11-2017

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Published in *Criminology* 55:4 (November 2017), pp. 833–868; doi: 10.1111/1745-9125.12160

Supporting information for this article is available following the references.

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Abstract

In this article, we further the understanding of both changes in public opinion on capital punishment in the United States and changes in the factors associated with public opinion on the death penalty. Support for the death penalty may be motivated by events happening during specific time periods, and it can vary across birth cohorts as a result of cohort-specific socialization processes, demographic changes, and formative events that are specific to each generation. An explication of the sources of and variation in death penalty attitudes over time would benefit from the accounting for the age of the respondent, the year of the survey response, and the birth cohort of the respondent. We improve on previous research by using multiple approaches including hierarchical age–period–cohort models and data from the General Social Survey (N = 41,474) to examine changes in death penalty attitudes over time and across birth cohorts. The results showed curvilinear age effects, strong period effects, and weak cohort effects on death penalty support. The violent crime rate explained much of the variation in support for the death penalty across periods. The examination of subgroup differences suggests that support for the death penalty is becoming concentrated among Whites, Protestants, and Republicans.

Keywords: death penalty attitudes, hierarchical age–period–cohort analysis, capital punishment

Almost 70 percent of nations have abolished capital punishment in law or in practice, leaving the United States in a minority of nations that continue to use the death penalty (Amnesty International, 2016). An estimated 80 percent of state-sanctioned executions worldwide occur in the United States, Iran, and China (Messner, Baumer, and Rosenfeld, 2006). Americans' approval of this practice is evident in popular opinion, which has remained greater than 55 percent since the U.S. Supreme Court lifted the ban on executions in 1976 (Jones, 2013; Toch and Maguire, 2014). Generally, most Americans support the use of the death penalty as one form of punishment available to criminal justice agents when a competent adult commits a capital offense (Ramirez, 2013a).

Public opinion concerning the use of the death penalty is important to understand because it influences both legislators when they are considering policy change and judges when they interpret existing policy (George and Epstein, 1992; Nicholson-Crotty, Peterson, and Ramirez, 2009; Simon, 2007; Vidmar and Ellsworth, 1973). For instance, the Supreme Court used public opinion to assess evolving standards of decency when it abolished the death penalty for offenders who were 18 years old or younger at the time of their crime (*Roper v. Simmons*, 2005). Moreover, research findings suggest that public opinion concerning death penalty support is related to the within-state legality of capital punishment (Erikson, 1976), number of executions (Jacobs and Kent, 2007), and county differences in charge selection, prosecutions, and the conviction of murder and manslaughter cases (Baumer and Martin, 2013).

Although most Americans support the death penalty, there are differences within social and political groups, such as race and both religious and political affiliations (Barkan and Cohn, 1994; Britt, 1998; Unnever and Cullen, 2007a). Furthermore, researchers have identified structural characteristics that affected support for the death penalty, for example, the political climate (Baumer, Messner, and Rosenfeld, 2003; Jacobs and Kent, 2007).We expand on previous research by using public opinion data and age–period–cohort analysis to identify trends in and predictors of death penalty attitudes in three important ways. First, models that do not simultaneously account for the potential influence of time period, birth cohort, and age have been used to identify individual characteristics associated with increased support for the death penalty, which is especially problematic for assessing the effect of age. Second, regardless of the effects of age, separating period and cohort effects is important because changes in public opinion concerning the death penalty could be a short-term reaction to a specific event or public debate, or alternatively, certain cohorts may be more or less likely to support capital punishment, which would result in more enduring and substantive shifts in public opinion. Third, few studies have been aimed at examining whether antecedents of the death penalty have varied over time (or across birth cohorts) as social and political life unfolds. Religious leaders make prominent pronouncements that affect their followers, race-based perceptions of the application of criminal justice sanctions may change, political partisanship around punitive criminal justice policies may grow or lessen, and the roles and behaviors of men and women are not static. These kinds of transformations can lead to changes in the antecedents of support for the death penalty.

In this study, we expand on previous research in three ways to assess change in support for capital punishment. First, we simultaneously examine whether death penalty support

varies across age groups, periods of time, and birth cohorts. Second, we examine how the general age, period, and cohort trends are affected by individual- and period-level characteristics. Finally, we examine whether key individual-level predictors of support for the death penalty vary across time periods, birth cohorts, or both periods and cohorts. We use multiple approaches, including fixed-effects age–period–cohort models; the examination of time trends by age and generation; and most prominently, hierarchical age–period–cohort (HAPC) models to improve our understanding of the dynamics associated with death penalty support.

The Current Study

Polling companies have long asked about Americans' views on punitive criminal justice sanctions, in particular, the use of the death penalty. The responses to these polls have allowed researchers to study changes in death penalty views over time (Rankin, 1979; Stinchcombe et al., 1980; Toch and Maguire, 2014; Warr, 1995; Zeisel and Gallup, 1989). The general trend shows a decline in death penalty support beginning in the late 1950s until the mid-to-late 1960s, followed by a gradual rise in support throughout the 1970s and 1980s that begins trending downward in the 1990s (Page and Shapiro, 1992; Ramirez, 2013a; Warr, 1995). Regardless of the fluctuations over time, more than half of Americans have reported supporting the death penalty since the late 1960s, and current support stands at an estimated 61 percent (Dugan, 2015).

Through our study, we further the understanding of both changes in public opinion and changes in the factors associated with public opinion on capital punishment in the United States. To date, the examination of support for the death penalty has been limited in terms of researchers' ability to model potentially relevant sources of change and socialization. Explication of the sources of and variation in change in death penalty attitudes should account for the age of the respondent, the year of the survey response, and the birth cohort of the respondent. The collinearity among measures of age, period, and birth cohort (i.e., period = age + birth cohort), however, has prevented researchers from disentangling these effects. Although there is no "solution" to this "identification problem" (Glenn, 2005), we used several approaches to assess age, period, and cohort effects to understand better social change in support for capital punishment. We extend previous research by examining three kinds of relationships with regard to death penalty attitudes. We discuss each of these in more detail as follows.

Age, Period, and Cohort Variation in Attitudes

The first contribution of this study is to examine the independent effects of age, period, and cohort. Research on views of the death penalty has been focused on changes over time, but some social attitudes change across generations or birth cohorts rather than across time periods (Ryder, 1965). Such changes reflect socialization unique to each generation (Edmunds and Turner, 2002). The distinction here is between changes among the population as a whole, regardless of when people were born (period changes), and changes across groups of people born at approximately the same time (birth cohort changes). The latter often leads to long-lasting social change through cohort replacement (Alwin and McCammon,

2007). Period-based effects may also signify long-lasting change, but they often indicate ephemeral changes reflecting short-term cultural or political occurrences (Schwadel and Garneau, 2014).

Political attitudes in particular are likely to change across birth cohorts (Alwin and McCammon, 2007; Converse, 1976). Many political views are cemented early in life (Alwin and Krosnick, 1991) and are particularly resistant to change over the adult life course (Jennings and Niemi, 1978; Patrikios, 2008; Sears and Funk, 1999). Each birth cohort is exposed to unique socialization processes that influence social views during formative ages (Edmunds and Turner, 2002). Elder's (1974) influential work about the Great Depression serves as an example of the stable and lasting impact of cohort experiences on social and political perspectives. Cohort-specific socialization processes may influence support for capital punishment by emphasizing certain social values such as retributive ideals or a belief in the likely deterrent effect of the death penalty (Vollum, Longmire, and Buffington-Vollum, 2004; Vollum, Mallicoat, and Buffington-Vollum, 2009). Alternatively, cohorts that hold liberal perspectives, like the Baby Boom cohorts (Cohn and Taylor, 2010), may be less likely to support the death penalty (Miller and Nakamura, 1997).

Additionally, the collinearity between age, period, and cohort limits our understanding of how age affects views of capital punishment because the effect of age may instead reflect the unmeasured effect of birth cohort in analyses that comprise cross-sectional data (Glenn, 2005; Yang and Land, 2013). This is problematic because researchers of death penalty attitudes rely mainly on cross-sectional data rather than on longitudinal data. As such, the findings from previous empirical research on views of capital punishment have been unable to specify whether age effects represented changes over the life course or changes across generations. Consequently, it is possible that the lack of observed age effects on death penalty support in previous research (e.g., Cochran, Boots, and Heide, 2003; Sims and Johnston, 2004; Unnever and Cullen, 2006) is a result of the inability to disentangle the effects of age and birth cohort.

In summary, we expect to find period-level variation consistent with trend data that shows significant variation in death penalty support across time periods peaking around 1994 and decreasing thereafter. We also expect that death penalty support will vary across birth cohorts, in particular, that Baby Boom cohorts will be less supportive than other cohorts. Finally, we expect to find significant age effects but do not speculate as to the nature of this relationship given the mixed findings in the literature. These expectations generally comport with an early age–period–cohort analysis that examined capital punishment (Miller and Nakamura, 1997).

Period-Level Predictors of Attitudes

The second contribution of this study is that we assess the structural and aggregate factors that affect trends in individual support for the death penalty. Although much of the death penalty research has been aimed at examining the sociodemographic characteristics associated with death penalty support, some researchers have examined the aggregate and contextual factors that influence public opinion through social and political processes. The results of studies of the structural sources of death penalty support have provided us with

information about period-level characteristics that may influence changes in support for the death penalty over time.

One such factor shown to affect support is the broader political climate. Researchers have argued from a constructionist perspective that conservative politicians reframed racial prejudices to a law-and-order rhetoric regarding crime (e.g., Garland, 2001; Simon, 2007). Ramirez (2013b) suggested that the policy of racial equality came under attack by conservatives' use of "tough-on-crime" rhetoric. An example of this rhetoric is "inner city," which is linked to White support for punitive policies through racial stereotypes (Hurwitz and Peffley, 2005; Unnever and Cullen, 2010). Overall, there is evidence that a conservative political climate often emphasizes the "tough-on-crime" rhetoric and policies that then increase support for the death penalty (Ellsworth and Gross, 1994; Jacobs and Kent, 2007; Ramirez, 2013b; Rankin, 1979).

Relatedly, there is evidence that the violent crime rate increases public support for capital punishment. Researchers attribute the increase in support for the death penalty in the 1960s to an increase in the violent crime rate, which in turn began the political narrative just described (Ellsworth and Gross, 1998; Rankin, 1979; Warr, 1995). Violent crime rates relate to punitive criminal justice solutions like capital punishment through pragmatic concerns about safety or through socialization that normalizes violence as a solution (Baumer, Messner, and Rosenfeld, 2003; Warr, 1995; Zeisel and Gallup, 1989). Regardless, researchers have argued that changes in support for punitive punishments such as the death penalty respond to violent crime rates (Enns, 2014; Rankin, 1979) and homicide rates (Ramirez, 2013b).

Additionally, scholars have used extensions of conflict theory to argue that economic inequalities or insecurities like unemployment may increase support for the death penalty. Lehmann and Pickett (2016) noted that punitive sentiment may increase when there is perceived economic insecurity through mechanisms such as public expectations that crime rates will increase or the triggering of racial and ethnic threats in an economically competitive environment. Although there is some evidence that economic insecurity affects death penalty support (e.g., Jacobs and Kent, 2007), empirical research findings have provided mixed evidence for this proposition (e.g., Baumer, Messner, and Rosenfeld, 2003; Messner, Baumer, and Rosenfeld, 2006).[1]

Finally, exonerations may decrease support for the death penalty over time. For decades, organizations such as the Innocence Project (founded in 1992) have sought to free individuals wrongly committed of murder mainly through the analysis of DNA evidence. One objective is to affect criminal justice reform by raising awareness of injustices. Therefore, it is possible that the number of exonerations in a year would make individuals aware of flaws in the criminal justice system, which would then reduce support for the death penalty. It is also possible that the number of cumulative exonerations works to build a body of evidence such that support for the death penalty would decrease over time as people become aware that innocent people can and have been executed. Ramirez (2013b) examined the effect of exonerations on punitive sentiment and found a decrease only among the subgroups of women and Democrats; nevertheless, we are not aware of any research that has been aimed at examining whether exonerations have reduced support for the death penalty across time. Overall, based on previous research findings, we

expected death penalty support to increase in time periods with a Republican president and to decrease in time periods with a Democratic president. We also expected support for the death penalty to be higher in time periods with high crime or high unemployment rates, and that exonerations would decrease death penalty support.

Changing Individual-Level Correlates of Attitudes

A sizeable amount of literature has been published with findings that show that death penalty attitudes vary by social characteristics, such as sex, race, and religious and political affiliations (Applegate, Cullen, and Fisher, 2002; Barkan and Cohn, 1994; Britt, 1998; Ramirez, 2013a). Messner, Baumer, and Rosenfeld (2006: 365–6) described the state of the literature findings as showing higher levels of support for the death penalty consistently "among white, older persons, men, wealthier individuals, conservatives, religious fundamentalists, married persons, and those who reside in less populated areas." The general sentiment underlying support among each of these groups is greater punitiveness toward out-group members, whether because of personality characteristics or beliefs, which translates into higher levels of support for the death penalty.

Social change includes not just changes in public opinion but also changes in who holds those opinions. As such, support for the death penalty may also change in a way that is more dynamic, where the antecedents of support change over time, across generations, or both. Our third and final contribution of this study was to establish whether the effects of theoretically relevant predictors of support of the death penalty varied. We focused on whether the effects of sex, race, religion, and political affiliation on death penalty support varied across time periods, birth cohorts, or both.

Sex is a strong correlate of death penalty attitudes, with men being more likely than women to support the death penalty (Cochran and Sanders, 2009; Erskine, 1970; Smith, 1984). This relationship has not been static as the results of a few studies revealed that sex differences in death penalty attitudes varied across time (Cochran and Sanders, 2009; Smith, 1984). These studies were limited, however, in that the researchers could not rule out changes across birth cohorts as an explanation. Women's education levels and participation in the paid labor force have changed considerably (Arnot, David, and Weiner, 1999; Hayghe, 1997) and there is evidence that changes in women's roles have occurred at least partially across birth cohorts (Brewster and Padavic, 2000; Wilson, Zozula, and Gove, 2011). It is possible then that as women's values and roles in society have changed, so may their views of the death penalty. We expected sex differences in support to decline across birth cohorts such that the views of men and women converged in later cohorts.

Racial groups have been shown to differ greatly in their support for the death penalty (e.g., Barkan and Cohn, 2010; Unnever and Cullen, 2007a, 2007b). Researchers have suggested that the gap in level of support between Whites and Blacks has widened insofar as minorities perceive themselves to be the disproportionate recipient of the most severe criminal justice sanctions (Arthur and Case, 1994; Jacobs, Carmichael, and Kent, 2005; Keil and Vito, 1989; Young, 1991). Increased awareness of the disproportionate use of the death penalty on minority offenders may have led to declines in support for the death penalty among non-Whites but also for some Whites. Separately, the considerable growth in the Latino population in the United States may cause racially associated fear of crime among

White Americans (Chiricos, Hogan, and Gertz, 1997). If groups that threaten the status quo lead to the mobilization of public opinion toward more social control, then support for the death penalty should increase as the minority population grows (Baumer, Messner, and Rosenfeld, 2003; Craig and Richeson, 2014; Jacobs and Kent, 2007; King and Wheelock, 2007). Thus, we expected to find period differences by race. Specifically, we expected death penalty support to converge for Whites and non-Whites beginning in the late 1980s when trend data show an increase in death penalty support and when punitive sentiment was high (Ramirez, 2013b). We anticipated that White support would be sufficiently high that any convergence was likely to be associated with an increase in Black support for the death penalty. We expected convergence in the late 1980s because of ongoing punitive messaging such as "Just Say No" to drugs and the "crack epidemic" that began in the mid-to-late 1980s. We thought there would be more divergence in support prior to the mid-1980s and then again in recent periods as a result of changing perceptions of the criminal justice system and legitimacy. We also expected to find that the oldest Black cohorts would be the least supportive of the death penalty given government-condoned racism and violence existed during their transformational years.

Religious affiliation is relevant to views of capital punishment (Bjarnason and Welch, 2004; Unnever and Cullen, 2006), and the rapid change in the demographic makeup of religious traditions (Wuthnow, 1988), in particular Catholicism (Suro et al., 2007), may have led to period-based changes in the association between religious tradition and support for the death penalty. We focused on Catholicism not only because the Catholic population has changed in the United States but also because the Catholic Church has taken official stances on the issue. The U.S. Conference of Catholic Bishops officially opposed capital punishment in 1974. A formal "Bishops' Statement on Capital Punishment" published in 1980 clearly lays out the reasons for their opposition to capital punishment.[2] In 1995, Pope John Paul II publicly expressed the Church's opposition to the death penalty in "Evangelium Vitae."[3] As a result of the timing of these statements, we expected period-based declines in Catholics' support for capital punishment.

A final key correlate of death penalty attitudes is political affiliation. Individuals who identify as Republican are more likely than Democrats and Independents to support the death penalty. Generally, conservative politicians have increasingly used tough-on-crime rhetoric when seeking election, which should affect the size of the difference in support between Republicans and non-Republicans. There is evidence for this as researchers find that the difference between Republicans and Democrats in support for the death penalty widened between 1972 and 2011 (Toch and Maguire, 2014). In the mid-1990s, both Democrats and Independents experienced a sharp decline in punitive sentiment that seems to have plateaued in the mid-2000s, whereas the decline in Republican sentiment was small (Ramirez, 2013a). By 2015, there was a substantial difference in support for the death penalty between Republicans and Democrats (Doherty, Suis, and Weisel, 2015). Based on these findings, we expected to find period-level variation in party affiliation such that support for the death penalty between Republicans and Democrats begins to diverge in the mid-to-late 1990s.

In sum, we used several methods that included fixed-effects models, analysis of time trends, and hierarchical age–period–cohort models to examine variation in death penalty

support. We improve on previous research in three ways. First, we simultaneously examined age groups, periods of time, and birth cohorts to determine whether death penalty support varied. Second, we examined how the general age, period, and cohort trends were affected by individual- and period-level characteristics. Finally, we examined whether key predictors of support for the death penalty varied by periods or by birth cohorts. Once we separate period effects from cohort effects, we can begin to assess whether changes in death penalty support are related to temporal societal events that affect everyone or whether changes may be more stable results of cohort replacement.

Data and Analysis Plan

We used data from the 1974 to 2014 General Social Survey (GSS) to examine changes in support for the death penalty. The GSS is used to survey a nationally representative sample of noninstitutionalized American adults annually or biennially. The survey is predominantly administered in person, although some surveys are completed via telephone. Although the GSS began in 1972, the question about support for the death penalty was not added until 1974 and not administered to subsamples of respondents in 2002 through 2006. The response rate for the GSS ranges between 69 and 80 percent (American Association for Public Opinion Research, 2008). All analyses are weighted. For more information on the GSS, see Smith et al. (2013). The dependent variable is a dichotomous measure of support for the death penalty. Respondents are asked, "Do you favor or oppose the death penalty for persons convicted of murder?" Respondents who answer "don't know" (4.8 percent of cases) are deleted from the sample.

Analysis was limited to cases without missing data. After deleting cases with missing data on the focal variables (death penalty, age, religious and political affiliations, race, and sex), there were 4,188 cases missing data on income, although there was no meaningful difference in support for the death penalty between those missing and not missing data on income (71.8 percent and 71.2 percent, respectively, $\chi^2 = .704$, *n.s.*). Aside from income, there were little missing data.[4] The analytic sample contains 41,474 cases.

The analysis proceeds in three steps. As noted, there is no "solution" to the identification problem (Glenn, 2005), which results from the collinearity among age, period, and cohort measures. It is therefore instructive to use several approaches to assess the independent effects of age, period, and birth cohort. Our first step was to examine the relevant trends. We did this by graphing changes over time in support for the death penalty by age group and by birth cohort/generation. This approach provided visual confirmation of changes in support for capital punishment and highlighted the potential effects of age and cohort (Firebaugh, 1997). Second, we performed model specification tests to determine whether all three factors are relevant (Land, 2011; Yang, Fu, and Land, 2004). Specifically, we used fixed-effects models to assess the relative influence of age, period, and cohort on model fit as well as to gain insight into the substantive effect of each factor. Third, and most prominently, we used hierarchical age–period–cohort models to examine the effects of both period-level factors and variation in the effects of individual-level factors on support for the death penalty. We discuss the measures and models within each of the appropriate Results sections. Note that the operationalization of age, period, and cohort

necessarily varies across methods of analysis, and as discussed later, our main findings are robust to alternative ways of coding each.

Results

Time Trends

We began by examining time trends for select age groups and generations/birth cohorts, which are presented in Figure 1. For this analysis, we used four age groups: 18–29, 30–44, 45–59, and 60 and older. We also used four birth cohorts that generally correspond to broader generations: pre-1925 (Lost and Greatest generations), 1925–1944 (Silent Generation), 1945–1965 (Baby Boom Generation), and 1966 and on (mostly Generation-X). Consecutive years of the GSS were pooled to stabilize trends. As Figure 1a shows, younger Americans appear less likely to support the death penalty, in particular, in the earlier and later years of the survey. These age differences, however, cannot be empirically differentiated from differences across generations or birth cohorts because older generations were disproportionately surveyed at older ages. The time trends in Figure 1a are similar for all age groups, with support for the death penalty increasing in the 1970s to mid-1980s and then declining in the late 1990s and 2000s.

As Figure 1b shows, younger generations, especially the Baby Boom Generation (1945–1965) and Generation-X (1966+), appear less likely to support the death penalty. These generation/cohort differences, however, cannot be empirically differentiated from age effects. Moreover, they are suggestive of age effects because the younger generations become more similar to the older generations as time progresses (i.e., as generations age). Figure 1b also shows robust changes over time that affect all birth cohorts. Overall, the results in Figure 1 strongly suggest period effects because all age groups and cohorts exhibited declines in support for the death penalty in the later years. The findings also suggest age effects because the youngest individuals were less likely to support the death penalty in both the early and late years of the survey. There were weak cohort effects because the cohort differences appear to dissipate once generations mature past young adulthood.

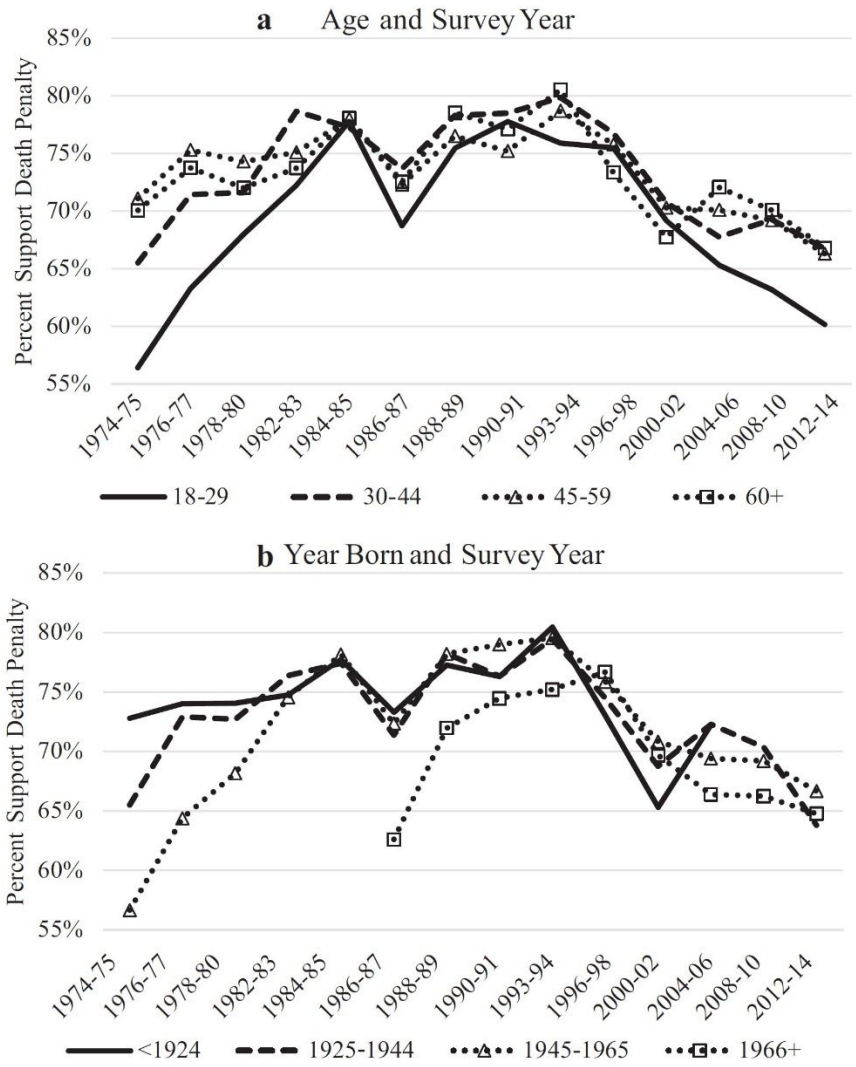

Figure 1. Changes in Support for the Death Penalty Across Years of the General Social Survey for Select Age Groups and Generations
Note: Sample limited to cases not missing data on the independent variables in models in Table 4; $N = 41{,}474$.

Fixed-Effects Models

Next, we conducted model specification tests to assess the influence of age, period, and cohort. To do so, we compared results from partial and full fixed-effects age–period–cohort (APC) binary logistic regression models of support for the death penalty (Yang, Fu, and Land, 2004). The models included dummy variables for each period, cohort, and age group: Each survey year was a period ($N = 28$); birth cohorts were coded in 5-year intervals, ranging from 1900–04 to 1980–84, with the exception of the pre-1900 cohort and the post-1984 cohort ($N = 19$); and age was coded in 5-year intervals, with the exception of the 18 to 24

and the 85 and older groups ($N = 14$). Table 1 includes the model fit statistics, in which the partial models are compared with the full fixed-effects APC model. Likelihood ratio tests indicated that the full APC model fit the data significantly better than each reduced model, although only moderately better than the age and period models. Consequently, an APC approach appears best for understanding changes in support for the death penalty, although it again appears that birth cohort does not have a large effect on views of the death penalty.

Table 1. Likelihood Ratio Tests of Model Fit for Full Age–Period–Cohort Model Relative to Partial Models from Binary Logistic Regression Models

Models	Deviance	LR Test	d.f.
Age Only	48618.943	505.230***	45
Period Only	48249.399	135.686***	31
Cohort Only	48581.546	467.833***	40
Age and Period	48139.190	25.477*	18
Age and Cohort	48512.966	399.253***	27
Period and Cohort	48194.752	81.039***	13
Age, Period, and Cohort	48113.713	—	—

Notes: Omitted reference categories are age 85 and older, period 2014, and the post-1984 cohort; sample is limited to cases not missing data on the independent variables in models in Table 4; $N = 41{,}474$. Dummy variables are for 5-year birth cohorts, single-year periods, and 5-year age groups.

Abbreviations: d.f. = degrees of freedom; LR = likelihood ratio

*$p < .05$; ***$p < .001$ (two-tailed test)

Table 2 includes the substantive age, period, and cohort effects from the full fixed-effects APC model. Compared with the oldest age group, which is the omitted reference category, those 55 to 69 and 75 to 79 years of age were likely to support the death penalty. Compared with the 2014 period, which is the omitted reference category, there was greater support for the death penalty in each period between 1984 and 1998 (with the exception of 1987). Finally, although adding cohort measures moderately improved the model fit, none of the cohorts differed significantly from the omitted reference category of the post-1984 cohort. In sum, the fixed-effects results presented in Tables 1 and 2 indicate that a full APC model is the best fit, yet most of the variation in support for the death penalty occurs across time periods. Specifically, there was higher than average support for the death penalty in the mid-1980s and 1990s periods. There also appears to be notable differences across the life course, with higher than average support among those in their mid-50s to late 60s.

Table 2. Results from Full Fixed-Effects Age–Period–Cohort Model

	Age			Period			Cohort	
Age	*b*	(SE)	Period	*b*	(SE)	Cohort	*b*	(SE)
18–24	.124	(.372)	1974	−.001	.228	Pre–1900	.236	.526
25–29	.364	(.347)	1975	.076	.222	1900–04	.222	.484
30–34	.382	(.322)	1976	.144	.218	1905–09	.227	.453
35–39	.439	(.298)	1977	.271	.214	1910–14	.218	.423
40–44	.466	(.274)	1978	.239	.209	1915–19	.167	.394
45–49	.432	(.250)	1980	.259	.199	1920–24	.181	.367
50–54	.407	(.228)	1982	.331	.187	1925–29	.101	.341
55–59	.452*	(.207)	1983	.599	.185	1930–34	.007	.314
60–64	.407*	(.188)	1984	.478**	.181	1935–39	−.007	.288
65–69	.453**	(.171)	1985	.701***	.176	1940–44	.071	.261
70–74	.210	(.156)	1986	.464**	.171	1945–49	.045	.235
75–79	.307*	(.148)	1987	.126	.163	1950–54	−.006	.209
80–84	.228	(.152)	1988	.527***	.162	1955–59	.003	.185
—	—	—	1989	.619***	.158	1960–64	.076	.161
—	—	—	1990	.657***	.156	1965–69	.095	.140
—	—	—	1991	.492***	.149	1970–74	.122	.121
—	—	—	1993	.557***	.139	1975–79	.064	.105
—	—	—	1994	.706***	.128	1980–84	−.063	.096
—	—	—	1996	.595***	.119	—	—	—
—	—	—	1998	.352***	.109	—	—	—
—	—	—	2000	.196	.101	—	—	—
—	—	—	2002	.173	.104	—	—	—
—	—	—	2004	.126	.098	—	—	—
—	—	—	2006	.146	.078	—	—	—
—	—	—	2008	.105	.079	—	—	—
—	—	—	2010	.111	.074	—	—	—
—	—	—	2012	−.006	.073	—	—	—

Notes: Omitted reference categories are age 85 and older, period 2014, and the post–1984 cohort; sample is limited to cases not missing data on the independent variables in models in Table 4; $N = 41{,}474$. Standard errors in parentheses.

*$p < .05$; **$p < .01$; ***$p < .001$ (two–tailed test)

Hierarchical APC Models

We used hierarchical APC (HAPC) models to again assess the overall age, period, and cohort effects but also to examine the individual- and period-level predictors of support for the death penalty as well as variation in the effects of individual-level predictors across periods, cohorts, or both. As with the fixed-effects models, each year was a period, and cohorts were coded into 5-year intervals. Unlike the fixed-effects models, we used a single, continuous measure of age, which ranged from 18 to 89 or older. Age was centered on the mean of age, and age-squared was included in the models to compensate for the nonlinear effects of age. The other primary individual-level independent variables were dummy variables indicating Republican (strong or not very strong Republican), Catholic, female, and

both Black and other non-White races (White is the omitted reference category).[5] The models included controls for marital status, children in the home, education, family income, religious service attendance, city size, and region. The nine-category measure of the frequency of religious service attendance ranged from never to more than once a week. Dummy variables for married respondents and those with children younger than 18 years of age living in their homes gauge family formation. Social class was measured with a dummy variable for bachelor's degree and a continuous measure of family income (coded in constant year 2000 dollars) logged to adjust for the skewed distribution. Location was based on dummy variables for the 100 largest standard metropolitan statistical areas (SMSAs) ("urban"), suburbs of the 100 largest SMSAs ("suburban"), and rural areas, with other urban areas as the reference category, and a dichotomous variable that indicated living in the South Census Region. Alternative analyses also included measures of fear of violence and confidence in the leaders of government institutions. We employed an additive scale (Cronbach's $\alpha = .653$) reflecting a lack of confidence in the leaders of Congress, the Supreme Court, and the Executive Branch of the federal government (for each measure, 0 = great deal of confidence, 1 = only some confidence, and 2 = hardly any confidence) and a dummy variable to indicate respondents who are afraid to walk alone at night within 1 mile of their homes. The addition of these two variables led to the loss of 5 full years of data as well as subsamples from other years. In the full model (comparable to model 4-C), fear of walking in one's neighborhood had a moderate, positive effect ($b = .119$, $p < .05$) and confidence in leaders of institutions had no effect ($b = .013$, *n.s.*). These variables were removed from the analysis because they had little effect, led to a considerably reduced sample size, and the primary results reported here do not differ substantively in those models. All independent variables were grand-mean-centered. Descriptive statistics are reported in Table 3.

