**Life-course trajectories of socio-political attitude change across cohorts and topics[[1]](#footnote-1)**

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**Abstract:** The assumption that early adulthood constitutes a distinct period of attitudinal malleability underlies diverse theories of socialization, cultural transmission, and cohort-based change. Yet this assumed “impressionable years” model rests on evidence from a small number of survey questions and rarely has been systematically tested across cohorts or attitude domains. We analyze more than 70 socio-political attitude items from 12 U.S. panel surveys spanning about 70 years to evaluate how patterns of both durable and transient attitude change vary across age, cohort, and question. We find expected life-course trajectory of high volatility in early adulthood followed by increasing stability in middle age to be a recent historical formation, not a fixed developmental feature. Earlier cohorts often displayed greater variability later in life, and life-course trajectories differ across topics. These patterns call into question biologically grounded or temporally universal models of cultural persistence and point to social structuring as a source of attitude malleability over time.

**Keywords:** Life-course; attitude change; early adulthood; cohort effects; personal culture.

**Introduction**

Sociological theories in socialization, cultural transmission, cultural evolution, and identity formation typically assume a model of cultural development in which people are more likely to revise their attitudes, beliefs, preferences, and orientations in adolescence and early adulthood before entering a more stable phase of middle and late adulthood (Elder 1974; Guhin, Calarco, and Miller-Idriss 2021; Mannheim 1952; Ryder 1965). This perspective, often called the “impressionable years,” “increasing persistence,” or “aging stability” hypothesis, broadly underlies theories in political socialization, strong practice theories in the sociology of culture, and explanations of cohort-based social change (Alwin and Krosnick 1991; Kiley and Vaisey 2020; Vaisey and Lizardo 2016).

Despite its centrality to sociological thinking, the notion of early adulthood – the period of time from age 18 to age 25 or 30 – as a distinct period of heightened attitude change remains more theoretical presumption than empirical fact. Much of the research on this life-course pattern is based on a small number of attitudes, most commonly partisan and ideological identification, and on narrow slices of time or specific cohorts (Alwin, Cohen, and Newcomb 1991; Alwin and Krosnick 1991; Sears and Funk 1999). Broader studies using more diverse sets of questions often fail to find substantial differences in attitude variability between younger and older adults, calling into question the universality of the impressionable-years model (Danigelis, Hardy, and Cutler 2007; Kiley and Vaisey 2020).

Moreover, studies focused on this life-course trajectory can rarely examine whether life-course trajectories of attitude change are historically stable or socially contingent. The experience of early adulthood, and all life stages more generally, unfolds differently across cohorts amid shifting institutions, timelines of family formation, or regimes of cultural exposure (Buchmann 1989; Mortimer and Moen 2016). Because the structure of these life stages is historically contingent, the life-course structure of attitude change may itself vary across cohorts, which could have consequences for how we understand the role of cohorts in broader cultural change (Mannheim 1952; Ryder 1965).

This paper offers a systematic test of that possibility. Our aim in this paper is not to challenge a single well-defined theory, but to empirically assess the generality of a common underlying assumption about a life-course pattern across domains and cohorts. Drawing on 70 attitude questions that were fielded multiple times across 12 U.S. panel studies spanning about 70 years, we ask three questions: (1) To what extent do rates of short-term attitude change vary across the life course? (2) Has this age-based pattern shifted across cohorts? And (3) are these patterns consistent across attitudinal domains? By modeling rates of short-term (1 to 4 year) within-person change on the same questions at different stages of the life course across multiple cohorts, we evaluate whether the impressionable years pattern is a stable feature of human development or a historically emergent outcome of the social structuring of early adulthood.

Our findings complicate the conventional narrative. While members of more recent cohorts tend to show more short-term attitude change in early adulthood than later adulthood, this does not appear to be true for earlier cohorts. In fact, we find that earlier-born cohorts often exhibited increased variability as they aged, a reversal of the presumed life-course pattern. Moreover, we find that different attitudes follow different trajectories, with some attitudes showing little difference in rates of change at any age and others marked by increasing or decreasing stability over time. These findings suggest that personal cultural formation and stabilization are not governed solely by cognitive maturation or age-linked constraints but are shaped by the historical organization of the life course. We conclude by outlining potential explanations for the emergence of the conventional life-course pattern over time, including increases in educational attainment, shifting transition timelines, and increased access to political information.

**A Universal Model?**

A premise across a broad range of sociological theories is that people’s worldviews, attitudes, beliefs, habits, self-concepts, and other elements of what Lizardo (Lizardo 2017) calls “personal culture” are more malleable when people are young and stabilize as people get older. In theories of political socialization, for example, "generational effects" are used to explain the development of political preferences, longitudinal shifts in attitudes, and differences across age-groups (Bartels and Jackman 2014; Gerber and Green 1998; Mannheim 1952). Bourdieusian practice theories argue a person’s “past conditions of production” – the environments in which they are raised and come of age – leave a lasting mark on their dispositions throughout adulthood (Bourdieu 1990; Vaisey 2009). The concept of cohort effects rests on the assumption that a person’s early years play a key role in shaping a wide variety of tastes, preferences, habits, and dispositions, which then impacts their choices and life outcomes well this life stage (Elder and George 2016; Fosse 2023; Ryder 1965). Social learning theories (Guhin et al. 2021; Lareau 2003), identity theories (Burke and Stets 2009), and a broad range of other perspectives assume, to some extent, this core life-course pattern.

This assumption is not unreasonable. A considerable body of work spanning different disciplines demonstrates a pattern of early attitudinal change followed by stability. This general trend has been shown with political attitudes including ideology, partisan identification, interest in politics, and some policy preferences (Alwin and Krosnick 1991, 1991; Bartels and Jackman 2014; Ghitza, Gelman, and Auerbach 2022; Prior 2010; Sears and Funk 1999); some social attitudes, such as those around sexual morality (Ekstam 2023); and other dispositions such as personality traits (Wagner, Lüdtke, and Robitzsch 2019). At the aggregate level, cohort effects tend to be stronger predictors than period effects for a variety of social and political attitudes, suggesting most attitudes are formed early in the life-course and remain stable through adulthood (Alwin and McCammon 2003; Vaisey and Lizardo 2016). Finally, adults show limited evidence of durable attitude change (Kiley and Vaisey 2020; Vaisey and Kiley 2021), while there is some evidence major life course transitions like marriage, which tend to happen in early adulthood, can produce attitude change (Lersch 2023).

Furthermore, there are developmental reasons to assume this pattern. Other species that engage in social learning appear to have a period in early life which they are more likely to adopt new behavioral patterns followed by a period of stability (Fawcett and Frankenhuis 2015; Laland 2017; Sherratt and Morand-Ferron 2018). And studies of human development suggest that people’s brains are more “plastic” early in life, meaning they are better able to adopt new behaviors and attitudes (Gopnik 2020; Mata and von Helversen 2015). In other words, malleability followed by stability might be written into our genes.

