Is There Evidence of Fertility Convergence among Religious Groups in Western Europe?

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Abstract

The role of religion in explaining fertility differences is often overlooked in demographic studies of Western European countries, where there has been a substantial decline in institutional forms of religion. This study examines the changing effect of religion and religiosity on completed fertility and the transition to motherhood across birth cohorts of women in Britain, France and the Netherlands, using data from the Generations and Gender surveys and the British Household Panel Survey. The findings indicate that the gap in completed fertility by level of religiosity has increased among younger cohorts. Although fertility differences between Christian denominations have narrowed, religiously affiliated women in all three countries have larger family size compared to non-affiliated women.

Introduction

Most developed countries experienced substantial transformations in patterns of fertility and family formation throughout the past decades. These changes, which include delays in first marriage and first birth and a sharp decrease in fertility rates, are often associated with the process of secularization, or decline in religion (Goldscheider, 2006; Lesthaeghe and Surkyn, 1988; Norris and Inglehart, 2004; Surkyn and Lesthaeghe 2004).

The standard theory of secularization contends that processes of modernization, including advancements in science, technology, education and economic development, would lead to gradual erosion in the importance of religion, until it loses its significance in the social and private life (Norris and Inglehart, 2004).

According to the Second Demographic Transition theory, secularization has given rise to greater individual autonomy, leading to decisions about union formation and reproductive choices to be increasingly guided by personal aspirations of self-

fulfilment, rather than by the moral order of religious institutions (Lesthaeghe, 2010; Lesthaeghe and Surkyn, 1988; van de Kaa, 1993).

The weakening influence of religious institutions in society has been also used to explain the apparent convergence into lower fertility levels among different denominations in the United States as well as in Ireland (Goldscheider and Mosher, 1991; Mosher et al., 1992; O'Grada and Walsh, 1995; Westoff and Jones, 1979). In particular, there has been a marked decline in the fertility levels among those identified as Catholics. As a result, Catholic fertility became closer to fertility levels of other major religious denominations (McQuillan, 2004), a process that was described as "the end of Catholic fertility" by Westoff and Jones (1979).

The narrowing fertility gap between Catholics and other denominations, alongside the secularization paradigm, have led to a diminishing interest in the role of religion in explaining demographic behavior (McQuillan, 2004; Philipov and Berghammer, 2007). In particular, the relationship between religion and fertility received little attention in research on Western Europe, where there has been a marked decline in the proportion of religiously affiliated individuals and in the number of people attending religious services on a regular basis (Inglehart and Norris, 2003).

However, numerous scholars have criticized the classic secularization thesis, arguing that the decline in religion is neither as widespread nor consistent as previously assumed (Davie, 1990; Greeley, 2003; Norris and Inglehart, 2004; Voas, 2009). Furthermore, Kaufman and others (2012) claimed that religious decline has practically stopped in several European countries. Moreover, they argued that as a result of the flow of immigrants with higher levels of religiosity and higher fertility, Western Europe may be more religious at the end of the twenty first century than it is today (ibid, 2012: 69).

In recent years there has been some renewed interest in the effect of religion on fertility attitudes and behavior (see for example: Adsera, 2006; Philipov and Berghammer, 2007; Frejka and Westoff, 2008), though there is still uncertainty about the continuing importance of religious influence on fertility in the context of long lasting decline in institutionalized forms of religion.

The current study adds to the existing literature by shedding light on the role of religion in shaping fertility behavior in highly secularized societies. This is done by following the changes in the relationship between religion - in terms of both affiliation and practice - and fertility across birth cohorts in Britain, France and the Netherlands. This study also contributes to the existing debate on the importance of religion in explaining social behavior and fertility behavior in particular.

Religion can be articulated as a multidimensional concept, which includes different levels and measures (Norris and Inglehart, 2004; Southworth, 2005). These may be divided into three main aspects: the first is affiliation - the identification with a specific religion (or lack of such identification). A second dimension is religious practice, most commonly measured as frequency of attendance at religious services. The third aspect of religion is belief, which can be measured by self-rated religiosity or the importance of religion in one's life (Voas, 2009).

This study focuses on the two dimensions of affiliation and practice, for both theoretical and methodological reasons; Religious affiliation is regarded as a meaningful form of identification, which has consequences on social behavior (Southworth, 2005). Attendance at religious services is another important measure of religious commitment, and is considered to be a stronger indicator of religiosity compared to religious belief, which is more idiosyncratic in nature (Voas, 2009; Voas and Ling, 2010).

The importance of paying attention to both religious affiliation and level of religiosity in relation to fertility has been emphasized in previous studies, as higher level of religiosity is expected to accentuate the effects associated with religious affiliation. In addition, the intensity of religious practice is not uniform across the various groups (Lehrer, 2004; Mosher et al., 1992).

The following section provides an overview of recent empirical findings on the relationship between religion and fertility and theoretical explanations for the effect of religion and religiosity on reproductive behavior.

Religion, Religiosity and Fertility Trends

Empirical studies from recent years have documented the persistent relevance of religious adherence for reproductive behavior in Western countries. For instance, Frejka and Westoff (2008) have found that among women in Europe and the United States, those who identified as Protestants and Catholics have higher fertility rates compared to women who are not affiliated with any religion. Additionally, within each denomination, the more devout had more children.

In a comparative study of 18 European countries, Philipov and Berghammer (2007) have found a positive correlation between different measures of religiosity (e.g. affiliation, practice, and self-rated religiosity) and the ideal, intended and actual fertility of individuals. Moreover, Berghammer's (2012) longitudinal study from the Netherlands provided evidence of a causal effect of church attendance on higher fertility levels. Additionally, Berghammer has found that this relationship is one-directional, as childbearing did not affect the frequency of church attendance.

Explanations for the effect of religion and religiosity on fertility behavior emphasize the central role that major religions take in shaping the family and childbirth (Lehrer, 2004). The high value that is ascribed to family and children in most religions, with its social implications, is also stressed by Norris and Inglehart (2004:23): "One of the most central injunctions of virtually all traditional religions is to strengthen the family, to encourage people to have children, to encourage women to stay home and raise children, and to forbid abortion, divorce, or anything that interferes with high rates of reproduction."

However, it should be noted that some religious denominations have stronger pro-natalist norms than others; these differences are expressed in the religious texts and teachings of various denominations, including instructions of reproductive behavior and family roles (Adsera, 2006; Sherkat, 2000).

Nevertheless, it has long been recognised that the influence of religion on fertility is not conveyed only through religious teachings and specific rules regarding contraceptive use, rather, as argued by Goldscheider (1971, 2006), the mechanism through which religion affects fertility could be better understood through the wider

context of social organization, including social norms and gender role perceptions associated with the religious group.

