The speed of life and population change

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Abstract

In this paper we develop and apply a new and easily interpretable measure of population change - the *speed of life* - adopting an individual-level, life-course approach. The speed of life is the average number of events experienced by an individual within a given age interval. Merging several data-sets from 18 European countries and the U.S., we investigate to what extent the speed of life has changed across 4 cohorts of individuals born between 1921 and 2000. We find an acceleration of the life course over time, which is combined with a strong postponement of life events for individuals born after the 1960s. Such acceleration is stronger in Northern and Western Europe than in Southern and Eastern Europe. The speed of life across cohorts increases faster among low-educated individuals in the US, Southern and Eastern Europe, and for women. Multilevel statistical models show that faster life-courses are positively associated with human development, but negatively with individuals' health, mainly due to risen family instability.

1 Introduction

Building on the evidence that populations undergoing the demographic transition have moved from high to low rates of birth and death, the demographic transition has been described as a shift from an era of fast population change to one characterised by slow population change, from ”disorder” to “order” (Livi Bacci 2017). This view is at the heart of the so-called *slow* population change paradigm, a lens through which post-transitional societies have largely been understood. In these societies, population change is assumed to occur in a relatively smooth, regular and orderly way, underpinning concepts like population inertia or population momentum (Schoen and Jonsson 2003). Consequently, demographic change

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has been one of the few developments in our societies that we tend to feel confident about forecasting (Demeny 1984, Lee and Miller 2001), so that long-term population forecasts are often taken as exogenous inputs to forecasts of urbanisation, climate change (Seto et al. 2012) or macroeconomic dynamics (Lindh and Malmberg 2007).

Consistently with a slow-population-change paradigm, grand theories on changes in family systems have pointed out either the existence of multiple equilibria, characterised by the long-term persistence of different regimes across societies, each one with a peculiar family form (Therborn 2004), or the gradual convergence to a single equilibrium with one type of family pattern (Goode 1963). For instance, Goode (1963) predicted the diffusion of the "conjugal family form" to the whole World, which, however, has not realised (Cherlin 2012, Pesando and team 2019). Starting from the 1960s, family patterns in Western societies have become progressively more complex because of a rise in cohabitation, divorce and union dissolution, as well as due to the emergence of a multitude of new living arrangements, such as single-parent families, stepfamilies, living-apart-together couples and transnational families (Lesthaeghe 2010).

At the end of the 1980s, a new paradigm was developed by Lesthaeghe and Van de Kaa to explain the unfolding of these new, complex family patterns: the so-called "Second Demographic Transition" (Lesthaeghe and Surkyn 1988, Van de Kaa 1987). The Second Demographic Transition (henceforth SDT) suggested that societies undergoing the new family dynamics, like Western ones, were actually characterised by *fast* population change. This feature refers primarily to individual life courses, now marked by a multitude of unstable and diverse family forms. The SDT can, thus, be seen as a first attempt to challenge the conventional wisdom that population change, in a post-demographic-transition world, happens in a smooth, orderly, and inertial way.

Based on this, the present study aims to establish whether population change is *really* getting slower, by adopting a micro-level, life-course approach. So far, population change has mainly been studied from a macro-level perspective, using population turnover as a measure of the speed of change (Dennett and Stillwell 2008, Goldstein 2015). Instead, we focus on population change at the micro-level, developing a new, suitable measure of speed of change at the individual level, which we call *Speed of life*. Specifically, we make use of life-course (hazard) rates, thereby combining the two key concepts of demographic rates and the life course. Regarding the former, we build on work by Hoem et al. (1976) and consider hazard rates, i.e. events per time unit (occurrence/exposure rates), as measures of the speed of individuals' life. In line with Rindfuss (1991), we interpret demographic density, defined as the occurrence of a great number of events during a certain period of an individual's life, as a high speed of life. Along this line, we also measure the speed of life in terms of the cumulative number of events an individual experiences by a certain age.

As for the life-course aspect, we follow the approach by Giele and Elder (1998), which identifies four key elements as fundamentally shaping an individual's life course: individual development (i.e. human agency), history and culture (i.e. location in time and place), social relations (i.e. linked fives), and timing of life. To study human development, we focus on the number of events shaping an individual's life trajectory as the key element of our study. This approach further guides our strategy by highlighting the importance of locating an individual's life trajectory in time and embedded in a web of social relations, thereby suggesting cohorts as basic descriptive units for comparison (Billari 2001). Therefore, we analyse changes in life-course experiences across birth cohorts in order to study population change over time, in line with Ryder (1965). Eventually, the importance of location in place has led us to adopt a cross-country perspective, comparing over time 18 European countries and the United States.

In light of the chosen micro-based approach to the definition and measurement of population change, our main research question is to what extent speed of life has changed over time. While answering this question, we aim to identify heterogeneous patterns of change by gender and socio-economic status (SES), since both dimensions could very much shape the speed of an individual's life course and how it has unfolded over time. In fact, the Gender Revolution (Goldscheider 2012, Goldscheider et al. 2015) has drastically transformed the role of women and men in Western societies, so that we can envision gendered patterns of population change based on its dynamics. Moreover, the diffusion of gender-egalitarian attitudes within more recent cohorts might have started counteracting family instability, while increasing fertility (Esping-Andersen and Billari 2015).

As far as the role of socio-economic status is concerned, the Second Demographic Transition seems to suggest that high-SES individuals, who are more inclined towards postmodern values, are likely to be the (first) ones to have a faster life, that is, to experience more and newer family arrangements (Lesthaeghe and Surkyn 2002). Instead, the Pattern-of-Disadvantage (POD) framework prompts to the contrary, claiming that the more unstable family forms are more likely to occur among disadvantaged (i.e. low-SES) individuals (Perelli-Harris and Gerber 2011). Specific hypotheses on gender and SES differentials are postulated in the following section.

Furthermore, we believe it is relevant to understand which types of events drive the change in speed of life, whether fertility-, union- or dissolution- related. Together with the analysis of the number of events, that of the type of life events experienced sheds some light on the life dimensions that are or have become faster over time, in turn leading us to draw some potential conclusions on the effect that a faster or slower life might have on an individual's well-being.

The importance of understanding whether population change in today's societies is becoming faster stems also from the need to give a faithful representation of the World in which we live. We are embedded in societies characterised by social acceleration as a key element of the modernization process (Rosa 2013). Technology, and especially digitisation, has been promoting the supremacy of the "fast" along many life domains, including work and family. Being busy, as well as being fast, are considered a value and a signal of status in today's advanced societies (Wajcman 2015). Therefore, it is relevant to understand whether evidence of such phenomenon can also be found in the analysis of the speed of individuals' life courses over time, in order to determine to what extent fast and modern societies can shape population change.

To study social acceleration in individuals' life course, we can build on the concept of time as developed by Elias and Jephcott (1992). Following Elias, we see time not simply as calendar time, but as social time, a dimension where individuals position themselves within a changing social context. People need to react, adapt and confer meaning to such constantly evolving context, in turn changing their own position with it. Following this view, we study individuals' speed of life in terms of the number of events experienced, differentiating across birth cohorts (namely 1921-40, 1941-60, 1961-80, 1981-2000) and across countries. Moreover, we explore how the speed of life is associated with an individual's self-rated health, in order to provide insights on the potential effect of social acceleration on individual well-being.

The contribution of this study is twofold. First, we aim to challenge the conventional view that population change in a post-demographic-transition world happens in a smooth, orderly, and inertial way. We adopt a new perspective to the study of population change, which follows an individual-level, life-course approach. To our knowledge, population change has so far been studied at the macro-level, looking at population turnover, whereas we define population change at the individual level, focusing on the number of life transitions experienced. Our second contribution, indeed, lies in the introduction of a micro-based measure of population change: building on the concept of demographic density, we use life-course hazard rates as a measure of the speed of life.

2 Theoretical framework and main hypotheses

Following the Second-Demographic-Transition paradigm (Lesthaeghe and Surkyn 1988, Van de Kaa 1987), we envision an increase in the number of life transitions especially from the 1960s, which translates into a higher speed of life for the cohorts of individuals who were born from the 1960s onwards, compared with older cohorts. Indeed, the SDT emphasises that, after World War II, post-industrial societies have become progressively more complex due to the rise of a multitude of living arrangements, such as cohabitation, single-parent families, stepfamilies and living-apart-together couples (Lesthaeghe 2010). At the same time, families have become more unstable due to an increase in divorces and union dissolutions, and people have started experiencing higher mobility, which has led to a higher number of transnational families. This increasing complexity in family forms implies more family changes and, in turn, a higher number of events experienced by the individuals. The SDT links the new family dynamics to the diffusion of postmodern values, focused on individual autonomy and self-fulfilment. While many life-course stages, such as marriage, used to be "socially absorbing", that is, states from which individuals could not exit anymore, they have become far more "temporary" since the 1960s, leading to higher life-course turbulence (Elzinga and Liefbroer 2007). Based on this, we can postulate that *life has become faster for cohorts born after the 1960s (H1).*

Because the diffusion of postmodern values has occurred unevenly and at a different pace across post-industrial societies (Inglehart 1997), we also expect to find systematic differences in how the speed of life has changed over time. Specifically, we envision Northern European countries and the United States to be the settings where the speed of life has first and most radically increased after the 1960s, due to a substantial rise in union dissolutions not accompanied by a decrease in fertility. Conversely, Southern and Eastern European countries are likely to have experienced a considerably lower increase in life speed, because new family values, patterns and arrangements have spread either more slowly (in the South) or later (in the East), and because these regions are characterised by very low fertility (Lesthaeghe 2010).