At the same time, the claim that humans follow a universal life-course trajectory of attitude malleability in *early adulthood* is not as well-grounded as might be supposed from its central theoretical position. First, many studies that find such a pattern focus on the same small number of attitudes, namely partisan identification and political ideology (Alwin et al. 1991; Alwin and Krosnick 1991; Ghitza et al. 2022; Sears and Funk 1999). While these issues are important, they are not necessarily representative of all issues, and there are reasons to think they – as “symbolic” attitudes – might be more likely to stabilize specifically in early adulthood (Sears 1993). Work that finds the impressionable years pattern for partisan identification fails to find it for other political attitudes (Alwin and Krosnick 1991). When researchers look at a broader range of social and political attitudes, they often fail to find differences in the malleability of these attitudes across age groups, and they occasionally find issues where older adults show more change than younger adults, directly challenging the overall pattern (Danigelis et al. 2007; Kiley and Vaisey 2020).

Second, the strength of cohort effects over period effects in explaining cultural differences does not necessarily imply that *early adulthood* is the important formative window. Early adulthood is typically assumed to start at age 18, well after people have begun to engage with the broader cultural and political world during adolescence. Strong cohort effects could suggest that *adolescence*, rather than early adulthood, is the important formative time, and that people are have mostly developed stable dispositions by age 18. In recent years, researchers have produced evidence across topics pointing to pre-adult years as the most important window for attitude formation and suggesting that rates of change decline before people enter early adulthood (Bartels and Jackman 2014; Ghitza et al. 2022; Keskintürk 2021).

Third, studies on the malleability of attitudes over the life course are often based on either tracing single cohorts over time (Alwin et al. 1991; Jennings and Niemi 1981; Sears and Funk 1999) or comparing age groups at one or two points in time (Alwin and Krosnick 1991; Kiley and Vaisey 2020). Given the fundamental challenge of distinguishing age, period, and cohort influences on change in such studies (Fosse and Winship 2019; Mason et al. 1973), these approaches are limited in their ability to evaluate whether observed life-course trajectories among these cohorts are specific to the window in which those cohorts are observed or whether between-cohort differences at a particular time persist across time points. Even if the same general pattern is observed across cohorts, the extremity of this pattern could shift over time.

*Changing Life Course:*

These empirical shortcomings point to a broader question. Sociological theory often treats early adulthood as a privileged period for attitude formation, but it has often been unclear about whether that privilege is the product of development or of social structure, typically assuming some combination of both. While cognitive development likely plays a role in openness to attitude formation at different ages, what ages mean and how they are socially structured are themselves social products (Mortimer and Moen 2016; Settersten and Mayer 1997). When researchers assume that the distinct patterns of attitudinal change are driven by unique *social* features of early adulthood (or the social features of middle age), they are often not explicit that these features potentially change over time (Eaton et al. 2009; Visser and Mirabile 2004). In other words, what it means to be different ages has changed over time, and as such, expectations about attitude malleability might change as well.

This is particularly important as the second half of the 20th century saw substantial shifts in the experience of early adulthood. Social and economic changes, including delayed transitions into marriage, parenthood, and stable careers; expansion of higher education; and entry of women into the labor force in large numbers, have broadly reshaped the social experience of early adulthood, leading to a new life stage often referred to as the “transition to adulthood” or “emerging adulthood” (Arnett 2000; Buchmann 1989; Mortimer and Moen 2016; Rosenfeld 2009). If the mechanisms driving different rates of attitude change across the life course are primarily social, then these broader shifts have the potential to alter the rates and patterns of attitude change in this stage. Alternatively, if the assumed patterns are largely developmental, rooted in age-related cognitive and biological processes, they may remain stable over time despite these broad social and economic changes.

While early adulthood has seen the most substantial change in its social conditions in recent decades, other aspects of the life course have also undergone shifts that might affect the rates at which people alter their attitudes. Educational attainment is frequently linked attitude stability (Alwin 2007; Schuman and Presser 1996), and U.S. adults are substantially more educated than they were in the middle of the 20th century. Changes in rates of divorce and remarriage, the growing proportion of nonmarital births, and shifts in how people move between education and the labor force, even at later ages, now mean that there is more diversity in life circumstances at all ages – and potentially less diversity between ages – than there were six decades ago. Furthermore, major changes in the organization of work (Kalleberg 2009), patterns of socializing (Fischer 2011), and information technology might also affect the rate at which people are exposed to information and have the capacity to change their attitudes as a result.

If rates of attitude change are primarily developmental, we should expect the pattern of attitude change over the life course to be relatively stable across cohorts despite these shifts. Evidence that contemporary young adults change attitudes at a rate similar to previous cohorts, even in spite of considerable social changes, would be indicative of the strength of the developmental processes. However, to the extent that attitude stability at different stages of the life course is partly a function of a the structuring of people’s social environments, we should be skeptical that there is a single pattern of attitude change over the life course. Exactly what patterns we might expect, however, is unclear.

A systematic test of differences in attitudinal updating between age-groups across cohorts, then, would not only provide evidence for a pillar upon which much social theorizing is built, but can also help us disentangle important questions about how individuals develop personal culture across the life-course.

*Types of Change*

Existing work broadly distinguishes between two kinds of change that are expected to vary in different ways across the life course. “Durable” change, sometimes called persistent change (Lersch 2023) or a lack of attitude stability (Alwin and Krosnick 1991), refers to shifts in a person’s central disposition over time – even if they vacillate around this disposition over time – and is often taken as evidence of learning, development, or conversion. This kind of change is broadly assumed to be highest during early adulthood and relatively low afterward. The second kind of change, transitive change (Lersch 2023), sometimes called temporary, ephemeral, non-persisting change, or simply unreliability, captures short-term fluctuations around these baselines. This change is often assumed to be measurement error, but it could also reflect real temporary changes in attitudes in response to events (like elections) before they return to a stable baseline (Achen 1975; Converse 1964).

Researchers have developed various approaches to separating these two types of change using structural equation approaches or latent variable models (Alwin 2007; Heise 1969; Judd and Milburn 1980; Wiley and Wiley 1970). While such approaches differ in assumptions and estimation strategies, they generally reach similar conclusions. Most attitudinal measures exhibit low levels of durable change in adulthood, with the highest rates of durable change coming in early adulthood. Transitive change is more prevalent overall, varies widely across survey items, and is most common in early adulthood and at old ages (Alwin 2007; Alwin and Krosnick 1991). These works tend to highlight the heightened rates of durable change in early adulthood as the primary evidence of the impressionable years pattern.

In privileging durable change as the quantity of interest, much of this literature treats transient change as noise – something to be modeled out or ignored – rather than a substantively interesting social phenomenon in its own right. Rates of transient change are often assumed principally to be a function of the question being asked, rather than the subject being asked a question (Alwin 2007). But if certain life stages (such as early adulthood) are marked by greater attitude volatility, even if that volatility tends to regress to the mean, it still indicates heightened responsiveness, uncertainty, or instability in attitudes during that period.

