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Why do women develop lower levels of political interest? Examining the influence of education, family socialisation and adult roles

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Abstract

The political interest of men rises faster than that of women during late adolescence and early adulthood in Britain (Fraile and Sánchez-Vítores in Polit Psychol 41(1):89–106, 2020). This paper analyses whether factors relating to education, the assumption of adult roles and family background can explain this growing disparity. We use panel data of the British Household Panel Study (BHPS) and Understanding Society (USoc) to examine these factors. Education turns out to be the only factor that is related to different growth trajectories of political interest between men and women. Women with lower levels of education or vocational qualifications show stable or declining levels of political interest while all other categories show rising levels of interest between ages 16 and 30. Education can, however, only partially account for the rising gender gap. Variables representing the attainment of adult roles, such as occupational status, marital status and household composition, and variables capturing family socialisation are not linked to the growing disparity of political interest between men and women. Most of this gap thus remains unexplained.

Keywords Gender and political interest · British Household Panel Study (BHPS) and Understanding Society (USoc) · Vocational qualifications · Growth curve modelling

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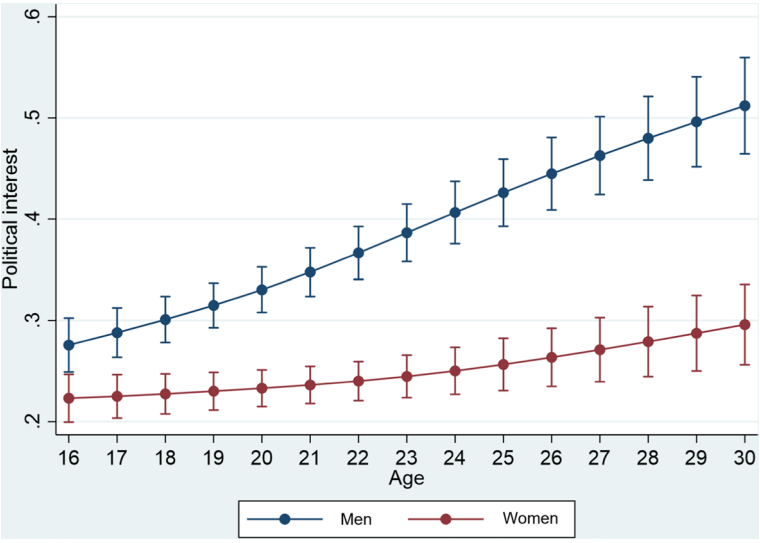
Introduction

Despite growing representation of women in politics, women continue to report a lower level of political engagement across a number of activities and attitudes. Across Western societies, women join parties less frequently than men (Coffe and Bolzendahl 2010), are less likely to attend demonstrations (Kittilson and Schwindt-Bayer 2012) and have lower levels of political interest (Inglehart and Norris 2003). This paper focusses on the latter. Political interest is important because it is a disposition that motivates people to acquire more knowledge about politics and participate in it, whether through voting or other channels (Verba et al 1995; Finkel 2002; Prior 2010). When we look at national populations, even small gender differences in political interest cumulate into large differences in total political outputs such as—taking the US as an example—millions of fewer letters and phone calls to politicians from women than men, and millions fewer women than men associated with a political organisation (Burns et al 2001).

Gender differences in political interest consistently increase over the life course. They start forming early in life through gendered socialisation by parents, school and the media (Campbell and Wolbrecht 2006; Bos et al. 2022) and continue to widen during adolescence and adulthood (Fraile and Sánchez-Vítores 2020). That men and women continue to diverge in their political interest after early adolescence is intriguing as this contradicts the assumption that political interest is shaped early in life and remains stable thereafter (Prior 2010; Neundorf et al 2013). As Graph 1 shows, which is based on longitudinal data collected in Great Britain and repeats the main finding of Fraile and Sánchez-Vítores (2020), the divergence post 16 is more pronounced than the divergence pre-16 since the difference between men and



Graph 1 Political interest and gender: predicted probabilities of being quite or very interested in politics. *Source* British Household Panel Study/Understanding Society

women is small and only just significant at age 16 (as shown by the almost overlapping confidence intervals), while it is large and very significant at age 30: by that age roughly 50% of men are interested in politics compared to just 30% of women. This substantial post-16 evolution of the gender gap in political interest suggests that beyond primary socialisation, other factors, such as educational experiences, experiences in the labour market and starting a family contribute to or detract from engagement with politics.

Despite a massive literature on the gender gap in political engagement (for good recent reviews see Bos et al. (2022), to our knowledge no study has yet investigated whether these factors can explain the rising gender gap in political interest specifically from mid-adolescence onwards. Although Fraile and Sánchez-Vítores (2020) offered an extensive and enlightening review of these factors and included educational attainment in their models, they did not test whether educational attainment explains the growing gap over the life course. We build on Fraile and Sánchez-Vítores (2020) study, first, by explicitly exploring the effect of educational attainment on the evolution of political interest between ages 16 and 30. By providing individuals with the knowledge to understand politics and the skills to participate in it, education is a key factor in promoting political engagement (Hoskins and Janmaat 2016; Green and Pensiero 2016; Nie et al 1996; Emler and Frazer 1999; Sondheimer and Green 2010). We further extend their study by including variables tapping family background and adult roles in our models to explore the possible factors that could explain the growing gap in a more comprehensive way. We focus on work (as a source of income, skills and contacts) and household status (single or with partner; with or without children) as important adult roles as well as on the role of the family in socialising men and women differently with respect to engagement with the world of politics (see the discussion in the next section). Finally, we build on Fraile and Sánchez-Vítores (2020) study and contribute to the literature on gender differences in political engagement more generally by developing and subsequently testing arguments as to why some factors can be expected to have *differential* effects on women and men while others are likely to have the *same* effect, as the next section will clarify. The table at the end of the next section offers an overview of these expected effects.

Similar to Fraile and Sánchez-Vítores (2020), we focus on the United Kingdom and will be using the same dataset as they did, the British Household Panel Study/Understanding Society (BHPS/US). Apart from allowing us to seamlessly build on their study, the choice for the United Kingdom makes sense from a comparative perspective as the gender gap in political interest in the UK is the same as the international average of this gap (Fraile and Gomez (2017, p. 608). As the UK thus presents such an average case, the findings of this study could well be relevant for many other countries hovering around the international mean. We proceed by discussing how education and the assumption of adult roles could explain diverging trajectories of political interest for men and women. We then theorise how parental attributes representing family influences could impact on these diverging trajectories. Except for the role of occupation which is thought to operate in the same way for men and women, all other factors, i.e. traditional gender roles held in the family and parents' education, the type of educational, being a parent and living as a couple

are expected to contribute to the growing gender gap in political interest by affecting men and women differently. Subsequently, we explain the BHPS/US as our data source, the variables and our modelling strategy. Our findings show that the different educational pathways that individuals pursue after age 16 can partially account for the growing gender gap.

The effect of education

Education is thought to be a key institution of political socialisation (Hoskins and Janmaat 2016; Green and Pensiero 2016). Indeed, a wealth of literature has highlighted a positive effect of educational attainment on political engagement in general, with education argued to have such an effect because it fosters the knowledge and skills that enable individuals to understand the world of politics and participate effectively in it (Nie et al 1996; Emler and Frazer 1999; Sondheimer and Green 2010). The reason why we expect education to be particularly relevant for the post-16 gender divergence in political interest is that the education system in Great Britain, as the context for our study, then begins to branch out in different educational tracks, resulting in different educational experiences for late adolescents.

This relevance is further underlined by a specific strand in the literature on education and political engagement that has focussed on the effect of educational tracking. Educational tracking refers to the practice of separating students into different tracks varying in the content and level of the curriculum. In most countries this practice starts at age 15 or 16, with upper secondary education offering one or two general or academic tracks preparing for higher education and a series of vocational tracks offering training for specific occupations in the labour market. As a rule, access to the more esteemed academic tracks is selective and students need to attain some minimum standards in order to be admitted to these tracks. At the same time, educational tracking should not be confused with level of education since the academic and vocational tracks are considered to be equivalent in many countries in terms of leading to a qualification that gives access to higher education.