Building on Goldscheider's approach to religion and fertility, McQuillan (2004) defined specific social and political settings in which religion would play an important role in shaping demographic behavior; According to McQuillan, religious norms about family and fertility are most likely to influence behavior when religious institutions have the means to communicate these teachings to their members and to enforce compliance, through formal organizations or informal social pressure. In addition, religious groups will have a larger effect on fertility patterns when members feel a strong sense of attachment to the religious community and when it is considered to be a key marker of identity (ibid, 2004).

Another route in which religious involvement may influence fertility is through increased social capital among those attending religious services on a regular basis (Chatters and Taylor, 2005; Lehrer, 2009; Philipov and Berghammer, 2007). The beneficial effects of religiosity on social capital and well-being were discussed in length by Lehrer (2004, 2009), who suggested that religious congregations promote the formation of social networks, where emotional, tangible and informational support is exchanged between the members. This source of support may affect fertility decisions by reducing the perceived costs of childbearing.

Furthermore, some scholars have claimed that frequency of service attendance may be a stronger predictor of fertility intentions and behaviour compared to affiliation alone (Adsera, 2006; Philipov and Berghammer, 2007). Adsera (2006) has argued that following the declining influence of religious institutions in Europe, the frequency of church attendance has become a more salient determinant of family norms among younger generations compared to religious affiliation alone, as those who continue to go to church represent a more selective group of people who adhere to religious doctrines. This argument is echoed in Regnier-Loiler's (2008) study on religion and fertility in France, where he argues that in the context of a sharp decline in religiosity, the relationships between religious practice and family formation patterns are becoming more pronounced.

Therefore, as argued by Goldscheider and Mosher (1991), the general trend of secularization does not rule out the continuing influence of some forms of religious

expression on fertility, as those who are more committed to religious values and highly involved in religious communities are more likely to emphasize family oriented values and behavior.

Research Context and Hypotheses

The countries at the focus of this study are Britain, France and the Netherlands, which are considered to have undergone an extensive process of secularization (Greeley, 2003; Norris and Inglehart, 2004).

The proportion of the population attending religious services on a regular basis (at least once a month) is around 11% in France (Regnier-Loilier and Prioux, 2008), 15% in the Netherlands (Berghammer, 2012:201) and 18% in Britain (Voas and Ling, 2010:70). The share of people who profess no religious affiliation in Britain and in the Netherlands is about 40 per cent (Berghammer, 2012; Voas and Ling, 2010), which is high also in European standards. In France, on the other hand, the percentage of non-affiliated people is around 11% (Regnier-Loilier and Prioux, 2008).

It should be noted that these countries differ in terms of religious structure and distribution of religious groups. While the Catholic Church is the dominant religion in France (over 70 per cents are identified as Roman Catholics (ibid, 2008)) the religious landscape in Britain and the Netherlands is more diverse. In the Netherlands, Catholics constitute around 30 per cent of the population, while Protestant are the second largest religious group, comprising 20 per cent of the population (Berghammer, 2012:198). In Britain, the largest denomination is the Church of England (23%). Roman Catholicism forms the second largest denomination (9%), followed by various protestant groups (Voas and Ling, 2010:67).

Nevertheless, these countries also share some common characteristics; as in most other industrialized societies, the level of religiosity, as indicated either by affiliation or by service attendance, varies by gender and year of birth. Thus, women are generally more religious than men, and people from older birth cohorts are more religious compared to those from younger cohorts (Jagodzinski and Manabe, 2009).

In addition, these countries consist of a relatively large proportion of 'nominal' religious people, who identify as affiliated with a specific denomination but do not attend religious services on a regular basis. Voas (2009) defines this phenomenon as

"fuzzy fidelity", to describe individuals who are not religious but are not completely secular either. Moreover, Voas considers this trend as a transient stage in the process of religious decline. Thus, eventually, the proportion of secular people will increase at the expense of fuzzy fidelity.

On this background, as the proportion of those attending religious services regularly is shrinking from one generation to another, we might expect this group to show increasingly distinct patterns of family formation, as they are more likely to adhere to traditional religious doctrines that highlight the value of family and children, alongside the fulfilment of family roles (Adsera, 2006; Philipov and Berghammer, 2007). Moreover, behavioural features of the second demographic transition, as the shift to below replacement fertility, are less likely to appear among those individuals who are dedicated to traditional forms of religious practice (Surkyn and Lesthaeghe, 2004).

Therefore, it is first hypothesized that people who identified as affiliated with a particular religion will have higher fertility compared to those who expressed having no religion. In addition, within denominations, it is expected that those who attend services on a regular basis (at least once a month) will have higher fertility compared to those who attend services less often or not at all.

Second, it is hypothesized that fertility variation by frequency of service attendance will increase among younger birth cohorts, where the group of regular attendees is becoming smaller and more selective. On the other hand, fertility differences on the basis of affiliation alone are expected to decrease, as nominal religious individuals are less likely to be committed to traditional religious norms of family roles. The following section provides a description of the data sources and methodology that are used to examine these propositions.

Data and Methods

The data for this study are derived from two main sources: the Generations and Gender Programme (GGP)[1] and the British Household Panel Survey (BHPS)[2]. The

[1] United Nations 2005. Generations & Gender Programme: Survey Instruments. New York and Geneva: UN.

[2] University of Essex. Institute for Social and Economic Research, *British Household Panel Survey: Waves 1-18, 1991-2009* [computer file]. *7th Edition*. Colchester, Essex: UK Data Archive [distributor], July 2010. SN: 5151, http://dx.doi.org/10.5255/UKDA-SN-5151-1.

GGP is a system of nationally representative surveys coordinated by the UNECE. The French survey was conducted in 2005 on a sample of over 10,000 respondents out of which 5,708 are women. The survey from the Netherlands was conducted from 2002 to 2004, using a sample of 8,161 respondents, out of which 4,741 are women. The GGP surveys include detailed information on partnership and birth histories, as well as socioeconomic variables and data on religious affiliation and the frequency of attendance at religious services.

The BHPS is designed as an annual survey of a nationally representative sample of over 5,000 households. The same individuals are interviewed each year since its beginning in 1991. For the purpose of the current study, the analysis was restricted to the last wave of the survey, which was conducted in 2008-2009 on a sample of 14,400 respondents (7,860 are women).

