**Abstract:** Many theories of socialization, cultural transmission, and cohort-based change assume that early adulthood constitutes a distinct period of attitudinal malleability. 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. This article links 70 socio-political attitude items measured multiple times across 12 U.S. panel surveys spanning about 70 years to evaluate how patterns of both durable and transitory attitude change vary across age, cohort, and question. Mixed-effects models find that the expected life-course trajectory of high volatility in early adulthood followed by increasing stability in middle age is 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 challenge the frequent assumption of attitude malleability in early adulthood 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, acculturation, 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 is often called the “impressionable years,” “increasing persistence,” or “aging stability” hypothesis and 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 between ages 18 to age 25 or 30 – as a distinct time 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 and 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, most studies focused on this life-course trajectory of attitude change focus on single cohorts and therefore cannot examine whether observed trajectories of attitude change are consistent across cohorts. The salience of issues changes over time, so studies focusing on one or a few cohorts might conflate specific eras of change with specific ages. Further, 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 organization of these life stages is historically contingent, the life-course structure of attitude change may itself vary across cohorts. Such variation, in turn, 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 to empirically assess the generality of the common underlying assumption about a consistent life-course pattern of attitude change. 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 durable and transitory attitude change vary across the adult 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 different ages.

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. These earlier cohorts also tended to show different trajectories for different questions, with some attitude questions showing little difference in rates of change at any age and others marked by increasing or decreasing stability as people age. However, more recent cohorts are much more likely to display the expected pattern of increased stability over time across attitudes. 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 they are young and stabilize as they 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). Similarly, 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 affects their choices and life outcomes well after 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 et al. 1991; Alwin and Krosnick 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 many 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 that major life-course transitions like marriage, which tend to happen in early adulthood, can produce attitude change (Lersch 2023).

There are also developmental reasons to assume this pattern. 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). And 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). 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 this 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 than at other ages (Sears 1993). Highlighting this possibility is the fact that the same 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 over-time 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 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 window, and that people have mostly developed stable dispositions by age 18. In recent years, researchers have produced evidence across topics pointing to pre-adult years as the more important window for attitude formation and suggesting that rates of attitude change start to 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 challenge of distinguishing age, period, and cohort influences on attitude change in such studies (Fosse and Winship 2019; Mason et al. 1973), these approaches are limited in their ability to evaluate whether observed trajectories are specific to the window in which cohorts are observed. Additionally, they cannot tease apart whether the between-cohort differences at a particular window persist across time. Even if the same general pattern is observed across cohorts, the strength 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 human 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). Even when researchers assume 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 18 or 28 or 48 has changed over time, and because of this, expectations about attitude malleability at these ages 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 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). People who experience this age range in the 2000s might have a different social experience than people who move through this age range in the 1970s.

Further, while early adulthood has seen substantial change in its social conditions in recent decades, other stages of the life course have also undergone shifts that might affect the rates at which people alter their attitudes. Educational attainment is frequently linked to attitude stability (Alwin 2007; Schuman and Presser 1996), and middle-aged and older U.S. adults are 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. Major changes in the organization of work (Kalleberg 2009), patterns of socializing (Fischer 2011), and new 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.

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 a developmental processes. However, to the extent that attitude stability at different stages of the life course is partly a function 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, transitory 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 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. Attitudinal measures evaluated with these methods often show low levels of durable change in adulthood, with the highest rates of durable change coming in early adulthood. Transitory 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 work treats transitory change as noise – something to be modeled out or ignored – rather than a substantively interesting social phenomenon in its own right. Rates of transitory change are often assumed principally to be a function of the question being asked, rather than the person being asked a question (Alwin 2007). But if certain life stages 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 that is sociologically interesting.

We consider both durable and transitory change in our analyses, recognizing that each reflects a different aspect of attitudinal dynamics that might shift differently across ages and cohorts or not shift at all. For this reason, we attempt to partition durable and transitory 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 different individuals’ attitudes using comparable questions across the life course and across multiple cohorts. To the best of our knowledge, no single data source meets all these criteria. 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. Most panels that include a diverse set 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 each, making it difficult to map trajectories.

To overcome these limitations, we assembled a unique data set by linking 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 approximates the U.S. adult population, allowing us to broadly assume that people born in the 1952 surveyed at ages 20-24 in the 1972-76 ANES panel are drawn from, and are therefore representative of, the same cohort of Americans born in 1952 surveyed at ages 54-60 in the 2006-10 GSS panel. This allows us to compare the same cohorts at multiple time points. These panels also repeatedly measure a range of attitudes using similar question formats, allowing us to compare responses to the multiple different questions at different points in time. 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.[[1]](#footnote-1) 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.[[2]](#footnote-2) 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 in all 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. We did this most frequently 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, policy preferences, self-assessments, self-identifications, and feelings toward different groups. For parsimony, we refer to all these as “socio-political attitudes.” For reasons elaborated below, we scaled responses to all items to have a minimum of 0 and a maximum of 100. Table SA1 in the Supplemental Materials outlines the questions included in our analyses, including their full question wording and response scales. Stable SA2 in the Supplemental Materials outlines which panels and waves each question appears in.