The HAPC models included five period-level variables that varied across years of the GSS. The political climate was measured with a dummy variable representing a Democratic president. Economic insecurity was measured by the percent unemployment, and the data were collected from the U.S. Bureau of Labor Statistics.[6] The national crime rate was measured with the violent crime rate [Uniform Crime Reports (UCR)] divided by 100. We ran alternative models replacing the UCR violent crime rate with both the UCR murder rate and the National Crime Victimization Survey (NCVS) violent crime rate. The results indicated that there was a significant relationship between the NCVS violent crime rate and support for the death penalty and no relationship between the UCR murder rate and death penalty support (see Appendix C1 in the supporting information). We used the UCR violent crime rate because it explained a larger share of the variation in support (see Appendix C2), and the results did not change substantively.[7] We included two final period measures: (1) the number of exonerations in the previous calendar year and (2) the cumulative number of exonerations since the first exoneration in 1973.[8]

Table 3. Means and Standard Deviations for Variables in HAPC Models

Variables	Percent (Mean)	Standard Deviation
Individual-Level (*N* = 41,474)		
Support for death penalty	71.8	—
Primary Independent Variables		
Age	(45.136)	17.115
Republican	25.9	—
Catholic	25.5	—
Female	54.7	—
Black	13.3	—
White	81.8	—
Other race	4.9	—
Control Variables		
Bachelor's degree	22.0	
Family income(log)	(10.340)	.980
Married	53.9	—
Children in home	38.4	—
Religious service attendance	(3.828)	2.705
Highly urban	22.3	—
Suburban	26.2	—
Other urban	38.4	—
Rural	13.1	—
South	13.3	—
Period-Level (*N* = 28)		
Violent crime rate	(5.514)	1.076
Exonerations previous year	(3.464)	2.975
Cumulative exonerations	(57.393)	47.014
Unemployment rate	(6.607)	1.509
Democrat president	(.393)	.497

Note: Birth cohort *N* = 19

In conventional APC models, such as the fixed-effects analyses reported in Tables 1 and 2, "age, time period, and birth cohort are considered same-level factors affecting the outcome of interest" (Yang and Land, 2013: 18). Recent research results suggest that repeated cross-sectional APC data should be viewed instead as hierarchical data where each respondent is nested in a period by cohort cell (Yang and Land, 2013). It is common practice to employ hierarchical or multilevel models when respondents are nested in social contexts, such as schools or churches, as a result of the likelihood of shared random error within each context (Raudenbush and Bryk, 2002). Similarly, shared random error among those born at about the same time or surveyed in close temporal proximity should be incorporated into the analyses. As Yang (2008: 211) noted, "Adequate models must take into account this level-2 heterogeneity for valid statistical inference." Failure to do so may result in underestimated standard errors and an increased probability of type I error (Hox and Kreft, 1994).

In HAPC models, the nested structure of APC data is taken into account by treating periods and cohorts as cross-classified level-2 units of analysis in a multilevel model (Yang and Land, 2013). Individuals are the level-1 unit of analysis, and age is modeled as a fixed-effects, individual-level variable. Use of HACP models, thus, "avoids" the identification problem by including cohort and age in separate levels of the model and by treating period and cohort as random effects (Yang and Land, 2013). Although some researchers argue that one factor of age, period, or cohort must be constrained (e.g., Bell and Jones, 2014), such constraints appear to be problematic (O'Brien, 2016). Even though adjudicating such methodological debates is beyond the scope of this article, we believe that our use of multiple techniques to assess age, period, and cohort effects contributes to the broader understanding of the relevance of HAPC models. A logit link function adjusts for the dichotomous dependent variable.

The individual or level-1 equation is as follows:

$$\begin{aligned} Logit(Support\ for\ Death\ Penalty)_{ijk} = {} & \beta_{0jk} + \beta_1 Age_{ijk} + \beta_2 Catholic_{ijk} \\ & + \beta_3 Republican_{ijk} + \beta_4 African\ American_{ijk} \\ & + \beta_5 Other\ Race_{ijk} + \beta_6 Sex_{ijk} + \sum_{p=9}^{p} \beta_p X_p \\ & + e_{ijk} \end{aligned}$$

Each individual (i) is nested in both a birth cohort (j) and a period (k), β_{0jk} is the intercept or cell mean for respondents in cohort j and period k, β_1 though β_6 are the focal individual-level fixed effects, e_{ijk} is the individual-level error term, and β_p represents control variable fixed effects. The level-2 model is as follows:

$$\begin{aligned} \beta_{0jk} = {} & \gamma_0 + \gamma_{01} Violent\ Crime_k + \gamma_{02} Unemployment_k + \gamma_{03} Exonerations_k \\ & + \gamma_{04} Cumulative\ Exonerations_k + \gamma_{05} Democratic\ President_k + u_{0j} + v_{0k} \end{aligned}$$

In this equation, γ_0 is the model intercept, which is the overall mean of support for the death penalty; γ_{01} through γ_{05} are period-level fixed effects; and u_{0j} and v_{0k} are the residual random effects of cohort and period, respectively. We used these residual random effects to examine the effect of each cohort (averaged across all periods) and the effect of each period (averaged across all cohorts). A key feature of HAPC models is the ability to incorporate random slopes, for example:

$$\beta_{2jk} = \gamma_2 + u_{2j} + v_{2k}$$

In this equation, γ_2 is the Catholic fixed-effect coefficient, u_{2j} is the cohort-specific effect of Catholic, and v_{2k} is the period-specific effect of Catholic.

HAPC models are thus particularly suited to the current research because they (1) include random intercepts that indicate variation from the overall mean for each period and birth cohort,(2) allow for random slopes that specify changes in the effects of independent

variables across periods and birth cohorts, and (3) may incorporate fixed-effects indicators at multiple levels of the analysis. Recent research outcomes indicate that HAPC models provide reliable results if key criteria are met: There are period effects, and the period, cohort, and outcome variables are not collinear (Reither et al., 2015). These models have been used to assess change in a variety of attributes, including political tolerance (Schwadel and Garneau, 2014), happiness (Yang, 2008), and views of marijuana legalization (Schwadel and Ellison, 2017). Importantly, our results were robust to alternative age, period, and cohort intervals (see Appendices A and B in the supporting information), which is the most serious concern with these models (Luo and Hodges, 2015).[9] All HAPC models were conducted in HLM 7 (SSI International, Skokie, IL).

Effects of Age, Period, Cohort, and Other Independent Variables

The results from HAPC models of support for the death penalty are reported in Table 4. The first model (4-A) included only age and age-squared as fixed-effect independent variables. Recall that period and birth cohort effects were estimated from random intercepts. The positive coefficient for age combined with the negative coefficient for age-squared indicate that age had a curvilinear effect on support for the death penalty. For ease of interpretation, we created figures from all of our focal results. The effect of age from model 4-A is depicted by the dashed line in Figure 2a, which shows that the probability of support for the death penalty increases from less than .67 for 18-year-olds to .75 for those in their 50s, and then it declines to .67 for the oldest respondents. The variance components from model 4-A indicated significant variation across both periods (.05571) and cohorts (.00181), although the period variance was larger. The dashed line in Figure 2b of the period effects shows that the estimated probability of support for the death penalty increased from a low of less than .66 in 1975 to a high of almost .80 in 1994, and then it declined to less than .66 again in 2012 and 2014. As the dashed line in Figure 2c shows, the cohort effects were considerably smaller, with slightly lower levels of support among the 1930s and 1950s cohorts.

Table 4. Hierarchical Age–Period–Cohort Models of Support for the Death Penalty

	Model 4-A		Model 4-B		Model 4-C	
Fixed and Random Effects	*B*	(SE)	*b*	(SE)	*b*	(SE)
Individual-Level						
Intercept	.983***	(.048)	1.021***	(.048)	1.022***	(.030)
Age	.005***	(.001)	.004***	(.001)	.004***	(.001)
Age-squared[a]	−.003***	(.000)	−.003***	(.000)	−.003***	(.000)
Republican	—	—	.730***	(.033)	.730***	(.033)
Catholic	—	—	−.059	(.030)	−.059	(.030)
Female	—	—	−.426***	(.026)	−.426***	(.026)
Black[b]	—	—	−1.032***	(.039)	−1.031***	(.039)
Other race[b]	—	—	−.473***	(.057)	−.469***	(.057)
Bachelor's degree	—	—	−.639***	(.032)	−.638***	(.032)
Family income	—	—	.126***	(.015)	.126***	(.015)
Married	—	—	.150***	(.029)	.149***	(.029)
Children in home	—	—	.040	(.030)	.040	(.030)
Religious service attendance	—	—	−.049***	(.005)	−.049***	(.005)
Highly urban[c]	—	—	−.147***	(.034)	−.148***	(.034)
Suburban[c]	—	—	−.026	(.033)	−.025	(.033)
Rural[c]	—	—	−.088*	(.041)	−.087*	(.041)
South	—	—	.105***	(.028)	.105***	(.028)
Period-Level						
Violent crime rate	—	—	—	—	.198***	(.030)
Exonerations (previous year)	—	—	—	—	.004	(.010)
Cumulative exonerations	—	—	—	—	.001	(.001)
Unemployment rate	—	—	—	—	.030	(.019)
Democrat president	—	—	—	—	.019	(.056)
Variance components						
Period	.05571***		.05324***		.01502***	
Birth cohort	.00181*		.00308**		.00312***	

Notes: N = 41,474. Standard errors in parentheses.
Abbreviation: SE = standard error
[a]Coefficient and standard error multiplied by 10.
[b]White reference.
[c]Other urban reference.
*p < .05; **p < .01; ***p < .001 (two–tailed test)

Model 4-B included all the individual-level independent variables. The fixed effects indicated that Republican, family income, married, and living in the South were positively associated with support for the death penalty. Conversely, Black, other race, female, bachelor's degree, religious service attendance, and living in highly urban or in rural areas were negatively associated with support for the death penalty. The effect of age was reduced in model 4-B, as demonstrated by the solid line in Figure 2a. The addition of individual-level variables also led to a small decrease in the period variance (.05324) and to a small increase in the cohort variance (.00308). The solid line in Figure 2b shows that the decline in support for the death penalty in the 2000s was partially mediated (explained) by the individual-

level variables. Additional analyses showed this effect was a result of the inclusion of the measure of political party.[10] As the solid line in Figure 2c shows, the results from model 4-B are more clearly suggestive of low levels of support among the 1930s cohorts in particular.

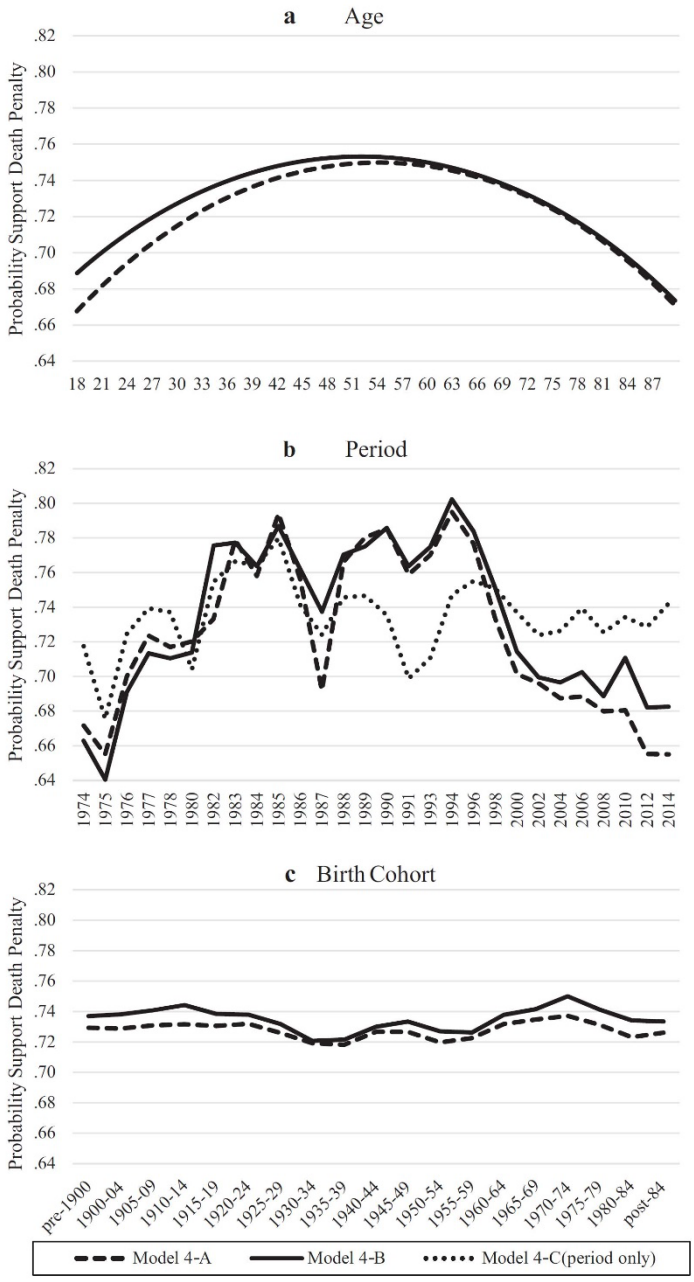

Figure 2. Estimated Age, Period, and Birth Cohort Effects on Support for the Death Penalty
Note: Figure based on models in Table 4.

Model 4-C includes period-level independent variables. The violent crime rate was the only significant period-level variable, and it had a strong, positive effect (b = .198) on death penalty support. All else held equal, a 1.5 standard deviation increase in the violent crime rate is associated with a 38 percent increase in the odds of supporting the death penalty. The period-level variables, particularly the violent crime rate, mediated approximately 72 percent of the period effect (variance component = .01502; model 4-A = .05571). As the dotted line in Figure 2b shows, there was considerably less estimated fluctuation in support for the death penalty across time periods when period-level variables were included in the model.[11]

In sum, the results from Table 4 and Figure 2 indicated a significant, curvilinear relationship between age and support for the death penalty. This relationship was partially mediated by the individual-level variables but only for the youngest respondents as the oldest respondents remained the least supportive. There were at best moderate cohort effects, yet there were large period effects on Americans' support for the death penalty. Although the individual-level variables partially explained the period effects, the period-level variables and especially the violent crime rate mostly explained the remaining period effects.

Random Slopes

We report the focal variance components from HAPC models with random slopes in Table 5. Although not shown in the table, the models included all the same independent variables as in model 4-B in Table 4. Level-2 variables were not included in the model because our aim was to identify period and cohort variation in the effects of key variables, not to explain that variation. We tested for random slopes in three batches as a result of the limited degrees of freedom (models 5-A, 5-B, and 5-C). All slopes that varied in potentially meaningful ways were then included in a single model (model 5-D). Model 5-A included random slopes for Republican and Catholic. Both variables varied significantly across periods but not across cohorts. Model 5-B included random slopes for Black and other race. The effect of Black varied significantly across both periods and cohorts, and the effect of other race varied significantly across periods. Model 5-C included random slopes for sex, which varied significantly across cohorts but not across periods. When the statistically significant random slopes from models 5-A through 5-C were included in a single model (5-D), they each remained significant. The random slopes from model 5-D are depicted in Figures 3, 4, 5, and 6.

Table 5. Variance Components for Random Slopes from Hierarchical Age–Period–Cohort Models of Support for the Death Penalty

Random Slopes	Model 5-A	Model 5-B	Model 5-C	Model 5-D
Period				
Republican	.03230***	—	—	.04752***
Catholic	.03159***	—	—	.02989***
Black	—	.01946*	—	.02894**
Other race	—	.04148**	—	.04060**
Female	—	—	.00068	—
Birth Cohort				
Republican	.00051	—	—	—
Catholic	.00232	—	—	—
Black	—	.01695**		.01516**
Other race	—	.01058	—	—
Female	—	—	.01883***	.01924***

Notes: $N = 41{,}474$. All models include the following independent variables: Age, Republican, Catholic, Black, other race, sex, religious service attendance, bachelor's degree, family income, marital status, children in home, city size, and South. Only significant findings are presented.
*$p < .05$; **$p < .01$; ***$p < .001$ (two–tailed test)

Figure 3 depicts estimated death penalty support for Republicans and non-Republicans from model 5-D. As this figure shows, the large gap in support for capital punishment between Republicans and non-Republicans in the 1970s declined by the early 1980s but remained robust, and then it increased considerably in the twenty-first century. For instance, the difference in probability of support for the death penalty between Republicans and non-Republicans was .16 in 1974, an average of .11 from 1980 to 1998, and more than .20 in both 2012 and 2014. Figure 3 indicates that the large decline in support for the death penalty in the 1990s and 2000s identified earlier (see Figure 2b) was disproportionately found among non-Republicans.

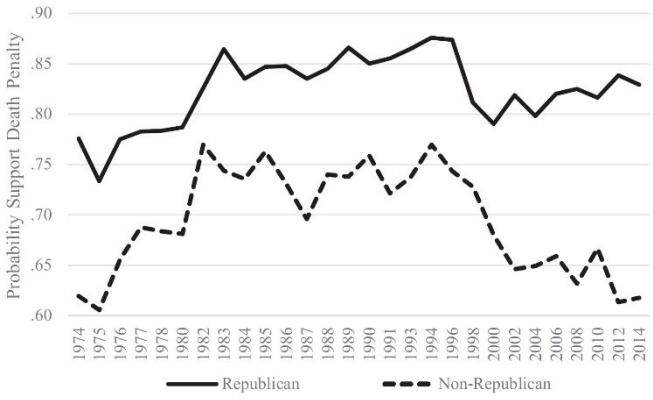

Figure 3. Estimated Variation Across Periods in Republicans' and Non-Republicans' Support for the Death Penalty
Note: Figure depicts results from model 5–D in Table 5.

Period-based variation in the effect of Catholic from model 5-D is depicted in Figure 4. This figure shows that Catholics were moderately more likely than non-Catholics to support the death penalty in the first few time periods. For example, Catholics' probability of support for capital punishment was .06 greater than non-Catholics' support in 1974. This difference dissipated by the late 1970s, and Catholics were similar to non-Catholics from then until the early 2000s. In fact, from 1977 to 2004, Catholics' probability of support for the death penalty was on average .01 less than non-Catholics' support. In the last few time periods, Catholics were moderately less likely than non-Catholics to support capital punishment, with an average probability of support that was .04 lower than that for non-Catholics in 2006 to 2012. Alternative models (see Appendix D in the supporting information) in which dummy variables for various religious traditions are employed with Catholic as the omitted reference category lead us to believe that this pattern holds across religious traditions. In particular, both mainline and evangelical Protestants were less likely than Catholics to support the death penalty in the first few time periods, but by the twenty-first century, both groups of Protestants were more likely than Catholics to support the death penalty. Furthermore, although the unaffiliated and affiliates of "other" religions (e.g., Jews, Muslims, Hindus, Buddhists, and Mormons) were considerably less likely than Catholics to support the death penalty in the early time periods, these differences were mostly erased by the twenty-first century.

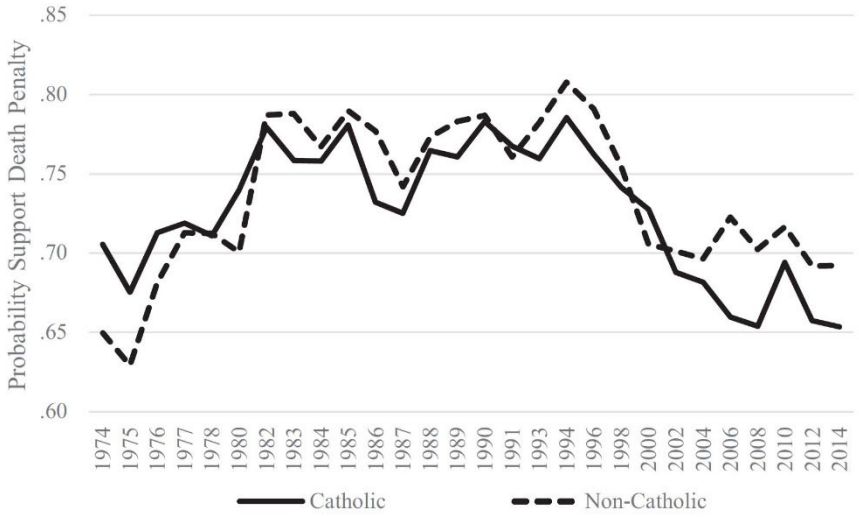

Figure 4. Estimated Variation Across Periods in Catholics' and Non-Catholics' Support for the Death Penalty
Note: Figure depicts results from model 5-D in Table 5.

Figure 5 shows estimated across-cohort variation in support for the death penalty for men and women from model 5-D. Aside from the pre-1900 cohort, the gender gap in support for the death penalty was high among older cohorts, somewhat lower among Baby Boom cohorts, and notably lower among Generation-X cohorts. The average difference in

the probability of men's and women's support for the death penalty was more than .10 for those born between 1900 and 1944, less than .08 for the Baby Boomers born between 1945 and 1964, and less than .06 for the Generation-Xers born between 1965 and 1979. There does appear to be an increase in the difference between men's and women's support for capital punishment among the youngest cohorts as a result of declining support among women, with an estimated difference in probability of more than .08 for the post-1984 cohort. Additional data on Millennials' views of the death penalty is required to determine whether this trend continues.

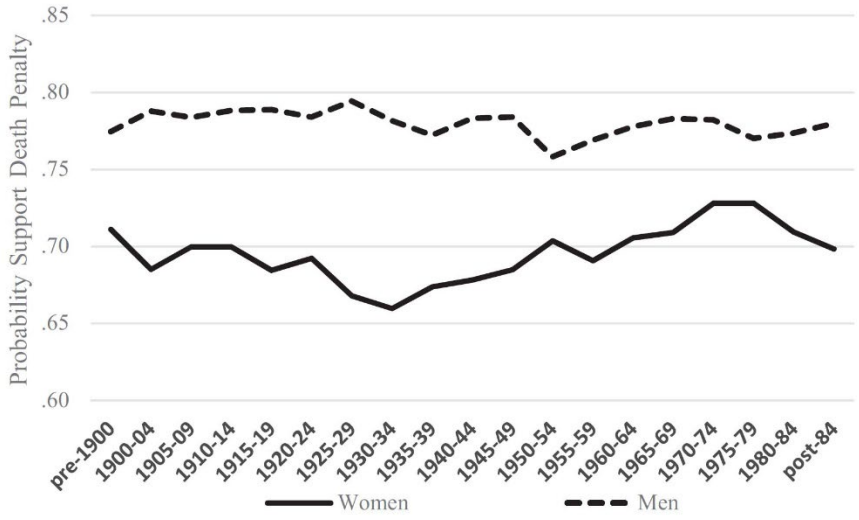

Figure 5. Estimated Variation Across Birth Cohorts in Men's and Women's Support for the Death Penalty
Note: Figure depicts results from model 5-D in Table 5.

Finally, estimated period- and cohort-variation in racial differences in support for the death penalty from model 5-D are depicted in Figure 6. As Figure 6a shows, Blacks were far less likely than Whites to support the death penalty across time periods, and other race respondents were moderately less likely than Whites to do so. The difference between Blacks and Whites, however, fluctuated substantially. Blacks were particularly less likely to support the death penalty in the early periods, leading to a more than .27 average difference in probability between Whites and Blacks from 1974 to 1982. The increase in support for capital punishment among Blacks reduced that difference in the 1980s and the first half of the 1990s, with an average .21 difference in probability of support from 1983 to 1996. The rapid downturn in support among Blacks in the late 1990s led to an increase in the differences between Whites and Blacks. The average difference in probability of support was .25 between 1998 and 2004. Then, the moderate increase in support among Blacks combined with the decrease in support among Whites produced the smallest racial gap in the most recent time periods, with an average difference of .20 between Whites and Blacks from 2006 to 2012. These trends suggest that the racial gap is highly volatile and remains

robust. The cohort variation shown in Figure 6b suggests that there may also be a decline in racial differences across cohorts. For instance, the average difference in probability of support for the death penalty between Whites and Blacks was .25 for those born between 1900 and 1949 compared with .21 for those born since 1950. Overall, racial differences persist and were substantial, but they were smaller in the most recent periods and cohorts.

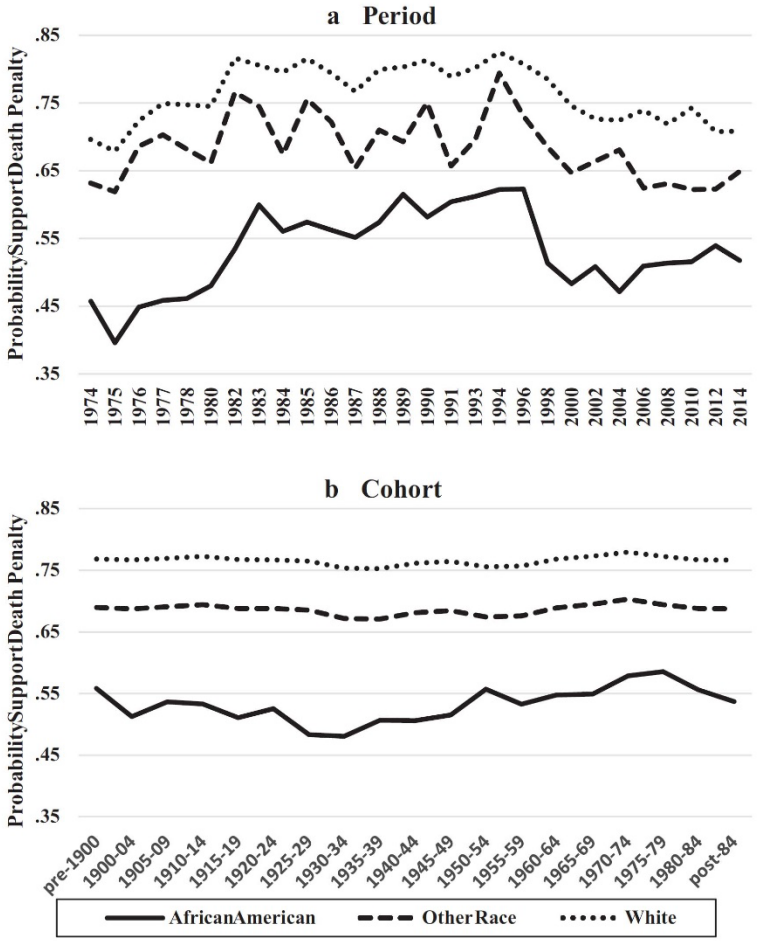

Figure 6. Estimated Variation Across Periods and Birth Cohorts in Support for the Death Penalty Among African American, Whites, and Other Races
Note: Figure depicts results from model 5-D in Table 5.

Discussion and Conclusions

Our research was aimed at better understanding change in support for capital punishment by examining age, period, and cohort trends; the effect of individual- and period-level characteristics on these trends; and differences across subgroups by period and birth cohort. Differentiating period from cohort effects is important for death penalty research

because period effects are often the result of specific temporal events, whereas cohort effects are reflective of socialization processes and are therefore generally more enduring. Recent decreases in death penalty support, for example, could indicate a decline in support among the younger cohorts, which we would expect to be long lasting through cohort replacement. Decreases in support could also be declining across time for everyone but could quickly begin increasing as social life unfolds and affects the underlying sources of death penalty support. Thus, the ability to separate period effects from cohort effects allowed us to assess some of the dynamics associated with death penalty support. We used multiple approaches including fixed-effects, age–period–cohort models; analysis of time trends; and hierarchical age–period–cohort models. The multiple methods and replication with different age, period, and cohort intervals (see Appendices A and B in the supporting information) ensured that the results were robust.

Overall, we found variation in death penalty support across the life course and time periods but surprisingly little variation across birth cohorts. There was a curvilinear relationship between age and death penalty support, with the youngest and oldest Americans less likely to support the death penalty compared with middle-aged adults. The age relationship was attenuated somewhat for the young adults with the addition of the individual-level measures to the model but not for senior citizens. Additional analyses indicated the partial mediation of the support for young adults was mainly a result of marriage, perhaps out of a protective reaction and concern for others once an individual is no longer single. Older Americans may have enough knowledge of the problems associated with the criminal justice system and might therefore become less likely to support capital punishment as a criminal justice solution. They may also be less likely to support the death penalty because the meaning of death and dying changes as it becomes more imminent (Cicirelli, 2002).

Our results help to inform the inconsistent findings published in a body of literature regarding the relationship between age and death penalty support. For example, researchers may not have found a significant relationship between age and views of capital punishment (e.g., Cochran, Boots, and Heide, 2003; Sims and Johnston, 2004; Unnever and Cullen, 2006) because they either did not account for the curvilinear relationship or the effect of age and birth cohort was confounded. Additionally, our findings did not support the ageism-conservatism hypothesis at least for death penalty support (Danigelis and Cutler, 1991; Glenn, 1974). Generally, changes in support for capital punishment across the life course ran counter to the more general finding that political views are established early and resistant to change as people age (e.g., Alwin and Krosnick, 1991; Jennings and Niemi, 1978; Sears and Funk, 1999). Views of capital punishment may be distinct from other political perspectives, or other types of political views may also change across the life course when cohort effects are considered. Additional research is needed to explore these possibilities.

Death penalty support varied across both periods and cohorts, although the cohort variance was modest.[12] The period variation was consistent with the reported trends in support (e.g., Baumgartner, De Boef, and Boydstun, 2008; Ramirez, 2013a; Shirley and Gelman, 2015; Warr, 1995), showing the lowest probability of support in 1975 and the highest probability of support in 1994 (almost .80), with 2012 and 2014 reaching lows close to 1975. The

small cohort effect indicated lower levels of support among the 1930s or Great Depression cohorts. It is possible that economic hardships witnessed or suffered as a child led to a more tolerant attitude toward offenders, for example, by witnessing family and friends committing crime or deviance. To the degree that the Great Depression cohorts engaged in deviant behavior or witnessed intimates engaging in deviant behavior, they may be less likely to support the death penalty. It may also be, as suggested by Lehmann and Pickett (2016), that belief in the legitimacy of government is necessary to sustain punitive policies, and legitimacy may be affected by economic instability experienced during the formative years of the life course.

We examined the effects of the structural characteristics of the president's party; the violent crime rate; the unemployment rate; and exonerations, yearly and cumulative, on period trends. Of these, only the violent crime rate had a significant and substantial effect on support for capital punishment. We found that these structural variables, but particularly the violent crime rate, mediated approximately 72 percent of the period effect. This finding supports the findings from a handful of studies that a relationship exists between crime rates and individual support for the death penalty (e.g., Baumer, Messner, and Rosenfeld, 2003; Soss, Langbein, and Metelko, 2003) or punitive policies (Enns, 2014, 2016; Ramirez, 2013a).

To examine the relationship between crime and death penalty support further, we ran alternative analyses that replaced the UCR violent crime rate with the UCR murder rate and the National Crime Victimization Survey (NCVS) violent crime rate (see Appendix C in the supporting information). We did not find a relationship between UCR murder rates and death penalty support. On the other hand, the NCVS violent crime rate was significantly related to death penalty support. The period trend remained best explained by the UCR violent crime, however. Generally, it appears that broader indicators of violent crime affect support for the death penalty rather than murder rates specifically.

Based on these findings, we disagree with assertions by Kleck and Jackson (2016: 20) that "Higher crime rates do not cause increased support for harsher punishment of criminals, nor does personal experience as a crime victim, vicarious victimization through the experiences of others." Additionally, to the degree that discrepancies between the UCR and NCVS are produced by a change in policing behaviors (Lauritsen, Rezey, and Heimer, 2016; O'Brien, 1996), our findings suggest that this social construction of UCR statistics can affect death penalty support. News media prioritize and disproportionately cover violent crimes (Reiner, 2007). As crime rates or policing and enforcement increases, then the public is likely to be exposed to greater amounts of news coverage of violent crimes (Enns, 2016). This is important as researchers have found that legislators sometimes enact criminal justice policies based on misconceptions of crime (Sample and Bray, 2003; Sample and Kadleck, 2008).

Equally as surprising as the large association between the violent crime rate and death penalty support was that none of the other structural measures were relevant to death penalty support. We thought support for the death penalty would decline in periods with a Democratic president, yet there was no evidence for this. The lack of a significant effect may be a result of the punitive tone on punishment taken by President Bill Clinton, which was more punitive than the Republican presidents during his early years (see Ramirez,

2013b) who publically supported executions (Applebome, 1992). We also expected that unemployment might be related to death penalty support based on the argument that economic insecurity should increase punitive sentiment like death penalty support (e.g., Chiricos and Delone, 1992; Costelloe, Chiricos, and Gertz, 2009; Kirchheimer and Rusche, 1939). We did not find support for this argument (see also Lehmann and Pickett, 2016) perhaps because concerns about violent crime supersede concerns about other issues like unemployment. Finally, exonerations, either yearly (lagged by 1 year) or cumulatively, did not affect death penalty support, a finding that may be disappointing for the "innocence movement."