We consider both durable and transient change in our analyses, recognizing that each reflects a different aspect of attitudinal dynamics and might shift differently across ages and cohorts or not shift at all. For this reason, we attempt to partition durable and transient change and, to the extent that data allow, draw separate conclusions about each.

**Data and Methods:**

*Data*

Testing whether different cohorts follow the same age-based trajectory of attitude change across topics poses an empirical challenge, as it requires repeated measures of individuals’ attitudes at different ages, across multiple cohorts, using comparable questions. To the best of our knowledge, no single data set provides this. Most panel surveys either follow a single cohort over time (such as the National Longitudinal Study of Adolescent to Adult Health or the National Study of Youth and Religion) or sample different cohorts but track them only briefly (such as the General Social Survey and American National Election Study panels). The panels that do include a diverse range of cohorts tracked over a long period of time (such as the Panel Study of Income Dynamics), do not include many attitude questions or only ask them a few times.

To overcome this limitation, we assembled a unique data set by harmonizing 12 panel studies conducted over nearly seven decades by the American National Election Studies (ANES) and the General Social Survey (GSS). These studies consistently generate samples from a sampling frame that approximate the U.S. adult population, allowing us to broadly assume that people born in the 1952 surveyed in the 1972-76 ANES panel are drawn from, and are therefore representative of, the same cohort of Americans born in 1952 surveyed in the 2006-10 GSS panel. This allows us to compare the same cohorts at multiple time points. These panels also repeatedly measure a wide range of attitudes using similar question formats. Together, they allow us to estimate patterns of short-term within-individual attitude change across the life course for multiple cohorts across multiple issues.

Our final dataset incudes respondents and questions from ANES panels from 1956-60, 1972-76, 1980, 1990-92, 1992-97, 2000-04, 2016-20, and 2020-22; and GSS panels from 2006-10, 2008-12, 2010-14, and 2016-20.[[2]](#footnote-2) For reasons related to our modeling strategy outlined below, we identified attitude questions that met the following criteria: (1) tapped some subjective assessment of the social or political world; (2) were asked at least two times in at least three different panels; (3) included at least three waves in at least one panel; and (4) contained comparable question wording across panels. Because three of the GSS panels overlap considerably (2006-10, 2008-12, and 2010-14) and contain the same questions, we treated all GSS panels as a single panel for the purposes of identifying three distinct panels for each question.[[3]](#footnote-3) We allowed for question wording to vary slightly across panels (e.g., feeling thermometers about the "women's liberation movement" were combined with feeling thermometers about the "women's movement"), but most questions included here are asked with the same wording and response options across panels. A small number of questions had different response scales in different panels, and we harmonized response options to the question structure with the fewest response options. This was most common when one panel asked whether people “agreed” or “disagreed” with a statement while another included additional options for "strong" agreement and disagreement. We followed the ANES time series Cumulative Data File codebook in deciding which questions to harmonize.

Our search produced a total of 70 questions tapping political and ideological identification, general government policy preferences, preferences for federal spending on different priorities, views of government efficacy and trust in government, views on social issues and social change, and sentiment toward various political and social groups. These questions tap different forms of personal culture including beliefs, self-assessments, self-identifications, and sentiment toward different groups. For parsimony, we refer to all these as “socio-political attitudes,” but to the extent that we observe differences in the patterns of stability across kinds of items, we discuss it below. For reasons elaborated below, we scaled responses to all items to have a minimum of 0 and a maximum of 100. Table A1 in Appendix A outlines the questions included in our analyses, including their full question wording, number of waves and panels, and response scales.

Our final data set includes XXX,XXX unique observations, which are pairs of responses by the same person to the same question within a panel. These are nested within XX,XXX unique survey respondents and 71 unique questions. The most common items were partisan identification and ideological identification, which appeared in 12 and 11 panels respectively. Other common questions included the respondent’s preferred level of immigration; their preferred level of spending on the environment, social security, and schools; their level of generalized trust; and their views on racial preferences in hiring, all of which appeared in eight panels. On average, questions analyzed appeared in 4.58 panels.

*Attitude Change*

Because we are interested in the magnitude of change rather than the direction of change, we model attitude change as the absolute difference in responses by the same person to the same question across two time points. Each observation in our data represents a pair of responses to a given question by a single individual at two time points. If a respondent was asked the same question in three waves of a panel, we compute change for all wave-pairs (e.g., wave 1 vs. 2; 1 vs. 3; and 2 vs. 3). This yields observations per respondent-question combination, where k is the number of unique waves a question appears in within a panel. All response scales are rescaled from 0 to 100, so change scores also range from 0 to 100.

*Key predictors: Age and Cohort*

We are primarily interested in the association between the amount a respondent changes between two waves and their cohort (year of birth) and age at the time of the first survey. While these two measures are collinear in cross-sectional data, incorporating multiple panels allows us to compare the same cohort at different ages, breaking this collinearity. In most panels, respondents provided their birth year in at least one wave, which was used to calculate their cohort and age. In some panels, respondents reported their age instead of birth year. In these instances, we calculated their birth year by subtracting their age from the year of the survey. Panels differed in how they treated older respondents, with some panels grouping together all respondents over 80 or 85. Because of this, we do not include respondents who reported being older than 80 in the first wave of a wave pair. This also helps attenuate changes within cohorts caused by differential attrition due to morality, though this potentially is still an issue when comparing the same cohort over time.

To summarize the distribution of observations in the data set, Figure 1 presents the number of person-question-wave pair observations at the cross-classification of cohort (binned by 5-year windows) and age (binned by 5-year windows). Data is relatively sparse in the early years, especially in the 1960s, but becomes much more plentiful after the 1970s.



Figure : Number of observations (person-question-wave pairs) for each age and cohort classification across the 12 panel data sets.

Figure 1 indicates that we have roughly full coverage of the full adult life span (18-80) for 15 cohorts from about 1930 to about 1945. Our coverage of cohorts born prior to 1930 has limited data on earlier life, while our coverage of cohorts born after 1945 is limited to earlier ages with no data on later ages.

*Duration and Durable Change*

Time between responses varies both across and within panels, from a few weeks between some pre- and post-election waves of different ANES panels to about 5 years between the first and final wave of the 1992-97 ANES panel. Including a measure of duration between two instances of the same question allows us to adjust for the fact that more time between waves potentially permits more durable change, which is assumed to accumulate over time (Lersch 2023), but not more transient change, which is assumed to be unrelated to the duration between observations. By estimating change as a function of duration, the model intercept can be interpreted as the expected amount of absolute change observed between responses regardless of duration, or a baseline measure of transient change. In contrast, the duration parameter serves as a measure of durable change that accumulates over time.