The tracked system in England and Scotland, as the context of the current study, very much conforms to this pattern. Hoskins and Janmaat 2016; Green and Pensiero 2016) characterises it as a mixed system with a high level of specialisation, particularly regarding the vocational tracks which cater for many different professions, and one where the academic track (A levels in England and (Advanced) Highers in Scotland) is much more prestigious than the vocational ones (see also Swift and Fisher 2012). It is in this context that previous research found tracking to have an independent effect on political engagement, with students doing A levels or Highers ending up with significantly higher engagement levels at the end of upper secondary than those pursuing vocational degrees (Janmaat et al 2014; Hoskins and Janmaat 2016). This effect has been attributed to a more relevant curriculum, more stimulating pedagogies, such as open discussions of political issues and opportunities for student voice, and more favourable peer effects in the academic tracks (Apple 1990; Ichilov 2002; Ten Dam and Volman 2003; van de Werfhorst 2007). In addition, Hoskins et al (2016) have argued that

the large status difference between the academic and vocational tracks in England and Scotland leads to a sense of failure among those allocated to the vocational track, which in turn gives rise to feelings of alienation and disengagement among them.

However, it is not straightforward to theorise how tracking and educational attainment more broadly might affect the diverging development of political interest between men and women post 16. On the one hand it is possible that education is more beneficial to women's political interest: as they start from a lower level of interest and have had less opportunities to develop their political interest due to differential family socialisation (Campbell and Wolbrecht 2006; Fox and Lawless 2014), the political stimulation received in academic tracks and at university can have an enhancing effect on their interest in politics. Previous studies have found such compensatory effects for other groups with lower initial levels of political engagement, such as African Americans (Langton and Jennings 1968) and children from disadvantaged backgrounds (Campbell 2008; Gainous and Martens 2012; Castillo et al 2015; Hoskins et al 2017). This would lead us to presume that the effect of academic track differs across gender categories such that:

> the widening gender gap between the ages of 16 and 30 is due to women showing a steeper rise in political interest than men in the academic track (Hypothesis 1A).

As this hypothesis assumes gender convergence in political interest, but we actually find a widening gender gap (see again Graph 1), it could only be supported if some other factor has a stronger impact on the gendered development of political interest, overriding any compensatory effect.

On the other hand, it is possible that education is more beneficial to those who are already more interested in politics from the start (i.e. boys), exacerbating the gender gap in political interest (aka an *accelerating* effect). This may happen because of different classroom dynamics for girls and boys reflecting traditional gender role expectations of boys being (or needing to be) dominant, assertive and agenda-setting, and girls being passive, empathetic and listening (Alwin et al 1991). Previous research, for instance, found that girls remained silent or censored themselves when given the chance to discuss social and political issues while boys dominated classroom discussions and asked many more questions (Brown and Gilligan 1992; Sadker and Sadker 1994). Building on this research, a recent study found that experiencing an open climate of classroom discussion (OCCD) has differential effects for girls and boys in terms of fostering political engagement: while OCCD was positively related to internal political efficacy for boys it was negatively related to this outcome for girls (Hoskins and Garcia Albacete 2021). Together this research suggests that girls in the academic track, which generally offers richer civic learning opportunities, such as OCCD, feel excluded from taking part in these opportunities and thus that such opportunities may make girls more disengaged. In fact, this 'accelerating effect' interpretation might have more purchase as it could help explain why women increasingly lag behind men in political interest as they move into adulthood while they more generally outperform men in educational attainment in the UK and in other western countries (OECD 2020, p. 51). Hence, contrary to Hypothesis 1A, this line of reasoning leads us to expect that:

> the widening gender gap between the ages of 16 and 30 is due to men showing a steeper rise in political interest than women in the academic track (Hypothesis 1B).

Similar to Hypothesis 1A, this hypothesis assumes enrolment in the academic track to have a differential effect for men and women.

Interestingly, the literature on compensatory and acceleration effects mainly focusses on the civic learning opportunities in the academic track, where they are more prevalent. However, inequality mitigating or enhancing effects may also occur in tracks where such opportunities are less well developed, such as in vocational tracks and lower levels of education. We have not been able to find studies focussing on the political engagement of men and women in vocational education,, but there are two reasons why we would expect gendered socialisation processes to be particularly strong in vocational education and to enhance rather than diminish gender inequalities in political engagement. First, studies focussing on learning processes in vocational education emphasise that learning has at least as much to do with socialisation into particular values, identities and dispositions as with a dispassionate transfer of knowledge and skills (Frykholm and Nitzler 1993; Colley et al 2003). Drawing on Bourdieu's concept of habitus, Frykholm and Nitzler (1993, p. 442), for instance, argue that "there are different ways of speaking and different values and notions that are more or less socially accepted in different programmes". Building on this, Colley et al. (2003) contend that these patterns of socialisation in vocational education are supporting traditional conceptions of masculinity and femininity, including, quite possibly, a belief that the world of politics is not for women. These conceptions are likely to be left unchallenged because the curriculum and pedagogy in vocational education have been found to cultivate duty, social skills and good manners, i.e. learning to fit in, rather than critical thinking and independent analysis (Apple 1990; Ichilov 2002; Ten Dam and Volman 2003).

Secondly, vocational tracks are more gender segregated than academic ones because of their close links with strongly gendered occupational fields, such as care and construction (Equal Opportunities Commission 1999; Ledman et al 2021). This is even more the case in contexts, such as the British one, that offer a great diversity of vocational tracks and qualifications. In strongly female- and male-dominated tracks distinct social cultures emerge that reinforce particular aspects of traditional gender beliefs (Lappalainen et al 2013). For instance, Ledman et al (2021), in their study of vocational education in Sweden, found girls in health and social care programmes, where they made up more than 80% of the students, to conform to the expectation of women as caring, empathetic, responsible, virtuous and self-effacing human beings. Thus, the strongly segregated conditions in vocational education could further enhance traditional conceptions of femininity in which women's engagement with politics has no place. Hence, we would expect that:

> the widening gender gap in political interest between the ages of 16 and 30 can be explained by women in vocational education showing a lower growth (or steeper decline) in political interest than men (Hypothesis 2*)*.

As with the previous hypotheses, this hypothesis assumes a differential effect of one and the same educational characteristic (vocational education) on women and men.

The effect of adult roles

In addition to education, the different roles that people assume after having completed initial education can cause the political interest of men and women to further diverge. We focus here on work (as a source of income, skills and contacts) and household status (single or with partner; with or without children) as important adult roles. Regarding work, research has explained gender gaps by focussing on women's lower levels of socio-economic resources because of them having less prestigious jobs than men. According to the resource model theory, political activity and interest depend on essential capacities such as skills, income, contacts and time over and above motivation (Verba and Nie 1972; Strate et al. 1989; Brady et al. 1995; Verba et al. 1995). High resource individuals tend to work in professional and managerial occupations or own their business and have higher income levels. Such individuals also have more influential networks which function as political mobilisers. Women have less of those politically relevant resources as they tend to have less esteemed and less well-paid jobs found that a substantial portion of the gender gap in political activity is accounted for by the higher propensity of women to be out of the labour market and to have lower status jobs. Women are also less involved in unions, organisations, associations, which function as mobilisers of political discussion and activity (Norris 2002; Verba et al 1995).

The type of household that people comprise can also affect the political interest of men and women differently. This has particularly been argued for becoming a parent. While parenting does not affect men's political interest, it tends to shift women's priorities in favour of family care at the expenses of other interests, including politics (Verba et al 1997). The investment of women in childcare comes at the expense of time and resources to engage in political activity (Taylor 2016). Grechyna (2022) indeed found that becoming a parent reduces the political engagement of women while not significantly affecting that of men. Being single or living together, as the second dimension of household type, has also been argued to have different effects on men and women. In line with the reasoning regarding parenthood, getting married and cohabitating has been argued to lower the political interest and participation of women in particular as women tend to take up domestic responsibilities to a much greater degree than men after starting to live together (Phillips 1991). Interestingly, Voorpostel and Coffé (2012) found that separation also has a gendered impact, affecting the political participation of women much more than of men. They surmised that this might be due to women ending up with fewer resources and assuming the main responsibility for rearing children after divorce.