To determine whether support for the death penalty changes in a way that is dynamic, where the antecedents of support change, we examined religious affiliation, political orientation, race, and sex differences across time periods and birth cohorts.We found meaningful changes in the effects of all of these characteristics. For example, our findings suggest cohort changes between men and women in death penalty support. In support of previous research, we found that women were considerably less likely than men to support the death penalty (Applegate, Cullen, and Fisher, 2002; Lambert et al., 2009; Whitehead and Blankenship, 2000), but this difference was notably smaller for Americans born in the 1950s, 1960s, and especially 1970s. We expand on the findings from previous research that revealed that the relationship between sex and death penalty support varied across time (Cochran and Sanders, 2009; Smith, 1984) by showing that this change appears to be motivated by differences across birth cohorts.

As a result of the Catholic Church's stance against capital punishment, we expected to find variation in death penalty support for Catholics across time. We found that Catholics and non-Catholics were similar in death penalty support from the late 1970s through the mid-2000s but that Catholics were moderately less likely than non-Catholics to support capital punishment in the last few time periods. Our findings generally comport with Bjarnason and Welch (2004), who found that Catholic affiliation was positively associated with support for death penalty in 1974 but not in 1984 or 1994. Additional analyses (see Appendix D in the supporting information) revealed that affiliates of all religious traditions other than mainline Protestant were considerably less likely than evangelical Protestants to support the death penalty. More research is needed to determine whether Catholic change in support for the death penalty also is related to Latino growth within the Church.

Our examination of race showed that there was cohort and period variation in differences between Whites' and Blacks' support for the death penalty. As expected, most of the early cohorts had larger differences in support. The race differences in death penalty support began to converge with an increase in support among Blacks that began around the 1950 cohort. The difference appears to be widening again, with the last few cohorts of Blacks showing a larger decline in support than the other two groups. Young (1991) found that trust in the police affected the death penalty attitudes for Blacks but not for Whites and that younger Black cohorts may have less trust in the police. It is possible that declining support across Black cohorts reflects their transformative years that included the videotaped Rodney King beating by police officers and subsequent acquittal followed by an increase in awareness of alleged police discrimination against Blacks through popular culture that transmitted stories of police acting illegitimately (e.g., rap songs that highlighted

police discrimination). More data are needed to determine whether this trend continues, but we expect that it might in the context of nationally publicized police shootings and the rise of movements like Black Lives Matter. There was also substantial variation in the effect of race on death penalty support across periods, although generally Blacks had low levels of death penalty support. Overall, although White support remains higher than non-White support, these findings suggest that the racial gap is volatile, and although it is perhaps declining, it remains robust.

These changes in the effects of race combined with the religion effects suggest that support for the death penalty has become a disproportionately White, Protestant perspective (see also Britt, 1998). Consistent with conflict theories, the minority threat hypothesis holds that severe social sanctions can be used by the majority social group to protect its access to limited resources, norm definition, and power (Blalock, 1967; Blumer, 1958; King and Wheelock, 2007), including the use of capital punishment (Jacobs and Carmichael, 2002; Jacobs, Carmichael, and Kent, 2005). The majority status of Protestants in the United States is in decline (Smith and Kim, 2005), and it is possible that the effect of groups protecting their status through severe sanctions becomes more acute as the majority group loses power. Researchers interested in minority threat theories should further explore the ways in which religious identity and other sociodemographic characteristics affect views on the use of the most extreme criminal justice sanction available.

Our final expectation was that the effect of Republican Party affiliation would change across periods as a result of the "law-and-order" rhetoric used by conservative politicians over time. Indeed, the gap in support for the death penalty between Republicans and non-Republicans narrowed in the 1980s and 1990s but has widened considerably in the twenty-first century. These findings are consistent with the time trend found by Ramirez (2013a) with regard to partisanship and punitiveness. An examination of the trends of both political party and the violent crime rate suggests that Democrats and Independents were responsive to the declining rates of crime in the early 2000s but Republicans were not. This trend may represent the broader change in the polarization of political ideologies in the United States (Baldassarri and Gelman, 2008).

Future researchers should assess Republicans' perceptions of violent crime to determine whether there is a misperception about violent crime or whether this political group is no longer responsive to changes in the violent crime rate. Additionally, researchers should explore the ways that racial framing affects death penalty support (Beckett and Sasson, 2003; Simon, 2007). To the degree that there is a continuing framing by politicians and the media of "inner-city" crime, "illegal" immigrants who are therefore "criminals," and "radical Muslims," we might expect to see support for the death penalty converge if every racial group can identify another outgroup in need of social control (Hurwitz and Peffley, 2005). If these attitudes become embedded in cohorts, support for the death penalty may be long lasting despite efforts to overturn its use. Future research should be aimed at examining whether the lack of decline in support among Republicans relative to most every other subgroup was a result of underlying racial amicus (Barkan and Cohn, 1994; Soss, Langbein, and Metelko, 2003), which would explain why the declining crime rate did not translate to a decline in support.

Our analysis is of course not without limitations. First, there is no solution to the identification problem that affects APC research. Consequently, we used multiple methods to assess age, period, and cohort effects, and we explored the effects of various age, period, and cohort intervals on our findings (see Appendices A and B in the supporting information). Although our conclusions are robust to such alternative operationalizations and methodologies, researchers should pursue additional techniques for disentangling age, period, and cohort trends. For instance, Winship and Harding (2008) proposed a "mechanism-based" approach, which employs theoretically motivated mechanisms that produce age, period, or cohort variation. As they made clear, such a model need only include the relevant mechanisms that explain one factor (age, period, or cohort) for the models to be identified in full. Future researchers should also explore in greater detail the constraints imposed by including (or failing to include) random slopes in HAPC models as these constraints are as yet not well understood (Luo and Hodges, 2015). Additionally, the reliance on repeated cross-sectional data limits our ability to speak to changes across the life course and how these changes are or are not related to cohort and period changes in support for capital punishment. Longitudinal data from multiple birth cohorts would be suitable to address these problems.

Finally, limitations of the data precluded us from examining Hispanics and Latinos separately. Available data beginning in 2000 indicated that approximately half of the Hispanic/Latino respondents identified as White, almost half identified as "other race," and less than 4 percent identified as Black. More research is needed to determine whether some of the decline in White support over the last two decades was a result of declining support among Hispanic/Latino Whites. Researchers should also examine whether support for the death penalty varies across Hispanic and Latino groups as this broad category includes various nationalities, such as Cuban Americans and Mexican Americans.

In conclusion, we expand on previous research not only by addressing changes in public opinion on the death penalty through 2014 but also by examining whether these changes occur across periods—which often reflects short-term reactions to specific events and public debates—or across birth cohorts—which often leads to long-term substantive shifts in public opinion through cohort replacement. The results show that changes in views of capital punishment occur predominantly across time periods, and indeed, these changes are somewhat ephemeral in that the growth in support for capital punishment from the 1970s to the 1980s/1990s reverses itself by 2014. To the degree that support for capital punishment indicates change in a preference for punitiveness, we may conclude that punitive attitudes are influenced by events located within time periods. Thus, these findings contributed to a body of research in which punitiveness is described as based in cultural and historical contexts (e.g., Garland, 1990, 2001; Ramirez, 2013a; Simon, 2007; Tonry, 2009). The age effects demonstrate within-person change in views of capital punishment, and they may encourage advocacy groups to target certain age groups in their attempt to sway public opinion on capital punishment (Whitehead and Blankenship, 2000). Finally, changes in the effects of race, politics, and religion have led to a transformation in the population of death penalty supporters. As the United States is shifting toward becoming less White (Bernstein, 2012), less Protestant (Smith and Kim, 2005), and less Republican (Pew Research Center,

2015a, 2015b), it is Whites, Republicans, and Protestants who are increasingly most likely to support the legality of the death penalty.

Notes

1. The minority threat hypothesis, which predicts greater support among Whites as minority groups increase in size relative to the White population, also is consistent with the conflict framework (Blalock, 1967; Blumer, 1958). We limit our discussion to economic inequality because, based on preliminary examinations, we did not include percent non-White in our final models (see note 6).
2. The "Bishops' Statement on Capital Punishment" is available at http://www.usccb.org/issues-and-action/human-life-and-dignity/death-penalty-capital-punishment/statement-on-capital-punishment.cfm.
3. "Evangelium Vitae" is available at http://www.vatican.va/holy_father/john_paul_ii/encyclicals/documents/hf_jp-ii_enc_25031995_evangelium-vitae_en.html.
4. Six cases were missing data on marital status, 53 were missing data on college education (73.6 percent support death penalty compared with 71.8 percent not missing data on education, χ^2 = .080, *n.s.*), 219 were missing data on children in the home (69.4 percent support death penalty compared with 71.9 percent not missing data on children in the home, χ^2 = .644, *n.s.*), and 263 were missing data on religious service attendance (74.9 percent support death penalty compared with 71.8 percent not missing data on attendance, χ^2 = 1.229, *n.s.*).
5. Questions about Hispanic/Latino identity/ethnicity were added to the GSS in 2000. The 2000 to 2014 data indicated that 11.1 percent of respondents were Hispanic/Latino, of which 48.8 percent identified as White, 3.6 percent identified as Black, and 47.6 percent identified as an "other" race.
6. We ran additional analyses with the Gini index and percent non-White, both of which also are consistent with the conflict perspective. Neither had a significant effect, but both were highly correlated with cumulative exonerations ($r > .9$), and so we did not include them.
7. We return to these findings in the Discussion section. Additional supporting information can be found following the references.
8. Exoneration is defined as being convicted, sentenced to death, and then either acquitted of the crime, had the charges dismissed, or pardoned as a result of evidence of innocence (http://www.deathpenaltyinfo.org/innocence-and-death-penalty).
9. Appendix A includes results from models with each potential combination of 1-, 2-, and 3-year periods; 3-, 5-, and 7-year cohorts; and 1-, 3-, and 5-year age groups. In these models, age is an ordinal variable, but the intervals change. We also examined models with dummy variables for 3- and 5-year age groups with each combination of 3-, 5-, and 7-year cohorts and 1-, 2-, and 3-year periods. The results from those models are reported in Appendix B.We conclude from these models that our findings are not sensitive to our choice of coding for age, period, and cohort.
10. The Republican measure alone explained more of the period level variance (variance = .04951 in model with only age and Republican) than did the full model (.05324).
11. Only in Figure 2b are the period effects from model 4-C graphed because the addition of period-level variables does not substantively affect the estimates of age (Figure 2a) and cohort effects (Figure 2c).
12. The supporting information further revealed weak cohort variation. The marginally significant variation across cohorts became nonsignificant (at the conventional $p < .05$ level) in several models when we varied the coding of age, period, and cohort (see Appendices A and B), although the age and period effects were unaffected by such changes in coding. This is likely attributable

to both a loss of statistical power given the small number of cohorts when cohorts are coded, for example, in 7-year intervals, and the relative lack of substantive cohort variation.

Acknowledgments – The authors would like to thank the anonymous reviewers and Eric Baumer for invaluable feedback during the review process.

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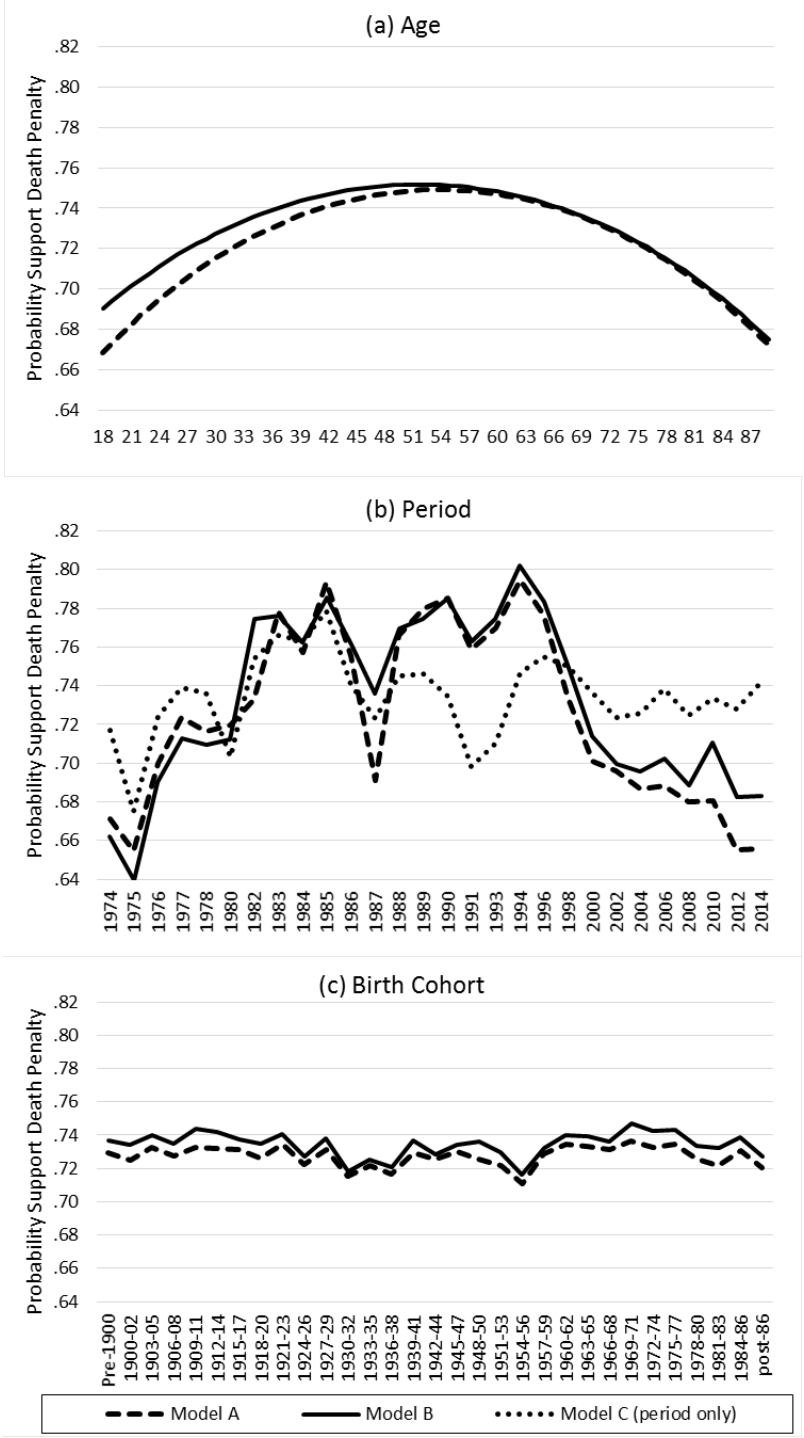
SUPPORTING INFORMATION FOR "AGE, PERIOD, AND COHORT EFFECTS ON DEATH PENALTY ATTITUDES IN THE UNITED STATES, 1974–2014"*

AMY L. ANDERSON, ROBERT LYTLE, and PHILIP SCHWADEL

* Published in *Criminology*, volume 55, issue 4, 2017.

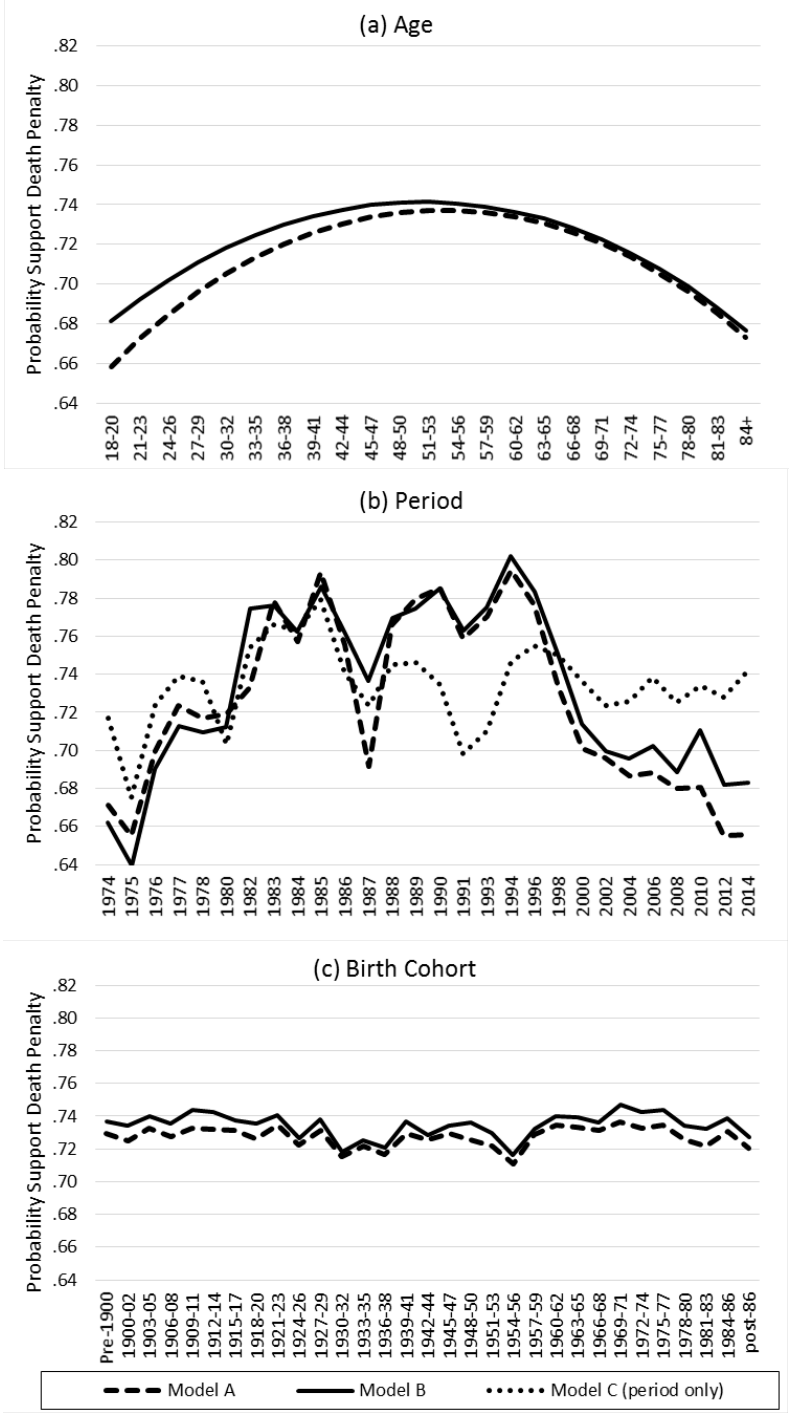
 doi: 1.1111/j.1745–9125.2011.00245.x

Appendix A1. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Three-Year Cohorts, and One-Year Age Intervals



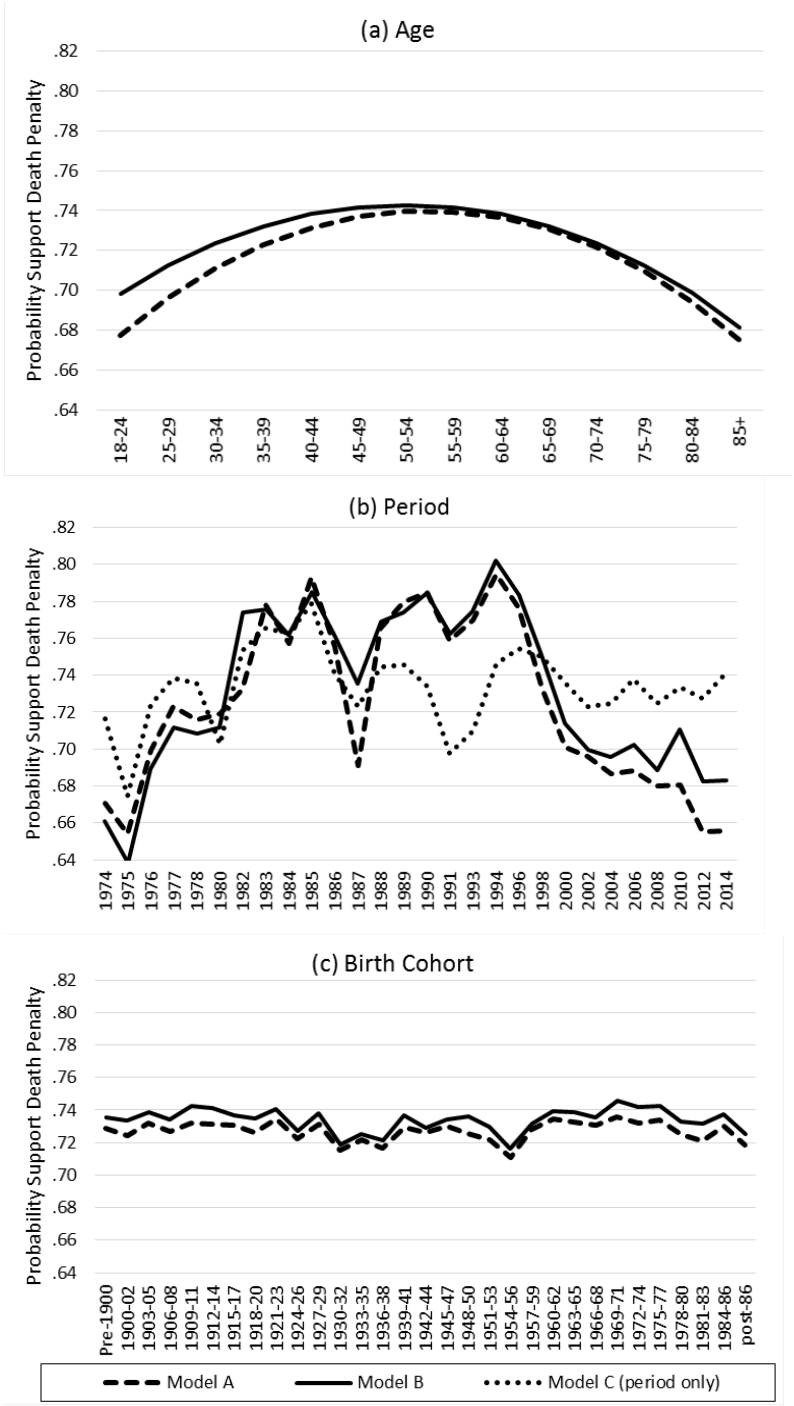
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A2. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Three-Year Cohorts, and Three-Year Age Intervals



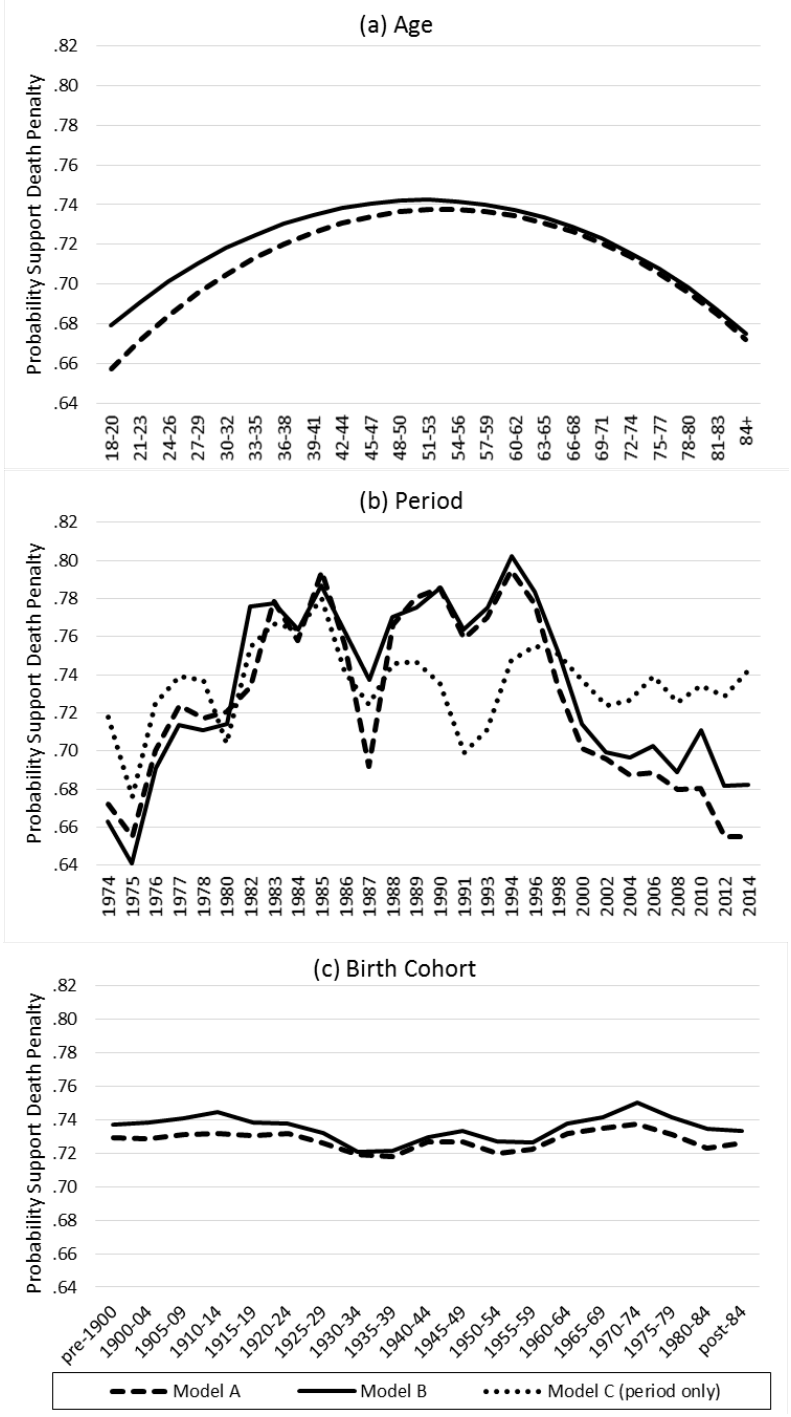
NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A3. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Three-Year Cohorts, and Five-Year Age Intervals



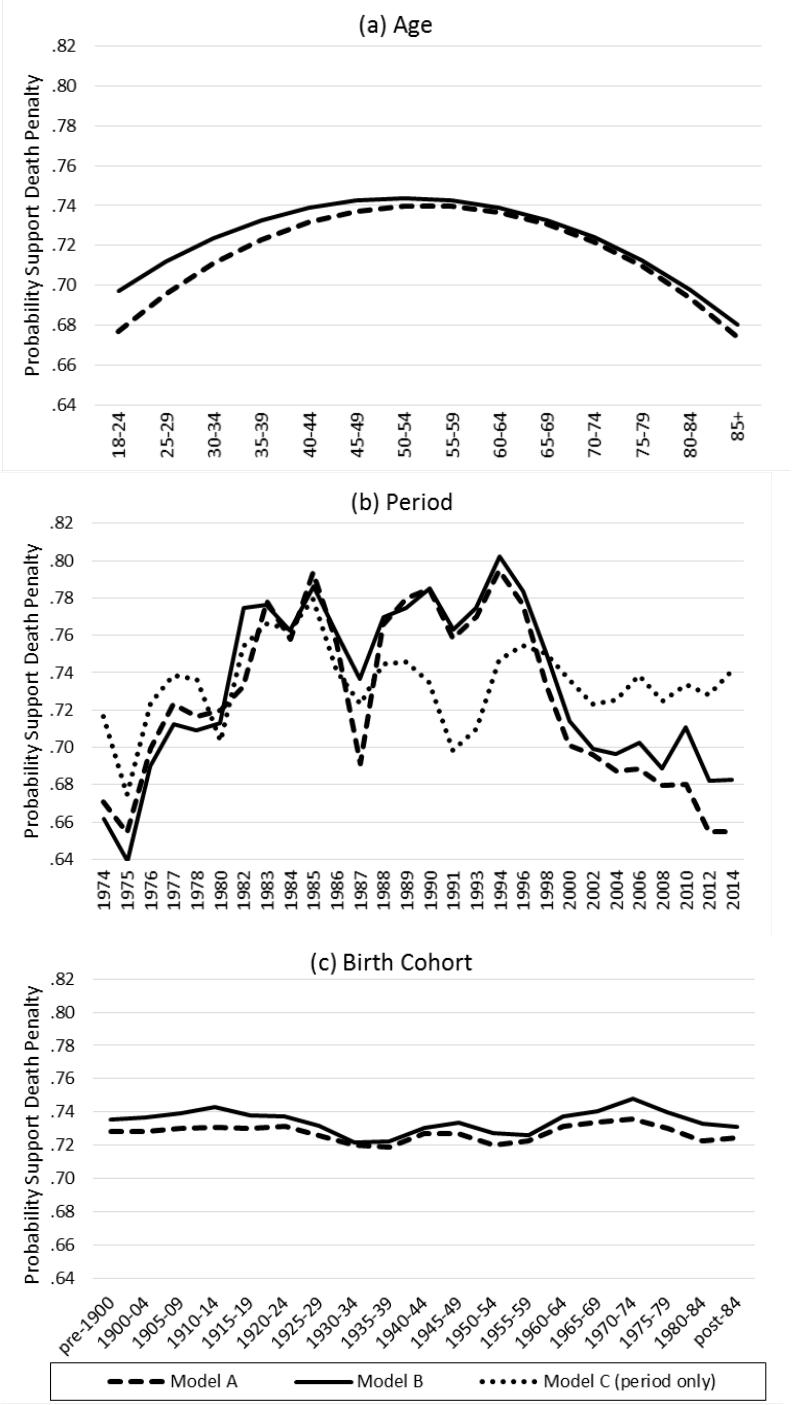
NOTES: Model A includes only age (ordinal variable coded in five-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A4. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Five-Year Cohorts, and Three-Year Age Intervals



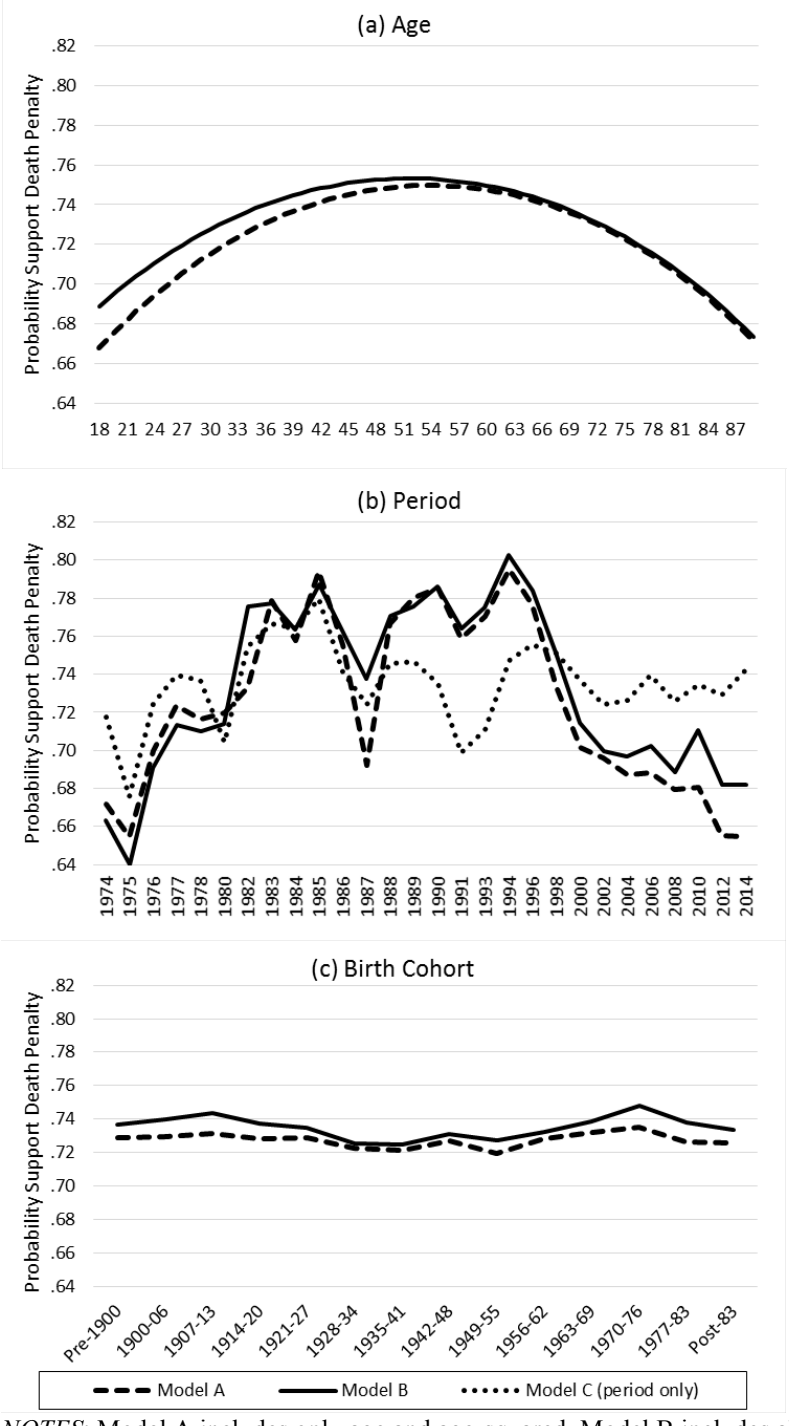
NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A5. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Five-Year Cohorts, and Five-Year Age Intervals



