In Poland and especially Slovakia, the change over time is rather small. Interestingly, Slovenia differs in this aspect; the yearly participation rate has increased significantly in all age groups, while the weekly participation stayed roughly at same level. On the other hand, Hungary and the Czech Republic have experienced drop in participation rates in between 1998 and 2008. The drop goes across all age groups; however, it is more pronounced in the working-age cohorts. This is consistent with the assumption that the middle-aged working people face higher opportunity costs. Generally, the participation-by-age patterns support the model proposed above, although Catholicism seems to flatten the curve.

The model further predicts that employment status should have an influence over individual's decisions about religious participation. Participation rates by employment status are summarized in Table 2. With only few exceptions, there is significantly lower participation among the employed compared to the rest of the population. This is particularly true for weekly participation which is, of course, more costly (in terms of opportunity costs). Leaving aside the special case of East Germany, we observe considerable differences in weekly attendance between working people and the rest. The differences are much less pronounced in yearly participation; however, there is a quite sizable gap in Hungary and by 2008 is has also developed in the Czech Republic. Again we may conclude that the data support the model and that Catholicism may be a relevant factor for individual's decision on religious participation.

Finally, let us consider the relation between wages and participation in religious services. For this purpose we restrict the sample to those who are employed and thus receive a wage. The results of correlation analysis are presented in Table 3. Indeed, there is an inverse relation between wages and participation, although it is not present in all countries. The difference between countries follows the same pattern as in the previous steps of analysis. The effect of wages is apparent in dominantly Catholic countries, especially in Poland. On the other hand, in the Czech Republic attendance does not seem to be affected by wages; in Hungary the effect of wages has disappeared by 1998. East Germany follows the predictions of the model in 1991, however, the 1998 and 2008 data represent an anomaly. The analysis provides some support for the model, although we would expect the wages to affect weekly

Table 3: Correlation between wage rate and participation

	Weekly			Monthly			Yearly		
	1991	1998	2008	1991	1998	2008	1991	1998	2008
E. Germany	-.09**	.09	-.07	-.02	.15	.04	-.02	.07	.18***
Czech Rep.		-.03	-.02		-.09	-.02		.02	-.02
Hungary	-.03	.03	-.02	-.08*	.06	-.00	-.10**	-.09	.03
Poland	-.10**	-.13***	-.06	-.16***	-.12	-.11***	-.17***	-.10**	-.05
Slovakia		-.04	-.08*		-.05	-.11**		-.07*	-.03
Slovenia		.04	-.03		-.08**	-.13**		-.10**	-.19***

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

(or monthly) attendance rather than yearly. Together with the results presented above it also demonstrates that there is variability among countries and that the model may be more suitable for some countries than others.

Based on the historical conditions in these countries, an alternative explanation is possible. Religious people were often punished by the communist. Typically, they were denied education and better job opportunities. This could result in lower accumulation of human capital (both through education and practice) and lower wages in the post-communist era. On the other hand, former communists had often accumulated both human and social capital that has allowed them to prosper under the new regime. Lower wages thus may be the result rather than a cause of higher participation; or more precisely, both lower wages and higher participation may result from higher level of individual's religiosity (a stronger preference for religion).

3.3 Regression analysis

So far we have considered different factors separately. However, they are clearly related. It has been noted above that income changes over individual's life cycle and employment status is clearly related to age as well, particularly after the retirement age. Moreover, up to now the analysis has abstracted from individual beliefs which are related to age as well (see, e.g., Greeley 2003); we have only noticed that Catholicism might be relevant. Multivariate regression analysis allows us to consider multiple different factors affecting religious participation at once.

We use logistic regression to explain the odds of individual's weekly and yearly participation. Selected regression results are reported in Table 4. Not surprisingly, the most important variables are neither age nor employment status and wage; rather, it is the belief in God that dramatically increases odds of participation. The effect of faith is also much stronger in case of weekly participation which is more costly. Just as we have suspected, Catholic denomination plays an important role in deciding on church attendance. It is not surprising since the Catholic Church explicitly requires its members to attend religious services weekly. Further, the effect of gender is important, although it is somewhat lower in magnitude.

Employment status is relevant for both weekly and yearly attendance, however, its effect on yearly participation is opposite to the effect on weekly attendance. Considering working people only (columns 2 and 5), the data support the prediction of the model that higher wages would discourage religious participation; odds ratios are below one and they are significantly different. More years of education increase the odds of participation; thus, we may dismiss the hypothesis proposed above that higher participation correlates with lower wages simply because of the ban on higher education for religious people under the communist regime.