*Analytic Strategy*

Our primary goal is to estimate how rates of attitude change vary across the life course, whether these life course trajectories are constant across cohorts, and whether they vary across different types of attitudes. This requires a model that allows for intra-cohort comparisons (comparing members of the same cohort at different ages to the same question), inter-cohort comparisons (comparing members of different cohorts at the same ages to the same question), and inter-question comparisons (comparing rates of change for different questions).

The structure of the data poses two challenges. While a few questions such as partisan identification are asked in most waves, many questions are asked only a few times, limiting our ability to trace full age- and cohort-trajectories for all questions. At the same time, collapsing all items to estimate a single trajectory risks obscuring potentially meaningful differences in how different kinds of attitudes evolve across the life course, as well as the risk of interpreting changes in question content across panels as changes in rates of attitude stability.

To address these challenges, we use a mixed-effects model in which wave-pair-level changes in responses are predicted by duration between waves, age (at the first wave of the wave pair), cohort, and the interaction of age and cohort. Each of these coefficients is allowed to vary by question, enabling us to estimate average trends while also modeling item-specific deviations from those trends. This approach treats our 70 questions as a sample from a broader set of belief domains and allows us to make generalizations about how belief stability varies by age and cohort, while acknowledging heterogeneity across items.

Furthermore, as noted above, by modeling absolute change as a function of duration, we partition change into components attributable to transient change, which are assumed to be unrelated to duration, and components attributable to durable change, which are assumed to accumulate over time.

Formally, we fit the following mixed-effects model:

Where,

In this model, is an individual respondent’s (*i*) absolute response change to a particular question (*j*) for a particular wave pair (*k*). *D* is the duration of time (in years) between those two waves, *A* is the respondent’s age at the first wave of the wave pair (measured in decades), and *C* is the respondent’s cohort or year of birth (measured in decades).

Each of the coefficients is assumed to be composed of a main effect, , and a random effect for each question, . These random effects are assumed to be normally distributed with a mean 0 and a variance specific to that coefficient, . Additionally, we include random effects for individual respondents, , since each individual is observed multiple times in the data set for different questions.

In these models, the coefficients capture the average trajectories of age- and cohort- based change across questions (as well as an average duration effect), and as such are our primary coefficients of interest. The variance of random effects around these terms also provides summary information about how variable these age- and cohort-trajectories are by question. As noted previously, many questions have too few observations to draw clear conclusions about question-specific trajectories. However, when sufficient data exists to draw general inferences about particular questions, we discuss those as well.

The coefficients attached to the age and cohort terms should not be interpreted as causal “effects” of birth year or age on attitude change, as the model outlined above does not consider period as a separate influence on rates of change. A cohort might demonstrate higher rates of change across the life course because they experience periods of heightened population-wide attitude change. As is well known, including separate indicators for age, period, and cohort in the same model produces perfect collinearity, known as the “age-period-cohort problem” (Fosse and Winship 2019). Because of this, researchers must make various assumptions about these influences in order to estimate them separately. In excluding a period term in the model, we opt instead to focus on what Fosse (Fosse 2023) identifies as *diachronic age effects*, or the intra-cohort trend over time, and *diachronic cohort effects,* or the inter-cohort trends over time. In our formulation, these within- and between-cohort trends might ultimately be shaped by period effects – times when people of all ages were more likely to change e – and we consider that possibility in our interpretation. However, this would still suggest that the overall pattern of life course change would be susceptible to social conditions, rather than developmental features of the life course.

There are two other important notes to make about the model. First, we treat age and cohort (and duration) as linear terms. This is potentially a simplification of a non-linear relationship between age, cohort, and amount of change. Several theories posit non-linear relationships between age and attitude change. Most centrally, the “impressionable years” hypothesis posits a quick increase in attitude stability following early adulthood, around age 25 (Alwin and McCammon 2003). However, as we only have a few time points for each question, we are limited in our ability to model such nonlinearities. In supplemental analyses we consider non-linear relationships between age, cohort, and change, though we note here that none of these alternative specifications contradicts the results we find with linear terms.

Second, the model outlined above does not include interactions between duration and either age, cohort, or their interaction. This specification assumes that rates of durable change -- captured by the duration term -- are stable across ages and cohorts. If this assumption is violated, our estimates for age and cohort effects may be biased. Testing for such interactions requires variation in the duration between survey waves within multiple time points, which is available for only 26 of the 70 questions in our dataset. For these questions, whether modeled separately or pooled (analyses not shown), we find few statistically significant interactions between duration and age or cohort. In many respects, this constitutes our first result: for most items with sufficient data, rates of durable change do not appear to differ meaningfully across adult ages or cohort. While we cannot rule out small effects below the threshold of statistical detection, the consistency of this pattern suggests that the duration effect is relatively stable for each question. For this reason, and to maximize sample size across items, we proceed with a model that excludes duration-by-age and duration-by-cohort interactions.

To address the limitations raised above -- the potential non-linearity of age effects and the possibility that the duration effect varies by age or cohort -- we conduct an analysis of the one question with sufficient resolution to test these dynamics: partisan identification. Partisan identification is measured 40 times across the 12 panel studies, yielding 51 wave pairs and allowing for different modeling strategies. We estimate several versions of the core model described above, using only partisan identification data and omitting random effects. First, we examine whether the relationship between age and attitude change is non-linear by including a quadratic term for age and its interaction with cohort. Second, we test whether the effect of duration varies systematically with age and cohort by including interaction terms for each.

**Results**

We begin our analysis by estimating a mixed-effects model predicting the absolute value of within-person attitude change as a function of time between observations, age, cohort, and their interactions. This model captures both general life-course and historical patterns of attitude change while allowing for variability across survey items and individuals. Table 1 presents coefficient estimates from this model. The first column reports fixed effects, summarizing the average pattern of change across all questions. The second column shows the standard deviation of the question-specific random slopes and intercepts, capturing how the magnitude of each effect varies by item. The third column presents the standard deviation of individual-level random intercepts, reflecting heterogeneity in baseline change across respondents.

Table : Coefficient estimates of linear mixed effects model of absolute change on age, cohort, and duration between observations.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Fixed Effects** | **Question**  **Random Effects S.D.** | **Individual Random Effects S.D.** |
| **Intercept** | 16.310 (0.532) | 4.586 | 4.434 |
| **Duration** | 0.815 (0.054) | 0.383 | – |
| **Age** | -0.652 (0.141) | 1.120 | – |
| **Cohort** | -0.313 (0.156) | 1.300 | – |
| **Age \* Cohort** | -0.271 (0.023) | 0.156 | – |
|  |  |  |  |
|  |  |  |  |
| **N Questions** | 78 |  |  |
| **N Individuals** | 24,722 |  |  |
| **N** | 924,155 |  |  |

*Fixed Effects and General Trend:*

We first discuss the model fixed effects, captured by the various terms, summarizing the overall pattern in attitude change across topic domains. The intercept term (Table 1, Column 2) indicates that respondents are expected to change approximately 16 points on a 0-100 scale between survey waves, holding duration constant. For context, if all respondents answered questions randomly, we would expect this value to be 50,[[4]](#footnote-4) so 16 represents a moderately high amount of wave-to-wave variation, suggesting that on average people frequently, and seemingly randomly, change their reported attitudes about political issues. Age and cohort are centered at 44 and 1950, respectively, so the intercept captures the expected change in attitudes for respondents in middle adulthood, born in the middle of the 20th century.

