Age at First Birth and Completed Fertility across the 1940s–1970s Birth Cohorts

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Theme: Fertility

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Short abstract

The rise in age at first birth has been universal across the low fertility countries over the last decades. In parallel, cohort fertility levels have tended to decrease, but they stagnated or even experienced a slight rise in a small set of countries in the most recent birth cohorts. Using large-scale surveys, census data and published data from a range of low-fertility countries of different regions (Austria, Switzerland, Great Britain, France, Spain, Italy, Sweden, Uruguay, and USA), we investigate the relationship between age at first birth and mother's completed cohort fertility conditional on age at first birth across the 1940s–1970s birth cohorts, and study how it may have shaped the overall change in total cohort fertility levels. We observe that in a few countries and cohorts, completed fertility among later-starting mothers increased, reflecting a "catch up" effect among those who had postponed childbearing. However, in the majority of examined countries and cohorts the relationship between age at first birth and mothers' completed fertility remained almost unchanged. Such stability is striking in cohorts where many other family behaviours were changing and mean ages at first birth increased by around 4 years. To quantify the contribution of changes in age at first birth to overall change in cohort fertility across birth cohorts, we will rely on a decomposition analysis that will also take into account trends in childlessness and mothers' completed fertility conditional on age at first birth.

Introduction

Various dynamics underly the increase in age at first birth (AFB) that started in the 1940s birth cohorts in the low fertility countries (van de Kaa 1987; Lesthaeghe 2010). The mechanism of delay has been famously named "childbearing postponement", relying on the complementary concepts of postponement and recuperation (Frejka and Calot 2001; Frejka and Sardon 2004; Sobotka et al. 2011). There is generally clear evidence that cohorts were foregoing childbearing before they

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reached the age of 30, but in most cases only incomplete recuperation was observed (Sobotka et al. 2012). Other approaches have suggested that though there is a decrease in childbearing at younger age, this does not necessarily need to be tied to a conscious mechanism of "postponement", and that an increase in fertility at later ages is not necessarily expected, or at least that it can be completely independent from the earlier retreat from childbearing (Ní Bhrolcháin and Toulemon 2005). This is backed up by some evidence, showing no cross-country correlation between retreat from early childbearing and adoption of later births (Beaujouan and Toulemon in press; Lesthaeghe 2016).

Childbearing postponement and completed cohort fertility by age at first birth

In the framework of childbearing "postponement", one can expect that fertility behaviours will change across ages when women start having their children later. Women are indeed supposed to postpone rather than to forego childbearing, indicating that they will alter the age at which they start having children, but not the number of children they will have. So, given that the number of children decreases with age at first birth (Tomkinson 2019), it becomes likely that those starting later will have proportionally more children at equal age than in the previous birth cohorts.[3] This corresponds to a flattened difference in the quantum of fertility between early- and late-starting women, observed in several Nordic countries, USA and Western Europe overall (Morgan and Rindfuss 1999; Andersson et al. 2009; Castro 2014). In alternative frameworks, an increase in later fertility is not as straightforward, and women are given much more latitude to have fewer or no children later. In that case, any scenario can be envisioned for the change in number of children depending on the starting age, including that those starting late will have even less children proportionally than in the past.

Andersson et al. (2009) did observe the flattening of the curve in Sweden, Norway and somewhat in Denmark in the 1940s–1950s birth cohorts. In this paper we explore in a new range of countries, using large datasets representative of the population, whether this phenomenon is universal.

Total cohort fertility rate can be decomposed into several components

Cohort mean age at first birth (CMAB1) generally increased between the 1940 and mid-1970s birth cohorts, and cohort fertility levels generally declined, with cross-country differences (Figure 1). The increase in age at birth and at first birth was observed everywhere from around the 1945 birth cohort, a bit earlier in USA and a bit later in Spain. The patterns of cohort fertility levels were more country-specific. Cohort fertility rates underwent a strong continuous decrease in Spain, a continuous but

[3] Such a mechanism could be blurred if all the women who still have children at the earlier ages have rather larger families than in the previous cohort (selection effect), and thus that mothers' completed fertility increases somewhat in all the age groups, not only in the oldest ones.

less strong decrease in Great Britain[4] and Austria, and a strong decrease followed by an increase from the 1950 birth cohort in USA. In France, Switzerland and Sweden, the decrease was tempered with a phase of stalling among women born in the 1950s. Finally, childlessness increased or remained stable since the 1955 birth cohort. In Uruguay, the age at first birth started rising extremely slowly among women born in 1955 and 1965.

