Increasing childlessness in Europe: time trends and macro determinants

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Abstract: This working paper provides an overview of trends in female and male childlessness in Europe over the last decades and explores associations between cohort childlessness and national demographic and social indicators. We also estimate proportions of voluntary childless people.

Results show that childlessness has increased at ages 30-34 and 40-44 years among both men and women throughout Europe, with few exceptions. Female childlessness at ages 40-44 years remains low (below or at 10%) in Bulgaria, the Czech Republic, Estonia, Hungary, Lithuania, Poland, Portugal, Romania and Russia, moderate (11-15%) in France, Belgium, Georgia, Germany, Norway, Slovak Republic, Slovenia, Sweden, and the US, and high (around 20%) in Austria, Italy, Finland, the Netherlands and the UK. Male lifetime childlessness is highest (above 23% among men aged 45-49) in Finland, Italy, Germany, the UK and the Czech Republic.

Childlessness is more common among men with little education, and among women with either very high or very low education. Childlessness is higher in those countries where mean age at marriage is high and entry into motherhood delayed on average. Childlessness remains negatively associated with proportions ever married, and completed cohort fertility. The last association has even grown stronger in the youngest cohorts, suggesting that in a low fertility context, increasing childlessness contributes markedly to cohort fertility decline. The prevalence of childlessness does not seem to be associated with proportions of women with high education, with women's employment rates and with divorce rates at country level. Higher childlessness is found in countries with widespread individualist values.

Very few Europeans intend to remain childless on purpose or choose a childfree lifestyle. We call for systematic data collection of fertility by parity in Europe in order to monitor trends in childlessness among the younger generations and the development of policies to prevent increases in unwanted childlessness.

Keywords: childlessness, fertility, gender equity, marriage, divorce, childfree, Europe

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Contents

1. Introduction

Although childlessness is increasing in all developed countries, we know very little about recent European developments and their underlying causes. There is no up-to-date review of childlessness in EU countries outside some of the European Surveys, and Eurostat does not discern fertility by parities at macro level. The proportion of men and women having no children affects human and economic development in several ways ranging from population dynamics and family structure to individual wellbeing, calling for enhanced empirical and theoretical understanding of childlessness in developed societies.

Time trends in the prevalence of childlessness are quite similar across European countries. The prevalence of childlessness was high among the 1880–1910 birth cohorts, followed by a more or less continuous drop across the 1910–1945 birth cohorts ending with the post-war "baby boomers", turning into a steady rise in childlessness across the cohorts born after the Second World War (Rowland 2007; Frejka *et al.* 2001; Prioux 1993). In early cohorts, there was often a negative relationship between overall fertility and childlessness, but this association appears to have weakened with the advent of the so-called second demographic transition. Once fertility has fallen to around or below replacement level, countries with similar levels of completed fertility may have quite different proportions of childless women. Thus high childlessness at or above 20 per cent is found in both relatively high and relatively low fertility countries (Austria, with a total fertility rate (TFR) in 2012 at 1.44 vs. England & Wales with a TFR of 1.94), as is low childlessness (at or below 10 per cent) (Russian Federation vs. Czech Republic with their 1.7 and 1.45 TFR in 2013, respectively).

Previous studies have discerned four different combinations of fertility and childlessness in today's Europe: high-low, high-high, low-low, and low-high (Basten & Sobotka 2013). First, the French and Scandinavian fertility pattern is characterized by "egalitarian" fertility, or close to replacement level fertility and low childlessness. The fertility pattern in some countries, such as the United Kingdom, is described by high fertility and high childlessness. These countries are marked by polarized fertility or high cohort childlessness (around 20%), but also a higher share of women with four or more children (Shkolnikov et al. 2007). Third, Central and Eastern Europe and some Southern European countries have long been characterized by lowest low or low fertility but relatively low level of childlessness. This may partly explained by the absence of later arrival of the so-called second demographic transition in these countries, including adherence to the values of traditional marriage and motherhood and negative attitudes to voluntary childlessness (Merz and Liefbroer 2012). Women in these

countries had rarely been childless in the past, but the trend may be changing. Finally, the low fertility in the German-speaking countries and in today's Southern Europe is largely attributable to high childlessness (Goldstein et al. 2003; Sobotka 2013). These countries also have quite egalitarian fertility, but towards the lower end, so that few have three or more children compared to the high fertility-low childlessness countries (Basten et al. 2013; see Mills et al. 2013.)

In this report, we provide an overview of macro-trends in childlessness in different European countries as well as the United States and Australia.

Data on fertility and childlessness have typically been collected and studied only for women. Whenever possible, we include data on childlessness also among men. We analyse country-level associations between childlessness and marital and fertility patterns as well as associations with economic and value change and gender equity.

2. Macro-level factors contributing to childlessness

Childlessness in contemporary societies is a relatively new research topic and there is no established theoretical framework for studying it. Since childlessness is not necessarily dependent on overall fertility, as stressed above, theoretical explanations behind childlessness may differ from those concerned with average fertility levels (Tanturri and Mencarini 2008; Mills et al. 2013). Although a comprehensive theory of childlessness has been developed yet (Basten 2009; Waren & Pals 2013; Graham et al. 2013; Gobbi 2013), several contributing factors have been outlined.

Following Philipov et al. (2008) we mean with macro contexts studies of several countries (to study differences across countries) or several years (to study change within countries). It is beyond the scope of this analysis to investigate cause–effect relationships between the study variables. We identify associations between country characteristics and childlessness rates, without debating the direction of this association or possible mediating variables.

At the macro level, major factors associated with rates of childlessness include trends in marriage (e.g., median age at marriage and the proportions marrying) (Portanti and Withworth 2009), trends in family formation (e.g., median age at the first birth and average family size), and different factors contributing to voluntary and involuntary childlessness (Rowland 2007; Hakim 2005). The impact of family change (e.g. the rise of divorce rate) on childlessness remains a relatively unexplored area of research. We focus at two cohorts, women born in

1940-44 and women born in 1960-69, in order to examine possible changes in the associations over time. Macro-level indicators reflect the situation in the countries when women of these cohorts were around 30 years. Below, we briefly summarize the major different factors known to contribute to childlessness with an emphasis on socio-structural factors possible to study with existing macro data.

2.1. Lack of partners

Historically and across societies, failure to marry has been the most common reason for childlessness. Lack of partner also remains one of the major reasons for contemporary childlessness (Berrington 2004; Szalma & Takács 2012). In today's Europe, single women are the most likely to be childless while married women are least likely to be childless (see e.g. Portanti & Withworth 2009; Tanturri 2009). However the link is expected to weaken as cohabitation and out-of-wedlock fertility is becoming more and more common everywhere. Nevertheless, contemporary childlessness is occurring increasingly often among healthy and sexually active women who are married or cohabiting (Coleman, 1996). Here, we study associations between childlessness and proportions of ever-married at age 35-39 years.

2.2. Later parenthood

The age at first birth, or transition to parenthood, has been increasing throughout Europe in the last decades, and will exceed 30 in several countries and subpopulations (e.g. Goldstein 2006; Testa 2006). In some cases postponement of parenthood is directly related to a delay in the union formation per se, but in others to a prolonged period of childlessness after union formation. Delayed parenthood may lead to lower overall fertility and also to childlessness (Nicoletti & Tanturri, 2008), so that one can expect mean age of first birth to be positively associated with cohort childlessness.

2.3. Higher divorce rates and union dissolution risks

Divorce levels have been rising in most European countries. Cohabitation has become an increasingly popular type of union, and cohabiting unions are known to dissolve more often than marital unions do. Also childlessness is more common in cohabiting unions (Baizàn et al. 2003; Spéder & Kapitàny 2009). The consequences of increasing fragility of both cohabiting and marital unions on fertility patterns in general have not been much explored, and data on dissolved cohabitations is especially hard to find. Existing studies indicate that stepfamilies compensate for births lost to some degree when prior unions dissolve (Meggiolaro & Ongaro

2010; Van Bavel et al. 2012). The impact of divorce on childlessness has been surprisingly little explored yet. We assume that union dynamics contribute to the postponement of first births and may also be linked with eventual childlessness.

2.4. Material resources and social status

The effect of material resources on childbearing varies with the stage of the demographic transition of the society in question. In poor and preindustrial environments, having access to more resources and wealth is generally related to earlier and higher fertility. In highly developed societies and low fertility societies, this association is typically reversed and wealthier families tend to have fewer children. However, the negative association between wealth and fertility may currently be reversed in some countries (e.g. Kravdal & Rindfuss 2008). It does typically not hold for men. Higher male education is usually related to lower childlessness, while the opposite is true for women (Gonzáles & Jurado-Guerrero 2006; Andersson et al 2009; Fieder et al 2011; Barthold et al. 2012). In some countries childlessness is also high among little educated women (Miettinen 2010). Some studies suggest that these patterns may be weakening or even reversing for women (Persson 2010; Andersson et al 2009). Here, we explore associations between childlessness and male and female education.

2.5. Women's social position

Women's increased economic independency and educational attainment has increased the similarity in gender roles and expectations for men and women. The relationship between fertility and gender equality remains unclear, however. On the one hand, higher female education has been found to relate to higher childlessness both within and between countries. For instance, Nicoletti & Tanturri (2008) found that higher female education increased postponement of the first birth and, especially after age 30, childlessness, in ten European countries. On the other hand, more egalitarian gender relations and gender equity in the public sphere appear to increase fertility, as suggested by findings from the Nordic countries. For example, Persson (2010) found signs of a remarkable fertility "recuperation", due much to women with high levels of education becoming mothers later in life. Here, we explore associations between childlessness and proportions of educated women and working women in a society.

2.6. Individualisation and value liberalism

Processes of value liberalisation and individualisation affect family formation. In liberal and tolerant societies, women and men decide whether they opt for parenthood or not according to their own preferences largely. Although second demographic transition theory makes no specific predictions regarding childlessness, childbearing is predicted to be more affected by individual preferences and choices instead of social and marital institutions (van de Kaa 2007). Previous empirical studies have partly found evidence for the role of value changes in the increasing rate of childlessness: "family values" seemed to be more important for people having children than for the intentionally childless – but this difference disappeared when comparing the value preferences of people who had had children to those of the temporarily childless (Keizer 2010).

Preference theory (e.g. Hakim 2002; Hakim 2005) predicts that in societies with wider female choice, more career-oriented women would choose careers over children. Hakim predicted that among women who prioritize working careers over family life, a high proportion would remain childless by choice, and additionally some working women would do so for more circumstantial reasons. However, Hakim's (2005) research found that although a higher proportion of professional women remain childless, childless women were not especially "career-oriented" and most of them are in low or middle grade occupations.

3. Materials and methods

3.1. Defining and measuring childlessness

We understand childlessness as the absence of biological or adopted children in an individual's life. With the postponement of age at first birth, most adults in contemporary Europe are nowadays childless for at least one decade. *Lifetime childlessness* or *permanent childlessness* means that an individual has not had children by the end of their reproductive life, which for women is around 50 years and for men has no clear upper limit. Actually, today very few European men or women become parents after reaching 45 years or even after turning 40 years (Billari et al. 2007). Thus we also use 40-45 years as an estimate of lifetime childlessness

This definition follows the standards of our data sources although if obviously excludes many forms of parenthood. Childless people may have acted as parents to children not included here, for example, as foster parents and parents taking care of their partner's children.

Individuals who will eventually remain childless have usually had around 30 years of potential childbearing. Reasons for childlessness include psychological, structural, medical, ideological or circumstantial factors. It is rarely known at exactly which age these various factors shape intentions, health and behaviour in order to either encourage or suppress childbearing. Here, we will study country differences in the final levels of childlessness, which are known only when individuals have reached 40 or 50 years, with retrospective cohort data.

Additionally, we also explore ideals and intentions with regards to childlessness. Fertility intentions can be assumed to be especially influential among people in their 20s and early 30s, and may partially predict future levels of childlessness. They also set the scope for policy goals: if all childlessness would be desired, there is no problem needing intervention.

Childlessness can result from different factors (Graham et al. 2013). One can distinguish between *involuntary childlessness* (e.g. infertility), *intended childlessness* (those who do not intend to have children), *voluntary childlessnes*s (the "childfree"), and *temporary childlessness* related to circumstantial or delayed childbearing, which is neither voluntary nor involuntary (Graham et al. 2013). In practice, however, the distinction is complicated. Circumstantial childlessness may be related to factors – such as a lack of a suitable partner – over which individuals may have little discretion, thus blurring the distinction between involuntary and voluntary childlessness. Many women delay pregnancy to the point that it becomes unlikely or impossible, in which case voluntary postponement is transformed into involuntary childlessness (Rowland 1998). This highlights the importance of the temporal dimension in this type of study and the useful distinction between *temporary* (a status that can change) and *permanent childlessness* (Bloom and Pebley 1982). The same childless individual can experience several of these stages during his or her life. Similarly, the boundary between choice and constraint may be indistinct in many cases. For instance, failure to form a union may depend on choice (women may have lower preferences for family life) or on circumstances (inability to find a suitable partner) or a combination of both (Tanturri and Mencarini 2008).

Measuring voluntary childlessness is tricky. Respondents who in surveys report that they do not intend to have any children may do so for very different reasons: medical reasons, the lack of a proper partner and/or economic resources, or choosing a childfree lifestyle. Here, we define as *intentionally childless* adult respondents who do not have and do not intend to have any children, and as *voluntarily childless (or "childfree")* those among the intentionally childless who report zero children as their personal fertility ideal.

3.1.1. Gender differences in childlessness

Male childlessness is usually higher than female childlessness, which can be attributed to three reasons. First, men can have children later in life, while most fertility data covers only ages up to 49 years. However, very few men, approximately 1-3 percentages at most, do become fathers at older ages in contemporary Europe. This is because most men have female partners who are not much younger than they are themselves.

Second, not all men know they have become fathers or are registered in data sources as fathers (while other men may not actually be the biological fathers of their children although registered as such). Both these types of fathers also constitute a very small minority. For instance, mothers who give birth without registering any father constitute around two percent in contemporary Finland. Mistakenly attributed biological paternity has been estimated to represent around 3 percent in contemporary Western populations (Andersson 2000). Together, these two effects of unknown or mistaken paternity may be assumed to cancel each other out.

Third, men have higher variance in fertility compared to females in most known human societies (reviewed in Betzig 2012). Childlessness is more common among men, but at the same time men oftenhave higher multipartner fertility compared to women (Lappegård & Ronsen 2013).

3.2. Data sources used

3.2.1. Data on male and female cohort childlessness

Analyses include data on cohort childlessness from all European countries for which we could find data. Additionally we include data from the United States and Australia. The data was compiled from available registers and surveys as listed in Appendix Table 1. If no other reliable sources were available, we used the Gender and Generations Survey Wave I. GGS data was also used to study associations between education and childlessness for men and women.

3.2.2. Data on macro-level indicators

Macro-level indicators studied include data on marital rates and age at first marriage, total divorce rate and age at first birth. We also collected data on female educational attainment, labour force participation rate, and female and male unemployment. Data on value change include attitudes towards children in marriage, and how important it is seen for a woman to have children, and Inglehart's post-materialism index (asking respondents to name which they

think are the first and second most important aims of the respondents country: maintaining order in the nation; giving people more say in important government decisions; fighting rising prices; protecting freedom of speech).

3.2.3. Eurobarometer data on fertility intentions

To study intended childlessness, we use the family planning module of Eurobarometer survey that was collected in 2011. Relevant questions related to the actual number of children, the personal ideal number of children ("For you personally, what would be the ideal number of children you would like to have or would have liked to have had?"), and the intended number of children ("How many (more) children do you intend to have?"). We included respondents' education level (primary, secondary and higher education) and occupational status (self-employed-managerial-white collar, employee-manual worker-not working) as indicators of social status in the analysis.

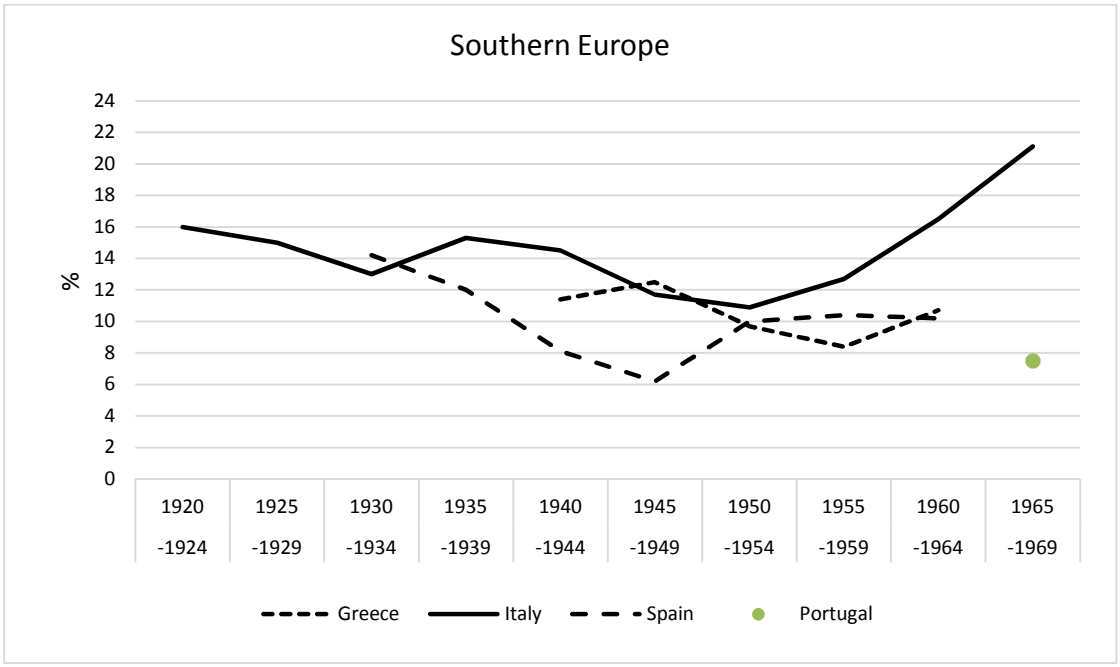
4. Trends in female and male childlessness

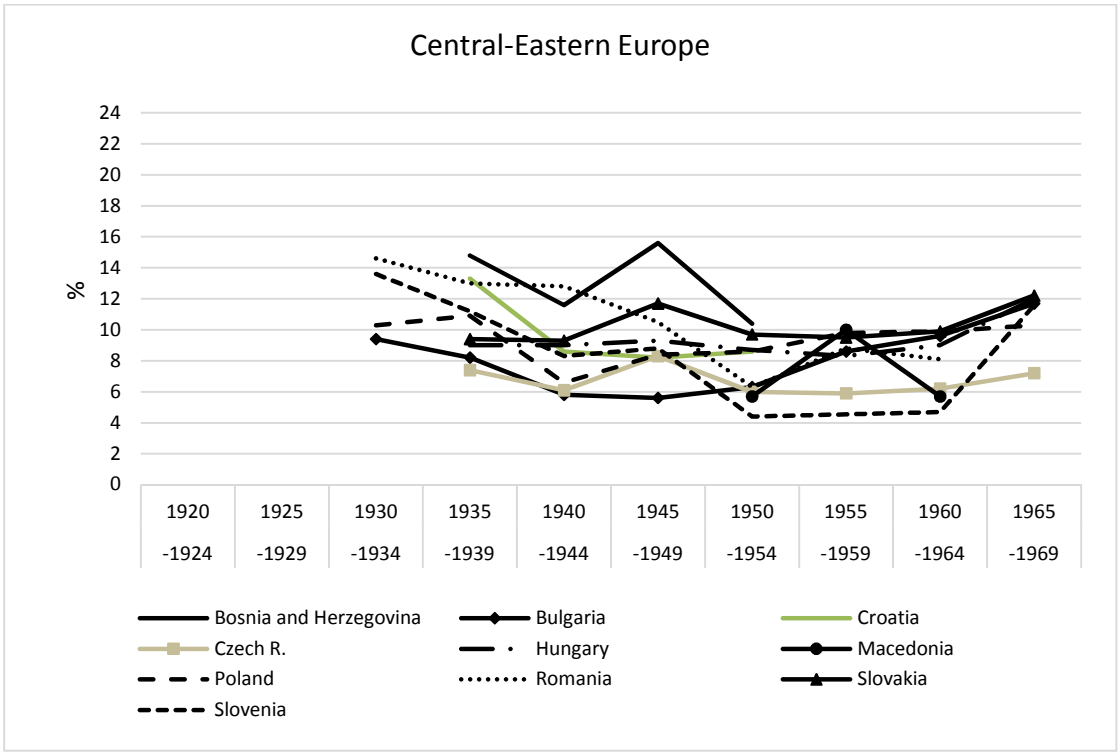
First, we study changes in proportions of childless individuals across birth cohorts in different European countries and in the United States and Australia.

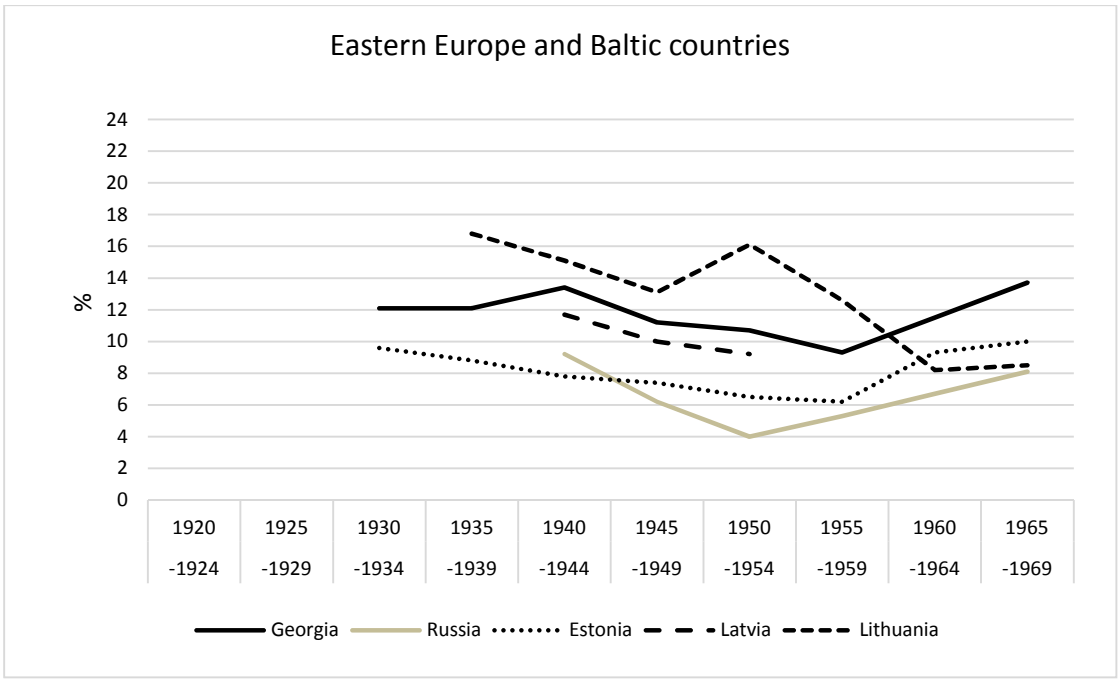
4.1. Changes in female cohort childlessness

Cohort childlessness has been increasing throughout Europe (see Appendix Tables 2a-b for all and most recent female birth cohorts). There is also clear regional variation. Figures 1a-g illustrate these changes by geographical regions.