Summarising, adult roles influence the level of political interest, and this could explain the post-adolescence divergence between genders in political interest (Prior 2010), but they do so in different ways. While attaining socio-economic resources can be expected to have the same effect on men and women in terms of making both genders more politically interested, becoming a parent and starting to live together

may well have differential effects for men and women. Hence, regarding the former we hypothesise that:

> the growing gender gap in political interest between the ages 16 and 30 is due to women having a lower job status than man (Hypothesis 3).

Regarding the latter we propose that:

> the growing gap in political interest between the ages 16 and 30 is explained by the negative effect of (i) living together with their partner and (ii) parenthood, and by (iii) the combination of living together and parenthood and (iv) single parenthood as opposed to (v) being single being more pronounced for women than for men (Hypothesis 4).

We made sure to construct a variable on household type in such a way that it covers each of these possibilities (see further down).

The effect of family background

Many studies have highlighted the crucial role of the family in socialising men and women differently with respect to engagement with the world of politics. Thus, Campbell and Wolbrecht (2006), Lawless and Fox (2010) and Fox and Lawless (2014) point out that women were less likely than men to remember speaking about politics with their fathers and to report being encouraged by their parents to run for office. Some have highlighted the importance of *parental gender attitudes* in this respect, noting that traditionally minded and acting parents pass their preferences onto their children and parents with egalitarian beliefs do likewise (Lytton and Romney 1991; Eccles 1994; Bulanda 2004; Epstein and Ward 2011). Part and parcel of traditional gender beliefs is the notion that men are born to be assertive, to engage in public affairs and to assume leadership roles while women are more suitable to take on private, passive and caring roles and activities and have no place in politics (Alwin et al 1991). Based on this assumption, we would expect that being reared in a traditionally minded family has a *differential* effect on men and women and more specifically that:

> the growing gender gap in political interest between the ages 16 and 30 can be explained by women from traditional families developing lower levels of political interest than men from such families (Hypothesis 5).

Another family feature that may play a role in accounting for the growing gender gap in political interest is the education level of parents. Parents' education has been found to be a strong predictor of young people's political engagement and stronger than parents' occupation and household income as the other well-known social background indicators (Lahtinen et al 2019; Janmaat and Hoskins 2022). This is not surprising. Educated parents are better able to understand the world of politics, develop an affinity with it and navigate it to pursue their interests than less well-educated parents. They will pass these dispositions to

their offspring both *directly*, through cultivating political engagement as a norm and acting as role models (Beck and Jennings 1982; Kam and Palmer 2008), and *indirectly* by fostering their children's educational attainment, which in turn will enhance their political engagement (Verba et al 2005; Gidengil et al 2016). However, in modern Britain there is no gender difference in the effect of socio-economic background on educational outcomes (Marks 2008). In other words, any difference between genders in educational outcomes cannot be explained by a differential effect of socio-economic background. Therefore, it is unlikely that the growing gender gap in political interest can be explained by this indirect effect of parents' education. Next, we explore the possibility of a direct influence of parents' education.

While a direct influence of parents' education on political interest is plausible, it is less clear whether parental education influences the development of political interest among men and women differently. On the one hand we might expect that as educated parents generally have more egalitarian gender attitudes (Kulik 2002) they would be less inclined to socialise their sons and daughters differently leading to smaller gender differences in political interest. On the other hand, educated but more traditional parents could give girls less political encouragement compared to boys (Fox and Lawless 2014). By contrast less well-educated parents may well not encourage their children to engage with politics at all, but equally so for their sons or daughters.

Instead, we examine the education levels of the mother and the father separately and assess whether they have *differential* effects on the political interest of boys and girls. The literature highlights the role of the mother in fostering the political interest of their daughters. The more educated the mother is and the more she acts as a role model, the greater the sense of empowerment she passes on to her daughter(s), which will benefit them in numerous ways including in educational attainment and political engagement (Chodorow 1999; Gidengil et al 2011; Chevalier et al 2010). Conversely, it has been found that daughters receive less attention from fathers than do sons (Harris and Morgan 1991), possibly leading to a much weaker effect of father's education on daughter's political interest. We expect therefore that father's education will widen the gender gap in political interest, while mother's education will narrow it. As we already know that this gap has in fact become larger between the ages 16 and 30, we anticipate that:

> the widening gap in political interest between the ages of 16 and 30 can be explained by the differential effect of father's education (in terms of fostering the political interest of sons much more than of daughters) being stronger than the differential effect of mother's education (in terms of increasing the political interest of daughters more than of sons) (Hypothesis 6).

We acknowledge the somewhat speculative nature of this hypothesis, however.

We further note that we cannot test the *mechanisms* of all the proposed causal relations with the data at hand. We can only assess whether these relations exist.

A summary of the proposed hypotheses is reported in the Table 1.

Table 1 Hypotheses and related mechanisms

Hypothesis	Explanatory mechanism	Nature of effect: different or the same for women and men
H1A. Academic track	Women in the academic track show a steeper rise in political interest than men	Different
H1B. Academic track	Men in the academic track show a steeper rise in political interest than women	Different
H2. Vocational track	Women in vocational education show a lower growth (or steeper decline) in political interest than men	Different
H3. Occupation	Women have a lower job status than men	Same
H4. i) Living together with their partner, ii) parenthood, (iii) the combination of living together and parenthood and (iv) single parenthood	The negative effect of those factors is more pronounced for women than for men	Different
H5. Parental gender role attitudes	Women from traditional families develop lower levels of political interest than men from such families	Different
H6. Parents' education	The differential effect of father's education (in fostering the political interest of sons much more than of daughters) is stronger than the differential effect of mother's education (in fostering the political interest of daughters more than of sons)	Different

Data

We use data from the British Household Panel Survey (BHPS), which started in 1991, and its successor Understanding Society (USoc), which is currently at its 10th wave (2019). These studies track political interest over the life course with annual surveys, allowing us to construct measures of political interest between ages 16 and 30. Our analytic sample consists of individuals born between 1975 and 1989 and who provided a response to the question about political interest at any time between 1991 and 2019. We added information on parents' education and attitudes (based on parents' reports) to this sample. The number of individuals with non-missing responses varies from 1575 if we focus on the years 16 to 26 and 1046 if we focus on the years 16 to 30. Missing values are non-monotonical (subjects who drop might come back) and might not be occurring completely at random. It is important to consider that individuals dropping out at any point might have specific characteristics and we therefore impute their missing values on the political interest variable.[1] We perform multiple imputation using chained equations. The technique is suitable to a dataset like this with repeated measurements as it performs an imputation for each measurement occasion. We use a fully conditional specification in the prediction equation including own education, sex, parents' education and parents' political interest, and other measurement occasions except the one being imputed. After multiple imputation, we transformed the dataset in a longitudinal format with 12,159 observations (individuals * measurement occasions). As a robustness check we repeated the analysis without imputation for our preferred model 2, obtaining very similar results (Appendix, Table 3).

Variables

Political interest was measured with the item "how interested are you in politics" with the categories 1 = not at all interested, 2 = not very interested, 3 = quite interested and 4 = very interested. We follow Fraile and Sánchez-Vítores (2020) and dichotomise the variable distinguishing between 1 = interested (3 + 4) and 0 = not interested (1 + 2). As the variable is skewed and only a minority of individuals are very interested in politics, we could not repeat the analysis using the four categories as a continuous variable. Another limitation is that we have to rely on this single item to capture political interest since the dataset does not include questions allowing us to assess whether men and women conceptualise politics differently and whether the term has different connotations for them. This is relevant as existing research found that women are less attracted to the world of politics at the (inter) national level or in the abstract than men but care more about specific political issues such as those relating to education, welfare and local politics (Coffé 2013; McDermott 2016). Thus, any lower score of women on political interest does not necessarily mean less engagement with specific political themes. We return to this issue in the discussion section.