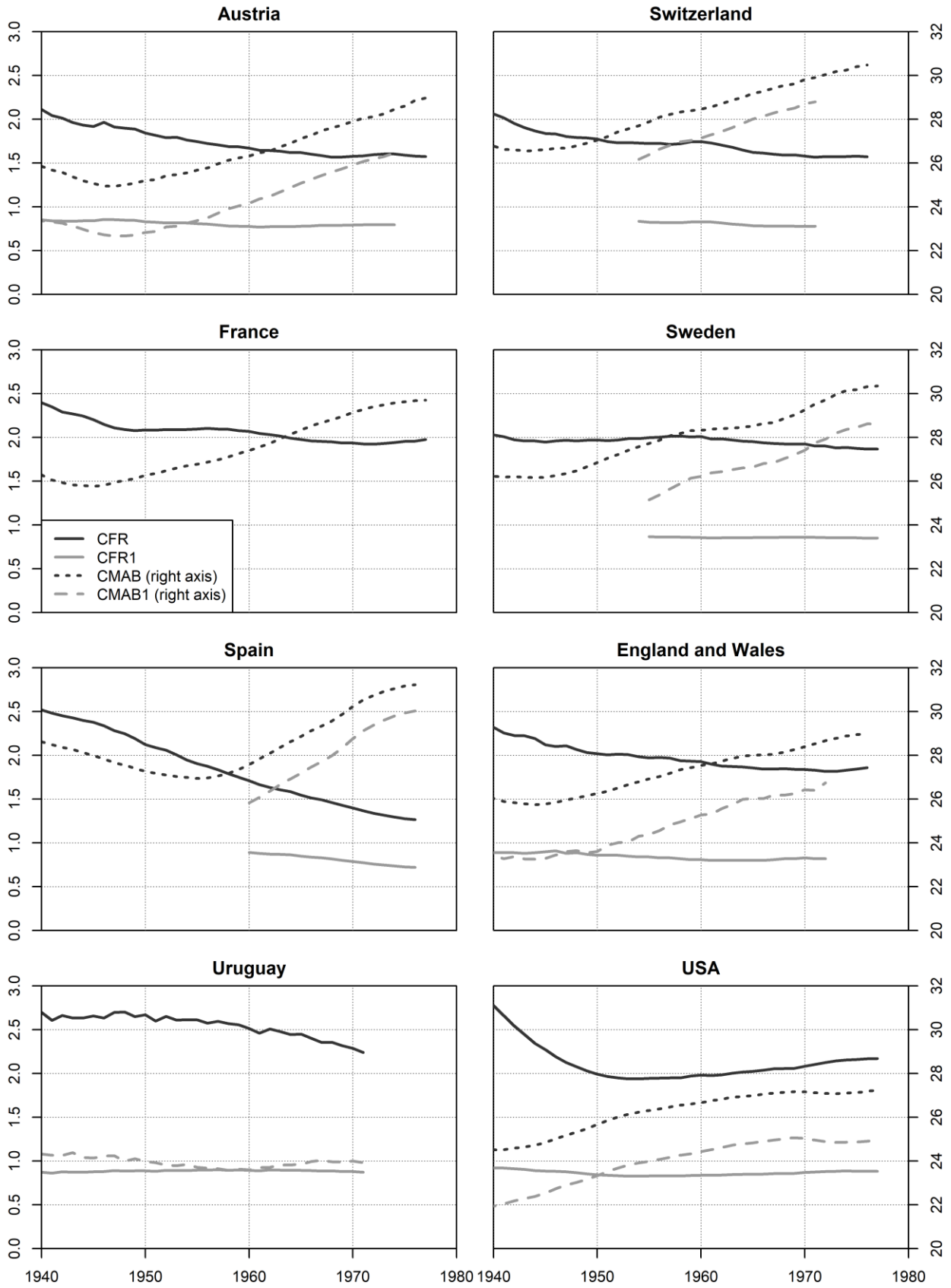
Thus, total cohort fertility (CFR)[5] was mostly dropping where age at first birth was increasing, but not always. The way age at first birth and conditional mothers' completed fertility are interrelated should then in addition give interesting insights on the observed variations in total cohort fertility. Particularly on whether they were rather driven by changes in timing or in quantum, or whether both cumulated or compensated each other, depending on the country. Changes in mother's cohort fertility can be driven both by the changing age at first birth and the changing completed fertility conditional on age at first birth (e.g. women start later and have more children than in the past at that new starting age). In addition, total cohort fertility will be driven by mother's cohort fertility (excl. childless women) together with cohort childlessness.