After removing respondents missing on age or cohort or who responded to only one question, our final data set includes 906,615 unique observations, which are pairs of responses by the same person to the same question within a panel. These are nested within 24,007 unique survey respondents and 70 questions. The most common attitude 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. We employ sampling and non-response weights where available. When weights are not available, we weight respondents in a panel equally.

*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 an 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 absolute 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. In most panels, respondents provided their birth year in at least one wave. We used this value to calculate their cohort and age at each wave. 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. Because panels differed in how they treated older respondents, with some panels grouping together all respondents over 80 or 85, we do not include respondents who reported being older than 80 in the first wave of a wave pair. Removing older individuals also helps attenuate compositional 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, unique individuals, and unique questions at the cross-classification of cohort (binned by 5-year windows) and age (binned by 5-year windows).

[Figure 1 Goes Here]

Data is relatively sparse in the early years, especially in the 1960s (with only one panel before 1972) but becomes more plentiful after the 1970s. We have strong coverage of the adult life span (18-80) for about 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*

All panels explored here include a date of interview that allows us to measure the duration of time between responses. 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 should be associated with more durable change, which is assumed to accumulate over time (Lersch 2023), but not more transitory change, which is assumed to be unrelated to the duration between observations. By estimating absolute 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 transitory change. In contrast, the duration parameter serves as a measure of durable change that accumulates over time. By comparing how these two terms interact with age and cohort, we can model separate trajectories for transitory and durable change.

*Analytic Strategy*

Our primary goals are to estimate (1) how rates of durable and transitory attitude change vary across the life course, (2) whether these life-course trajectories are constant across cohorts, and (3) whether these trajectories vary across different types of questions. This requires a model that allows for intra-cohort comparisons (comparing members of the same cohort at different ages on the same question), inter-cohort comparisons (comparing members of different cohorts at the same ages on 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 at only a few different time points, limiting our ability to trace detailed age and cohort trajectories for each question. At the same time, collapsing all items to estimate a single set of trajectories over time and across cohorts, irrespective of question, risks obscuring potentially meaningful differences in how rates of change in different kinds of attitudes shift across the life course. This would also raise the risk of misinterpreting shifts in rates of attitude change due to changing question content as shifts in rates of attitude change due to differences across cohorts.

To address these challenges, we use a mixed-effects model in which wave-pair-level changes in responses are modeled as a function of 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, letting us estimate average trends while also modeling item-specific deviations from those trends and controlling for changing question composition over time. This approach treats our 70 questions as a sample from a broader set of questions 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 between responses, we partition total absolute change into components attributable to transitory change, which is assumed to be unrelated to duration, and components attributable to durable change, which is assumed to accumulate over time and therefore be a function of duration.

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, and *C* is the respondent’s cohort or year of birth.

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 for understanding the overall pattern of change. 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, but we do make inferences about particular questions when sufficient data exists.

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 such terms lack theoretical clarity and the model outlined above does not consider period as a separate influence on rates of change. Members of a cohort might demonstrate higher rates of change across their life course because they live through 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 (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 – and we consider that possibility in our interpretation. However, finding that period effects shape cohort trends would still suggest that the pattern of life course change would be susceptible to social conditions rather than being a developmental feature of the life course.

There are two other important notes about the model. First, as we only have a few time points for each question and, as such, are limited in our ability to model nonlinearities, we treat age and cohort (and duration) as linear terms to identify general trends. 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). To evaluate potential departures from linear trends, we estimate various non-linear relationships between age, cohort, and change – including modeling only early adulthood as a distinct period and modeling age and cohort as a set of 5-year bins – in supplemental analyses. However, we note here that none of these alternative specifications contradicts the results we find with linear terms and broadly reinforce a linear relationship between age and change.

Second, the model 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 at least three panels, which is available for 26 of the 70 questions in our dataset. For these questions, whether modeled separately or pooled, we find few statistically significant interactions between duration and age or cohort. This was true when age is treated linearly and when early adulthood is treated as a distinct range using a dummy variable. In many respects, this constitutes our first finding: for most items with sufficient data, rates of durable change do not appear to differ meaningfully across adult ages or cohort. To put this a different way: in general, we do not find any evidence that early adults are more likely to make durable changes of attitude than any other age group. 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 the number of items we can explore, we proceed with a model that excludes duration-by-age and duration-by-cohort interactions.

To address these potential limitations, we conduct a specific analysis of 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. While we noted above that partisan identification potentially displays a distinct life-course trajectory from other attitudes, we believe there is still strong reason to include an issue that can be explored in depth. We estimate several variations of the 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 responses, age, cohort, and the interaction of age and cohort. This model captures both general life-course and historical patterns of transitory attitude change while allowing for variability across survey items and respondents. 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. Given the amount of data and complexity of the model, we mean-center all predictor variables before fitting the model.