[1] As the number of missing values increases for the later measurements of the time varying covariate variables, we do not impute the covariate variables.

Information on family characteristics is obtained directly from the parents. As the sample size requires parsimony in the number of parameters, we will use continuous measures for parents' views on gender roles and parents' education. As to their views on gender roles, parents were asked to express their agreement, using a 5 category Likert scale, with the following statements: a woman and a family are happier if the mother works; husband and wife should both contribute to family life; a job makes a woman independent; children need a father as much as a mother. We averaged the responses of both parents when the person was 17 in the main model to create a parental gender attitudes variable (Cronbach's Alpha = 0.76). The higher the values, the more progressive the parental views on gender roles.

In order to measure parents' education with a continuous variable, we convert both mother and father's qualifications when the respondent was 17 into years of education completed: Primary: 6 years of education; lower secondary: 11 years of education; upper secondary: 13 years of education; 5b: higher vocational: 15 years of education; 5a: first degree: 16 years of education; higher degree: 17 years of education.

We use the Casmin classification of qualifications (Brauns et al. 2003) as a measure of education. This classification distinguishes between Level 1 and below (i.e. primary and below); Level 2 qualifications (GCSE grades A*–C) (i.e. lower secondary); Level 3 general, or A-level qualifications, which give access to university (i.e. upper secondary academic); Level 3 vocational qualifications, which are generally shorter than A-level qualifications (i.e. upper secondary vocational); Higher education, vocational qualifications (such as a Foundation Degree or Higher National Diploma); Higher education, general qualifications (such as a BA or MA degree). The Casmin classification thus has the advantage of differentiating vertically between levels and horizontally between vocational and general tracks. As the information on the qualifications attained is available repeatedly over time, we use the variable as a time-varying covariate.

Moving to adult roles, we developed the variable "household type at age 30" which combines both marital status and having children or not. Its categories are, single, couple, couple with children, single with children and other types. Occupational status in USoc uses the eight-category version of the National Statistics Socio-Economic Classification (NS-SEC) system for jobs. We recoded the variable into a four-category variable distinguishing between 'service class', 'intermediate class', 'routine class' occupations and student. Service class individuals are large employers, higher managers and professionals; routine class individuals are in routine and semi-routine sales, service, technical, agricultural and clerical occupations; and 'intermediate class' individuals are small employers, own account workers or in lower managerial, administrative and professional jobs. The occupational status is a time-varying variable which changes across measurements occasions. We consider service class jobs to be the most prestigious and semi-routine class ones the least.

The correlations between the covariates included in the models are not so strong that they constitute a collinearity problem. The highest correlation between any pair of variables is the one between mother's and father's education (0.38) and the correlation between parental views on gender roles and mother's and father's education is, respectively, 0.12 and − 0.01.

Table 3 in the Appendix provides descriptive statistics of the independent and dependent variables by gender and birth cohort.

Method

The dataset consists of sequential observations of political interest over time (level 1) nested within individuals (level 2). The analysis is interested in the individual variability in the growth of political interest over time. We use growth curve modelling to model the between-individual variability as a random effect. $Politicalinterest_{ti}$ is the measurement occasion of individual i's political interest at time t.

$$Political\ interest_{ti} = \alpha_{0i} + \alpha_{1i} age_{ti} + covariates_{ti} + year_t + u_{0i} + u_{1i} age_{ti} + e_{ti}$$

The covariates concern both time-varying and time-invarying circumstances for individuals and time-invarying circumstances for families. u_{0i} and u_{1i} are the random effects, i.e. the random-intercept term at the individual level and the random effect at the age level (Steele 2008). e_{ti} is the residual at the measurement occasion level.

The analysis of the growth is performed by adding to the stylised model presented above a two-way interaction between age and gender to show how the evolution of political interest varies across genders. We then add a three-way interaction between gender, age and each of the factors for which we expect to find *different* effects for men and women, i.e. education (Hypotheses 1A, 1B and 2), becoming a (lone) parent or living together (Hypothesis 4), parental gender role attitudes (Hypothesis 5) and mother's and father's education (Hypothesis 6), to assess whether the growth trajectories of men and women vary by these factors. As we do not expect *the effect* of occupational status to vary across gender categories, but expect women to show *a lower level* of occupational status (Hypothesis 3), we add occupation to the growth model as a time-varying factor (i.e. by interacting it with age) to see whether it is related to political interest and whether it reduces the gender gap in political interest. Our data replicate extant evidence in showing that women are indeed less likely than man to have a service class occupation (− 0.76 log odds, $p < 0.001$) or an intermediate occupation (− 0.22 log odds, $p < 0.001$) compared to men.[2]

We will assess whether these factors can account for widening gap between men and women in political interest by comparing the estimates of the baseline model as shown in Graph 1 (i.e. Model 1 in Table 1) to those of the models with one or more of the factors included (i.e. Models 2 to 4 in Table 1). If the estimated gender difference is smaller in the models with covariates, we can conclude that (one or more of) these covariates can partly account for the growing gender gap.

Results

The baseline model presents the evolution of political interest by gender without controlling for any variables (Model 1 in Table 1—see further below). This is the model that provides the estimates used to construct Graph 1. In the subsequent models, we analyse the effect of parents' characteristics, one's own education, and household type and occupation at age 30. Model 2 includes parents' characteristics

[2] The full results of the analysis are available on request.

(gender attitudes and both mother's and father's education); Model 3 includes own education and Model 4 introduces adult factors (household type and occupation).

We thus present the blocks of variables regarding, respectively, parents' characteristics, own education and adult roles in separate models and do not present a model with all of these variables included. We follow this approach because a model including parents' characteristics and own education to assess whether the effect of parents' education is indirect is not necessary because none of the parental variables show a significant association with the gender gap in the life course change in political interest (see Model 2 discussed). In other words, there is no total effect to decompose in its direct and indirect component.