It is quite likely that the way age profiles of mothers' completed fertility change, or do not change, are the key to the severity of the drop in total cohort fertility. In the best-case scenario of the "postponement" framework, in the recent birth cohorts compared with the older ones, equivalent proportions of women have children and they keep the behaviour they would have had if starting earlier. This way, total cohort fertility does not change at all despite the increase in age at first births. In another extreme case, women adopt the behaviour of women starting later in the past birth cohorts when they themselves start later, and thus mother's cohort fertility decreases strongly, driven by increases in age at first birth not compensated by larger completed fertility among those starting at later ages. Other scenarios can be envisaged, particularly because global cohort trends can be on the go at the time ages at childbearing increase (decreasing CFR due to shrinking family size at any age; increasing CFR due to e.g. increase in teenage fertility).

[4] Throughout this paper we use data for England and Wales in descriptive and background section (Figure 1), while the analysis of mother's completed fertility conditional on age (Figures 2 and 3) are calculated for the whole Great Britain (including Scotland but excluding Northern Ireland).

[5] Throughout this paper we use term "total cohort fertility rate" for conventional CFR to distinguish it from the cohort fertility rate conditioned on age at first birth.

Figure 1 Total cohort fertility (CFR) and cohort mean age at birth (CMAB), total and first birth, in selected countries, cohorts 1940–1979



Research questions

We first ask whether completed fertility among late starters is higher than in the previous generations, and in which countries such trend is more evident. Secondly, we ask to what extent changes in the total cohort fertility of mothers can be explained by the shift towards older ages at first birth, employing decomposition that uses mothers' completed fertility conditional on age. We finally examine the effect of changes in childlessness, combined with changes in mothers' total cohort fertility, on the overall change in total cohort fertility rate.

Data

We mostly base this study on survey data (Table 1). In Austria we use the micro-census, in Uruguay the census, and in Sweden the summary of the register data available in Andersson et al. (2009). All data are preliminary and in some cases more checking and data cleaning is still needed. Also, we intend to add further surveys from Italy, Germany and the Netherlands.

Table 1 Survey and census data used in the analysis

CODE	COUNTRY	SURVEY	WAVES	COHORTS USED
AUT	Austria	Mikrozensus	2012+2016	1940–1976
CHE	Switzerland	Swiss Household Panel	2013–2017	1940–1978
ESP	Spain	Fertility Survey	2018	1962–1978
USA	USA	Current Population Survey	1990–2016	1940–1976
FRA	France	French Family Survey	2011	1940–1969
GBR	Great Britain	CPC General Household Survey (GHS)	1979–2009	1940–1969
		UK Household Longitudinal Study (UKHLS)	2009	
SWE	Sweden	register data in Andersson et al. (2009)		1940–1954
URY	Uruguay	Census	2011	1940–1969

Preliminary results

The decrease in completed fertility conditional on age was almost linear across ages in most of the countries under study (Figures 2 and 3). The slope and levels were very similar for countries otherwise very different, e.g. USA, France, Great Britain (from around 3 children for women starting at age 15–19 to around 1.5 children for those starting at 35–39); or Austria and Spain (resp. from 2.5 to 1.5). In Uruguay the decline in completed fertility with age at first birth was much steeper, and in the last birth cohorts from 3.3 children per woman starting at age 15–19, it declined to 1.2 child for those starting the latest.

There has been a very small but regular increase in completed fertility of women who started a family at almost all ages in Spain, and in France and USA since the 1950–1959 birth cohorts (Figure 3). In Sweden, a clear rise in completed fertility conditional on age was visible in the 1950–1959 birth cohorts from age 25–29. A much smaller increase was observed in Austria in the 1960–1969 birth cohorts and in Great Britain in the 1950–1959 birth cohorts. In the other countries we cannot see a clear picture.

In Uruguay, mother's completed fertility conditional on age at first birth was decreasing until the 1960–1969 birth cohorts for all age groups, but the decrease was slower at age 35–39.

In contrast with what could have been expected in times of "childbearing postponement", women who started childbearing in their 30s did not see a specific (larger) increase in their number of children across birth cohorts. It was often close to or smaller than in the other age groups.