Figure 1a-g: Proportions of childlessness in different European regions, women born around 1935–1970.






Eastern Europe and Baltic countries
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16
14
12
10
8
6
4
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0
1920 -1924
1925 -1929
1930 -1934
1935 -1939
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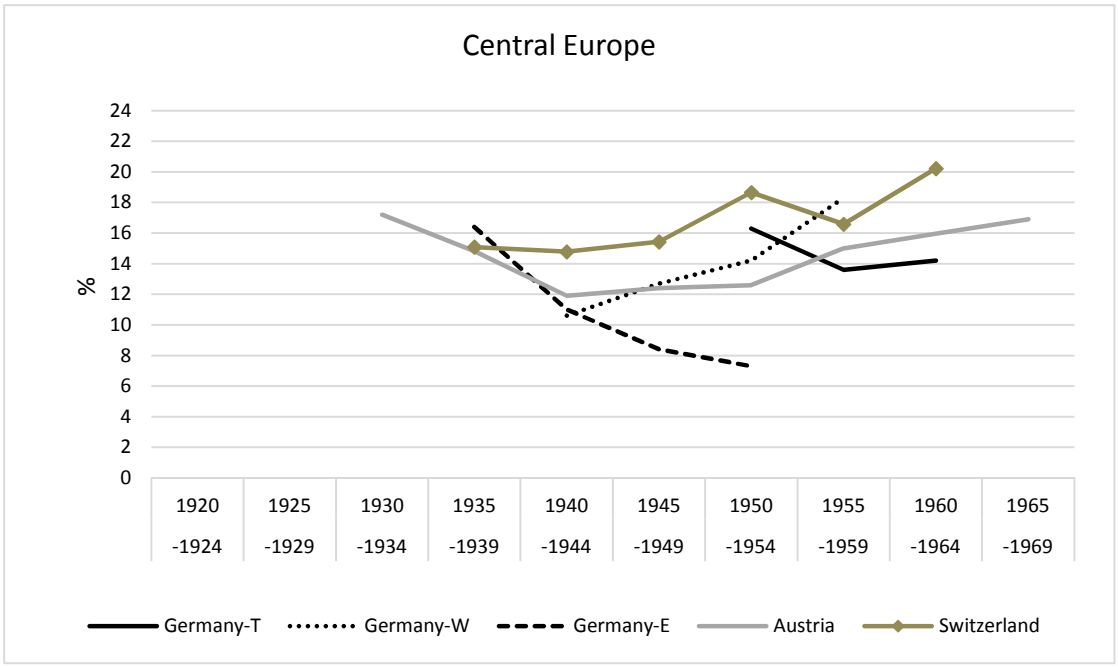
1955 -1959
1960 -1964
1965 -1969
Georgia
Russia
Estonia
Latvia
Lithuania


Central Europe
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1960 -1964
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Germany-T
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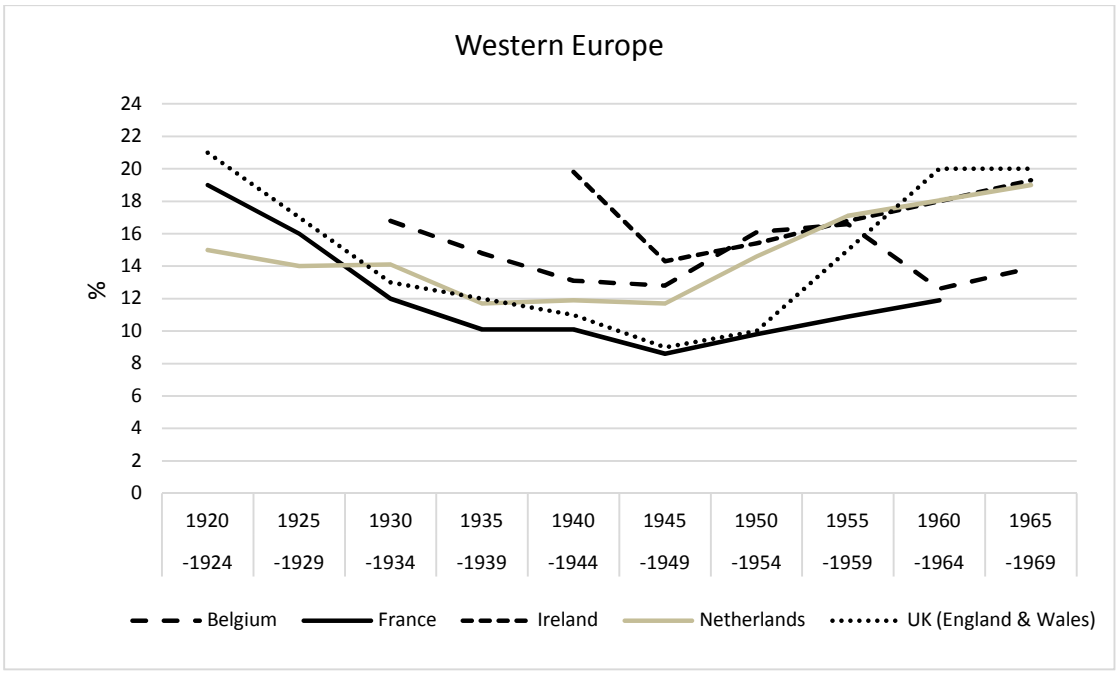
Germany-E
Austria
Switzerland


Western Europe
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1920 -1924
1925 -1929
1930 -1934
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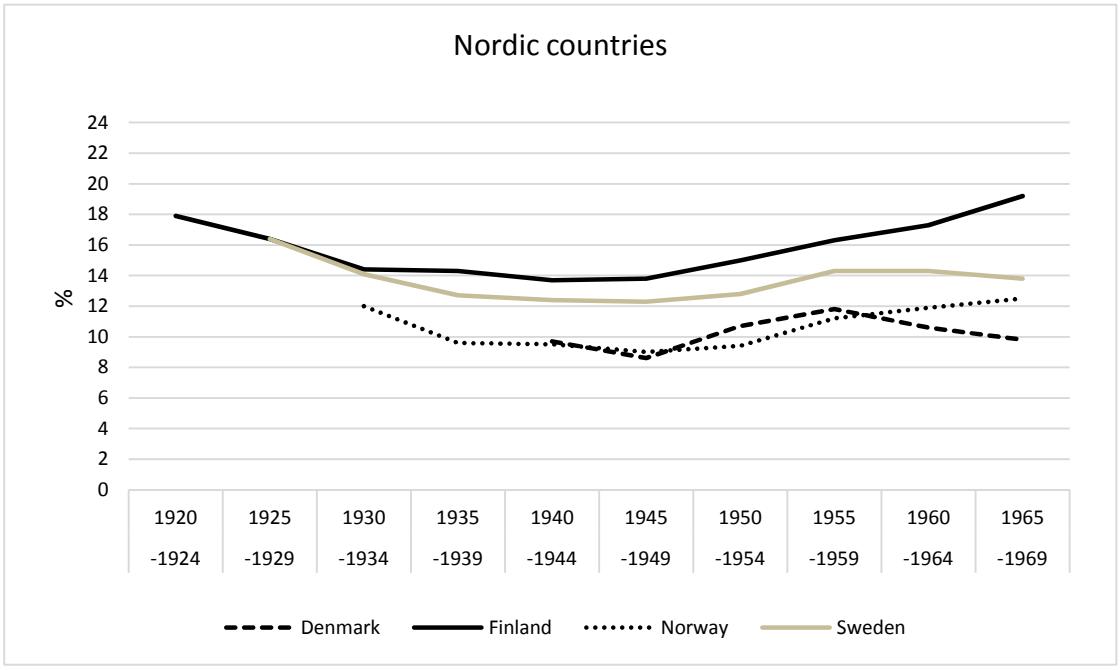
1950 -1954
1955 -1959
1960 -1964
1965 -1969
Belgium
France
Ireland
Netherlands
UK (England & Wales)


Nordic countries
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1950 -1954
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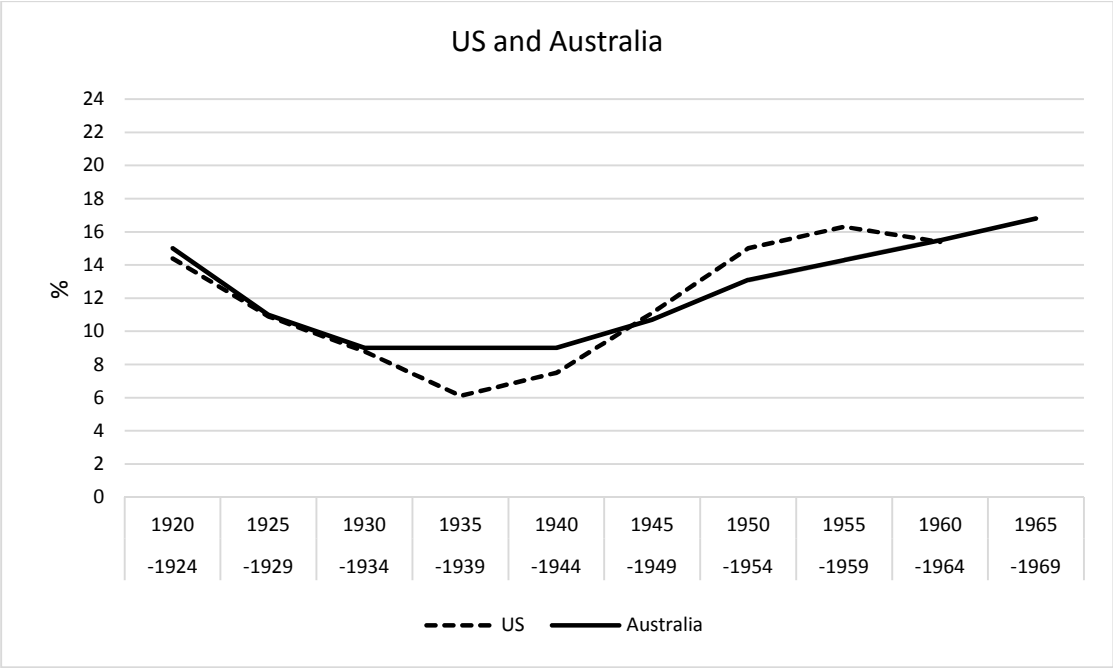
1960 -1964
1965 -1969
Denmark
Finland
Norway
Sweden



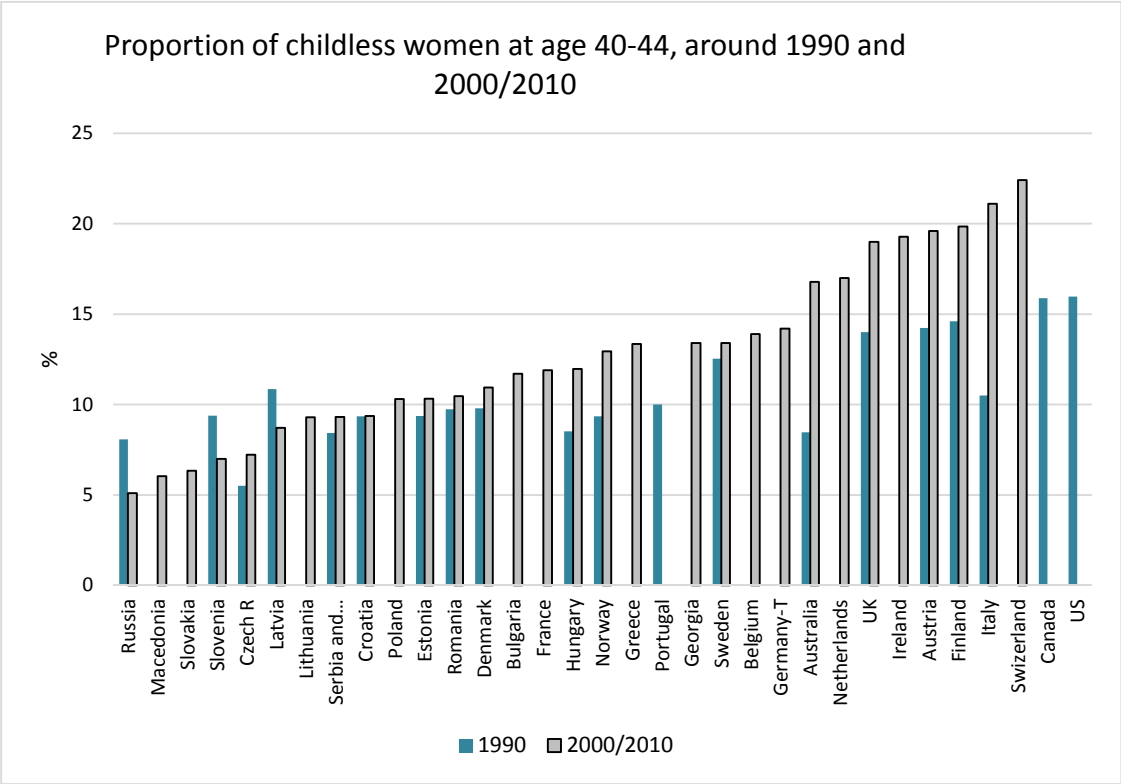
The female cohort born in Europe right after the war, in 1945 to 1949, has the lowest proportion of childless women, around 8–10 per cent. There are more childless women both in older and younger birth cohorts: typically around 16 % but sometimes even around 20 %. In the USA and Australia childlessness was as its lowest (6 and 9 %, respectively) in the cohorts born in 1930s. In the Eastern European socialist countries (and in Greece) the lowest proportion of childless was attained for the cohort born in the 1950s and is as low as around six per cent.

In recent female birth cohorts, levels of childlessness are still very low (below or at 10%) in Bulgaria, the Czech Republic, Estonia, Hungary, Lithuania, Poland, Portugal, Romania and Russia. With the exception of Portugal, all of these countries were part of the state socialist block until the early 1990s. Levels are moderate (between 11 and 15%) in France, Belgium, Georgia, Germany, Norway, Slovak Republic, Slovenia, Sweden, and the US, and high (around 20%) in Austria, Italy, Finland, the Netherlands and the UK. (Figure 1a-g)

4.2. Changes in female childlessness 1990–2010

Changes in the proportion of childless women among recent cohorts are illustrated by comparing the proportions of childless women at ages 40–44 in 1990 (for two countries 1980) and 2010 (for some countries 2000; see Appendix Tables 2a-b).

Figure 2: Proportion of childless women at age 40–44, around 1990 and 2000/2010

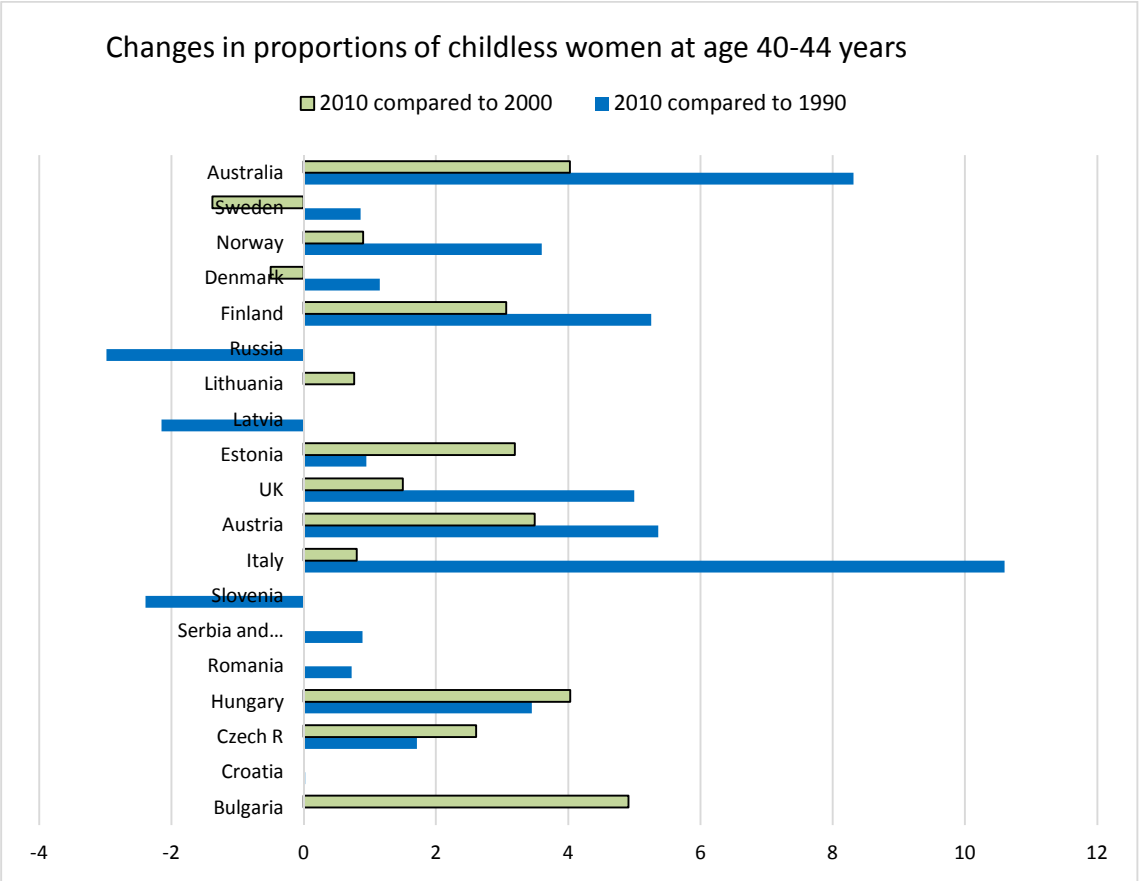


Data are for 2010 except for 2000 for Croatia, Macedonia, Romania, Serbia and Montenegro, Slovakia, Slovenia, Greece, the Netherlands, Russia and Latvia; and for 1990 except for 1980 for Austria and Australia.

Childlessness among women born 1945–49 (who were 40–44 years old in 1990) is usually lower than among women born in 1955–59 or 1965–69 (who were 40–44 years old in 2000 or 2010). During the last two decades, childlessness has increased in most countries depicted here.

Figure 3 illustrates the change in proportions of childless women. The increase from 1990 until 2010 has been greatest in Italy and Australia, as well as in Austria, Finland and the UK. However, in Latvia, Slovenia and Russia childlessness has on the contrary decreased since 1990 although the initial proportion in these countries was very low. During the last decade, from 2000 to 2010, the increase in childlessness has been the greatest in Estonia, Hungary, the Czech Republic and Bulgaria, countries with low childlessness in the older cohort. Of countries with initially higher childlessness, the recent increase has been strongest especially in the UK, Finland, Austria and Australia between 2000 and 2010. Interestingly, in both Sweden and Denmark the proportions of childless women have slightly declined during the last decade.

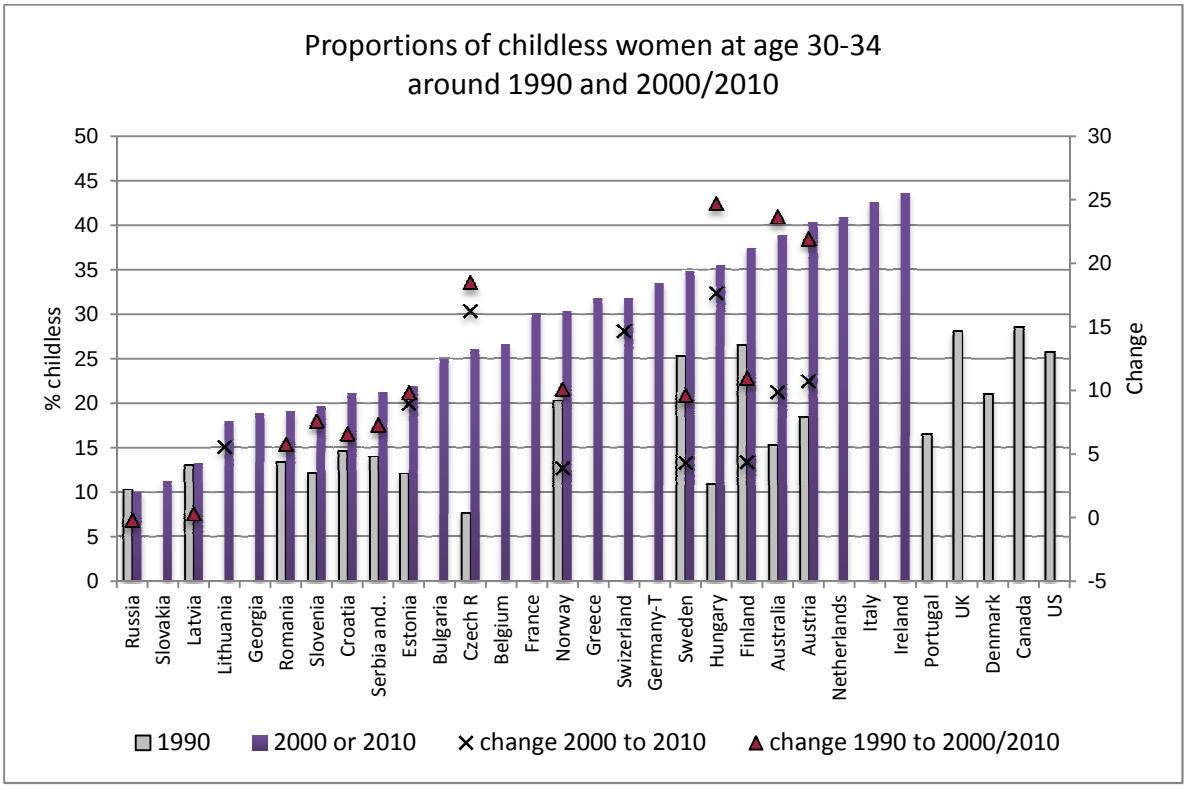
Figure 3: Changes in proportions of childless women at age 40-44 years



4.3. Childless women at 30-34 years

Next, we present the proportions of younger women who have not yet have children. As Figure 4 shows, these have increased in all countries studied here without exception. While this is indicative of postponement of parenthood and not necessarily of lifetime childlessness, the early 30s remain the prime time for childbearing among European women, and a higher proportion of childlessness at that age can be assumed to predict higher overall lifetime childlessness and lower fertility overall in this age cohort.

