Is Ideological Polarisation by Age Group Growing in Europe?

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Abstract

Prominent theories claim that young Europeans are increasingly socialist as well as divided from their elders on non-economic issues. This paper asks whether age-based polarisation is really growing in Europe, using new estimates of the ideological positions of different age groups in 27 European countries across four issue domains from 1981-2018. The young in Europe turn out to be relatively libertarian: more socially liberal than the old in most countries, but also more opposed to taxation and government spending. These age divides are not growing either: today’s differences over social issues and immigration are similar in size to the 1980s, and if anything are starting to fall. Analysis of birth cohorts points to persistent cohort effects and period effects as the explanation for these patterns; there is little evidence that European cohorts become uniformly more right-wing or left-wing with age. Hence age-based polarisation need not be a permanent or natural feature of European politics, but is dependent on the changing social, political and economic climate.

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Age is becoming increasingly important in European politics. By 2100 the over-65s will account for 31% of Europe’s population, compared to 20% today and 10% in the mid 1980s.¹ Large age gaps have opened up for voting in countries such as Spain and the UK, alongside stark differences in turnout across the continent (Blais and Rubenson 2013; Orriols and Cordero 2016; Sloam, Ehsan, and Henn 2018; Smets 2012). Here I look beyond demographic change, voting and turnout to investigate a fourth potential source of age divides: ideological polarisation. As I detail below, some sociologists and political scientists argue that ideological age gaps should be growing too, with young people’s economic precarity pushing them leftwards on economics at the same time as older voters are moving rightwards on social issues and immigration.

How true are such claims? Existing evidence is incomplete at best, covering only short periods, a handful of countries, or a narrow set of issues. Instead, I use a dataset of over one hundred survey questions from all major pan-European surveys from 1981-2018, aggregating them into dimension-specific ideological scales for age groups. I report three key empirical findings. First, there is ideological polarisation by age on non-economic issues, but it has not risen since the 1980s. Second, on tax and spending an age gap opened up in the last twenty years, but the young are actually more conservative than the old; they are relatively libertarian rather than more socialist. Third, cohort and period effects are the principle source of evolving age gaps, making polarisation volatile over time rather than permanent.

Ideological Polarisation by Age: Theory and Existing Evidence

Compared to older generations, young Europeans face higher unemployment, more insecure labour markets, lower wealth, as well as inferior pensions and access to housing. These patterns emerged strongly over the past two decades (Bell and Gardiner 2019; Häusermann, Kurer, and Schwander 2015; Hüttle, Wilson, and Wolff 2015; Lennartz, Arundel, and Ronald 2016; Seeleib-Kaiser and Spreckelsen 2018). Moreover, many came of age during the financial crisis and its aftermath, an experience that typically leaves cohorts more left-wing throughout their lives (Giuliano and Spilimbergo 2014). As a result, some sociologists of youth have predicted growing polarisation over economic issues between age groups, with the ‘proletarianisation’ of youth causing more left-wing demands for redistribution and government intervention (Bessant, Farthing, and Watts 2017; Côté 2014; Furlong and Cartmel 2007).

Other scholars predict growing age divides over non-economic issues, exemplified by the

1. Eurostat and WHO data: see [here](#) and [here](#)

Brexit referendum where 66% of the over-65s voted to leave the European Union and 69% of 18-30s voted to remain (Ehsan and Sloam 2020). The ‘silent revolution’ theory argues that older people are more socially conservative because younger generations were socialised in a more affluent and liberal era when social equality and post-material values were more salient, and they are better-educated and clustered in diverse urban areas. If younger cohorts are outpacing liberalisation amongst older people, this leads to growing polarisation (Inglehart 2008; Norris and Inglehart 2019; Grasso et al. 2019). Ross (2018) also finds that growing up amidst European integration and increasingly multiracial societies has eroded nationalism and opposition to immigration amongst the European young, further dividing them from their elders. Norris and Inglehart (2019) argue that a backlash against these progressive social changes has begun to occur amongst older voters, who are turning further against immigration and other social issues, exacerbating polarisation.

Recent elections in countries such as Germany, Great Britain, Ireland and Spain seem to support the view that generational ideological polarisation is growing, featuring strong age differences in party support (Orriols and Cordero 2016; Sloam, Ehsan, and Henn 2018). Indeed, journalists often take voting patterns as *prima facie* evidence of greater *ideological* polarisation. In the late 2010s *The Independent* claimed that “politics is being taken over by children with a pipe dream of returning to the socialism I know doesn’t work.”² whilst *The Economist* fretted about a rise in “millennial socialists”, who “suffer from naivety about budgets, bureaucracies and businesses”³. On non-economic issues, culture wars are also said to divide increasingly ‘woke’ young people from the elderly.

However alternative theoretical perspectives, emphasising positions in the life cycle rather than cohort effects, do not predict growing ideological polarisation by age. In theory the elderly always have a stronger interest in higher government spending on pensions and health-care, and decreased spending on education (Mulligan and Sala-i-Martin 1999; Poterba 1997). Some social psychologists also argue that social conservatism rises with age due to natural changes in personality and cognition. Ageing may lead to lower openness to new ideas as well as an increased preference for certainty over ambiguity, traits that are strongly related to social conservatism (Cornelis et al. 2009). Whether due to self-interest or differences in cognition, these theories suggest that the young and old always hold different views but there is no reason for polarisation to change over time. Consistent with this, a re-analysis of Norris and Inglehart (2019)’s data by Schäfer (2021) finds no evidence of growing generational polarisation for authoritarian values.

Existing empirical work has focused mainly on explaining why mass opinion has changed

2. See [here](#)

3. <https://www.economist.com/leaders/2019/02/14/millennial-socialism>, 14th Feb 2019

or why age gaps exist: age, period or cohort effects? Studies of postmaterial and social issues typically report a society-wide liberalisation of attitudes – period effects – alongside very substantial cohort effects causing the young to be more socially liberal than the old (Andor, Schmidt, and Sommer 2018; Inglehart 2008; Norris and Inglehart 2019; Peterson, Smith, and Hibbing 2020). On economic issues, small age divides exist over spending on pensions and healthcare, with somewhat greater divisions over education (Busemeyer, Goerres, and Weschle 2009; Cattaneo and Wolter 2009; Hess, Nauman, and Steinkopf 2017; Sorensen 2013). However, almost none of these studies focus on whether age-based polarisation in Europe is rising or falling, or why this is. Many also cover only a single country, a single year, or a very limited set of political issues. For example, both Norris and Inglehart (2019) and Schäfer (2021) rely on European Social Survey data from 2002-14 only, and Busemeyer, Goerres, and Weschle (2009) examine four survey questions from 1996. A key reason for this spotty coverage is that existing cross-national survey data is sparsely and unevenly available, often forcing scholars to rely on only a handful of survey items from a single survey. Data is missing for a lot of countries, years and issues. Even repeated cross-national surveys appear only occasionally over time. This makes it impossible to assess long-term change in ideological polarisation by age group using survey questions alone.

The debate about age-based ideological polarisation is, therefore, far from settled and we know very little about its long-term evolution. This article takes an exploratory and descriptive approach, measuring age differences across multiple issue dimensions and many countries from 1981-2018. My main aims are to ask (1) whether ideological polarisation by age is increasing, (2) for which, if any, issue dimensions this is true and (3) what explains changes in age-based polarisation over time.