The BHPS survey was complemented with additional data from the consolidated union and births histories[3], which contains retrospective lifetime histories and subsequent panel data related to respondents' partnerships and childbearing. By matching the data of each respondent to the consolidated file it was possible to calculate the total number of children ever born. For France and the Netherlands, the number of children ever born was calculated by adding together the number of own biological children, who are living in the house and those who live outside.

The first part of the research follows the trends in completed fertility levels by religion and by level of religiosity across birth cohorts (in groups of ten years) from 1925 to 1969 (until 1964 in France and the Netherlands). Then, a multivariate regression analysis is employed with interaction terms between birth cohort and religious group and between cohort and religiosity, in order to detect any changes in the influence of religious variables from one cohort to another.

The following part of the study presents a survival analysis for the transition to first birth among women in all three countries, in order to examine another aspect of fertility and to include women who are still in their reproductive years. A separate logistic regression was conducted on a subsample of partnered women who were born

[3] Pronzato, C., *British Household Panel Survey Consolidated Marital, Cohabitation and Fertility Histories, 1991-2009* [computer file]. *3rd Edition.* University of Essex. Institute for Social and Economic Research, [original data producer(s)]. Colchester, Essex: UK Data Archive [distributor], January 2011 SN: 5629, http://dx.doi.org/10.5255/UKDA-SN-5629-1

before or after the year of 1960, to see whether there is a change in the correlation between religious variables and the likelihood of entering motherhood. The cases in which a woman did not give birth by age 45 or until the last date of interview were right censored.

Description of Variables

The dependent variable is the number of children ever born, which was estimated for women aged 40 or above, and therefore represents the completed, or near completed fertility. When estimating the likelihood of the transition to first birth, the dependent variable is the log of the odds for the occurrence of first birth in a given year.

The main explanatory variables include religion, i.e. the religious category that a respondent identifies with, including the category of those who stated having "no religion". The level of religiosity was measured by the frequency of attendance at religious services. This was done using a binary variable, in which regular attendants were defined as 'religious' if they attend religious services at least once a month.

The highest level of education achieved was measured by the ISCED97 mapping system[4], which is a standardized measurement that enables comparisons of international education statistics. This measure was divided into three main categories: "lower secondary" (or below), "upper secondary" and "high" (tertiary education).

Since there were no available data on ethnic origin for all respondents from the Generations and Gender surveys, mother's country of birth was used as a proxy for ethnicity. The categories for mother's country of birth are country specific, and classified according to the main areas from which most migrants arrive to the country in question. In addition, a dummy variable indicating whether the respondent was born in the country of interview or abroad.

[4] See: http://www.uis.unesco.org/ev.php?URL_ID=7433&URL_DO=DO_TOPIC&URL_SECTION=201

Data Limitations

Neither the GGP nor the BHPS provide data on the level of religiosity during childhood or the parental level of religiosity. Therefore it is difficult to assess a causal relationship between religiosity and fertility, as respondents may change their frequency of service attendance over the life course due to age effects or lifecycle events, such as marriage and childbearing (Voas, 2009). However, previous studies have found little support to the effect of ageing or lifecycle events on the level of religiosity (Berghammer, 2012; Tilley, 2003; Voas and Crockett, 2005). Instead, most studies showed evidence that changes in religiosity are mainly generational, and that religious involvement over the course of adult life is rather stable (Norris and Inglehart, 2004; Voas, 2009).

Moreover, the data from Britain enable to examine the stability of the religious variables of individuals across time. This was done by using a cross tabulation of respondents' religious affiliation and frequency of service attendance across the years of the panel study. The results (see Appendix 1) indicate that both variables are highly stable throughout the lifecycle. On average, the stability of religious denomination is over 80%, i.e. individuals who profess to a specific denomination (or "no religion") state the same denomination in over eighty per cent of their observations. The overall stability of religiosity (frequency of service attendance) is close to 90%.

Another limitation is the difficulty in analyzing people who adhere to non-Christian religions, including those identified as Muslims. The sample sizes for these groups are too small to facilitate an examination of fertility changes across birth cohorts.

Findings

The first part of the results presents descriptive statistics of the proportion of the population affiliated with any religion and the proportion of regular attendants at services (Figure 1). As in previous studies, each subsequent birth cohort shows a decline in the proportion of those identified with a particular denomination and those attending services at least once a month. One exception appears in the Netherlands, where the proportion of religious people seems to level off among the younger cohorts.

Both in Britain and in the Netherlands, the proportion of those professing no religion becomes the majority from the cohorts born in 1965 and onwards, though in the Netherlands the regular service attendants remain above 10 per cent of the population. In France, the proportion of religiously affiliated individuals is relatively high, though the rate of service attendance is low as shown in Britain.

Some caution however is required when interpreting the cross-national variation in religious affiliation, since the answer to the question of religious affiliation may be susceptible to the way the question is phrased and the context in which it appears in the questionnaire (Voas, 2009; Voas and Bruce, 2004). Therefore, it is important to consider religious practice in addition to affiliation.

Figure 2 and 3 present the average number of children ever born, first by religious denomination and then by denomination and religiosity among women who completed or nearly completed their childbearing years. These results provide an overview of the changes across birth cohorts in the relationship between religion and fertility levels.

The results from Britain (Figure 2a) show a clear pattern of convergence in fertility between religious groups. This is mainly due to the sharp decline in fertility among women identified as Roman Catholics from nearly three children per woman to only two children. Interestingly, fertility levels among those affiliated with the Church of England and Protestant women kept a rather stable level of fertility at around two children per woman. Non-affiliated women in Britain first showed a slight increase and then a decline to a level of 1.65 children on average among the youngest birth cohort.