Figure 4: Proportions of childless women at 30-34 years, selected countries



Note. Australia and Austria have data from 1980 not 1990. Russia, Slovakia, Latvia, Romania, Slovenia, Croatia, Serbia and Montenegro, Greece, the Netherlands and Italy have data from 2000, not 2010.

4.4. Male childlessness

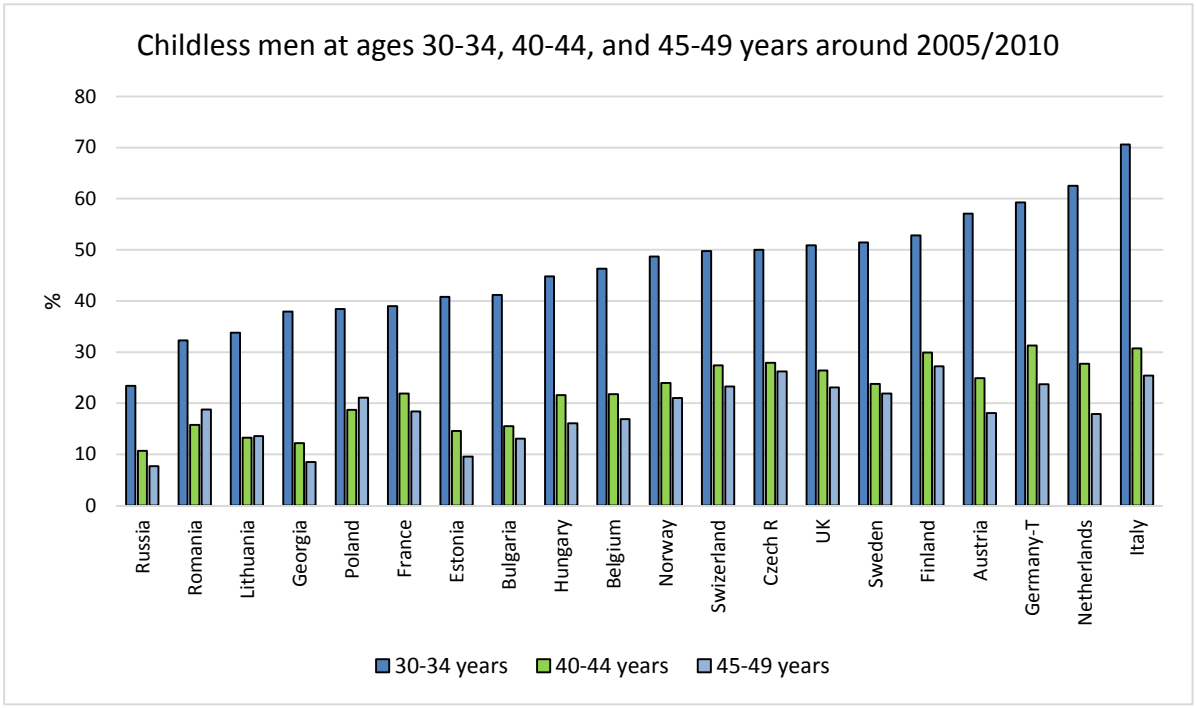
For men, much less data are available than for women. Appendix Tables 3a show compiled available data for men who have completed their childbearing (aged 50-55 years) and Appendix Table 3c shows estimates for more recent male cohorts. For most European countries the best available comparative data are from the Gender and Generation Surveys (Appendix Table 3b). However, these data are based on relatively small samples and are thus not necessarily very accurate.

Figure 5 shows the proportions of childless men in three age groups in contemporary Europe, as measured by the Gender and Generations Survey and Nordic register data.

Among men in their early thirties Italy, the Netherlands, Germany and Austria have the highest proportion of childlessness at around 60 % or more, and Romania, France, Poland, Lithuania and Russia have the lowest, below 40 %. For men who are ten years older and in their early forties, the country order is somewhat different: the Netherlands, Germany, Finland, the Czech Republic and Italy have proportions above 25 %. When we look at the closest proxy for lifetime childlessness, the age group 45–49 (male cohorts born around 1956-

65), in the top are Finland, Italy, Germany, the UK and the Czech Republic with around one out of four men remaining childless, while Estonia, Russia and Georgia have only one in ten childless men. It would be interesting to know if men are exhibiting more of a postponement behaviour in countries such as the Netherlands and Austria, or whether these countries are experiencing a cohort change so that significantly more men will end up childless compared to slightly older cohorts.

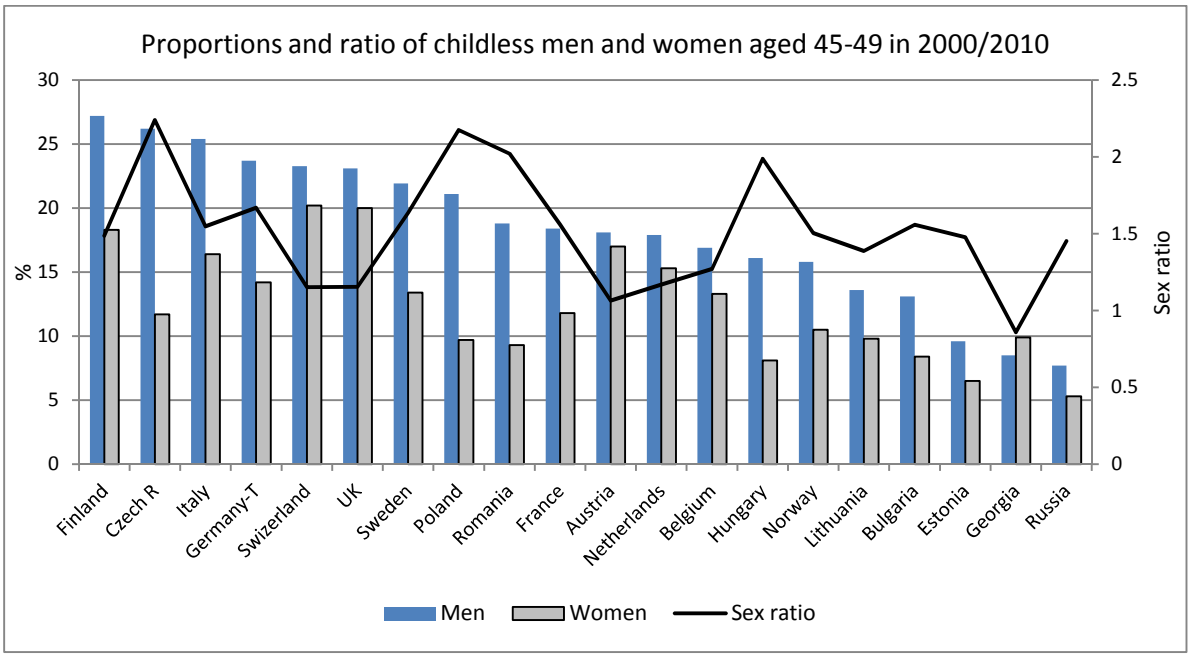
Figure 5: Proportions of childless men at ages 30-34, 40-44, and 45-49 years around 2005/2010.



Data source: GGS (2003-2010) except Understanding Society Survey 2009-12 for the UK, and national register data for Finland, Norway and Sweden, Swiss Household Panel for Switzerland.

Of the countries studied here, Georgia is also the only one where male childlessness is not higher than female childlessness (Figure 6). The ratio between proportions of childless men and women ranges from 0.86 in Georgia to 2.24 in the Czech Republic and is on average 1.56.

Figure 6: Proportions and ratio of childless men and women aged 45–49 in 2000/2010



Data source: GGS/Register data; SHP for Switzerland.
Note: For women the estimations of childless individuals results differ from other cohort data for this age group with regards to the Czech Republic and Estonia.

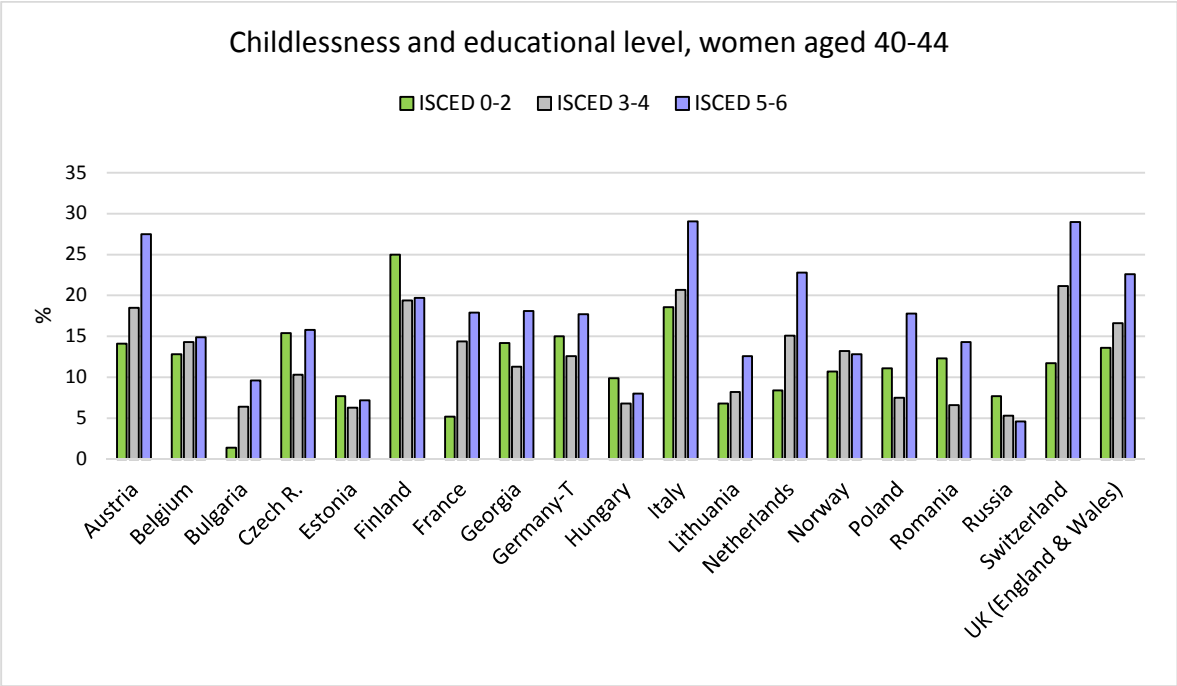
4.5. Educational differences in childlessness

For estimating educational differences in childlessness in various countries, we use data from Gender and Generations Survey in 2005-2010. Data in Figures 7 and 8 thus refers to male and female cohorts born around 1960-1970.

In most countries, higher female education is still related to childlessness (Figure 7). However, the educational gradient appears to be weak in some of them, including Belgium, Estonia and Norway. In three countries (Finland, Hungary, and Russia), women with only a basic level education show the highest childlessness rates. In many countries, the lowest proportions of childlessness are found among women with a medium-level education. Such a U-shaped pattern of female childlessness can be found in Czech R, Estonia, Finland, Georgia, Germany, Hungary, Poland and Romania.

For men, the association between educational level and childlessness has not changed much in recent cohorts (Figure 8). Less-educated men have the highest rates of childlessness in 14 of 18 countries.

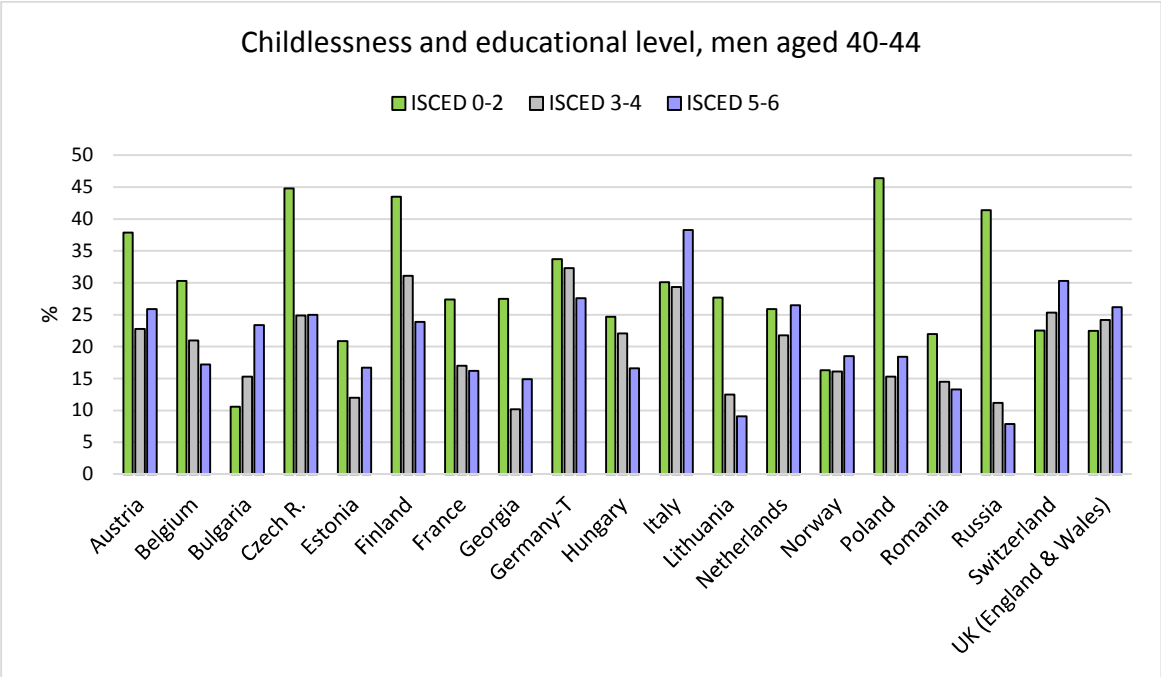
Figure 7. Childlessness at age 40-44 by educational attainment, women around 2005-2010



For five countries (Bulgaria, Italy, the Netherlands, Norway and the UK), childlessness rates are highest among highly educated men. Since more men than women will still become parents after the age of 40, postponement of parenthood is likely to alter male childlessness more than female in these age groups. Postponement is also likely to affect highly educated men more than other groups. Thus for Italy, the Netherlands, Norway and the UK, as well as for the two countries (Estonia and Georgia) in which men with a median level of education have the lowest levels of childlessness, childlessness among more educated men may yet decrease somewhat from what is depicted in Figure 8.

In sum, higher childlessness is usually more common among highly educated women and less educated men, but with a certain degree of variability between countries. In some western European countries these associations may be weakening or disappearing.

Figure 8. Childlessness at age 40-44 by educational attainment, men around 2005-2010



5. Associations between country indicators and childlessness

After presenting descriptive cohort trends for men and women, we now analyse how these trends relate to other country-level macro-indicators. We mostly analyse relationships with macro indicators for two female cohorts: the older cohort, born in 1940–44, and the younger cohort, born in 1960–69. Sometimes we also present results for the middle, 1950–54 birth cohort.

Table 1 depicts linear OLS regression coefficients for our chosen indicators and two different cohorts of female childlessness. Statistically significant associations are marked in bold. The strongest of statistically significant associations are found between cohort fertility rates and mean ages at first birth and at first marriage.

Table 1: Associations with cohort childlessness and various demographic indicators, regression coefficients (N=23).

	Cohort 1940-44	Cohort 1960-69
Demographic indicators		
Cohort fertility rate	**3.92** /-0.56*	-1.88 / -7.57*
Mean age at first birth	**1.93**	**1.53**
Ever-married at 35-39	-0.355	**-0.22**
Mean age at first marriage	**2.18**	**1.30**
Total divorce rate	-3.61	4.73
Women's social position		
Tertiary education, Females	0.04	0.11
Female employment	**-0.07**	-0.14
Values		
Post-materialist values %	**0.14**	**0.39**
Children important for marriage	**-0.13**	**-0.14**
Children important for a woman	**-0.03**	**-0.11**

Statistically significant associations ($p<0.05$) marked in bold. *= excluding Ireland.

Country-specific data for these macro indicators is featured in Appendix Table 4a-d. Below, we provide some more detailed analyses.

5.1. Fertility indicators

First, we look at associations with fertility indicators and cohort childlessness on a country level.

5.1.1. Mean age at first birth and childlessness

Mean age at first birth is related to cohort childlessness in both the older (1.93, p=0.001) and younger birth cohorts (Table 1). The association is only slightly weaker (1.54, p=0.000) in the younger cohorts (Figures 9a-b).

Figure 9a: Mean age at first birth (1970) and childlessness in female cohorts born 1940-44.

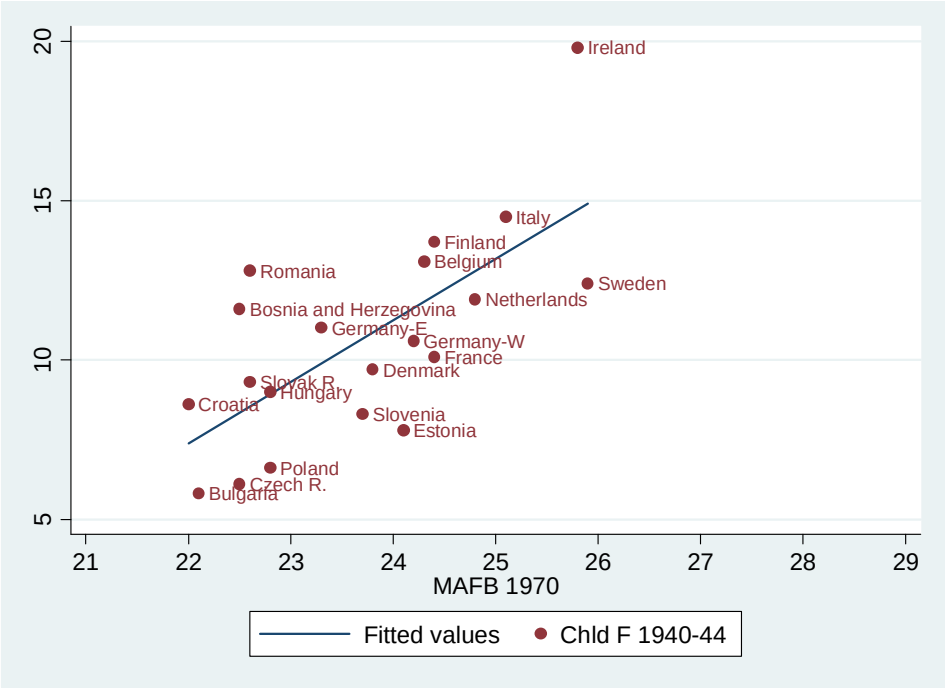
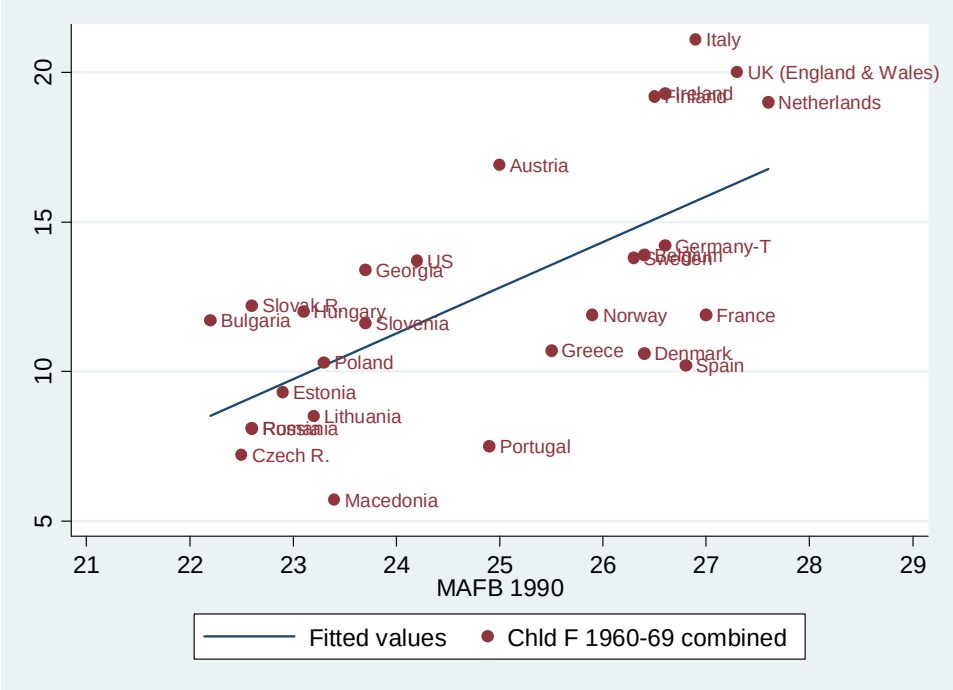


Figure 9b: Mean age at first birth (1990) and childlessness in female cohorts born 1960-69.