Data and Methods

I do this using a new method developed by Caughey, O’Grady, and Warshaw (2019) and implemented via the `dgo` package in R (Dunham, Caughey, and Warshaw 2017), which converts sets of survey questions into multidimensional scaled ideological positions for subgroups within multiple European countries. It allows many different surveys, covering various time periods, countries and issues, to be aggregated together into scales that have much wider geographic and temporal coverage than is possible using individual survey questions alone. Their approach begins by estimating item response theory (IRT) models using survey questions, but differs from previous IRT models in two respects. First, it estimates ideological positions for age groups within each country, rather than individual survey respondents. This facilitates estimating scales for age-country groups even with just a handful of survey ques-

tions, when a standard IRT model for individuals would fail due to lack of data. Second, it smooths the estimated ideological positions using a hierarchical model so that country-years with little or no survey data borrow information from other periods and places. This allows the model to produce estimates in country-years when survey data are sparse, or unavailable altogether. These features surmount the problem of sparse unevenly-available survey data that has prevented previous studies from examining long-term changes in ideological polarisation by age group. The model used in this paper is virtually identical to Caughey, O’Grady, and Warshaw (2019), which includes extensive information on its estimation and validation, including the scales’ internal consistency. The Supplementary Information for this contains a more substantial verbal description of the modelling approach.

Underlying the estimated scales are over 100 individual survey questions across a wide range of issues. They are taken from every existing cross-national European survey, including the European Social Survey, Eurobarometer, ISSP modules, Pew Global Attitudes Survey and the World Values Survey from 1981-2018. These all collect high-quality random probability samples of the relevant national populations, with survey weights. Twenty-seven European countries are included.⁴ I follow Caughey, O’Grady, and Warshaw (2019) in estimating scales for four ideological dimensions, each one estimated from a different set of survey questions. These questions are identical to theirs, with the addition of two new years of survey data in 2017 and 2018 and a small number of additional items. The Supplementary Information fully details all survey questions used.

The first scale is labelled *social* and refers to social and post-material issues such as the environment, abortion, gender equality and LGBT rights. The second is *immigration* and includes questions on immigration and nationalism. The third is labeled *relative economic issues* and is akin to ‘mood’ (Stimson 1991), using questions about the economic policy status quo, primarily levels of taxation and government spending. The fourth is *absolute economic* issues, using questions that ask about economic policy principles, such as the desirability of redistribution in theory. The differential policy status quo across countries means that citizens’ positions on the relative scale, but not the absolute scale, may reflect existing levels of taxation and government spending as much as ideological beliefs, making it vital to separate the two concepts. A country could, over time, desire greater government spending because spending has fallen rather than due to changing views on the desirability of spending in theory, which is captured by the absolute measure. This distinction is also justified by the empirical results of both this paper and Caughey, O’Grady, and Warshaw

4. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Great Britain, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Northern Ireland, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland

(2019), which show that the two series are not correlated.

To maximise the availability of survey data for each observation, the scales are estimated for two-year periods. They therefore show how left-wing or right-wing different age groups have been every two years since the 1980s, across four issue dimensions and twenty-seven European countries. With around one million individual survey items each and many parameters, there is a tradeoff between computational complexity and the number of age categories for whom one can estimate ideological positions. I therefore estimated ideological positions for six age categories of ten years each: those aged 18-27, 28-37, 38-47, 48-57, 58-67 and 68-77. The old are cut off at 77 so as to create groups of equal sizes. This is crucial in allowing a comparison of cohorts over time, as shown below, and in practice there are few survey respondents over 77. The estimates start in 1981-82 for social and absolute economic issues, and in 1985-6 and 1989-90 respectively for relative economic issues and immigration, as these are the first periods in which any survey data are available.

Ideological Polarisation over Time

Figure 1 shows how average ideological positions have evolved since 1981 for the six age groups across all 27 countries.⁵ Higher scores on the ideological dimensions always represent greater conservatism, e.g. opposition to redistribution, tax and spending, gender equality or immigration. The scales are each identified by setting ideology to have a mean of zero and variance of one across groups and periods.

Clear age differences on social issues are evident, alongside a broad liberalisation of opinion for all age groups. Scores should be interpreted as standard deviations from the overall mean of zero. Changes in social conservatism have been substantively large over time: about 1.3 standard deviations for 68-77 year-olds from the early 1980s to the late 2010s. This is almost identical to the model-estimated difference between the average 68-77 year-old in 2017-18 in Hungary – one of the most socially conservative countries – and socially-liberal Germany. In the 2018 European Social Survey (ESS), which is in the scale, 30% of 68-77 year-olds in Hungary strongly disagreed with the statement “gay men and lesbians should be free to live their life as they wish”, whereas just 2% did so in Germany.

However, my main interest here is in differences between age groups: polarisation. In the average European country the ideological gap between the youngest and oldest age groups

5. These are posterior means for each age group, averaged across countries (without weighting by population): the model first outputs the position of each age group in each country. Effectively Figure 1 shows the ideological position of age groups in the average country. Each model was estimated using four chains with 2000 iterations each, with the first half of each chain as warmup. All conventional diagnostic tools, such as Gelman-Rubin statistics, indicated that each model converged.

Figure 1: Trends in average conservatism over time by age group and issue domain across European Countries, 1981-82 to 2017-18 [lines = posterior means, shading = 95% credible intervals, higher values = more conservative]

on social issues has barely changed over time, remaining relatively constant at around 1 standard deviation. Hungary again serves as a useful illustration, where in 2017-18 the model-estimated difference between the youngest and oldest age groups was close to the overall average of 1 (see Figure 2). In the 2018 ESS, 48% of Hungarian 68-77 year-olds either

agreed or strongly agreed with the same statement about LGBT rights above, compared to 26% of 18-27 year-olds. This shows that although age *differences* are unchanged, Europeans have liberalised so much that a majority of all age groups in one of the most conservative countries is not opposed to freedom for LGBT people, a point also made by Schäfer (2021). Polarisation certainly exists, but is not overwhelmingly large. Figure 1 also shows that the youngest four age groups have become less distinguishable over time; the main difference today is between the oldest citizens and all others. On immigration, a slightly smaller age gradient has persisted as European countries slowly became more pro-immigration. Here too, age differences have scarcely changed over time. Overall, ideological differences by age on social issues and immigration are no larger today than they were in the 1980s.

Until recently young Europeans were somewhat more conservative than the old in absolute terms, but age gaps have narrowed over the past decade, becoming very modest. For relative economic conservatism age gaps widened from the late 1990s as the young became more opposed to taxing and spending than the elderly. Although it narrowed a little over the 2010s, at the end of the 2010s the age gradient in opinion on relative economic issues remained almost as large as for immigration, but in the opposite direction. Millennials and their younger counterparts would be better described as relatively libertarian rather than relatively socialist: more socially liberal than older people, but also favouring smaller government. This finding may be surprising.⁶ In the Supplementary Information I show that this aggregate measure faithfully reflects trends in the individual survey questions that comprise it; disaggregating by spending area does not alter these conclusions. Only on education spending are young Europeans less conservative, but the gap has narrowed since the 1990s. And as with social issues, there is substantial generational agreement: majorities of both the young and old support higher pension spending, for instance.