[Table 1 Goes Here]

*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 before exploring variation across topics. The intercept term (Table 1, Column 1) indicates that respondents are expected to change approximately 18 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 at most 50 on binary scales and as low as 33 on 100-point feeling thermometers,[[3]](#footnote-3) so 18 represents a moderately high amount of wave-to-wave variation, suggesting that people frequently change their reported attitudes about political issues in non-persisting ways. Age, cohort, and duration are all standardized. Age and cohort are centered at about 47 and 1952, 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: increasing the duration by one standard deviation adds 1 point to the predicted change score. This implies that the overwhelming majority of observed change in responses between waves reflects transitory, short-term variation rather than durable, cumulative changes in attitudes. For example, over a two-year interval (the modal gap in our data), expected change is 17.4 points; over four years, around 19 points. As we noted 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, because the amount of durable change is relatively constant across age and cohort, age- or cohort-based differences in attitude change typically reflect differences in transitory change.

Consistent with theoretical expectations, the main effect of age in decades is negative (), meaning people tend to become more stable attitude reporters as they age. For people at the reference cohort, the amount their attitudes change between any two waves will be about 3.2 points less at age 70 than it was at age 20. The main effect for cohorts in decades is also negative but small (). A person of the reference age (47) born in 1952 is expected to change 17.9 points on average, while someone of the same age born in 1980 is expected to change 16.9 on average.

However, the significant interaction between age and cohort (γ₄ = –0.870) complicates this picture. It suggests that in more recent cohorts, 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 cohorts. To visualize this pattern, Figure 2 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 2 Goes Here]

The resulting pattern contrasts with a developmental interpretation of the “impressionable years” thesis. Rather than a uniform early-adult spike in change followed by stabilization, we observe heterogeneity across cohorts. Older cohorts exhibit flat or even reversed trajectories -- more change later in life -- while more recent cohorts show early-adult volatility typically associated with impressionability. This suggests that early adulthood has only recently become a period of heightened attitude change. Again, because the rate of durable change does not interact with age or cohort, this story pertains primarily to transitory change.

At the same time, Figure 2 shows that these life-course and cohort differences, while real, are relatively modest. 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 8 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 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 transitory change, not durable change.

*Variation Across Questions*

The picture presented above masks heterogeneity in terms at the question level. Column 2 of Table 1 presents the standard deviations of question-specific random effects terms for the coefficients for the intercept, age, cohort, and duration. Random effects on the intercept indicate that some questions show much more change over time than others. To compare questions, the left side of Figure 3 plots question-specific intercepts for all questions explored here, or the expected baseline amount of change observed for each question at the centered age and cohort combination (47 and 1952, respectively) regardless of duration between observations. The right side of the figure plots the question-specific effects of a one-standard deviation change in duration, our measure of durable change. The figure shows the substantial variation across the 70 questions in the amount of change people make in their responses.

[Figure 3 Goes Here]

Our results reinforce previous findings about which kinds of attitudes are more stable than others (Sears 1983). At the bottom of Figure 3, 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 transitory change between observations. On average, people seem to change their responses to these questions fewer 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 transitory 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 3 are questions about government efficacy (ppllikeme, dontcare) and questions of generalized trust (helpful, fair), all of which show expected rates of transitory change of around 25, as well as low levels of durable change. Given that purely random responses to a binary question would produce a value of 50 in expectation (and as low as 33 on 100-point scales), these questions show a high level of within-person variation over time, with many respondents appearing 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 transitory change, though many also show higher rates of durable change.

Question-specific variance around the main effect for duration is small. 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 the effect of duration is larger (about 2 points over a two-year period), including 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 largest 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.[[4]](#footnote-4)

There is substantial variation (s.d. = 1.721) in the random effects around the term for age that includes both positive and negative values, as well as many close to 0. In other words, on some questions, absolute change decreases as people in the reference cohort age, while on other questions it increases. Similarly, we see variation around the main effects for cohort (s.d. = 2.578). 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 age-cohort 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 4 plots the predicted rates of change for eight questions over the life course for three cohorts: one born in 1930, one born in 1955, and one born in 1980. We choose these questions for two reasons. The first is that these questions were asked frequently across multiple panels, so we have data for multiple age groups across cohorts, giving us more confidence in our estimates. The second is that they cover a wide range of topics and question types, from feeling thermometers to political ideology.

The figure shows the emergence or intensification of this pattern of stability after early adulthood. For partisan and ideological identification, the cohort born in 1930 displays little or even no change as it ages while members the most recent cohort are expected to make less change as they age. For interest in politics, all three cohorts become more stable as they age, but this trajectory becomes more pronounced for the more recent cohorts. For the feeling thermometers, the trends reverse. While older cohorts show no change or even increased stability with age, the youngest cohort shows the stabilization with age we expect in theories of change across the life-course. 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 transitory change.