In both female age cohorts, low ages at first birth and low levels of female childlessness are found in the former socialist Eastern or Central European countries. A delayed entry into motherhood and high prevalence of childlessness is common in Italy, the UK, Finland, Ireland and the Netherlands. Moderate levels of childlessness (between 10 and 15%) are found in

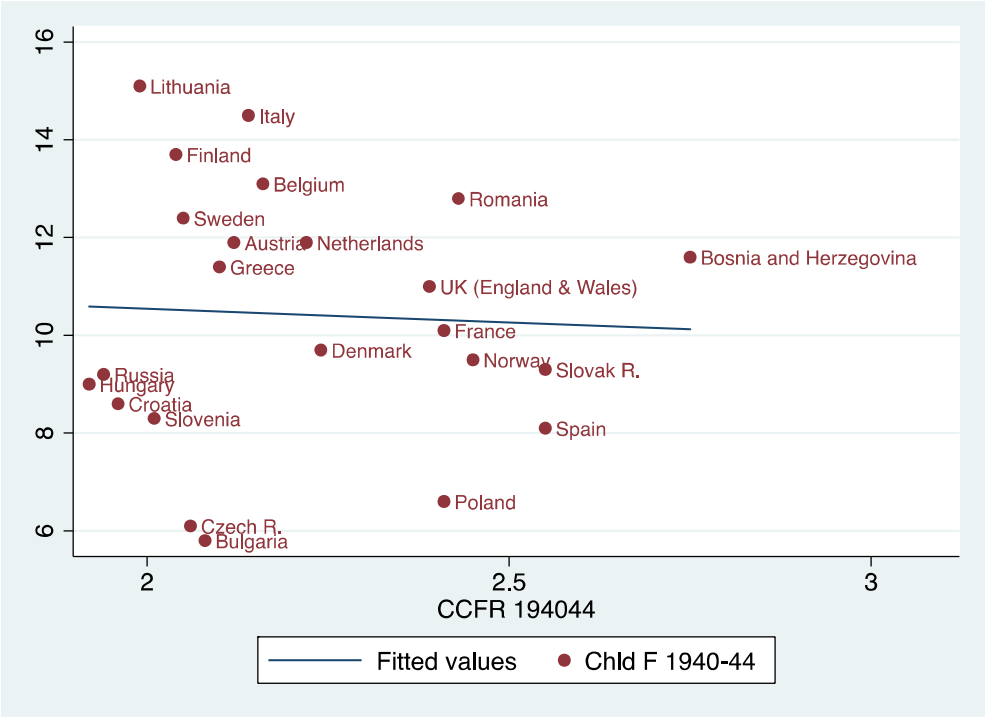
countries with very different ages of becoming a mother for the first time, ranging from 22-23 years in e.g. Bulgaria, Slovakia and Hungary to 26-27 years in e.g. Denmark, Spain and France.

5.1.2. Cohort fertility and childlessness

For the associations with cohort fertility and childlessness, we present Figures for all three female cohorts.

The associations with completed cohort fertility and childlessness are strong and, surprisingly, positive in the older cohort (see Table 1 above). However, this association is driven by Ireland, a country with both high fertility and high childlessness. Once Ireland is removed as an outlier, the association is negative and not statistically significant (-0.56, p=0.82), as shown in Figure 10a.

Figure 10a. Completed cohort fertility and childlessness in female cohorts born in 1940-44.



The negative association between cohort fertility and childlessness is even stronger and statistically significant (-8.79, p=0.025) in the ten years younger birth cohort born in 1950-54 (after again excluding Ireland as an outlier, Figure 10b). This may reflect the fact that as fertility drops, the relative impact of childlessness on cohort fertility rates increases.

In the youngest birth cohort, the association is weaker (-7.57, p=0.14) (Figure 10c).

In sum, cohort fertility and childlessness remain negatively associated on a country level, contrary to many assumptions in the previous literature, and this association is the strongest for women born in the 1950s.

Figure 10b. Completed cohort fertility and childlessness in female cohorts born in 1950-54

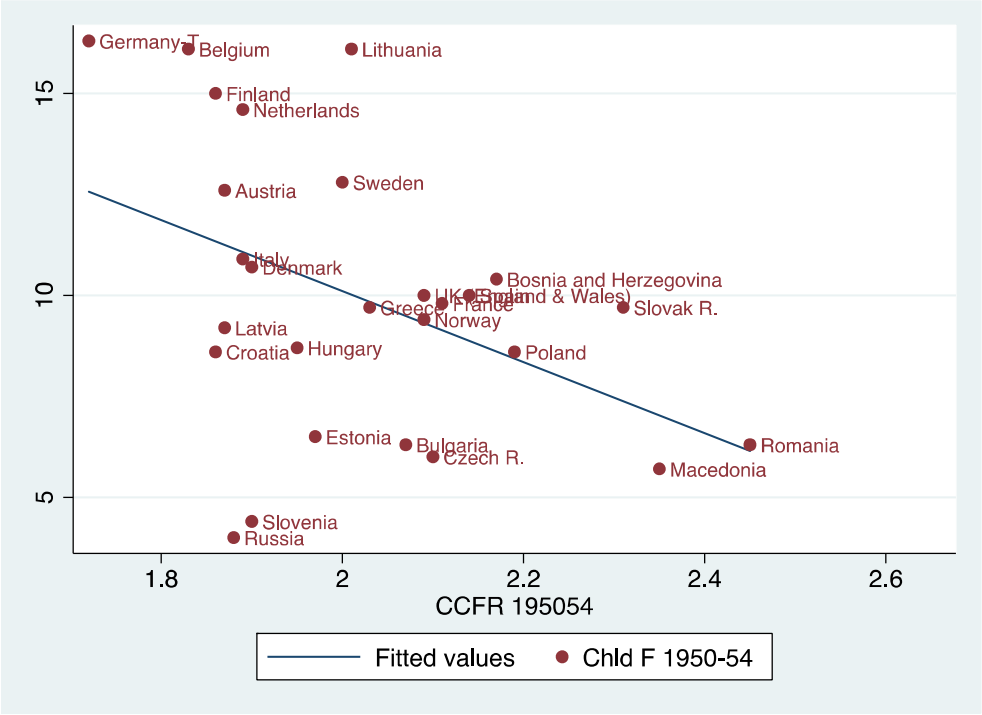
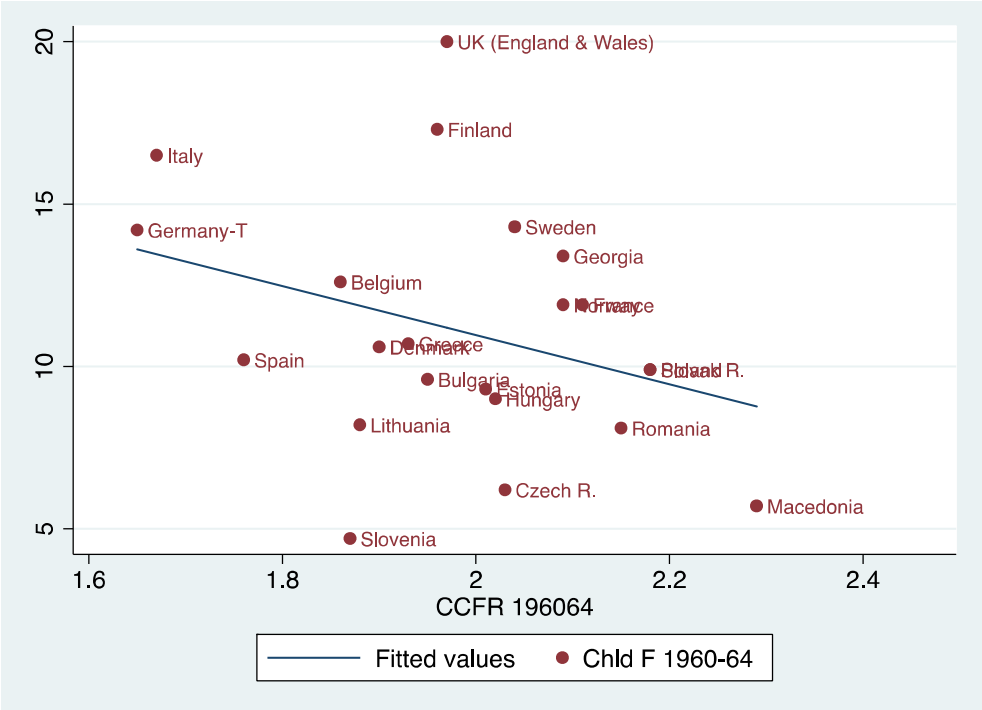


Figure 10c. Completed cohort fertility and childlessness in female cohorts born in 1960-64.



5.2. Partnership formation and childlessness

In this section we analyse associations between marital indicators and childlessness. As described in the Data section above, we assume that the country trends for lifetime childlessness happen at certain periods in the adult woman's life, often well before her forties. We expect that cultural and societal environment in early adulthood has more bearing on individual childbearing decisions, and consequently macro-level indicators are chosen from periods when the studied women were in their thirties.

5.2.1. Proportions of ever married and childless

Figures 11a and 11b show the associations between proportions of ever-married women at age 35–39 and female childlessness in the youngest and oldest birth cohorts, born in 1940–44 and in 1960–69.

For the older cohort, the regression coefficient is -0.36 (p=0.06) and for the younger it is -0.21 and statistically significant (p=0.047). In contrast to many assumptions, the association between being married and childlessness is not disappearing in this data set.

Figure 11a: Childlessness in female cohort 1940–44 and proportion of ever-married women aged 35–39 in 1980

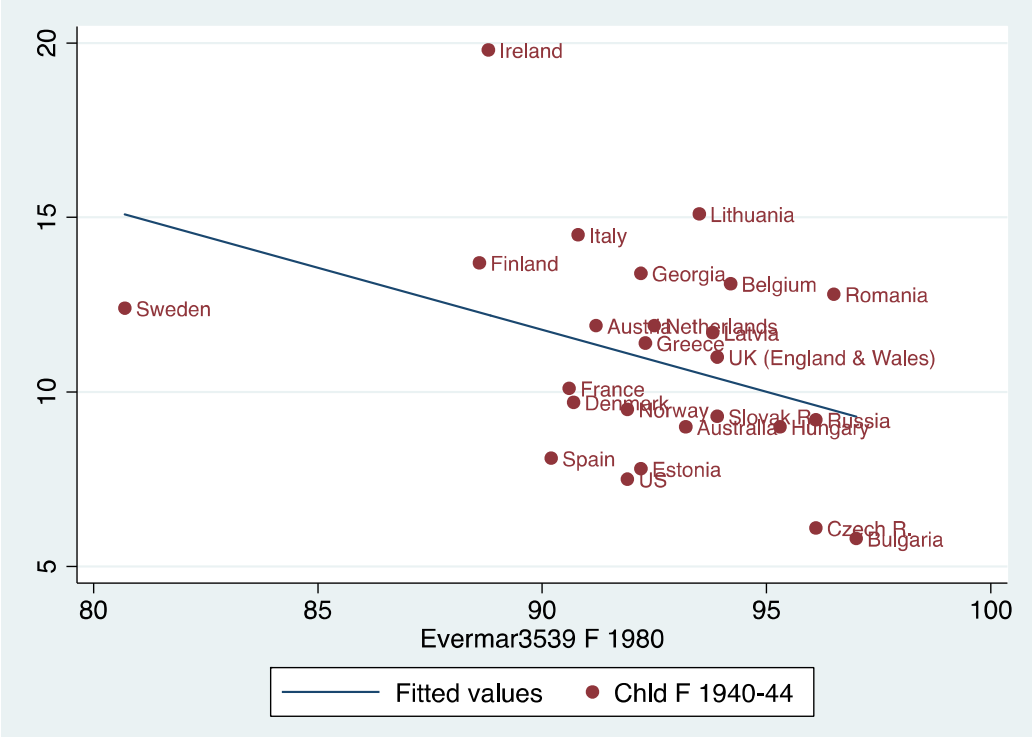
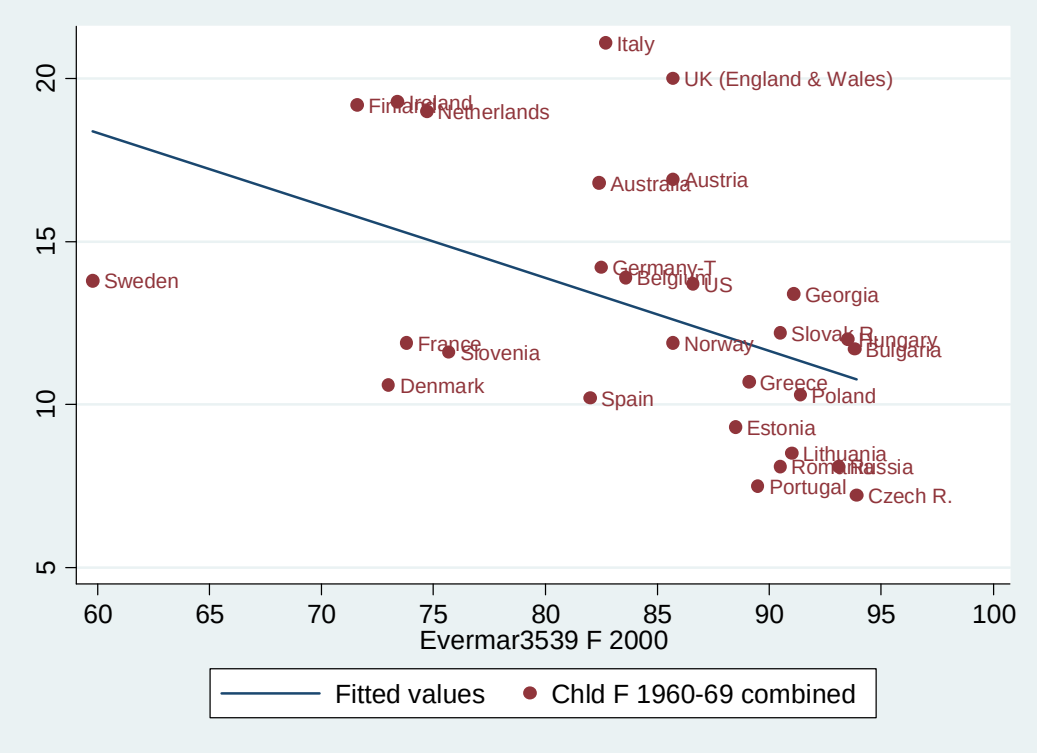


Figure 11b: Childlessness in female cohort 1960–69 and proportion of ever-married women aged 35–39 in 2000



In the older cohort Ireland, and in the younger cohort Italy and the UK have relatively high proportions of ever married women and high proportions of childless women. This indicates that childlessness within unions is frequent in these countries. The low proportions of ever married in especially Sweden and Denmark represent the earlier spread of cohabitation as an alternative to marriage in these countries. Unfortunately we lack systematic data on ever cohabiting Europeans.

5.2.2. Age at first marriage and childlessness

Age at first marriage is strongly and statistically significantly associated (2.18, $p<0.001$) with childlessness in the older cohort: the younger age at marriage, the fewer childless individuals. In the younger cohort, the association is still strong and statistically significant (1.30, $p=0.01$), but somewhat attenuated (Figures 12a-b). Thus, despite the spread of cohabitation, marriage remains related to childbearing also among young Europeans. A later average age at marriage increases childlessness on a country level.

Figure 12a: Age at first marriage (in 1970) and childlessness in female cohorts born in 1940–44.

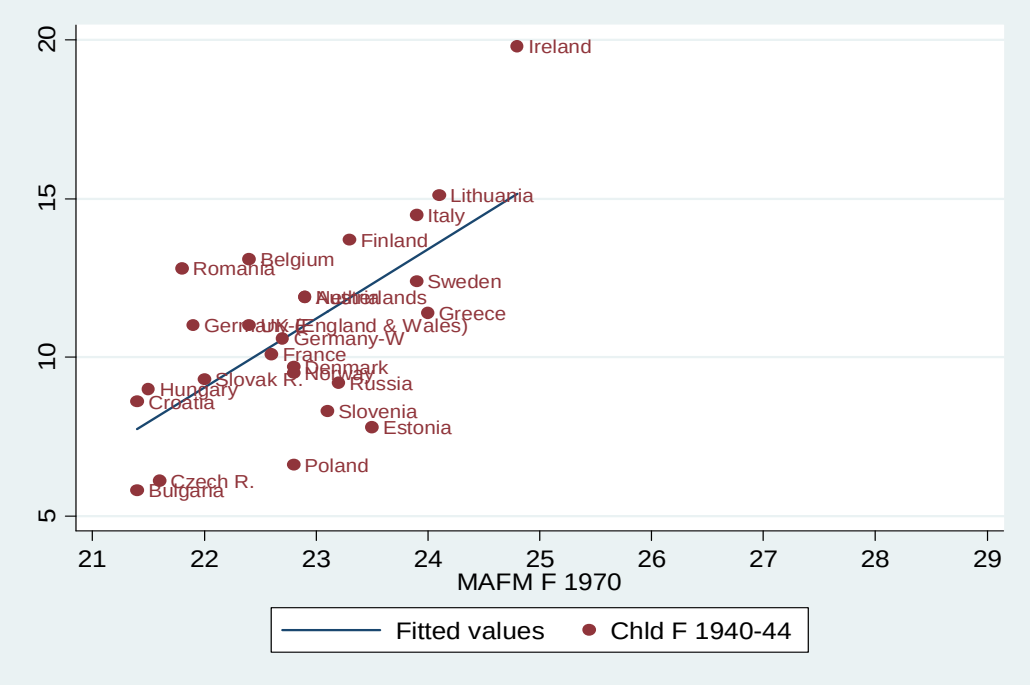
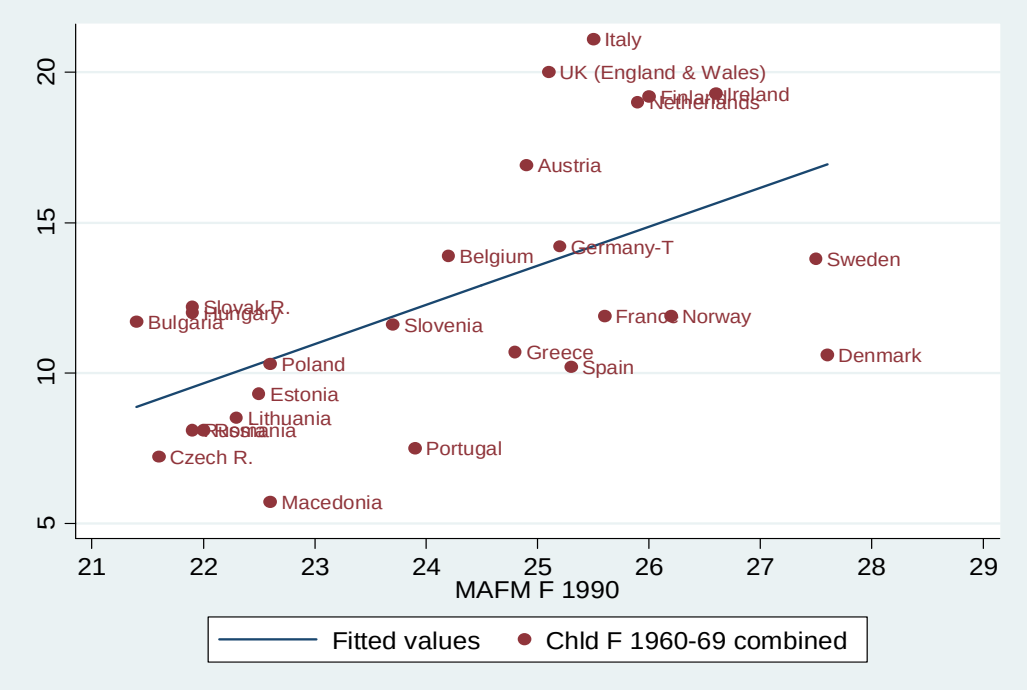


Figure 12b. Age at first marriage (in 1990) and childlessness in female cohorts born in 1960–69.



The formerly socialist Eastern and Central European countries are the ones with lowest age at marriage and also lowest childlessness. This remains true also for the youngest generation, born in the 1960s, and in its twenties during the transition to post-socialism in the 1980s.

The Scandinavian countries exhibit high ages at first marriage but relatively low childlessness. These marriages, however, would typically have been preceded by cohabitation.

5.2.3. Divorce rates and childlessness

Finally, we study in this section the associations between divorce rates and childlessness. The associations are not statistically significant in either cohort (see Table 1 above, Figures 13a-b). It is still interesting to note that the trend may be switching from slightly negative to slightly positive between the two age cohorts. This is driven by the fact that divorce rates were high in the older cohorts in some socialist countries (Russia, Latvia) with low childlessness, but low in Southern and Central European countries. In the younger generations, divorce rates have become high in most countries with the exception of the Catholic Southern and Central European. Italy represents an exception with its high childlessness and low divorce rate. However, these associations do not become significant even after removing Italy (9.95, p=0.12).

Figure 13a: Total divorce rate (1970) and childlessness in female cohorts born in 1940–44.