The duration between observations has a statistically significant but substantively modest effect on the amount of reported change: each additional year adds about 0.8 points to the predicted change score. This implies that the overwhelming majority of observed change in responses between waves reflects transient, short-term variation (potentially measurement error) rather than durable, cumulative changes in attitudes. For example, over a two-year interval (the modal gap in our data), expected change is 17.6 points; over four years, 19.2 points. As we note above, we find little evidence that the effect of duration – and therefore the amount that people durably change their opinions over time – varies either by age or cohort. In other words, we find no evidence that young adults are more likely to make durable changes of opinion than older adults on attitudes in general, a direct challenge to the impressionable years thesis.

Turning now to age and cohort, the main effect of age in decades is negative (), meaning, at least for the reference category, people tend to become slightly more stable attitude reporters as they age, consistent with the conventional story in the sociological literature. For people at the reference cohort, the amount of their attitudes change between any two waves will be about 1.8 points less at age 70 than it was at age 20. The main effect for cohorts in decades is also slightly negative () but not statistically significantly different from 0, suggesting no increase or decrease in stability across cohorts on average at the reference age (44).

However, the significant interaction between age and cohort (γ₄ = –0.271) complicates this picture. It suggests that in more recent cohorts, transitive attitude change is higher in early adulthood and lower in later adulthood than in earlier cohorts. In other words, the expected life-course trajectory of attitude stability differs by cohort, and the direction of change itself may reverse across generations. To visualize this pattern, Figure 3 plots predicted values of within-person change across all age–cohort combinations, assuming a fixed two-year interval between observations. These predictions are based solely on fixed effects (i.e., excluding question-level random variation).

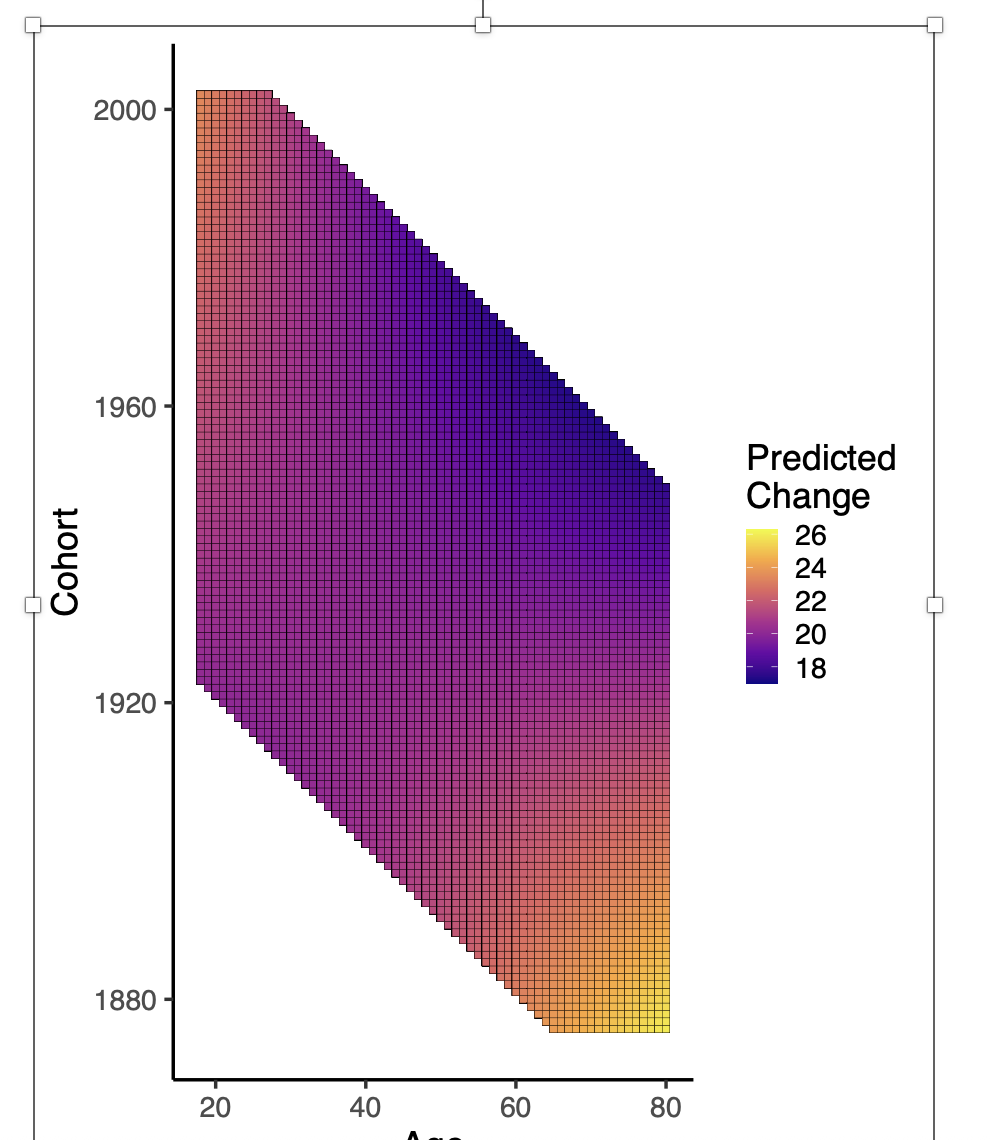


Figure : Predicted level of change by age and cohort across all questions.

The resulting pattern contrasts with a simple developmental interpretation of the “impressionable years” thesis. Rather than a uniform early-adult spike in change followed by stabilization, we observe cohort heterogeneity. Older cohorts exhibit flatter or even reversed trajectories -- showing more change later in life -- while more recent cohorts exhibit the early-adult volatility typically associated with impressionability. This suggests that early adulthood has only recently become a period of heightened attitude variability.

At the same time, Figure 3 shows that these life-course and cohort differences are modest in size. The expected amount of change for the most variable age/cohort combinations (oldest ages in the earliest cohorts and youngest ages in the most recent cohorts), is only about 5 points greater (on a 100-point scale) than the most stable age/cohort combinations. In other words, people of all ages and cohorts, on average, are expected to report somewhat variable attitudes. While there have been significant shifts in the life-course trajectory over time, these shifts are small compared to the overall variance in responses we observe. And the shifts are principally related to transitive change, not durable change.