Together with the SDT, also the Gender Revolution (Goldscheider 2012, Goldscheider et al. 2015) has been shaping individuals' life-course transitions, e.g. by affecting fertility behaviours (Esping-Andersen and Billari 2015). We believe that the changing role of women in post-industrial societies and the diffusion of gender-egalitarian ideas might have resulted in gendered family patterns. More specifically, we postulate that two competing mechanisms might have been at work. On the one hand, we envision a larger increase in the speed of life for women than for men starting from the beginning of the Gender Revolution, i.e. for the cohorts of people born after 1960, because of the substantial increase in women's participation in the labour market. This shift could suddenly have exposed them to new opportunities and postmodern values, translating into greater family instability and higher repartnering opportunities, whereas we might expect a more gradual change in life-course trajectories for men born in the same years. Therefore, we postulate that *acceleration in the speed of life over time is more pronounced for women than for men (H2a).* Conversely, though, the diffusion of gender egalitarianism could have brought about "more family" (Esping-Andersen and Billari 2015), that is, higher fertility and lower partner dissolution. These two trends could have balanced out in terms of the number of life-course events experienced by the individuals, leading to a lack of increase in the speed of life especially for women, for whom gender-egalitarian norms could have played a stronger role in reducing the duality of family and careers. Therefore, in contrast with the previous hypothesis, we could envision that *acceleration in the speed of life over time is more pronounced for men than for women (H2b).*

Next to gender-driven heterogeneity, we also expect to find population change, in terms of life speed, to be socially stratified. Once again, however, two competing dynamics might have unfolded. On the one hand, in line with the Second Demographic Transition, we can anticipate that higher-educated individuals have embraced postmodern values earlier or to a greater extent, searching for self-actualization and autonomy (Lesthaeghe and Surkyn 2002). Together with more opportunities and material resources, this could have translated into a higher number of family arrangements, unions and dissolutions among high-SES people. Therefore, we can postulate that *higher-educated individuals are more likely to have achieved a faster speed of life (H3a).* On the other hand, based on the Pattern-of-Disadvantage (POD) paradigm (Perelli-Harris and Gerber 2011), we might anticipate an opposite mechanism: family instability and repartnering may have been more likely to occur among disadvantaged, lower-educated individuals, whereas the higher-educated may have had more stable and "normative life-courses" (Rindfuss et al. 1987, Barban 2013). This would lead us to postulate that *lower-educated individuals are more likely to exhibit a faster speed of life (H3b).*

Besides studying the number of life events as a driver of population change, it is also crucial to understand which life transitions have shown an acceleration over time. This would allow us to characterise the nature of the population change we aim to study and to potentially draw some conclusions on the effect that such change can have on people's well-being. Indeed, as shown by Barban (2013), "non-normative" transitions tend to have negative consequences in terms of an individual's health. Coherently with the SDT paradigm, which claims the rise in family instability and new family arrangements together with lower fertility, we postulate *an increase in the number of unions and dissolutions over time (together with higher mobility), coupled with a decrease in fertility rates (H4).* We explore the association between an individual's self-rated health and the total number of life-course events that she has experienced by age 40, in order to shed further light on how the speed of life shapes individual well-being. We also investigate whether the effect is driven by an increase in a specific type of event, that is, whether life speed is fertility-, union- or dissolution- related.

Finally, following Myrskylä et al. (2009), Anderson and Kohler (2015), Pesando and team (2019) - who have linked family changes with human development - we are interested in determining whether changes in the speed of life over time are associated with any macro-economic factor, such as the level of human and socio-economic development. In order to measure such concept, we rely on the Human Development Index (HDI), a composite index which is a summary measure of average achievement in three key dimensions of human development: health and life expectancy, human capital, and well-being. Understanding the relationship of the latter with the speed of life is relevant because it could be the preliminary step for a convergence analysis of population change.

3 Data and methods

3.1 Data and variables

The data we use contain information on retrospective union and fertility histories taken from several data sources. Most observations come from the Harmonised Histories (see Perelli-Harris et al. 2010), a dataset developed by the Non-Marital Childbearing Network and built on the Generations and Gender Surveys (GGS), the Spanish Survey of Fertility and Values (2006), the British Household Panel Survey (BHPS) and the US National Survey of Family Growth (NSFG). We further integrate data from the 2018 Spain Fertility Survey in order to achieve a better coverage of the younger cohorts and the male population of Spain [1]. We additionally exploit the 1982 US National Survey of Family Growth, from which we derive a sample of American women born before the end of 1940.

Our working sample is composed of 248,036 respondents from 19 countries (i.e. 18 European countries[2] and the United States), born between 1921 and 2000. In order to identify changes over time in life-course experiences, following Ryder (1965), we divide the sample into four birth cohorts: the first one consists of people born between 1921 and 1940,

[1] The sample of the Spanish Survey of Fertility and Values is composed exclusively of women.

[2] The European countries included in the analysis are: Belarus, Belgium, Bulgaria, Czech Republic, Estonia, France, Georgia, Germany, Hungary, Italy, Lithuania, Norway, Poland, Romania, Russia, Spain, Sweden and the United Kingdom.

the second one of those born between 1941 and 1960, the third one of those born between 1961 and 1980, while the fourth comprises individuals born between 1981 and 2000. Table A1 presents a list of the countries included in the analysis, alongside the absolute frequency of observations by cohort.

The socioeconomic status of respondents is defined by their level of education. We measure it through their *Years of education*, a continuous variable which ensures cross-country comparability and allows to construct models with interactions. While this information is present for American units, the Harmonised Histories report only the highest education level attained by the subjects. Thus, we use the average years of education of European Social Survey (ESS) respondents as reported by Schröder and Ganzeboom (2013) for each country-specific educational category. If education levels are only expressed in a six-point ISCED scale (UNESCO 2006, 2012), we use a weighted average of the values that are consistent with a given ISCED level, the weights being the proportion of ESS respondents in that category[3]. For European countries, we assess the robustness of our results using the International Standard Level of Education (ISLED) by Schröder and Ganzeboom (2013) as an alternative continuous and comparative indicator of education.

The variable *Cohort* indicates the 20-year period during which the respondent was born. As explained previously, four birth cohorts are identified: 1921-40, 1941-60, 1961-80 and 1981-2000.

Human Development Index measures the level of human development observed in a country when the individuals born in the intermediate years of the respective cohort turned 40. Thus, we use the values of the HDI in 1970 for the 1921-40 cohort, those of 1990 for the 1941-60 cohort, and those of 2005 for the 1961-80 cohort[4]. Such choice seems reasonable because including inappropriately long lags could bias our estimates (Vaisey and Miles 2017), and all members of the cohort have experienced that level of human development

[3]Proportions are adjusted using design and post-stratification weights.

[4]We use the values of the Human Development Index in 2005 for the 1961-80 cohort because many surveys were administered before 2010.

between 30 and 50 years of age. The 1990 and 2005 estimates are provided by the United Nations Development Programme (UNDP), while we rely on the Historical Index of Human Development by Prados De La Escosura (2015) for the 1970 estimates.

Bad health is a dummy variable recoded from a survey question asking respondents to self-rate their general health status on a 5-point scale. Our indicator takes value 1 if self-reported health is “very bad” or ”bad”, 0 if “fair”, “good” or “very good”.

3.2 Analytical strategy

Following a life-course approach, we develop a novel indicator of population change at the micro-level, which we label *speed of life*. In line with Rindfuss (1991) and Hoem et al. (1976), we classify life courses as fast when they are characterised by greater demographic density. Therefore, we use life-course rates, that are hazard rates (i.e. as a ratio between occurrences and exposures, or events per time unit), considering the number of transitions per time unit as our indicator of the speed of life. Events are given equal weight, irrespective of their nature. Furthermore, we use the sum of rates and the number of transitions by a given age as cumulative measures (Billari 2001).

The events considered in the analysis are the following: births (1^{st} to 8^{th}), marriages (1^{st} to 4^{th}), divorces (1^{st} to 4^{th}), unions (1^{st} to 4^{th}) and dissolutions of unions (1^{st} to 4^{th}). In order to avoid that cross-country estimates are confounded by specific features of survey questionnaires, we limit ourselves to the events about which information is available for all countries. Thus, we provide conservative measures of life speed, which might be underestimated for the countries and the cohorts where leaving the parental home does not happen concurrently with marriage, or unions and separations of order higher than 4 are not uncommon.

In the first part of the analysis, we offer a graphical representation of the life-course rates and the cumulative rates by cohort. Life-course rates are stratified by group of countries (i.e. Northern, Western, Southern and Eastern Europe), gender and type of life-course event (fertility-, union- and dissolution-related) in order to investigate heterogeneous effects.

We support the life-course rates analysis through OLS regression models, estimating the number of events experienced by an individual by age 40 as a function of gender and education, country- and cohort-fixed effects. Moreover, we include interactions to detect heterogeneity across countries and cohorts, as well as across countries and level of education. For this part of our analysis, we restrict the sample to the respondents who are at least 40 years old. The restricted sample comprises 124,153 observations; its detailed composition is presented in Table A2. In setting the cutoff, we acknowledge that hazard rates for the younger cohorts are systematically higher until around age 50 (see Figure 1 and Table 1), due to postponement trends. However, we prefer to adopt a conservative threshold which can preserve an adequate empirical support for all countries and cohorts (except the most recent one, 1981-2000, which is dropped), thus providing again a lower-bound estimate of the speed of life.

Furthermore, in order to explore the relationship between Human Development and the speed of life, we engage in a series of 2-level multilevel models, where the dependent variable is again the number of events experienced by the individual by age 40 and its variance is explained both at the individual and country-cohort level. Specifically, we fit a random intercept model including gender and education as individual-level covariates, and the Human Development Index attained in a given country when individuals born in the mid-years of the respective cohort were 40 years old[5].

Finally, to test the impact of the speed of life on people's self-rated health, we estimate logit models with the probability that an individual reports a bad health status as the dependent variable. We include the number of events experienced by age 40, gender, education, country- and cohort-fixed effects in all specifications. Moreover, we run a model with an

[5]For the 1961-80 cohort we use the value taken by the Human Development Index of their country in 2005.

interaction between cohort and the number of events, as well as specifications with each type of event separately, in order to determine whether occurrences of a particular nature drive the overall effect.

4 Results

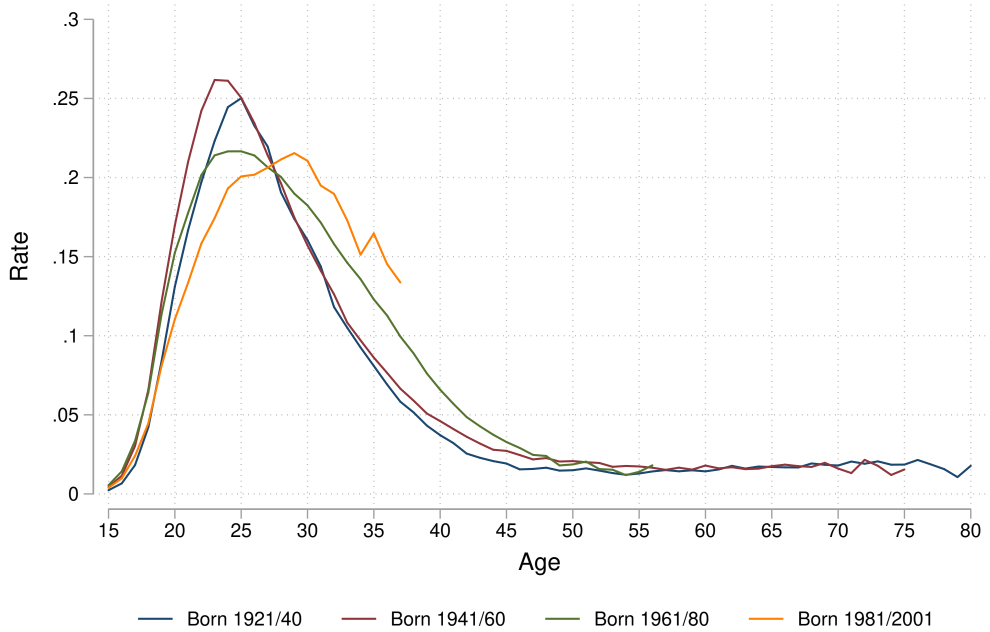
4.1 Life course rates

In the first part of the current section, we show a graphical representation of life-course rates and cumulative rates by cohort, as *prima facie* evidence of an increase in the speed of life over time. Figure 1 shows the hazard rates by cohort. First of all, we notice that the transition to adulthood is characterised by greater demographic density than the adult years (Rindfuss 1991), although postponement dynamics emerge for the last two cohorts. A higher density of events and more accentuated postponement are particularly noticeable for the youngest cohort, i.e. for those born after 1980.