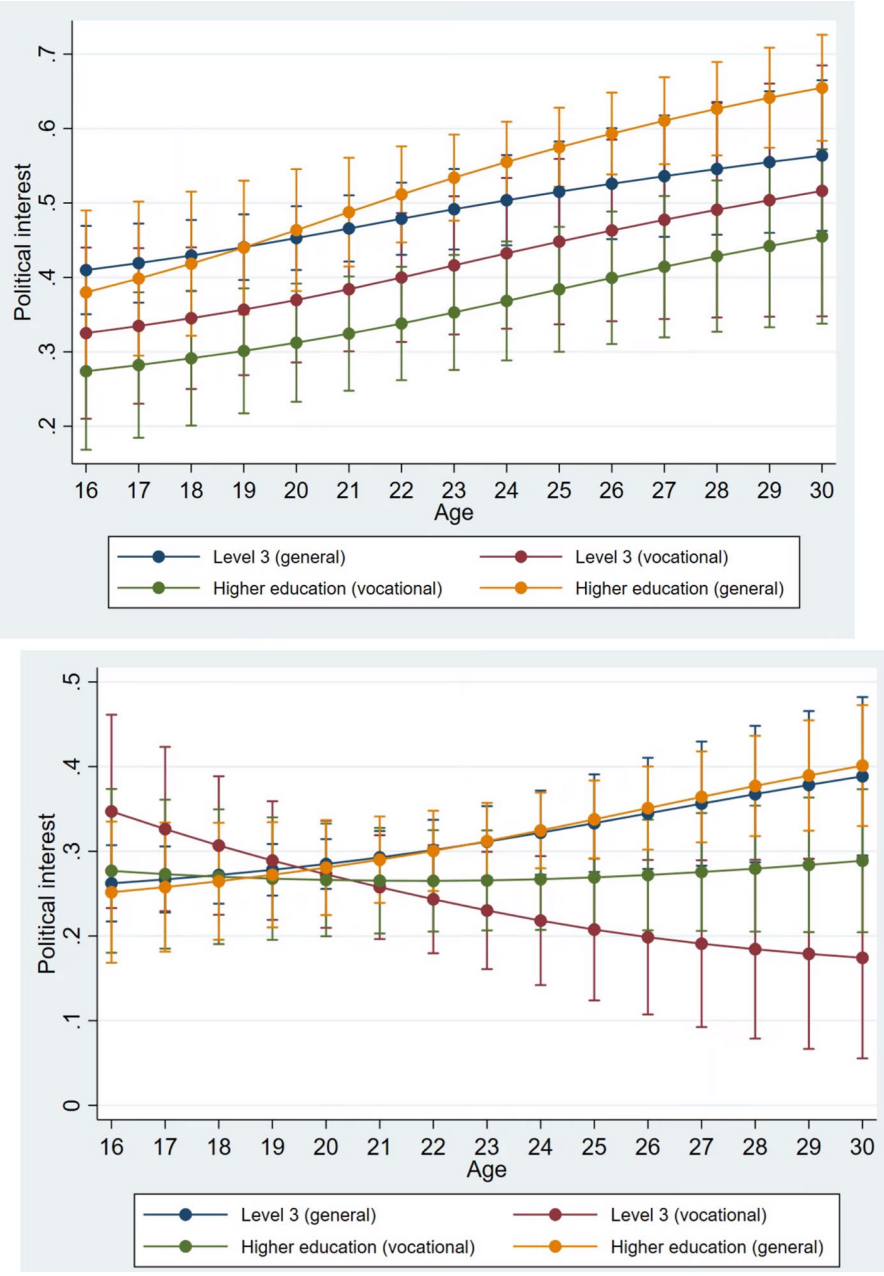
Second, we can in this way maintain a healthy balance between the number of observations and parameters in the different models and thus to ensure that our models have sufficient statistical power. This is relevant as including two or three blocks or variables and all the required interaction terms rapidly increases the number of parameters (15, 24 and 20 in Models 2, 3, and 4, respectively—see Table 1—and 51 in Model 1 in Appendix D). However, the models presented in Table 1 meet the sample size requirement to detect sizable effects in logistic regression models with repeated measures (as explained in Appendix D).

We further note that including parental (Model 2) or the adult roles (Model 4) predictors in the model sharply reduces the number of observations. Reassuringly, however, these varying sample sizes seem not to affect the relationships of interest much as the estimate sizes and significance levels of the main variables of interest do not change when both own education and adult roles are included in a single model (see Table 6 in the Appendix which include both own education and adult roles variable). The results are briefly commented when presenting the results regarding own education.

We use the area under the ROC (Receiver Operator Characteristic) curve as a measure of model fit. The ROC is a metric for binary classification problems, which in our case relates to individuals with and without political interest. The higher the area under the ROC curve, the better the performance of the model at distinguishing between the classes. When the area is between 0.5 and 1, there is a relatively high chance that the model correctly distinguishes between classes.

The odds ratios of Table 1 cannot accurately show the rate of change of political interest, which instead is best described using the probability of showing political interest. We refer to the graphs (as explained further below), which reports the predicted probability of showing political interest, to interpret the results. The predicted probability of showing political interest is computed for woman and man separately at different ages (Graphs 1 and 3) and educational levels (Graph 2), considering that the other variables in the model are at their mean. To reduce the length of Table 1 in favour of readability, standard errors are not presented. The full table including odds ratios and standard errors is presented in the Appendix (Table 4).

It is observed from Graph 1 that women and men grow apart in their political interest. At age 16 the gender gap in political interest is relatively small, yet after this age men have a much steeper growth than women, causing the gap to grow steadily up to age 30. The odds ratio of the interaction term gender x age in Model 1 of Table 1 shows that this widening gap is also significant at the 0.001 level. As this



Graph 2 Political interest, education and gender (based on Model 3): predicted probabilities of being quite or very interested in politics. *Source* British Household Panel Study/Understanding Society

odds ratio is lower than 1, the relationship is negative, meaning that women have a significantly lower growth in political interest as they grow older than men.

Higher levels of education are thought to foster political engagement and attaining level 3 academic qualifications instead of vocational qualifications is expected to accelerate the development of political interest. We theorised that lower level and vocational qualifications are associated with a lagging development of political interest among women particularly. The three-way interaction terms of the different education categories with age and gender confirm this (Model 3). They show negative and significant coefficients, which indicates that the political interest has risen more slowly among women with lower level and vocational qualifications than among other groups. These results confirm Hypothesis 2.

Graph 2, based on Model 3 and showing the probability of being interested in politics by gender, qualification and age, illustrates these diverging trajectories well. The lines that describe the evolution of men's political interest all move upward, although with somewhat different speeds (these differences are not statistically significant as shown by the overlapping confidence intervals). Conversely, women' lines show mixed trajectories. Vocational degrees are associated with stable trajectories and vocational level 3 qualifications are associated with a downward trajectory. Level 3 general qualifications and general degrees instead are associated with an upward trend. Compared to vocational level 3 qualifications, level 3 general qualifications are associated with a significantly steeper growth of political interest. The difference is large: whilst women with level 3 vocational qualifications start with higher levels of political interest at age 16 compared to women with level 3 general qualifications, by age 30 women with vocational qualifications are 20% points behind (20% versus 40% of the group with level 3 general qualifications showing political interest). Since both men and women with level 3 general qualifications (i.e. those who went through the academic track) show upward trajectories, neither Hypothesis 1A nor Hypothesis 1B is supported.

The results regarding the association between educational qualifications and gender differences in the life course development of political interest remain the same when adult roles are controlled for. This implies that the effect of education is not mediated by the different adult roles and occupations that men and women have because of the educational qualifications (see Table 6 in the Appendix). Looking at the relationships of the adult roles variables (Model 4), having a higher status occupation and having children or living together are not related to gender differences in political interest development. Women do have a lower occupational status than men as noted before, but occupational status is not related to the growth in political interest (see the interactions between age and the occupational status categories in Model 4 in Table 2), making it unlikely that the gender difference in occupational status can explain the growing gender gap in political interest. As regard becoming a parent or living together, none of the three-way interactions between the household type categories gender and age show a significant effect. Hence, Hypotheses 3 and 4 are not confirmed.

Model 2 includes both parents' education variables and parents' average view on gender roles. None of the parents' view on gender roles effects (i.e. the main effect, the two-way interaction term with age and the three-way interaction term with age and gender) is significant, which means that the growth trajectories of women and

Table 2 Determinants of political interest

	1	2	3	4
Woman	0.53***	2.11	0.25***	0.57
Age	1.17***	1.06	1.10*	1.20˜
Woman * age	0.88***	1.09	0.98	0.93
Mother's education		1.17**		
Woman * Mother's education		1.06		
Mother's education * age		0.99		
Woman * Mother's education * age		1.01		
Father's education		1.19		
Father's education * Woman		0.94		
Father's education * age		0.99		
Father's education * age * Woman		0.99		
Parents' view on gender roles		0.55		
Parents' view on gender roles * Woman		0.74		
Parents' view on gender roles * age		1.03		
Parents' view on gender roles * age * Woman		0.93		
Education (Ref.: Level 3 (general))				
Level 1 and below			0.03***	
Level 2			0.11***	
Level 3 (vocational)			0.46	
Higher education (vocational)			0.28*	
Higher education (general)			0.77	
Studying level 2			0.71	
Level 1 and below * Woman			5.03*	
Level 2 * Woman			3.51*	
Level 3 (vocational) * Woman			5.02*	
Higher education (vocational) * Woman			4.21˜	
Higher education (general) * Woman			1.16	
Studying level 2 * Woman			0.90	
Level 1 and below * age			1.05	
Level 2 * age			1.12*	
Level 3 (vocational) * age			1.02	
Higher education (vocational) * age			1.02	
Higher education (general) * age			1.09	
Studying level 2 * age			1.29	
Level 1 and below * Woman * age			0.86	
Level 2 * Woman * age			0.81**	
Level 3 (vocational) * Woman * age			0.77˜	
Higher education (vocational) * Woman * age			0.90	
Higher education (general) * Woman * age			0.93	
Studying level 2 * Woman * age			1.17	
Social Class (Ref.: Service class)				
Intermediate class				1.55