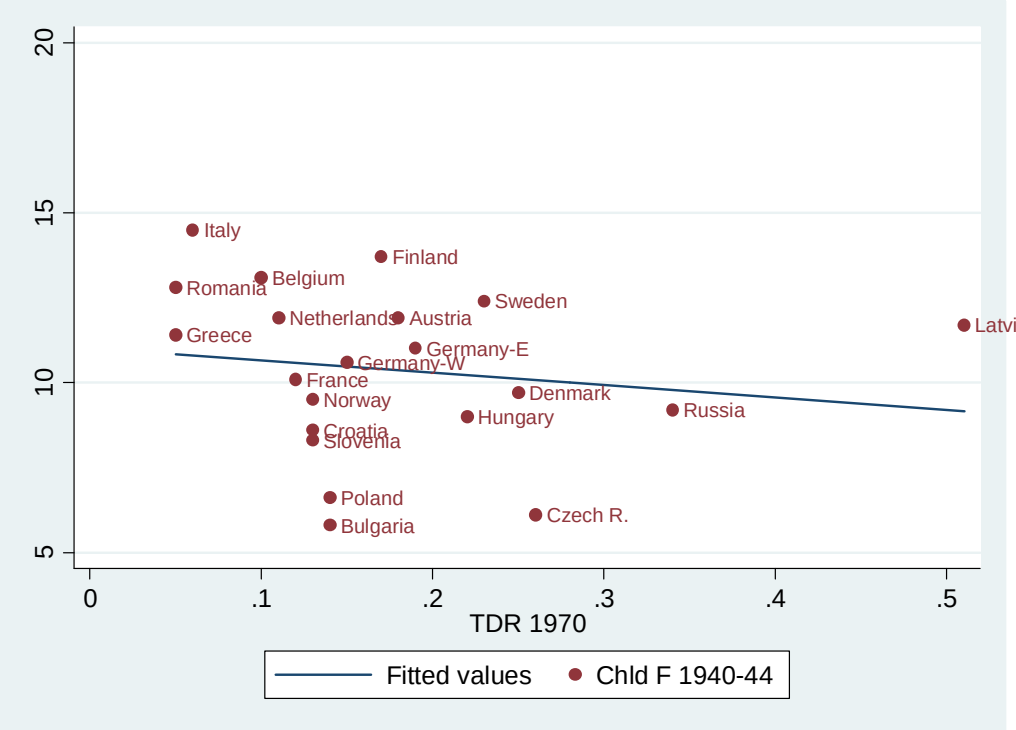
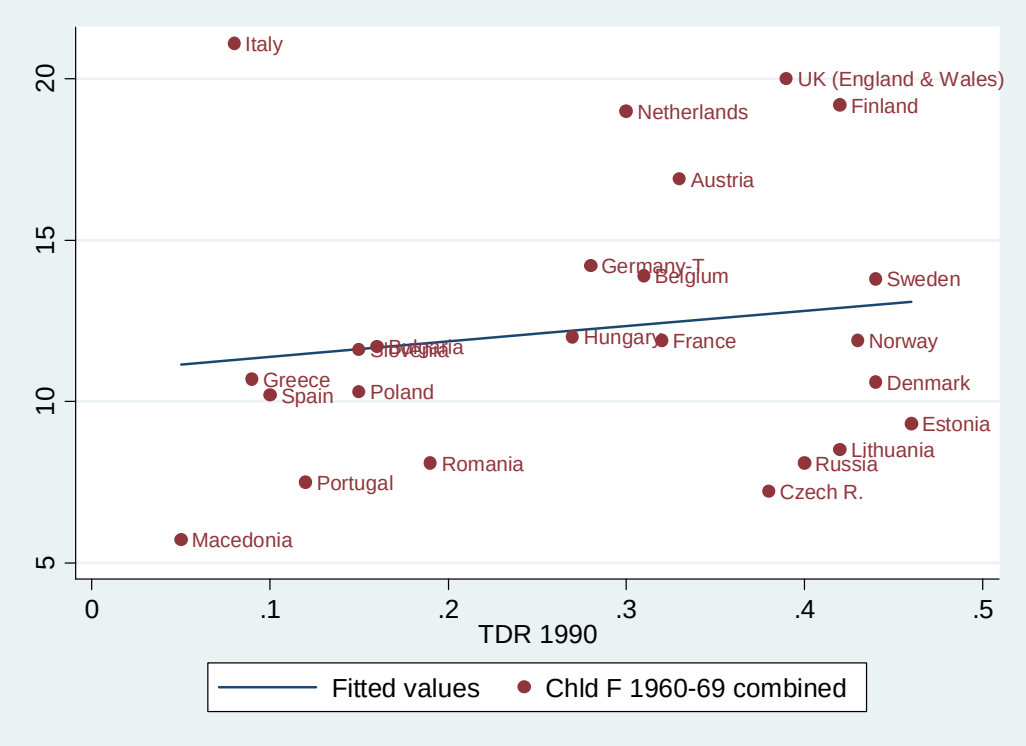


Figure 13b: Total divorce rate (1990) and childlessness in female cohorts born in 1960–69.



5.3. Women's social positions

Next, we analyse how some indicators of increasing gender equity and women's social position relate to childlessness across cohorts.

5.3.1. Female education and childlessness

First, we explore whether countries with higher proportions of educated women also have more childless women (Figures 14a-b). The associations with women's education and childlessness are small and not statistically significant (0.04 and p=0.69 in older cohort, 0.14 and p=0.08 in younger cohort). There is, however, a slightly positive association in the youngest cohort, so that an increase in women with tertiary level education is associated with higher rates of childlessness.

Figure 14a. Childlessness in female cohort 1940–44 and proportion of women (birth cohort 1941–50) with tertiary level education

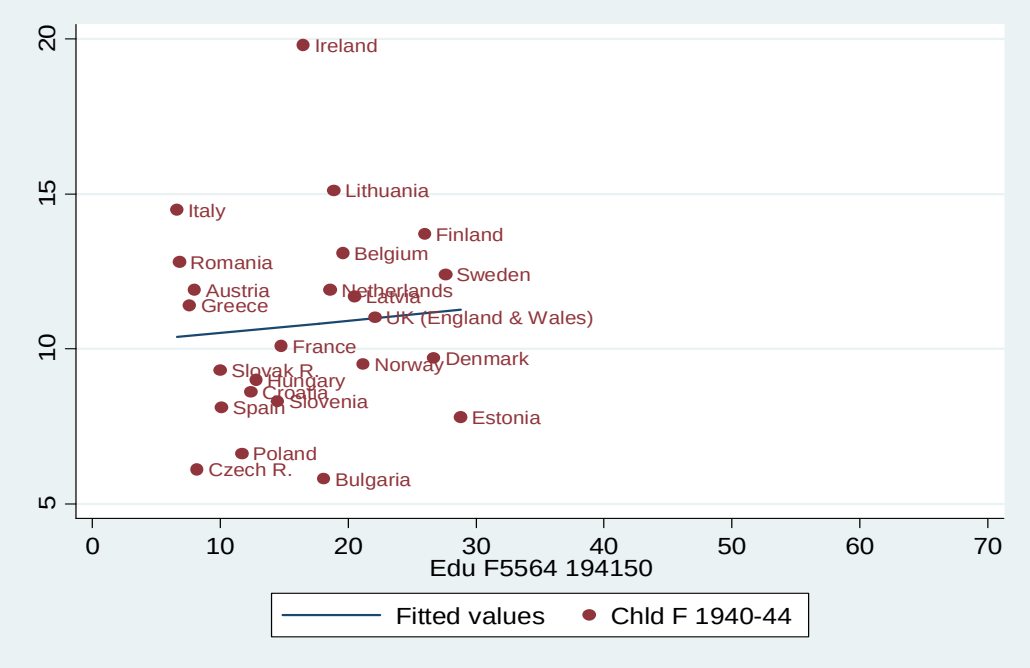
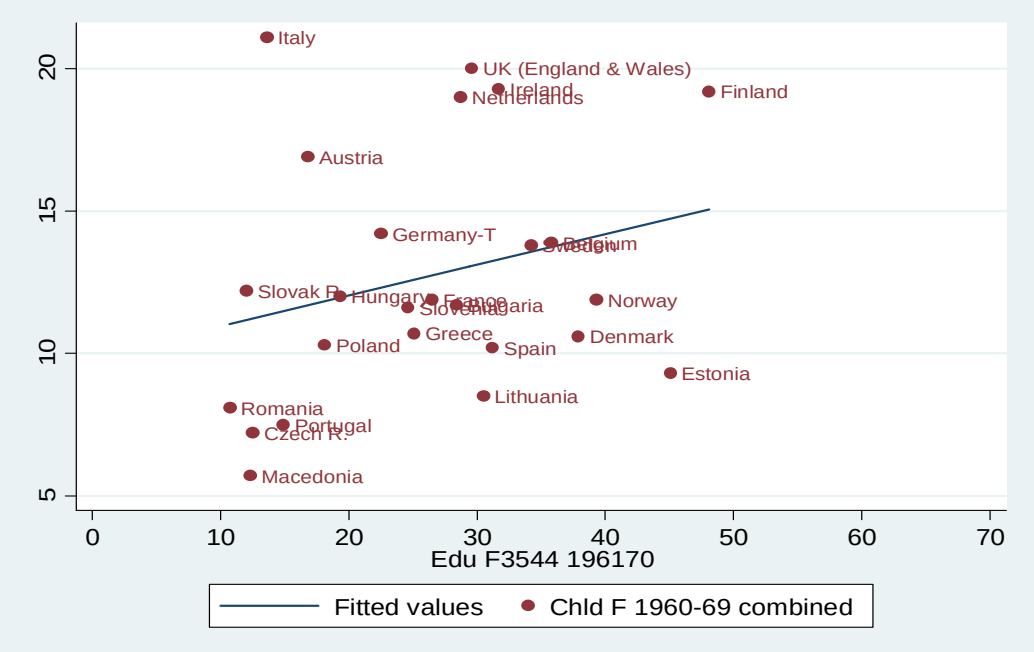


Figure 14b. Childlessness in female cohort 1960–69 and proportion of women (birth cohort 1961–70) with tertiary level education



5.3.2. Female employment and childlessness

Next, we explore whether proportions of women in wage work are associated with proportions of childless women. Employment activity among 25–49-yrs old women (in 1970 and 1990) and childlessness in female cohorts born in 1940–44 and 1960–69 are negatively related: the higher the proportion of female employment, the lower levels of childlessness in a country. This association is stronger and also statistically significant in the older cohort (regression coefficients are -0.07 (p=0.02) and -0.01 (p=0.93), respectively) (Figures 15a-b).

As was the case for marital indicators, this association is driven by the former socialist Central and European countries. In the younger cohort, also high fertility and low childlessness countries, such as e.g. France and the Scandinavian countries, illustrate that high female employment and low childlessness can be combined.

Figure 15a: Childlessness in female cohort 1940–44 and labour force participation rate among 25–49-year-old women in 1970

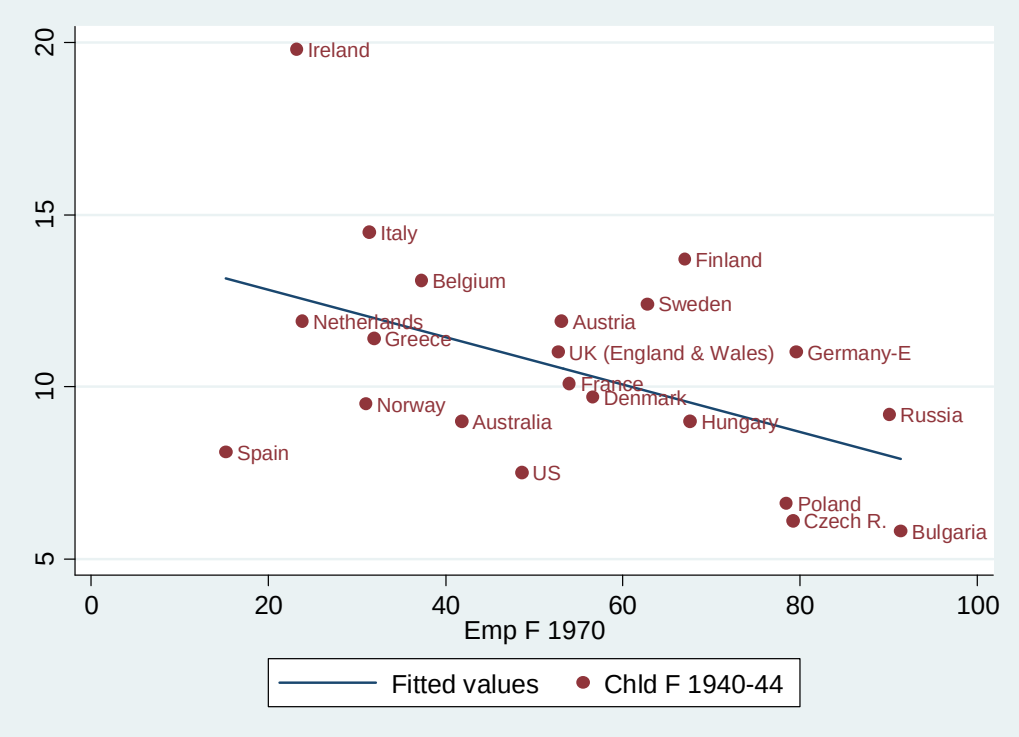


Figure 15b: Childlessness in female cohort 1960–69 and labour force participation rate among 25–49-year-old women in 1990

To sum up this section, the advancement of gender equity and women's social position is not, or is slightly negatively, correlated with higher childlessness.

5.4. Values and childlessness

In the last section of macro-level analysis, we analyse associations between values and childlessness levels in different countries.

5.4.1. Post-materialist values

So-called post-materialist values reflect the attitude of respondents to order and authority, but are not directly related to family life or childbearing. Figures 16a-b show the percentage of respondents holding post-materialist values in the European Values Survey and childlessness in female cohorts born in 1940–44 and 1960–69. The strong and significant association in the older cohort (0.14, p=0.032) is further strengthened in the younger cohort (0.35, p=0.003). However, it is interesting to note that the post-materialism scores are overall higher in the older cohorts compared to the younger cohorts, so that overall support for these measures appears to have declined.

These associations do not remain significant if entering other marital and fertility-related factors into the regression (results not shown).

Figure 16a: Childlessness in female cohort 1940–44 and post-materialist index in 1990

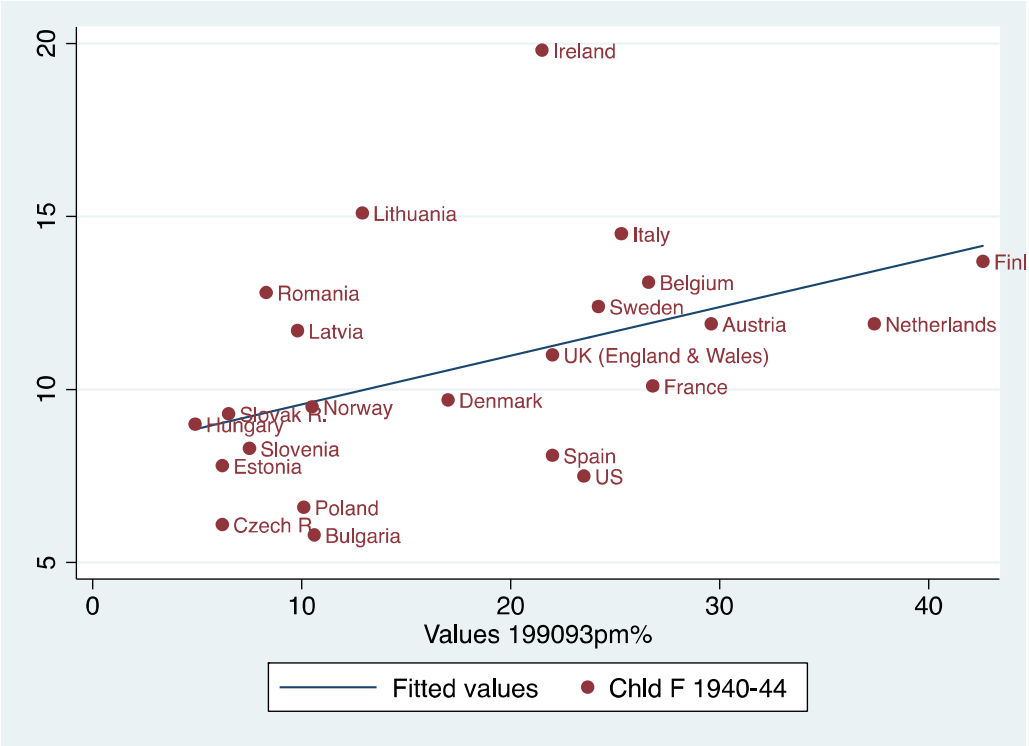
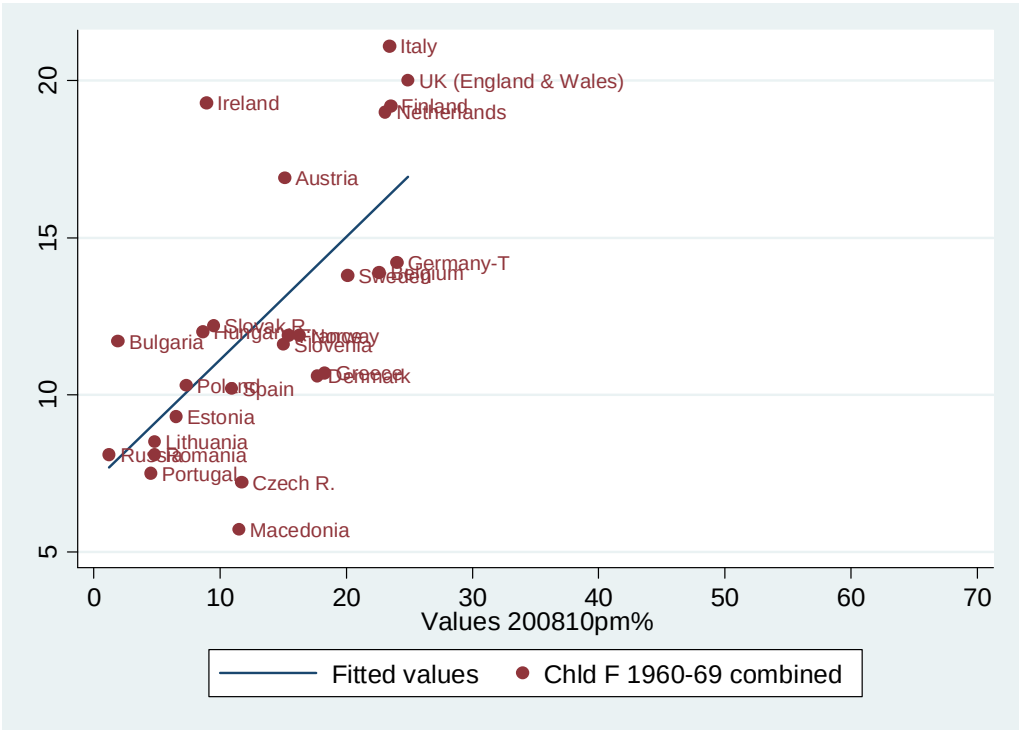


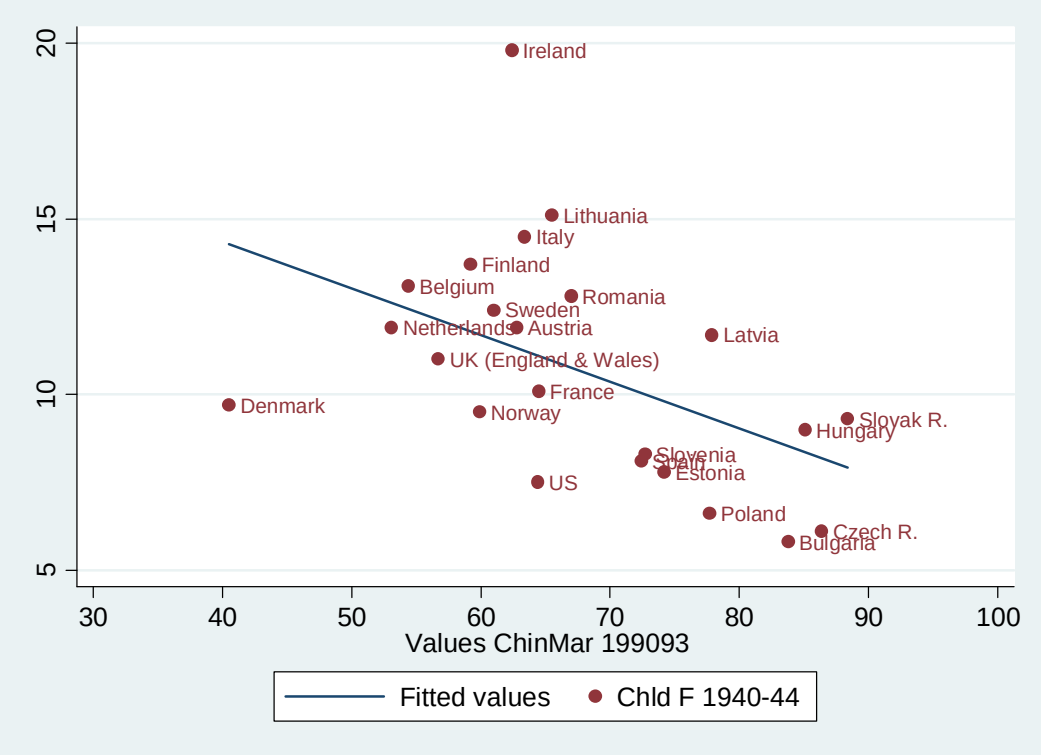
Figure 16b: Childlessness in female cohort 1960–69 and post-materialist index in 2010



5.4.2. Importance of children in marriage

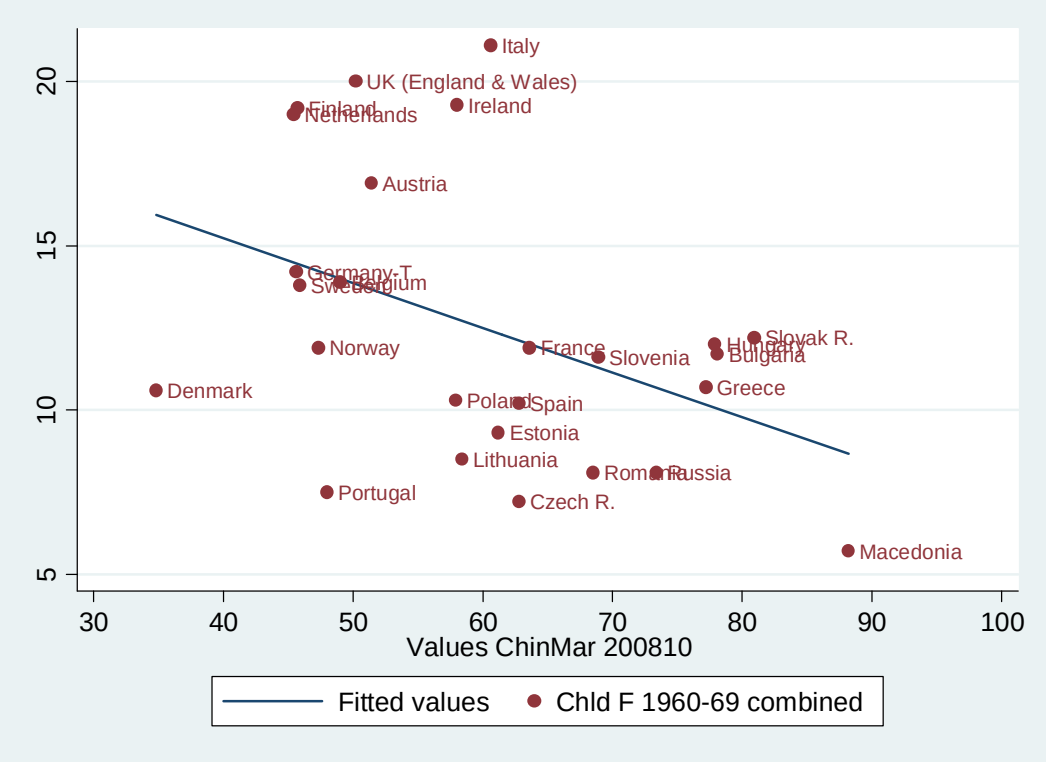
We then explored associations between proportions of childless women and directly family-related values (Figures 17a-b). We use the reported importance of children for a marriage (% of respondents agreeing with the statement) and the view that a woman needs to have a child to be fulfilled, again for female cohorts born in 1940–44 and 1960–69. Since the former variable had stronger results across cohorts and is correlated with the latter, we report only the first, agreeing that children are important for marriage, here.