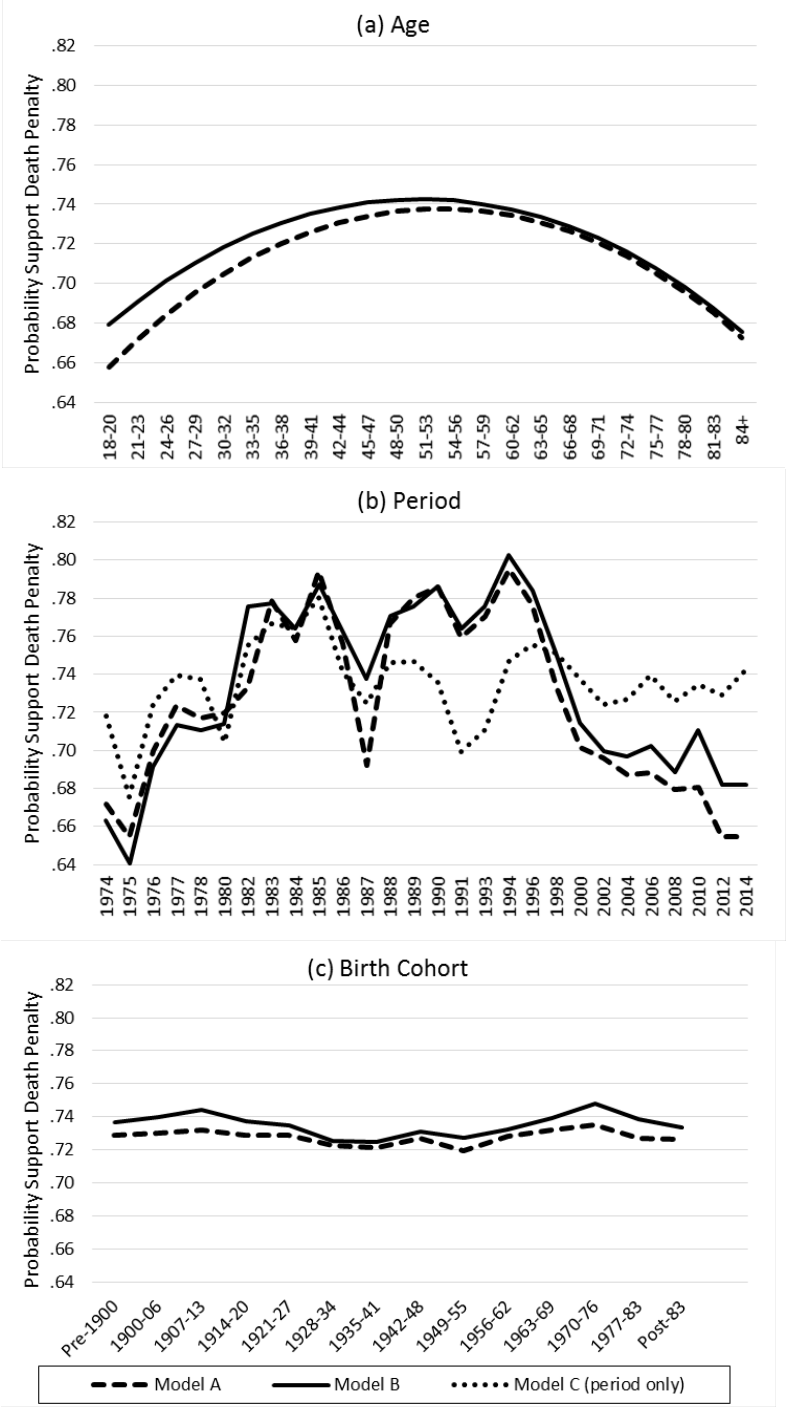
NOTES: Model A includes only age (ordinal variable coded in five-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A6. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Seven-Year Cohorts, and One-Year Age Intervals



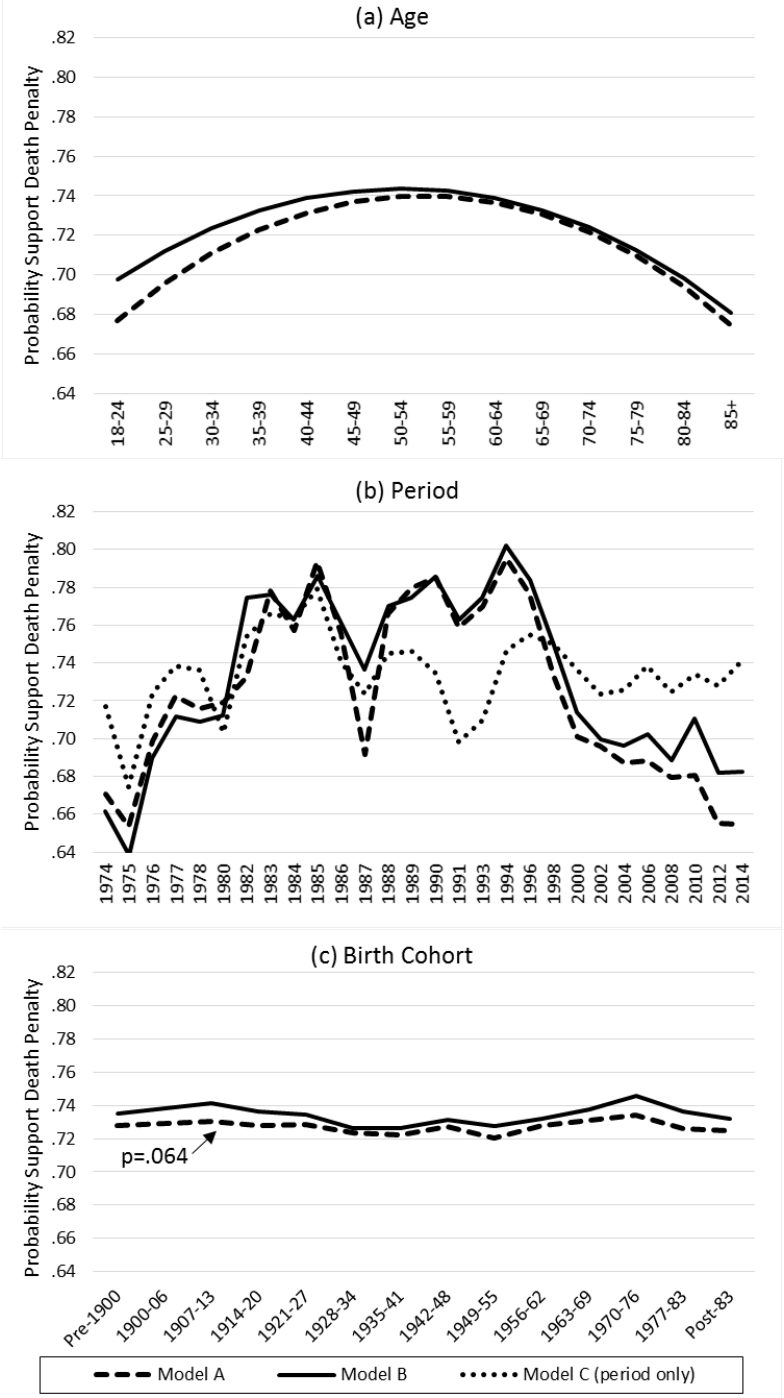
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A7. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Seven-Year Cohorts, and Three-Year Age Intervals



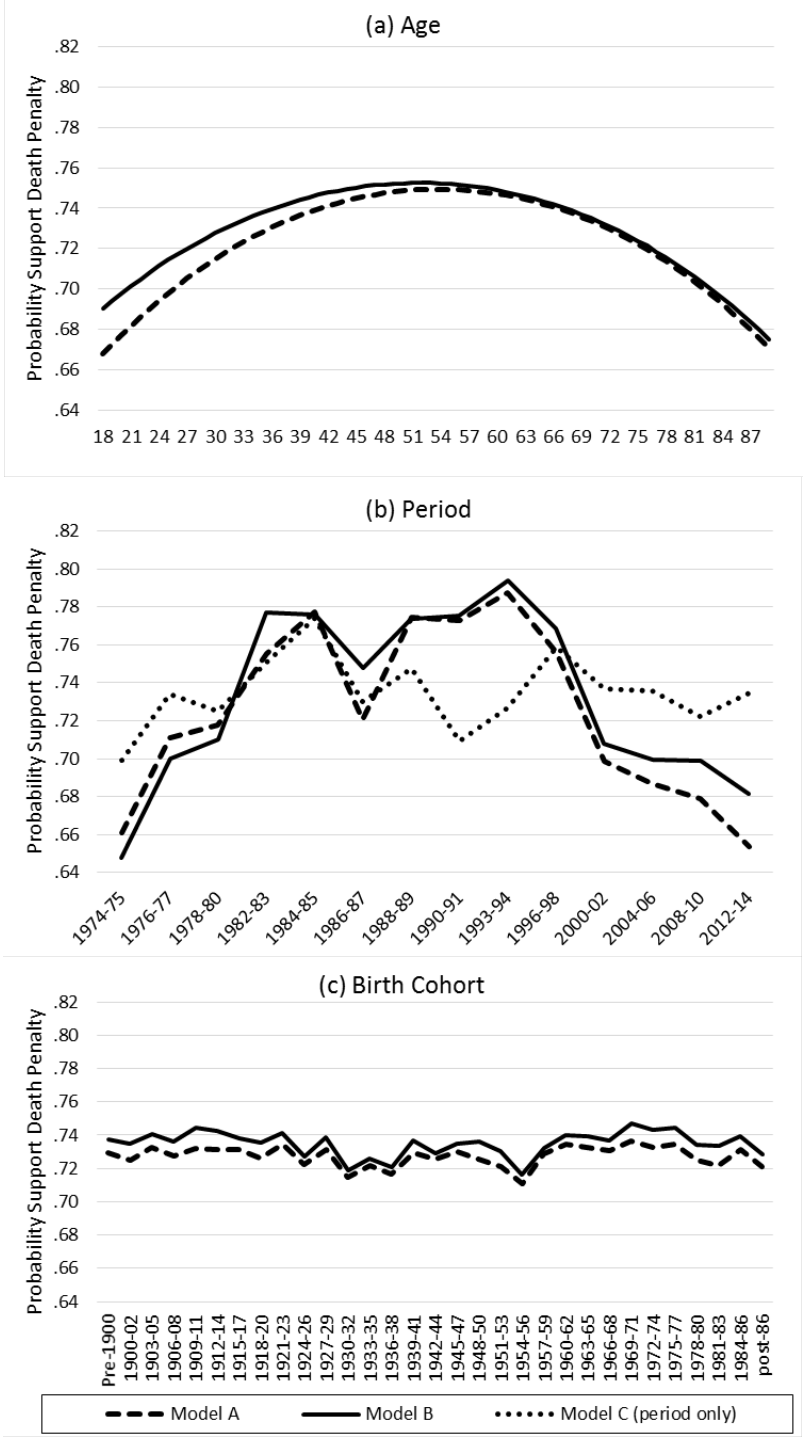
NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A8. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with One-Year Periods, Seven-Year Cohorts, and Five-Year Age Intervals



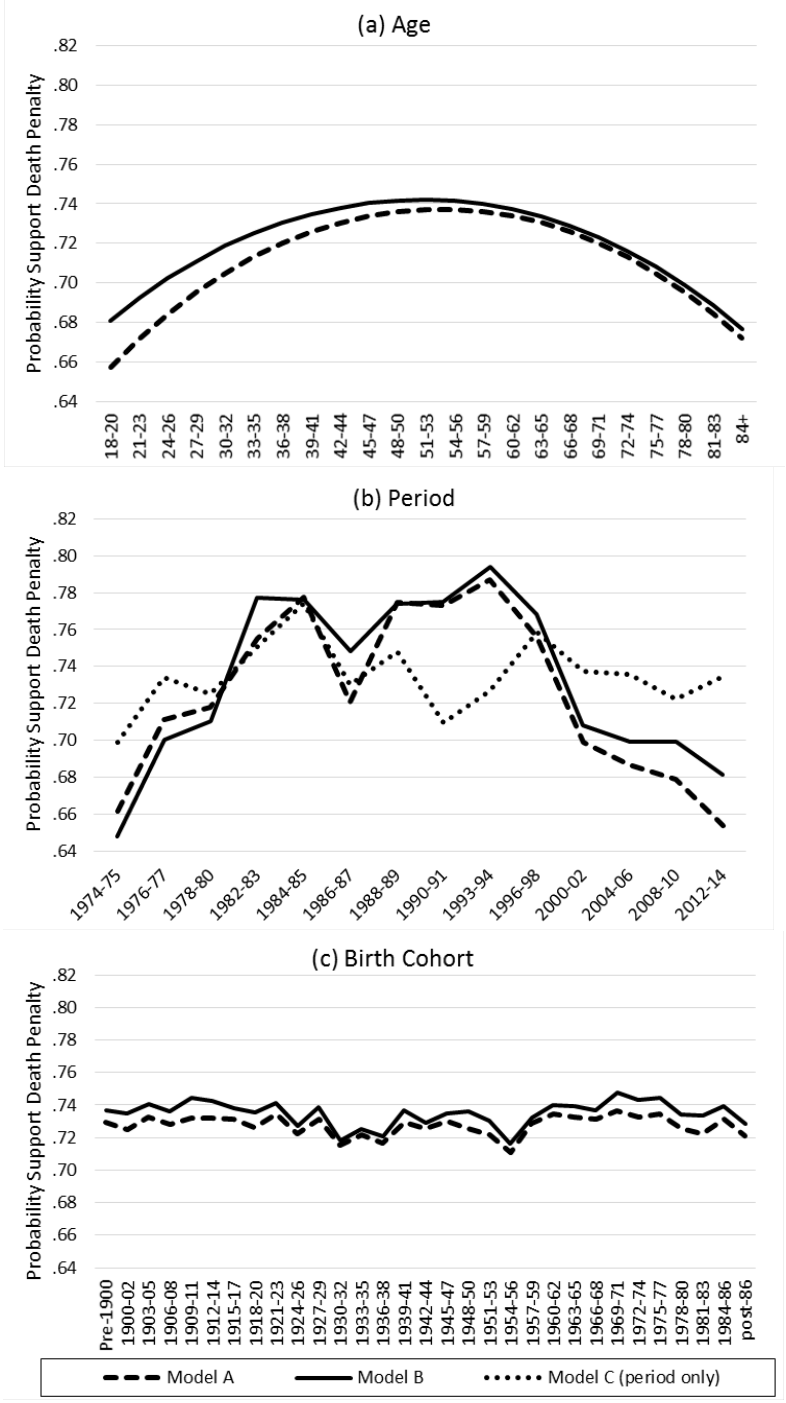
NOTES: Model A includes only age (ordinal variable coded in five-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A9. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Three-Year Cohorts, and One-Year Age Intervals



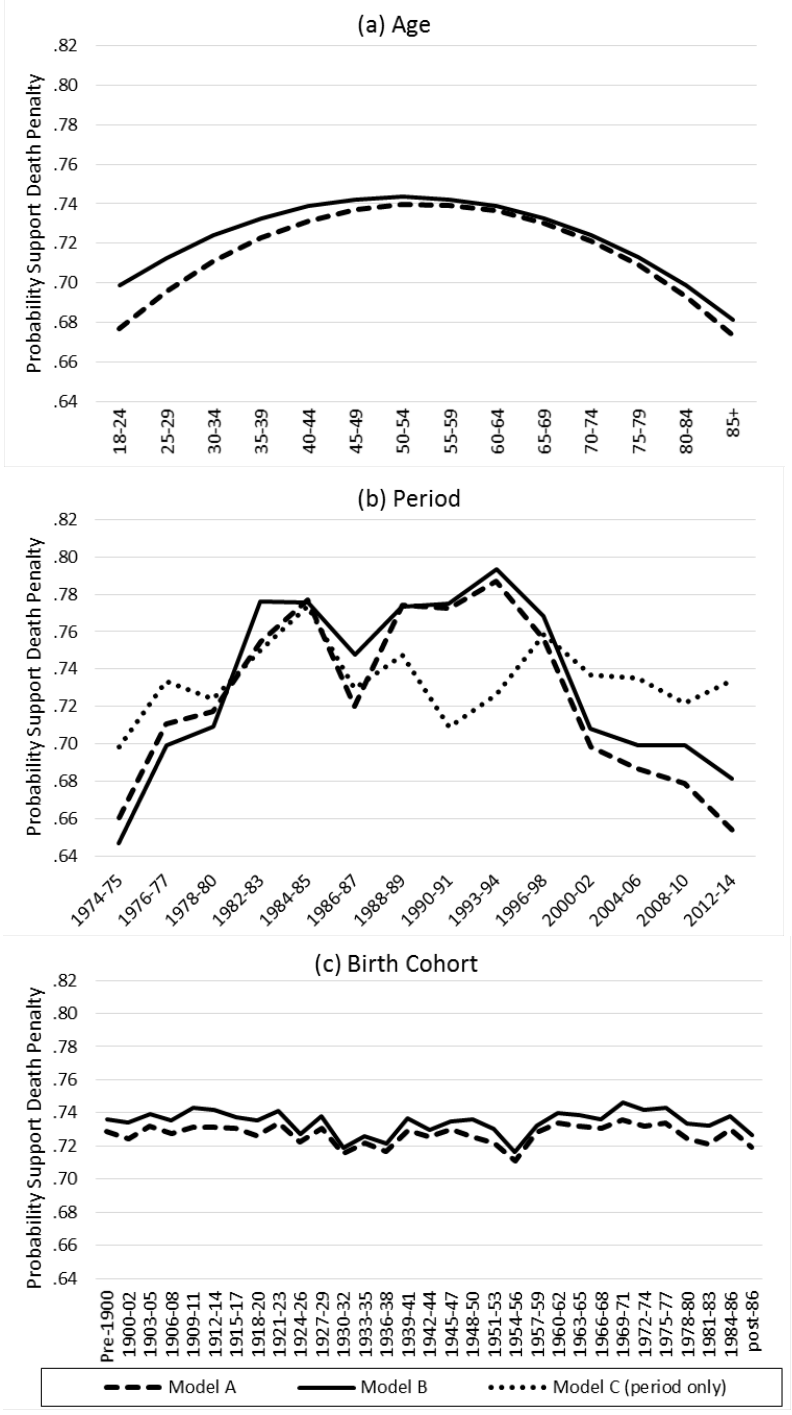
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A10. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Three-Year Cohorts, and Three-Year Age Intervals



NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A11. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Three-Year Cohorts, and Five-Year Age Intervals



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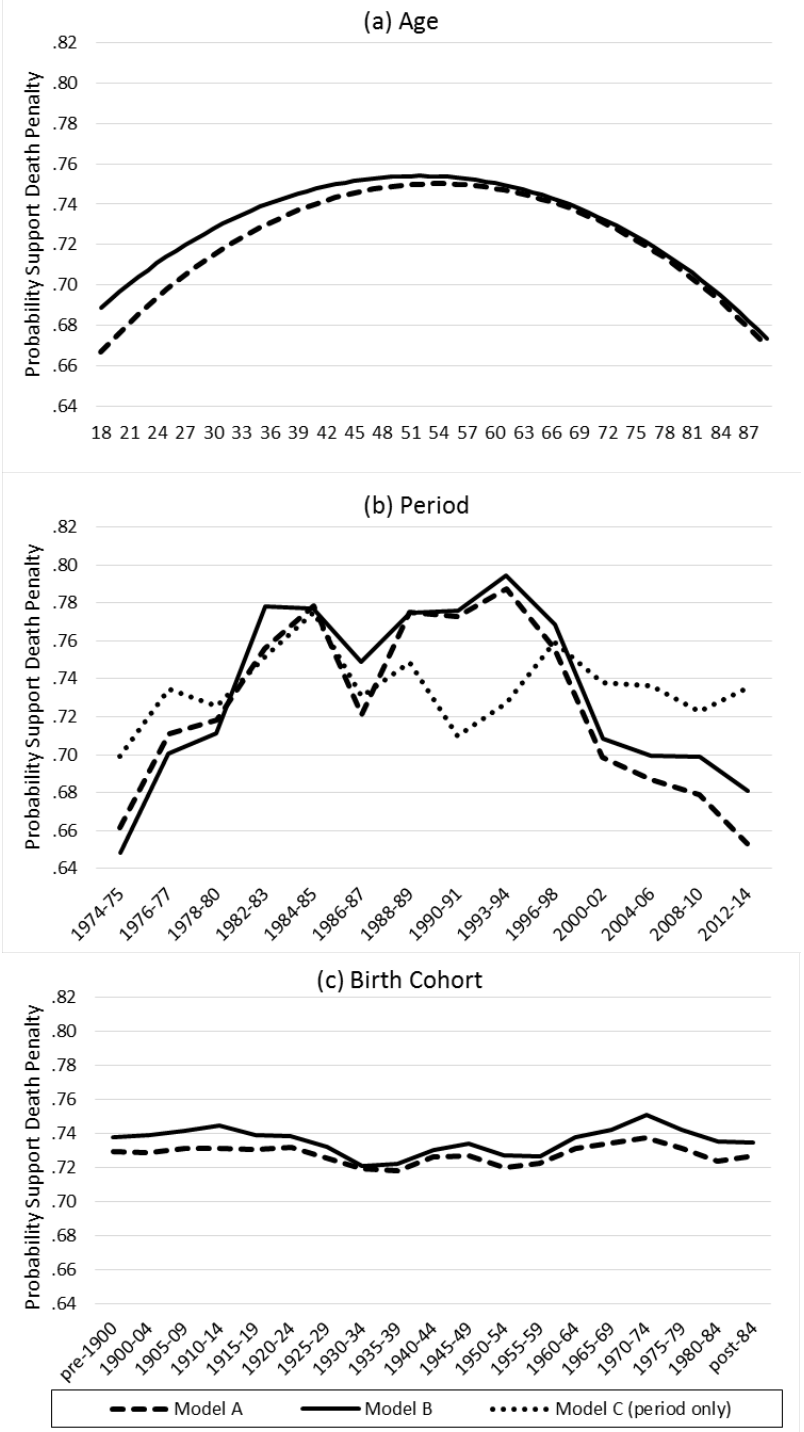
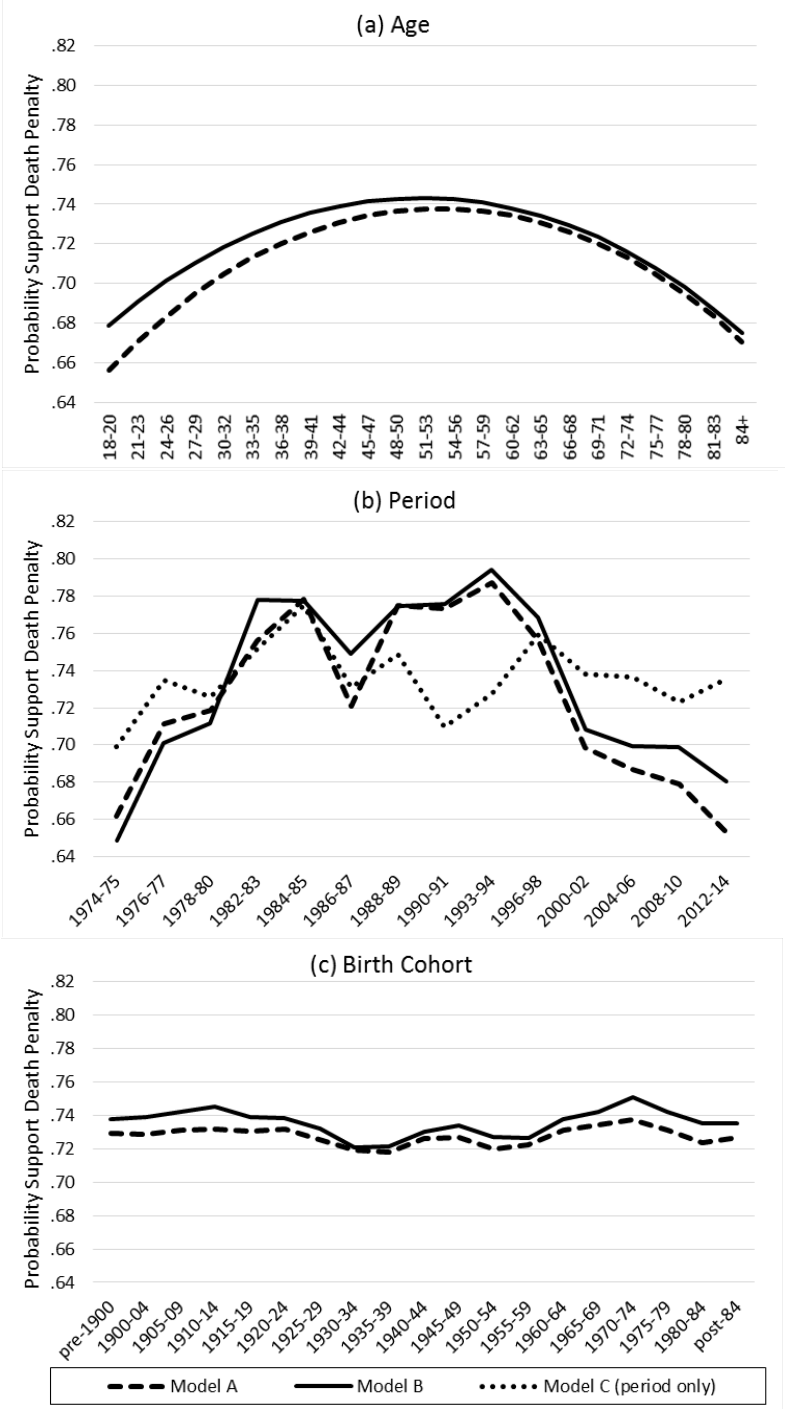
Appendix A12. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Five-Year Cohorts, and One-Year Age Intervals



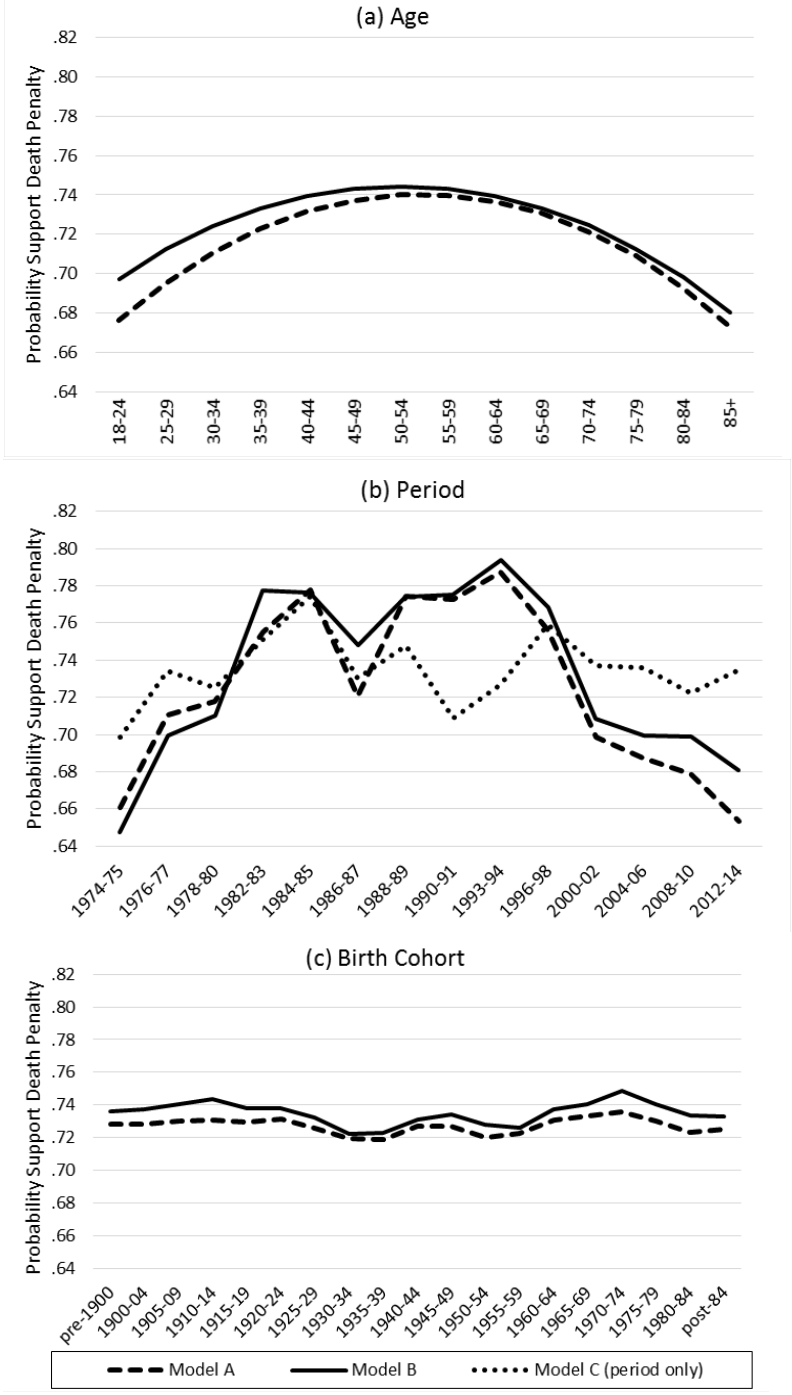
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A13. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Five-Year Cohorts, and Three-Year Age Intervals



NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A14. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Five-Year Cohorts, and Five-Year Age Intervals