Figure 2, which plots the cohort-specific average number of events experienced by a given age, helps us to discern the increase in speed of life over time and the impact of postponement thereon. In addition, Table 1 reports the estimates of the average cumulative number of events experienced by cohorts at selected age ranges. The oldest cohort (1921-40) is the slowest one, and it experiences an average of 3.14 events by age 40. The second cohort (1941-60) is faster than the first: its curve lies above that of the oldest cohort, and it reaches an average of 3.46 events by age 40. Starting from the third cohort (1961-80), one can find compelling evidence of postponement, which results in a lower cumulative rate at younger ages. Notwithstanding postponement dynamics, in line with our first hypothesis, members of such cohort have faster lives than their antecedents: the two curves cross at age 36, and the third cohort reaches an average of 3.58 events by age 40.

As an alternative exposition of the observed increase in the speed of life, it shall be

Figure 1: Life-course rates by cohort.



Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

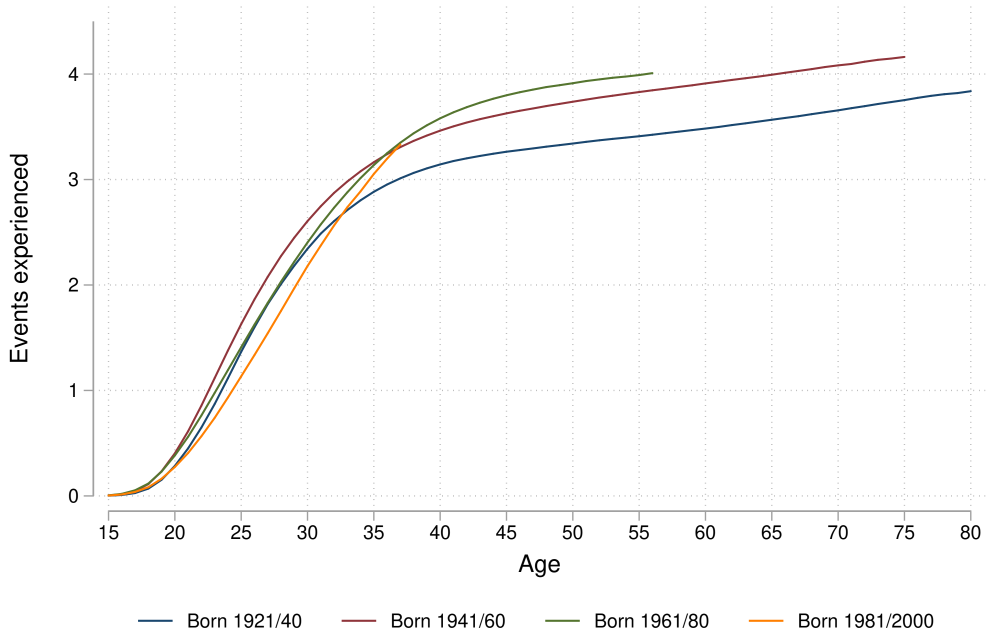
Table 1: Cumulative number of events by cohort (at selected age ranges).

Cohort	Age 15-35	Age 15-40	Age 15-45	Age 15-50
Born 1921-40	2.883837	3.143217	3.263706	3.341325
Born 1941-60	3.164394	3.463357	3.627528	3.737855
Born 1961-80	3.137176	3.580378	3.798892	3.913299
Born 1981-2000	3.052688	3.331717 *	–	–

Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.
(*) The 1981-2000 cohort is only followed until age 37.

noticed that the average number of events that the oldest cohort experiences by age 80 (i.e. 3.84) is surpassed at age 56 for the 1941-60 cohort, and at age 47 for the 1961-80 cohort. Thus, we believe that measuring individuals' speed of life through the number of events experienced by age 40 provides a reliable estimate, albeit conservative for the more recent cohorts, while assuring adequate empirical support for all countries and cohorts under

Figure 2: Cumulative number of events by cohort.



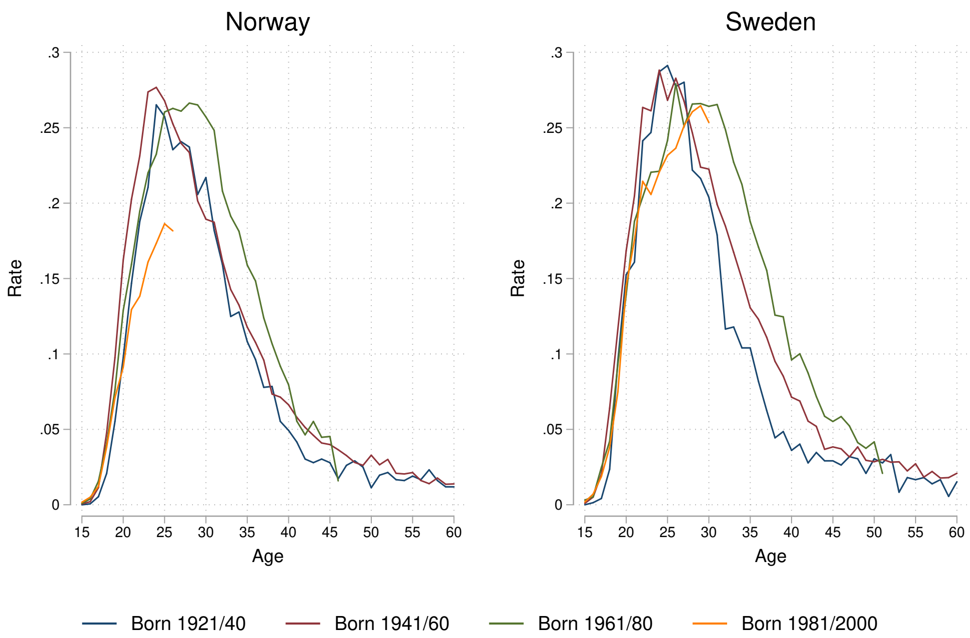
Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

consideration.

The youngest cohort (1981-2000) seems even more prone to postponement than its immediate predecessor, with an average of 3.05 events experienced by age 35 (against an average of 3.14 for the 1961-80 cohort). Although the evidence discussed so far leads us to expect a further increase in the speed of life for this cohort, the data currently available do not support reliable estimates of life-course rates beyond age 37, by which these individuals have experienced an average of 3.33 events. Hence, we cautiously exclude the cohort from the regression analyses presented later, as the scarce empirical support available for most countries would lead us to severely underestimate the speed of life for this cohort, since life-course rates between ages 35 and 45 are still relatively high.

Then, we move to an analysis of cross-country differences in life speed. In the previous sections, it has been argued that the uneven diffusion of postmodern values might have led to a differential spreading of the Second Demographic Transition, in turn producing divergent life speeds and family dynamics across the World. Figure 3 plots the hazard rates calculated for Northern European countries, where postmodern values have diffused earlier, more quickly, and in a more pervasive manner. For both Norway and Sweden, we can notice an increase in the speed of life, which is particularly marked for the last two cohorts. In fact, these countries have been identified by the literature as home, together with the United States, to the new patterns of family formation (Lesthaeghe 2010).

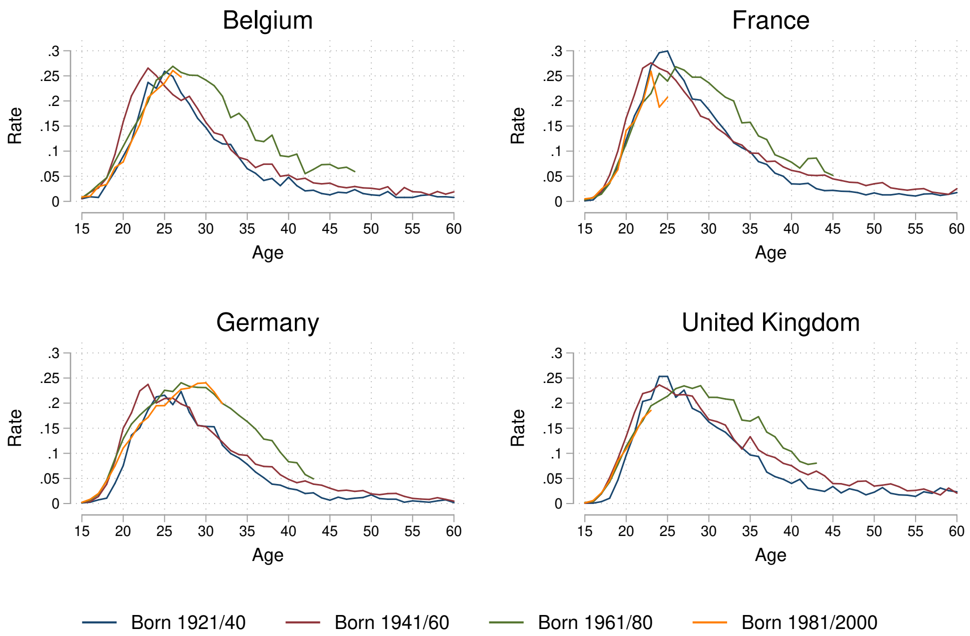
Figure 3: Life-course rates in Northern European countries.



Source: Authors' calculation based on Harmonised Histories data.

Evidence of an increase in the speed of life is found also in countries of Western Europe, hazard rates for which are shown in Figure 4. The life-course rates for the two youngest cohorts depart significantly from those of their ancestors also in this context, resulting in a higher number of events experienced. Nonetheless, a discernible decline in life-course rates until age 25 emerges from the graphs, suggesting that postponement dynamics not seen in Northern Europe might have run counter to the overall increase in speed of life, hence resulting in a lower number of events completed by adult ages.

Figure 4: Life-course rates in Western European countries.