Figure 2 Completed cohort fertility by age at first birth (AFB, 5-year age groups) and by birth cohort

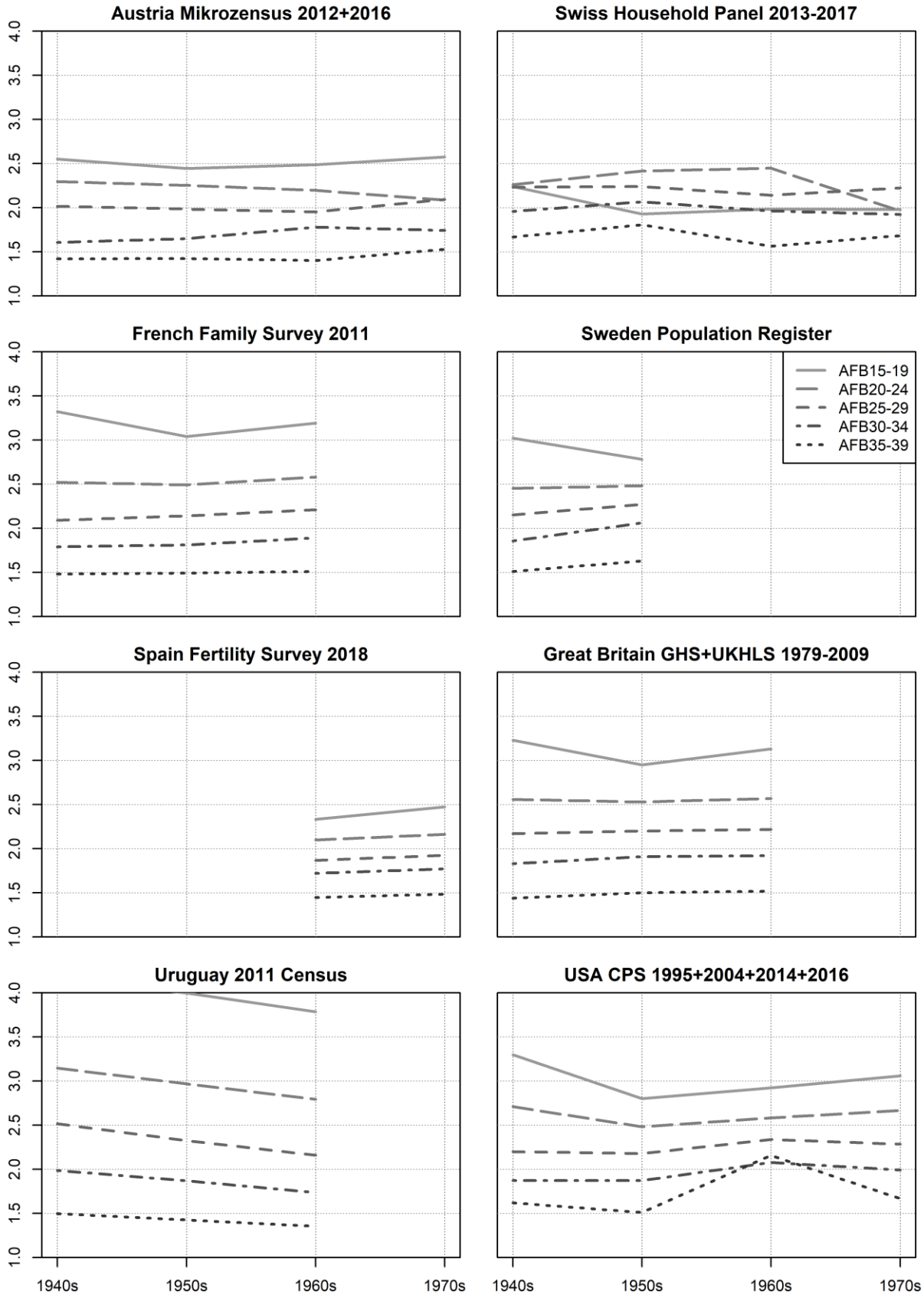
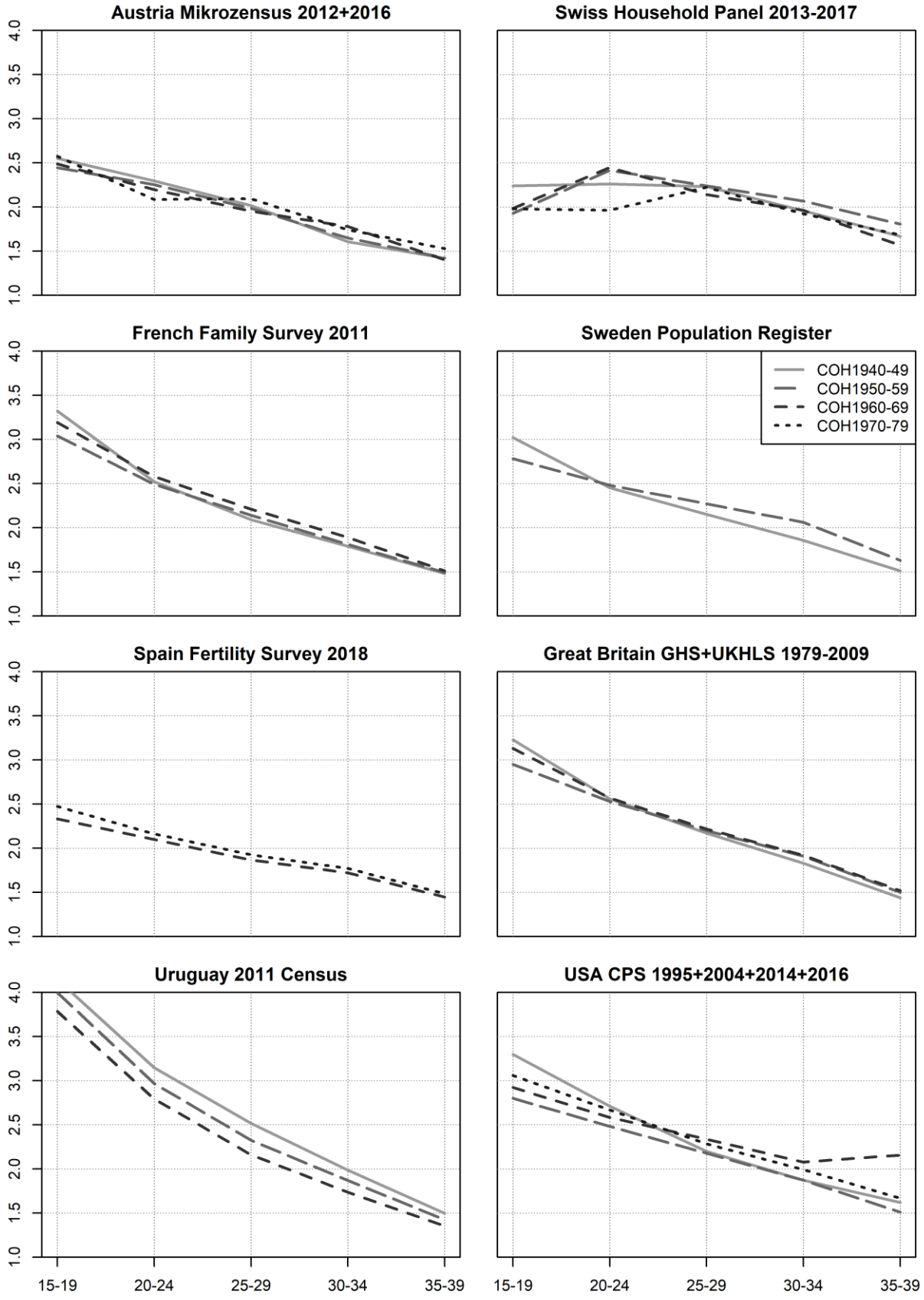