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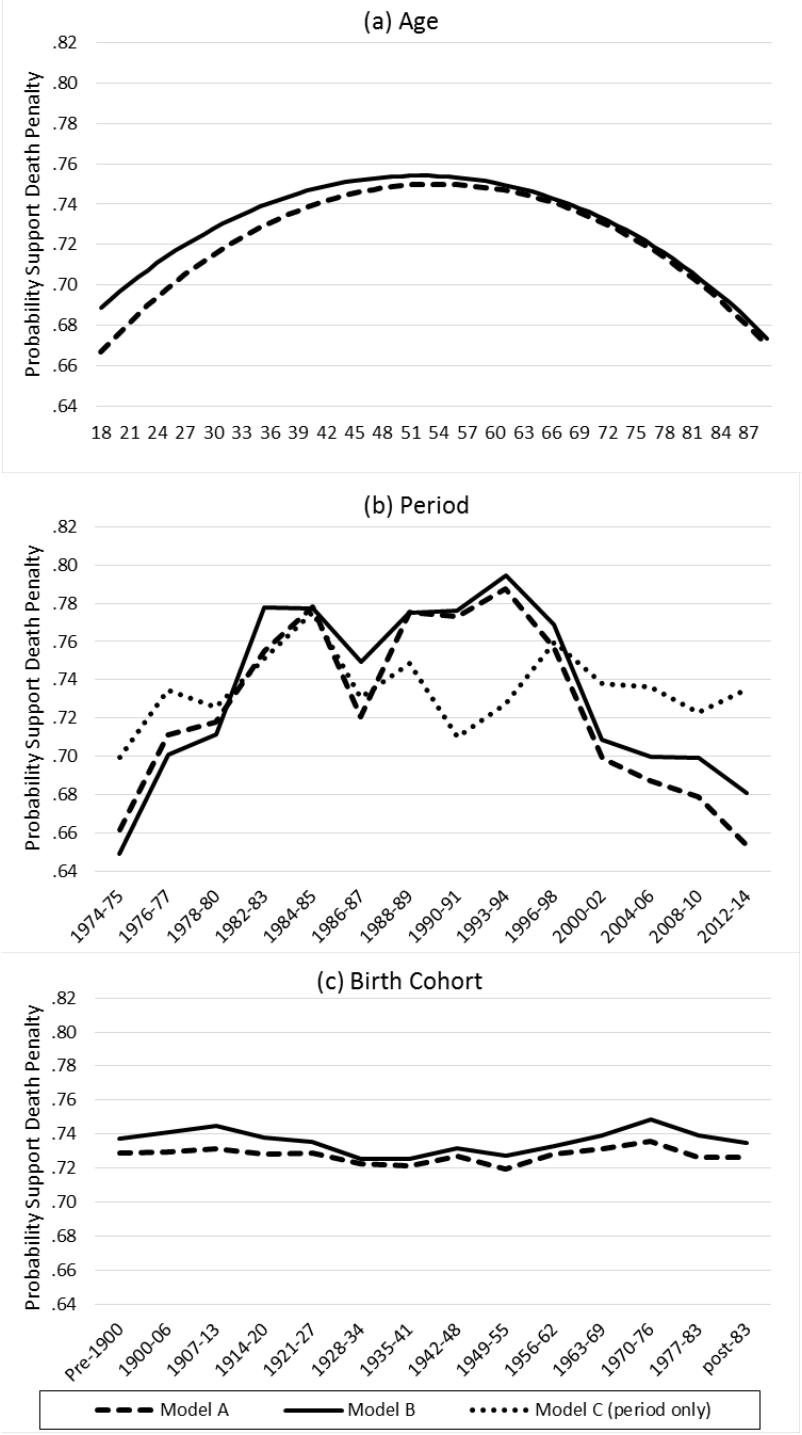
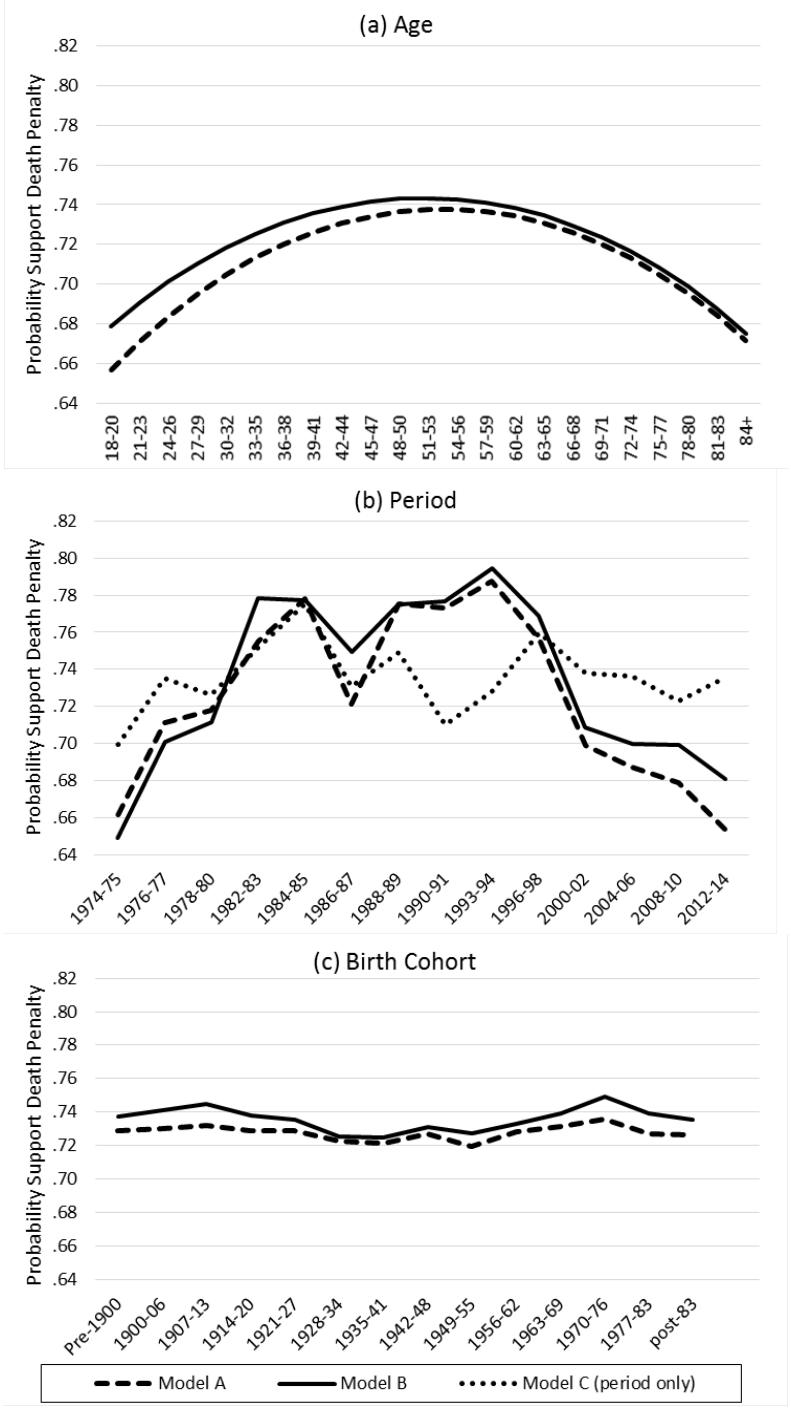
Appendix A15. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Seven-Year Cohorts, and One-Year Age Intervals



NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A16. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Seven-Year Cohorts, and Three-Year Age Intervals



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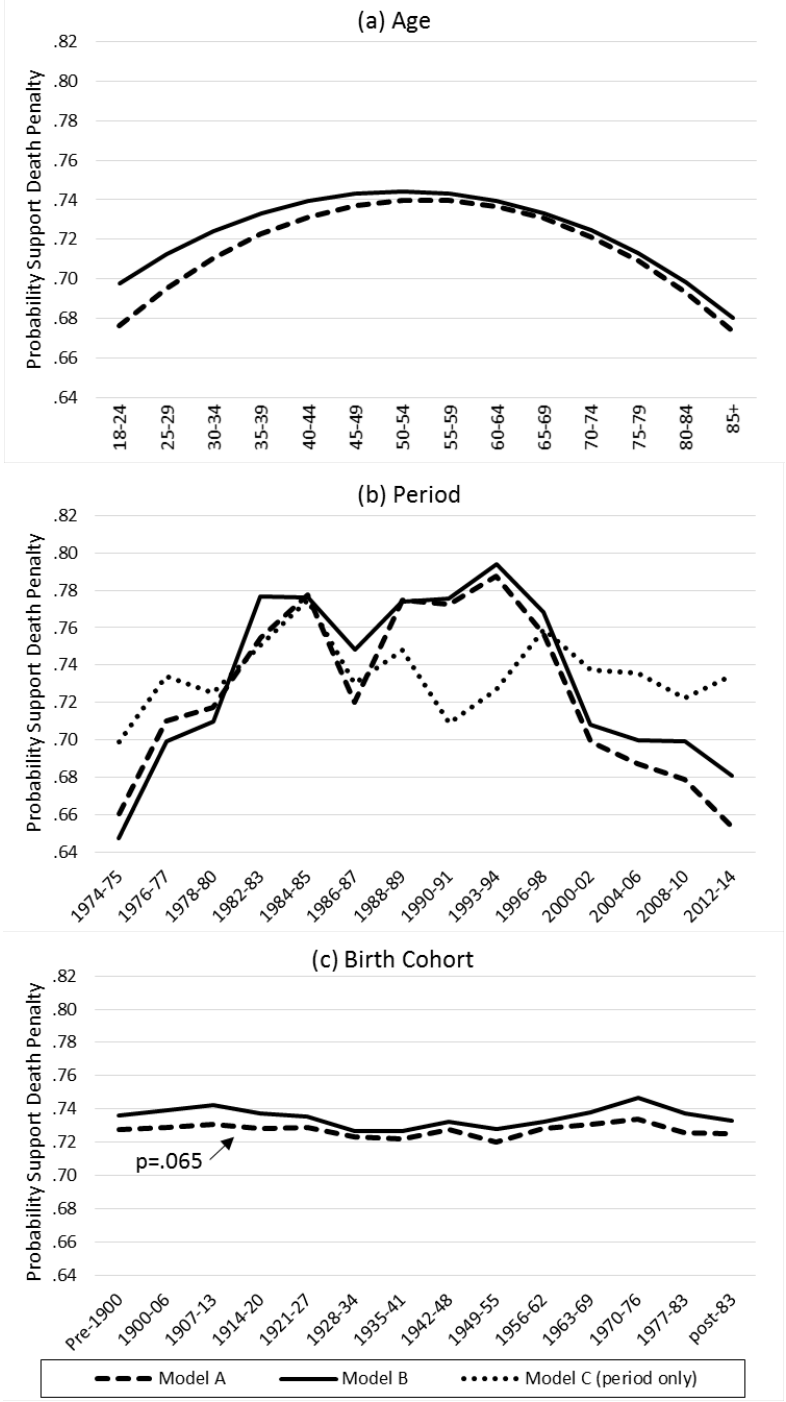
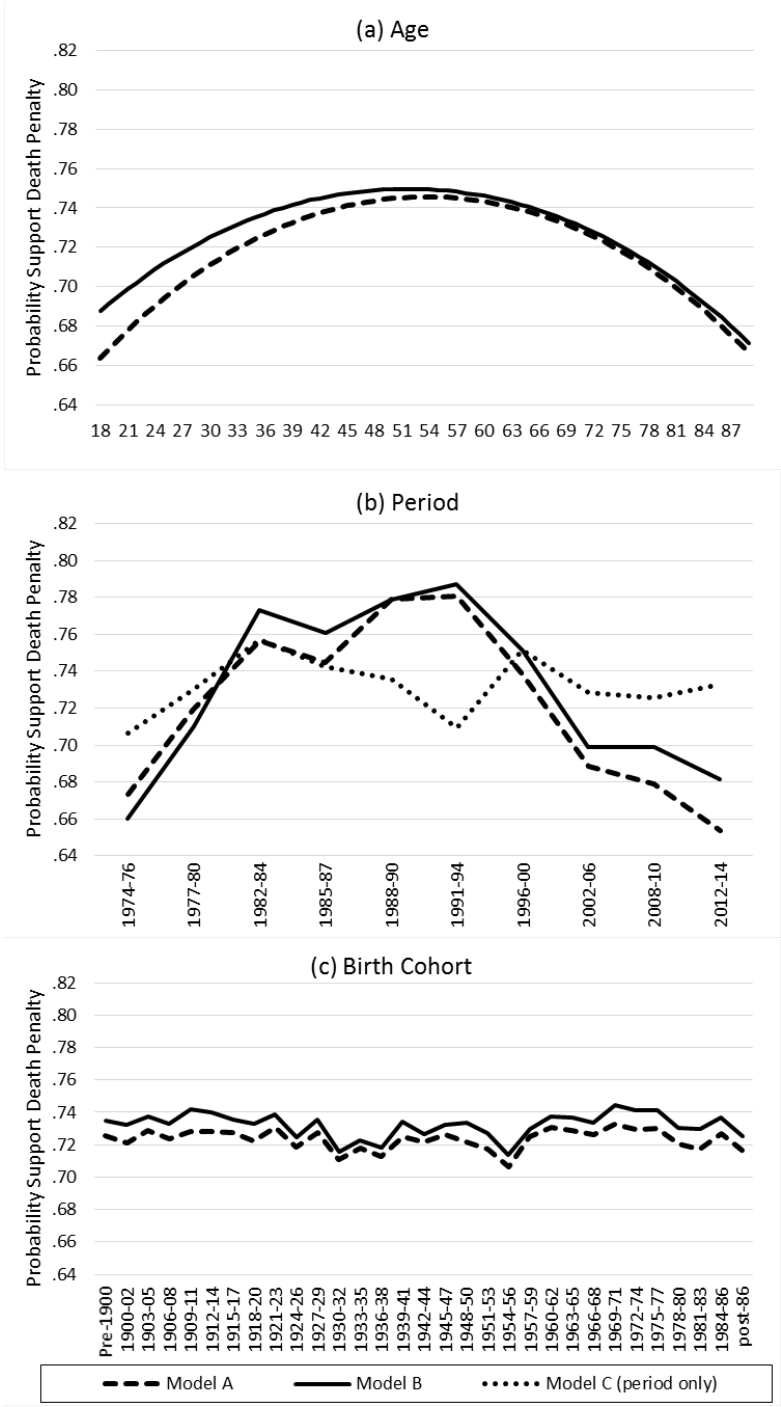
Appendix A17. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods, Seven-Year Cohorts, and Five-Year Age Intervals



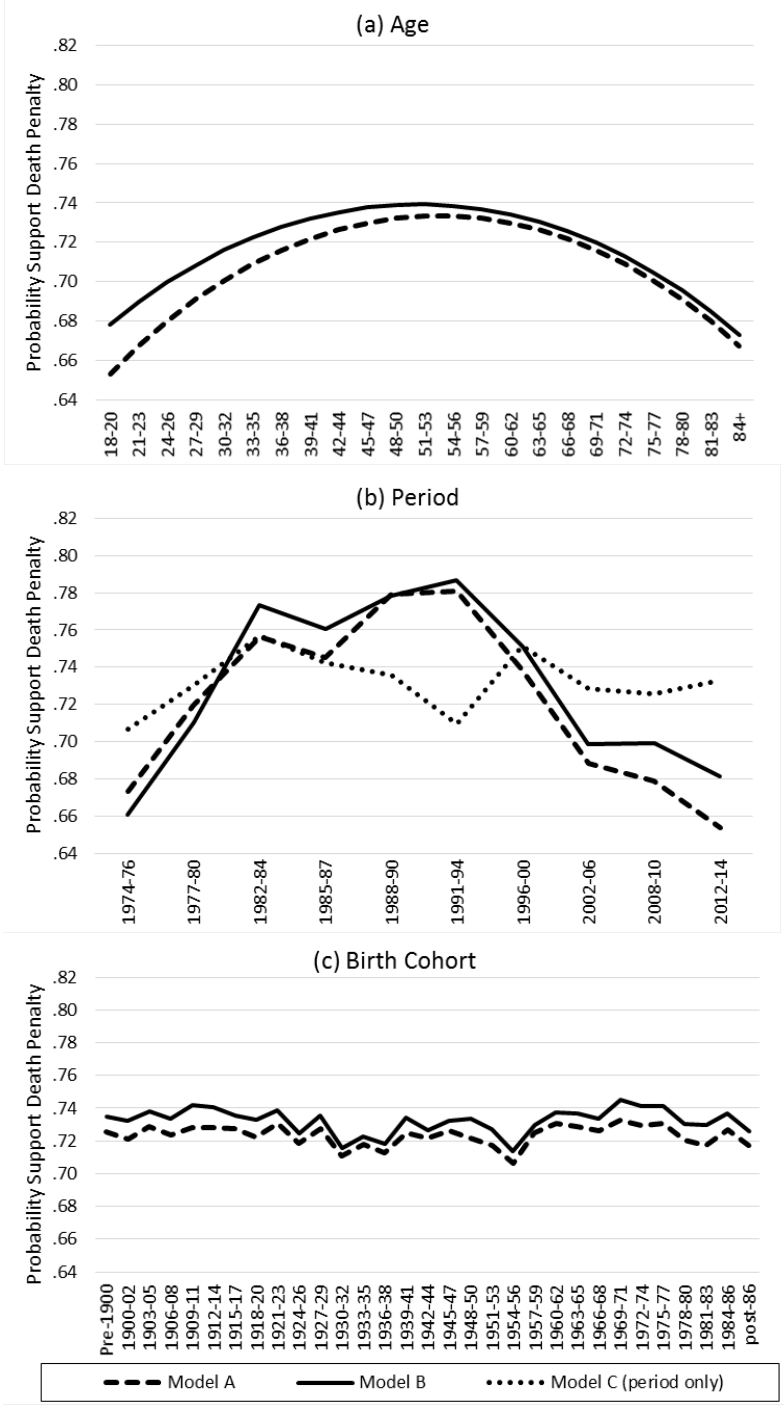
NOTES: Model A includes only age (ordinal variable coded in five-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A18. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Three-Year Cohorts, and One-Year Age Intervals



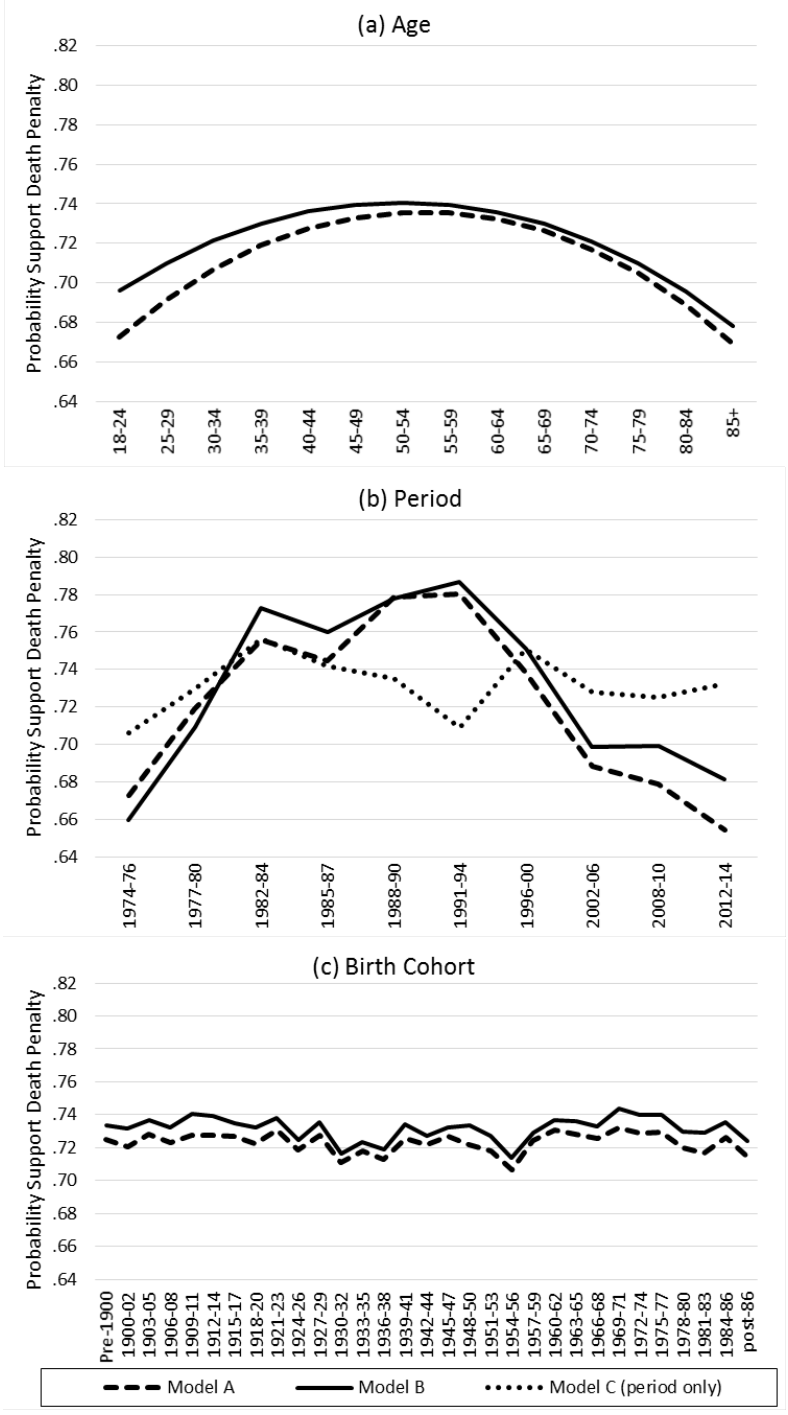
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A19. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Three-Year Cohorts, and Three-Year Age Intervals



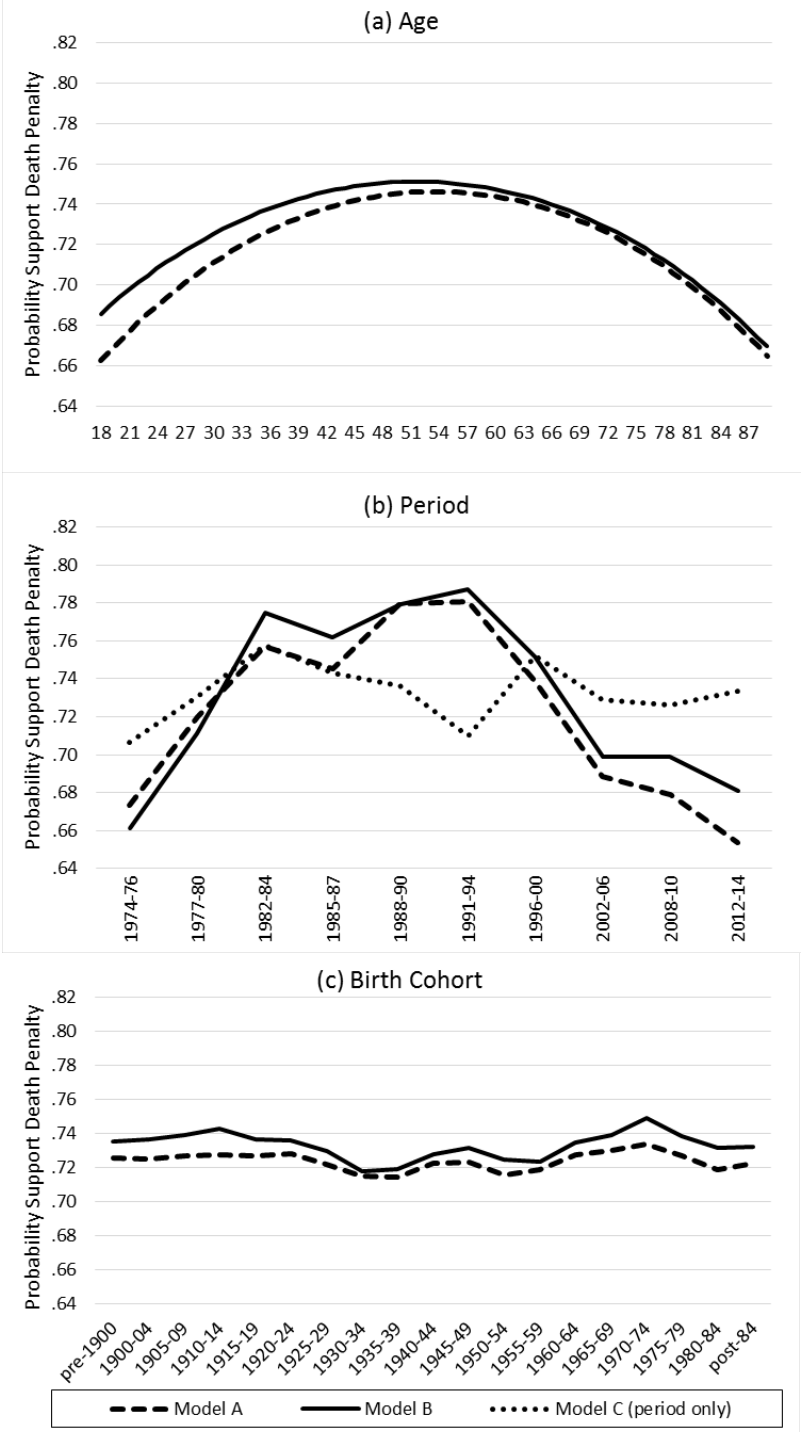
NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A20. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Three-Year Cohorts, and Five-Year Age Intervals



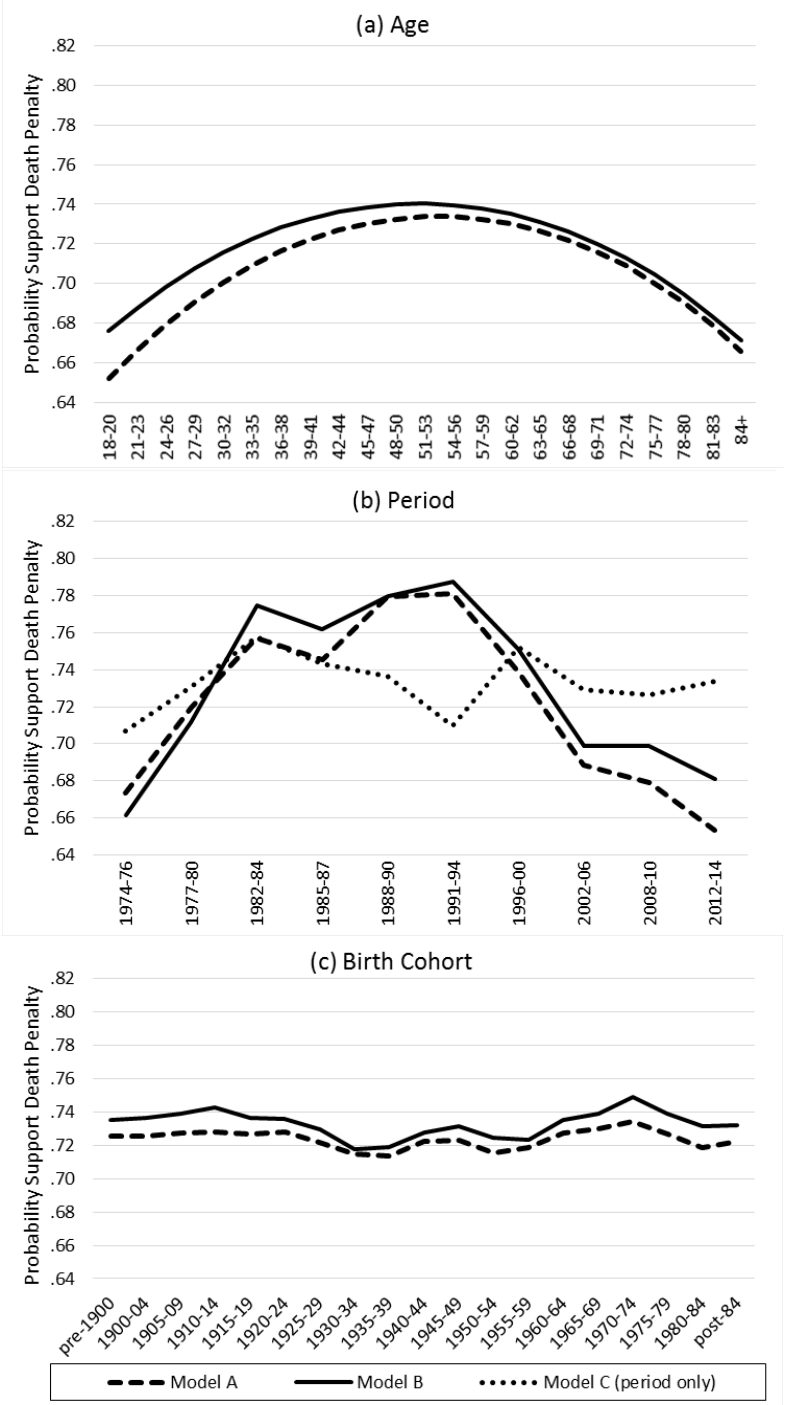
NOTES: Model A includes only age (ordinal variable coded in five-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A21. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Five-Year Cohorts, and One-Year Age Intervals



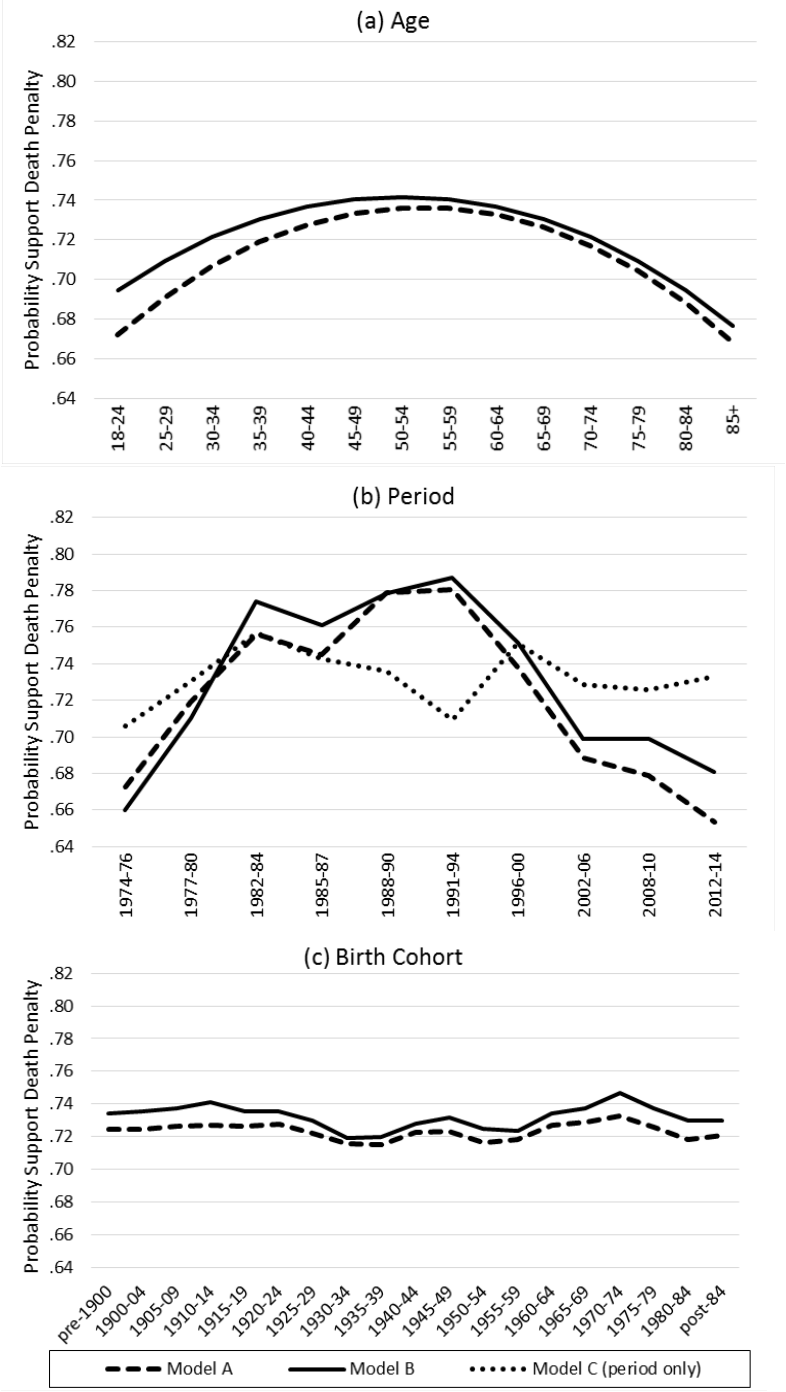
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A22. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Five-Year Cohorts, and Three-Year Age Intervals