[Figure 4 Goes Here]

*Respondent-level Variation:*

Finally, there is substantial variance by respondents in their intercepts, presented in column 3 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 evaluate non-linear relationships between age and change and to detect interactions between duration and other terms for most questions, we consider those two issues for one question where we have significant data: partisan identification. Using just data on partisan identification and no random effects for either question or individual, 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 2 includes those model comparisons.

[Table 2 Goes Here]

The preferred model (1) does not include either a quadratic term for age or an interaction between duration and any other terms. Further exploration of Model 3 shows that an interaction between duration and cohort – but not an interaction between duration and age or the three-way interaction – is actually the best fitting model (Model 5 BIC = 498497.7). This model is reproduced in Supplemental Appendix B. We do not find an “impressionable years” pattern where stability of partisan identification increases rapidly after early adulthood or a “life-stages” trend when rates of change are high in early and late adulthood. Instead, 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 includes 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 5.

[Figure 5 Goes Here]

The two panels in Figure 5 show different patterns for the two different kinds of change. The left side of the figure shows the expected level of change when the unstandardized duration equals 0, or our measure of transitory change. This shows that transitory change in partisan identification decreases across cohorts, resulting in the “impressionable years” pattern in more recent cohorts. At the same time, the right panel shows the expected change for a one-standard deviation change in duration between observations, our measure of durable change. Time between observations is more strongly related to change for more recent cohorts, suggesting more recent cohorts are more likely to make durable changes of partisan identification at all ages than earlier cohorts (about 4 points per 2-year period). 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. We do not observe much interaction between rates of durable change and age, meaning that within cohorts, people appear about equally likely to make durable changes at all ages.

Appendix A includes model comparisons for five other questions for which we have a large number of distinct time points: interest in politics, whether people are fair, preferences regarding immigration levels, political ideology, and generalized trust. None prefers a quadratic age specification, and there is no consistent pattern in preference for the interaction between duration and other terms. On these issues, there is more evidence for an interaction between duration and cohort than an interaction between duration and age, as many theories expect. 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. 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. Instead, we 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 limited number of distinct time points for each question makes it challenging to model the relationship between age, cohort, and absolute change as anything other than linear terms. Previous work tends to suggest 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 ran a set of models where we treat age and cohort non-linearly. In one model (Table SB1) we replace the linear age term with a binary indicator for whether someone is under age 28, including the same interactions as the previous model and treating all coefficients as varying across questions. In another (Figure SB2), 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 both models 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.

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. Moreover, many respondents display no change between any given two time points, meaning zeros are overrepresented in our dependent variable. To address this, we fit a zero inflated beta regression model. These models are used to model outcome variables that fall between 0 and 1, a simple transformation given our operationalization of absolute change. They also assume that the data-generating process underlying no change (i.e. the zeroes) is fundamentally different than that producing the non-zero observations. This can help account for the concentration at zero. Again, the pattern of results for this version of the model (plotted in Figures SB3 and SB4), exhibits substantively similar results to what we present above.

**Discussion:**

To the best of our knowledge, our results are the first to present an overall picture of the patterning of short-term socio-political attitude variability over adulthood across many cohorts and issues. We find that, in line with the “impressionable years” or “increasing persistence” hypotheses, age is associated with a decrease in transitory attitude change – what is often called “measurement error” – in the most recent cohorts for almost all questions. In contemporary America, older adults are more stable opinion reporters than younger adults.

At the same time, our results show that this pattern is a relatively recent phenomenon. In older cohorts, the life-course trajectory in transitory change was quite variable across issues, with people on average becoming less stable attitude reporters as they aged. Earlier cohorts also showed more variable trajectories across different questions as well, with many attitudes becoming more variable over time but others becoming less variable. In more recent cohorts, these life-course trajectories for different questions appear to converge on a similar pattern: higher rates of transitory change in early adulthood followed by higher stability in middle and late adulthood. Taken in total, our results suggest that rather than being a general feature of the life-course, the broadly assumed “impressionable years” or “increasing persistence” pattern of attitude change seems to have emerged across the 20th century.

Contrary to previous work, we do not observe differences in rates of durable change across ages, meaning there is little evidence that emerging adulthood – or any stage of the adult life course – is a “formative period” for attitudes in general. 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. 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. Durable change is quite rare in the data at most ages and appears to be relatively stable across ages and cohorts. While it is possible that adults do show higher rates of durable change in early adulthood and we simply lack the power to detect them, these differences must be small if they exist.

This divergence with previous results is potentially due to changes in issue salience across eras. In any era, there are likely to be a small number of salient issues for members of different age groups, and this salience shapes people’s probabilities of encountering new information that might cause durable shifts in attitudes. Previous studies finding durable change in different attitudes during early adulthood during particular eras of time are likely to be valid, but because durable change is likely shaped by the cultural salience of issues – how likely people are to learn new information about an issue that could potentially change their opinion – most issues are going to go unconsidered and, therefore, show no durable change for most ages at most time points. By including many more questions tapping a broader array of attitudes than have been explored previously, and by exploring the same questions in different eras, we highlight the general trend, which is no distinct phases of heightened durable change. There are certainly times when early adults make durable changes of opinion, just as there are times when older adults make durable changes of opinion. But our results suggest that there should be no expectation that early adults should, on any given issue, make more durable changes of opinion than older adults.