Interaction of variables allows us to observe the effects of explanatory variables in different countries. Table 4 (columns 3 and 6) shows how the effect of wage rate varies among

Table 4: Logistic regression models for the odds of weekly and yearly participation (odds ratios)

	Attend weekly			Attend yearly		
	(1)	(2)	(3)	(4)	(5)	(6)
Believe in God	44.905***	30.286***	31.028***	16.753***	18.776***	18.940***
Catholic	3.534***	3.251***	3.268***	3.417***	3.889***	3.900***
Female	1.44***	1.319***	1.310***	1.390***	1.434***	1.456***
Age	1.015***	1.014***	1.014***	1.010***	1.010***	1.010***
Education	1.009	1.048**	1.046***	1.025***	1.041**	1.035**
Employed	0.780***			1.125*		
Relative wage		0.847**			0.899	
E.Germany*Wage			0.536			1.419
CzechRep*Wage			1.011			0.994
Hungary*Wage			1.169			1.151
Poland*Wage			0.817**			0.947
Slovakia*Wage			0.731**			0.701***
Slovenia*Wage			1.543*			0.808
Model chi-sq***	4526.46	1919.71	1930.63	7980.90	3925.95	3926.65
Degrees of freedom	13	13	18	13	13	18
No of observations	12911	5798	5798	12911	5798	5798

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All regressions are controlled for country and year effects.

countries. It appears that the most cost-sensitive people are those living in traditionally Catholic countries, Poland and Slovakia. In Slovakia, the effect is even stronger for the yearly participation. More surprising is the effect of wages on religious participation of Slovenians. Contrary to the predictions of the model, higher wage rate significantly increases the odds of weekly attendance. Slovenia thus represents a special case that deserves more attention.

Besides the models discussed above, there are several other interesting results obtained with different interactions of variables. Employment has significant negative impact on weekly participation in Poland ($OR = 0.436, p < 0.001$) and Slovenia ($OR = 0.534, p < 0.001$). The odds ratios for East Germany and the Czech Republic are above one, however, not significantly different. On the other hand, employment increases the odds of yearly participation in all countries but Hungary ($OR = 0.704, p = 0.002$), the effect is significant for the Czech Republic ($OR = 1.629, p = 0.001$), Poland ($OR = 1.318, p = 0.064$), and Slovenia ($OR = 1.333, p = 0.061$). The effect of employment on participation appears to be stable over time.¹¹ The results on the effect of employment status conform the intuition that the model is relevant for prediction of systematic (weekly) religious participation rather than occasional visits of a church. The effect of wage rate also differs by year; it is most pronounced in 2008 ($OR = 0.815, p = 0.035$).

3.4 Discussion

The analysis provides some support for the model; however, it points out several fact that are contrary to our predictions. These anomalies deserve some comments. First, although we report the results for East Germany, we have not commented on them extensively. It is not because their are not interesting. On the contrary, East Germany is an obvious and well known outlier in terms of religiosity and religious participation. Leaving aside the problem with flawed data on East German participation, this country obviously requires a more in-depth analysis, such the one offered by Froese and Pfaff (2005). Anyway, we have

¹¹For weekly participation, the employment-year interactions yield following results: $OR = 0.751$ ($p = 0.018$) for 1991, $OR = 0.779$ ($p = 0.008$) for 1998, and $OR = 0.798$ ($p = 0.017$) for 2008.

included this region to contrast it with other Central European countries. It is clear from the comparison that the effect of communism and the post-communist transition is diverse across the countries of the former Eastern bloc.

Slovenia is another interesting case. It is the only country with clear religious revival after 1998, especially with regard to yearly participation rate. As reported by Greeley (2003), the Catholic Church in the 1990s attempted to impose the “Polish model” in Slovenia, assuming the same position of Catholics there. This has caused certain discontent with the Church accompanied with disaffiliation and probably (although there is no data from the ISSP) drop in attendance. In the subsequent period, the Catholic Church has obviously changed its strategy and succeeded in attracting more members and increasing attendance. The revival is not due to entry of a new competitor to the market but to the growth of the dominant religious group.¹²

Further, let us briefly confront the findings about the post-communist countries with the predictions of the secularization hypothesis. The results presented here are in line with the findings of Greeley (2003); that is, the religious development in the post-communist countries of Central Europe does not fit the predictions of secularization thesis. With the well known exception of East Germany and the Czech Republic, religion is well in these countries. This is especially clear when we consider the resources spent by the communists to eliminate religion. There is no clear trend showing that the new generation raised after the revolution would be more or less religious than the previous one; and in most countries, religiosity remains high.