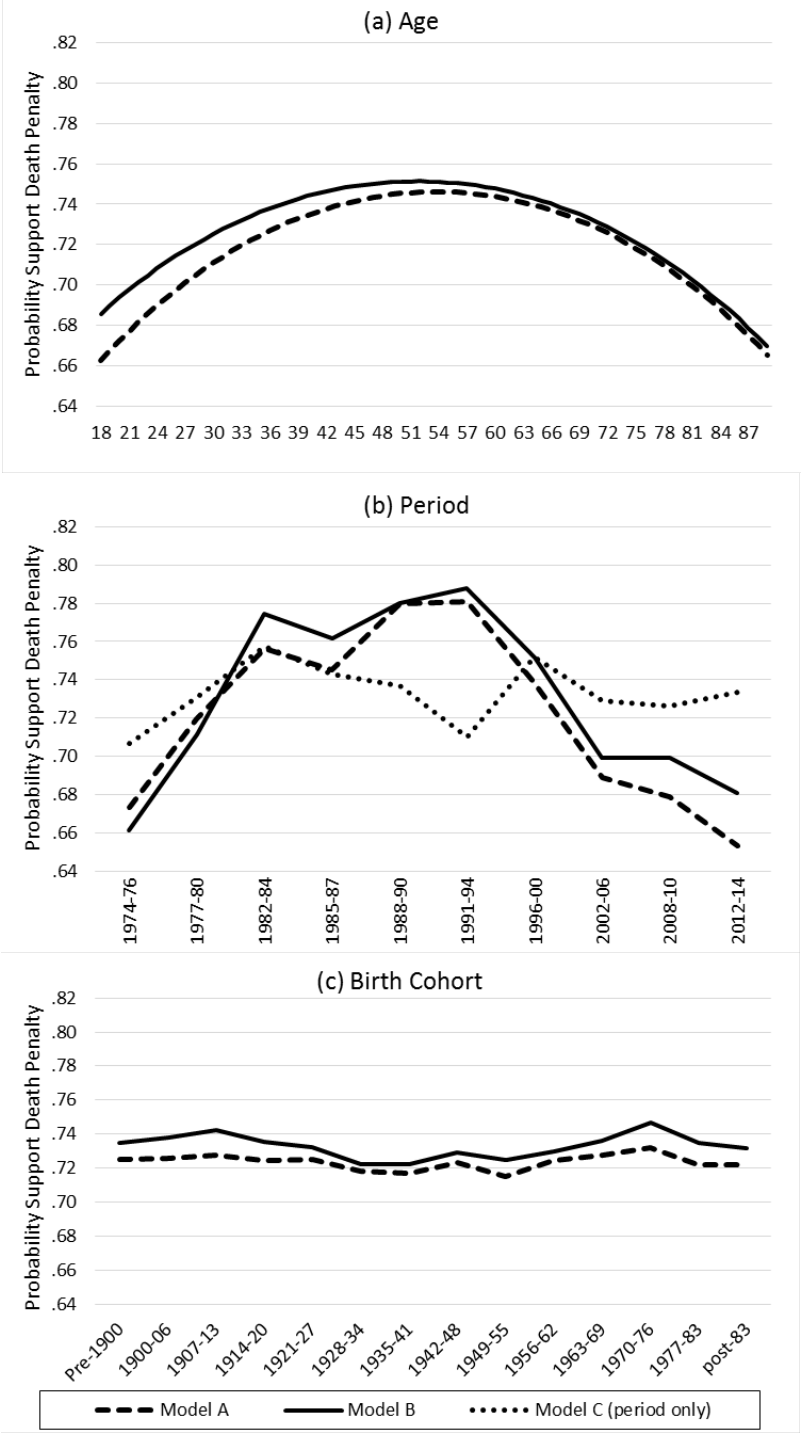
NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A23. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Five-Year Cohorts, and Five-Year Age Intervals



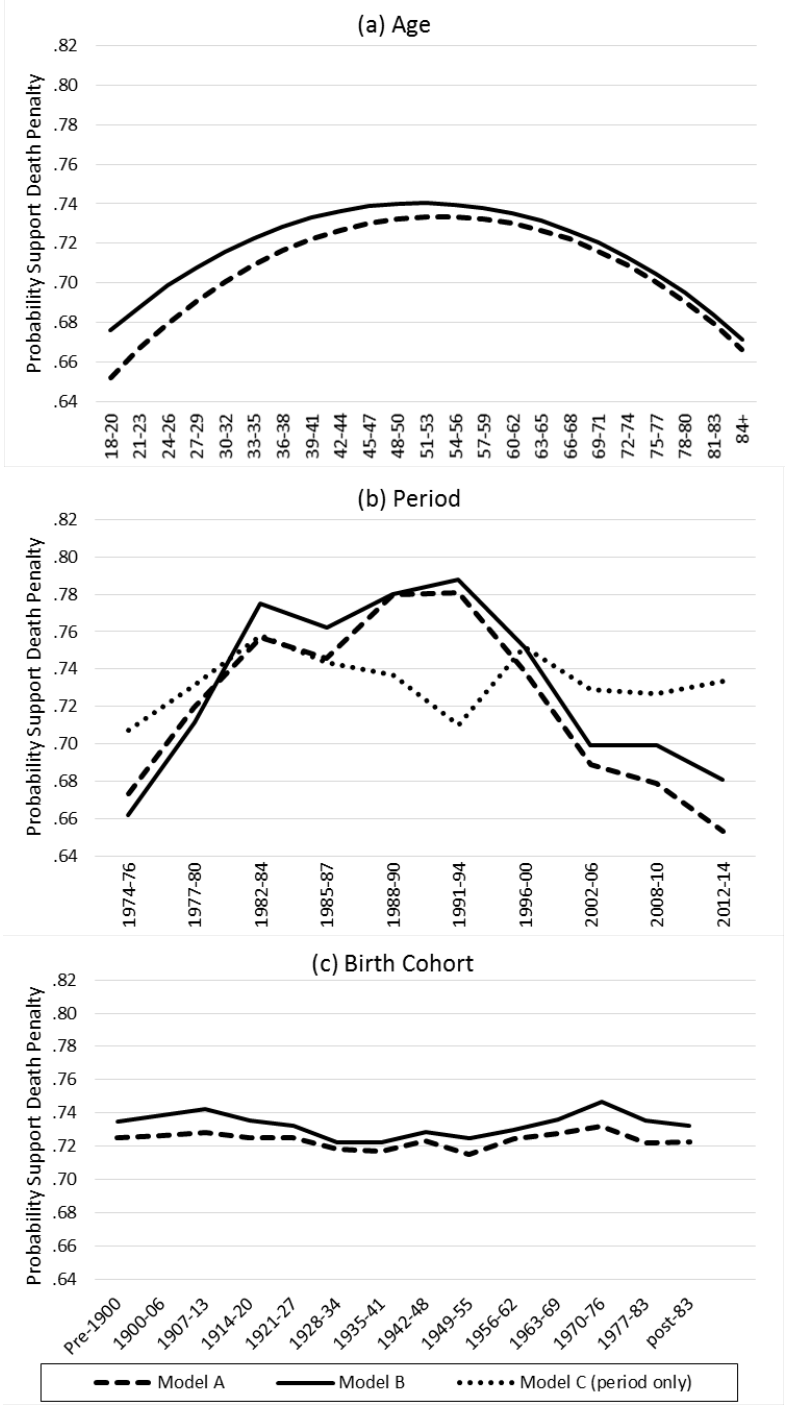
NOTES: Model A includes only age (ordinal variable coded in five-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A24. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Seven-Year Cohorts, and One-Year Age Intervals



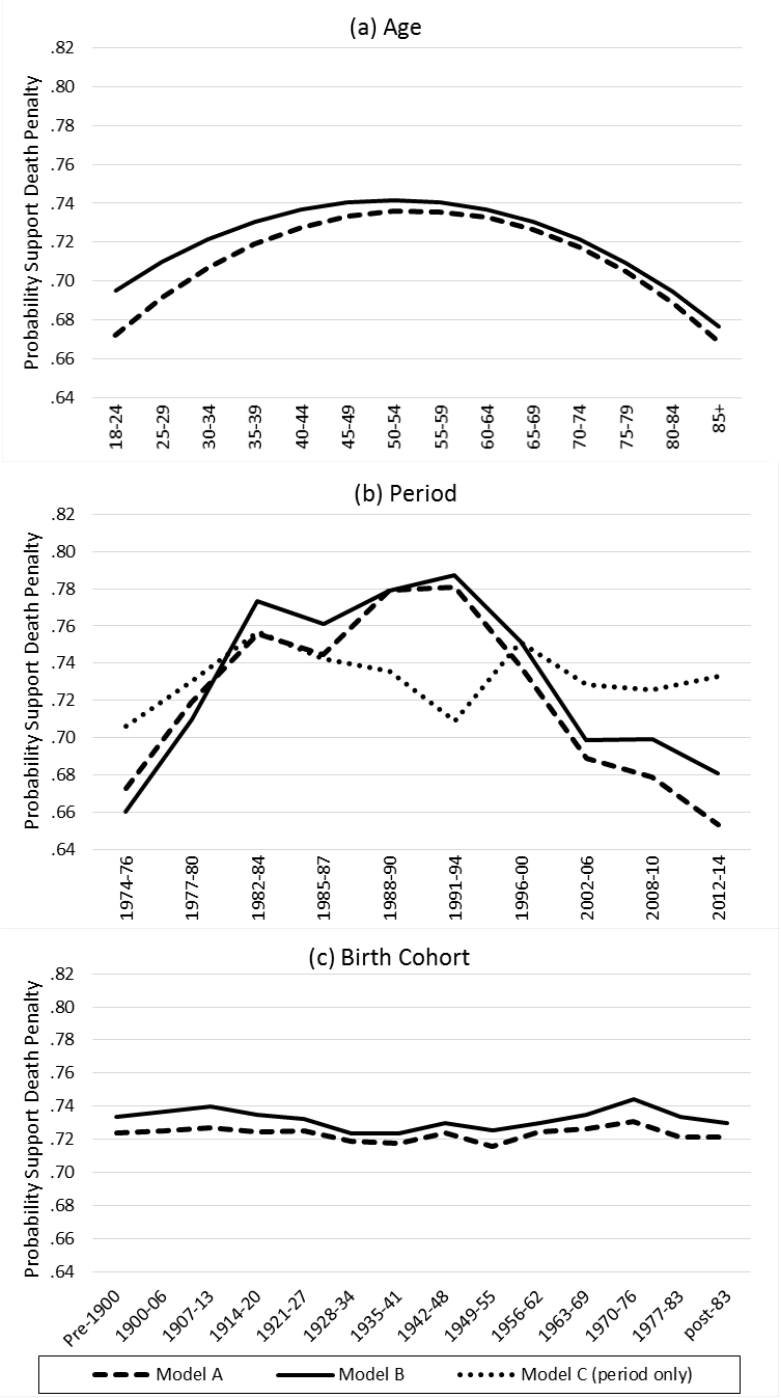
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A25. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Seven-Year Cohorts, and Three-Year Age Intervals



NOTES: Model A includes only age (ordinal variable coded in three-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix A26. Estimated Age, Period, and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods, Seven-Year Cohorts, and Five-Year Age Intervals



NOTES: Model A includes only age (ordinal variable coded in five-year intervals) and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated.

Appendix B1. Estimated Age Effects on Support for the Death Penalty from HAPC Models with One-Year Periods and Three-Year Age Dummy Variables

	Three-Year Cohorts				Five-Year Cohorts				Seven-Year Cohorts			
Age	Model A		Model B		Model A		Model B		Model A		Model B	
	b	(SE)	*b*	(SE)	*b*	(SE)	*b*	(SE)	*b*	(SE)	*b*	(SE)
18-20	–.474***	(.088)	–.439***	(.094)	–.481***	(.088)	–.448***	(.094)	–.479***	(.088)	–.443***	(.094)
21-23	–.361***	(.077)	–.301***	(.081)	–.366***	(.077)	–.308***	(.081)	–.362***	(.077)	–.301***	(.081)
24-26	–.130	(.074)	.000	(.078)	–.131	(.074)	–.003	(.078)	–.129	(.074)	.002	(.078)
27-29	–.091	(.073)	.039	(.077)	–.092	(.073)	.036	(.077)	–.090	(.073)	.041	(.077)
30-32	–.122	(.073)	–.011	(.077)	–.123	(.072)	–.014	(.077)	–.122	(.072)	–.011	(.076)
33-35	–.047	(.073)	.020	(.077)	–.048	(.073)	.018	(.078)	–.044	(.073)	.024	(.077)
36-38	–.011	(.074)	.061	(.078)	–.009	(.074)	.062	(.078)	–.007	(.074)	.066	(.078)
39-41	.030	(.075)	.094	(.080)	.030	(.075)	.093	(.080)	.031	(.075)	.095	(.080)
42-44	–.029	(.076)	–.005	(.080)	–.030	(.076)	–.006	(.080)	–.030	(.076)	–.005	(.080)
45-47	.005	(.079)	.022	(.082)	.006	(.079)	.025	(.082)	.008	(.079)	.027	(.082)
48-50	–.121	(.078)	–.083	(.081)	–.118	(.078)	–.080	(.081)	–.119	(.078)	–.080	(.081)
51-53	---	---	---	---	---	---	---	---	---	---	---	---
54-56	.022	(.082)	.032	(.085)	.022	(.082)	.032	(.085)	.021	(.082)	.032	(.085)
57-59	–.019	(.082)	–.013	(.086)	–.023	(.082)	–.015	(.086)	–.021	(.082)	–.014	(.086)
60-62	–.040	(.083)	–.034	(.087)	–.039	(.083)	–.034	(.087)	–.037	(.083)	–.031	(.087)
63-65	.092	(.087)	.117	(.091)	.092	(.087)	.116	(.091)	.095	(.087)	.121	(.091)
66-68	.099	(.089)	.136	(.093)	.098	(.089)	.134	(.093)	.101	(.089)	.138	(.093)
69-71	–.186*	(.091)	–.145	(.095)	–.187*	(.091)	–.147	(.095)	–.183*	(.091)	–.142	(.095)
72-74	–.178	(.094)	–.188	(.099)	–.178	(.094)	–.190	(.099)	–.176	(.094)	–.185	(.099)
75-77	–.073	(.102)	–.040	(.107)	–.076	(.102)	–.044	(.107)	–.075	(.102)	–.041	(.107)
78-80	–.035	(.112)	–.011	(.117)	–.037	(.112)	–.014	(.117)	–.035	(.112)	–.010	(.117)
81-83	–.064	(.128)	–.054	(.133)	–.066	(.128)	–.060	(.133)	–.064	(.127)	–.055	(.132)
84+	–.328**	(.113)	–.283*	(.118)	–.331**	(.113)	–.289*	(.118)	–.327**	(.113)	–.282*	(.118)

NOTES: $N = 41{,}474$; Model A includes only age dummy variables; Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region). Standard errors in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

 doi: 1.1111/j.1745–9125.2011.00245.x

Appendix B2. Estimated Age Effects on Support for the Death Penalty from HAPC Models with One-Year Periods and Five-Year Age Dummy Variables

	Three-Year Cohorts				Five-Year Cohorts				Seven-Year Cohorts			
Age	**Model A**		**Model B**		**Model A**		**Model B**		**Model A**		**Model B**	
	b	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**
18-24	–.305***	(.058)	–.255***	(.062)	–.309***	(.058)	–.260***	(.062)	–.306***	(.058)	–.254***	(.062)
25-29	–.066	(.057)	.051	(.060)	–.066	(.057)	.050	(.061)	–.063	(.057)	.055	(.060)
30-34	–.040	(.057)	.039	(.060)	–.040	(.057)	.037	(.060)	–.037	(.057)	.042	(.060)
35-39	.022	(.057)	.073	(.061)	.024	(.057)	.075	(.061)	.027	(.057)	.079	(.061)
40-44	.048	(.059)	.072	(.062)	.048	(.059)	.071	(.062)	.049	(.059)	.073	(.062)
45-49	.012	(.061)	.016	(.064)	.016	(.061)	.020	(.064)	.017	(.061)	.021	(.063)
50-54	---	---	---	---	---	---	---	---	---	---	---	---
55-59	.059	(.064)	.047	(.067)	.058	(.064)	.046	(.067)	.058	(.064)	.046	(.066)
60-64	.034	(.066)	.026	(.069)	.035	(.066)	.026	(.069)	.038	(.066)	.030	(.069)
65-69	.104	(.069)	.128	(.072)	.105	(.069)	.128	(.072)	.109	(.069)	.133	(.072)
70-74	–.119	(.072)	–.129	(.076)	–.118	(.072)	–.130	(.076)	–.114	(.072)	–.124	(.076)
75-79	–.007	(.082)	.010	(.086)	–.007	(.082)	.007	(.086)	–.005	(.081)	.012	(.085)
80-84	–.065	(.098)	–.070	(.102)	–.067	(.098)	–.074	(.102)	–.064	(.098)	–.068	(.102)
85+	–.272*	(.118)	–.239	(.123)	–.273*	(.118)	–.243*	(.123)	–.268*	(.117)	–.235	(.123)

NOTES: $N = 41{,}474$; Model A includes only age dummy variables; Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region). Standard errors in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Appendix B3. Estimated Age Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods and Three-Year Age Dummy Variables

	Three-Year Cohorts				Five-Year Cohorts				Seven-Year Cohorts			
Age	**Model A**		**Model B**		**Model A**		**Model B**		**Model A**		**Model B**	
	b	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**
18-20	–.479***	(.088)	–.441***	(.094)	–.485***	(.088)	–.450***	(.094)	–.483***	(.088)	–.446***	(.094)
21-23	–.365***	(.077)	–.304***	(.081)	–.369***	(.077)	–.311***	(.081)	–.365***	(.077)	–.305***	(.081)
24-26	–.130	(.074)	–.001	(.078)	–.130	(.074)	–.004	(.078)	–.128	(.074)	.000	(.078)
27-29	–.090	(.073)	.038	(.077)	–.091	(.073)	.034	(.077)	–.089	(.073)	.040	(.077)
30-32	–.118	(.072)	–.009	(.076)	–.119	(.072)	–.013	(.077)	–.118	(.072)	–.010	(.076)
33-35	–.049	(.073)	.017	(.078)	–.050	(.073)	.015	(.078)	–.045	(.073)	.021	(.078)
36-38	–.009	(.074)	.061	(.078)	–.007	(.074)	.061	(.078)	–.005	(.074)	.065	(.078)
39-41	.030	(.075)	.092	(.080)	.030	(.075)	.091	(.080)	.031	(.075)	.093	(.080)
42-44	–.027	(.076)	–.003	(.080)	–.028	(.076)	–.004	(.080)	–.027	(.076)	–.003	(.080)
45-47	.004	(.079)	.022	(.082)	.005	(.079)	.024	(.082)	.008	(.079)	.026	(.082)
48-50	–.117	(.078)	–.080	(.081)	–.113	(.078)	–.076	(.081)	–.114	(.078)	–.077	(.081)
51-53	---	---	---	---	---	---	---	---	---	---	---	---
54-56	.023	(.082)	.033	(.085)	.023	(.082)	.034	(.085)	.022	(.082)	.033	(.085)
57-59	–.019	(.082)	–.011	(.086)	–.022	(.082)	–.013	(.086)	–.020	(.082)	–.012	(.086)
60-62	–.036	(.083)	–.033	(.087)	–.035	(.083)	–.033	(.087)	–.033	(.083)	–.029	(.087)
63-65	.093	(.087)	.118	(.091)	.093	(.087)	.117	(.091)	.096	(.087)	.122	(.091)
66-68	.100	(.089)	.137	(.093)	.099	(.089)	.134	(.093)	.102	(.089)	.139	(.093)
69-71	–.185*	(.091)	–.142	(.095)	–.185*	(.091)	–.145	(.095)	–.182*	(.090)	–.140	(.095)
72-74	–.179	(.094)	–.190	(.099)	–.180	(.094)	–.193	(.099)	–.178	(.094)	–.188	(.099)
75-77	–.077	(.102)	–.041	(.107)	–.079	(.102)	–.045	(.107)	–.079	(.102)	–.043	(.107)
78-80	–.033	(.112)	–.009	(.117)	–.034	(.112)	–.013	(.117)	–.032	(.112)	–.009	(.117)
81-83	–.067	(.128)	–.060	(.133)	–.070	(.128)	–.066	(.133)	–.067	(.127)	–.061	(.132)
84+	–.332**	(.113)	–.285*	(.118)	–.335**	(.113)	–.291*	(.118)	–.332**	(.112)	–.285*	(.118)

NOTES: $N = 41{,}474$; Model A includes only age dummy variables; Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region). Standard errors in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Appendix B4. Estimated Age Effects on Support for the Death Penalty from HAPC Models with Two-Year Periods and Five-Year Age Dummy Variables

	Three-Year Cohorts				Five-Year Cohorts				Seven-Year Cohorts			
Age	**Model A**		**Model B**		**Model A**		**Model B**		**Model A**		**Model B**	
	b	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**
18-24	–.310***	(.058)	–.258***	(.062)	–.314***	(.058)	–.264***	(.062)	–.311***	(.058)	–.258***	(.062)
25-29	–.067	(.057)	.049	(.060)	–.067	(.057)	.048	(.061)	–.064	(.057)	.053	(.060)
30-34	–.039	(.057)	.038	(.060)	–.040	(.057)	.036	(.060)	–.037	(.057)	.041	(.060)
35-39	.020	(.057)	.071	(.061)	.022	(.057)	.072	(.061)	.025	(.057)	.076	(.061)
40-44	.047	(.059)	.071	(.062)	.047	(.059)	.070	(.062)	.048	(.059)	.071	(.062)
45-49	.011	(.061)	.015	(.064)	.014	(.061)	.019	(.064)	.015	(.061)	.020	(.063)
50-54	---	---	---	---	---	---	---	---	---	---	---	---
55-59	.057	(.064)	.047	(.067)	.056	(.064)	.046	(.067)	.056	(.064)	.046	(.066)
60-64	.034	(.066)	.026	(.069)	.035	(.066)	.025	(.069)	.038	(.066)	.030	(.069)
65-69	.104	(.069)	.128	(.072)	.105	(.069)	.127	(.072)	.108	(.069)	.133	(.072)
70-74	–.121	(.072)	–.130	(.076)	–.120	(.072)	–.131	(.076)	–.117	(.072)	–.126	(.076)
75-79	–.010	(.082)	.008	(.086)	–.011	(.082)	.005	(.086)	–.009	(.081)	.009	(.086)
80-84	–.068	(.098)	–.073	(.102)	–.070	(.098)	–.077	(.102)	–.067	(.098)	–.071	(.102)
85+	–.279*	(.118)	–.243*	(.123)	–.281*	(.117)	–.247*	(.123)	–.276*	(.117)	–.240	(.123)

NOTES: $N = 41{,}474$; Model A includes only age dummy variables; Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region). Standard errors in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Appendix B5. Estimated Age Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods and Three-Year Age Dummy Variables

	Three-Year Cohorts				Five-Year Cohorts				Seven-Year Cohorts			
Age	**Model A**		**Model B**		**Model A**		**Model B**		**Model A**		**Model B**	
	b	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**
18-20	–.477***	(.088)	–.439**	(.094)	–.484***	(.088)	–.449***	(.094)	–.483***	(.088)	–.445***	(.094)
21-23	–.365***	(.077)	–.305**	(.081)	–.370***	(.077)	–.312***	(.081)	–.366***	(.077)	–.306***	(.081)
24-26	–.127	(.074)	.001	(.078)	–.128	(.074)	–.002	(.078)	–.126	(.074)	.002	(.078)
27-29	–.087	(.073)	.042	(.077)	–.089	(.073)	.038	(.077)	–.086	(.073)	.042	(.077)
30-32	–.117	(.072)	–.008	(.076)	–.119	(.072)	–.012	(.077)	–.118	(.072)	–.009	(.076)
33-35	–.047	(.073)	.020	(.077)	–.048	(.073)	.018	(.078)	–.043	(.073)	.023	(.078)
36-38	–.006	(.074)	.063	(.078)	–.005	(.073)	.063	(.078)	–.003	(.074)	.067	(.078)
39-41	.030	(.075)	.093	(.080)	.030	(.075)	.092	(.080)	.031	(.075)	.093	(.080)
42-44	–.031	(.076)	–.007	(.080)	–.032	(.076)	–.008	(.080)	–.032	(.076)	–.008	(.080)
45-47	.004	(.079)	.023	(.082)	.006	(.079)	.025	(.082)	.008	(.079)	.028	(.082)
48-50	–.116	(.078)	–.079	(.081)	–.113	(.078)	–.076	(.081)	–.114	(.078)	–.076	(.081)
51-53	---	---	---	---	---	---	---	---	---	---	---	---
54-56	.026	(.082)	.035	(.085)	.025	(.082)	.036	(.085)	.025	(.082)	.035	(.085)
57-59	–.017	(.082)	–.010	(.086)	–.021	(.082)	–.012	(.086)	–.019	(.082)	–.011	(.086)
60-62	–.035	(.083)	–.033	(.087)	–.034	(.083)	–.033	(.087)	–.032	(.083)	–.030	(.087)
63-65	.094	(.087)	.118	(.091)	.093	(.087)	.116	(.091)	.096	(.087)	.121	(.091)
66-68	.097	(.089)	.133	(.093)	.096	(.089)	.130	(.093)	.098	(.089)	.134	(.093)
69-71	–.182*	(.091)	–.141	(.095)	–.182*	(.091)	–.144	(.095)	–.179*	(.090)	–.139	(.095)
72-74	–.181	(.094)	–.193*	(.099)	–.182	(.094)	–.197*	(.099)	–.180	(.094)	–.192	(.099)
75-77	–.076	(.102)	–.041	(.107)	–.078	(.102)	–.046	(.107)	–.078	(.102)	–.044	(.107)
78-80	–.041	(.112)	–.015	(.117)	–.042	(.112)	–.019	(.117)	–.041	(.112)	–.016	(.117)
81-83	–.067	(.127)	–.062	(.132)	–.071	(.127)	–.069	(.133)	–.069	(.127)	–.064	(.132)
84+	–.329**	(.113)	–.281*	(.118)	–.332**	(.113)	–.289*	(.118)	–.329**	(.112)	–.282*	(.118)

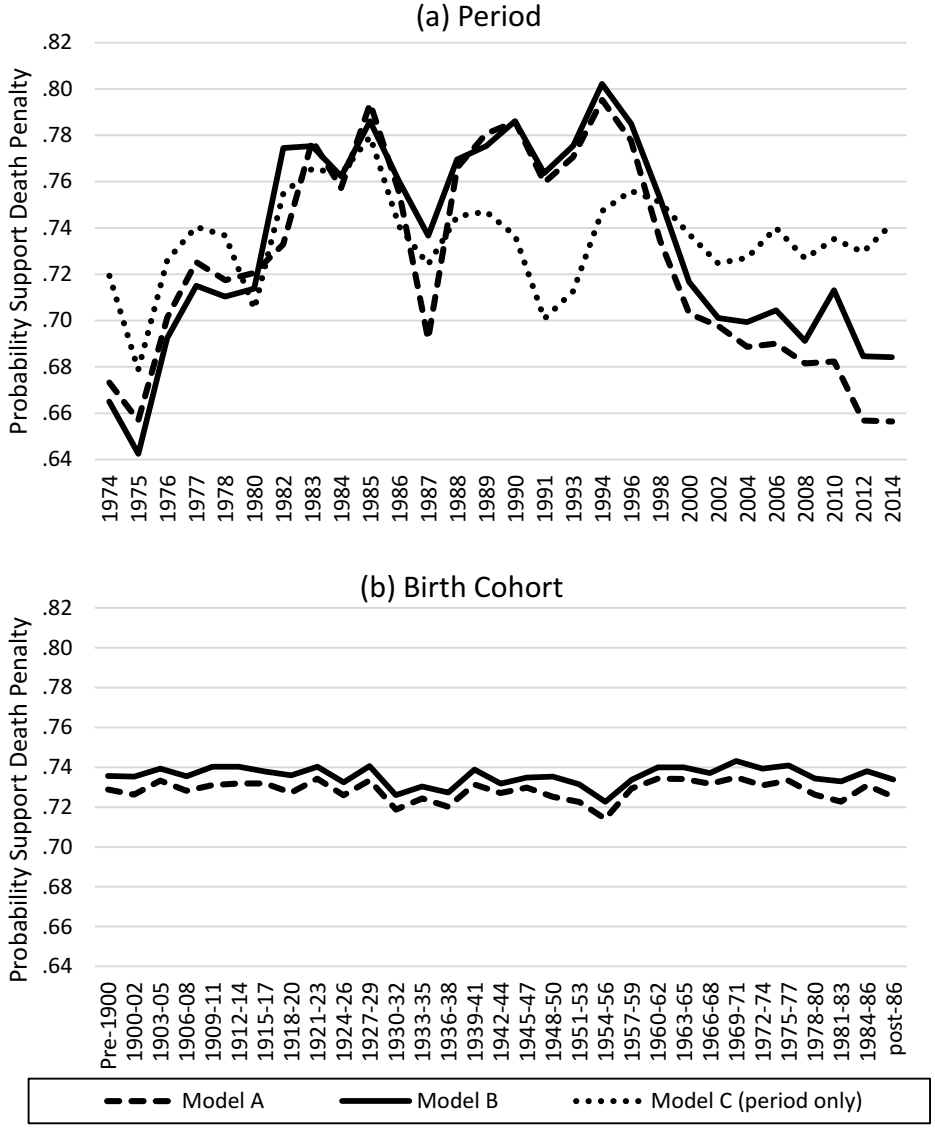
NOTES: $N = 41{,}474$; Model A includes only age dummy variables; Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region). Standard errors in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Appendix B6. Estimated Age Effects on Support for the Death Penalty from HAPC Models with Three-Year Periods and Five-Year Age Dummy Variables

	Three-Year Cohorts				Five-Year Cohorts				Seven-Year Cohorts			
Age	**Model A**		**Model B**		**Model A**		**Model B**		**Model A**		**Model B**	
	b	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**	***b***	**(SE)**
18-24	–.309***	(.058)	–.257***	(.062)	–.313***	(.058)	–.263***	(.062)	–.310***	(.058)	–.258***	(.062)
25-29	–.064	(.057)	.052	(.060)	–.064	(.057)	.050	(.061)	–.062	(.057)	.055	(.060)
30-34	–.038	(.057)	.041	(.060)	–.039	(.057)	.039	(.060)	–.036	(.057)	.043	(.060)
35-39	.022	(.057)	.073	(.061)	.024	(.057)	.074	(.061)	.027	(.057)	.078	(.061)
40-44	.045	(.059)	.070	(.062)	.045	(.059)	.068	(.062)	.046	(.059)	.070	(.062)
45-49	.012	(.061)	.017	(.064)	.015	(.061)	.021	(.063)	.016	(.061)	.022	(.063)
50-54	---	---	---	---	---	---	---	---	---	---	---	---
55-59	.060	(.064)	.050	(.067)	.058	(.064)	.050	(.067)	.059	(.064)	.049	(.066)
60-64	.036	(.066)	.027	(.069)	.036	(.066)	.026	(.069)	.039	(.066)	.030	(.069)
65-69	.102	(.069)	.126	(.072)	.103	(.069)	.124	(.072)	.106	(.069)	.130	(.072)
70-74	–.120	(.072)	–.130	(.076)	–.120	(.072)	–.132	(.076)	–.116	(.072)	–.126	(.076)
75-79	–.013	(.082)	.007	(.086)	–.013	(.082)	.003	(.086)	–.012	(.081)	.007	(.086)
80-84	–.070	(.098)	–.075	(.102)	–.072	(.098)	–.080	(.102)	–.069	(.098)	–.075	(.102)
85+	–.274*	(.118)	–.237	(.123)	–.276*	(.117)	–.242*	(.123)	–.272*	(.117)	–.235	(.123)

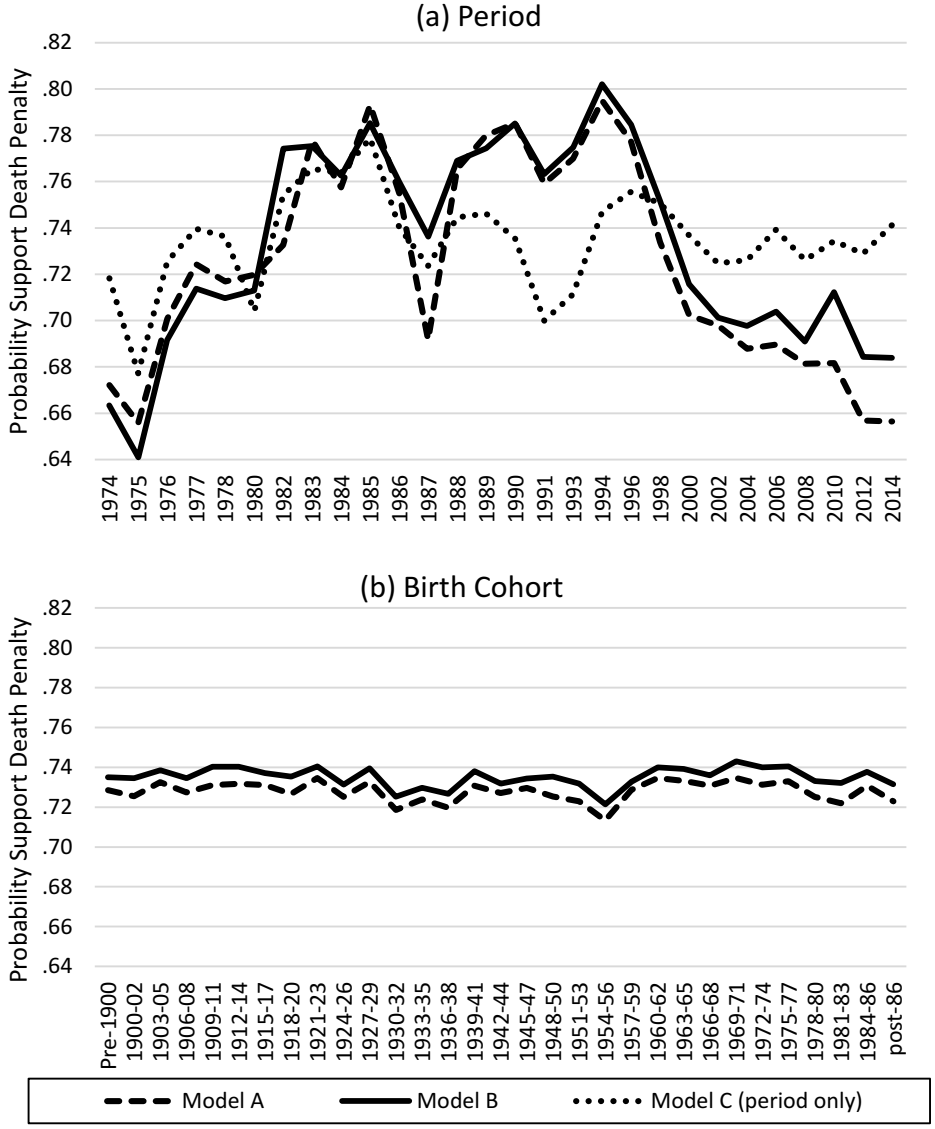
NOTES: $N = 41{,}474$; Model A includes only age dummy variables; Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region). Standard errors in parentheses.
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Appendix B7. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, One-Year Periods, and Three-Year Cohorts