*Variation Across Questions*

The picture presented above masks question-level heterogeneity in all terms. Column 3 of Table 1 presents the standard deviations of question-specific terms for the coefficients for the intercept, age, cohort, and duration. Random effects on the intercept indicate that some questions show much more transitive change over time than others, while random effects on the duration term suggest that some questions show higher rates of durable change over time than others. Figure 4 plots question-specific intercepts and duration terms for all questions explored here.



Figure : Question-specific intercept terms and duration terms from mixed effects linear regression. Bars represent 95% confidence intervals.

Our results reinforce previous findings about which kinds of attitudes are more stable than others (Sears 1983). At the bottom of Figure 4, we see that questions tapping “symbolic” identities such as how important people deem religion to be, their partisan identification, and their ideological identification have low levels of expected transient change between observations and typically show low levels of durable change as well. On average, people seem to change their responses to these questions less than 12 points out of the 100-point scale between waves regardless of duration. Feeling thermometers (questions starting with “ft,” in which respondents are asked to report their sentiment toward various social groups on a scale from 0 to 100), also tend to have lower levels of transient and durable change over time than many other kinds of questions. This is consistent both with theories that people hold clearer attitudes toward well-defined groups than toward vague policy issues (Sears 1983), as well as expectations that scales with higher resolution decrease measurement error (Alwin 2007).

In contrast, on the high end of Figure 4, we see several questions about government efficacy (ppllikeme, dontcare, runfew) and questions of generalized trust (helpful, fair), all of which show expected rates of transient change of more than 25, as well as low levels of durable change. Given that random responses to a question would produce a value of 50 in expectation, these questions should be thought of as reflecting an extremely high level of within-person variation over time, with many respondents in the population seeming to answer these questions functionally at random. Most questions about specific policies, with the exception of support for capital punishment, also show comparatively high rates of change over time, though many also show higher rates of durable change.

Question-specific variance around the main effect for duration is relatively small and positive. This is consistent with previous work finding that adults’ attitudes, while highly variable in the short term, are not subject to substantial durable updating over time. We do observe some questions where effect of duration is larger (1.5 points per year), including several items tapping racial resentment. Consistent with previous work finding a shift of opinion among adults on the issue of gay rights in the 2000s, the highest duration effect is the question about whether it is acceptable for employers to discriminate against homosexuals. On other questions the effect of duration is effectively 0, including sentiment toward various groups including Blacks, feminists, whites, and Hispanics, suggesting people make little to no durable change in these attitudes over time.[[5]](#footnote-5)

There is substantial variation (s.d. = 1.165) in the random effects around the term for age that includes large numbers of both positive and negative estimates, as well as many close to 0. In other words, on some questions, change decreases substantially as people in this cohort age, while on other questions it increases. Similarly, we see significant variation around the main effects for cohort (s.d. = 1.300). Some questions show a strong positive effect of cohort, meaning more recent cohorts are more variable than earlier cohorts, while some questions show a strong negative effect of cohort, meaning more recent cohorts are less variable than earlier cohorts. Finally, unlike the terms for age and cohort, where the variance on random effects suggested that question-specific terms were both positive and negative, almost all question-specific interaction terms are negative, meaning older age is increasingly associated with more stable attitudes in more recent cohorts.

Given this broad range of positive and negative coefficients for cohort and age, it is hard to make sense of the age and cohort terms and their interaction from Table 1 alone. To more clearly illustrate the variety of question specific trajectories over the life course and across cohorts, Figure 5 plots the predicted rates of change for each question over the life course for three cohorts: one born in 1910, one born in 1950, and one born in 1990.

While the overall pattern in attitude changes over time – a decrease in change as people age, with that decrease becoming more pronounced in more recent cohorts – is visible in Figure 5, there is also substantial variation in the question-specific trajectories across age and cohort. While the most recent cohort shown in the figure is expected to have the life course pattern we commonly assume (decreased change as they age) for most items, earlier cohorts often show the opposite trajectory, becoming more variable as they age. This pattern is particularly striking for questions like lessgvt, prefhiring.

**A chart of different numbers

AI-generated content may be incorrect.**

Figure : Predicted question-specific life-course trajectories for three cohorts (1910, 1950, and 1990).

While the patterns for the earliest and middle cohorts shown in the figure are quite variable, with some questions showing increases in rates of change as people aged, generally speaking, the most recent cohort shown in the figure (people born in 1990) show the consistent life-course pattern we associate with aging – decreased rates of change as they age. In other words, while different items showed different age-based trajectories in earlier cohorts, a consistent pattern of less variable attitudes as people age appears to be emerging in survey data. Again, we reiterate that, because the association between duration and change shows no substantial interaction with age or cohort, the trends shown here principally deal with changes in transient change.

*Respondent-level Variation:*

Finally, there is substantial variance by respondents in their intercepts, presented in column 4 of Table 1, suggesting that some respondents are more stable opinion reporters than others regardless of question. Existing research suggests a variety of explanations for such large between-person differences, including differences in cognitive ability, educational attainment, and age, as well as differences in political knowledge and interest. At the same time, a large proportion of variance in rates of short-term attitude change remains unexplained, even with person- and question-level random effects, suggesting that people vary across questions in how stable they are, as well as how stable they are on any particular question over time.

*Partisan Identification*

Given the limitations on our ability to detect non-linear relationships between age and change and to detect interactions between duration and other terms for most questions, we consider those two issues together for one question where we have significant data: partisan identification. Using just data on partisan identification and no random effects, we considered whether the model would be improved by including a quadratic term for age and interactions between duration and age, cohort, and its interaction. Again, we are able to do this because partisan identification – asked in 40 waves across all 12 panels – contains a much higher degree of resolution than other items. Table XXX includes those model comparisons.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model** | **Quadratic** | **Duration interactions** | DF | Partisan identification  BIC |
| 1 | No | No | 6 | 487145.8 |
| 2 | Yes | No | 8 | 487153.6 |
| 3 | No | Yes | 9 | **487131.4** |
| 4 | Yes | Yes | 13 | 487154.7 |

The preferred model (3) does not include a quadratic for age. In other words, we do not find a strong “impressionable years” pattern where stability of partisan identification increases rapidly after early adulthood, and our results are more consistent with an “increasing persistence” pattern where attitudes become gradually more stable as people age. At the same time, the preferred model does include the interaction between duration and the other terms in the model, though the only one that is significant is the interaction between duration and cohort. In other words, the pattern of changes in partisan identification suggests that the rate at which time between observations affects the likelihood of change shifts across cohorts in a linear fashion. Again, given the challenge of making sense of multiple interactions, we visualize the predicted level of baseline change and the marginal effect of duration in Figure XXX.