In total then, our results challenge the idea that a single life-course trajectory of attitude change operates across cohorts and eras. The patterns we observe suggest no strong prior for the relative stability of attitudes at different ages, and they challenge the idea that early adulthood is a distinct time period for durable attitude change. While it is plausible that developmental mechanisms facilitate higher rates of attitude change in early adulthood, these mechanisms appear to be overwhelmed by the social structuring of the life course. Having said that, the moderate size of shifts in both transitory and, when observed, durable, change over time compels us to be cautious about our conclusions. In general, respondents tend vary their attitudes considerably over time, and the differences we observe between cohorts are moderate.

Our results have several implications. First, 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 true for most of questions explored here. This pattern of – to the extent it persists over time – has implications for aggregate cultural change. 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, and calls for more attention to early-life (before age 18) experiences for understanding why people believe what they believe.

Second, our results suggest social factors play a meaningful role in structuring attitude change across the life-course. The pattern of higher variability followed by relative stability appears to have become more pronounced during the latter half of the 20th century, meaning it is not a developmental necessity. Even if this pattern is grounded in biology, social factors appear to be at least as important as developmental dispositions in earlier eras. To be clear, we do not suggest 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).

Third, our pattern of results can inform theories of why rates of attitude change – and the structure of attitude change over the life course –shift. A tempting explanation for the pattern 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, 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, rather than observing major shifts among early adults, the most substantial shift in the patterning of attitude change across issues has been a reduction in the amount of transitory attitude change displayed by older 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 report much more stable attitudes than 60-year olds 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. 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 the largest shifts in stability occur across the oldest ages, which have also seen the largest shifts in mean level of educational attainment over time. 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 they had relatively high rates of education in early panels and many are still in school in the later panels. Consistent with our results, changes in educational attainment would make all age-groups more stable but would affect older age-groups most dramatically. However, we do not test this explicitly, so our claims remain speculative. Changes in the racial and ethnic composition of cohorts; shifts in where people live and who they live with; expansion of information technology that provides more access to opinion leaders; or changes in the structuring of middle-age social environments are also potential contributions to these this shift.

Because of the data we use, we necessarily focus on questions related to socio-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 or religious beliefs 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 for campaigns, and donating money, which might be subject to different constraints at different ages. Further work adjudicating the stability of diverse kinds of attitudes and behaviors can potentially shed more light on the mechanisms driving changes over time.

Finally, it is worth noting that 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.

**Conclusion**

Sociological theories of attitudinal development tend to assume a pattern across the life-course: change in adolescence and early adulthood followed by relative stability. While these theories conceptualize this pattern as stable across issues and time, evidence for this pattern primarily comes from small number of attitudes – especially partisan and ideological identification -- asked at distinct time points. But a central insight of sociology is that the structure of the life-course is itself shaped by social factors, and the conditions of various ages have changed dramatically over the past few decades. This paper sought to test whether the commonly assumed pattern of attitude change is consistent across holds across many cohorts and issues.

To answer these questions, we constructed a novel dataset consisting of 12 panel surveys that span six decades and 70 questions. We find that young adults do exhibit more transitory change than their older counterparts, but our analyses show that this pattern, far from being a developmental inevitability, seems to emerge in the latter half of the 20th century. To our knowledge, this constitutes novel evidence that rates of attitudinal change across the life course change across social contexts. Moreover, we find that these trajectories of change vary considerably across attitudes. Thus, even though the pattern of increased stability seems to be broadly adequate, it appears to have emerged relatively recently, and there is substantial variation across attitudes. Early adults are generally more prone to change, but this neither a fixed feature of human development nor a pattern that applies to all attitudes to equal degrees.

**References**

Achen, Christopher H. 1975. “Mass Political Attitudes and the Survey Response.” *The American Political Science Review* 69(4):1218–31. doi:10.2307/1955282.

Alwin, Duane F. 2007. *Margins of Error: A Study of Reliability in Survey Measurement*. Hoboken, N.J.: John Wiley & Sons.

Alwin, Duane F., and Jon A. Krosnick. 1991. “Aging, Cohorts, and the Stability of Sociopolitical Orientations Over the Life Span.” *American Journal of Sociology* 97(1):169–95.

Alwin, Duane F., and Ryan J. McCammon. 2003. “Generations, Cohorts, and Social Change.” Pp. 23–49 in *Handbook of the Life Course*, *Handbooks of Sociology and Social Research*, edited by J. T. Mortimer and M. J. Shanahan. Boston, MA: Springer US.

Alwin, Duane Francis, Ronald Lee Cohen, and Theodore Mead Newcomb. 1991. *Political Attitudes Over the Life Span: The Bennington Women After Fifty Years*. Univ of Wisconsin Press.