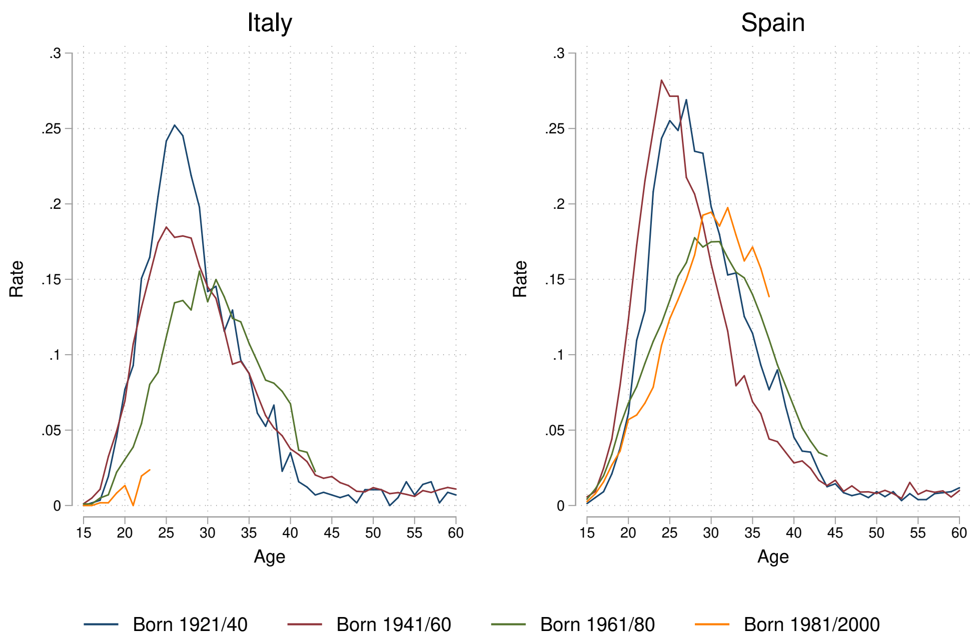


Source: Authors' calculation based on Harmonised Histories data.

Figure 5, which shows life-course rates for two Southern European countries, highlights a markedly different situation for Italy and Spain. First of all, both countries experience a huge decline in life-course rates until age 35, coherent with postponement dynamics. However, we do not find compelling evidence of the increase in hazard rates at older ages implied by this view, except for a feeble increase in rates for the youngest cohort in Spain. Thus, it is plausible that the drop in rates at young ages, not matched with a recovery at older ages, has resulted not in a slower acceleration of people's lives, but in an evident slowdown.

Figure 6 shows the life-course rates for a selection of the Eastern European countries included in our sample. Here, the evolution of life speed across cohorts is not homogeneous, a scenario possibly coherent with a later development of the SDT in this area of Europe, as postulated in our hypothesis. In fact, some evidence of an increase in the speed of life emerges only for the youngest cohort of Belarus and Poland, where respondents were

Figure 5: Life-course rates in Southern European countries.

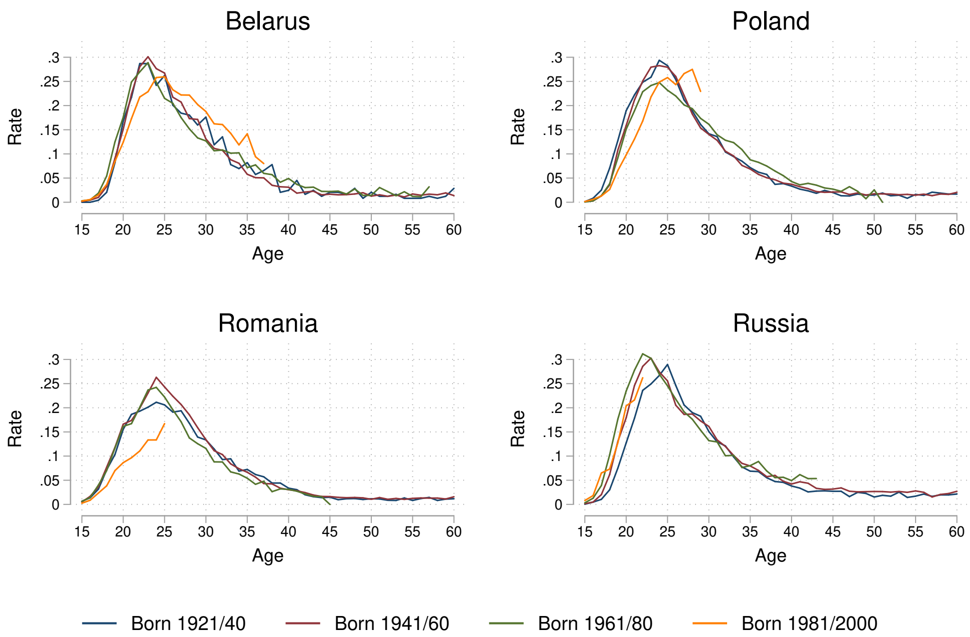


Source: Authors' calculation based on data from the Harmonised Histories and the 2018 Spain Fertility Survey.

interviewed after 2010. These individuals might, indeed, have experienced a greater number of events before age 35, but no such evidence emerges for the other countries: Romania and Russia exemplify a context of substantially stable family dynamics, as can be appreciated by the overlapping curves in Figure 6. Therefore, it does not seem that an acceleration in people's lives has taken place with the same intensity behind the iron curtain, although future developments might change the picture.

Finally, life-course rates for the United States are shown in Figure 7. From the graph, one can appreciate a significant increase in the speed of life for people born after 1960, coupled with some evidence of postponement. Such an evolution can be compared to the trends estimated for Western European countries, characterised by a gradual increase in life speed and the postponement of life-course transitions to later in life. It is likely that fertility has declined or been postponed, and that a greater number of transitions in people's union

Figure 6: Life-course rates in selected Eastern European countries.



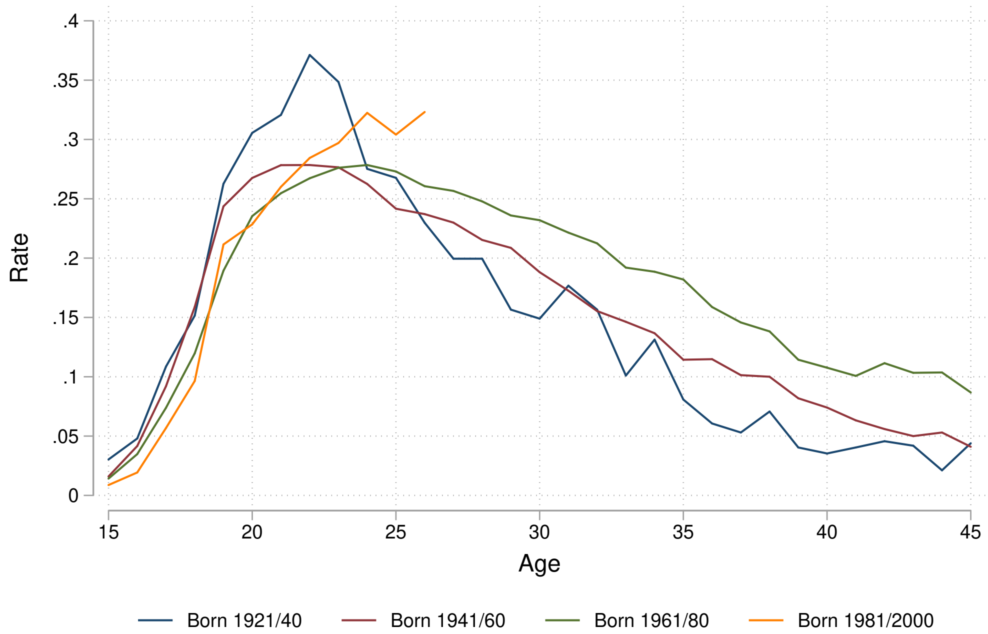
Source: Authors' calculation based on Harmonised Histories data.

history lie behind life acceleration. In fact, substantially higher union and dissolution rates, including those of order higher than one, are a peculiarity of the United States.

Splitting the aggregate rates by type of events supports the assertion that the acceleration of life can be explained with reference to the Second Demographic Transition. Looking at Figure 8, one can notice that fertility has significantly decreased for the two young cohorts, so providing evidence of the fact that fertility is not the driver of the increased life speed. A significant rise in unions and marriages, which is particularly evident in the younger cohort, might explain the increase in the number of events, as postulated in hypothesis 4. Finally, separations and divorces have emerged as a new category of events. Most of them happen before age 40 and they have increased to different paces across countries, even if their frequency, and, consequently, their impact on the total event rate, is low.

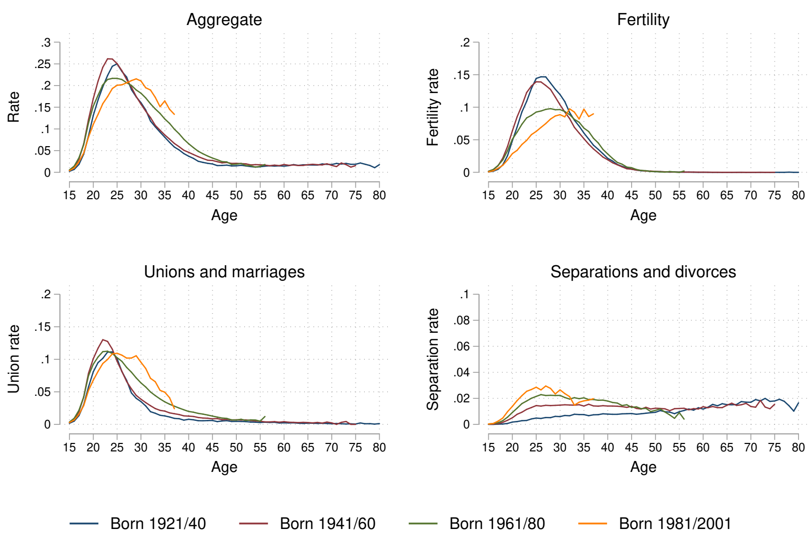
Finally, we investigate whether there is any gendered pattern in the speed of life. The aggregate life-course rates for males and females are shown in Figure 9. The rates of females

Figure 7: Life-course rates in the United States.



Source: Authors' calculation based on data from the Harmonised Histories and the 1982 US National Survey of Family Growth.