To examine possible cross-country differences, Figure 2 plots estimates of the age gap between the youngest and oldest groups for social issues and relative economic issues in 2017-18 and Figure 3 plots 95% credible intervals around them. Variation across countries is mostly modest. In terms of mean differences, twenty of the twenty-seven countries occupy the upper left libertarian quadrant, where the young are more liberal on social issues but more conservative on tax and spending. Young people in Eastern European countries are uniformly more libertarian, with generational differences on relative economic issues smaller in Western and Southern Europe. Figure 3 shows that in only two countries can the youngest and oldest not be distinguished statistically in their ideology on social issues, but in several places they are not statistically different in terms of relative economic conservatism. No country except Denmark, however, shows any evidence that the young prefer higher tax and

6. Although Barnes, Blumenau, and Lauderdale (2021) present similar findings (for the UK only)

Figure 2: Age Differences in Conservatism (Old minus Young) by Country for Social Issues and Relative Economic Issues, 2017-18 [Difference in posterior means between 68-77 year-olds and 18-27 year-olds, by country. Positive = old people more conservative than young people]

spending than the old. Figures S5 and S6 in the Supplementary Information show Figure 1 separately for Eastern and Western European countries. Although all age groups in Eastern Europe have liberalised more slowly on non-economic issues – consistent with a later arrival of the silent revolution there (Walczak, Van der Brug, and de Vries 2012) – age polarisation has evolved almost identically in all regions across all dimensions. Whether one looks at Europe as a whole, at individual countries or at European regions, the conclusions about polarisation are the same.

Figure 3: 95% Credible Intervals for Age Differences in Conservatism (Old minus Young) by Country for Social Issues and Relative Economic Issues, 2017-18 [red=social issues, blue=relative economic issues]

Cohort Patterns

Why has age-based polarisation not grown over time? To answer this question I convert the results for age groups into birth cohorts, using the fact that by looking ten years apart, we observe the same cohort on multiple occasions. For example, those aged 18-27 in 1987-8 will be 38-47 in 2007-8.⁷

I start with social issues, where age differences are largest. The evolution of each cohort's ideological position from 1987-8 to 2017-18 (mean positions and 95% credible intervals) is shown in Figure 4. Some intra-cohort liberalisation is clear for all cohorts. However, within-cohort change did not keep pace with overall change. The three generations for which we have complete data liberalised by substantially less than the total change for age groups in Europe over the period. On the other hand, diagonal comparisons across periods and cohorts show different cohorts at the same ages. The 1960-70 cohort was aged 18-27 in 1987-8 with an estimated ideology of -0.014, compared to the 1970-80 cohort who were 18-27 in 1997-8 with an estimated ideology of -0.53. This shows that in addition to within-cohort change there have been large cohort replacement effects. Each cohort began its political life more liberal than its predecessor and maintained this distinctiveness over time.

Thus age gaps in ideology on social issues have persisted (Figure 1) because despite all cohorts liberalising over time, each new cohort has *also* been persistently more socially liberal than its predecessor. The combination of within-cohort and cohort replacement effects left polarisation between different age groups roughly unchanged. There is some evidence that these cohort effects are slowing down. Younger cohorts are more homogenous than older ones, beginning their political lives closer to the middle-aged than in the past. This helps explain why, in Figure 1, the greatest age difference is observed between the oldest citizens, and the middle-aged and below.

Figure 4 unambiguously demonstrates large cohort effects, but aggregate data on cohorts cannot separate out age and period effects as explanations for within-cohort change. Theoretically, period effects are the more likely explanation. Existing theories of ageing predict greater conservatism as a natural feature of ageing, and that age effects should primarily kick in as people go past middle age. Yet Figure 2 shows that all cohorts became more

7. Strictly speaking, there is some very slight overlap at the edges of these groups due to the use of two-year periods to estimate ideological positions: someone born in 1960 observed in 1987-8 could appear in either the 1950-60 cohort (aged 27 in 1987) or in the 1960-70 cohort (aged 28 in 1988). However such effects are minimal. This also assumes no differential mortality between left-wingers and right-wingers within cohorts (Rodriguez 2018). However wealth (and therefore life expectancy) may be positively related to economic conservatism and negatively related to social conservatism. For social issues and immigration, therefore, the patterns in this paper might slightly over-state the contribution from within-cohort change and under-state the contribution from cohort replacement, because social conservatives die younger.

Figure 4: Social Conservatism by Birth Cohort in Europe, 1987-8 to 2017-18 [higher values = more conservative, grey shading = 95% credible intervals]

left-wing on social issues, and that this continued when cohorts became elderly. It was not the case that the elderly turned more conservative while the young became more liberal. Period effects, as the prevailing social climate became more socially liberal, are a much more plausible explanation for why all cohorts liberalised throughout their lives.

Figures 5 and 6 do the same exercise for immigration and relative economic issues for 1989-9 to 2009-10 and 1987-8 to 2017-18 respectively, because the immigration data do not start until 1989-90. For immigration, within-cohort changes were mostly negligible, although since 2000 there was some increased conservatism amongst older cohorts, consistent with a backlash against Europe's prevailing liberal consensus on the issue (Norris and Inglehart 2019). As with social issues, cohort replacement effects were large and consequential, with new cohorts more pro-immigration than their predecessors at equivalent ages.

For relative economic issues, within-cohort changes were larger than for either immigration or social issues, and their direction also fluctuated over time. Cohorts tended to change together over time, but behaved differently at equivalent ages. The 1950-60 cohort became more conservative over the 1987/88 to 1997/98 period as they aged from 28-37 to 38-47

Figure 5: Immigration Conservatism by Birth Cohort in Europe, 1989-90 to 2009-10 [higher values = more conservative, grey shading = 95% credible intervals]

whilst between the same ages, the 1970-80 cohort became more left-wing from 2007/8 to 2017/18. In other words, period effects operating on all cohorts at once were dominant. Effects of ageing, on the other hand, would imply that at equivalent ages cohorts changed in the same way. This is intuitive: changes in the size of governments as well as economic booms and busts occur more often and more rapidly than the kinds of social change that influence social conservatism. Since the mid-1990s new cohorts such as Millennials did in fact begin their political lives more left-wing than previous cohorts were at an equivalent age: compare the 1970-80 cohort at ages 18-27 (in 1997-8) to the 1980-90 cohort at the same age (in 2007-8). But within-cohort change has outpaced the impact of these cohort replacement effects. Older cohorts became so much more left-wing over the financial crisis and its aftermath that at a given time, older age groups were more left-wing. Period effects – but amongst groups *older* than millennials – have been the predominant influence.

Figure 6: Relative Economic Conservatism by Birth Cohort in Europe, 1987-8 to 2017-18 [higher values = more conservative, grey shading = 95% credible intervals]

5. Conclusion

This paper carried out a comprehensive examination of age differences in ideologies in Europe since the 1980s, addressing unresolved theoretical and empirical debates. Some sociologists and political scientists such as Côté (2014) and Norris and Inglehart (2019) have predicted widening generational gaps on both economic and social issues, with the media depicting young Europeans as increasingly socialist and ‘woke’ in the wake of widening age gaps in terms of vote choice. Other scholars have cast doubt on this, whether taking issue with previous empirical analyses (Schäfer 2021) or arguing that age rather than cohort effects dominate (e.g., Mulligan and Sala-i-Martin 1999). My analysis helped resolve these debates by extending the analysis of age polarisation over a much longer time period, more issue dimensions, and more countries than any previous study.