Figure 17a: Childlessness in female cohort 1940–44 and agreeing that children are important for a marriage in 1990



In the older cohort, valuing children in marriage is frequent in the former socialist countries (Figure 15a). In the younger, however, the country order has partly changed, and we find a group of countries – Italy, the UK, the Netherlands, Finland, Ireland, and Austria – with high childlessness and not very strong support for this value. Of these, Finland, the Netherlands and Austria also scored high on the post-materialism index as reported above.

Figure 17b: Childlessness in female cohort 1960–69 and agreeing in that children are important for a marriage in 2010



In sum, value factors exhibit a strong and statistically significant association with childlessness for the measures studied here. This is true both regarding indirect measures of individualization of family life (such as the post-materialism index) and direct measures of the importance of having children for marital and personal life.

6. Intended and voluntary childlessness

To study intended and voluntary childlessness, we use the family planning module of the Eurobarometer carried out in 2011. We create three main groups based on whether the outcome is intended and/or desired. By unintended childlessness, we mean persons who are childless but intend to have children. Respondents who do not have children and do not intend to have children (but whose personal ideal may or may not be zero children) represent *intended childlessness*. Respondents who do not have children, do not intend to have children, and whose personal ideal number of children is zero represent *voluntarily childlessness (or "childfree").*

The numbers of both intended and especially voluntarily childfree respondents is low in each country so we have to be cautious with our results. Due to the small sample sizes we analyse

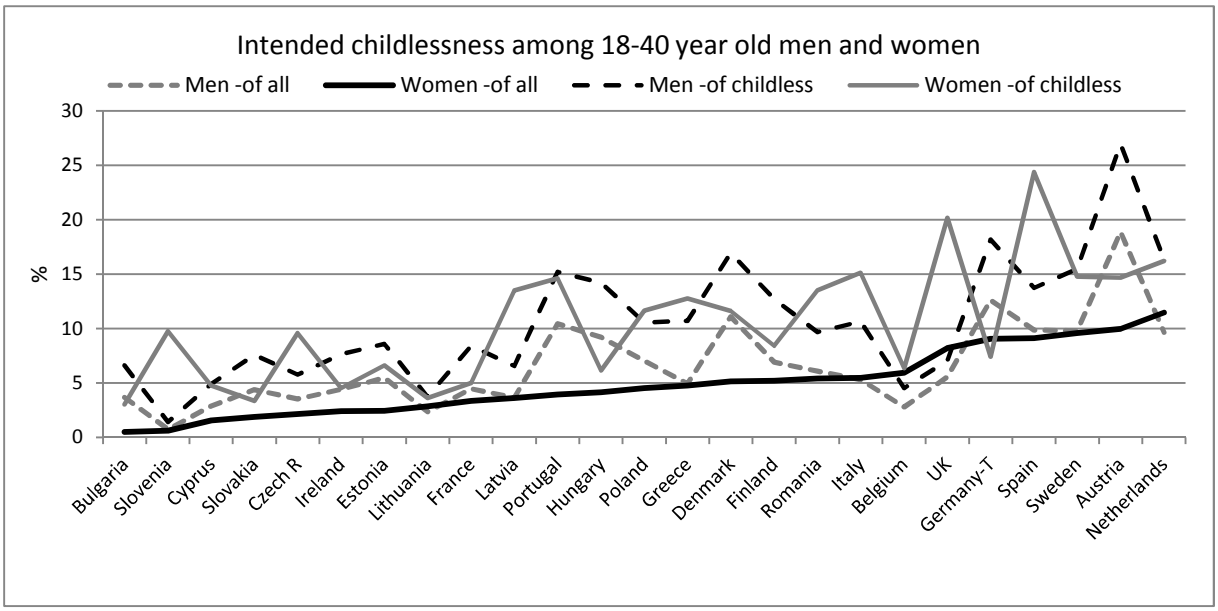
educational or occupational gradients in intentional childlessness only for Eurobarometer countries in total and not separately by countries.

There are also "reluctant parents", or people who state that their ideal number of children is zero, although they have already had children. Their proportion is very low, less than one per cent, and not further analysed here.

6.1. Intended childlessness

We first present how many people intend to remain childless. Among currently childless Europeans, the great majority plan to become parents at some stage of their lives. In most countries, close to 90 per cent of currently childless men and women aged 18-40 years intend to have children sometimes in the future (Figure 18).

Figure 18: Intended childlessness among 18-40 year old men and women



Datasource: Eurobarometer 2011, weighted values.

Intentional childlessness is very low in Eastern and Central Europe. Among Western European countries, Cyprus, Ireland and France exhibit lower intended childlessness than other countries (intended childlessness as a proportion of all men/women in age group 18-40 years). The proportions of persons not intending to have any children are the highest in Germany, Spain, Sweden, Austria and the Netherlands, where ten per cent or above of adults aged 18 to 40 years do not intend to have children.

In most countries, men are less likely to intend becoming parents than women. However, there are some countries where women are less likely to intend becoming parents than men: these are Lithuania, Belgium, UK, and the Netherlands. Intentional childlessness among childless men exceeds 15 per cent in Portugal, Denmark, Germany, Sweden, Austria and the Netherlands, and among women, in Italy, UK, Spain and the Netherlands.

We also examined if country level childlessness affects educational differences in intended childlessness. The assumption was that certain educational groups (e.g. the highly educated) could "spearhead" intended childlessness in countries where it is relatively uncommon compared to countries where it is more common. Based on the trends in prevalence of childlessness presented above, we grouped countries into three: countries with low levels of (female) cohort childlessness (<10%), middle level childlessness (10.1–14.0%), and high childlessness (14.1+ %) (Figures 19a-b).

6.1.1. Intended childlessness by educational levels

Next, we studied whether levels of intended childlessness would vary with educational levels between country groups. Results indicate no clear trends for women, except that as levels of female childlessness increase, women with mid-level education are somewhat more likely to intend to remain childless compared to women with low or high education. For men, educational differences were strong in countries with high prevalence of childlessness, so that highly educated men less often intended to remain childless.

Figure 19a: Intended childlessness among 18–45 year old women by educational attainment in three country groups

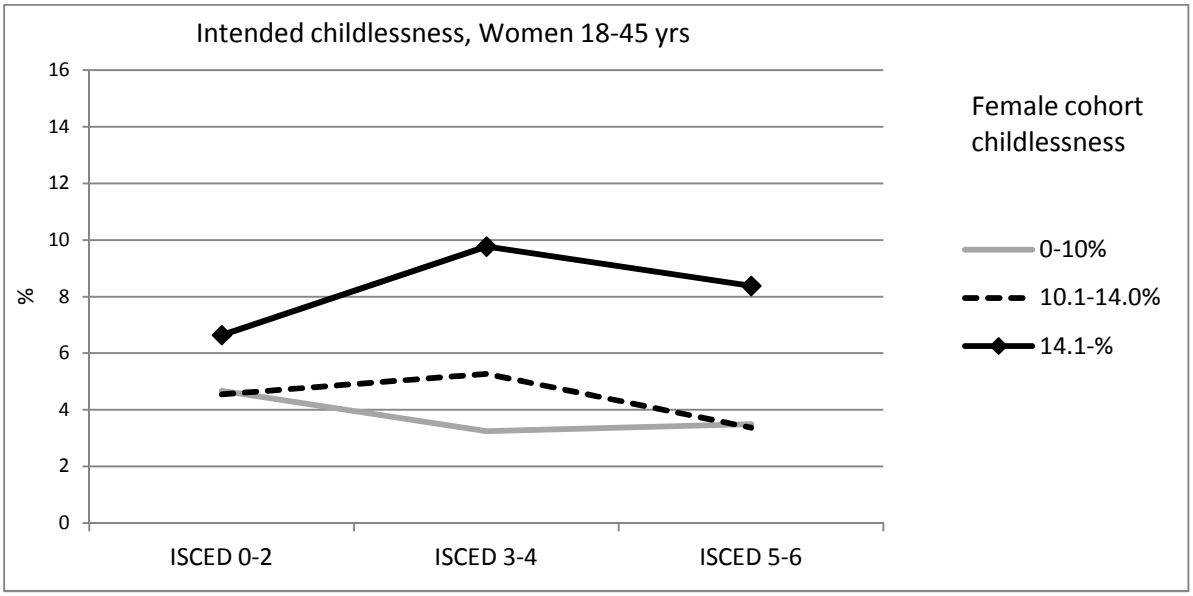
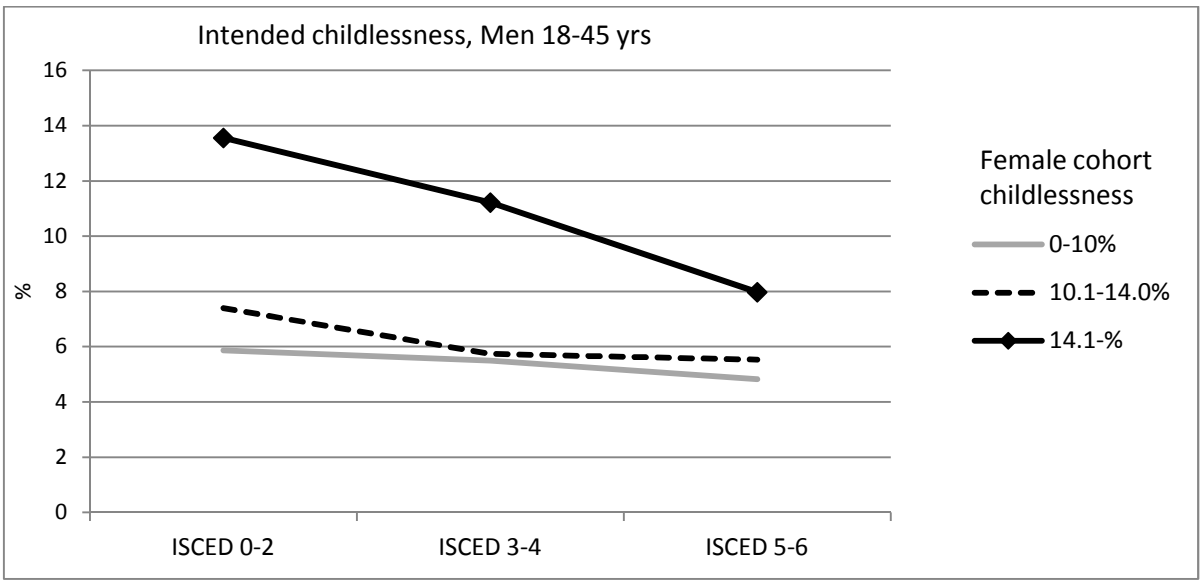


Figure 19b: Intended childlessness among 18–45 year old men

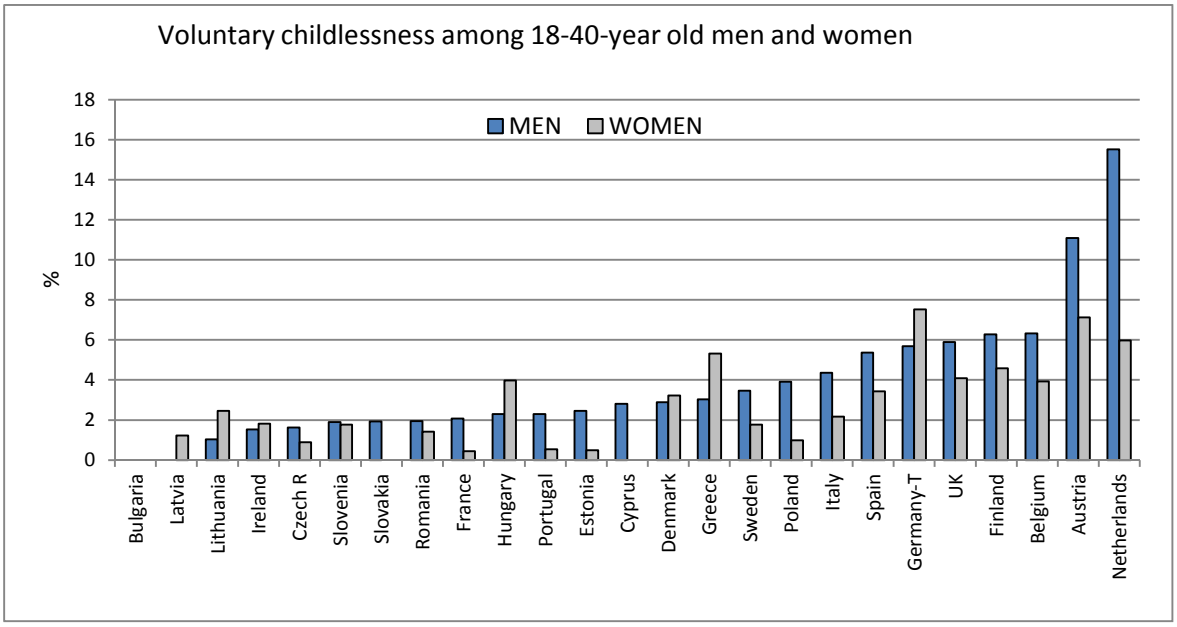


6.2. Proportions of childfree respondents

Next, we analyse how many of those who intend to remain childfree do so voluntarily, measured as respondents declaring that their personal ideal is to not have any children (Figure 20). Voluntary childlessness ("childfree") is relatively rare in Europe, ranging from below one per cent (in Bulgaria, Latvia and Slovakia) to around ten per cent (the Netherlands and Austria) with an average of 3.2 % among 18–40-year old men and women.

Voluntary childlessness is higher among men than among women in most of the countries studied here. It is clearly higher for women compared to men only in Latvia, Lithuania, Hungary, Greece and Germany, and slightly higher for women than for men in Ireland and Denmark.

Figure 20: Voluntary childlessness among 18–40 year old men and women



Datasource: Eurobarometer 2011

We then combined data for all countries and analysed how intended and voluntary childlessness varied by educational level and occupational level (Table 3).

Table 3: Intended and voluntary childlessness (%) among men and women by educational level and occupational status in 2011

	MEN		WOMEN	
	Intended childlessness	Voluntary childlessness	Intended childlessness	Voluntary childlessness
Total	7.3	3.9	5.6	2.8
Educational level				
Low (ISCED 0-2)	8.7	4.8	5.4	2.5
Middle (ISCED 3-4)	7.1	3.6	6.0	2.9
High (ISCED 5-6)	6.6	4.0	5.1	2.7
Occupational status				
Self-employed	4.4	3.1	5.9	3.7
Managerial	5.9	3.1	7.0	3.6
White collar	6.7	3.4	7.2	3.5
Manual	7.2	4.1	3.6	1.6
Not employed	9.3	4.6	5.6	2.9

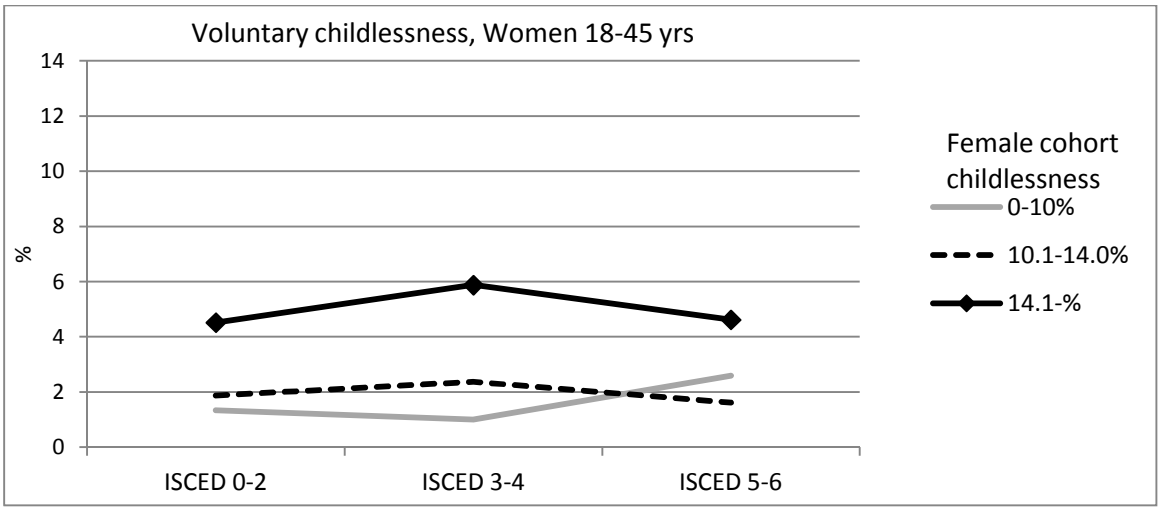
Datasource: Eurobarometer 2011

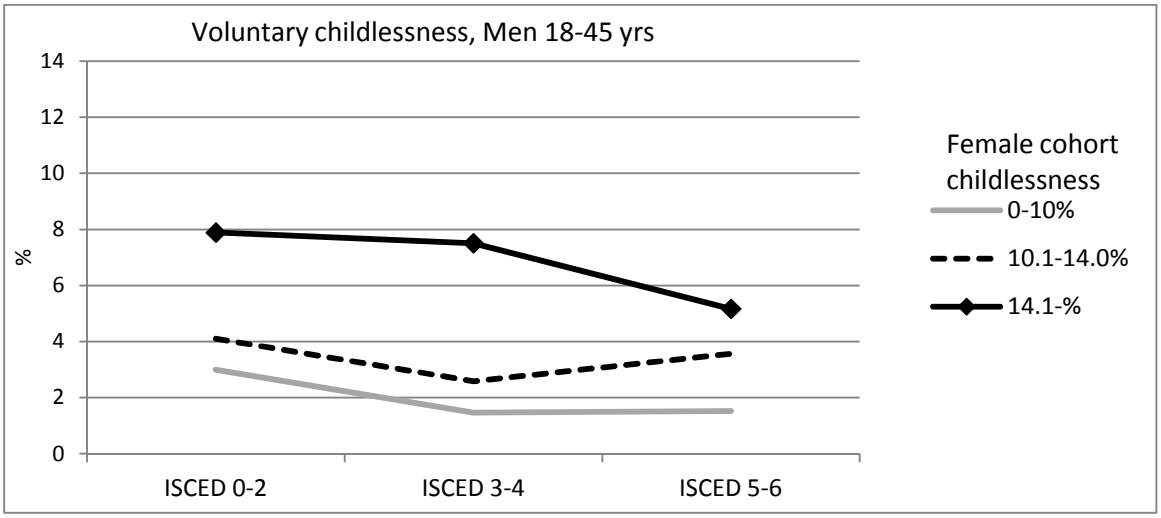
For men, both intended and voluntary childlessness appears inversely related to social status. For women, both types of childlessness appear to be most common in the mid-ranges of both educational and occupational classes.

6.2.1. Childfree Europeans by educational levels

We also examined if country level childlessness affects educational differences in voluntary childlessness, as we did with proportions of intended childlessness above (Figures 21a-b).

Figures 21a-b: Childfree women (a) and men (b) by educational level (%)





Childfree men and women are more frequent in countries with overall high childlessness. As was the case with intended childlessness, results indicate no clear trends of women. Among men, childfree respondents appear most common among those with least education in all three country groups.

7. Conclusions

Trends in European childlessness follow a U-shaped trend: after the low levels in mid-20th century most countries have witnessed clear increases in the proportions of lifetime childlessness. Marked country differences persist in the level and speed of change. Interestingly, in five countries – Denmark, Latvia, Russia, Slovenia and Sweden – childlessness appears to have decreased during the last decades.

European countries fall into three groups: those with low, moderate and high levels of childlessness. The scales for men and women are slightly different, due to under-reporting and higher variance among of paternity among males.

Low childlessness for women (below or at 10 %) is found in Bulgaria, the Czech Republic, Estonia, Hungary, Lithuania, Poland, Portugal, Romania and Russia, while male childlessness is low (below or at 15%) in Bulgaria, Estonia, Georgia, Lithuania and Russia.

Moderate levels of childlessness (between 11 and 15 %) are found among women in France, Belgium, Georgia, Germany, Norway, Slovak Republic, Slovenia, Sweden, and the US. For men, moderate (15-20%) levels are reported in Austria, Belgium, France, Hungary, the Netherlands, and Romania.

High childlessness is found among women (around 20%) is found in Austria, Italy, Finland, the Netherlands and the UK. Among men, high levels (above 20%) prevail in the Czech Republic, Finland, Germany, Italy, Norway, Poland, Sweden, and the UK.

Men's childlessness is typically more polarized than women's is, so that a higher proportion of men compared to women remain childless. Childlessness is also common both among highly educated and little educated Europeans.

Overall, most of the increase in childlessness seems unwanted. Intentional and particularly voluntary childlessness remains relatively rare throughout Europe, according to the responses given by men and women aged 18–40 in the Eurobarometer survey. It is possible, however, that these responses are partly driven by social norms and social desirability, rather than by real intentions and ideals. There are nevertheless clear country differences: rates of intended and voluntary childlessness are somewhat higher among men than among women, and in the German-speaking countries and in the Netherlands compared to other European countries.

Surprisingly, childlessness remains strongly associated with traditional fertility and marital indicators, also in the younger generations. Differently from previous findings, we show that the negative association between cohort completed fertility and childlessness becomes

stronger over generations, suggesting that in some countries, childlessness is an important component of low fertility.

In spite of the fact that marriage is losing its centrality all over Europe, proportions ever married are negatively associated with lifetime female childlessness on a macro-level also among the younger generations. Childlessness is also higher in countries where mean age at marriage is high and entry into motherhood is delayed on average: therefore it is possible that difficulties in the transition to adulthood can transform a delay in parenthood into a definitive childlessness. Values related to individualisation and family norms are also positively and statistically significantly associated with childlessness on a macro level: the higher individualisation, the higher are childlessness rates. Unexpectedly, divorce rates were not associated with childlessness, and associations with women's social position were weak or absent.