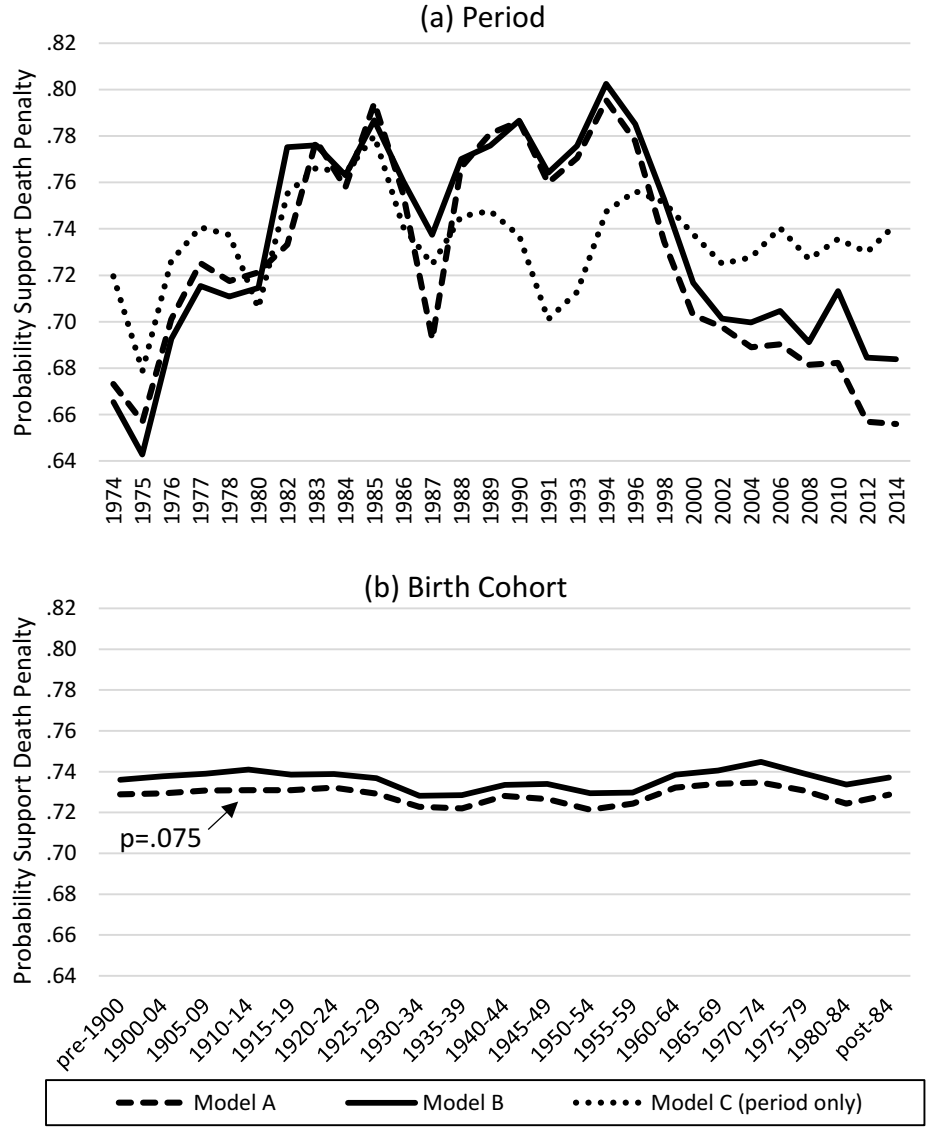
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B1.

Appendix B8. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, One-Year Periods, and Three-Year Cohorts



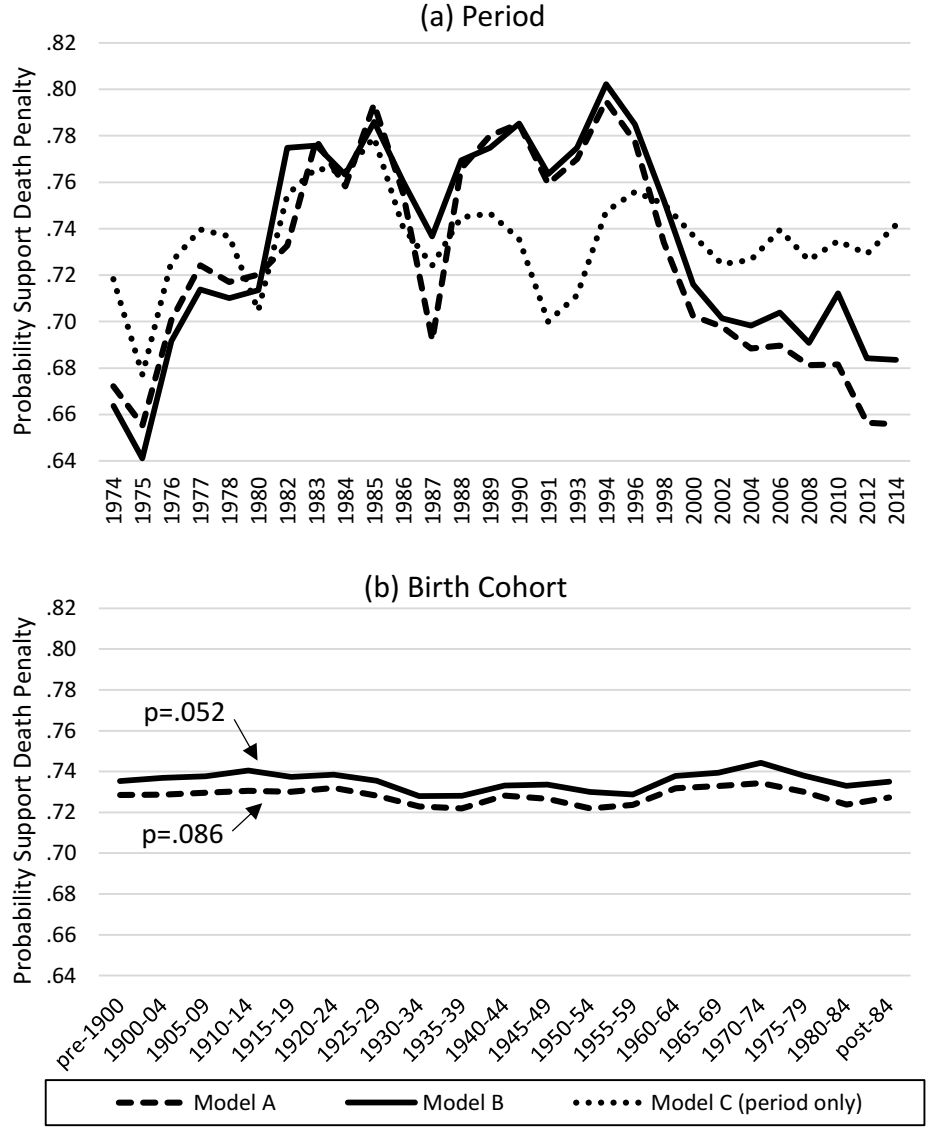
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B2.

Appendix B9. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, One-Year Periods, and Five-Year Cohorts



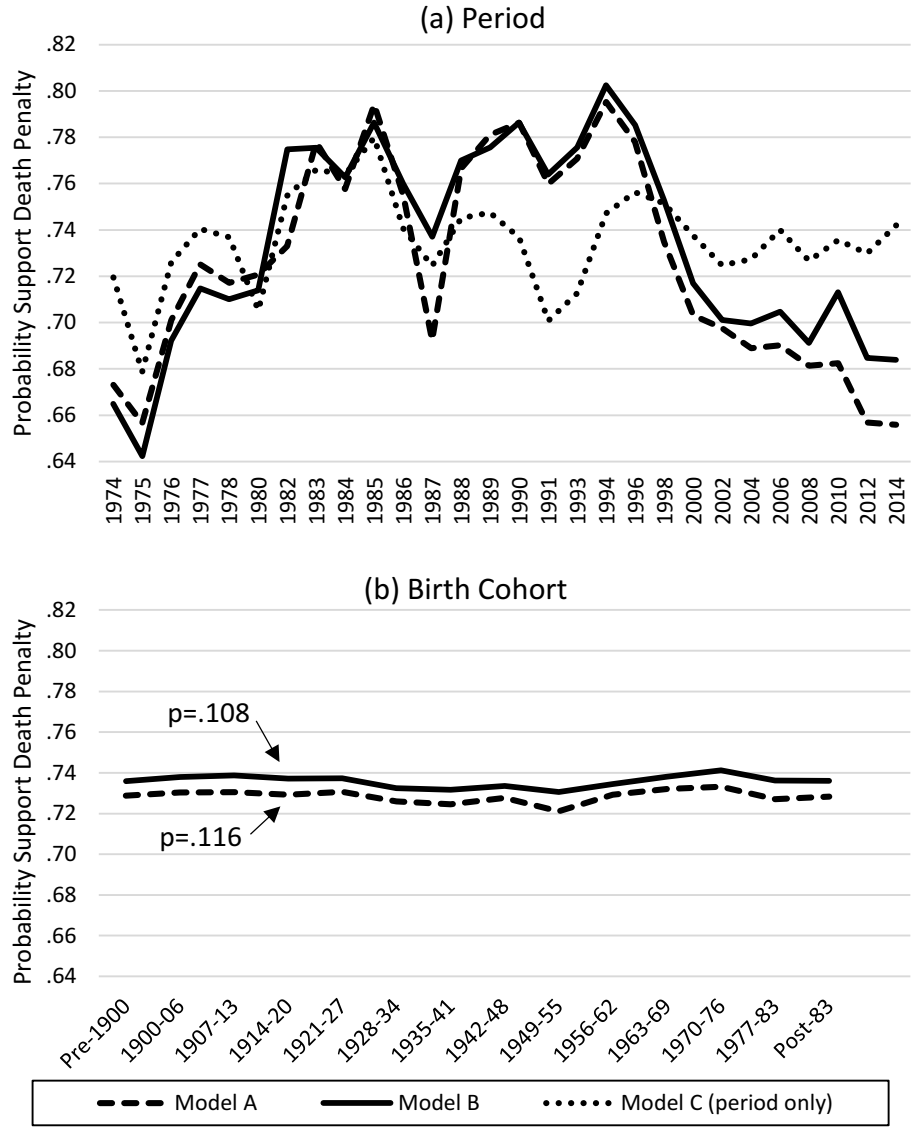
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B1.

Appendix B10. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, One-Year Periods, and Five-Year Cohorts



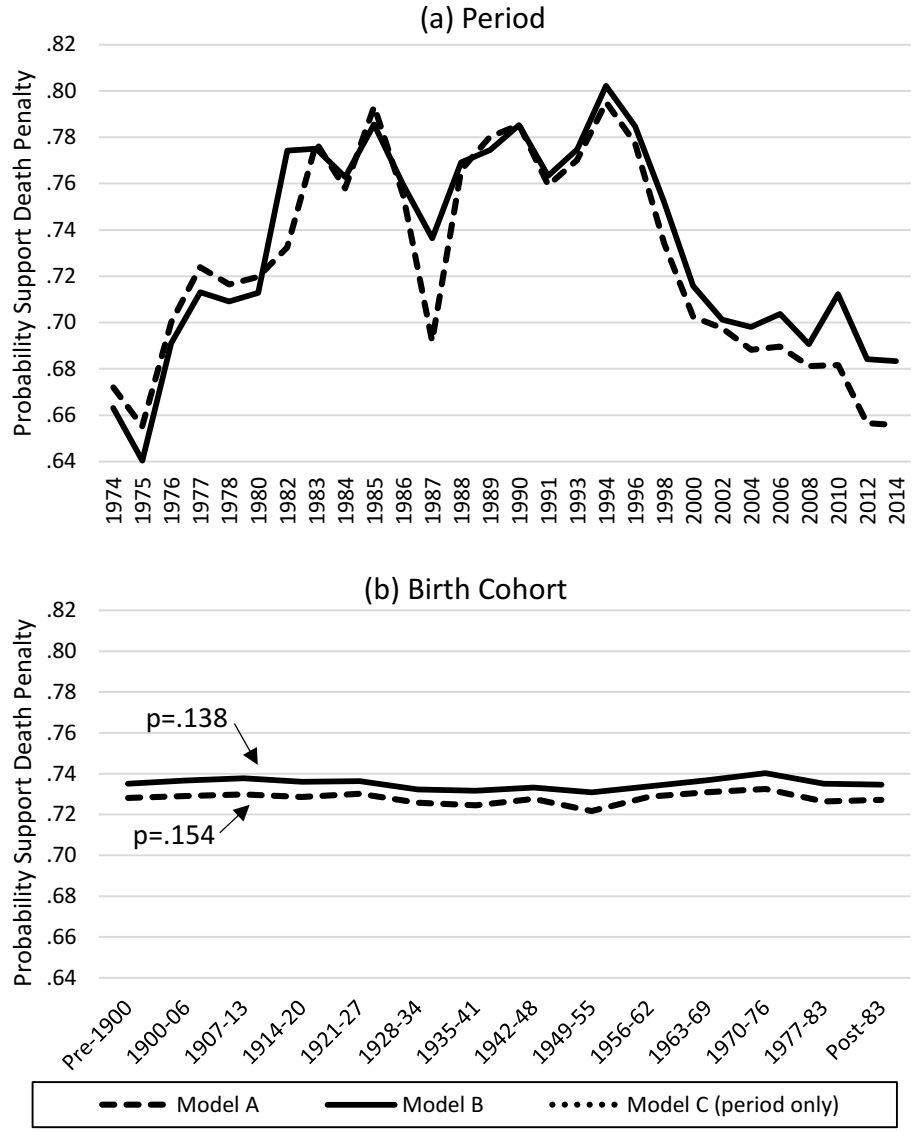
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B2.

Appendix B11. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, One-Year Periods, and Seven-Year Cohorts



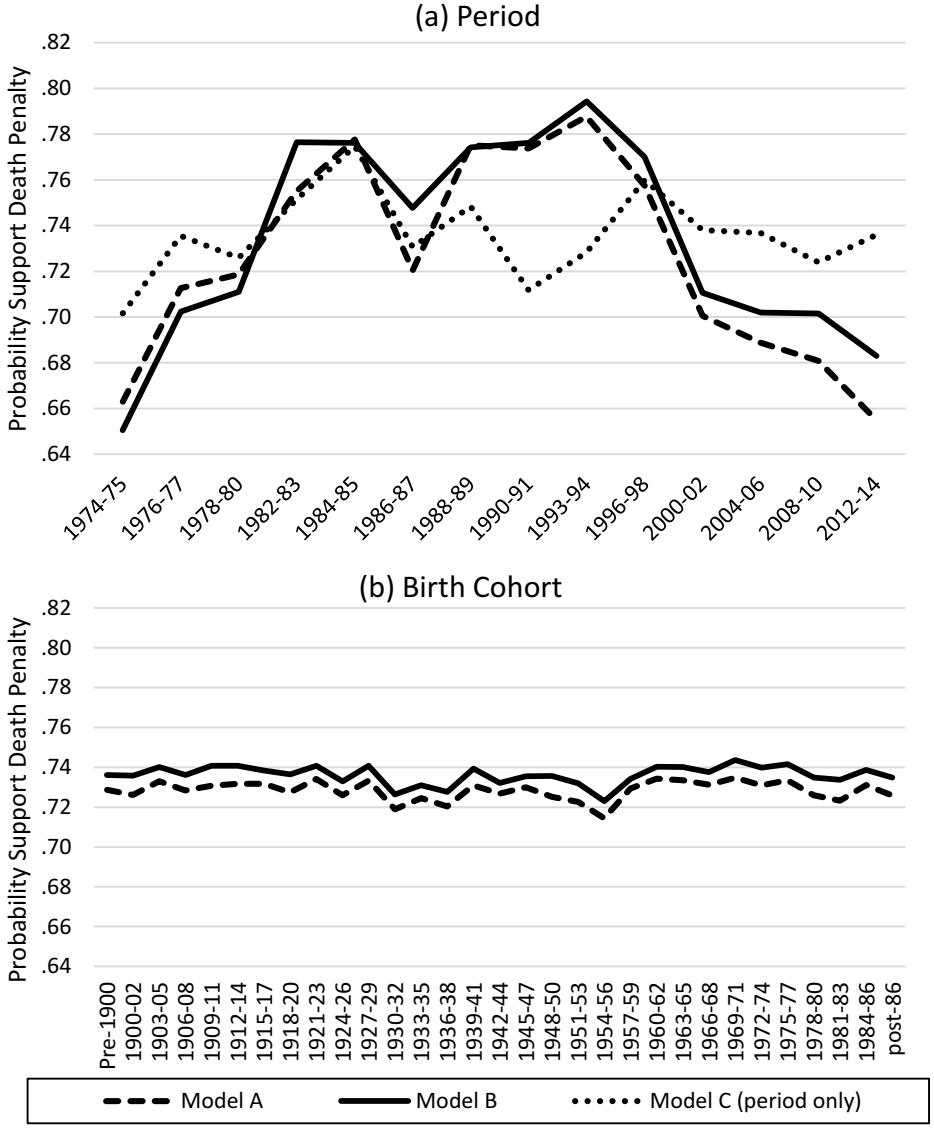
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B1.

Appendix B12. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, One-Year Periods, and Seven-Year Cohorts



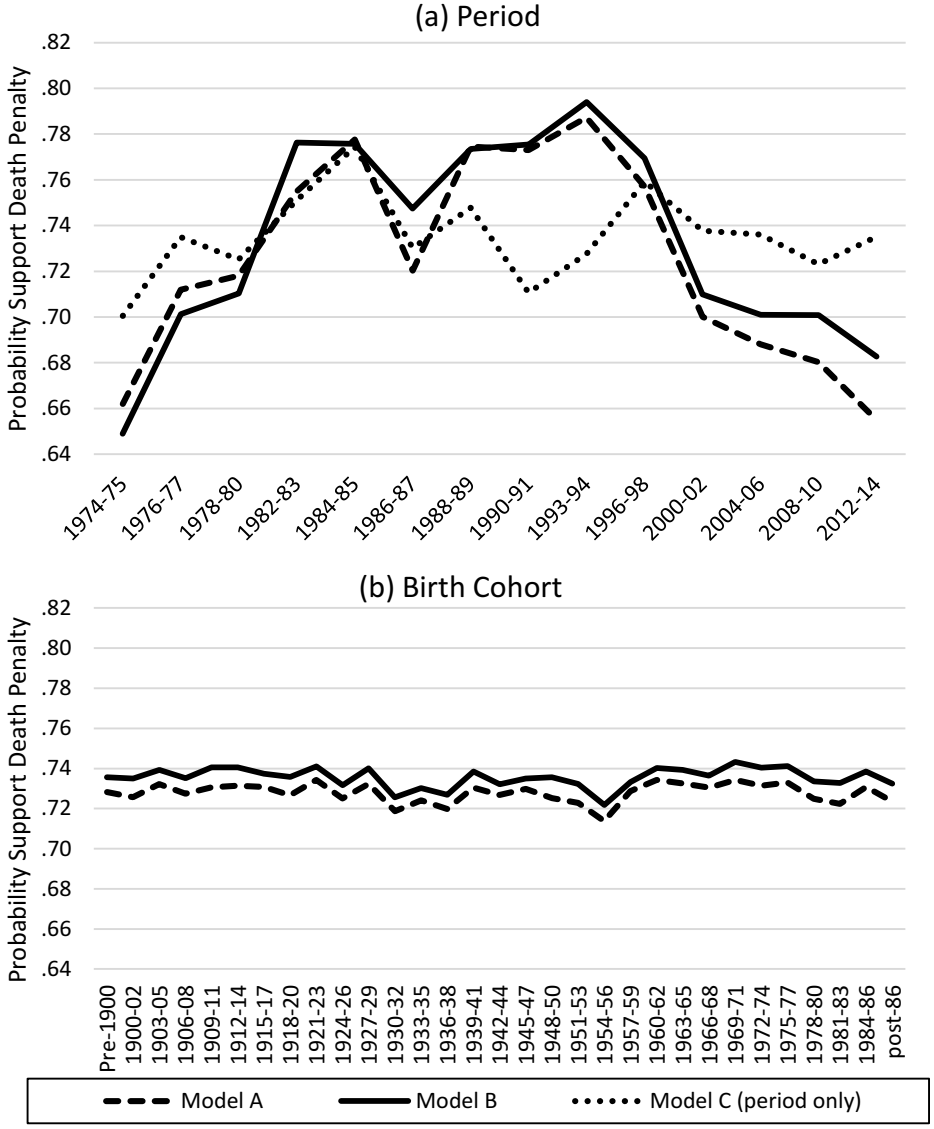
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B2.

Appendix B13. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, Two-Year Periods, and Three-Year Cohorts



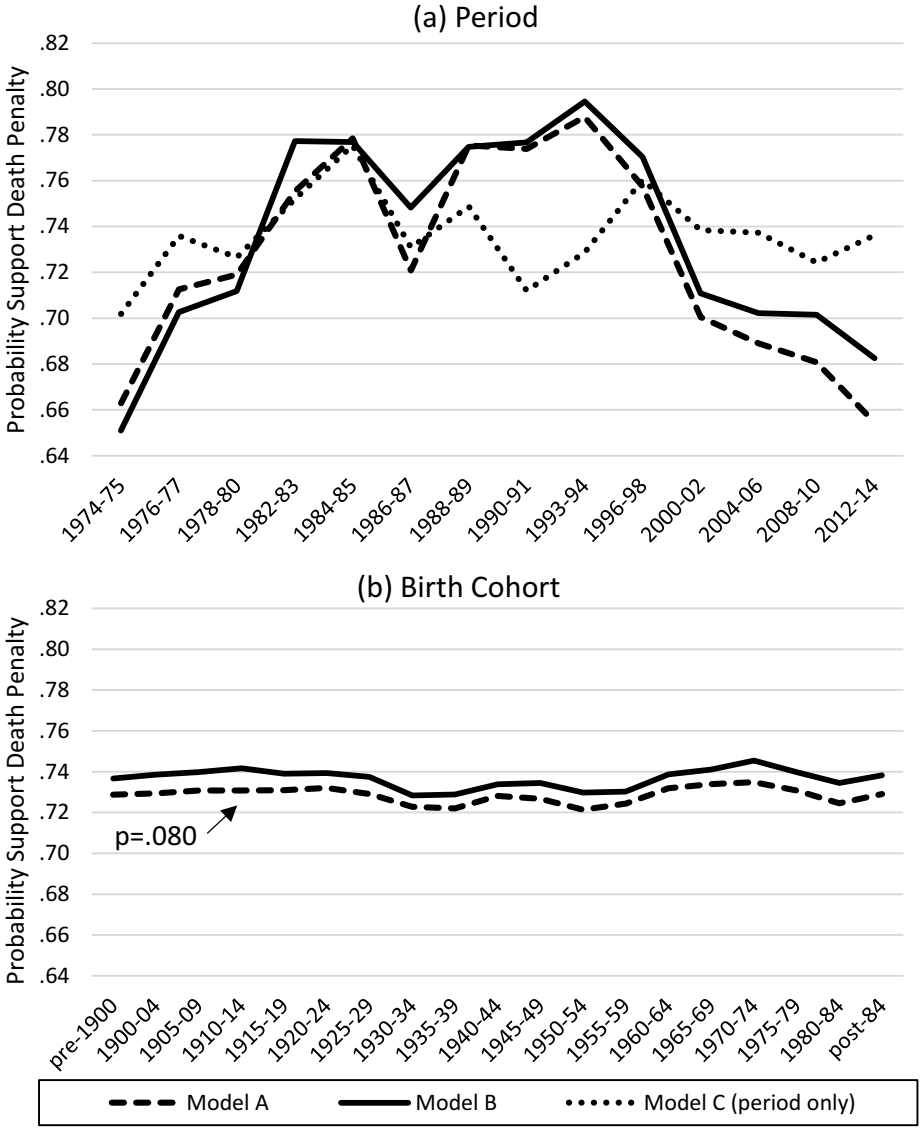
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B3.

Appendix B14. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, Two-Year Periods, and Three-Year Cohorts



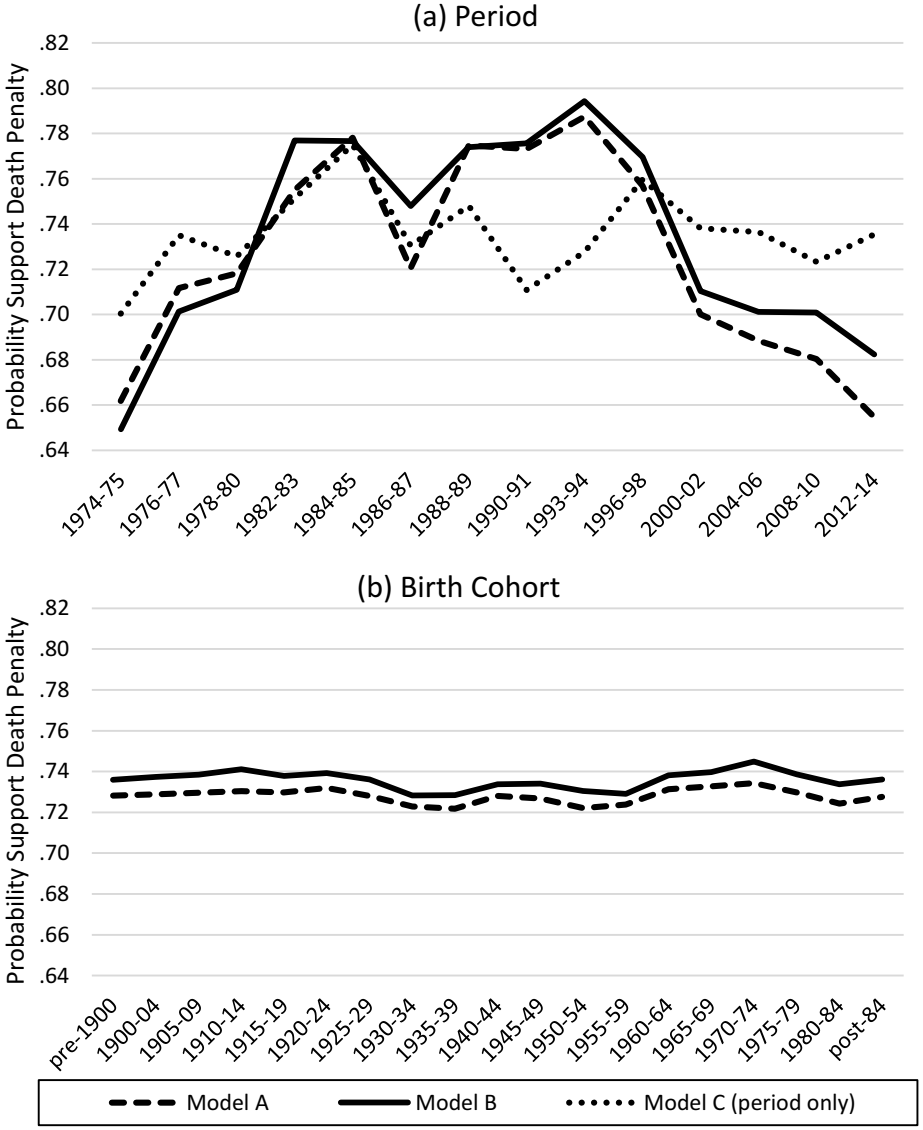
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B4.

Appendix B15. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, Two-Year Periods, and Five-Year Cohorts



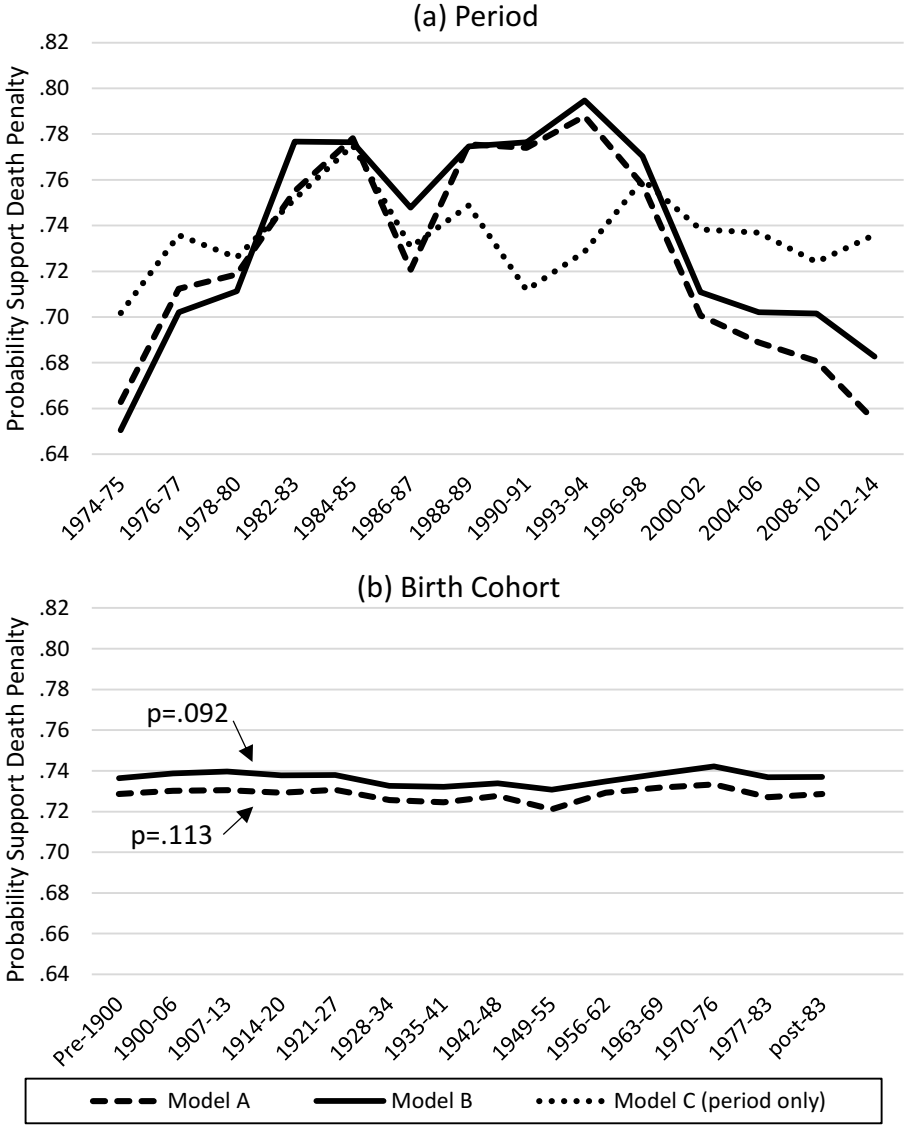
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B3.

