

Personality and Individual Differences

Political ideology and attitudinal ambivalence: Investigating the role of ideological extremity

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Abstract:	Extant research on the linear association of individual differences in political ideology with attitudinal ambivalence yielded inconsistent findings. The present research tested the hypothesis that the association of political ideology with attitudinal ambivalence is curvilinear with lower levels of ambivalence at both extremes of the ideological spectrum. It used data from large and demographically diverse electoral surveys in a set of three studies (Study 1: N = 13,808; Study 2: N = 6,528; Study 3: N = 4,789) that focused on attitudes toward political candidates (Studies 1 and 2) as well as political parties (Study 3) in Germany. While the findings support the prediction of a curvilinear association of ideology with attitudinal ambivalence for most (but not all) attitude objects, further analyses indicate that this association is mostly due to the association of ideology with general attitudes toward the attitude objects, which primarily determine ambivalence. Implications for future research on the association of political ideology with attitudinal ambivalence are discussed.
Suggested Reviewers:	<p>Leonard S. Newman, PhD Professor, Syracuse University lsnewman@syr.edu Dr. Newman is the author of two of the three studies previously published on the topic of the paper under consideration.</p> <p>Iris Schneider, Dr. Professor, TU Dresden iris.schneider@tu-dresden.de Dr. Schneider is one of the leading experts on predictors and consequences of attitudinal ambivalence.</p> <p>Thomas H. Costello, PhD Massachusetts Institute of Technology thcost@mit.edu Dr. Costello has recently published a comprehensive review on the association of political ideology with thinking styles (https://doi.org/10.1037/pspp0000446). His field of expertise is highly relevant to the theoretical basis of the article under consideration.</p>

Political Ideology and Attitudinal Ambivalence: Investigating the Role of Ideological Extremity

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Political Ideology and Attitudinal Ambivalence: Investigating the Role of Ideological Extremity

Highlights:

- Explores the ideology-ambivalence link using demographically diverse survey data.
- Attitudinal ambivalence is lower at both extremes of the ideological spectrum.
- Observed pattern mostly due to the association of ideology with general attitudes.

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Abstract

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15 attitudinal ambivalence yielded inconsistent findings. The present research tested the
16 hypothesis that the association of political ideology with attitudinal ambivalence is curvilinear
17 with lower levels of ambivalence at both extremes of the ideological spectrum. It used data
18 from large and demographically diverse electoral surveys in a set of three studies (Study 1: N
19 = 13,808; Study 2: N = 6,528; Study 3: N = 4,789) that focused on attitudes toward political
20 candidates (Studies 1 and 2) as well as political parties (Study 3) in Germany. While the
21 findings support the prediction of a curvilinear association of ideology with attitudinal
22 ambivalence for most (but not all) attitude objects, further analyses indicate that this
23 association is mostly due to the association of ideology with general attitudes toward the
24 attitude objects, which primarily determine ambivalence. Implications for future research on
25 the association of political ideology with attitudinal ambivalence are discussed.

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27 Political Ideology and Attitudinal Ambivalence: Investigating the Role of Ideological

28 Extremity

A prominent definition conceptualizes attitudes as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (Eagly & Chaiken, 1993, p. 1). However, attitudes tend to be more complex than this definition might make it seem at first sight. For example, attitudes can involve affective, cognitive, and behavioral evaluative reactions (e.g., Rosenberg & Hovland, 1960), and individuals can vary in the extent to which they tend to base their attitudes on these different components (for an overview, see Haddock & Maio, 2019). Furthermore, individuals can have positive and negative evaluative reactions toward the same attitude object simultaneously (e.g., Cacioppo et al., 1997). That is, attitudes can be ambivalent (e.g., Thompson et al., 1995). It seems reasonable to expect that attitudinal ambivalence is particularly likely in the case of political attitudes, where individuals are continuously exposed to a multitude of conflicting pieces of information and opinions about the same attitude object, such as a particular politician, a political party, or a policy proposal. However, the tools used in surveys to measure political attitudes do very often not allow to capture the complexity of these attitudes (e.g., Camparo & Camparo, 2021; Greene, 2005; Schneider & Schwarz, 2017).

The present research investigates whether and how political-ideological orientations of individuals are associated with the extent to which they tend to hold ambivalent political attitudes. The prediction that such a link exists follows from a long history of theorizing and empirical research on the associations of ideological orientations with thinking styles (see below) and from the assumption that individual differences in thinking styles have implications for the structure and complexity of attitudes (see Rudolph & Popp, 2007). Interestingly, extant empirical findings of research on this question are inconsistent: While findings by Krochik, Jost, and Nosek (2007; reported in Jost & Krochik, 2014) suggest a

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52 stable tendency for more conservative (vs. more liberal) individuals to hold less ambivalent
53 attitudes, findings by Newman and Sargent (2020; Sargent & Newman, 2021) indicate an
54 association in the opposite direction (see also Federico, 2006; Poteat & Mereish, 2012).