I found no evidence that the young and old are becoming increasingly ideologically opposed. Nor is it true that young Europeans today are much more socialist than the elderly, or that age divisions over ‘woke’ issues are wider than in the past. In most places the young

are more opposed to tax and government spending than the elderly. Today's age divides over social issues and immigration are similar in size to the 1980s and if anything are starting to fall, as the young and middle-aged become more similar. And despite these age gaps, on issues such as LGBT rights and pension spending, majorities of the young and old support the same policies. However, polarisation has not remained fairly constant for non-economic issues due to age effects being dominant: there is little evidence that ageing naturally leads to greater conservatism. Today's age divides have arisen from a sometimes complex interaction of cohort and period effects, with cohort effects especially important for social issues and immigration. Hence age-based polarisation need not be a permanent or natural feature of European politics, but depends on changing social, political and economic climates. If cohort replacement effects for social issues continue to slow down, age divides will fall.

If ideological age gaps are largely unchanged, why have age gaps for *voting* widened recently? A likely explanation is that the emergence of new parties with more extreme positions on social issues and immigration over the past thirty years – and more emphatic communication of these stances – has helped the young and old to better express their long-standing non-economic differences when voting. Age divides might appear to have grown due to the actions of parties, but in reality young and old voters in Europe are not more polarised than in the past.

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**Supplementary Information for “Is Ideological Polarisation by Age
Group Growing in Europe?”**

1 Explanation of the Modelling Procedure

Readers interested in the technical details of the model, its estimation, and validation of the resultant scales, are referred to Caughey, O’Grady and Warshaw (2019). As explained below, it contains very extensive validation exercises that justify a four-dimensional structure for European opinion and that establish the internal consistency of each scale.

1.1 How similar is this paper’s modelling approach to Caughey, O’Grady and Warshaw (2019)?

The modelling approach is the same as theirs, with one minor change: whereas they estimate opinion for three age groups and two genders, I estimate opinion for six age groups. It is computationally very difficult to estimate for many more than six demographic groups, and in some cases the number of respondents in a given country-year would be too small for certain groups defined by age and gender. The model that produces these scales is identical in both papers, as is the R package that implements it.

This paper also uses slightly more data than Caughey, O’Grady and Warshaw (2019): mainly due to extending their data from 2016 to 2018, but also because a few additional items that were missed in their paper (such as opinions about welfare provision in the ESS) were also added.

A comparison of Figure 2 in their paper to Figure 1 in this paper shows that the two approaches produce near-identical results, as should be expected.

1.2 Why is this methodological approach needed? Why not use other approaches?

The core problem solved by this methodological approach is that existing survey data is sparsely available across both time and countries. The same question, for instance on redistribution, might appear only in five years for the whole 1981-2018 period, and even in those years it is unlikely to be available across all European countries. This sparseness presents three key problems that the Caughey, O’Grady and Warshaw model solves.

First, a naive model of ideological change would be difficult to interpret. Suppose, for example, that one simply measured conservatism in each available year by taking the proportion of left- or right-wing responses across all questions asked in that year. Such a measure would be sensitive to differences in baseline support across questions when questions appear unevenly. Suppose that in different years, 10% of respondents in a survey in year t disagreed that “it should be the government’s responsibility to provide healthcare for the sick,” but

50% of respondents in a survey in year $t+2$ disagreed that “it should be the government’s responsibility to provide a decent standard of living for the unemployed.” Suppose further that we tried to use the percentage disagreeing with each one as a measure of conservatism in each year. Then, we could not tell whether the difference in opposition was due to a genuine rise in conservatism, or because equally-conservative respondents prefer supporting sick citizens to supporting the unemployed.

Second, this problem potentially motivates the use of more nuanced scaling techniques such as a standard IRT model or principle component analysis, but these approaches are also impossible with standard cross-national surveys. In most years, there are at best a handful of questions per respondent on any particular dimension, but an IRT model estimated for individual respondents requires many more responses for estimation.

Third and most crucially, some time periods feature either no survey questions at all, a tiny handful of questions, or a tiny handful of countries. A naive model would simply produce no estimates for these country-years (in the case of wholly missing data), or it would be very unstable and sensitive to the actual questions asked (in the case of only one or two questions). Because a large number of country-years are missing any data at all, there would be a lot of missingness in any estimates of cross-national/over-time ideologies. This is conceptually similar to the familiar problem of missing responses within a given survey. Indeed, one way of thinking of the Caughey-O’Grady-Warshaw model is that in years where data are very sparse or non-existent, it imputes the missing data in a similar fashion to multiple imputation procedures.

1.3 How does the method work? How does it solve the problems presented by sparse and unevenly-available data?

The model essentially contains two main components.

1. The first is an ordinal IRT model of ideology (within each of the four issue domains) for age groups within countries rather than for individual survey respondents. In a standard way, this assumes that for a given survey question, the probability of an individual from a particular age group selecting level k of a question’s response scale is positively related to that group’s conservatism as well as the question-specific threshold for a conservative response, with the “discrimination” of each survey item (i.e., the strength of its relationship to conservatism) also estimated. The number of individuals in a given group giving a particular response is then estimated with a standard multinomial sampling model, adjusted for survey weights, implying a likelihood function and hence estimates of country-age-group ideological positions.

2. The second stage takes these country-age-group estimates and smooths them across time and countries using a hierarchical model for the group means. The magnitude of change between years is constrained by a prior that predicts the group’s ideological position based on its value in adjacent time periods. The final posterior estimates of ideology are a compromise between this prior and the likelihood implied by stage 1.

This overcomes the three problems mentioned above:

1. Estimating the relationship of each question to latent conservatism greatly reduces the model’s sensitivity to which questions are asked when.
2. Although each individual answers only a few questions in each survey, there are many survey responses from each *group* (e.g., 18-27 year-olds in Germany), making an IRT model at the level of groups feasible.
3. The hierarchical model facilitates estimation of ideology when data is sparse. When a lot of survey data are available for a given country-year, the likelihood will be given more weight by the model. With less survey data, the prior gets more weight. If no survey data are available at all, this prior acts as a predictive model that imputes ideology.

1.4 How do we know that the scales have the same meaning over time?

This is, of course, a problem that can affect any long-term measure of conservatism, whether looking only at individual survey questions or using alternative algorithms such as Stimson’s dyad ratios procedure. Different survey items might give a different picture of conservatism, and they are unevenly available over time and space.

The use of an IRT model helps deal with the concern about different questions having different meanings for respondents (or to put it in the language of IRT models: each question has a different relationship to latent conservatism; some survey items are better than others at discriminating between left- and right-wing groups). IRT models such as the one used in the paper deal with that problem by directly estimating the discrimination of each survey item. That means that the model is sensitive to which questions are being asked when: the threshold parameters governing the relationship between survey items and latent conservatism are different for each survey question, so that not every survey item ‘affects’ the scales in the same way.

A more technical issue is whether or not the model should allow these threshold parameters to evolve over time, capturing the notion that the relationship between survey items and

latent conservatism might be different at different times. This more flexible model would come with significant downsides however. First, it would mean that the substantive meaning of ‘conservatism’ is not fixed over the course of the estimation. We could not say whether a given country-age group has become more conservative over time, only whether they have become more or less conservative in terms of their alignment with prevailing definitions of ‘conservatism’ at given times. Second, such a model would be likely to under-estimate ideological change by attributing some of it to changes in the item thresholds. During their review process, Caughey, O’Grady and Warshaw also carried out extensive comparisons of model results with fixed and evolving thresholds. These yielded substantially almost identical results, suggesting that the assumption of fixed thresholds is empirically defensible. For those reasons the Caughey-O’Grady-Warshaw model uses fixed threshold parameters that do not change over time and in effect pre-suppose that ‘social conservatism’, for instance, means the same thing in the 1980s as in the 2010s. This is not unreasonable: someone who opposes abortion and gender equality would be considered conservative in both periods.