Table 2 (continued)

	1	2	3	4
Routine class				1.11
Student				2.02
Intermediate class * age				0.99
Routine class * age				1.02
Student * age				0.98
Marital/Parental status (Ref.: Single)				
Couple				0.84
Couple with children				0.66
Single with children				1.17
Other				0.22*
Couple * Woman				1.63
Couple with children * Woman				0.50
Other * Woman				1.21
Couple * age				0.97
Couple with children * age				0.91
Single with children * age				0.85~
Other * age				0.99
Couple * Woman * age				0.89
Couple with children * Woman * age				1.06
Other * Woman * age				0.98
Constant	0.11	0.01	0.49	0.10
Variance (age)	0.04***	0.04***	0.05***	0.03***
Variance (constant)	9.74***	8.57***	8.33***	8.26***
Covariance (age, constant)	− 0.14**	− 11*	− 0.17***	− 0.11~
Observations	12,159	7441	12,159	5361
ROC area	0.62	0.67	0.70	0.66

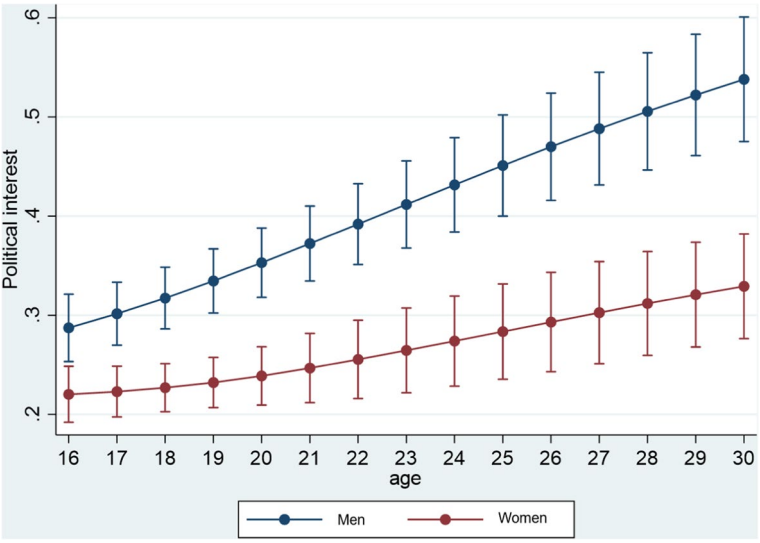
Other control variables: year of interview

Growth curve model. Odds ratios

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

men in political interest do not differ substantially when their parents have more egalitarian or more traditional views. Hence, we cannot confirm Hypothesis 5.

Both mother and father's education are associated substantively with higher levels of political interest (see the main effect in Model 2), although the effect of father's education is not statistically significant. Yet, the interaction between any of the parents' education and child's age is not significant. This indicates that parent' education is primarily related to children's political interest at age 16 and cannot account for the change in political interest thereafter. The two-way interaction between parents' education and gender do not show any pattern. Similarly, neither of the three-way interaction between parents' education, child's age and gender are substantial or



Graph 3 Political interest and gender (based on Model 3): predicted probabilities of being quite or very interested in politics. *Source* British Household Panel Study/Understanding Society

significant. This means that parents' education cannot explain the diverging growth trajectories of men and woman post 16. Hence, Hypothesis 6 is not confirmed.

In terms of model fit, Model 3 has the largest ROC area: 0.7 versus the 0.62 of Model 1, 0.66 of Model 2 and 0.67 of Model 4. This provides further confirmation that own education, which is the key variable of Model 3, is the main factor explaining the life course evolution of the gender gap in political interest.

Next, we address the question whether the gender differences in the effect of education on political interest can account for the gender gap in the evolution of political interest. Graph 3 provides a mostly negative answer to the question as it shows that the predicted probabilities of political interest conditional on own education (from Model 3) have the same trajectories for men and women as in Graph 1 (which is based on the unconditional model). However, by comparison to Graph 1 the difference between men and women at age 30 has been reduced by approximately 3% and the confidence intervals are larger, indicating less significant gender differences. As Model 3 meets the criteria on statistical power (as noted earlier), these larger confidence intervals are unlikely to represent a modelling effect. Hence, education can explain the growing gender gap in political interest for a small part.

As an afterthought to the findings, we note that it cannot be ruled out that men and women develop different understandings of and 'feelings' towards politics during adolescence, as alluded to earlier, and that this can partly explain the growing gender gap in political interest. Taylor (2019) proposes that women at this age are more inclined to associate the term with things they disapprove of, such as tribalism, grandstanding and competitive party politics, than men, possibly leading them to conclude that the world of politics is not for them. This is further confirmed by Ferrín et al. (2020), whose findings suggest that the gender gap in political interest

is due to women associating the term political interest with a man-oriented conception of politics rather than with their own personal political interests. However, if true, such processes cannot be generalised to all women as we found women with university and A-level qualifications to show rising levels of political interest. More longitudinal research is needed into how young women develop their understandings of politics including the (un)desirable things they associate with it to more fully account for the growing gender gap in political interest.

Discussion

The paper explored the main reasons for the slower development of political interest of women compared to that of men during late adolescence and early adulthood covering the birth cohorts between 1975 and 1989 in the United Kingdom, assessing hypotheses regarding the effects of education, adult roles and family socialisation.

We found education to be the only factor that accounts for the growing gender gap in the evolution of political interest, albeit only for a very small part. Women who do not attain general level 3 qualification, called A levels, or higher education general qualifications do not show an improvement in the level of political interest, which is generally observed between age 16 and 30, and women who attain level 3 vocational qualifications even show a downward trend of political interest.

Why are the adult role predictors, i.e. occupational status and household type unrelated to the post-16 development of political interest of men and women? It is possible that, due to ever longer educational careers, young people postpone taking on a full-time job and starting a family, which means that the effects of these transitions on political engagement may well only occur when young people are in their late twenties (cf. Smets 2016). As we observe the gender gap between ages 16 and 30, age 30 could still be too early for the assumption of adult roles to exert an effect, particularly if this effect only materialises after a few years.

Assessing the influence of family background factors, we suggested that father's and mother's education could have differential effects on the post-16 development of political interest of men and women. We also explored whether women with parents who hold traditional views on gender roles would lag other groups in their development of political interest. However, our analyses showed that none of these predictors could account for the growing gender gap in political interest between ages 16 and 30. Parents' education did turn out to be related to the level of political interest at age 16, but the subsequent development of political interest, let alone the gender differences of such development, were not accounted for by either parents' gender attitudes or parents' education. These are important results as family socialisation, and particularly parents' education, is usually considered a prime driver of the development of political engagement, not only in early childhood but also in adolescence and early adulthood (Gidengil et al 2016; Janmaat and Hoskins 2022).

Why are parents' characteristics not showing the hypothesised effects? Perhaps this is because of the motivational and affective nature of political interest. Contrary to political competences and political participation, which are the cognitive and behavioural components of political engagement, affective outcomes are primarily influenced

by parental socialisation during *early childhood* and not so much in later years (Verba et al 2005). A similar point has been made for party identification as another affective outcome, with Jennings et al (2009) observing that the strong and early influence of parents on this outcome is due to the affect- and moral-laden nature of party identification.

The main implication of the study is that women are not likely to close the gap with men's political interest soon. Women's educational attainment is already higher than that of men and more research is needed into why vocational tracks are associated with a downward evolution of political interest for women. Vocational tracks are more segregated that academic ones, creating the conditions for specific gender cultures and identities to emerge. One might hypothesise (as we did) that in vocational tracks with a higher proportion of women such as health and care a particular culture and understanding of femininity emerges that excludes engagement with politics.