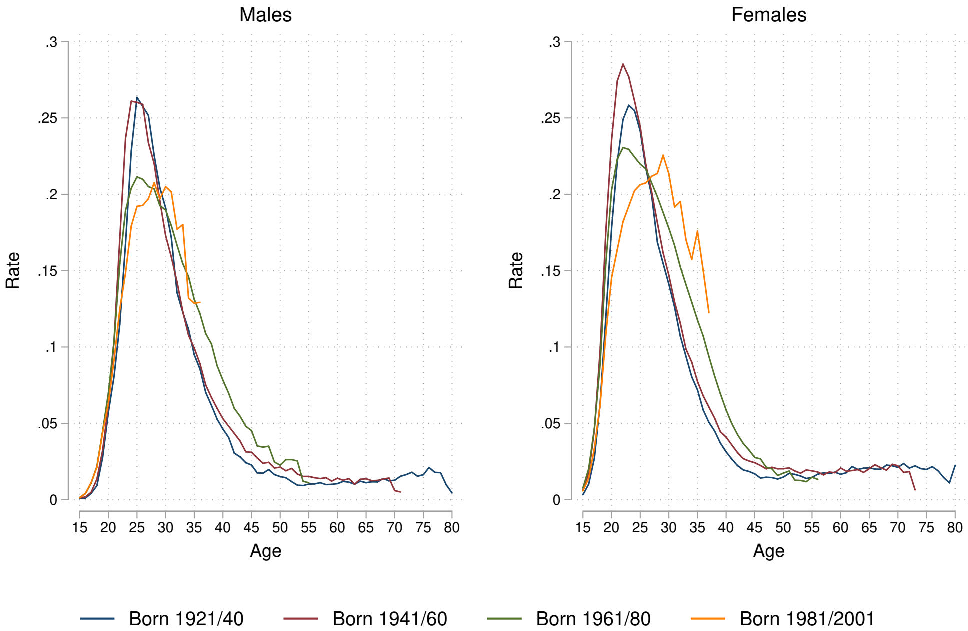
Figure 8: Hazard rates by type of life-course event and cohort.



Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

follow a similar pattern to those of males, although they seem to be consistently higher throughout their entire lifetime. Moreover, there seems to be a more pronounced increase in life speed for the last two cohorts of women, which is not as visible for men. This evidence supports our Hypothesis 2a, according to which the speed of life has increased particularly for women.

Figure 9: Life-course rates by cohort and gender.



Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

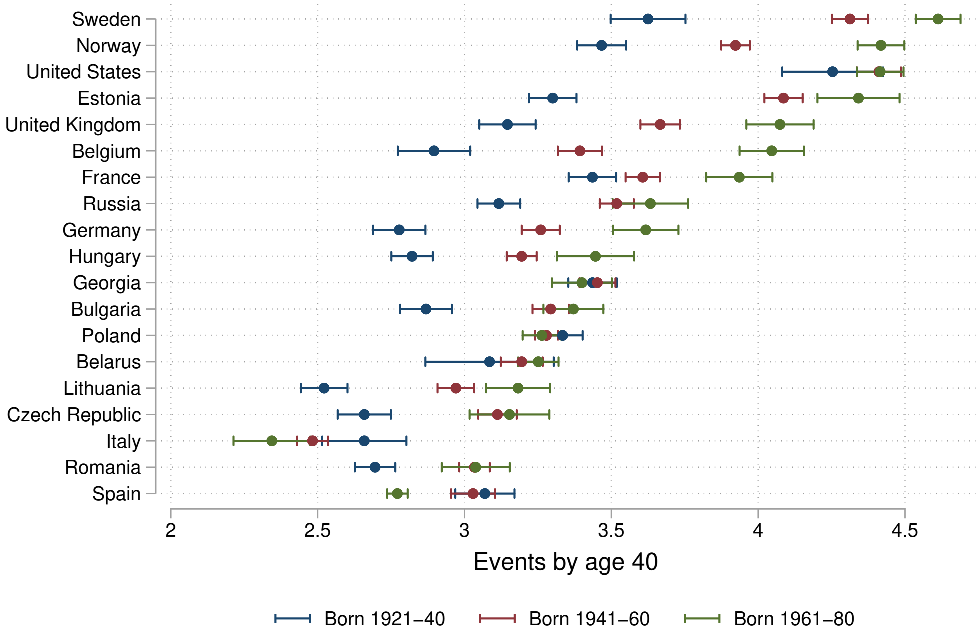
4.2 Multivariate analysis

In this subsection, we complement the graphical analysis of life-course rates by showing results from multivariate linear regression models. The baseline specification estimates the number of events experienced by an individual by age 40 as a function of gender, education, country- and cohort-fixed effects; in subsequent specifications, we include interactions terms to detect heterogeneity across countries and cohorts, as well as across countries and levels of education. In order to ease the interpretation of high-order interaction models, which are presented in Table A3, we estimate marginal effects for each country and cohort, at mean values of gender and education. Then, to test our hypothesis about stratification by education, we estimate marginal effects by country at the 25^{th}, 50^{th} and 75^{th} percentile of the country-specific distribution of years of education.

The marginal effects by country and cohort are shown in Figure 10. In this graph, we have sorted countries by the speed of life achieved by the 1961-80 cohort. Thanks to this, one can immediately notice that the countries included in the analysis differ by the speed of life of older cohorts, that of younger cohorts, and consequently also the extent of life acceleration in the last decades. Overall, one can notice that the speed of life has increased in all countries except Southern Europe and that the process has unfolded quite gradually between each pair of successive cohorts.

Northern European countries emerge as home to the fastest lifestyles. Although their oldest cohorts were already relatively fast, with a prediction of about 3.5 events by age 40, the 1961-80 cohort experiences between 4 and 4.5 events. The United States stands out as an exception, since all three cohorts have experienced more than 4 events by age 40, and the increase in speed of life for the youngest generations has been modest. Western European countries were initially slower, with around 3 events experienced by the 1921-40 cohort, but they have partially caught up with Northern Europe, converging to an average of 4 events experienced by the 1961-80 cohort by age 40.

Figure 10: Number of events experienced by age 40 by country and cohort (linear predictions).



Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

With the exception of Russia, the speed of life remains below 3.5 events in countries of Eastern and Southern Europe. The oldest cohort in Eastern European countries experienced between 2.5 events (Lithuania) and 3.44 events (Georgia), a gap which has narrowed for the last cohort: initially slower countries have converged to about 3 events, whereas initially faster countries have maintained comparable speeds of life over years. Life in Southern European countries, instead, seems to have significantly slowed down. Whereas the Spanish 1921-40 cohort experienced 3.07 events by age 40 and the Italian cohort experienced an average of 2.66 events, life speed for the youngest cohort has decreased to 2.77 events in Spain and to 2.34 events in Italy, which emerges as the currently slowest country of the sample.

In order to match the estimated speeds of life across countries with the underlying life-course experiences, we briefly comment on the marginal effects by country and cohort of linear regression models where the dependent variable is, respectively, the number of births, unions or dissolutions experienced by individuals by age 40, and the covariates are gender, education, country- and cohort-fixed effects.

Figure A1 shows the predicted values of fertility by age 40 across countries and cohorts. First of all, we notice that fertility has declined everywhere over time and it ranges between 1.5 and 2 for the 1961-80 cohort (i.e. fertility is sub-replacement). The fertility decline is more pronounced in countries of Western and Southern Europe, whereas it is less noticeable in Scandinavia and Eastern Europe. A few countries exceptionally show increasing fertility across cohorts: Belgium, Estonia, Hungary and Lithuania.

Figure A2 shows the marginal effects of unions and marriages. A first look at the picture conveys the idea of greater heterogeneity in the dynamics of family formation across geographical areas. In Northern and Western Europe, as well as in the United States, the youngest cohort (1961-80) has experienced one more union than the oldest one (1921-40). This may be attributed to the diffusion of extramarital cohabitation, taking the form of pre-marital cohabitation or newer living arrangements (e.g. Living-Apart-Together couples). Moreover, cases of unions and marriages or order higher than one have emerged, especially in the United States. Instead, there is no equally strong change in the number of unions and marriages in Eastern European countries and in Italy, probably due to a slower diffusion of extramarital cohabitation in these countries. Spain and Russia, which show a moderate increase, are an exception.

Then, Figure A3 shows the marginal effects of separations and divorces. Although these events remain relatively rare occurrences with respect to childbirth and unions - and the predictions for the oldest cohort are indeed close to zero - they have more than doubled for the youngest cohort in Northern and Western European countries. Southern Europe and the United States are polar opposites: while separations have remained extremely low in Italy and Spain, the probability that an average American citizen born between 1961 and

1980 experiences a separation by age 40 is 80%, double with respect to the oldest cohort of Americans.

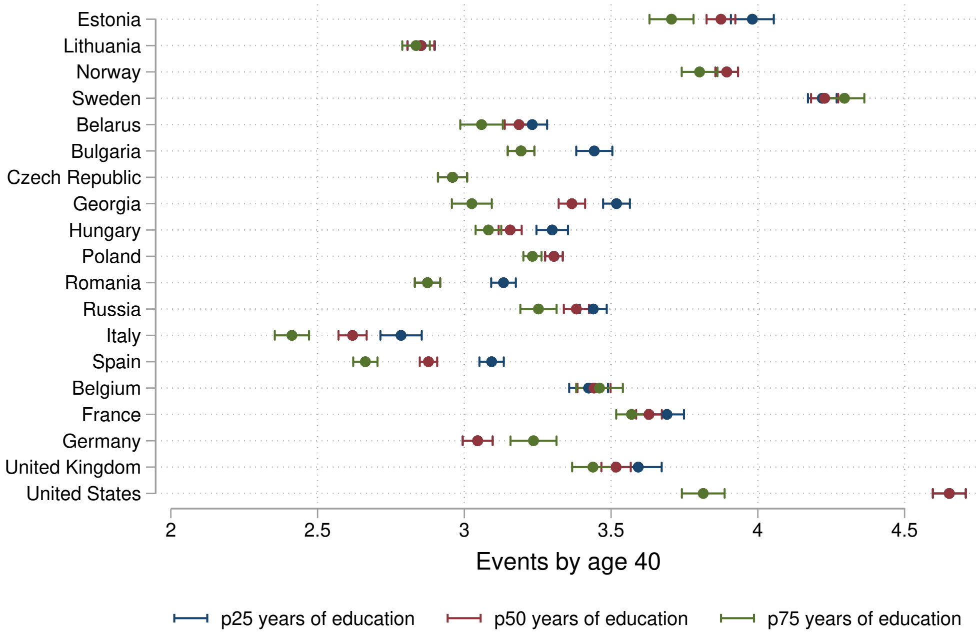
To sum up, the aggregate life-course rates calculated for Northern European countries strongly support an increase in the speed of life for the last two cohorts. This is caused by stable or slightly declining fertility, combined with dramatic increases in the number of unions and dissolutions. As for Western Europe, the evolution of life-course rates also supports a significant increase in the speed of life for the last two cohorts. This is obtained notwithstanding a marked decline in fertility, and mainly thanks to the increase in unions and dissolutions. The United States show a similar picture, i.e. evidence of a faster life coming from lower fertility and a greater number of transition in people's union history.

In Southern Europe, instead, it seems that the number of events has gone down, coupled with some evidence of postponement in Spain. This is achieved because of a significant drop in fertility with respect to the older cohorts, which has not been matched by a rise in extramarital cohabitation or higher-order unions, especially in Italy. In Eastern Europe, there is no significant change in the speed of life, a result that is further proved by non-significant differences in fertility, unions or dissolutions across cohorts.