Figure 1a: Proportion affiliated and practicing by birth cohort in Britain

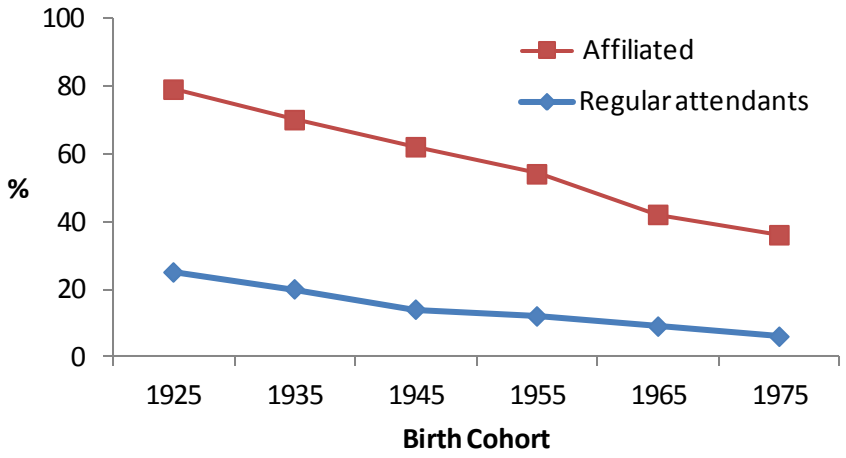


Figure 1b: Proportion affiliated and practicing by birth cohort in France

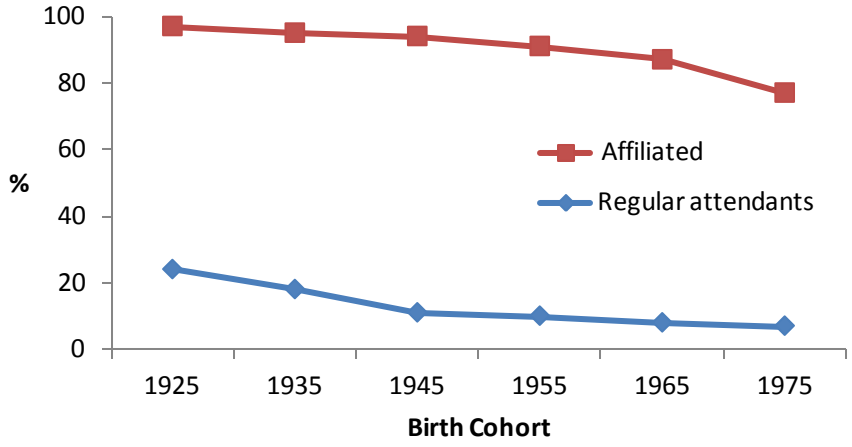
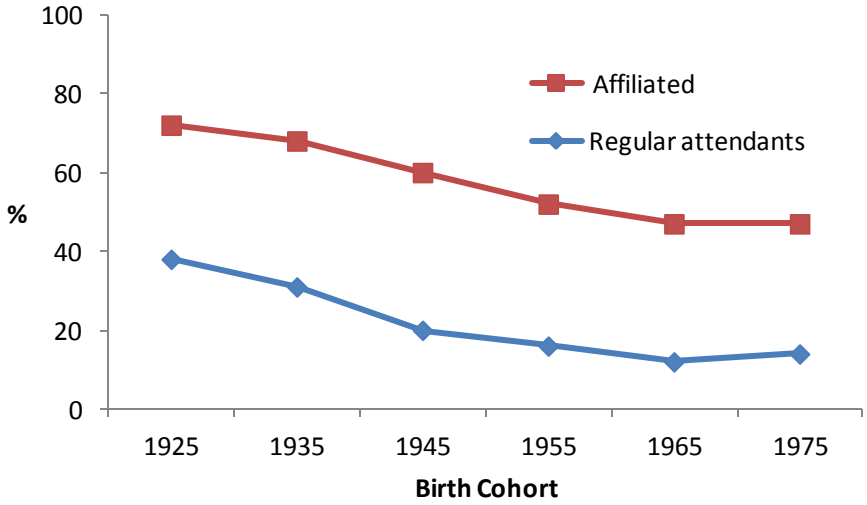


Figure 1c: Proportion affiliated and practicing by birth cohort in the Netherlands



In France (Figure 2b), no great differences are found between Catholic and non-affiliated women, as both groups show a gradual decrease in fertility levels from the older to the younger cohorts.

In the Netherlands (Figure 2c), the gaps between religious groups remain relatively large. Both Catholic women and Protestant[5] women experienced a marked decline in fertility from cohorts born in 1925 to those born between 1955 and 1964, with the exception of the Dutch reformed with fertility level stable at 2.5 children. However, non-affiliated women also experienced a sharp decline in fertility from 2.4 to 1.7 children on average, and therefore there is still a large difference between affiliated and non-affiliated women, though the gap between religious denominations is smaller for the younger cohorts.

In Figure 3 there is a breakdown of the religious groups not only by affiliation, but also by level of religiosity (regular attendance at religious services). This gives a more detailed picture of the relation between religion and fertility across birth cohorts.

In Britain (Figure 3a), the general pattern of fertility convergence is still evident, although among the most recent cohort there is a clear difference between practicing women of different denominations with fertility at replacement level compared to the non-affiliated with fertility level well below replacement. Women who identified with a specific denomination but do not attend services are found between the two former groups.

In France and the Netherlands an increasing gap is revealed among the younger cohorts between practicing and non-practicing women. Catholic women in France, who do not attend religious services, show a decline from 2.5 children per woman in the 1925-34 cohort to two children among the youngest cohort. On the other hand, fertility level among practicing Catholic women remained relatively high and even increased among the 1955-64 cohort.

[5] For the Netherlands this group is comprised of Evangelical and Calvinist denominations.