Figure 3 Completed cohort fertility by cohorts born in 1940s–1970s (10-year age groups) and by age at first birth



Conclusions

In the countries we presented here, except in Uruguay, mean age at first birth increased strongly across the 1940s–1970s birth cohorts, on average by 1.5 years per 10 years. However, the expected proportional increase in family size of the age groups 30–34 and 35–39 was not visible in general, i.e. even when studied over three 10-year cohort groups the curves of completed fertility by age were rarely becoming flatter from age 25–29 on. Only in Sweden was such an effect clearly visible, and the curve flattened slightly in Austria and Great Britain, but between two 10-year birth cohorts only. In some countries and birth cohorts, mother's completed fertility conditional on age at first birth did not vary at all while in others it did, and so we do not systematically observe catching up behaviours: Those women who have a first child later than before start their recuperation, since they have at least one child, but they have less children than they would have had while starting earlier in the previous generations.

A further decomposition analysis will allow us to quantify to what extent a "catch up" behaviour can mitigate the "fertility loss" due to postponement. In addition, because childlessness was also varying in parallel, and generally increasing, we will refine the decomposition to assess the components of the variation in completed cohort fertility. Particularly, for the EPC conference we will quantify more precisely the contribution of the change in timing of first birth and age-specific CFR to the change in overall CFR (as in Berrington et al. 2015), by employing a decomposition that also takes into account the share of childless women.

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