We now turn to the discussion of potential social stratification in life speed. Figure 11 reports the predicted number of events experienced at the 25^{th}, 50^{th} and 75^{th} percentiles of country-specific education levels. Education is measured by using the continuous variable *Years of education*, in order to ensure comparability across countries and with the United States, although a robustness check using ISLED yields similar results. First of all, we notice a negative impact of education on the number of events experienced by age 40, i.e. evidence of a negative education gradient, for all countries. Therefore, Hypothesis 3b is supported by our analysis, as the finding that faster lives are associated to low-educated individuals in every country may uncover a widespread pattern of disadvantage.

However, the speed of life is stratified to different degrees across countries. In Northern

Figure 11: Number of events experienced by age 40 by country and education level (linear predictions).



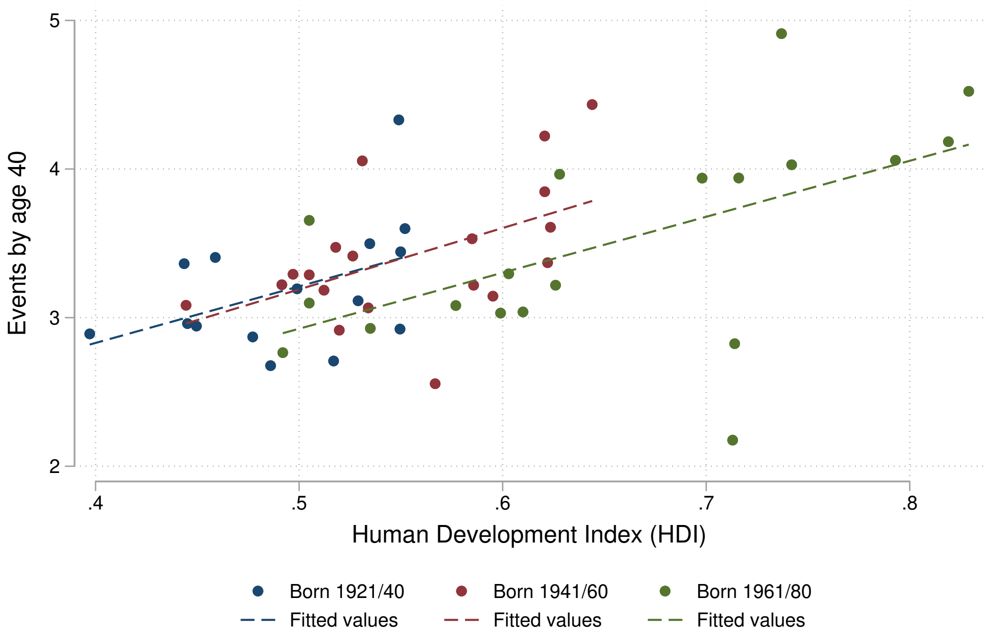
Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

Europe, we cannot find strong evidence of an education gradient in life speed, which may perhaps be attributed to the universally supportive Nordic welfare states. While we find a similar situation in Western European countries (with the exception of Germany), the educational divide is strong in Southern and Eastern Europe and in the United States, where a faster life is observed among lower-educated individuals. This evidence seems to support the Pattern-of-Disadvantage paradigm, according to which a higher speed of life could be the result of greater family instability among the disadvantaged. Indeed, the lack of institutional support and opportunities may lead lower-educated individuals to experience higher family turmoil.

4.3 Human development and speed of life

In order to understand whether and to what extent the speed of life is associated with human and socio-economic development, we first analyse the association between HDI and the average number of events lived by cohorts in every country between ages 15 and 40, using a scatter plot shown in Figure 12. We find evidence of a positive association between human development and the speed of life, which has become particularly strong for the cohort of individuals born between 1961 and 1980.

Figure 12: Correlation between HDI and average cumulative events experienced by age 40 (by country and cohort).



Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey, the 1982 US National Survey of Family Growth, the United Nations Development Programme and the Historical Index of Human Development.

To provide further robust evidence on the relationship between human development and the speed of life, we estimate a series of multilevel models that are shown in Table 2. Specifically, we estimate a random-intercept model with gender, education, country and cohort as covariates. The level-2 random intercepts are estimated at the country-cohort level, both in order to test the predicting power of individual-level factors in the presence of level-2 variance and to investigate the significance of the association between speed of life and HDI. Once again, one can see from Column 1 that women have a faster life than men, while education has a negative effect on the number of events experienced by age 40, consistently with previous evidence. From Column 2, one can see that HDI has a strong and positive effect on the speed of life. Moreover, a likelihood-ratio test comparing the latter model with the more parsimonious one (i.e. without HDI) strongly supports the richer model, corroborating the idea that Human Development is strongly and significantly associated with speed of life. This finding opens the question about a potential convergence of speed of life across settings, as human development increases.

Table 2: Multilevel model estimates of the relationship between Human Development and the speed of life.

	(1) Events by age 40	(2) Events by age 40
Female	0.268***	0.268***
	[0.0108]	[0.0108]
Years of education	-0.0461***	-0.0462***
	[0.00161]	[0.00161]
Human Development Index		3.142***
		[0.616]
Observations	118558	118558
BIC	468621.1	468611.7
ICC	0.0875	0.0602
Log-likelihood	-234281.4	-234270.8
LR Test (p-value)		0.00000428

Standard errors in brackets

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

4.4 Speed of life and its impact on health

In this subsection, we provide evidence of the relationship between the speed of life and individual self-rated health, aiming to establish whether and how the number and type of life-course transitions shapes an individual's well-being. The results of the logit models estimating the probability of reporting bad health are displayed in Table 3.

From Column 1, one can see that life speed has a positive effect on the probability of reporting bad health, accounting for gender, education, country- and cohort-fixed effects. The inclusion of an interaction term between speed of life and cohort (Column 2) shows that this effect is particularly strong for the younger cohort, that is, for individuals born between 1961 and 1980. Instead, we do not find evidence of heterogeneous effects of life speed on health across countries[6].

Then, we break down the number of events by their type, in order to see whether experiencing a particular event during people's life course drives the estimated effects on self-rated health. In particular, since the effect has been found to be particularly strong for the youngest cohort, we anticipate that the Second Demographic Transition has played a role. The coefficient of births (Column 3) and the one of unions and marriages (Column 4) are not statistically different from zero, thus supporting the claim that these events do not have adverse consequences for individuals' perceived health. In Column 5, we show the estimates of a model where the number of births and unions is included among the regressors. Such choice is justified by our concern that the number of childbirths and unions experienced by a subject might be correlated, thus making the variables by type of event multicollinear; the lack of significance of the coefficient associated to the number of births and unions together reassures us that these events are not responsible for the adverse effect of the speed of life on self-rated health. Finally, Column 6 shows that an increased number of separations has a negative and strongly significant effect on the probability of reporting bad health. This may suggest that it is not the speed of life *per se* that affects health, but the associated family instability which entails a greater number of stressful life events, such as union dissolutions.

[6]These estimates are available upon request.

Table 3: Logit estimates of the impact of speed of life on the probability of reporting bad health.

	(1)	(2)	(3)	(4)	(5)	(6)
	Bad health	Bad health	Bad health	Bad health	Bad health	Bad health
Events by age 40	0.0225***	0.0161+				
	[0.00598]	[0.00946]				
Events × Born 1941-60		0.00210				
		[0.0124]				
Events × Born 1961-80		0.0631**				
		[0.0220]				
Births by age 40			-0.00245			
			[0.00828]			
Unions by age 40				0.0226		
				[0.0148]		
Births and unions by age 40					0.00299	
					[0.00671]	
Separations by age 40						0.199***
						[0.0181]
Observations	80970	80970	80970	80970	80970	80970

Standard errors in brackets. All specifications include controls for gender, education level, country- and cohort-fixed effects.

+ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Conclusions

In this article we aimed to challenge the wisdom that population change, in a post-demographic-transition world, happens in a "slow" and inertial way, that is, smoothly, regularly and orderly. This view has been contrasted with one, mostly linked to the Second-Demographic-Transition idea, that implies a "fast" pace of change, coupled with, and caused by, the diffusion of new, more complex, and shortly-lived family forms and living arrangements as a result of the spread of postmodern values. We adopted a cohort-based, life-course approach to the *speed of life*, using the average number of life-course events experienced by an individual over time as the key element of our study. We used a cross-cohort perspective to study change over time and a cross-country comparative approach, focusing on 18 European countries and the United States.

We found evidence of an increase in speed of life over time, which is associated with a strong postponement of life events starting from the 1960s. In line with the Second-Demographic-Transition framework, we also found that faster lives are observed in Northern European countries and the United States, where the SDT started. Moreover, we observed a more pronounced increase in the speed of life for women since the 1960s, which we explained as a consequence of the Gender Revolution (e.g. Goldscheider et al. 2015), which has provided them with new and more opportunities and with the socialisation into postmodern and gender-egalitarian values.

Further results provided evidence that life speed is socially stratified. In line with the Pattern-of-Disadvantage framework (as opposed to the SDT), we found that lower-educated individuals are more likely to have a faster life, that is, to experience a higher number of life transitions. The link between higher disadvantage and higher family instability is only observed in Southern and Eastern Europe and the U.S., which are characterised by relatively high social inequality and a less universally supportive welfare state.

We also found that the types of life transitions that mainly drive an increase in the speed of life are unions and dissolutions, rather than fertility, again in line with the SDT. This evidence helped us to shed some light on the association between speed of life and an individual's self-rated health: we, indeed, observed that a faster life is associated with a higher probability of reporting bad health, but such relationship seems to be driven by the increased number of separations experienced. It is, therefore, unclear whether the number of life transitions *per se* is able to shape an individual's well-being. Future research could explore this interesting dynamic further.

Finally, we started exploring a potentially promising direction for future research, by showing a positive association between the speed of life and human development. Such positive link could hint to a potential convergence process in life speed across countries as human and socio-economic development unfold.

We acknowledge that our study suffers from some limitations. First of all, we could not make use of population weights in the analysis of the life-course rates. Moreover, some of the countries under study had a rather small sample for the oldest and the newest cohorts, whereas others had only women in the sample. Eventually, in order to have a final harmonised dataset, we had to drop some types of life transitions that were not observed in all of the countries, such as leaving home. Overall, it could have been very interesting to include mobility-related transitions among the life-course events we focused on. We believe increased mobility is an important force that has been changing our lives in the last decades and hope that further research will be able to fully integrate that aspect in the study of population change at the micro- and macro-level (i.e. migration).

Despite the above-mentioned limitations, we believe our study contributed to show that we live in societies characterised by a fast population change that requires fast institutional adjustments, which should be based on timely population forecasts in order to be effective.