1.5 How do we know that survey items within the four domains ‘belong’ together? Why these four scales and not others?

As Caughey, O’Grady and Warshaw (2019: 678-9) put it, “we emphasize that our categorization of questions [into scales] was based on ex ante substantive judgment and not on statistical criteria for selecting the “correct” number of latent dimensions, making it analogous to confirmatory rather than exploratory factor analysis.” This makes sense because there is surely no single correct answer to the question: “how many issue dimensions are there in European politics?” Rather, there are more and less useful ways to summarise conservatism in terms of underlying sets of survey questions.

Nonetheless, their measures are derived explicitly from substantive theories about the content of different issue dimensions, as theorised by scholars such as Ronald Inglehart, Herbert Kitschelt and Hanspeter Kriesi. Theories of (for instance) post-material values state that opinions on issues as diverse as marijuana legalisation, abortion rights and same-sex marriage are all related to an underlying socially conservative/socially liberal dimension and should be expected to move together over time, for instance in line with economic development.

The fact that all four scales are poorly correlated over time provides a clear empirical justification for separating them.⁸ Notably, they show that their results for the social issues

8. Although across Europe as a whole, immigration and social conservatism move together, this is not true of individual countries: see Caughey, O’Grady and Warshaw 2019, p. 684.

scale are unaffected by removing items related to the environment, which are classified as ‘postmaterial’ issues by Inglehart but might be thought of as theoretically unrelated to issues such as gender equality and LGBT rights. Moreover, they also provide extensive confirmatory factor analysis of all the scales in their Supplementary Information. Their analysis, including scree plots, demonstrates that each scale is explained primarily by a single dimension. And within each scale, virtually all survey items are positively correlated with each other. These provide further empirical justification for the scales.

1.6 What other problems might exist with these scales?

There are a number of potential limitations, all of which could affect the cross-country or over-time comparability of all cross-national survey data or measures derived from it, including our scales and previous measures of European ideology such as self-placement on a left-right scale. These limitations include: differences in sampling procedures or survey response patterns that lead to measured cross-country or over-time differences in opinion in the absence of genuine differences; differential item functioning, such that different people in different countries or periods interpret the same questions differently; or differential influence from the policy ‘status quo’ across countries (whereby, for instance, equally-conservative respondents respond differently to the question “should gays and lesbians be free to live their lives as they wish?” based on the prevailing levels of LGBT rights in their country).

2 Details of Survey Items Included in the Models

Key to datasets: ISSP = International Survey Program; ROG = “Role of Government” survey modules; INEQ = “Social Inequality” survey modules; ENV = “Environment” survey modules; NI = “National Identity” survey modules; F+G = “Family and Gender” survey modules; ESS = European Social Survey; EVS = European Values Survey; EB VAL = Eurobarometer special surveys on social values; EB EMP = Eurobarometer special surveys on employment and social policy; EB POV = Eurobarometer special surveys on poverty and social exclusion; PEW = Pew Global Attitudes Survey

Table S1: Variables included in the Absolute Economic Scale

Variable Name	Survey	Years Covered	Question Wording	Response Options
govredist1	ISSP ROG,	1985, 1990, 1992,	What is your opinion of the following statement:	5-point
	ISSP INEQ.,	1993, 1996,	“it is the responsibility of the government to	1 = agree strongly, 5 = disagree strongly
	ISSP ENV	1999, 2000, 2009, 2010	reduce differences in income between those with high incomes and those with low incomes”	
wagecont	ISSP ROG	1985, 1990, 1996	“Here are some things the government might do for the economy. Please show which actions you are in favor of and which you are against” ... control of wages by law	5-point
pricecont	ISSP ROG	1985, 1990, 1996	[as above] ... control of prices by law	5-point
govjobs	ISSP ROG	1985, 1990, 1996, 2006	[as above] ... financing of projects to create new jobs	1 = strongly favor, 5 = strongly against
govindust	ISSP ROG	1985, 1990, 1996, 2006	[as above] ... support for industry to develop new products and technology	5-point
				1 = strongly favor, 5 = strongly against

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Table 1 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
govdecline	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] ...support for declining industries to protect jobs	5-point
govweek	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] ...reducing the working week to create more jobs	1 = strongly favor, 5 = strongly against 5-point
unempinfl	ISSP ROG	1985, 1990, 1996	If the government had to choose between keeping down inflation or keeping down unemployment, to which do you think it should give the highest priority?	1 = strongly favor, 5 = strongly against 2-point
ownelect	ISSP ROG	1985, 1990, 1996	What do you think should be the government's role in each of these industries and services should be? ...Electricity	1 = Own it 2 = control prices and profits, don't own 3 = neither
ownbanks	ISSP ROG	1985, 1990, 1996	[as above] ...Banking and Insurance	As above
respjob	ISSP ROG	1985, 1990, 1996, 2006, 2016	On the whole, do you think it should or should not be the responsibility of the government to ... provide a job for everyone who wants one	4-point 1 = definitely should be 4 = definitely should not be
resphealth	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] ... provide healthcare for the sick	As above
respold	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] ... provide a decent standard of living for the old	As above
respind	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] ... provide industry with the help it needs to grow	As above

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Table 1 – Continued from previous page

Variable Name	Survey	Years Covered	Question Wording	Response Options
respump	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] ... provide a decent standard of living for the unemployed	As above
govredist2	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] ... reduce income differences between the rich and poor	As above
respstud	ISSP ROG	1990, 1996, 2006, 2016	[as above] ... give financial help to university students from low-income families	As above
resphouse	ISSP ROG	1990, 1996, 2006, 2016	[as above] ... provide decent housing for those who can't afford it	As above
equalopp	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	"It is important that every person in the world should be treated equally, and everyone should have equal opportunities in life."	6-point top 3 responses indicate disagreement
unempjob	EVS	1990, 1999-00, 2008-10	[as above] 1 = people who are unemployed should have the right to refuse a job they do not want ... 10 = people who are unemployed should have to take any job available or lose their unemployment benefits	10-point
secfair	EVS	1981-2, 1990 1999-00	"Imagine two secretaries, of the same age, doing practically the same job. In your opinion is it fair or not fair that one secretary is paid more than, the other if she is quicker, more efficient and more reliable at her job?"	2-point 1 = unfair, 2 = fair
freedom	EVS	1981-2, 1990	What is more important, freedom or	3-point

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Table 1 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
concomp	EVS	1999-00, 2008-10 1990, 1999-00, 2008-10	equality? To what extent do you feel concerned about the living conditions of the unemployed?	1 = equality, 3 = freedom 5-point 1 = very much, 5 = not at all
diffnec	ISSP INEQ	1987, 1992, 2009	In order to get people to work hard, do you think large differences in pay are necessary?	4-point 1 = definitely not, 4 = absolutely
incprosp	ISSP INEQ	1987, 1992, 1999	Do you agree or disagree with these statements ... “large differences in income are necessary for a country’s prosperity”	5-point 1 = strongly disagree, 5 = strongly agree
unipoor	ISSP INEQ	1987, 1992	Please show how much you agree or disagree with these statements ... “the government should provide more chances for children from poor families to go to university”	5-point 1 = strongly agree, 5 = strongly disagree
respjob1	ISSP INEQ	1987, 1992	[as above] ... “the government should provide a job for everyone who wants one”	5-point 1 = strongly agree, 5 = strongly disagree
respump1	ISSP INEQ	1987, 1992 2009	[as above] ... “the government should provide a decent standard of living for the unemployed”	5-point 1 = strongly agree, 5 = strongly disagree
basicinc	ISSP INEQ	1987, 1992	[as above] ... “the government should provide everyone with a guaranteed basic income”	5-point 1 = strongly agree, 5 = strongly disagree
taxrich1	ISSP INEQ	1987, 1992, 1999, 2009	Do you think that people with high incomes should pay a larger share of their income in taxes than those with low incomes, the same share or a smaller share?	5-point 1 = much larger share 5 = much smaller share