Childlessness in contemporary Europe should no longer be associated with the stereotypical image of a highly-educated and career-oriented woman. Neither is childlessness in any clear way associated with higher gender equity or the proportion of women in the labour market. Although this study did not address unwanted childlessness as such, low rates of voluntary or intended childlessness suggest that childlessness in young adults in their late 30s or early 40s is to a large extend not wanted. Educational differences in childlessness rates also indicate that unwanted childlessness may be concentrating among those who lack of economic or other social resources.

The rapidly increasing proportions of childless Europeans, who mostly would have wished to become parents, pose an acute challenge for policy makers. Unwanted childlessness can cause psychological distress and increase loneliness, affecting overall happiness and wellbeing. In the long run, the growing proportions of childless persons will bring extra challenges for future ageing generations, a significant minority of whom will have no adult children or grandchildren to assist them and take care of them

It would be highly important to collect fertility data by parities (including childlessness) among women but also among men through Eurostat to monitor trends in childlessness among the younger generations, to understand how social and economic changes influence entry into parenthood, and to develop policies to address involuntary childlessness. A systematic and continuing data collection can significantly strengthen family and population policy planning.

8. References

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Appendix Tables

Appendix Table 1: Main data sources

Countries	Source
Bosnia and Hertzegovina Croatia Denmark Germany-E Greece Hungary Italy Macedonia Norway Romania Slovenia Spain UK Yugoslavia (former)	(1) Frejka, T. & Sardon, JP. (2004), Childbearing trends and prospects in low-fertility countries. European Studies of Population Vol 13. Dordrecht (Net): EAPS & Kluwer Publishers. (Table CO-11)
Bosnia and Hertzegovina Croatia Denmark Germany-E Greece Hungary Italy Macedonia Norway Romania Slovenia Spain UK Yugoslavia (former)	(1) Frejka, T. (2008), Parity distribution and completed family size in Europe: Incipient decline of the two-child family model? Demographic Research 19(4): 47-72 (Figures 1-3 Proportions of women with 0, 1, 2, 3+ children; Table 2, Parity distribution (Special Collection 7: Childbearing Trends and Policies in Europe, Chapter 2, with additional country studies)
Austria, Belgium, Bulgaria Czech R Finland France Hungary Italy Ireland Netherlands Norway Romania Spain Sweden Portugal Yugoslavia (former)	(23) Prioux, F. (1993). L'infécondité en Europe (In: European Population II Demographic Dynamics, eds. Blum, A. & Rallu JL/INED).
Austria Denmark Finland France Germany-W Poland Romania Spain Sweden	(2) Sobotka, T. (2005, Draft), Childless societies? (Table 3)
UK	(5) Smallwood S. (2012), New estimates of trends in births by birth order in England and Wales. Population Trends 108: 32-48
UK	(11) Cohort 1970-study. Data for 1970-cohort, wave 2012. Available at UK Data Service http://discover.ukdataservice.ac.uk/series/?sn=200001
UK	(21) Understanding Society 2009-2012 Survey. Available at: https://www.understandingsociety.ac.uk/; UK Data Service http://discover.ukdataservice.ac.uk/series
UK	(11) ONS Office for National Statistics. Statistical Bulletin: Cohort Fertility 2012 (5.12.2013).
France	Toulemon, L. & Mazuy, M. (2001), Les naissances sont retardées mais la fécondité est stable. Population 56(4): 611-644
France	(16) Toulemon, L. (1996), Very few couples remain voluntarily childless, Population: An English Selection 8: 1-27: France.
France	(20) INSEE. Census 2011 (specific survey) Enquete Famille et logements 2011. Dossier: Avez vous eu des enfants? Si oui, combien? (France, portrait social, edition 2013).
Germany-W	(18) Kreyenfeld, M. (2002), Parity specific birth rates for West Germany: An attempt to combine survey data and vital statistics; Germany.
Germany-Total Germany-W Germany-E	(17) Dorbritz J. & Schwarz, K. (1996), Kinderlosigkeit in Deutshland – ein Massenphänomen? Analysen zu Erscheinungsformen und Ursachen. Zeitschrift für Bevölkerungswissenschaft 21(3): 231-261.
Italy	(22) Italian Multipurpose Survey 2009
Australia Hungary Italy Netherlands Portugal Romania	(16) Rowland (2007), Historical trends in childlessness. Journal of Family Issues 28: 1311-1337.
Sweden	(6) Statistics Sweden (2014), Fördelning av olika generationer efter antal barn (http://www.scb.se/sv_/Hitta-statistik/Statistik-efter-amne/Befolkning/Befolkningsframskrivningar/Demografisk-analys/55349/2012A01L/Barnafodande/Olika-generationers-barnafodande/Fordelning-av-olika-generationer-efter-antal-barn/) (as accessed in Jan 2014).
Sweden	(7) Statistics Sweden (2011), Demografiska rapporter 2011:3. Olika generationers barnafödande. Appendix tables.
Sweden	(8) Statistics Sweden (2002), Demografiska rapporter 2002:5. Hur

	manga barn får jag när jag blir stor? Appendix tables.
Switzerland	(24) Swiss Household Panel (2012) Available at FORS webpage: http://forscenter.ch/en/our-surveys/swiss-household-panel/
Norway	(9) Statistics Norway (2014), Births, separate tables: Barnetallfordeling, etter kvinnens alder og fødelseskull [Number of children by age/birth cohort of women/men] (table 05769) (https://www.ssb.no/statistikkbanken) (as accessed in Jan 2014).
Norway	(10) Statistics Norway (2013), Births, separate tables: Barnetallfordeling, etter kvinnens alder og fødelseskull [Number of children by age/birth cohort of women/men] (table 07870) (www.ssb.no/statistikkbanken) (accessed Jan 2014).
Denmark	(12) Statistics Denmark (2014), Andel barnløse kvinder i generationerne fra 1945 og frem efter alder (table FOD12) [Number of childless women born after 1944 by age per 1000 women] (http://www.statistikbanken.dk/statbank5a/default.asp?w=1280) (accessed Jan 2014).
Finland	(13) Fougstedt (1977), Population census 1970 (Statistics Finland), Results of a Fertility Survey among women (a sample of women drawn from the households in the population census). SVT VI C:104, vol. XV, Table 7a; B.8.
Finland	(14) Statistics Finland (1989-2012), Population Structure 1989-2012 (women/men by number of children and age reached during the year).
	Online databases
Bulgaria Czech R Estonia Hungary Lithuania Netherlands Portugal Russia Slovakia US	(3) (3x) (4) Human Fertility Database (Jan 2014). Available at: http://www.humanfertility.org/cgi-bin/main.php
Austria Belgium Bulgaria Estonia France Georgia Germany Hungary Italy Lithuania Netherlands Norway Poland Romania Russia	(15) Generations and Gender Survey, Wave I. Generations & Gender Programme: Survey Instruments. New York and Geneva: UN, 2005. Available at: http://www.ggp-i.org/data/data-access.html
Australia Bulgaria Croatia Czech R Estonia Hungary Ireland Latvia Lithuania	(19) UN Census data from Population Censuses' Datasets (Demographic Yearbook). Available at: http://unstats.un.org/unsd/demographic/products/dyb/dybcensusdata.htm

Appendix Table 2a Female childlessness in selected countries

	CHILDLESSNESS, female cohort % of childless (source), (birth cohort)				
	Cohort	Cohort	Cohort	Cohort	Source
Country	1920/25, 1930/35	1940/45	1950/55	1960/65	
Austria	17.2 (23) (1930) 14.8 (23) (1935)	11.9 (2) (1940) 12.4 (2) (1945) 14.3 (23) (1940) 15.1 (23) (1945)	12.6 (2) (1950) 15.0 (2) (1955)	16.9 (15) (1963-64)	2 (1940-55) 15 (1963-64) 23 (1930-45)
Belgium	29.2 (15) (1930-34) 27.1 (15) (1935-39) 16.8 (23) (1930) 14.8 (23) (1935)	24.9 (15) (1940-44) 26.1 (15) (1945-49) 13.1 (23) (1940) 12.8 (23) (1945)	16.1 (15) (1950-54) 16.6 (15) (1955-59)	12.6 (15) (1960-64)	15 (1930-64) 23 (1930-45)
Bosnia and Herzeg.	14.8 (1935)	11.6 (1940) 15.6 (1945)	10.4 (1950)		1
Bulgaria	9.4 (3x) (1932) 7.8 (15) (1930-34) 8.2 (3x) (1935) 8.0 (15) (1935-39)	4.6 (3x) (1940) 5.8 (15) (1940-44) 2.9 (3x) (1945) 5.6 (15) (1945-49) 7.3 (23) (1945)	2.4 (3x) (1950) 6.3 (15) (1950-54) 3.1 (3x) (1955) 8.6 (15) (1955-59)	9.6 (19) (1960-64) 11.7 (19) (1965-69)	3x (1932-1955) 15 (1930-59) 19 (1960-69) 23 (1945)
Croatia	13.3 (1) (1935)	8.6 (1) 1940) 8.2 (19) (1945-49)	6.1 (1) (1950) 8.6 (19) (1950-54)		1 (1935-50) 19 (1945-54)
Czech R.	7.4 (3) (1935) 7.8 (23) (1936)	6.1 (3) (1940) 8.3 (3) (1945) 7.9 (23) (1940) 9.2 (23) (1945)	6.0 (3) (1950) 5.9 (3) (1955)	6.2 (3) (1960) 7.2 (19) (1965-69)	3 (1935-60) 19 (1965-69) 23 (1936-45)
Denmark		9.7 (2) (1940) 7.6 (2) (1945) 8.6 (12) (1945)	10.9 (1,2) (1950) 12.5 (1,2) (1955) 10.7 (12) (1950) 11.8 (12) (1955)	10.6 (12) (1960) 9.8 (12) (1965)	2 (1940-55) 1 (1950-55) 12 (1945-65)
Estonia	9.6 (15) (1930-34) 8.8 (15) (1935-59)	7.8 (15) (1940-44) 9.8 (3x) (1945) 7.4 (15) (1945-49)	4.4 (3x) (1950) 7.0 (4) (1950) 6.5 (15) (1950-54) 6.1 (3x) (1955) 6.2 (15) (1955-59)	9.3 (19) (1960-64)	3x (1945-55) 4 (1950) 15 (1930-59) 19 (1960-64)
Finland	17.9 (13) (1921-25) 16.4 (13) (1926-30) 14.4 (14) (1935) 15.9 (23) (1935)	14.3 (2) (1940) 14.2 (2) (1945) 13.7 (14) (1940) 13.8 (14) (1945) 15.2 (23) (1940) 16.5 (23) (1945)	15.6 (2) (1950) 16.5 (2) (1955) 15.0 (14) (1950) 16.3 (14) (1955)	17.3 (14) (1960) 19.2 (14) (1965)	2 (1940-55) 13 (1921-30) 14 (1935-65) 23 (1930-45)
France	19 (16) (1920-24) 16 (16) (1925-29) 12.0 (15) (1930-34) 10.1 (15) (1935-39) 11.7 (20) (1936-40) 13.0 (23) (1930) 10.5 (23) (1935)	10.1 (2) (1940) 11.9 (15) (1940-44) 11.6 (20) (1941-45) 8.6 (2) (1945) 11.8 (15) (1945-49) 11.9 (20) (1946-50) 8.3 (23) (1940) 8.1 (23) (1945)	9.8 (2) (1950) 9.9 (15) (1950-54) 12.0 (20) (1951-55) 10.9 (2) (1955) 11.9 (15) (1955-59) 12.3 (20) (1956-60)	13.5 (20) (1961-65)	2 (1940-55) 15 (1930-59) 16 (1920-29) 20 (1936-65) 23 (1930-45)
Georgia	12.1 (1930-34) 12.1 (1935-39)	13.4 (1940-44) 11.2 (1945-49)	10.7 (1950-54) 9.3 (1955-59)		15 (1930-59)
Germany Total	23.2 (15) (1930-34) 20.5 (15) (1935-39)	19.2 (15) (1940-44) 21.4 (15) (1945-49)	16.3 (15) (1950-54) 13.6 (15) (1955-59)		15 (1930-59) 18 (1940-50)
Germany West	17 (17) (1920-24) 10 (17) (1930-34)	10.6 (2) (1940) 11 (18) (1940)	14.2 (2) (1950) 15 (18) (1950)		2 (1940-55) 17 (1920-49)

	10 (17) (1935-39)	12 (17) (1940-44) 12.7 (2) (1945) 11 (18) (1945) 14 (17) (1945-49)	18.3 (2) (1955)		
Germany East	18 (17) (1920-24) 11 (17) (1930-34) 16.4 (1) (1935) 10 (17) (1935-39)	11.0 (1) (1940) 9 (17) (1940-44) 8.4 (1) (1945) 8 (17) (1945-49)	7.3 (1) (1950)		1 (1935-50) 17 (1920-49)
Greece		11.4 (1940) 12.5 (1945)	9.7 (1950) 8.4 (1955)	10.7 (1960)	1 (1940-60)
Hungary	16 (16) (1920-24) 14 (16) (1925-29) 11.2 (15) (1930-34) 11 (16) (1930-34) 9.0 (1) (1935) 10.7 (15) (1935-39) 9 (16) (1935-39) 8.7 (23) (1937)	9.0 (3) (1940) 10.7 (15) (1940-44) 9.3 (3) (1945) 10.0 (15) (1945-49) 9.3 (23) (1940) 10.0 (23) (1945)	8.7 (3) (1950) 9.0 (15) (1950-54) 8.3 (3) (1955) 8.3 (15) (1955-59)	9.0 (19) (1960-64) 12.0 (19) (1965-69)	1 (1935) 3 (1940-55) 15 (1930-59) 16 (1920-39) 19 (1960-69) 23 (1937-45)
Italy	16 (16) (1920-24) 15 (16) (1925-29) 13 (16) (1930-34) 15.3 (1) (1935) 10 (16) (1935-39) 13.1 (15) (1939) 12.8 (22) (1935-39)	14.5 (1) (1940) 9.5 (15) (1940-44) 11.7 (1) (1945) 14.9 (15) (1945-49) 11.1 (22) (1940-44) 13.1 (22) (1945-49) 13.6 (23) (1940) 11.9 (23) (1945)	12.7 (1) (1950) 16.1 (15) (1950-54) 12.4 (1) (1955) 16.0 (15) (1955-59) 10.9 (22) (1950-54) 12.7 (22) (1955-59)	16.5 (22) (1960-64) 21.1 (22) (1965-69)	1 (1935-55) 15 (1939-59) 16 (1920-39) 22 (1935-69) 23 (1940-45)
Ireland		19.8 (23) (1940) 17.3 (23) (1945) 14.3 (19) (1945-49)	15.4 (19) (1950-54) 16.8 (19) (1955-59)	18.0 (19) (1960-64) 19.3 (19) (1965-69)	23 (1940-45) 19 (1945-69)
Latvia		11.7 (19) (1940-44) 10.0 (19) (1945-49)	9.2 (19) (1950-54)		19 (1940-54)
Lithuania	24.1 (15) (1930-34) 16.8 (15) (1935-39)	15.1 (15) (1940-44) 13.1 (15) (1945-49)	16.1 (15) (1950-54) 5.6 (3x) (1955) 12.6 (15) (1955-59)	3.5 (3x) (1960) 8.2 (19) (1960-64) 8.5 (19) (1965-69)	3x (1955-60) 15 (1930-59) 19 (1960-69)
Mace-donia	1.9 (1930) 7.5 (1935)	4.0 (1940) 3.9 (1945)	5.7 (1950) 10.0 (1955)	5.7 (1960)	1 (1930-60)
Nether-lands	15 (16) (1920-24) 14 (16) (1925-29) 14.1 (3) (1930) 16.2 (15) (1930-34) 12 (16) (1930-34) 11.7 (3) (1935) 7.6 (15) (1935-39) 12 (16) (1935-39) 15.4 (23) (1930) 11.7 (23) (1935)	11.9 (3) (1940) 11.7 (15) (1940-44) 11.7 (3) (1945) 12.9 (15) (1945-49) 11.9 (23) (1940) 11.7 (23) (1945)	14.6 (3) (1950) 16.6 (15) (1950-54) 17.1 (3) (1955) 17.7 (3) (1959) 15.1 (15) (1955-59)		3 (1930-55) 15 (1930-59) 16 (1920-39) 23 (1930-45)
Norway	12.0 (15) (1930-34) 11.8 (15) (1935-39) 9.6 (1,9,23) (1935)	11.4 (15) (1940-44) 9.5 (1,9,23) (1940) 10.4 (15) (1945-49) 9.0 (1,9) (1945)	9.4 (1,9) (1950) 10.4 (1) (1953) 11.3 (15) (1950-54) 11.2 (9) (1955) 10.4 (15) (1955-59)	11.9 (9) (1960) 10.7 (15) (1960-62) 12.5 (10) (1965)	1 (1935-53) 9 (1935-60) 10 (1965) 15 (1930-62) 23 (1930-40)
Poland	10.3 (15) (1930-34) 10.9 (15) (1935-39)	6.6 (2) (1940) 10.4 (15) (1940-44) 8.4 (2) (1945) 11.2 (15) (1945-49)	8.6 (2) (1950) 11.0 (15) (1950-54) 9.8 (2) (1955) 10.2 (15) (1955-59)	9.9 (15) (1960-64)	2 (1940-55) 15 (1930-64)
Portugal	17 (16) (1920-24)	2.0 (3x) (1945)	5.5 (3x) (1950)		3x (1945-55)

	17 (16) (1925-29) 14 (16) (1930-34)		2.8 (3x) (1955)		16 (1920-34)
Romania	19 (16) (1920-24) 16 (16) (1925-29) 13 (16) (1930-34) 14.6 (15) (1930-34) 13.0 (15) (1935-39) 14.1 (23) (1934)	12.8 (15) (1940-44) 10.5 (2) (1945) 11.9 (15) (1945-49) 11.6 (23) (1939) 10.2 (23) (1944)	6.3 (1) (1950) 9.2 (15) (1950-54) 8.8 (1) (1955) 9.5 (15) (1955-59)	8.1 (1) (1960)	2 (1945) 1 (1950-60) 15 (1930-59) 16 (1920-34) 23 (1934-44)
Russia	7.1 (15) (1930-34) 6.1 (15) (1935-39)	9.2 (15) (1940-44) 8.1 (3x) (1945) 6.2 (15) (1945-49)	6.4 (3x) (1950) 4.0 (15) (1950-54) 8.6 (3x) (1955) 5.3 (15) (1955-59)	5.1 (3x) (1960)	3x (1945-60) 15 (1930-59)
Slovak R.	9.4 (1935)	9.3 (1940) 11.7 (1945)	9.7 (1950) 9.5 (1955)	9.9 (1959)	3 (1935-59)
Slovenia	13.6 (1930) 11.2 (1935)	8.3 (1940) 8.8 (1945)	4.4 (1950) 1.5 (1955)	4.7 (1960)	1 (1930-60)
Spain	14.2 (23) (1933) 12.0 (23) (1938)	8.1 (2) (1940) 6.2 (2) (1945) 11.0 (23) (1943) 10.0 (23) (1948)	10.0 (2) (1950) 10.4 (2) (1955) 7.1 (1) (1955)	10.2 (1) (1960)	2 (1940-55) 1 (1955-60) 23 (1933-48)
Sweden	16.4 (8) (1925) 14.1 (8) (1930) 12.7 (8) (1935) 14.7 (23) (1930) 13.4 (23) (1935)	13.1 (2) (1940) 12.2 (2) (1945) 12.4 (8) (1940) 12.3 (8) (1945) 13.2 (23) (1940) 12.9 (23) (1945)	12.6 (2) (1950) 12.8 (3) (1955) 12.8 (8) (1950) 14.3 (8) (1955)	13.4 (3) (1960) 14.3 (6) (1960) 13.8 (6) (1965)	2 (1940-50) 3 (1955-60) 6 (1960-65) 8 (1925-55) 23 (1930-45)
UK (England and Wales)	21.0 (5) (1920) 17.0 (5) (1925) 13.0 (5) (1930) 12.0 (5) (1935) 13.1 (1) (1930) 11.2 (1) (1935) 13.8 (21) (1930-34) 12.5 (21) (1935-39)	11.0 (5) (1940) 9.0 (5) (1945) 10.6 (1) (1940) 10.4 (1) (1945) 9.3 (21) (1940-44) 11.8 (21) (1945-49)	14.0 (5) (1950) 15.0 (5) (1955) 14.5 (1) (1950) 16.9 (1) (1955) 14.7 (21) (1950-54) 14.2 (21) (1955-59)	20.0 (5) (1960) 20.0 (11) (1965) 18.8 (11) (1970) 14.3 (21) (1960-64) 14.5 (21) (1965-69) 17.1 (21) (1970-74)	5 (1920-60) 1 (1930-55) 11 (1965-70) 21 (1930-74)
Yugosla-via (former)	10.9 (1) (1935)	3.9 (1) (1940) 7.5 (1) (1945) 8.9 (23) (1940) 8.5 (23) (1945)	0.2 (1) (1950) 5.7 (1) (1955)	2.9 (1) (1960)	1 (1935-60) 23 (1940-45)
US	14.4 (1920) 10.9 (1925) 8.8 (1930) 6.1 (1935)	7.5 (1940) 11.1 (1945)	15.0 (1950) 16.3 (1955)	15.4 (1960)	3 (1920-60)
Australia	15 (16) (1920-24) 11 (16) (1925-29) 9 (16) (1930-34) 9 (16) (1935-39)	9 (16) (1940-44) 10.7 (19) (1945-49)	13.1 (19) (1950-54) 14.3 (19) (1955-59)	15.5 (19) (1960-64) 16.8 (19) (1965-69)	16 (1920-44) 19 (1945-69)

Data sources: see Appendix Table 1.