A Appendix

Table A1: Composition of the sample used to estimate life course rates.

Country	Born 1921-40	Born 1941-60	Born 1961-80	Born 1981-2001	Total (country)
Belgium	768	2064	1978	682	5492
Bulgaria	1546	3071	5536	1467	11620
Belarus	244	2282	3043	3238	8807
Czech Republic	1427	2757	3325	1297	8806
Estonia	1780	2748	2857	461	7846
France	1780	3419	3605	990	9794
Georgia	1716	3089	3847	1315	9967
Germany	1497	2840	7835	9787	21959
Hungary	2372	4486	4416	814	12088
Italy	571	4257	3794	546	9168
Lithuania	1852	2993	3312	1472	9629
Norway	1682	4932	5456	1799	13869
Poland	2540	7649	6028	3398	19615
Romania	2554	4372	4050	805	11781
Russia	2279	3693	3876	984	10832
Spain	1524	2266	13618	8059	25467
Sweden	721	3154	3229	2133	9237
United Kingdom	1323	2771	4114	2198	10406
United States	396	8891	16409	5957	31653
Total (cohort)	28572	71734	100328	47402	248036

Table A2: Composition of the sample used for the multivariate analyses

Country	Born 1921-40	Born 1941-60	Born 1961-80	Total (country)
Belgium	765	2054	969	3788
Bulgaria	1516	3046	1118	5680
Belarus	244	2282	2460	4986
Czech Republic	1419	2698	631	4748
Estonia	1780	2748	596	5124
France	1780	3419	917	6116
Georgia	1716	3089	1121	5926
Germany	1467	2795	941	5203
Hungary	2372	4486	674	7532
Italy	571	4257	683	5511
Lithuania	1852	2993	978	5823
Norway	1678	4911	1844	8433
Poland	2532	7628	2716	12876
Romania	2554	4372	869	7795
Russia	2199	3473	709	6381
Spain	1167	2108	9976	13251
Sweden	717	3149	2018	5884
United Kingdom	1265	2592	892	4749
United States	396	2103	1848	4347
Total (cohort)	27990	64203	31960	124153

Table A3: OLS Estimates of the determinants of speed of life.

	(1)	(2)	(3)
Dep.Var.:Events by age 40			
Female	0.268***	0.256***	0.267***
	(0.0105)	(0.0105)	(0.0105)
Years of education	-0.0491***	-0.0462***	0.0167*
	(0.00154)	(0.00155)	(0.00799)
Belgium	-0.840***	-0.729***	-0.628***
(Baseline: Sweden)	(0.0365)	(0.0905)	(0.161)
Bulgaria	-1.080***	-0.756***	0.0681
	(0.0327)	(0.0790)	(0.136)
Belarus	-1.159***	-0.540***	-0.365*
	(0.0337)	(0.129)	(0.155)
Czech Republic	-1.273***	-0.966***	-1.209***
	(0.0342)	(0.0798)	(0.166)
Estonia	-0.395***	-0.325***	0.300*
	(0.0336)	(0.0770)	(0.142)
France	-0.655***	-0.189*	0.00994
	(0.0321)	(0.0770)	(0.148)
Georgia	-0.827***	-0.189*	0.756***
	(0.0323)	(0.0775)	(0.141)
Germany	-1.073***	-0.847***	-1.488***
	(0.0333)	(0.0793)	(0.180)
Hungary	-1.150***	-0.804***	-0.202
	(0.0308)	(0.0743)	(0.136)
Italy	-1.840***	-0.966***	-0.971***
	(0.0333)	(0.0979)	(0.128)
Lithuania	-1.389***	-1.103***	-0.973***
	(0.0325)	(0.0766)	(0.141)
Norway	-0.354***	-0.158*	0.169
	(0.0297)	(0.0777)	(0.141)
Poland	-1.012***	-0.291***	0.373**
	(0.0277)	(0.0737)	(0.127)
Romania	-1.326***	-0.930***	-0.217+

Table A3 (cont.)	(1)	(2)	(3)
	(0.0308)	(0.0739)	(0.123)
Russia	-0.845***	-0.508***	-0.0609
	(0.0318)	(0.0749)	(0.141)
Spain	-1.556***	-0.556***	-0.661***
	(0.0282)	(0.0829)	(0.121)
United Kingdom	-0.662***	-0.479***	-0.115
	(0.0342)	(0.0814)	(0.170)
United States	0.0430	0.628***	3.059***
	(0.0351)	(0.109)	(0.168)
Born 1941-60	0.328***	0.688***	0.323***
(Baseline: Born 1921-40)	(0.0130)	(0.0721)	(0.0130)
Born 1961-80	0.439***	0.988***	0.435***
	(0.0161)	(0.0757)	(0.0161)
Belgium × Born 1941-60		-0.191+	
		(0.103)	
Belgium × Born 1961-80		0.162	
		(0.113)	
Bulgaria × Born 1941-60		-0.263**	
		(0.0904)	
Bulgaria × Born 1961-80		-0.486***	
		(0.102)	
Belarus × Born 1941-60		-0.578***	
		(0.138)	
Belarus × Born 1961-80		-0.822***	
		(0.139)	
Czech Republic × Born 1941-60		-0.234*	
		(0.0919)	
Czech Republic × Born 1961-80		-0.493***	
		(0.113)	
Estonia × Born 1941-60		0.0984	
		(0.0894)	
Estonia × Born 1961-80		0.0535	
		(0.112)	
France × Born 1941-60		-0.516***	

Table A3 (cont.)	(1)	(2)	(3)
		(0.0882)	
France × Born 1961-80		-0.488***	
		(0.104)	
Georgia × Born 1941-60		-0.671***	
		(0.0891)	
Georgia × Born 1961-80		-1.024***	
		(0.101)	
Germany × Born 1941-60		-0.206*	
		(0.0913)	
Germany × Born 1961-80		-0.148	
		(0.105)	
Hungary × Born 1941-60		-0.314***	
		(0.0845)	
Hungary × Born 1961-80		-0.363***	
		(0.107)	
Italy × Born 1941-60		-0.864***	
		(0.106)	
Italy × Born 1961-80		-1.303***	
		(0.124)	
Lithuania × Born 1941-60		-0.239**	
		(0.0885)	
Lithuania × Born 1961-80		-0.327**	
		(0.102)	
Norway × Born 1941-60		-0.232**	
		(0.0872)	
Norway × Born 1961-80		-0.0366	
		(0.0958)	
Poland × Born 1941-60		-0.743***	
		(0.0824)	
Poland × Born 1961-80		-1.059***	
		(0.0897)	
Romania × Born 1941-60		-0.349***	
		(0.0841)	
Romania × Born 1961-80		-0.645***	

Table A3 (cont.)	(1)	(2)	(3)
		(0.102)	
Russia × Born 1941-60		-0.286***	
		(0.0863)	
Russia × Born 1961-80		-0.472***	
		(0.107)	
Spain × Born 1941-60		-0.728***	
		(0.0961)	
Spain × Born 1961-80		-1.286***	
		(0.0930)	
United Kingdom × Born 1941-60		-0.168+	
		(0.0935)	
United Kingdom × Born 1961-80		-0.0599	
		(0.107)	
United States × Born 1941-60		-0.530***	
		(0.119)	
United States × Born 1961-80		-0.826***	
		(0.123)	
Belgium × Years of education			-0.00933
			(0.0122)
Bulgaria × Years of education			-0.0879***
			(0.0104)
Belarus × Years of education			-0.0574***
			(0.0115)
Czech Republic × Years of education			0.00252
			(0.0127)
Estonia × Years of education			-0.0494***
			(0.0105)
France × Years of education			-0.0456***
			(0.0114)
Georgia × Years of education			-0.122***
			(0.0105)
Germany × Years of education			0.0295*
			(0.0129)
Hungary × Years of education			-0.0703***

Table A3 (cont.)	(1)	(2)	(3)
			(0.0106)
Italy × Years of education			-0.0628***
			(0.00978)
Lithuania × Years of education			-0.0257*
			(0.0106)
Norway × Years of education			-0.0368***
			(0.0103)
Poland × Years of education			-0.107***
			(0.00943)
Romania × Years of education			-0.0876***
			(0.00942)
Russia × Years of education			-0.0567***
			(0.0104)
Spain × Years of education			-0.0654***
			(0.00865)
United Kingdom × Years of education			-0.0407***
			(0.0120)
United States × Years of education			-0.226***
			(0.0122)
Constant	4.445***	4.032***	3.551***
	(0.0318)	(0.0679)	(0.112)
Observations	124,150	124,150	124,150

Standard errors in brackets.

*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Table A4: OLS Estimates of the determinants of life-course events.

	(1)	(2)	(3)
	Births by age 40	Unions by age 40	Separations by age 40
Female	0.172***	0.0130**	0.0710***
	(0.00706)	(0.00453)	(0.00342)
Years of education	-0.0463***	0.000853	-0.000701
	(0.00104)	(0.000668)	(0.000504)
Belgium	-0.430***	-0.215***	-0.0838**
(Baseline: Sweden)	(0.0609)	(0.0391)	(0.0295)
Bulgaria	-0.474***	-0.183***	-0.0995***
	(0.0532)	(0.0341)	(0.0258)
Belarus	-0.272**	-0.246***	-0.0219
	(0.0869)	(0.0558)	(0.0421)
Czech Republic	-0.525***	-0.362***	-0.0799**
	(0.0537)	(0.0345)	(0.0260)
Estonia	-0.354***	-0.0893**	0.119***
	(0.0519)	(0.0333)	(0.0251)
France	0.179***	-0.326***	-0.0423+
	(0.0519)	(0.0333)	(0.0251)
Georgia	0.142**	-0.231***	-0.100***
	(0.0522)	(0.0335)	(0.0253)
Germany	-0.273***	-0.471***	-0.104***
	(0.0534)	(0.0343)	(0.0259)
Hungary	-0.433***	-0.352***	-0.0182
	(0.0500)	(0.0321)	(0.0242)
Italy	-0.343***	-0.481***	-0.142***
	(0.0659)	(0.0423)	(0.0319)
Lithuania	-0.598***	-0.444***	-0.0607*
	(0.0516)	(0.0331)	(0.0250)
Norway	0.197***	-0.287***	-0.0680**
	(0.0523)	(0.0336)	(0.0253)
Poland	0.0441	-0.264***	-0.0706**