Arnett, Jeffrey Jensen. 2000. “Emerging Adulthood: A Theory of Development from the Late Teens through the Twenties.” *American Psychologist* 55(5):469–80. doi:10.1037/0003-066X.55.5.469.

Bartels, Larry M., and Simon Jackman. 2014. “A Generational Model of Political Learning.” *Electoral Studies* 33:7–18. doi:10.1016/j.electstud.2013.06.004.

Bourdieu, Pierre. 1990. *The Logic of Practice*. Stanford, Calif. : Stanford University Press, 1990.

Boutyline, Andrei, and Stephen Vaisey. 2017. “Belief Network Analysis: A Relational Approach to Understanding the Structure of Attitudes.” *American Journal of Sociology* 122(5):1371–1447. doi:10.1086/691274.

Brückner, Hannah, and Karl Ulrich Mayer. 2005. “De-Standardization of the Life Course: What It Might Mean? And If It Means Anything, Whether It Actually Took Place?” *Advances in Life Course Research* 9:27–53. doi:10.1016/S1040-2608(04)09002-1.

Buchmann, Marlis. 1989. *The Script of Life in Modern Society: Entry into Adulthood in a Changing World*. Chicago: University of Chicago Press.

Burke, Peter J., and Jan E. Stets. 2009. *Identity Theory*. Oxford ; New York: Oxford University Press.

Converse, Philip E. 1964. “The Nature of Belief Systems in Mass Publics (1964).” Pp. 206–61 in *Ideology and discontent*. Vol. 18, edited by D. E. Apter. New York: Free Press.

Danigelis, Nicholas L., Melissa Hardy, and Stephen J. Cutler. 2007. “Population Aging, Intracohort Aging, and Sociopolitical Attitudes.” *American Sociological Review* 72(5):812–30. doi:10.1177/000312240707200508.

Eaton, Asia A., Penny S. Visser, Jon A. Krosnick, and Sowmya Anand. 2009. “Social Power and Attitude Strength Over the Life Course.” *Personality and Social Psychology Bulletin* 35(12):1646–60. doi:10.1177/0146167209349114.

Ekstam, David. 2023. “Change and Continuity in Attitudes Toward Homosexuality Across the Lifespan.” *Journal of Homosexuality* 70(5):851–75. doi:10.1080/00918369.2021.2004795.

Elder, Glen H. 1974. *Children of the Great Depression : Social Change in Life Experience*. Chicago: University of Chicago Press.

Elder, Glen H., and Linda K. George. 2016. “Age, Cohorts, and the Life Course.” Pp. 59–85 in *Handbook of the Life Course: Volume II*, *Handbooks of Sociology and Social Research*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Cham: Springer International Publishing.

Fawcett, Tim W., and Willem E. Frankenhuis. 2015. “Adaptive Explanations for Sensitive Windows in Development.” *Frontiers in Zoology* 12(1):S3. doi:10.1186/1742-9994-12-S1-S3.

Fischer, Claude S. 2011. *Still Connected: Family and Friends in America since 1970*. New York: Russell Sage Foundation.

Fosse, Ethan. 2023. “Theorizing in the Cohort Mode: On Ryder’s Processual Account of Social Change.” *Canadian Studies in Population* 50(3):5. doi:10.1007/s42650-023-00075-9.

Fosse, Ethan, and Christopher Winship. 2019. “Analyzing Age-Period-Cohort Data: A Review and Critique.” *Annual Review of Sociology* 45(1):467–92. doi:10.1146/annurev-soc-073018-022616.

Gerber, Alan, and Donald P. Green. 1998. “Rational Learning and Partisan Attitudes.” *American Journal of Political Science* 42(3):794–818. doi:10.2307/2991730.

Ghitza, Yair, Andrew Gelman, and Jonathan Auerbach. 2022. “The Great Society, Reagan’s Revolution, and Generations of Presidential Voting.” *American Journal of Political Science* ajps.12713. doi:10.1111/ajps.12713.

Gopnik, Alison. 2020. “Childhood as a Solution to Explore–Exploit Tensions.” *Philosophical Transactions of the Royal Society B: Biological Sciences* 375(1803):20190502. doi:10.1098/rstb.2019.0502.

Guhin, Jeffrey, Jessica McCrory Calarco, and Cynthia Miller-Idriss. 2021. “Whatever Happened to Socialization?” *Annual Review of Sociology* 47(1):109–29. doi:10.1146/annurev-soc-090320-103012.

Heise, David R. 1969. “Separating Reliability and Stability in Test-Retest Correlation.” *American Sociological Review* 34(1):93–101. doi:10.2307/2092790.

Jennings, Myron Kent, and Richard G. Niemi. 1981. *Generations and Politics: A Panel Study of Young Adults and Their Parents*. Princeton Legacy Library. Princeton: Princeton University Press.