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Table 1 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
privent	ISSP ENV	1993, 2000, 2010	How much do you agree or disagree with the following statements . . . “private enterprise is the best way to solve my country’s problems”	5-point 1 = strongly disagree, 5 = strongly agree
freecom	EB VAL	2006, 2008, 2009	For each of the following propositions, tell me if you agree or disagree . . . “Free competition is the best guarantee for economic prosperity “	4-point 1 = totally disagree, 4 = totally agree
eqjust	EB VAL	2006, 2008, 2009	[as above] . . . “We need more equality and justice even if this means less freedom for the individual”	4-point 1 = totally disagree, 4 = totally agree
govredist3	EB POV	2009, 2010	For each of the following propositions, tell me if you agree or disagree . . . “the government should ensure that the wealth of the country is redistributed in a fair way to all citizens”	4-point 1 = totally agree, 4 = totally disagree
nofight	EB POV	2002, 2010	[as above] “There is no point in trying to fight poverty, it will always exist”	4-point 1 = totally disagree, 4 = totally agree
diffnec1	EB POV	2009, 2010	[as above] “Income inequalities are necessary for economic development ”	4-point 1 = totally disagree, 4 = totally agree
freemkt	PEW	2002, 07, 08, 09	Most people are better off in a free market economy, even though some people are rich and some are poor	4-point 1 = completely disagree, 4 = completely agree
interfere	PEW	2002, 09, 11, 12	what’s more important in (survey country) society – that everyone be free to pursue	4-point 1 = option 2, 2 = option 1

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Table 1 – Continued from previous page

Variable Name	Survey	Years Covered	Question Wording	Response Options
			their life's goals life's goals without interference from the state, or that the state play an active role in society so as to guarantee that nobody is in need?	

Table S2: Variables included in the Relative Economic Scale

Variable Name	Survey	Years Covered	Question Wording	Response Options
cutspend	ISSP ROG	1985, 1990, 1996, 2006, 2016	In favour or oppose cuts in government spending	5-point 1 = strongly against, 5 = strongly in favor
lessreg	ISSP ROG	1985, 1990, 1996, 2006, 2016	In favour or oppose less government regulations of business	5-point 1 = strongly against, 5 = strongly in favor
spendhealth	ISSP ROG	1985, 1990, 1996, 2006, 2016	Listed below are various areas of government spending. Please show whether you would like to see more or less government spending in each area. Remember that if you say	5-point 1 = spend much more, 5 = spend much less

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Table 2 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
spendeduc	ISSP ROG	1985, 1990, 1996, 2006, 2016	“much more”, it might require a tax increase to pay for it ... “Health”	5-point
spendold	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] “Education”	1 = spend much more, 5 = spend much less
spendump	ISSP ROG	1985, 1990, 1996, 2006, 2016	[as above] “Old Age Pensions”	5-point
taxhighinc	ISSP ROG, INEQ	1985, 1990, 1996, 1987, 1992, 1996, 2006, 2016	[as above] “Unemployment Benefits”	1 = spend much more, 5 = spend much less
			Taxes for those with high incomes are too high or too low	5-point
taxmidinc	ISSP ROG, INEQ	1987, 1992, 1996, 2006, 2016	Taxes for those with middle incomes are too high or too low	1 = much too low, 5 = much too high
taxlowinc	ISSP ROG, INEQ	1987, 1992, 1996, 2006, 2016	Taxes for those with low incomes are too high or too low	5-point
				1 = much too low, 5 = much too high
incdiff	ISSP INEQ	1987, 1992, 1999, 2009	Differences in income in my country are too large	5-point
lessbens	ISSP INEQ	1987, 1992, 2009	The government should spend less on benefits for the poor	1 = Strongly Agree, 5 = Strongly Disagree
				5-point
				1 = Strongly Disagree, 5 = Strongly Agree

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Table 2 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
unipoor	ISSP INEQ	1987, 1992	The government should provide more chances for children from poor families to go to university	5-point 1 = strongly agree, 5 = strongly disagree
govredist	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	The government should take measures to reduce differences in income levels	5-point 1 = agree strongly, 5 = disagree strongly
bensecon	ESS	2008, 2016	Social benefits/services place too great strain on economy	5-point 1 = agree strongly, 5 = disagree strongly
bensbus	ESS	2008, 2016	Social benefits/services cost businesses too much in taxes/charges	5-point 1 = agree strongly, 5 = disagree strongly
benslazy	ESS	2008, 2016	Social benefits/services make people lazy	5-point 1 = agree strongly, 5 = disagree strongly
unemptry	ESS	2008, 2016	- Most unemployed people do not really try to find a job	5-point 1 = agree strongly, 5 = disagree strongly
entitled	ESS	2008, 2016	Many manage to obtain benefits/services not entitled to	5-point 1 = agree strongly, 5 = disagree strongly
taxhigher	EB POV	2009, 2010	People who are well-off should pay higher taxes so the government has more means to fight poverty”	4-point 1 = totally agree, 4 = totally disagree
eqincent	EVS	1990, 1999-00,	“How would you place your views ”	10-point

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Table 2 – Continued from previous page

Variable Name	Survey	Years Covered	Question Wording	Response Options
		2008-10	on this scale? 1 = incomes should be made more equal, 10 = we need larger income differences as incentives	
freefirms	EVS	1999-00, 2008-10	[as above] 1 = the state should control firms more effectively ... 10 = the state should give more freedom to firms to provide for themselves	10-point
provide	EVS	1990, 1999-00, 2008-10	[as above] 1 = the government should take more responsibility to ensure that everyone is provided for, 10= people should take more responsibility for providing for themselves	10-point

Table S3: Variables included in the Social and Postmaterial Issues Model

Variable Name	Survey	Years Covered	Question Wording	Response Options
meetings	ISSP ROG	1990, 1996, 2006, 2016	There are many ways people or organisations can protest against a	4-point 1 = definitely, 4 = definitely not

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Table 3 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
			government action they strongly oppose. Please show which you think should be allowed and which should not be allowed: “Organizing public meetings to protest against the government’	
protests	ISSP ROG	1990, 1996, 2006, 2016	[as above] “Organising protest marches and demonstrations”	4-point 1 = definitely, 4 = definitely not
kidjob	ISSP F+G,	1988, 1994, 2002, 2012,	To what extent do you agree or disagree...? “A pre-school child is likely to suffer if his or her mother works”	5-point 1 = strongly disagree, 5 = strongly agree
workmoth	ISSP F+G	1988, 1994, 2002, 2012	[as above] “A working mother can establish just as warm and secure a relationship with her children as a mother who does not work”	5-point 1 = strongly agree, 5 = strongly disagree
famjob	ISSP F+G	1988, 1994, 2002, 2012	[as above] “All in all, family life suffers when the woman has a full-time job”	5-point 1 = strongly disagree, 5 = strongly agree
housewife	ISSP F+G	1988, 1994, 2002, 2012	[as above] “Being a housewife is just as fulfilling as working for pay”	5-point 1 = strongly disagree, 5 = strongly agree
husbwife	ISSP F+G	1988, 1994, 2002, 2012	[as above] “A man’s job is to earn money a woman’s job is to look after the	5-point 1 = strongly disagree, 5 = strongly agree