As family socialisation and adult roles are not associated with the evolution of political interest and educational attainment can only very partially explain the gender differences in the evolution of political interest, we are thus left with the question as to what other factors can explain the growing gender gap in political interest. One explanation we already briefly hinted at before is the possibility that men and women begin to develop different connotations and feelings with the concept of politics from mid-adolescence. Women and men may well share an understanding of politics as referring primarily to male-dominated competitive party debates in national parliaments, but while this may be appealing for men, women may well be less interested in it as it makes them feel excluded from this activity (Fraile and Sánchez-Vítores 2020; Ferrín et al. 2020; Gortz et al 2023). It may thus simply be the term politics that makes men and women develop different attitudes towards it rather than women and men diverging in their engagement with particular political topics. Indeed, when asked about their interest in specific political issues such as local ones, women and men do not show any difference (Coffé 2013; Sánchez-Vítores 2019). However, we cannot be sure whether different feelings regarding the concept of politics can also explain the *increase* in the gender gap in political interest between ages 16 and 30 since we do not know what these feelings were in mid-adolescence and how they evolved afterwards. This is a task for future research. Another explanation might be that the growing gender gap in political interest simply reflects gender inequality in society more broadly. Fraile and Gomez (2017) found the gender gap in political interest to vary markedly across countries in Europe and to be closely correlated to overall gender equality, as measured by the Gender Equality Index. To test this explanation properly, we would need to have longitudinal data on political interest for many countries in Europe so that gender equality can be related cross-nationally to changes in the gender gap in political interest.

Appendix

A. Descriptive statistics

See Table 3.

Table 3 Distribution of key variables by gender

Education (Casmin age 30) by gender. Percentages		
	Cohorts born before 1982	
	Men	Women
Level 1 and below	16	16
Level 2	23	22
Level 3 general	9	10
Level 3 vocational	9	10
Higher education, vocational	15	18
Higher education, general	27	25
Total	100 (435)	100 (554)
	Cohorts born in 1982 or later	
Level 1 and below	18	14
Level 2	22	22
Level 3 general	9	11
Level 3 vocational	2	4
Higher education, vocational	9	11
Higher education, general	40	39
Total	100 (270)	100 (284)
Social class (NS-SEC) at age 30 by gender. Percentages		
	Cohorts born before 1982	
	Men	Woman
Large employers and higher officials	4	2
Higher professionals**	11	5
Lower management and professional occupations	33	28
Intermediate occupations*	9	14
Small employers**	8	3
Lower supervisory occupations	11	4
Semi-routine occupations	7	12
Routine occupations***	11	4
Student˜	1	3
Unemployed	4	4
Carer***	2	20
Total	100 (333)	100 (426)
	Cohorts born in 1982 or later	
Large employers and higher officials	3	1
Higher professionals*	11	4
Lower management and professional occupations	25	30
Intermediate occupations	14	13
Small employers	8	4
Lower supervisory occupations*	9	3
Semi-routine occupations	8	13

Table 3 (continued)

Social class (NS-SEC) at age 30 by gender. Percentages		
	Cohorts born before 1982	
	Men	Woman
Routine occupations	8	4
Student	3	5
Unemployed*	11	4
Carer***	0	19
Total	100 (118)	100 (138)
Parents' years of education. Mean and standard deviation in parentheses		
	Cohorts born before 1982	
	Men	Woman
Mean (sd)	12 (3)	12 (3)
Total cases	257	279
	Cohorts born in 1982 or later	
Mean (sd)	12 (3)	12 (3)
Total cases	736	810
Parents' gender attitudes. Mean and standard deviation in parentheses		
	Cohorts born before 1982	
	Men	Woman
Mean (sd)	3 (0.5)	3 (0.5)
Total cases	257	279
	Cohorts born in 1982 or later	
Mean (sd)	3 (0.5)	3 (0.5)
Total cases	736	810
Household type by gender. Percentages		
	Cohorts born before 1982	
	Men	Woman
Single	13	12
Couple**	29	21
Couple with children**	38	49
Single children***	1	12
Other***	19	6
Total	100 (354)	100 (446)
	Cohorts born in 1982 or later	
	Men	Woman
Single	20	14
Couple	23	16
Couple with children***	19	42
Single children	7	11

Table 3 (continued)

Household type by gender. Percentages		
	Cohorts born before 1982	
	Men	Woman
Other**	31	18
Total	100 (152)	100 (161)
Political interest by gender at age 30. Percentages		
	Cohorts born before 1982	
	Men	Woman
None/not very interested***	49	73
Quite/very interested***	51	27
Total	100 (378)	100 (469)
	Cohorts born in 1982 or later	
None/not very interested***	46	71
Quite/very interested***	54	29
Total	100 (219)	100 (251)

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

B. Regression model full estimates

See Table 4.

Table 4 Determinants of political interest

	1	2	3	4
Woman	0.53***	2.11	0.25***	0.57
	(0.10)	(4.22)	(0.09)	(0.41)
age	1.17***	1.06	1.10*	1.20⁻
	(0.03)	(0.17)	(0.05)	(0.12)
Woman * age	0.88***	1.09	0.98	0.93
	(0.02)	(0.25)	(0.06)	(0.06)
Mother's education		1.17**		
		(0.07)		
Woman * Mother's education		1.06		
		(0.09)		
Mother's education * age		0.99		
		(0.01)		
Woman * Mother's education * age		1.01		
		(0.01)		
Father's education		1.19**		
		(0.07)		
Woman * Father's education		0.94		
		(0.07)		
Father's education * age		1.01		
		(0.01)		
Woman * Father's education * age		0.99		
		(0.01)		
Parents' view on gender roles		0.55		
		(0.21)		
Woman * Parents' view on gender roles		0.74		
		(0.41)		
Parents' view on gender roles * age		1.03		
		(0.04)		
Woman * Parents' view on gender roles * age		0.93		
		(0.06)		
Education (Ref.: Level 3 (general))				
Level 1 and below			0.03***	
			(0.01)	
Level 2			0.11***	
			(0.04)	
Level 3 (vocational)			0.46	
			(0.27)	
Higher education (vocational)			0.28*	
			(0.17)	
Higher education (general)			0.77	
			(0.39)	
Studying level 2			0.71	

Table 4 (continued)

	1	2	3	4
			(0.20)	
Level 1 and below * Woman			5.03*	
			(3.47)	
Level 2 * Woman			3.51*	
			(1.72)	
Level 3 (vocational) * Woman			5.02*	
			(4.10)	
Higher education (vocational) * Woman			4.21~	
			(3.41)	
Higher education (general) * Woman			1.16	
			(0.78)	
Studying level 2 * Woman			0.90	
			(0.35)	
Level 1 and below * age			1.05	
			(0.07)	
Level 2 * age			1.12*	
			(0.06)	
Level 3 (vocational) * age			1.02	
			(0.10)	
Higher education (vocational) * age			1.02	
			(0.08)	
Higher education (general) * age			1.09	
			(0.07)	
Studying level 2 * age			1.29	
			(0.35)	
Level 1 and below * Woman * age			0.86	
			(0.09)	
Level 2 * Woman * age			0.81**	
			(0.07)	
Level 3 (vocational) * Woman * age			0.77~	
			(0.10)	
Higher education (vocational) * Woman * age			0.90	
			(0.09)	
Higher education (general) * Woman * age			0.93	
			(0.08)	
Studying level 2 * Woman * age			1.17	
			(0.44)	
Social class (Ref.: Service class)				
Intermediate class				1.55
				(1.34)
Routine class				1.11
				(0.96)

Table 4 (continued)