Judd, Charles M., and Michael A. Milburn. 1980. “The Structure of Attitude Systems in the General Public: Comparisons of a Structural Equation Model.” *American Sociological Review* 45(4):627. doi:10.2307/2095012.

Kalleberg, Arne L. 2009. “Precarious Work, Insecure Workers: Employment Relations in Transition.” *American Sociological Review* 74(1):1–22. doi:10.1177/000312240907400101.

Keskintürk, Turgut. 2021. “Religious Belief Alignment: The Structure of Cultural Beliefs from Adolescence to Emerging Adulthood.” *Poetics* 101591. doi:10.1016/j.poetic.2021.101591.

Kiley, Kevin, and Stephen Vaisey. 2020. “Measuring Stability and Change in Personal Culture Using Panel Data.” *American Sociological Review* 85(3):477–506. doi:10.1177/0003122420921538.

Laland, Kevin N. 2017. *Darwin`s Unfinished Symphony: How Culture Explains the Evolution of the Human Mind*. Princeton, NJ: Princeton University Press.

Lareau, Annette. 2003. *Unequal Childhoods: Class, Race, and Family Life*. Berkeley: University of California Press.

Lersch, Philipp M. 2023. “Change in Personal Culture over the Life Course.” *American Sociological Review* 88(2):220–51. doi:10.1177/00031224231156456.

Lizardo, Omar. 2017. “Improving Cultural Analysis: Considering Personal Culture in Its Declarative and Nondeclarative Modes.” *American Sociological Review* 82(1):88–115. doi:10.1177/0003122416675175.

Lynn, Freda B., and George Ellerbach. 2017. “A Position with a View: Educational Status and the Construction of the Occupational Hierarchy.” *American Sociological Review* 82(1):32–58. doi:10.1177/0003122416671743.

Mannheim, Karl. 1952. “The Problem of Generations.” Pp. 276–322 in *Essays on the Sociology of Knowledge*. New York: Oxford University Press.

Mason, Karen Oppenheim, William M. Mason, H. H. Winsborough, and W. Kenneth Poole. 1973. “Some Methodological Issues in Cohort Analysis of Archival Data.” *American Sociological Review* 38(2):242. doi:10.2307/2094398.

Mata, Rui, and Bettina von Helversen. 2015. “Search and the Aging Mind: The Promise and Limits of the Cognitive Control Hypothesis of Age Differences in Search.” *Topics in Cognitive Science* 7(3):416–27. doi:10.1111/tops.12139.

Mortimer, Jeylan T., and Phyllis Moen. 2016. “The Changing Social Construction of Age and the Life Course: Prevarious Identity and Enactment of ‘Early’ and ‘Encore’ Stages of Adulthood.” in *Handbook of the Life Course*, *Handbooks of Sociology and Social Research*, edited by M. J. Shanahan, J. T. Mortimer, and M. Kirkpatrick Johnson. Springer International Publishing.

Prior, Markus. 2010. “You’ve Either Got It or You Don’t? The Stability of Political Interest over the Life Cycle.” *The Journal of Politics* 72(3):747–66. doi:10.1017/s0022381610000149.

Rosenfeld, Michael J. 2009. *The Age of Independence: Interracial Unions, Same-Sex Unions, and the Changing American Family*. Cambridge, Mass.: Harvard University Press.

Ryder, Norman B. 1965. “The Cohort as a Concept in the Study of Social Change.” *American Sociological Review* 30(6):843–61. doi:10.2307/2090964.

Schuman, Howard, and Stanley Presser. 1996. *Questions and Answers in Attitude Surveys: Experiments on Question Form, Wording, and Context*. Thousand Oaks, CA: Sage Publications.

Sears, D. O. 1983. “The Persistence of Early Political PRedispositions: The Roles of Attitude Object and Life Stage.” *Review of Personality and Social Psychology* 4:79–116.

Sears, David O. 1993. “Symbolic Politics: A Socio-Psychological Theory.” Pp. 113–49 in *Explorations in political psychology*, *Duke studies in political psychology*. Durham, NC, US: Duke University Press.

Sears, David O., and Carolyn L. Funk. 1999. “Evidence of the Long-Term Persistence of Adults’ Political Predispositions.” *The Journal of Politics* 61(1):1–28. doi:10.2307/2647773.

Settersten, Richard A., and Karl Ulrich Mayer. 1997. “The Measurement of Age, Age Structuring, and the Life Course.” *Annual Review of Sociology* 23:233–61.

Sherratt, Thomas N., and Julie Morand-Ferron. 2018. “The Adaptive Significance of Age-Dependent Changes in the Tendency of Individuals to Explore.” *Animal Behaviour* 138:59–67. doi:10.1016/j.anbehav.2018.01.025.

Shi, Yongren, Kevin Kiley, and Freda B. Lynn. 2025. “Beyond Statistical Variables: Examining the Duality of Persons and Groups in Structuring Cultural Space.” *Poetics* 108:101967. doi:10.1016/j.poetic.2024.101967.