Table A3 (cont.)	(1) Births by age 40	(2) Unions by age 40	(3) Separations by age 40
	(0.0496)	(0.0318)	(0.0240)
Romania	-0.452***	-0.370***	-0.108***
	(0.0498)	(0.0319)	(0.0241)
Russia	-0.374***	-0.202***	0.0681**
	(0.0504)	(0.0324)	(0.0244)
Spain	0.0677	-0.449***	-0.174***
	(0.0558)	(0.0358)	(0.0270)
United Kingdom	-0.0202	-0.467***	0.00836
	(0.0548)	(0.0352)	(0.0265)
United States	0.779***	-0.389***	0.238***
	(0.0735)	(0.0471)	(0.0356)
Born 1941-60	-0.0127	0.469***	0.231***
(Baseline: Born 1921-40)	(0.0485)	(0.0311)	(0.0235)
Born 1961-80	-0.0796	0.594***	0.473***
	(0.0510)	(0.0327)	(0.0247)
Belgium × Born 1941-60	0.0414	-0.199***	-0.0327
	(0.0694)	(0.0445)	(0.0336)
Belgium × Born 1961-80	0.329***	-0.0977*	-0.0693+
	(0.0762)	(0.0489)	(0.0369)
Bulgaria × Born 1941-60	0.164**	-0.247***	-0.179***
	(0.0609)	(0.0391)	(0.0295)
Bulgaria × Born 1961-80	0.183**	-0.305***	-0.364***
	(0.0688)	(0.0442)	(0.0333)
Belarus × Born 1941-60	0.00747	-0.411***	-0.174***
	(0.0927)	(0.0595)	(0.0449)
Belarus × Born 1961-80	-0.0702	-0.437***	-0.314***
	(0.0937)	(0.0602)	(0.0454)
Czech Republic × Born 1941-60	0.127*	-0.257***	-0.104***
	(0.0619)	(0.0397)	(0.0300)
Czech Republic × Born 1961-80	0.151*	-0.334***	-0.310***
	(0.0758)	(0.0486)	(0.0367)

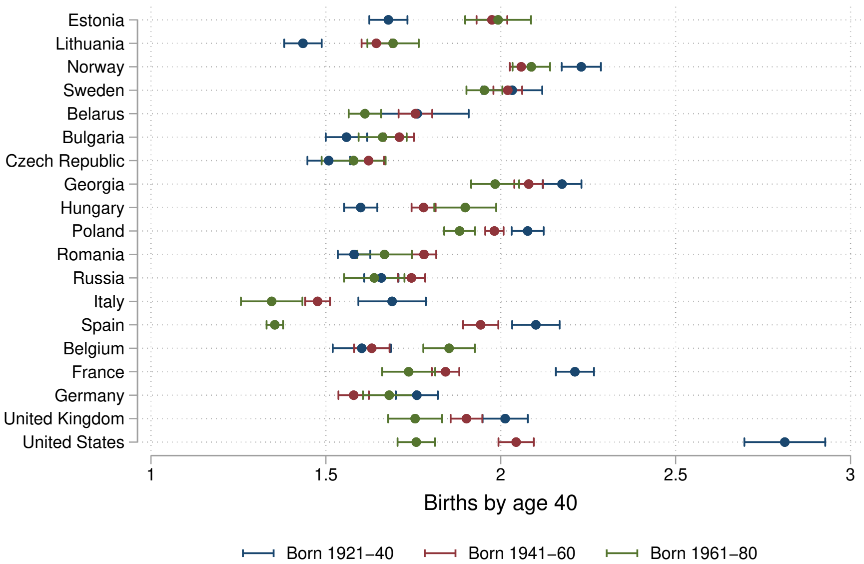
Table A3 (cont.)	(1) Births by age 40	(2) Unions by age 40	(3) Separations by age 40
Estonia × Born 1941-60	0.309***	-0.205***	-0.00573
	(0.0602)	(0.0386)	(0.0292)
Estonia × Born 1961-80	0.393***	-0.195***	-0.145***
	(0.0753)	(0.0483)	(0.0365)
France × Born 1941-60	-0.357***	-0.168***	0.00853
	(0.0594)	(0.0381)	(0.0288)
France × Born 1961-80	-0.396***	-0.0312	-0.0607+
	(0.0698)	(0.0448)	(0.0338)
Georgia × Born 1941-60	-0.0824	-0.385***	-0.204***
	(0.0600)	(0.0385)	(0.0291)
Georgia × Born 1961-80	-0.112	-0.497***	-0.415***
	(0.0680)	(0.0436)	(0.0329)
Germany × Born 1941-60	-0.168**	0.0209	-0.0588*
	(0.0615)	(0.0395)	(0.0298)
Germany × Born 1961-80	0.000438	0.0654	-0.214***
	(0.0707)	(0.0454)	(0.0342)
Hungary × Born 1941-60	0.193***	-0.374***	-0.133***
	(0.0569)	(0.0365)	(0.0276)
Hungary × Born 1961-80	0.378***	-0.426***	-0.316***
	(0.0722)	(0.0463)	(0.0350)
Italy × Born 1941-60	-0.200**	-0.484***	-0.179***
	(0.0713)	(0.0458)	(0.0345)
Italy × Born 1961-80	-0.265**	-0.650***	-0.388***
	(0.0838)	(0.0538)	(0.0406)
Lithuania × Born 1941-60	0.222***	-0.337***	-0.125***
	(0.0596)	(0.0383)	(0.0289)
Lithuania × Born 1961-80	0.337***	-0.383***	-0.281***
	(0.0689)	(0.0442)	(0.0334)
Norway × Born 1941-60	-0.159**	-0.0282	-0.0448
	(0.0587)	(0.0377)	(0.0285)
Norway × Born 1961-80	-0.0633	0.139***	-0.112***

Table A3 (cont.)	(1) Births by age 40	(2) Unions by age 40	(3) Separations by age 40
	(0.0645)	(0.0414)	(0.0312)
Poland × Born 1941-60	-0.0823	-0.500***	-0.160***
	(0.0555)	(0.0356)	(0.0269)
Poland × Born 1961-80	-0.115+	-0.599***	-0.345***
	(0.0604)	(0.0388)	(0.0292)
Romania × Born 1941-60	0.213***	-0.385***	-0.177***
	(0.0566)	(0.0363)	(0.0274)
Romania × Born 1961-80	0.167*	-0.438***	-0.374***
	(0.0687)	(0.0441)	(0.0333)
Russia × Born 1941-60	0.0989+	-0.329***	-0.0560*
	(0.0581)	(0.0373)	(0.0281)
Russia × Born 1961-80	0.0592	-0.359***	-0.172***
	(0.0718)	(0.0461)	(0.0348)
Spain × Born 1941-60	-0.145*	-0.390***	-0.193***
	(0.0647)	(0.0415)	(0.0313)
Spain × Born 1961-80	-0.667***	-0.306***	-0.313***
	(0.0626)	(0.0402)	(0.0303)
United Kingdom × Born 1941-60	-0.0979	-0.156***	0.0863**
	(0.0630)	(0.0404)	(0.0305)
United Kingdom × Born 1961-80	-0.178*	0.0937*	0.0244
	(0.0723)	(0.0464)	(0.0350)
United States × Born 1941-60	-0.755***	0.196***	0.0298
	(0.0805)	(0.0516)	(0.0390)
United States × Born 1961-80	-0.974***	0.247***	-0.0987*
	(0.0826)	(0.0530)	(0.0400)
Constant	2.492***	1.408***	0.131***
	(0.0458)	(0.0294)	(0.0222)
Observations	124,150	124,150	124,150

Standard errors in brackets.

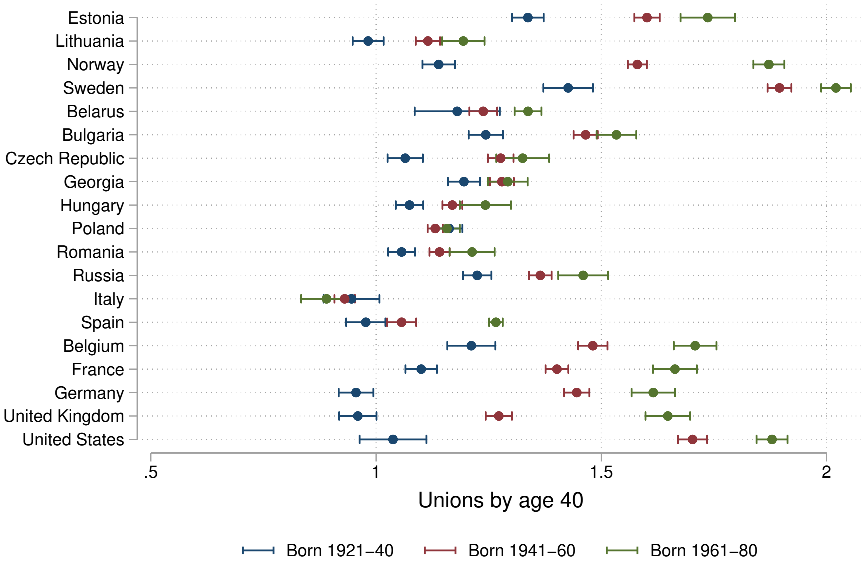
*** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Figure A1: Number of births experienced by age 40 by country and cohort (linear predictions).



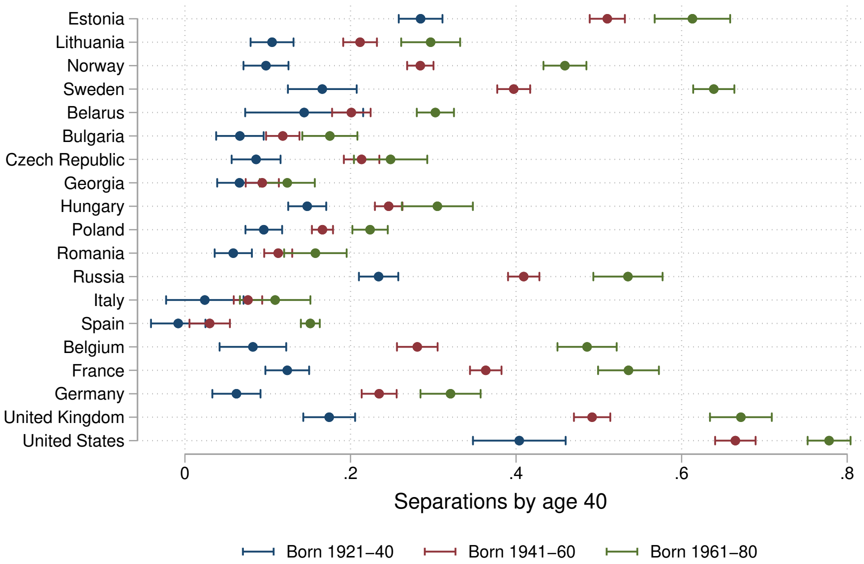
Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

Figure A2: Number of unions and marriages experienced by age 40 by country and cohort (linear predictions).



Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

Figure A3: Number of separations and divorces experienced by age 40 by country and cohort (linear predictions).



Source: Authors' calculation based on data from the Harmonised Histories, the 2018 Spain Fertility Survey and the 1982 US National Survey of Family Growth.

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