Finally, a brief note is due to the supply-side theory. Regarding the post-communist countries, the theory predicts that deregulation of religious market should have induced religious organizations to provide better services. The increase in quality should have been due to competition, either actual or potential. Obviously, the conditions for operation of religious groups have improved after the collapse of communist regimes; this fact is also included in the model proposed above. However, analysis of competition is more difficult.

There is little evidence that actual competition has increased religious participation. Table 5 presents the data on concentration of religious markets and weekly and yearly attendance rate in the post-communist countries. It has been shown by Voas et al. (2002) that the Herfindahl-Hirschman Index (HHI) is not very suitable measure; although, it should suffice for the illustration. It is quite obvious from Table 5 that supply-side competition hardly explains cross-country variation in attendance. Further, variability in competition over time is rather small and it does not seem correlated with attendance within countries. Closer analysis of individual countries also does not support the supply-side competition explanation. Dominantly Catholic countries, especially Poland with circa 90 per cent of population affiliated with the Catholic Church, have maintained relatively high attendance. On the other hand, where the dominant church is relatively small or declining, as in the Czech Republic, East Germany and Hungary¹³, attendance is rather low.

Of course, one may argue that the increase in quality of religious services and consequently rise of participation was due to potential competition. Indeed, foreign missionaries have settled in many post-communist countries. Although none of the new religious group has gained substantial support, it may have induced the traditional denominations, especially the Catholic Church, to provide better services for the faithful. It is also possible that new competitors would have been more successful if they were not held back by state regulation introduced in many post-communist countries (Froese 2004; Sarkissian 2009). The regulation itself may serve as an indirect proof that the established churches have feared new entrants in the religious market.

¹²Although, one might argue that the Catholic Church in Slovenia has changed its strategy due to competition of “religion without affiliation” (or “religion without attendance”).

¹³Hungary is an interesting case. The drop in the HHI (Table 5) between 1991 and 1998 is mainly due to disaffiliation of Catholics (from 69 to 51 per cent); the subsequent increase is also largely attributable to the Catholic church (its share has risen to 61 per cent). A different account of Hungarian development is offered by Froese (2001) who argues for the supply-side explanation.

	HHI			% attend weekly			% attend yearly		
	1991	1998	2008	1991	1998	2008	1991	1998	2008
East Germany	782	598	372	3.59	6.71	1.91	18.29	40.89	15.08
Czech Republic		1209	2205		7.43	5.12		40.79	20.7
Hungary	5146	2850	4230	12.25	15.02	6.97	37.04	40.04	23.78
Poland	9220	8620	7434	58.09	39.3	48.2	88.55	92.11	80.5
Slovakia		4947	5126		29.75	31.6		59.27	59.27
Slovenia	6867	5126	5494		13.14	15.57		41.32	62.94

After all, the demand-side explanation represented by the model and the supply-side theory are not competing. They may complement each other in explaining the initial revivals and subsequent development in post-communist countries. Increasing quality of religious services could hardly induce higher attendance if there was no demand for such services. On the other hand, the demand for religious services could have been satisfied by other means than traditional church attendance, if there was no response from the suppliers.

4 Conclusion

We have offered an account of the development of religious participation in several post-communist countries based on the model of individual's allocation of time. In spite the obvious weakness of focusing on the demand side only, it provides certain predictions well fitting the reality. It does not explain everything; however, no extant model is capable of doing so. The empirical material provided by the ISSP supports the model, although not completely. Certainly the data do not allow us to dismiss other theories attempting to account for the same phenomena. Indeed, it seems that the model proposed here could be a demand-side complement to the supply-side explanations of the post-communist religious markets.

Moreover, the model suggests that the development in the post-communist countries so far could have been specific for the transition period. As the economic situation of these countries approaches the condition of the West, religiosity may follow different paths. Some of these countries may follow the secularization path of Britain or France or Spain, or they may set a very different course. Due to the specific historical experience of forced secularization under communism we have no precedent to follow in forecasting; and due to the specific conditions of transition period we should be careful to extrapolate the recent development.

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