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Table 3 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
singparent	ISSP F+G	1988, 1994, 2002, 2012	home and family” [as above] “One parent can bring up a child as well as two parents together”	5-point 1 = strongly agree, 5 = strongly disagree
workkid	ISSP F+G	1988, 1994, 2002, 2012	Do you think that women should work work outside the home full-time, part-time or not at all under the following circumstances? “When there is a child under school age”	3-point 1 = work full-time, 3 = stay at home
workschool	ISSP F+G	1988, 1994, 2002, 2012	[as above] “After the youngest child starts school”	3-point 1 = work full-time, 3 = stay at home
envfuture	ISSP ENV	1993, 1990, 2010	How much do you agree or disagree with each of these statements. . . “we worry too much about the future of the environment and not enough about prices and jobs today”	5-point 1 = strongly disagree, 5 = strongly agree
envprog	ISSP ENV	1993, 1990, 2010	[as above] “People worry too much about human progress harming the environment”	5-point 1 = strongly disagree, 5 = strongly agree
envhtax	ISSP ENV	1993, 1990, 2010	How willing would you be to pay much higher taxes in order to protect the environment?	5-point 1 = very willing, 5 = very unwilling
envstd	ISSP ENV	1993, 1990, 2010	How willing would you be to accept cuts	5-point

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Table 3 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
envlaws	ISSP ENV	2010	in your standard of living in order to protect the environment?	1 = very willing, 5 = very unwilling
		1993, 1990,	If you had to choose, which of the following would be closest to your views?	2-point
		2010	views? “government should let ordinary people decide for themselves how to protect the environment, even if it means they don’t always do the right thing”, or “government should pass laws to make ordinary people protect the environment , even if it interferes with people’s rights to make their own decisions”	1 = second statement, 2 = first statement
envblaws	ISSP ENV	1993, 1990, 2010	[As above - substitute “businesses” for “ordinary people”]	2-point 1 = second statement, 2 = first statement
kidjob1	EVS	1990, 1999-00, 2008-10	To what extent do you agree or disagree...? “A pre-school child is likely to suffer if his or her mother works”	4-point 1 = strongly disagree, 4 = strongly agree
envtax1	EVS	1990, 1999-00, 2008-10	I am now going to read out some statements about the environment. For each one read out, can you tell me	3-point 1 = strongly agree, 4 = strongly disagree

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Table 3 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
authority	EVS	1981-2, 1990 1999-00, 2008-10	whether you agree strongly, agree, disagree or strongly disagree? “I would agree to an increase in taxes if the extra money is used to prevent environmental pollution” Here is a list of various changes in our way of life that might take place in the near future. Please tell me for each one, if it were to happen whether you think it would be a good thing, a bad thing, or don’t you mind?	3-point 1 = good thing, 3 = bad thing
jobscarce	EVS	1990, 1999-00, 2008-10	Do you disagree or agree with the following statements: “When jobs are scarce, men have more right to a job than women”	3-point 1 = disagree, 3 = agree
singparent1	EVS	1981-2, 1990 1999-00, 008-10	[as above] “If someone says a child needs a home with both a father and a mother to grow up happily, would you tend to agree or disagree?”	3-point 1 = disagree, 3 = agree
workmoth1	EVS	1990, 1999-00, 2008-10	People talk about the changing roles of men and women today. For each of the following statements I read out, can you	4-point 1 = agree strongly, 4=disagree strongly

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Table 3 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
hwincome	EVS	1990, 1999-00, 2008-10	tell me how much you agree with each: “A working mother can establish just as warm and secure a relationship with her children as a mother who does not work” [as above] “Both the husband and wife should contribute to household income	4-point 1 = agree strongly, 4=disagree strongly
homosex	EVS	1981-2, 1990 1999-00, 2008-10	“Please tell me for each of the following statements whether you think it can always be justified, never be justified, or something in between: “homosexuality” [as above] “Abortion” [as above] “Divorce” [as above] “Euthanasia (terminating the life of the incurably sick)” [as above] “Taking the drug marijuana or hashish”	10-point 1 = always justified, 10=never justified
abortion	EVS	as above		as above
divorce	EVS	as above		as above
euthan	EVS	as above		as above
potuse	EVS	as above		as above
tradition	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	“It is important to try to follow the customs handed down by religion or family”	6-point top 3 responses indicate agreement
stronggov	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	“It is important that the government is strong and ensures safety”	6-point top 3 responses indicate disagreement

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Table 3 – Continued from previous page

Variable Name	Survey	Years Covered	Question Wording	Response Options
gayrights	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	“To what extent do you agree or disagree that gay men and lesbians should be free to live their life as they wish?”	5-point 1=agree strongly, 5=disagree strongly
overthrow	ESS	2002, 04, 06, 08, 10	“To what extent do you agree or disagree that political parties that wish to overthrow democracy should be banned?”	5-point 1=disagree strongly, 5=agree strongly
homosex1	PEW	2002, 07, 11, 13,	“Homosexuality is a way of life that should be accepted by society”	2-point 1=agree, 2=disagree
envgrowth	PEW	2002, 07, 08, 09, 10	“Protecting the environment should be given priority, even if it causes slower growth and some loss of jobs”	4-point 1=completely agree, 4=completely disagree

Table S4: Variables included in the Immigration Model

Variable Name	Survey	Years Covered	Question Wording	Response Options
trads	ISSP NI	1995, 2003, 2013	How much do you agree or disagree with the following statements? “It is impossible for people who do not share this country’s customs	5-point 1=disagree strongly, 5=agree strongly

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Table 4 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
imcrime	ISSP NI	1995, 2003, 2013	and traditions to become fully [nationality]” [as above] “Immigrants increase crime rates”	5-point 1=disagree strongly, 5=agree strongly
immecon	ISSP NI	1995, 2003, 2013	[as above] “Immigrants are generally good for this country’s economy”	5-point 1=agree strongly, 5=disagree strongly
takejobs	ISSP NI	1995, 2003, 2013	[as above] “Immigrants take jobs away from people who were born in this country.”	5-point 1=agree strongly, 5=disagree strongly
improve	ISSP NI	2003, 2013	[as above] “Immigrants improve this society by bringing in new ideas and cultures”	5-point 1=agree strongly, 5=disagree strongly
legalrights	ISSP NI	2003, 2013	[as above] “Legal immigrants to this country who are not citizens should have the same rights as citizens”	5-point 1=agree strongly, 5=disagree strongly
imports	ISSP NI	1995, 2003, 2013	[as above] “We should limit the import of foreign products in order to protect the national economy”	5-point 1=disagree strongly, 5=agree strongly
immgood	ESS	2002, 04, 06, 08, 10,12,14,16,18	Is it generally good or bad for the country’s economy that	11-point 1=good, 11=bad