	1	2	3	4
Student				2.02
				(1.70)
Intermediate class * age				0.99
				(0.08)
Routine class * age				1.02
				(0.09)
Student * age				0.98
				(0.09)
Marital/Parental status (Ref.: Single)				
Couple				0.84
				(0.55)
Couple with children				0.66
				(0.44)
Single with children				1.17
				(1.11)
Other				0.22*
				(0.17)
Couple * Woman				1.63
				(1.54)
Couple with children * Woman				0.50
				(0.45)
Other * Woman				1.21
				(1.43)
Couple * age				0.97
				(0.06)
Couple with children * age				0.91
				(0.06)
Single with children * age				0.85~
				(0.08)
Other * age				0.99
				(0.07)
Couple * Woman * age				0.89
				(0.08)
Couple with children * Woman * age				1.06
				(0.09)
Other * Woman * age				0.98
				(0.12)
Constant	0.11	0.01	0.49	0.10
	(0.03)	(0.02)	(0.17)	(0.10)
Variance (age)	0.04***	0.04***	0.05***	0.03***
	(0.01)	(0.01)	(0.01)	(0.01)
Variance (constant)	9.74***	8.57***	8.33***	8.26***

Table 4 (continued)

	1	2	3	4
	(0.85)	(0.99)	(0.73)	(1.27)
Covariance (age, constant)	− 0.14**	− 0.11*	− 0.17***	− 0.11˜
	(0.04)	(0.05)	(0.04)	(0.06)
Observations	12,159	7441	12,159	5361
ROC area	0.62	0.67	0.70	0.66

Growth curve model. Odds ratios and standard errors in parentheses

Other control variables: year of interview

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

C. Regression model results without imputation

See Table 5.

Table 5 Determinants of political interest

Woman	0.22***
	(0.09)
Age	1.11˜
	(0.06)
Woman * age	0.97
	(0.08)
Ref.: Level 3 (general)	
Less than level 2	0.02***
	(0.01)
Level 2	0.09***
	(0.04)
Level 3 (vocational)	0.87
	(0.59)
Higher education (vocational)	0.18*
	(0.14)
Higher education (general)	1.25
	(0.90)
Studying level 2	0.87
	(0.29)
Less than level 2 * Woman	7.85*
	(6.39)
Level 2 * Woman	4.02*
	(2.34)
Level 3 (vocational) * Woman	4.90˜
	(4.65)
Higher education (vocational) * Woman	5.57˜
	(5.77)

Table 5 (continued)

Woman	0.22***
Higher education (general) * Woman	1.10
	(1.06)
Studying level 2 * Woman	0.70
	(0.33)
Less than level 2 * age	1.05
	(0.09)
Level 2 * age	1.12
	(0.08)
Level 3 (vocational) * age	0.96
	(0.11)
Higher education (vocational) * age	1.07
	(0.10)
Higher education (general) * age	1.04
	(0.09)
Studying level 2 * age	1.22
	(0.38)
Less than level 2 * Woman * age	0.83
	(0.10)
Level 2 * Woman * age	0.79*
	(0.08)
Level 3 (vocational) * Woman * age	0.75~
	(0.12)
Higher education (vocational) * Woman * age	0.89
	(0.12)
Higher education (general) * Woman * age	0.95
	(0.12)
Studying level 2 * Woman * age	1.20
	(0.53)
Constant	0.42
	(0.17)
Variance (age)	0.07***
	(0.01)
Variance (constant)	10.34***
	(0.01)
Covariance (age, constant)	− 0.31***
	(0.08)
Observations	9031
ROC area	0.70

Growth curve model. Odds ratios and standard errors in parentheses (estimates without imputation)

Other control variables: year of interview

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

D Power analysis calculations

Repeated measure designs analyse within person change and have higher statistical power compared to cross-sectional studies. Considering the effect of education on the life course change in the gender gap in political interest, our sample is large enough to detect an effect as big as 24%, which refers to the gap between level 3 vocational courses vs level 3 general courses (Level 3 (vocational) * Woman * age = 0.73 odds ratio, Table 2) and also the smaller 5% effect of level 2 versus level 3 general courses (Level 2 * Woman * age = 0.81 odds ratios, Table 2). The power analysis calculation shows that to identify an effect of 24% and 5%—which are the extremes between which most effects lie in our models, the required sample size are 32 and 694, respectively (outcome with 15 data points, power = 0.8, $p = 0.1$, correlation between data points, Pearson coefficient = 0.6, Fitzmaurice et. al. (2012)). In addition, we would need to have a sample size of at least *10 * number of parameters/proportion of positive cases in the smallest category (the quite and very interested in politics* (0.38 in our case, see descriptives in Table 3 in the Appendix) as conventionally proposed (Peduzzi et al. 1996). To detect a 24% effect then the sample required is 232 for model 2 (20 parameters), 302 cases for model 3 and 4 (27 parameters) and of 542 for the model presented in the appendix (51 parameters). To detect an effect of 5% instead we would need 1220 cases for model 2 and 1405 for models 3 and 4 and 2036 for the model in the Appendix D. Our sample of 1317 (see the descriptives in Table 3 in the Appendix) is therefore well suited to detect an effect as big as 24% even in the more complex models, whilst it can detect a 5% effect in model 2, barely detect the effect in model 3 and 4, but does poorly in the more complex model presented in the Appendix E. Overall, the sample size is suitable to detect most effects presented in the main analysis.

E Regression model with own education and adult roles

See Table 6.

Table 6 Determinants of political interest

	1
Woman	0.17*
Age	1.06
Woman * age	1.05
Education (Ref.: Level 3 (general))	
Level 1 and below	0.05**
Level 2	0.10***
Level 3 (vocational)	0.09**
Higher education (vocational)	0.25
Higher education (general)	0.69
Studying level 2	0.52
Level 1 and below * Woman	5.31
Level 2 * Woman	7.87**
Level 3 (vocational) * Woman	9.22~
Higher education (vocational) * Woman	6.80
Higher education (general) * Woman	2.37
Studying level 2 * Woman	2.31
Level 1 and below * age	1.15
Level 2 * age	1.21**
Level 3 (vocational) * age	1.24~
Higher education (vocational) * age	1.12
Higher education (general) * age	1.15~
Studying level 2 * age	2.13
Level 1 and below * Woman * age	0.75*
Level 2 * Woman * age	0.72**
Level 3 (vocational) * Woman * age	0.67*
Higher education (vocational) * Woman * age	0.81
Higher education (general) * Woman * age	0.87
Studying level 2 * Woman * age	0.63
Social class (Ref.: Service class)	
Intermediate class	1.42
Routine class	1.36
Student	1.77
Intermediate class * age	0.98
Routine class * age	0.99
Student * age	1.00
Marital/Parental status (Ref.: Single)	
Couple	0.80
Couple with children	0.76
Single with children	0.09
Other	0.38
Couple * Woman	1.25
Couple with children * Woman	0.38
Single with children * Woman	1

Table 6 (continued)

	1
Other * Woman	0.67
Couple * age	1.01
Couple with children * age	0.93
Single with children * age	1
Other * age	0.98
Couple * Woman * age	0.94
Couple with children * Woman * age	1.11
Single with children * Woman * age	1
Other * Woman * age	1.02
Constant	0.25
Variance (age)	0.03**
Variance (constant)	7.14**
Covariance (age, constant)	− 0.12˜
Observations	5361
ROC area	0.72

Growth curve model. Odds ratios. Model with own education and adult roles

Other control variables: year of interview

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

Growth curve model. Odds ratios. Model with own education and adult roles

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Data availability The data that support the findings of this study are derived from the public domain and available in the UKDS at https://doi.org/10.5255/UKDA-SN-6614-15

Code availability Stata syntax used to generate the results presented in the paper are available from the author at n.pensiero@soton.ac.uk.

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical approval The project was carried out at the University of Southampton and University College London, which provided ethics approval, through their Ethics Committees. The process of gaining approval involves a formal submission and review of potential ethical issues, following peer-review. The Understanding Society data used are anonymised and, like all Understanding Society studies, received ethics approval from the University of Essex Ethics Committee. Data are stored on password-protected laptops. The proposed research complies with the ESRC Framework for Research Ethics, and the two Universities' Research Governance policy and procedure.

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