55 In the following, after briefly introducing the concept of attitudinal ambivalence, we
56 describe the theoretical explanations for the opposite findings of previous research on
57 ideology and attitudinal ambivalence and propose a third perspective. In the empirical part,
58 we use data from large electoral surveys that allow for quantifying the ambivalence of
59 political attitudes to test the predictions that follow from the three theoretical perspectives.

60 Attitudinal Ambivalence

61 Attitudinal ambivalence refers to the simultaneous existence of strong positive *and*
62 strong negative evaluative reactions toward the same attitude object (e.g., Conner & Sparks,
63 2002; Jonas et al., 2000; Schneider & Schwarz, 2017; Thompson et al., 1995; van Harreveld
64 et al., 2015)¹. This definition clarifies that attitudinal ambivalence is conceptually distinct
65 from indifference, where an attitude object elicits weak evaluative reactions in general.

66 Attitudinal ambivalence can emerge *within* the affective, cognitive, or behavioral attitude
67 component as well as *between* attitude components. The present research focuses on
68 ambivalence within the affective and the cognitive attitude component. Furthermore, it is
69 possible to distinguish between *subjective* ambivalence, which refers to the self-reported
70 experience of ambivalence, and *objective* (or *potential*) ambivalence, which refers to the
71 simultaneous presence of opposite evaluative reactions. Research shows that the extent to
72 which objective ambivalence leads to a subjective experience of ambivalence depends on

¹ A related but distinct concept in Political Psychology is *partisan ambivalence*, which is used to refer to the extent to which evaluative reactions toward two alternative parties or candidates are (in-)consistent (e.g., Basinger & Lavine, 2005; Mulligan, 2011; Rudolph & Popp, 2007) or to characterize individuals with evaluative reactions at odds with their party identification (e.g., Groenendyk, 2016; Lavine et al., 2012; Robison, 2021). The present research focuses on attitudinal ambivalence in the sense of simultaneous strong positive and strong negative evaluative reactions toward the same attitude object.

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73 factors such as high simultaneous accessibility of the opposite evaluative reactions or the
74 personal level of preference for consistency (Newby-Clark et al., 2002; see van Harreveld et
75 al., 2015 for an overview). The present research focuses on objective ambivalence.

76 The extent to which political attitudes are ambivalent is relevant because more
77 ambivalent evaluative reactions toward political parties, politicians, or policies have been
78 shown to be associated with more unstable global attitudes (Lavine, 2001), delayed formation
79 of voting intentions (Lavine, 2001), more negative evaluations of political candidates
80 (McGraw et al., 2003), weaker associations of global evaluations with specific beliefs and
81 assessments (Lavine, 2001), increased likelihood of split-ticket voting (Mulligan, 2011), and
82 decreased predictability of political behavior (Basinger & Lavine, 2005; Greene, 2005;
83 Lavine, 2001). Hence, understanding the factors that play a role in the ambivalence of
84 political attitudes makes a vital contribution to understanding the bases and dynamics of
85 political attitudes and behavior. Extant research on sources of ambivalence in political
86 attitudes points to personal factors such as value conflict (Craig et al., 2005; Keele & Wolak,
87 2006), mixed conceptions of attitude-relevant identities (Lindstam et al., 2021), and
88 information processing style (Rudolph & Popp, 2007), as well as to contextual factors such as
89 campaign environments (Keele & Wolak, 2008; Rudolph, 2011). Recently, political-
90 ideological orientations have been proposed to be associated with attitudinal ambivalence
91 (Jost & Krocik, 2014; Newman & Sargent, 2020; Sargent & Newman, 2021).

92 **The Rigidity of the Right Hypothesis**

93 As mentioned above, the prediction that ideological orientations are linked to a
94 tendency to hold more or less ambivalent attitudes follows from considerations concerning the
95 association of ideological orientations with thinking styles. One of the most prominent
96 theoretical perspectives in this respect is the rigidity-of-the-right hypothesis (Tetlock, 1983),
97 which can be traced back to early work on the psychological bases of authoritarianism

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98 (Adorno et al., 1950). According to this view and the closely related ideology-as-motivated-
99 social-cognition theory (Jost, 2017; Jost et al., 2003, 2009), strong needs for security
100 (existential needs) and certainty (epistemic needs) facilitate the endorsement of conservative
101 political views that can be characterized by two core elements: (a) resistance to change and
102 (b) acceptance of inequality. Strong epistemic needs are characterized as being associated
103 with a rigid cognitive style. Even though the concept of cognitive rigidity is broad and often
104 not clearly defined (see Cherry et al., 2021; Costello et al., 2022), studies documenting
105 associations between conservatism and measures that reflect a motivation to obtain clear
106 answers and stick to them, low tolerance of ambiguity, avoidance of attitude-inconsistent
107 information and cognitive dissonance, low openness for new experiences, and a tendency to
108 rely on intuitive rather than reflective judgments (for overviews, see Costello et al., 2021; Jost
109 et al., 2009; Van Hiel et al., 2010; Hibbing et al., 2014) have been taken as evidence for the
110 hypothesized conservatism-rigidity link.