Figure 2a: Children ever born by religion and birth cohort for women in Britain

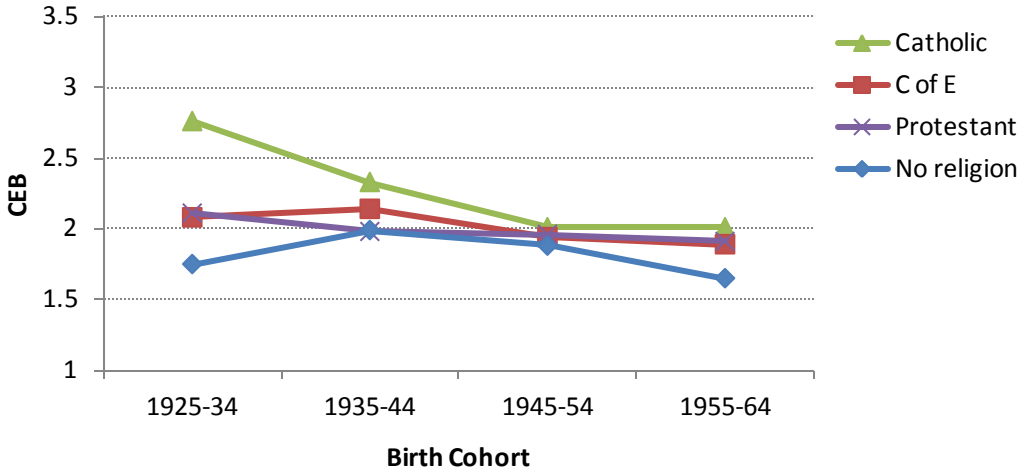


Figure 2b: Children ever born by religion and birth cohort for women in France

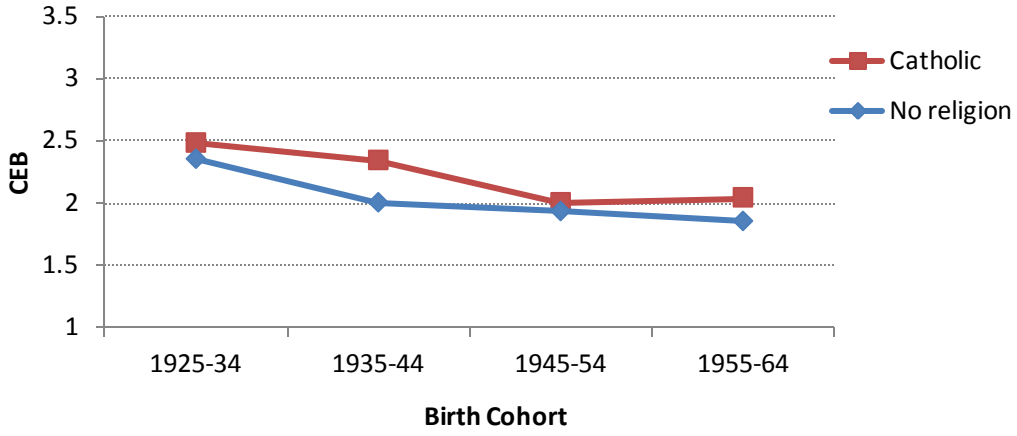


Figure 2c: Children ever born by religion and birth cohort for women in the Netherlands

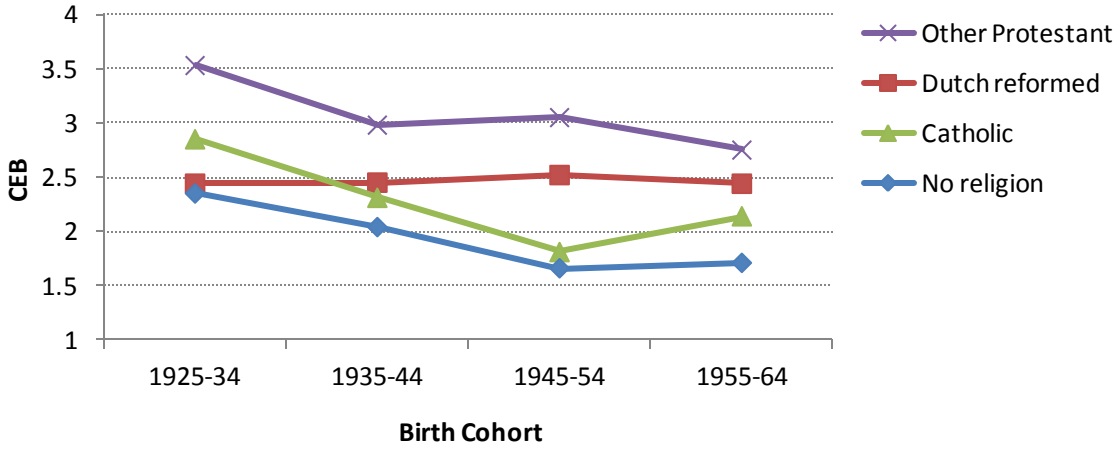


Figure 3a: Children ever born by religious affiliation and practice for women in Britain

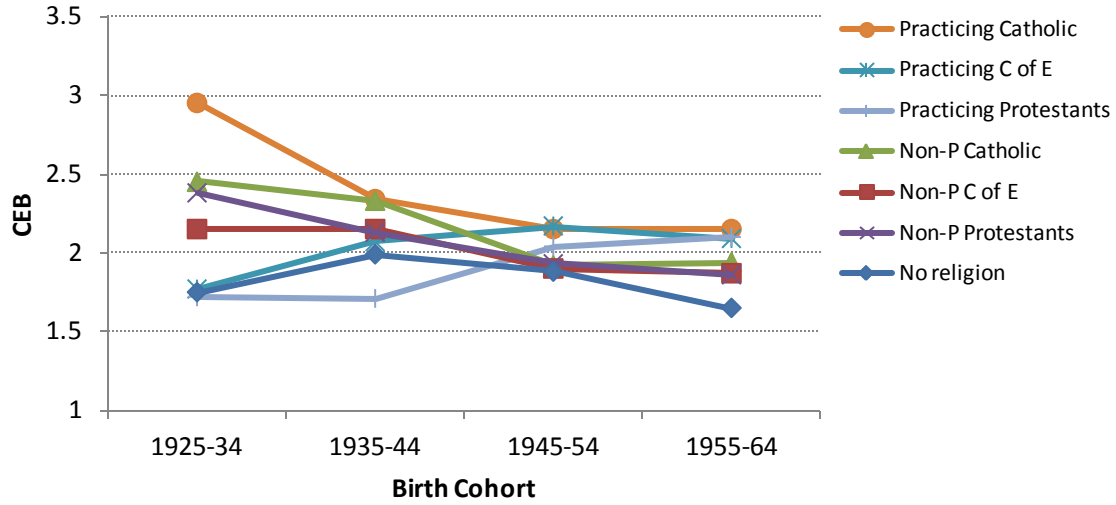


Figure 3b: Children ever born by religious affiliation and practice for women in France