Vaisey, Stephen. 2009. “Motivation and Justification: A Dual‐Process Model of Culture in Action.” *American Journal of Sociology* 114(6):1675–1715. doi:10.1086/597179.

Vaisey, Stephen, and Kevin Kiley. 2021. “A Model-Based Method for Detecting Persistent Cultural Change Using Panel Data.” *Sociological Science* 8:83–95. doi:10.15195/v8.a5.

Vaisey, Stephen, and Omar Lizardo. 2016. “Cultural Fragmentation or Acquired Dispositions? A New Approach to Accounting for Patterns of Cultural Change.” *Socius* 2:2378023116669726. doi:10.1177/2378023116669726.

Visser, Penny S., and Robert R. Mirabile. 2004. “Attitudes in the Social Context: The Impact of Social Network Composition on Individual-Level Attitude Strength.” *Journal of Personality and Social Psychology* 779–95.

Wagner, Jenny, Oliver Lüdtke, and Alexander Robitzsch. 2019. “Does Personality Become More Stable with Age? Disentangling State and Trait Effects for the Big Five across the Life Span Using Local Structural Equation Modeling.” *Journal of Personality and Social Psychology* 116(4):666–80. doi:10.1037/pspp0000203.

Wiley, David E., and James A. Wiley. 1970. “The Estimation of Measurement Error in Panel Data.” *American Sociological Review* 35(1):112–17. doi:10.2307/2093858.

**Appendix A:**

[Table 3 Goes Here]

**Tables:**

Table 1: Coefficient estimates of linear mixed effects model of absolute change on age, cohort, and duration between observations. Standard errors in parentheses. Predictor variables are mean-centered.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Fixed Effects** | **Question**  **Random Effects S.D.** | **Individual Random Effects S.D.** |
| **Intercept** | 17.807 (0.582) | 4.828 | 5.192 |
| **Duration** | 1.011 (0.079) | 0.554 | – |
| **Age** | -1.041 (0.225) | 1.721 | – |
| **Cohort** | -0.703 (0.325) | 2.578 | – |
| **Age \* Cohort** | -0.870 (0.086) | 0.577 | – |
|  |  |  |  |
|  |  |  |  |
| **N Questions** | 70 |  |  |
| **N Individuals** | 24,007 |  |  |
| **N** | 906,615 |  |  |

Table 2: Model-fit statistics for different specifications for regression of absolute change in partisan identification by duration, age, and cohort. Bolded value reflects the lowest BIC, or the best fitting model given the data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Model** | **Quadratic** | **Duration interactions** | **DF** | **BIC** |
| 1 | No | No | 6 | 498517.2 |
| 2 | Yes | No | 8 | 498531.4 |
| 3 | No | Yes | 9 | 498519.5 |
| 4 | Yes | Yes | 13 | 498547.2 |
| 5 | No | Yes (only cohort) | 7 | **498497.7** |

Table 3: Bayesian Information Criteria (BIC) for alternative specifications for duration, age, and cohort for five additional questions. Bolded values reflect the lowest BIC, or the preferred model.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **M** | **Quad.** | **Interact Duration** | **DF** | **Interest in politics** | **Fair** | **Immigration** | **Political ideology** | **Trust** |
| 1 | No | No | 6 | 219078.3 | **169326.1** | 118159.2 | 415743.3 | **209732.5** |
| 2 | Yes | No | 8 | 219087.9 | 169339.5 | 118173.2 | 415754.4 | 209738.1 |
| 3 | No | Yes | 9 | **219066.5** | 169350.9 | **118148.9** | 415744.2 | 209760.0 |
| 4 | Yes | Yes | 13 | 219100.6 | 169373.9 | 118181.1 | 415776.7 | 209783.5 |
| 5 | No | Yes (Cohort) | 7 | 219070.7 | 169334.7 | 118156.8 | **415725.3** | 209740.3 |

**Figures:**



Figure 1: Number of observations (person-question-wave pairs) for each age and cohort classification across the 12 panel data sets. First number in parentheses indicates number of unique questions and the second number in parentheses indicates the number of unique individuals in each age and cohort classification.



Figure 2: Predicted level of change by age and cohort across all questions. Cells indicate the cross-classification of a cohort and age in 2-year bins. Cells not observed in the data are removed. Predicted values estimated from coefficients in Model 1.



Figure 3: Question-specific intercept terms and duration terms from mixed effects linear regression (Model 1 in Table 1). Bars represent 95% confidence intervals. Vertical dashed line indicates main effect. Question labels are elaborated in Supplemental Appendix A1



Figure 4: Predicted question-specific life-course trajectories for three cohorts (1930, 1955, and 1980). Predicted values generated from coefficients and random effects estimated in Model 1, Table 1.



Figure 5: Predicted level of transitory change (unstandardized duration = 0) and durable change (one s.d. change in duration) for each age/cohort combination for partisan identification.

1. 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-1)
2. 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-2)
3. 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-3)
4. 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-4)