The two images in Figure XX show different patterns for the two different kinds of change. First, consistent with the overall story presented above, the rate of non-durable change decreases across cohorts, especially among older respondents, leading to the “impressionable years” pattern in more recent cohorts. At the same time, the right side of the figure shows that time between observations is more strongly related to change for more recent cohorts, suggesting these people are more likely to make durable changes of partisan identification at all ages than earlier cohorts (about 1.5 points per year on average on a 100-point scale). The oldest cohorts in the earliest panels exhibit a large amount of non-persisting change while demonstrating almost no persisting change. The most recent cohorts in the most recent panels demonstrate higher rates of both.

Appendix B includes model comparisons for five other questions for which we have a large number of distinct time points: attention paid to political campaigns, whether people are fair, preferences regarding immigration levels, political ideology, and generalized trust. On only one of those questions – attention to campaigns – does including interactions between duration and other terms improve model fit. These results give us little reason to suspect our model is ignoring substantial changes in the effect of duration, and therefore changes in rates of durable change, across the life course or cohorts. At the same time, even when isolating more persistent durable change in partisan identification – an item where we had strong reasons to expect to see the life-course pattern – we do not see the expected impressionable years pattern and do see shifts across cohorts. This reinforces our core claim: that the life-course pattern of impressionability in early adulthood is not a fixed feature of development.

*Robustness Checks:*

As noted above, the central limitation of our analysis is that the number of different time points for each question means that we have modeled the relationship between age, cohort, and absolute change as linear terms. It is plausible that these relationships are non-linear. Existing work suggests that the relationship between age and change is non-linear, with either a quick drop-off in change shortly after early adulthood (“impressionable years”) or a decrease after early adulthood followed by an increase in old age (“life stages”). We did not find such an effect when we explored partisan identification. However, to explore this possibility in the full sample of questions, we run a separate model where we treat age and cohort non-linearly. In this model, we bin age and cohort in 5-year blocks and include them as a series of dummy variables in the model, as well as interactions between age and cohort groups. Given data limitations, we only include random intercepts for questions, rather than random effects for all age, cohort, and interaction terms. Results from this model are substantively similar to the model presented above – showing a gradual decline in rates of change across the life course and decreasing rates of change in more recent cohort. These results presented in Table SA1.

A second potential limitation of our analysis is that we assume our outcome – absolute change over time – is a continuous measure. The measure is bound by 0 and 100, and is not normally distributed, as most items explored here are measured on 2-, 3-, 5- and 7-point ordinal scales. [We explore a number of different functional form specifications in Table SB1 to potentially account for this non-normality.] These produce substantively similar results.

Finally, there is the concern that our results might be biased by the inclusion of specific questions, specifically partisan identification and ideological identification, which are measured much more often than other items in the data set and as symbolic attitudes potentially behave quite differently than other attitudes. We re-run the model excluding partisan identification and political identification and find substantively similar results, presented in table S#.

**Discussion:**

To the best of our knowledge, our results are the first to present an overall picture of the patterning of short-term attitude variability over adulthood across many cohorts. We find that -- in line with the “impressionable years” or “increasing persistence” hypotheses -- age is associated with a decrease of transitive attitude change in the most recent cohorts. However, our results show that this pattern is a relatively recent phenomenon. Earlier cohorts seemed to display higher rates of transitive attitude change as they aged and more variable life-course trajectories for different questions. Rather than being a general feature of the life-course, the pattern of attitude change typically assumed seems to have emerged across the 20th century.

In terms of durable change, we generally do not observe changes in rates of durable change across ages or cohorts. While this is in part due to the resolution of our data for most questions, even on questions where we have repeated measures at multiple time points for many cohorts, we do not see a clear interaction between age and durable change as captured by duration between observations. Durable change is quite rare in the data at most ages and appears to be relatively stable across ages and cohorts.

Further, we do not observe the same pattern for all questions. Especially in older cohorts, the life-course trajectory in transitive change was highly variable across issues, with people becoming more stable on some issues over time while becoming more variable on others. At the same time, life-course trajectories do seem to be converging on a similar pattern over time. For cohorts born in recent decades, most attitudes appear to follow an increasing persistence pattern of gradual increases in stability as people age. We do not have evidence that differences in rates of durable change contribute meaningfully to age differences for most questions.

Having said that, the moderate size of shifts in both transitive and, when observed, durable, change over time compels us to be cautious about our conclusions. In general, our respondents tend vary their attitudes considerably over time, and the differences we observe between cohorts -- and across time -- are moderate. While we do observe differences in the rates at which different age-groups change their opinions, these differences are slight relative to the overall opinion variability a given respondent displays.

*Limitations*

Our analysis is not without limitations. First, data limitations mean our conclusions are primarily about transitive change. Our main models assume that durable change as captured by the duration between observations is constant across ages and cohorts. This means our results are not directly comparable to previous efforts that more specifically focused on changes in attitude stability net of what is often called measurement error (Alwin and Krosnick 1991). However, we do believe our results can speak to these debates in two ways. First, when we focused only on questions that included a large number of distinct time points, we found few meaningful interactions between duration and either age, cohort, or their interaction. In other words, we found little evidence that rates of durable change are changing across ages or cohorts. While it is plausible that these shifts are real and we simply lack the power to detect them, we note that they must be quite small if they exist. Second, when we explored partisan identification on its own, we found an interaction between duration and cohort – more recent cohorts are more likely to make durable changes at all ages -- but not one between duration and age, as is often assumed.

Second, while we draw on a broad range of questions asked across multiple panels, most of our questions were only asked at a few different time points. Because of this, we are limited to modeling age and cohort trends linearly. This means that our approach cannot distinguish between an “impressionable years” pattern in which rates of change fall off quickly after early adulthood, and an “increasing persistence” pattern in which rates of change gradually decrease into middle age, and the gradual decline in attitude change we observe in more recent cohorts might reflect either process. Similarly, we cannot rule out other non-linear relationships between age and attitude change, such as the “life stages” model which suggests that people open up to more change in later ages. However, our supplemental analyses using binned age and cohort measures produce a substantively similar pattern as we observe in the linear models, and our analysis of partisan identification on its own showed no non-linear effects of age on attitude change (either temporary or durable change).

Third, because of the data sources we employ, we necessarily focus on questions related to political attitudes, with few questions tapping other kinds of identities, beliefs, attitudes, and opinions. It could be the case that the patterns we observe are specific to the political domain, and attitudes such as cultural tastes show different intra- and inter-cohort patterns than what we observe here. Similarly, we do not explore changes in behaviors of any kind, including political behaviors like voting, volunteering, and donating money, which might be subject to different constraints at different ages.

Fourth, because our analysis sought to focus on the overall pattern of attitude change over time, and as such required that we combine data gathered through diverse sources, we cannot rule out the possibility that the changes we observe across ages and cohorts are driven at least in part by changes in how surveys are designed and administered. These include: changes in the modes of survey administration (in person, by phone, or online); changes in who administers surveys; changes in sampling design and response rates; changes in cohort composition through migration, mortality, and other factors; and slight differences in question and response wording across panels. We hope further research can elucidate the influence of such processes.