Appendix B16. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, Two-Year Periods, and Five-Year Cohorts



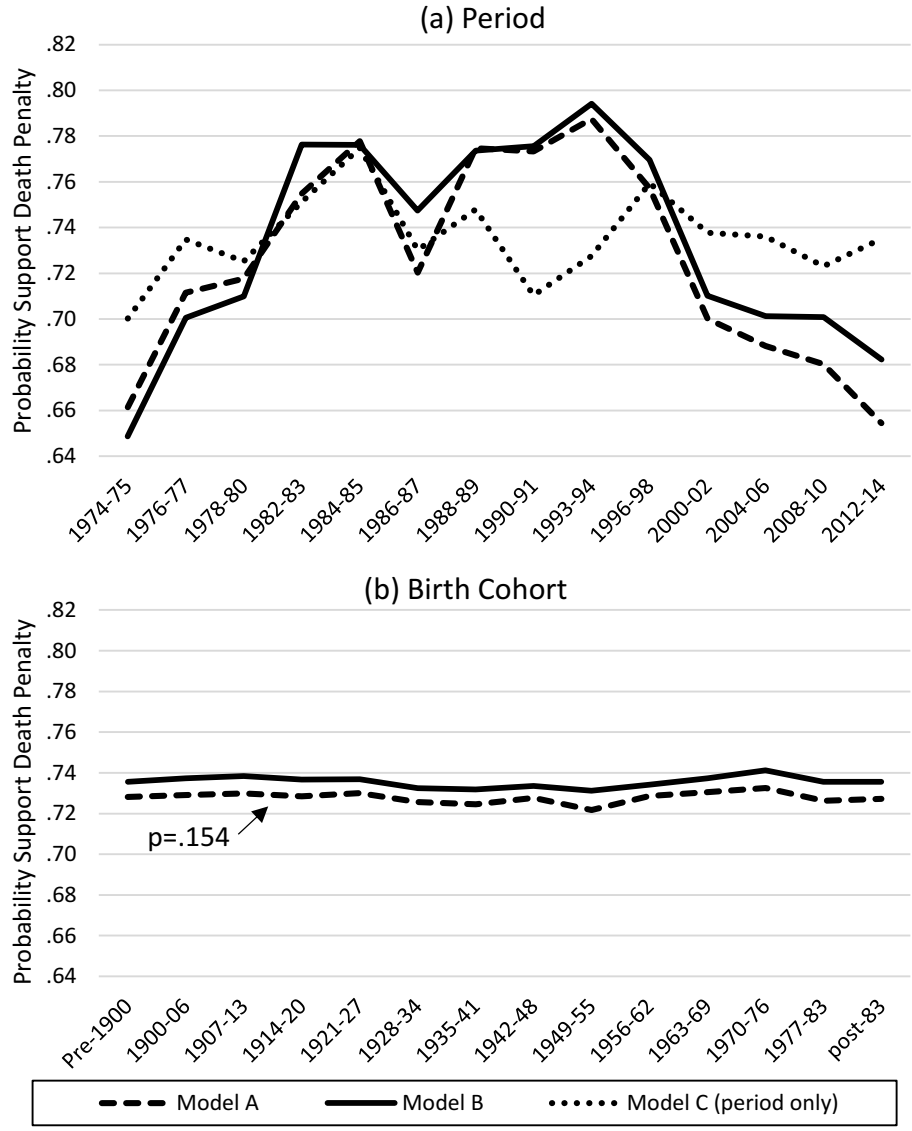
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B4.

Appendix B17. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, Two-Year Periods, and Seven-Year Cohorts



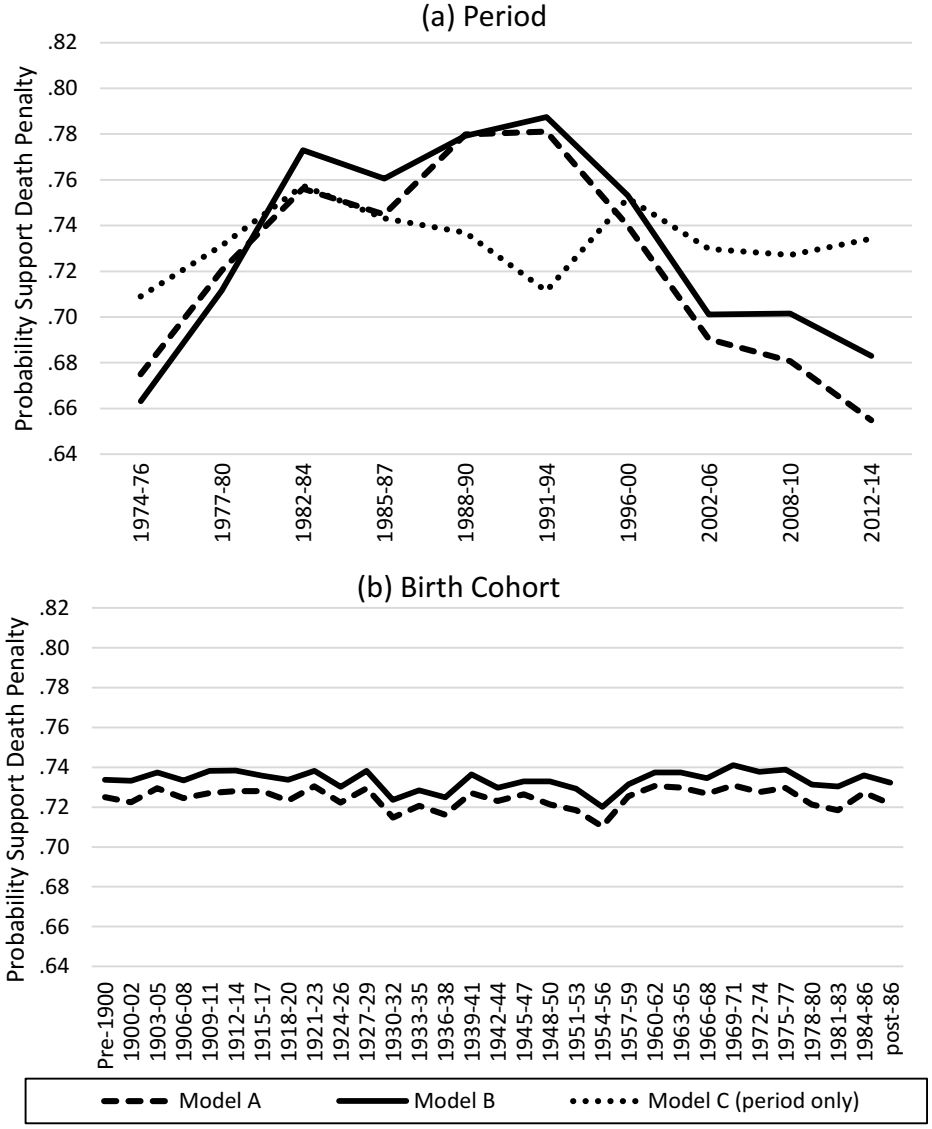
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B3.

Appendix B18. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, Two-Year Periods, and Seven-Year Cohorts



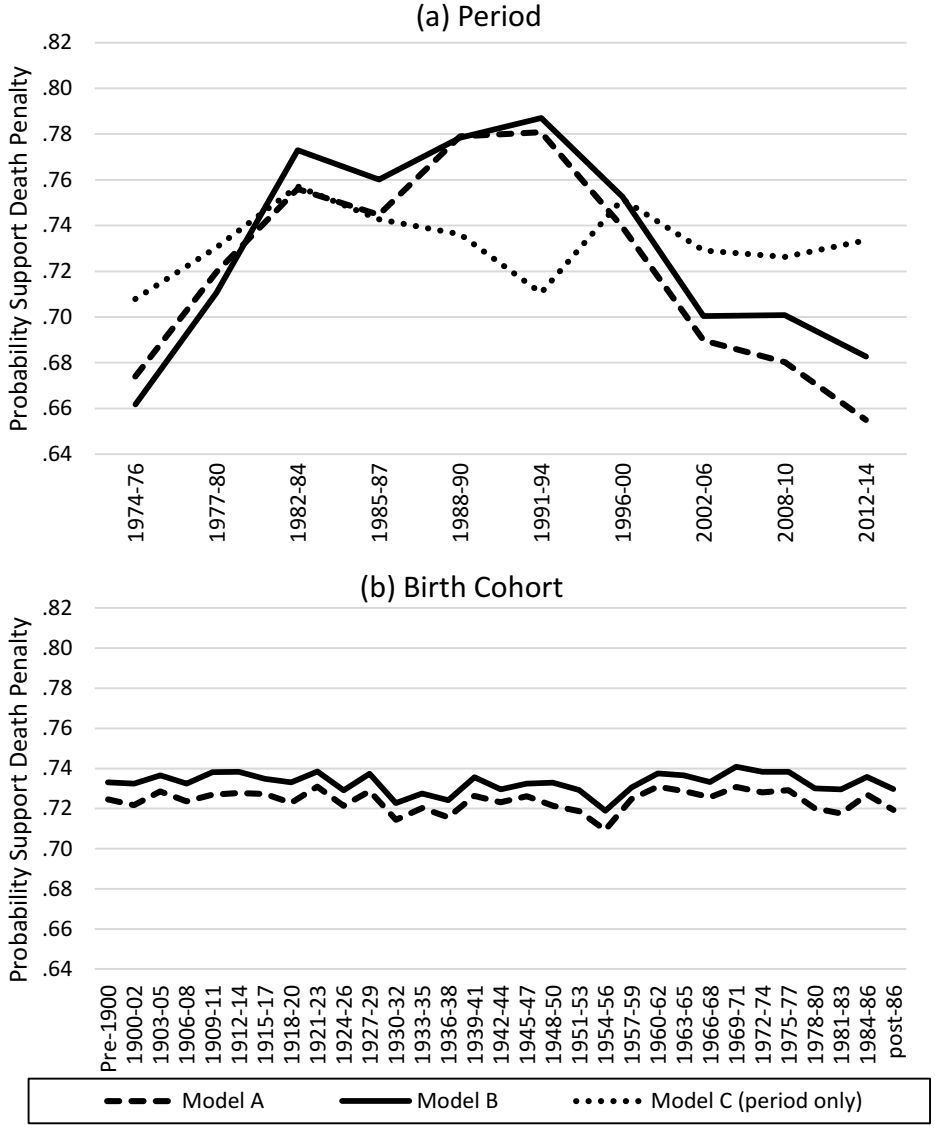
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B4.

Appendix B19. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, Three-Year Periods, and Three-Year Cohorts



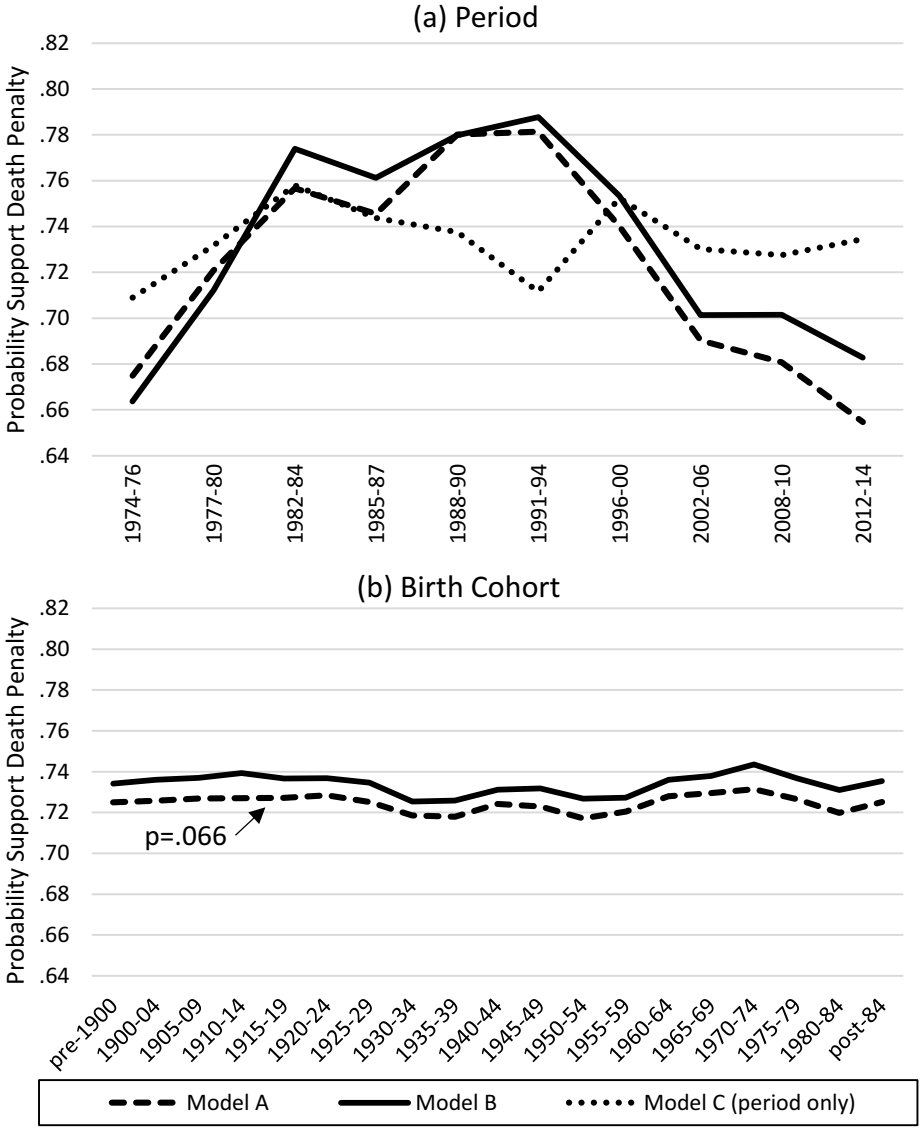
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B5.

Appendix B20. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, Three-Year Periods, and Three-Year Cohorts



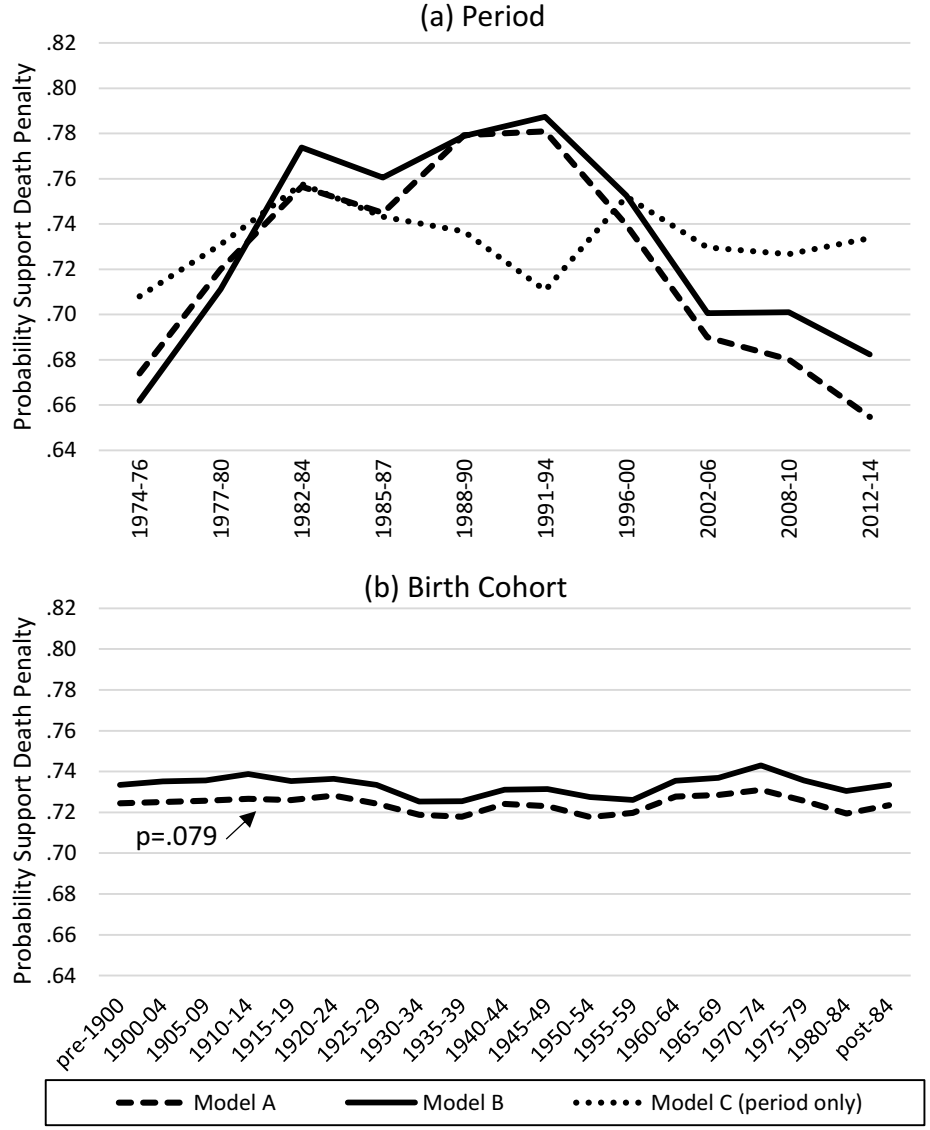
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B6.

Appendix B21. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, Three-Year Periods, and Five-Year Cohorts



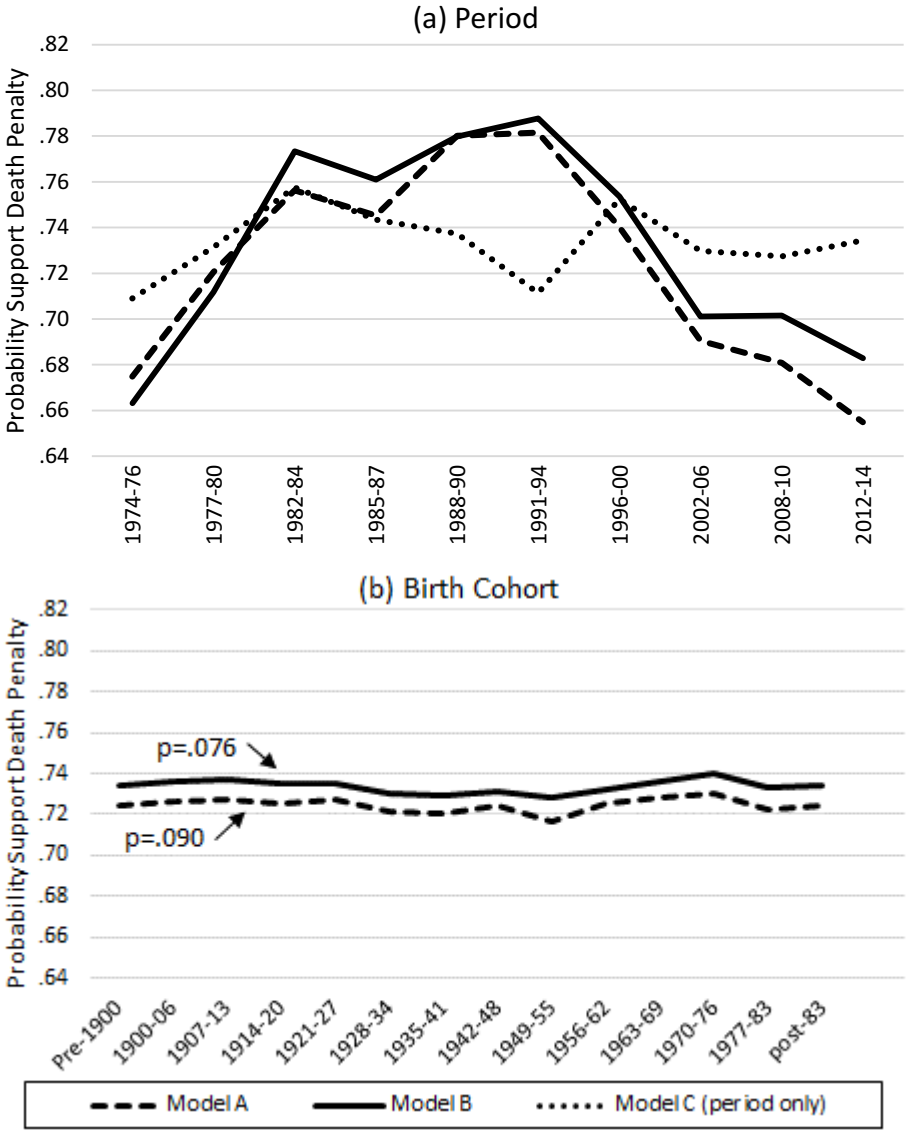
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B5.

Appendix B22. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, Three-Year Periods, and Five-Year Cohorts



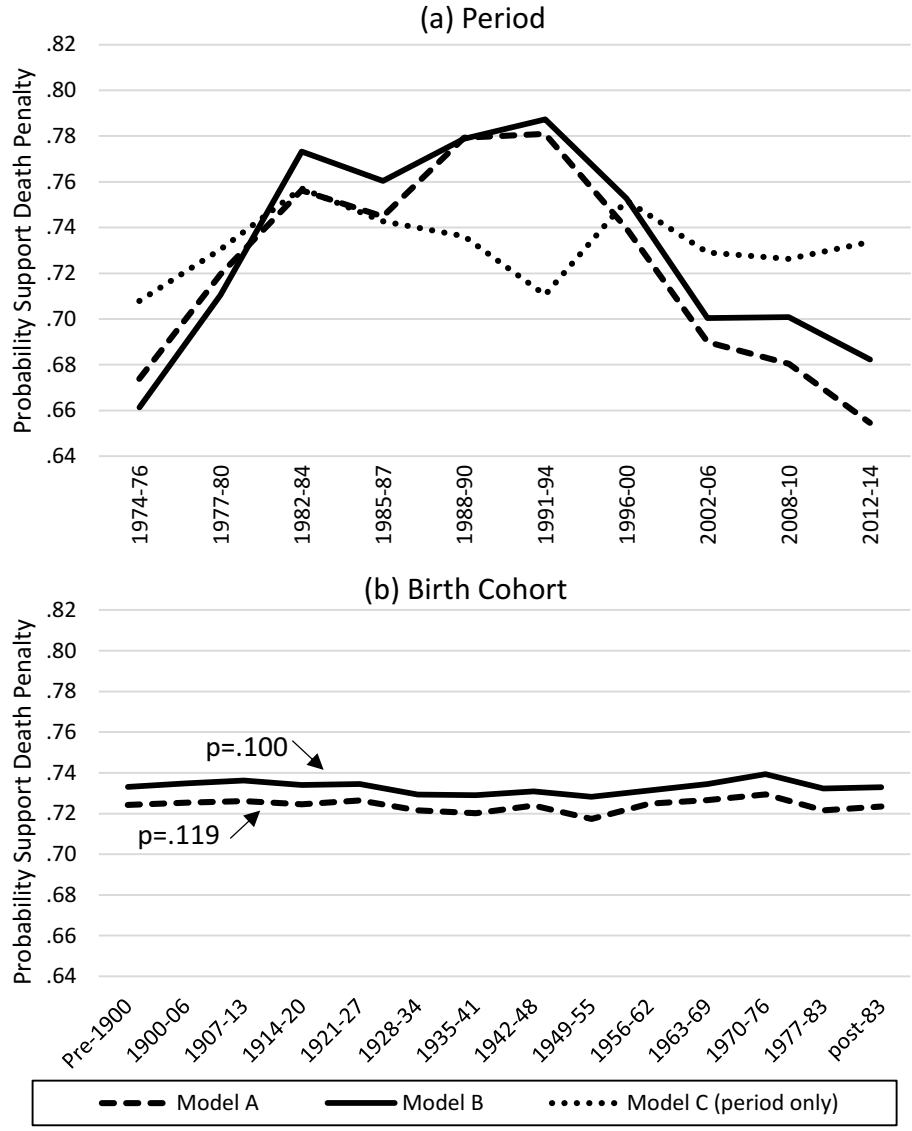
NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B6.

Appendix B23. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Three-Year Age Dummy Variables, Three-Year Periods, and Seven-Year Cohorts



NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$) unless otherwise indicated; age effects shown in Appendix B5.

Appendix B24. Estimated Period and Cohort Effects on Support for the Death Penalty from HAPC Models with Five-Year Age Dummy Variables, Three-Year Periods, and Seven-Year Cohorts



NOTES: Model A includes only age and age-squared, Model B includes all level-1 variables (age, gender, race, marital status, children in the home, education, family income, Catholic, religious service attendance, Republican, city size, and region), and Model C includes all level-1 variables and level-2 variables (lagged exonerations cumulative exonerations, Democrat president, unemployment rate, and violent crime rate [$p > .05$ for all level-2 variables other than violent crime]); period and cohort variance significant ($p > .05$ unless otherwise indicated; age effects shown in Appendix B6.

Appendix C1. Period Fixed Effects and Variance Components from Hierarchical Age-Period-Cohort Models of Support for the Death Penalty with Different Measures of Crime

Fixed and Random Effects	UCR Violent Crime Rate		UCR Murder Rate		NCVS Violent Crime Rate	
FIXED EFFECTS	b	se	b	se	b	se
UCR Violent Crime Rate[a]	.198	.030***	---	---	---	---
UCR Murder Rate[b]	---	---	.075	.057	---	---
NCVS Violent Crime Rate	---	---	---	---	.221	.070**
Exonerations (Previous Year)	.004	.010	.013	.016	.009	.014
Cumulative Exonerations	.001	.001	.001	.002	.001	.001
Unemployment Rate	.030	.019	-.006	.029	.005	.026
Democrat President	.019	.056	.012	.089	-.158	.097
VARIANCE COMPONENTS						
Period	.01502***		.04385***		.03323***	
Birth Cohort	.00312***		.00330***		.00320***	

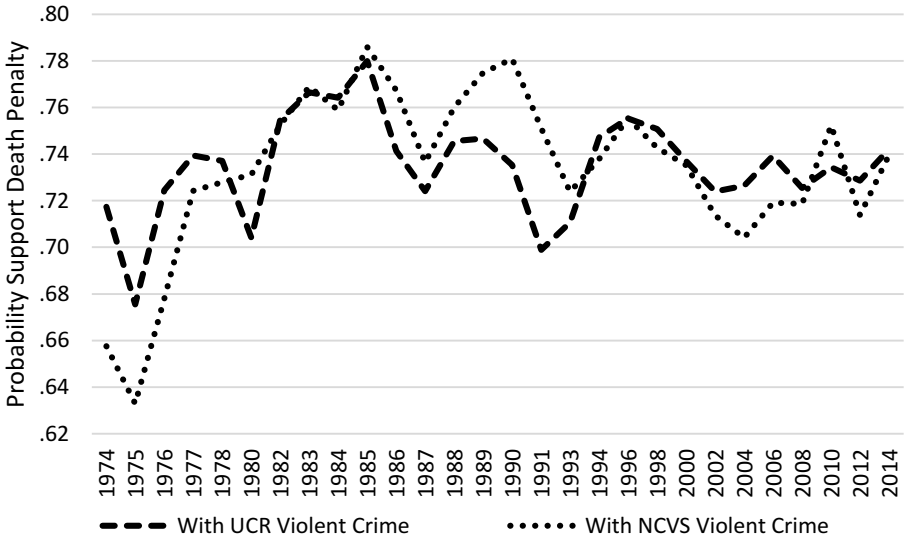
NOTES: $N = 41{,}474$. All models control for age, sex, race, religion, religious service attendance, political party, education, income, marital status, children in the home, city size, and region.

[a]UCR violent crime rate divided by 100.

[b]NCVS violent crime rate divided by 10.

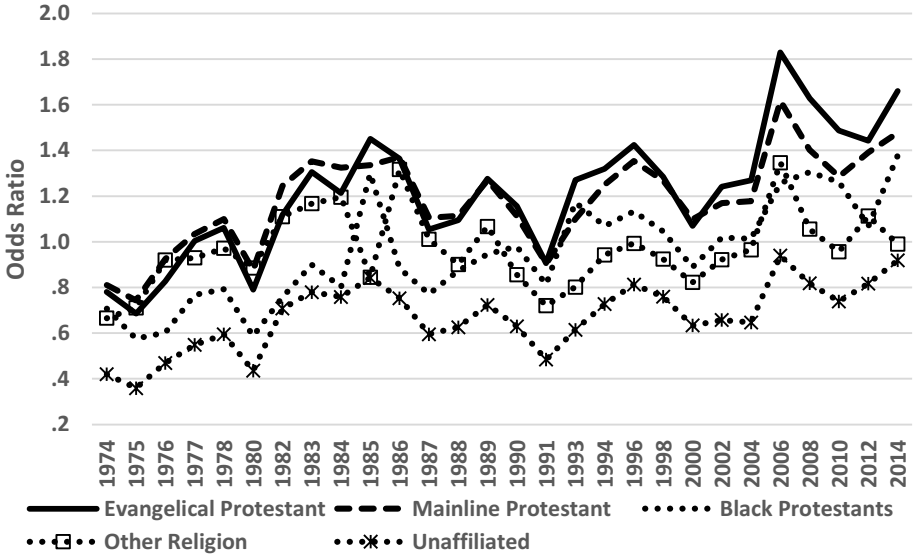
* $p < .05$, ** $p < .01$, *** $p < .001$ (two-tailed test).

Appendix C2. Estimated Period Effects from HAPC Models of Support for Death Penalty with UCR Violent Crime Rate and with NCVS Violent Crime Rate



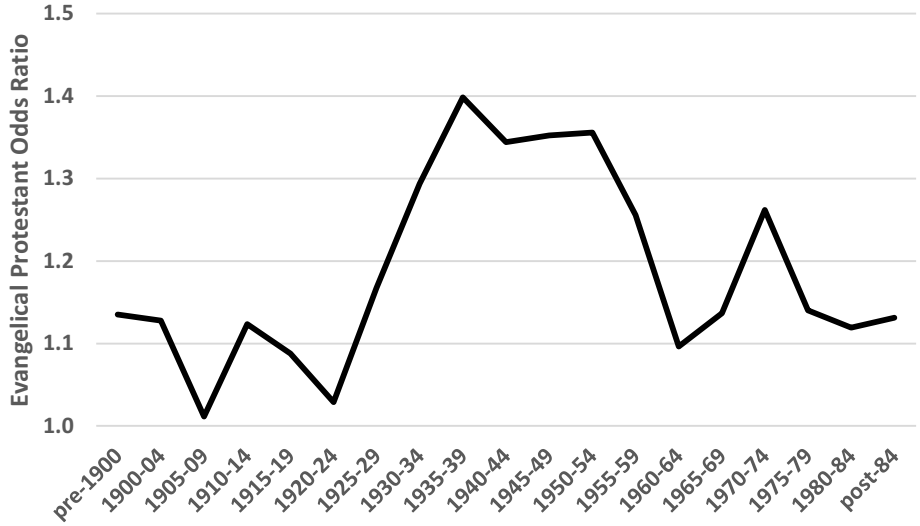
NOTE: Figure depicts results from models in Table C1.

Appendix D1. Estimated Period Variation in Slope (Odds Ratio) of Religious Traditions Relative to Catholics



NOTES: Based on Hierarchical age, period and cohort model of support for death penalty with dummy variables for evangelical Protestant, mainline Protestant, black Protestant, other religion, and unaffiliated (Catholic omitted reference category; and controls for political party, religious service attendance, race, sex, marital status, children in the home, education, family income, city size, and region. The model includes the following random slopes across periods: evangelical Protestant (variance = .06822, $p < .001$), mainline Protestant (variance = .03943, $p < .001$), black Protestant (variance = .07551, $p < .001$), other religion (variance = .04780, $p < .01$), and unaffiliated (variance = .06362, $p < .001$). The model also includes a random slope for evangelical Protestant across birth cohorts (variance = .01644, $p < .01$. Random slopes across cohorts for other religious traditions was dropped from the model because they were not statistically significant.

Appendix D2. Estimated Birth Cohort Variation in Slope (Odds Ratio) of Evangelical Protestant Relative to Catholics



NOTES: Based on Hierarchical age, period and cohort model of support for death penalty with dummy variables for evangelical Protestant, mainline Protestant, black Protestant, other religion, and unaffiliated (Catholic omitted reference category; and controls for political party, religious service attendance, race, sex, marital status, children in the home, education, family income, city size, and region. The model includes the following random slopes across periods: evangelical Protestant (variance = .06822, $p < .001$), mainline Protestant (variance = .03943, $p < .001$), black Protestant (variance = .07551, $p < .001$), other religion (variance = .04780, $p < .01$), and unaffiliated (variance = .06362, $p < .001$). The model also includes a random slope for evangelical Protestant across birth cohorts (variance = .01644, $p < .01$). Random slopes across cohorts for other religious traditions was dropped from the model because they were not statistically significant.