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Table 4 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
immcult	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	people come to live here from other countries? Is the country's cultural life generally undermined or enriched by immigrants coming to live here?	11-point 1=enriched, 11=undermined
immbetter	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	Is the country a better or worse place to live as a result of immigrants coming to live here?	11-point 1=enriched, 11=undermined
immsame	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	To what extent do you think this country should allow people of the same race or ethnic group as most of the country to come and live here?	4-point top 3 signal agreement
immdiff	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	[as above] ... different race or ethnic group?	4-point top 3 signal agreement
immpoor	ESS	2002, 04, 06, 08, 10, 12, 14, 16, 18	[as above] ... people from the poorer countries outside Europe?	4-point top 3 signal agreement
scarceimms	EVS	1990, 1999-00, 2008-10	'When jobs are scarce, employers should give priority to native people over immigrants'	3-point 1=disagree, 3=agree

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Table 4 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
concimms	EVS	1999-00, 2008-10	To what extent do you feel concerned about the living conditions of immigrants in your country?	5-point 1=very much, 5=not at all
limitfors	EVS	1999-00, 2008-10	‘Which one of the following do you think the government should do about people from less developed countries coming here to work?’	4-point top 2: prohibit/place limits
forinfi	PEW	2002, 07, 09, 12	‘Our way of life needs to be protected against foreign influence’	4-point 1=completely disagree, 4=completely agree
socright	EB VAL	1997, 2000, 2003	‘Legally established immigrants from outside the European Union should have the same social rights as citizens.’	2-point 0=agree, 1=disagree
sendump	EB VAL	1997, 2000, 2003	‘Legally established immigrants from outside the European Union should be sent back to their country of origin if they are unemployed.’	2-point 0=disagree, 1=agree
sendall	EB VAL	1997, 2000,	‘Legally established immigrants	2-point

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Table 4 – *Continued from previous page*

Variable Name	Survey	Years Covered	Question Wording	Response Options
allhome	EB VAL	2003	from outside the European Union should all be sent back to their country of origin'	0=disagree, 1=agree
		1997, 2000,	'All illegal immigrants should be sent back to their country of origin	2-point
		2003	without exception'	0=disagree, 1=agree

3 Analysis of Individual Survey Items in the Relative Economic Issues Scales

As discussed in the main text, the finding that young people have become more right-wing on tax and spending over the past two decades may be surprising. Here I show that this finding faithfully reflects patterns in the underlying survey data, both in aggregate and for individual countries. I do this using the two sets of surveys questions with the longest temporal coverage: the ISSP Role of Government and Inequality surveys. The former were carried out in 1985, 1990, 1996, 2006 and 2016 and the latter in 1987, 1992, 1999 and 2009. Figures S1 and S2 display over-time trends in age differences for the main tax, spending and inequality questions from these surveys: the variable names in the figures match those in Table S2 above.

Figure S1: Differences in mean preference between old and young for higher government spending in four policy areas (ISSP Role of Government Surveys), and associated 95% confidence intervals [positive = old people more conservative]

In both figures, the old are defined as those aged 58-77 (the two oldest groups in the main paper’s analysis) and the young as those aged 18-37 (the two youngest groups), as in Figure 2 of the main paper.⁹ They include the average for all available countries in each year; individual countries are shown below. Negative numbers imply that the young are more conservative (opposed to higher spending). Figure S1 shows that in the 1980s and early 1990s, across most issues the old were at least as conservative, or more conservative, than the young. But over the 1990s to the 2000s, the young became relatively more conservative, preferring lower spending on health and unemployment as well as pensions. They also became relatively more conservative on both education and pensions spending, although on education they have, unsurprisingly, always preferred higher spending to the old. These patterns closely match those in Figure 1 of the main text: the age gap in ideology was small in the 1980s and early 1990s but widened by the late 1990s, remaining high throughout the 2000s and 2010s.

Figure S2 shows similar patterns for questions on inequality, benefits spending and progressive taxation from the ISSP Inequality surveys. These again show, overall, a pattern of increasing age gaps in conservatism from the 1980s to the late 2000s. The old were more conservative than the young on benefits spending in the 1980s (*Lessbens*), but became more conservative thereafter. On taxing those with high incomes, the young became considerably more conservative, relative to the old, over the same period (*Taxhighinc*). On perceptions of inequality (*Incdiff*), the young were more conservative in all periods and this grew over the 2000s, but there was no aggregate change over the whole period. Again, taken together, these closely match the estimates in the main paper which show a large age gap from the 1990s onward.

Figures S1-2 are not balanced samples. Different countries appear in different years, although the coverage becomes increasingly comprehensive over time. In case these patterns are affected by the countries that happen to appear in a given year, Figures S3 and S4 look at all available countries and years for each measure, presenting the same age gap in ideology as in Figures S1-2. Although there is some variation, in the majority of cases the same patterns occur *within* countries: age gaps were larger from the late 1990s onwards, and particularly in the 2000s, compared to the 1980s and early 1990s.

Figure S3 also shows that age gaps for most of these measures are relatively modest. This is particularly the case for health, where most point estimates are centered very close to zero, despite the elderly using more healthcare on average than the young. The evidence for education points to a modest age gap in the expected direction, although the differences

9. The results do not differ if single age groups are used. However, this results in very small groups for estimation by country, which appears below.

Figure S2: Differences in mean preference between old and young on inequality, benefits spending and progressive taxation (ISSP Inequaity Surveys), and associated 95% confidence intervals [positive = old people more conservative]

are generally very small. The mean cross-country age gap of 0.101 for the countries shown in the figure corresponds to one eighth of a standard deviation of the question's response scale. In fact, baseline support for greater education spending is very high across both age groups. The only difference is in intensity, with the young slightly more likely to want 'much higher' spending. In 2016 42.9% and 28.8% of those aged 30 and under wanted 'higher' and 'much higher' education spending, compared to 44.9% and 21.8% of those aged 65 and over. Even in France where the 2016 gap is highest, a majority (53%) of the elderly supported higher or much higher spending, compared to 65% of the young. Inally, for spending on pensions the average age difference is a bit larger, with the old more likely to want higher spending. Again though, virtually nobody – young or old – wanted lower spending: 4.4% of the young and 1.3% of the old in 2016. Majorities of both age groups again favored higher spending, with 44.8% and 18.1% of the young wanting it higher and much higher compared

to 41.4% and 31.4% of the old. Age differences in preferences for ‘much higher’ pensions spending are therefore large, but otherwise there is quite substantial agreement. Pensions spending remains a popular spending item across age groups. It is arguably important to distinguish between areas where the young and old have preferences for completely different policies versus areas where they want the same things, but with differing degrees of intensity. Education and pensions spending, classic valence items, clearly fall into the latter camp.

Figure S3: Differences in mean preference between old and young for higher government spending in four policy areas (ISSP Role of Government Surveys), and associated 95% confidence intervals, by country and year

Figure S4: Differences in mean preference between old and young on inequality, benefits spending and progressive taxation (ISSP Inequality Surveys), and associated 95% confidence intervals, by country and year

4 Trends in Conservatism by Age Group and European Region

Figure S5: Trends in conservatism over time by age group and issue domain in Western Europe, 1981-82 to 2017-18.

Figure S6: Trends in conservatism over time by age group and issue domain in Eastern Europe, 1981-82 to 2017-18.

Western Europe = Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Ireland, Italy, Netherlands, Northern Ireland, Norway, Portugal, Spain, Sweden, Switzerland

Eastern Europe = Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia, Slovenia