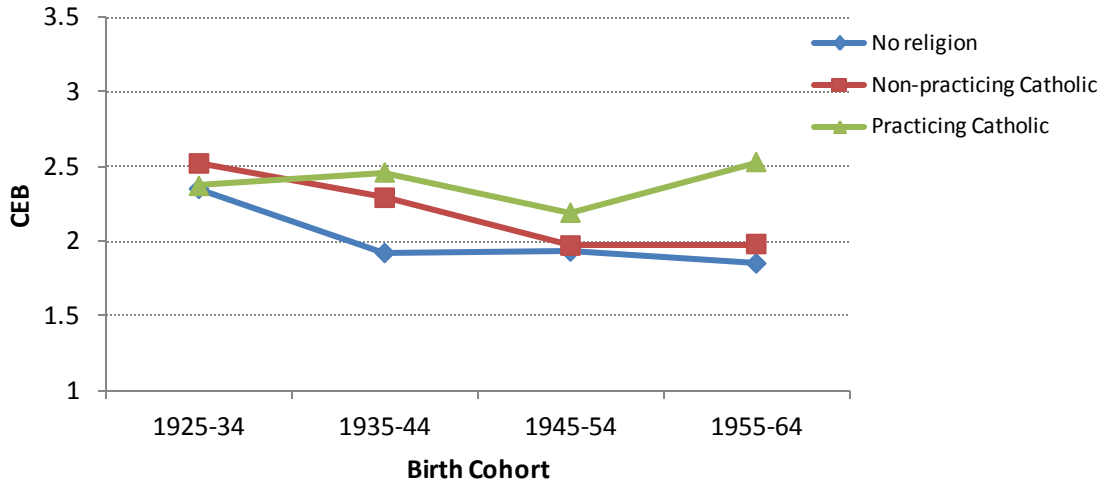
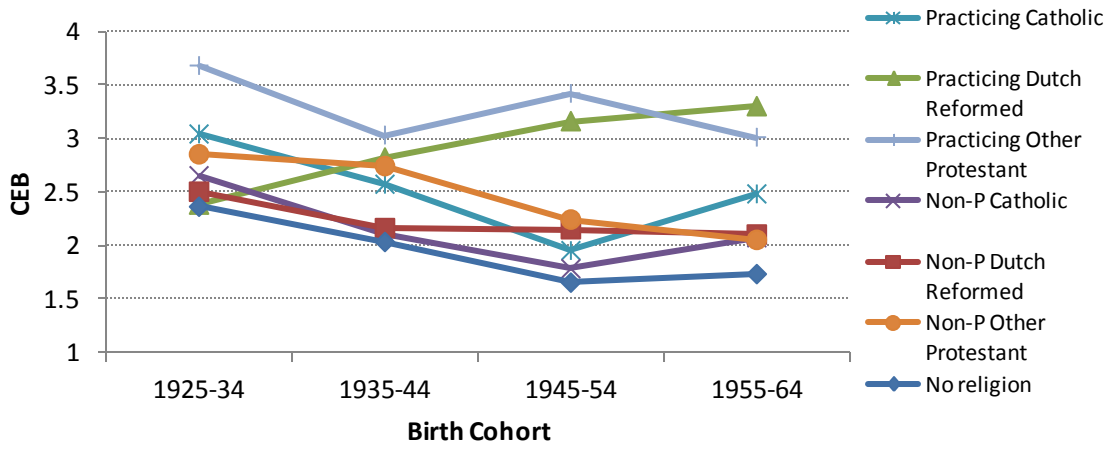


Figure 3c: Children ever born by religious affiliation and practice for women in the Netherlands



In the Netherlands, practicing Dutch reformed also experienced an increase in fertility, while other practicing Protestants remained at high fertility level of three children per woman. The practicing Catholic in the Netherlands first had a decline in fertility, though it rose up again among the youngest cohort. In the most recent cohort, all non-practicing women are concentrated at the level of two children per woman.

Although each country shows somewhat different patterns of the changes in the relationship between religion and fertility over time, several similarities also appear from the results; while all women who do not attend religious services show a decline in fertility across the birth cohorts, among some religious groups of practicing women there has been an increase in fertility when moving from older to younger cohorts. This has led to an increasing gap in fertility on the basis of religious practice, as opposed to the fertility differences on the basis of religious affiliation alone, which have either narrowed down or remained unchanged.

These findings give some support to the research hypotheses, as in all countries religiously affiliated women have higher fertility compared to non-affiliated women and those who attend religious services have higher fertility compared to all other women. These differences have also become more pronounced among the younger cohorts.

Nevertheless, the findings above do not control for other socioeconomic factors, which may interfere with the relationship between religion and fertility. In addition they do not take into account demographic effects, as the increasing proportion of migrants or those with migrant origin, which tend to be more religious than the native population in Western Europe (Kaufman et al., 2012).

Table 1 presents the results of a multivariate regression model for the number of children ever born for women age 40 and above, controlling for birth cohort, level of education and region of residence. In addition, the model controls for nativity status (whether the respondent is foreign born) and mother's country of birth. The model also introduces interaction terms between religious variables and the birth cohort, to examine the significance of the changing relationship between religion and fertility from older to younger generations.

Table 1: OLS regression for children ever born among women age 40 and above[6]

		Britain	France	Netherlands
Birth Cohort	1925-34	Ref	Ref	Ref
	1935-44	0.237	-0.161	-0.324*
	1945-54	0.341**	-0.312	-0.602***
	1955-64	0.112	-0.425	-0.501***
	1965-69	0.059		
Religiosity	Attending services at least monthly	-0.192	-0.079	0.291*
Religious Affiliation	No Religion	Ref	Ref	Ref
	Catholic	1.254***	0.104	0.237
	Protestant	0.700***		0.821***
	C of E	0.474***		
	Dutch Reformed			-0.322
Education	Lower Secondary	Ref	Ref	Ref
	Upper Secondary	-0.472***	-0.336***	-0.151**
	Tertiary Education	-0.545***	-0.323***	-0.463***
Religiosity#Cohort	1935-44	0.319*	0.262	0.106
	1945-54	0.414**	0.445**	0.388*
	1955-64	0.419**	0.701***	0.192
	1965-69	0.472*		
Catholic#Cohort	1935-44	-0.871***	0.017	-0.226
	1945-54	-1.425***	-0.103	-0.401*
	1955-64	-0863***	0.055	-0.075
	1965-69	-0.800**		
Protestant#Cohort	1935-44	-0.702**		-0.271
	1945-54	-0.723***		-0.056
	1955-64	-0.447		-0.178
	1965-69	-0.516		
C of E#Cohort	1935-44	-0.271		
	1945-54	-0.381*		
	1955-64	-0.191		
	1965-69	-0.168		
Dutch Re#Cohort	1935-44			0.492*
	1945-54			0.742***
	1955-64			0.694***
Nativity	Foreign born	-0.081	0.262**	0.018
Mother's country of birth	Country of interview	Ref	Ref	Ref
	South Asia	0.866***		
	Maghreb		0.023	
	Other African country		0.833***	
	Suriname			1.182***
	Constant	1.951***	2.039***	2.084***
	N	**3,548**	**3,210**	**2,430**
	Adjusted R2	**0.06**	**0.10**	**0.16**

*p<0.1, **p<0.05, ***p<0.01

[6] Geographic region is also controlled in the model (not shown here).

The results from the multivariate regression give further support to the second hypothesis of the study, showing a general increase in the correlation between service attendance and fertility across the cohorts, while the relationship between religious affiliation and fertility is weakening, though with few exceptions.

In Britain, the interaction between Catholic affiliation and birth cohort is strongly negative in reference to the oldest cohort group. A significant negative interaction effect is also found for Protestants and those identified as affiliated with the Church of England. However, the coefficients for all religious groups in Britain remain significantly positive in relation to the group of non-affiliated women.