Finally, our results do not distinguish between opportunities to change and the propensity to change, something that is impossible to separate in observational data. It could be the case that there is a true developmental trajectory of impressionable years in early adulthood that is masked by changes in information environments that minimize differences in rates of durable change between ages. To the extent that is true, however, it seems of limited consequence for explaining overall shifts in attitudes over time.

*Implications*

Limitations aside, our results have several key implications. First, and most centrally, our results help clarify an overall pattern of attitude stability across adulthood. Recent cohorts tend to be more variable as early adults and less variable in older ages, and this is broadly true for most of questions explored here. This pattern of individual-level change across the lifespan – to the extent it persists over time – has implications for how we should see cultural change at the aggregate scale. If people hold relatively stable opinions when they are older, cultural change should occur mostly as a result of cohort replacement. Our study joins recent work that points towards cohort replacement as a key driver of aggregate cultural change (Kiley and Vaisey 2020; Vaisey and Lizardo 2016). Further, our results suggest that few adults make durable changes of opinion, suggesting limited room for persuasion and social influence in these years.

Second, our results suggest that social factors play a meaningful role in structuring attitude change across the life-course. The fact that the pattern of exploration followed by relative stability appears to have become more pronounced during the latter half of the 20th century highlights that it is not a developmental necessity. Even if this pattern is biologically grounded, social factors appear to overwhelm biological dispositions in earlier eras. To be clear, we do not suggest that brain plasticity or other developmental features are unimportant, only that they interact with social environments in ways that shape their relevance. Our study provides additional evidence that the social structuring of the life course affects attitudinal updating as one ages (Eaton et al. 2009; Visser and Mirabile 2004).

It follows, then, that assuming a unitary age-based trajectory of attitude change across the life-course is misguided. We show that rates for attitudinal updating at different ages have changed in the past decades, and that these trajectories are themselves highly variable across issues. Therefore, even though the model of attitudinal change followed by persistence remains widely applicable, researchers should pay close attention to the social context and to the specific attitude in question when making claims about how individuals are socialized around it.

*Possible Explanations*

While our results suggest that rates of attitudinal updating across the life course have shifted in the last decades, we cannot clarify what mechanism drives this shift. Here we suggest several possibilities consistent with trends we present.

A tempting explanation for the life-course structure we see among the most recent cohorts is the aforementioned elongation and intensification of early adulthood. Since the 1950s, the timing of life-course transitions such as completing schooling, entering the workforce, getting married, establishing an independent household, and having children have changed dramatically, with most of these events occurring at later ages for more recent cohorts than they did for earlier cohorts (Brückner and Mayer 2005; Buchmann 1989). As a result, "emerging adulthood" or the “transition to adulthood” has emerged as a distinct life stage (Arnett 2000; Mortimer and Moen 2016). Moreover, increased geographic mobility and financial independence from the parental home means that young adults have more freedom to explore ideas and lifestyles (Rosenfeld 2009).

However, it is important to clarify that the most substantial shift in the life-course patterning of attitude change across issues has been a reduction in the amount of attitude change observed among older adults, rather than substantial shifts among early adults. While early adults from more recent cohorts are slightly more variable than early adults from older cohorts, shifts in the structure and timing of early adulthood transitions seemingly cannot explain why 60-year olds today are much more stable than 60-year olds were 40 years ago.

We speculate that increases in population-wide education levels play a significant role in increasing attitude stability for most age groups over time. Existing work has suggested that higher levels of education are broadly associated with more reliable attitude reports (Alwin 2007), as well as attitude reports more consistently reflective of underlying organizing principles (Boutyline and Vaisey 2017; Lynn and Ellerbach 2017; Shi, Kiley, and Lynn 2025). This would explain why we see the largest shifts in stability among the oldest respondents, who have also seen the largest shifts in mean level of educational attainment. In the earliest panels, these individuals often had very low levels of education, with many having less than a high school degree. By the most recent panels, about 30 percent of people over 65 had a college degree. In contrast, early adult respondents have seen the smallest shifts in educational attainment from the earliest panels, in part because many are still in school by the time they are surveyed. Consistent with our results, under this framework, higher levels of education would make all age-groups more stable but would affect older age-groups more dramatically.

A second plausible mechanism is related to changes in access to information driven by technology. Over the time period covered by our data, we see widespread adoption of broadcast and cable television, the internet, social media, and smartphones, all of which profoundly affect peoples’ access to information about politics and exposure to alternative opinions. Prominent explanations for attitude stability suggest that it increases as a function of the attention one devotes to relevant information (Zaller 1992). Therefore, it is plausible to think that more frequent exposure to information about politics is potentially a driver of the increased attitude stability we observe among older adults in more recent cohorts.

Third, it is plausible that changes in social power or social networks at different stages of the life course have led to increased stability in middle age. Previous work suggests that more homogeneous networks and higher levels of social authority are associated with higher levels of attitude stability (Eaton et al. 2009; Visser and Mirabile 2004). Changes in the organization of work and the organization of middle age social environments might contribute to increased attitude stability in these ages.

We lack the data and space to fully adjudicate these explanations here. However, our results suggest that this is an area ripe for further exploration. There is no one “life course” pattern of attitude change, only substantial variance in trajectories of attitude change across the life course to explain.

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**Appendix B:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **M** | **Quad.** | **Int. Duration** | **DF** | **Attention to politics** | **Fair** | **Immigration** | **Political ideology** | **Trust** |
| 1 | No | No | 6 | 215576.6 | **166863.7** | **115965.0** | 404491.7 | **206685.1** |
| 2 | Yes | No | 8 | 215584.5 | 166881.9 | 115983.2 | **404491.3** | 206687.9 |
| 3 | No | Yes | 9 | **215559.1** | 166885.2 | 115976.1 | 404495.8 | 206712.5 |
| 4 | Yes | Yes | 13 | 215591.9 | 166917.6 | 116013.1 | 404516.9 | 206735.3 |

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2. We considered additional panels including the Americans Changing Lives study and the Cooperative Congressional Election Study of 2010-14, but these panels lacked questions that overlapped with those in previous panels. Other panels, including the National Longitudinal Study of Adolescent to Adult Health and the National Study of Youth and Religion, focused on one or a few cohorts and as such did not allow for exploration across cohorts. [↑](#footnote-ref-2)
3. Including the more than 150 GSS questions that meet our other criteria – substantially more than are identified at other time points – risks over-fitting trajectories to a relatively narrow band of time. [↑](#footnote-ref-3)
4. An average change value over 50 for a specific question would require significant population-level change in an attitude from one extreme to another in one wave followed by a reversal in the next wave. There are no examples of this in any panel. [↑](#footnote-ref-4)
5. We did not expect to observe, nor did we observe, negative coefficients on this term. It seems implausible that respondents would exhibit less absolute change when they are observed over a longer duration. [↑](#footnote-ref-5)