Appendix Table 2b: Female childlessness in selected countries, recent birth cohorts

	CHILDLESSNESS AT AGE 40/4044, females				
Country	% childless at 40	Cohort	% childless at 40-44	Cohort	Source
Austria	21.9	1970	19.6	1964-69	HFD/GGS(40-44)
Belgium			13.9	1963-70	GGS
Bosnia and H					no data
Bulgaria	6.8	1969	11.9 (20)	1967-71	HFD Census 2011 (20)
Croatia			9.4 (20)	1957-61	no data/HFD Census data 2001 (20)
Czech R.	8.1	1970	7.2 (20)	1967-71	HFD Census 2011 (20)
Denmark	12.1 (12)	1970			Statistics Denmark (12)
Estonia	10.0	1970	10.3 (20)	1967-71	HFDx Census 2011 (20)
Finland	21.5 21.2 (14)	1969	19.7 (14)	1966-70	HFD Statistics Finland (14)
France			11.9	1961-66	GGS
Georgia			13.4	1961-67	GGS
Germany, Total/West			T14.2	1961-65	GGS
Germany, East					no data
Greece			13.3 (20)	1957-61	Census data 2001 (20)
Hungary	10.9	1969	12.0 (20)	1967-71	HFD Census data 2011 (20)
Ireland			19.3 (20)	1967-71	Census data 2011(20)
Italy			21.1	1965-69	Multipurpose survey 2009 (22)
Latvia			8.7 (20)	1956-60	Census data 2000 (20)
Lithuania	12.5	1970	9.3	1961-67	HFDx/GGS(40-44)
Macedonia					no data
Netherlands	19.0	1969	17.0	1958-64	HFD/GGS(40-44)
Norway	12.6 13.4 (10)	1969 1970	12.7 12.2/13.5 (10)	1962-69 1966/1970	HFD Statistics Norway (10) GGS(40-44)
Poland			10.3	1965-71	GGS
Portugal	7.5	1969			HFDx
Romania			9.2	1961-66	GGS
Russia	8.1	1970	5.1	1960-65	HFDx/GGS(40-44)
Slovak R.	12.2	1969			HFD
Slovenia	11.6	1969	7.0 (20)	1958-62	HFD Census data 2002 (20)
Spain					no data
Sweden	13.8 13.7 (6)	1970	13.4 (7)	1966-70	HFD Statistics Sweden (6) Statistics Sweden (7)
Switzerland	21.2	1970	22.4	1968-1972	Swiss Household Panel, 2010 (24)
UK (England and Wales)	19.0 (11) 18.8 (11, coh1970)	1970	19.5 (11) 14.6 (22)	1966-70	ONS-UK Cohort Fertility 2012 (11) Cohort 1970-study (11) Understanding society (21)
US	13.7	1970			HFD
Australia			16.8 (20)	1967-71	Census data (20)

Note: a) Data drawn from GGS refers to the proportion of childless persons among 40-44-year old women (an average proportion of childless persons among survey respondents aged 40-44-years at the time of the survey(s) (age in completed years)), e.g. they belong to several birth cohorts. Weights used if provided in the GGS data base. GGS (Wave I): Austria, Belgium, Bulgaria, Estonia, France, Georgia, Germany, Hungary, Italy, Lithuania, Netherlands, Norway, Poland, Romania, Russia.
b) Data drawn from register data bases (Denmark, Finland, Norway, Sweden) refers to the proportion of childless persons among persons aged 40-44 years at the end of the year (age reached during the year) at a specific calendar year.
c) Data drawn from HFD refers to the proportion of childless persons at age 40 of a specific birth cohort. Sources: HFD (http://www.humanfertility.org): Completed cohort fertility by birth order at age 40. HFDx Data on cohort fertility indicators not reliable.
d) Data from UN Census database (20).

Appendix Table 3a: Male childlessness, selected countries

	CHILDLESSNESS, % of male cohorts (men at age 50/55 years)				
	Cohort				
Country	1930/35	1940/45	1950/55	1960/65	Source
Finland	at 55: 19.5 (1936)	at 50: 18.4 (1941) 18.5 (1945) at 55: 18.3 (1940) 18.1 (1945)	at 50: 21.3 (1950) 23.8 (1955) at 55: 20.7 (1950) 23.4 (1955)	at 50: 25.6 (1960)	14 (1936-60)
Norway		at 50: 13.6 (9) (1940) 13.3 (9) (1945)	at 50: 14.4 (9) (1950) 16.6 (9) (1955)	at 50: 19.9 (10) (1960)	9 (1940-55) 10 (1960)
Sweden	at 55: 19.0 (7) (1930) 17.0 (7) (1935) 17.5 (6) (1935)	at 55: 17.1 (6) (1940) 17.6 (6) (1945)	at 50: 19.4 (7) (1950) 21.3 (7) (1955) at 55: 18.9 (6) (1950) 20.7 (6) (1955)	at 50: 22.1 (7) (1960)	6 (1945-55) 7 (1930-60)
France	by 2011: 13.5 (20) (1931-35) 13.5 (20) (1936-40)	by 2011: 12.8 (20) (1941-45) 14.0 (20) 1946-50)	by 2011: 15.6 (20) (1951-55) 17.9 (20) (1956-60)	by 2011: 20.6 (20) (1961-65)	20 (1931-65)
Italy	12.4 (1935-39, men 50-54 yrs)	14.0 (1940-44, men 50-54 yrs) 15.4 (1945-49, men 50-54 yrs)	16.9 (1950-54, men 50-54 yrs) 20.6 (1955-59, men 50-54 yrs)	28.0 (1960-64, men 40-44 yrs) 30.8 (1965-69, men 40-44 yrs)	22 (1935-69)

	CHILDLESSNESS, % of male cohorts (men at age 45 years)				
	Cohort				
Country	1930/35	1940/45	1950/55	1960/65	Source
Finland		19.3 (1946)	21.9 (1950) 24.5 (1955)	26.1 (1960) 27.6 (1965)	14
Norway		13.9 (9) (1940) 13.3 (9) (1945)	14.8 (9) (1950) 17.2 (9) (1955)	19.4 (9) (1960) 22.1 (10) (1965)	9 (1940-60) 10 (1965)
Sweden	23.4 (8) (1925) 20.6 (8) (1930) 18.4 (8) (1935)	18.1 (8) (1940) 18.7 (8) (1945)	20.0 (7) (1950) 20.7 (8) (1950) 22.0 (7) (1955) 22.6 (8) (1955)	23.1 (7) (1960) 22.0 (7) (1965)	7 (1950-65) 8 (1925-55)
France				20.6 (1961-65)	20 (1961-65)
UK				1970: 24.8 (at age 42)	11 (1970)

Note: Register data from Finland, Norway and Sweden provides annual information on parity distribution by age reached during the year/birth cohort (live births registered to a person). Childlessness at a certain age refers thus to the proportion of childless persons of all persons in this age group (birth cohort). For France, data are from population census 2011, INSEE. For Italy, Italian Multipurpose survey 2009, and for UK, Cohort 1970-study.

Appendix Table 3b: Male childlessness with GGS data

	CHILDLESSNESS, men at age 45-49				
Country	1935-39	1940-44	1940-49	1950-54	1955-59
Belgium	25.6	34.1	28.9	23.8	19.3
Bulgaria	7.1	10.3	8.0	11.7	(12.8)
Estonia	10.8	11.2	8.5	11.8	(9.9)
France	10.4	15.1	11.2	10.6	(18.4)
Georgia	6.6	7.0	5.1	6.1	(8.4)
Germany Total	22.2	23.9	22.1	22.6	(22.8)
Hungary	10.2	11.8	12.6	11.5	(16.2)
Italy	12.4 (IMS)	15.4 (GGS) 14.0 (IMS)	17.4 (GGS) 15.4 (IMS)	25.0 (GGS) 16.9 (IMS)	(22.9) (GGS) 20.6 (IMS)
Lithuania	19.8	15.9	14.8	16.6	(12.8)
Netherlands	9.2	12.9	15.2	19.8	(16.4)
Norway	10.6	14.0	10.0	17.1	15.3
Poland	10.2	11.5	12.6	15.5	18.1
Romania	14.2	18.9	14.9	14	(17.6)
Russia	8.0	6.7	6.5	5.4	(7.7)
Switzerland	37.7	34.5	33.1	24.3	22.5

Data source: GGS-surveys conducted in 2002-2012: Belgium, Bulgaria, Estonia, France, Georgia, Germany T, Hungary, Italy, Lithuania, Netherlands, Norway, Poland, Romania, Russia. For Italy, data from GGS (2003-04, GGS) and Italian Multipurpose Survey (2009, IMS), for Switzerland, Swiss Household Panel (2005)

Note: Childlessness by birth cohorts refers to the proportion of childless persons of each 5-year cohort at the time of the survey, thus the exact proportion of childless persons at a specific age (for example, at age 50) could not be determined.

Appendix Table 3c: Male childlessness in selected countries, recent birth cohorts

	CHILDLESSNESS AT AGE 40-44, males		
Country	% childless at 40-44	Cohort	Source/year
Austria	24.9	1964-69	GGS
Belgium	21.8	1963-70	GGS
Bosnia and H			
Bulgaria	15.5	1960-65	GGS
Croatia			
Czech R.	17.3	1960-65	GGS
Denmark			
Estonia	13.9	1960-66	GGS
Finland	29.5	1966-70	Statistics Finland (14)/2010
France	21.9	1961-66	GGS
Georgia	12.2	1961-67	GGS
Germany Total/West	T31.3	1961-65	GGS
Germany, East			
Greece			
Hungary	21.6	1960-65	GGS
Ireland			
Italy	30.7 (GGS) 30.8 (22) (40-44 yrs)	1959-63 (GGS) 1965-69 (22)	GGS Multipurpose Survey 2009 (22)
Latvia			
Lithuania	13.3	1961-67	GGS
Macedonia			
Netherlands	27.7	1958-64	GGS
Norway	at 40: 26.3 (10) at 45: 22.2 (10) at 40-44: 16.7	1970 1966 1962-69	Statistics Norway (10)/2011 GGS
Poland	18.7	1965-71	GGS
Portugal			
Romania	15.8	1961-66	GGS
Russia	10.8	1960-65	GGS
Slovak R.			
Slovenia			
Spain			
Sweden	23.8	1966-70	Statistics Sweden (7)/2010
Switzerland	27.4	1965-1970	Swiss Household Panel 2010
UK (England and Wales)	24.8 (11) 26.1 (21)	1970 1965-69	Cohort 1970, wave 2012 (11) Understanding society 2009 (21)
US			
Australia	21.3	1965-70	HILDA 2010

Note:

a) Data drawn from GGS refers to the proportion of childless persons among 40-44-year old men (an average proportion of childless persons among survey respondents aged 40-44-years at the time of the survey(s) (age in completed years)), e.g. they belong to several birth cohorts. GGS (Wave I): Austria, Belgium, Bulgaria, Czech R, Estonia, France, Georgia, Germany, Hungary, Italy, Lithuania, Netherlands, Norway, Poland, Romania, Russia.

b) Data drawn from register data bases (Denmark, Finland, Norway, Sweden) refers to the proportion of childless persons among persons aged 40-44 years at the end of the year (age reached during the year) at a specific calendar year.

c) For Italy: Italian Multipurpose Survey 2009 data for male cohorts 1935-59 at age 50-54 years, for cohorts 1960-69 at age 40-44 years. Weights used.
d) For UK: Data from Cohort 1970-study and Understanding Society 2009 -survey.

Appendix Table 4a: Cohort 1940-44, demographic indicators

	Childlessness		**Demographic indicators**				
	Cohort childlessness - Females	**Cohort childlessness - Males**	**Cohort CFR**	**MAFB**	**Ever-married at 35-39**	**MAFM-F**	**Total divorce rate**
	1940-44	1940-44	1940-44	1970	1980	1970	1970
Austria	11.9		1.96		91.2	22.9	0.2
Belgium	13.1	34.1	1.93	24.3	94.2	22.4	0.1
Bosnia and Herzegovina	11.6		2.34	22.5			
Bulgaria	5.8	10.3	2.07	22.1	97.0	21.4	0.1
Croatia	8.6		1.78	22.0		21.4	0.1
Czech R.	6.1		2.03	22.5	96.1	21.6	0.3
Denmark	9.7		2.08	23.8	90.7	22.8	0.3
Estonia	7.8	11.2	1.85	24.1	92.2	23.5	
Finland	13.7	18.4	1.88	24.4	88.6	23.3	0.2
France	10.1	15.1	2.22	24.4	90.6	22.6	0.1
Georgia	13.4	7.0			92.2		
Germany-T		23.9	1.80	24.0		22.5	0.2
Germany-W	10.6			24.2		22.7	0.2
Germany-E	11.0			23.3		21.9	0.2
Greece	11.4		1.98		92.3	24.0	0.1
Hungary	9.0	11.8	1.90	22.8	95.3	21.5	0.2
Italy	14.5	14.0	2.07	25.1	90.8	23.9	0.1
Lithuania	15.1	15.9	1.97		93.5	24.1	
Macedonia			2.64			22.1	
Netherlands	11.9	12.9	2.00	24.8	92.5	22.9	0.1
Norway	9.5	13.6	2.21		91.9	22.8	0.1
Poland	6.6	11.5	2.27	22.8		22.8	0.1
Portugal			2.42		91.4	24.0	0.0
Romania	12.8	18.9	2.44	22.6	96.5	21.8	0.1
Russia	9.2		1.82		96.1	23.2	0.3
Slovak R.	9.3		2.38	22.6	93.9	22.0	
Slovenia	8.3		1.83	23.7		23.1	0.1
Spain	8.1		2.43		90.2		
Sweden	12.4	17.1	1.98	25.9	80.7	23.9	0.2
UK (England & Wales)	11.0	15.9	2.22		93.9	22.4	
Serbia			2.31				
US	7.5				91.9		
Australia	9.0				93.2		
Ireland	19.8		3.27	25.8	88.8	24.8	
Latvia	11.7				93.8		0.5
Iceland			2.82	21.3	89.8	23.2	0.2
Switzerland	27.4	22,4	1.86	25.3	89.4	24.2	0.2
Canada							
Reg.coeff			**3.922**	**1.927**	-0.355	**2.181**	**-3.609**

Appendix Table 4b: Cohort 1940-44 Gender equity and value indicators

	Childlessness		Women's social position		Values		
	Cohort childlessness - Females	**Cohort childlessness - Males**	**Tertiary education, Females**	**Female employment**	**Post-materialist -%**	**Children important for marriage**	**Children important for a woman**
	1940-44	1940-44	1941-50	1970	1990	1990	1990
Austria	11.9		8.0	53.1	29.6	62.8	47.5
Belgium	13.1	34.1	19.6	37.3	26.6	54.4	44.3
Bosnia and Herzegovina	11.6						
Bulgaria	5.8	10.3	18.1	91.4	10.6	83.8	91.1
Croatia	8.6		12.4				
Czech R.	6.1		8.2	79.2	6.2	86.4	66.9
Denmark	9.7		26.7	56.6	17.0	40.5	81.7
Estonia	7.8	11.2	28.8		6.2	74.2	91.0
Finland	13.7	18.4	26.0	67.0	42.6	59.2	19.0
France	10.1	15.1	14.8	54.0	26.8	64.5	74.1
Georgia	13.4	7.0					
Germany-T		23.9	15.1		31.0	47.1	47.4
Germany-W	10.6						
Germany-E	11.0			79.6			
Greece	11.4		7.6	31.9			
Hungary	9.0	11.8	12.8	67.6	4.9	85.1	96.2
Italy	14.5	14.0	6.6	31.4	25.3	63.4	65.2
Lithuania	15.1	15.9	18.9		12.9	65.5	88.7
Macedonia			9.0				
Netherlands	11.9	12.9	18.6	23.8	37.4	53.1	9.6
Norway	9.5	13.6	21.2	31.0	10.5	59.9	22.1
Poland	6.6	11.5	11.7	78.5	10.1	77.7	74.4
Portugal			7.2	24.6	13.1	64.6	59.9
Romania	12.8	18.9	6.8		8.3	67.0	84.3
Russia	9.2			90.1			
Slovak R.	9.3		10.0		6.5	88.4	72.3
Slovenia	8.3		14.5		7.5	72.7	57.7
Spain	8.1		10.1	15.2	22.0	72.4	49.8
Sweden	12.4	17.1	27.6	62.8	24.2	61.0	19.7
UK (England & Wales)	11.0	15.9	22.1	52.7	22.0	56.7	19.1
Serbia				49.0			
US	7.5			48.6	23.5	64.4	19.0
Australia	9.0			41.8			
Ireland	19.8		16.5	23.2	21.5	62.4	24.7
Latvia	11.7		20.5		9.8	77.9	96.1
Iceland			17.7		11.9	65.0	39.9
Canada					26.1	65.1	22.7
Reg.coeff			0.040	-0.069	**0.140**	**-0.133**	-0.033

Appendix Table 4c: Cohort 1960-60 Demographic indicators

	Childlessness		Demographic indicators				
	Cohort childlessness - Females	Cohort childlessness - Males	Cohort CFR	MAFB	Ever-married at 35-39	MAFM-F	Total divorce rate
	1960-1969	1960-64	1960-64	1990	2000	1990	1990
Austria	16.9		1.70	25.0	85.7	24.9	0.3
Belgium	13.9		1.86	26.4	83.6	24.2	0.3
Bosnia and Herzegovina			1.89	23.6	96.1	23.3	0.1
Bulgaria	11.7		1.95	22.2	93.8	21.4	0.2
Croatia			1.98	24.1	89.5	23.1	0.2
Czech R.	7.2		2.03	22.5	93.9	21.6	0.4
Denmark	10.6		1.90	26.4	73.0	27.6	0.4
Estonia	9.3		2.01	22.9	88.5	22.5	0.5
Finland	19.2	25.6	1.96	26.5	71.6	26.0	0.4
France	11.9		2.11	27.0	73.8	25.6	0.3
Georgia	13.4		2.09	23.7	91.1		
Germany-T	14.2		1.65	26.6	82.5	25.2	0.3
Germany-W				27.0		25.7	0.3
Germany-E				24.6		23.3	0.2
Greece	10.7		1.93	25.5	89.1	24.8	0.1
Hungary	12.0		2.02	23.1	93.5	21.9	0.3
Italy	21.1	28.0	1.67	26.9	82.7	25.5	0.1
Lithuania	8.5		1.88	23.2	91.0	22.3	0.4
Macedonia	5.7		2.29	23.4		22.6	0.1
Netherlands	19.0		1.85	27.6	74.7	25.9	0.3
Norway	11.9	19.9	2.09	25.9	85.7	26.2	0.4
Poland	10.3		2.18	23.3	91.4	22.6	0.2
Portugal	7.5		1.89	24.9	89.5	23.9	0.1
Romania	8.1		2.15	22.6	90.5	22.0	0.2
Russia	8.1		1.83	22.6	93.1	21.9	0.4
Slovak R.	12.2		2.18	22.6	90.5	21.9	
Slovenia	11.6		1.87	23.7	75.7	23.7	0.2
Spain	10.2		1.76	26.8	82.0	25.3	0.1
Sweden	13.8	22.1	2.04	26.3	59.8	27.5	0.4
UK (England & Wales)	20.0	22.3	1.97	27.3	85.7	25.1	0.4
Serbia			2.28		90.0		
US	13.7			24.2	86.6		
Australia	16.8				82.4		
Ireland	19.3		2.41	26.6	73.4	26.6	
Latvia			1.95	23.0	86.7	22.3	0.4
Iceland			2.48	24.0	81.0	26.7	0.3
Switzerland	19,7	24,5	1.78	27.6	78.2	26.8	0.3
Canada							
Reg.coeff			*-1.881*	*1.528*	*-0.223*	*1.303*	*0.287*

Appendix Table 4d: Cohort 1960-69, gender equity and value indicators

	Childlessness		Women's social position		Values		
	Cohort childlessness - Females	Cohort childlessness - Males	Tertiary education, Females	Female employment	Post-materialist -%	Children important for marriage	Children important for a woman
	1960-1969	1960-64	1961-70	1990	2010	2010	2010
Austria	16.9		16.8	65.6	15.1	51.4	33.2
Belgium	13.9		35.8	65.7	22.6	49.0	24.4
Bosnia and Herzegovina					3.7		70.7
Bulgaria	11.7		28.4	93.2	1.9	78.1	71.2
Croatia			15.7	77.8	8.7	59.2	42.2
Czech R.	7.2		12.5	94.8	11.7	62.8	61.6
Denmark	10.6		37.9	88.9	17.7	34.8	76.4
Estonia	9.3		45.1	94.5	6.5	61.2	68.7
Finland	19.2	25.6	48.1	86.6	23.5	45.7	7.4
France	11.9		26.5	74.0	15.4	63.6	56.7
Georgia	13.4						
Germany-T	14.2		22.5	67.4	24.0	45.6	46.2
Germany-W							
Germany-E				96.8			
Greece	10.7		25.1	54.3	18.3	77.2	74.5
Hungary	12.0		19.3	79.6	8.6	77.9	85.3
Italy	21.1	28.0	13.6	55.7	23.4	60.6	52.3
Lithuania	8.5		30.5	91.5	4.8	58.4	58.8
Macedonia	5.7		12.3		11.5	88.2	79.4
Netherlands	19.0		28.7	60.6	23.1	45.4	5.4
Norway	11.9	19.9	39.3	79.8	16.3	47.3	15.6
Poland	10.3		18.1	78.9	7.3	57.9	53.0
Portugal	7.5		14.9	70.6	4.5	48.0	51.2
Romania	8.1		10.7	80.0	4.8	68.5	82.0
Russia	8.1			88.9	1.2	73.4	85.9
Slovak R.	12.2		12.0	92.1	9.5	80.9	52.8
Slovenia	11.6		24.6	87.8	15.0	68.9	30.0
Spain	10.2		31.2	49.8	10.9	62.8	34.8
Sweden	13.8	22.1	34.2	91.7	20.1	45.9	7.6
UK (England & Wales)	20.0	22.3	29.6	73.8	24.9	50.2	14.5
Serbia				65.8	6.4	71.2	73.9
US	13.7			75.2			
Australia	16.8			67.5			
Ireland	19.3		31.7	41.5	8.9	58.0	17.8
Latvia			26.8	94.4	6.1	65.6	80.2
Iceland			39.4		17.7	44.4	22.5
Switzerland	19.7	24.5	22.4	65.8	17.1	55.0	33.9
Canada				77.2			
Reg.coeff			*0.108*	*-0.135*	*0.390*	*-0.136*	*-0.112*