The interaction for level of religiosity on the other hand is significantly positive, indicating the increasing explanatory power of religiosity on fertility levels among younger cohorts. Similar results are found for France among the more recent birth cohorts and to some extent in the Netherlands, where the interaction effect for religiosity and birth cohort was only marginally significant.

The decline in the effect of Catholicism on fertility is also evident in the Netherlands. However, among Protestants in the Netherlands no change is found across the birth cohorts, and the coefficient for this group is strongly positive. Moreover, the interaction term for Dutch reformed is significantly positive, indicating an increasing gap in fertility between this group and non-affiliated women.

Another interesting result from this analysis is the effect of mother's country of origin, which also has a significant positive effect on the number of children ever born. A positive effect of being born abroad has a significant effect on fertility only in France, which could be a result of the demographic characteristics of immigration to these countries.

The next section focuses on another aspect of fertility, the transition to first birth. The survival analysis for first birth enables to include also women who are still in their reproductive years.

Figure 4 presents the survival curve from age 15 to the first birth by level of religiosity among women born before 1960 and those born from this year onwards. Interestingly, among women born before 1960 in all three countries, the survival curve shows a later transition to first birth among religious women. The later entry

into motherhood among religious women is also apparent for British women who were born after 1960. This pattern could be a result of the proportion of births out of wedlock, which is expected to be higher among non-religious women (Surkyn and Lesthaeghe, 2004).

In France (Figure 4b), the proportion of childless women is slightly higher for religious women who were born before 1960, though this pattern is reversed among women born after 1960. In Britain (Figure 4a) there is also a decline in the proportion of religious childless women for those born after 1960, and in the Netherlands (Figure 4c) the gap between religious and non-religious women also widens among those born after 1960.

These results however, may be largely influenced by differences in the proportion of migrant population among those born in the earlier or later period. In addition, these differences may also reflect variation in patterns of marriage and family formation among religious and non-religious women.

In order to control for these variables, a logistic regression for the likelihood of giving first birth from the start of the union was conducted among partnered women in each country (Table 2).

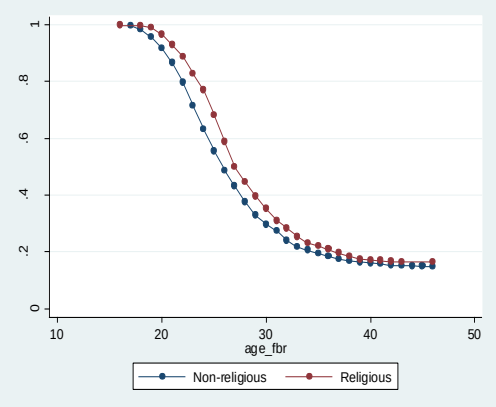
In addition to the explanatory variables in the model for completed fertility, this model also includes time varying covariates, as age, duration of the union, period in calendar years and a dummy variable indicating whether the woman is currently married or not. The analysis was conducted separately for women born before or after 1960 in order to detect differences in the effect of religion and religiosity among older and younger generations.

The results of the logistic regression vary greatly from one country to another. Only in France, religiosity is significantly correlated with the transition to first birth among women born after 1960 (exp(b)=1.373, significant at 0.01). In the Netherlands, although religiosity is significant for those born before 1960, it is no longer significant for the post 1960 cohort. The coefficient for Protestant women in the Netherlands has remained significantly positive for both older and younger cohorts. For Britain, none of the religious variables are significant for the likelihood the transition to first birth.

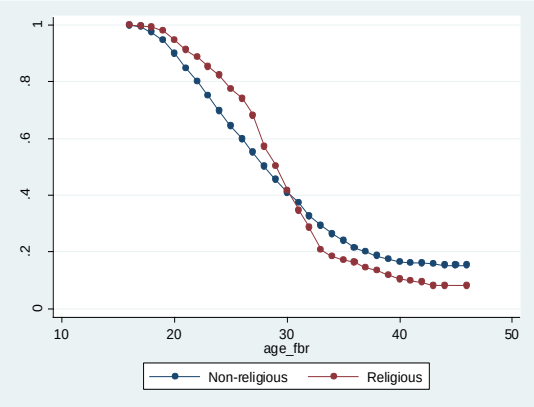
Figure 4: Survival curve for the transition to first birth by religious practice:

4a. Britain

Women born before 1960

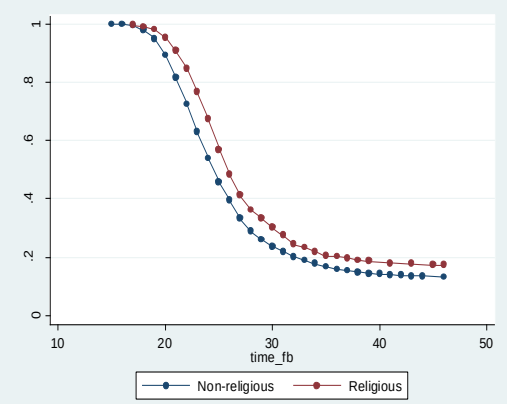


Women born after 1960

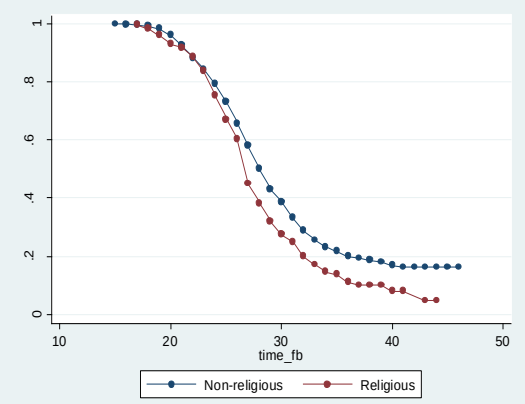


4b. France

Women born before 1960

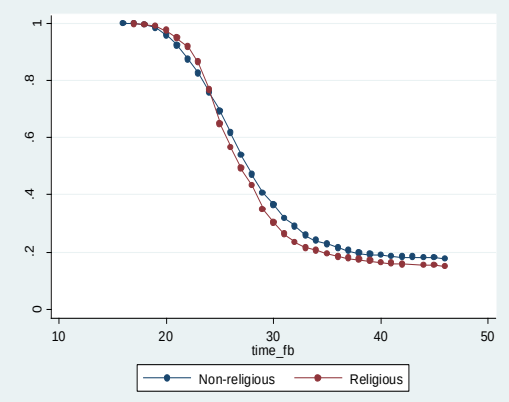


Women born after 1960



4c. Netherlands

Women born before 1960



Women born after 1960

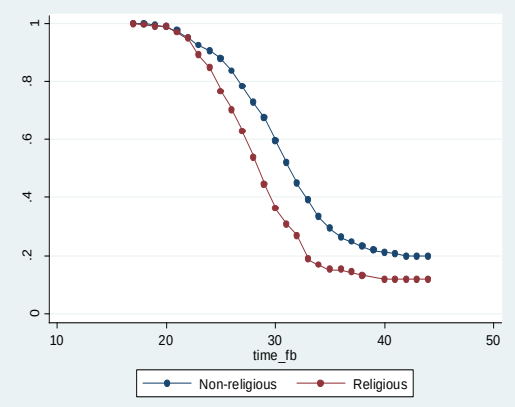


Table 2: Logit regression for the transition to first birth among partnered women (odds ratios):

	Britain		France		Netherlands	
Birth cohort	<1960	>=1960	<1960	>=1960	<1960	>=1960
Married	4.900***	2.661***	4.387***	2.699***	8.054***	6.014***
Attend services regularly	1.139	1.027	1.117	1.373***	1.453***	1.022
Religious affiliation:						
No Religion	Ref	Ref	Ref	Ref	Ref	Ref
Catholic	1.290	1.083	0.986	0.979	1.112	0.952
Protestant	1.110	0.874			1.448**	1.534**
C of E	0.969	1.145				
Dutch reformed					1.043	1.237
Educational attainment:						
Lower Secondary	Ref	Ref	Ref	Ref	Ref	Ref
Upper Secondary	0.765**	0.350***	0.932	0.831**	0.985	0.665***
Tertiary Education	0.678***	0.306***	0.936	0.652***	0.837*	0.531***
Foreign born	0.970	0.675	0.869	1.361**	0.443*	0.948
Mother's place of birth:						
country of interview	Ref	Ref	Ref	Ref	Ref	Ref
South Asia	1.713	2.487***				
Maghreb			1.264*	0.918		
Other African country			1.027	1.368*		
Suriname					6.476**	1.201
Union duration	0.967	1.263***	0.815***	1.308***	1.515***	1.400**
Union duration^2	0.996	0.983***	1.000	0.977***	0.992***	0.995**
Age	1.257**	0.862	1.038	1.389***	0.933*	1.314***
Age^2	0.995***	1.002	0.999	0.995***	0.996	0.979***
N (women years)	**3,531**	**3,755**	**8,617**	**7,915**	**4,543**	**5,619**
R^2	**0.1**	**0.06**	**0.15**	**0.07**	**0.16**	**0.14**

*p<0.1, **p<0.05, ***p<0.01

The model also controls for time period (in five years intervals) and region of residence (not shown here).

Another noteworthy outcome is the decline in the effect of marital status on the transition to first birth for those born after 1960. This is an expected result considering the increase in births out of wedlock among younger cohorts.

Thus, when examining the relationship between religion and the transition to first birth, only the results for France support the research hypothesis of the increasing significance of religiosity in explaining fertility differences.

Discussion and Conclusions

This study examined the changing relationships between religion and fertility across birth cohorts in three Western European countries. It was hypothesized that both religious affiliation and level of religiosity are linked to higher fertility levels and that the fertility gap between women who attend services on a regular basis compared to other women increases among younger generations.

These hypotheses were partially supported by the research findings; however, great variation is found between countries and religious groups in the way in which religiosity is linked to fertility behavior.

Differences in completed fertility between religious groups have somewhat narrowed among the younger birth cohorts. However, when both religious affiliation and level of religiosity are taken into account, the fertility gap between religious and non-religious women becomes more significant when moving from older to more recent cohorts. The increasing variation in completed fertility by level of religiosity remains consistent after controlling for other socio-demographic variables, such as country of origin and educational attainment. Nevertheless, the relative increase in fertility of religious women was mainly evident for Protestant groups rather than Catholics.

Furthermore, the survival analysis for the likelihood of first birth reveals mixed results. The survival curve for the transition to motherhood shows that in general, religious women have their first birth at a later age compared to non-religious women. However, religious women born after 1960 are less likely to remain childless than non-religious women.

The logistic regression analysis, which was restricted to partnered women, found that only in France there is evidence for the increasing significance of religiosity in explaining the variation in the transition to first birth among women born after 1960. This may be a result of differences in union formation patterns between religious and non-religious women, which requires further research.

Overall, the general picture that appears from this study indicates that both aspects of religion - affiliation and practice – continue to play an important role in explaining reproductive behavior in Western Europe. Although fertility differences between denominations have narrowed, in all countries examined here affiliated women had higher fertility compared to their non-affiliated counterparts. Also, within each denomination those attending services on a regular basis have higher fertility compared to non-practicing women.

The increase in fertility, which is observed among religious women, supports the assumption of increased selectivity among those who still adhere to traditional forms of religious practice, as suggested by Adsera (2006). In addition, women who attend religious services on a regular basis also form part of a network of people with similar level of religious devotion. Being part of this exclusive network may further enhance the identification with religious values that emphasize the centrality of the family and also strengthens members' compliance with religious norms through social rewards or sanctions by other members of the religious community, as suggested by McQuillan (2004).

The increasing fertility gap between religious and non-religious women may also be a result of a differential decline in fertility; Since the move to below replacement fertility is associated with increased individualization and the rejection of traditional authorities, including religious ones (Lesthaeghe, 2010), it is reasonable that religiously devoted individuals will not experience the same decline in fertility as other people.

Future research on the relationships between religion and fertility should focus on religious differences in union formation patterns, which may also affect the transition to parenthood. In addition, further research is required using repeated cross-sectional data, in order to improve the understanding of the changing relationship between religion and fertility over time.

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Appendix 1: Stability of Religious Variables across Panel Waves in the BHPS:

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. xttab affiliate2
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affilia~2	Overall Freq.	Overall Percent	Between Freq.	Between Percent	Within Percent
no relig	26530	43.76	13399	54.17	82.88
C of E	16556	27.31	7481	30.25	76.98
Catholic	6088	10.04	3376	13.65	90.76
Protesta	6482	10.69	3429	13.86	79.57
Muslim	476	0.79	234	0.95	97.14
other	4497	7.42	2841	11.49	65.11
Total	60629	100.00	30760	124.36	80.41
			(n = 24734)		

```
. xttab religious
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religious	Overall Freq.	Overall Percent	Between Freq.	Between Percent	Within Percent
No	90585	79.90	23617	84.63	93.47
Yes	22783	20.10	7989	28.63	73.00
Total	113368	100.00	31606	113.26	88.29
			(n = 27906)		