111 One straightforward prediction regarding the association of ideological orientations
112 with attitudinal ambivalence, which can be derived from the rigidity-of-the-right perspective,
113 holds that the low tolerance of ambiguity that characterizes the rigid cognitive style of
114 conservative individuals, decreases the likelihood of holding ambivalent attitudes. In line with
115 this reasoning, Krochick and colleagues (2007) conducted an online study using a large
116 convenience sample of US residents, which included 95 political and non-political attitude
117 objects, where they found support for their hypotheses that individuals with a more
118 conservative (vs. liberal) orientation (a) tend to endorse attitudes with greater certainty, (b)
119 expect less variability of their attitudes, and (c) experience less ambivalent affective reactions
120 toward attitudinal objects. These results are compatible with findings showing that being
121 motivated by directional goals in information processing is associated with decreased
122 attitudinal ambivalence (Rudolph & Popp, 2007).

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123 **The Elaboration-Avoidance Hypothesis**

124 More recent research on the association of ideology with attitudinal ambivalence
125 yielded findings that stand in contrast to the results by Krochick and colleagues (2007):
126 Newman and Sargent (2020) investigated the association of political orientations with
127 (subjective and objective) attitudinal ambivalence among convenience samples of US
128 residents in a set of five online-studies where they failed to find support for a negative
129 association of conservatism with attitudinal ambivalence. Instead, their results indicate
130 associations of subjective and objective ambivalence in the opposite direction: On average,
131 conservatism was associated with more rather than less attitudinal ambivalence. A follow-up
132 study (Sargent & Newman, 2021) replicated this pattern for objective (but not subjective)
133 ambivalence using attitude objects similar to the ones used by Krochik and colleagues (2007)
134 as well as systematically varying the procedure of presenting these objects (paired vs.
135 separate). As a post-hoc explanation for their findings Newman and Sargent (2020)
136 speculated that increased attitudinal ambivalence among conservatives (vs. liberals) might
137 result from conservatism being associated with a tendency to avoid conscious reflection on
138 ambivalent attitude objects which could be a necessary condition for resolving these
139 ambiguities and constructing more consistent attitudes (see Clark et al., 2008, for evidence
140 that ambivalence can elicit avoidance of thinking about persuasive messages): “If resolving
141 ambivalence requires one to consciously reflect on it, a preference for order and clarity might
142 make doing so aversive for more conservative individuals. Alternatively (or in addition), the
143 psychological characteristics associated with a liberal political orientation (e.g., openness,
144 need for cognition) might lead people to more frequently bring to mind attitude objects
145 associated with evaluative inconsistency and, in the process, integrate their complex thoughts
146 and feelings to construct more straightforward attitudes” (p. 786).

147 **The Ideological Extremity Hypothesis**

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148 According to the ideological extremity hypothesis, extreme political orientations on
149 both sides of the political spectrum rather than conservatism specifically are associated with
150 simplistic, dogmatic, and inflexible belief systems and thinking styles (Brandt et al., 2015;
151 Conway et al., 2018; Costello & Bowes, 2022; Fernbach et al., 2013; Greenberg & Jonas,
152 2003; Lammers et al., 2017; Toner et al., 2013; van Prooijen & Krouwel, 2019; Zmigrod,
153 2020; Zmigrod et al., 2020). In line with this view, ideological extremity on both sides of the
154 ideological spectrum has been demonstrated to be associated with higher scores on behavioral
155 measures of cognitive inflexibility (Zmigrod et al., 2020), more simplistic perceptions of the
156 political domain (Lammers et al., 2017), a tendency to ignore external information in
157 judgments (Brandt et al., 2015), illusions of understanding (Fernbach et al., 2013), absolute
158 certainty (Costello & Bowes, 2022; Rollwage et al., 2018), the perception of own beliefs as
159 superior (Harris & Van Bavel, 2021; Toner et al., 2013), as well as intolerance (Brandt et al.,
160 2014) and authoritarianism (Conway et al., 2018; for an overview, see van Prooijen &
161 Krouwel, 2019). If Jost and Krocik (2014) are right that a rigid cognitive style as well a
162 biased information processing and intolerance decrease the likelihood of holding ambivalent
163 attitudes, it follows from the ideological extremity hypothesis that attitudinal ambivalence
164 should be low at the extremes of both sides of the political spectrum rather than on the right
165 side in particular.

166 **The Present Research**

167 The present research tested the hypothesis that individuals at both extremes of the left-
168 right ideological spectrum tend to hold less ambivalent political attitudes than individuals who
169 place themselves more towards the center of the scale. In statistical terms, this hypothesis
170 implies predicting a reversal of the sign of the linear association of ideology with ambivalence
171 from positive to negative as one moves from left to right on the ideology scale at some point,
172 which is not specified a priori (Simonsohn, 2018). However, the fact that the present research

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173 investigates the association of ideological orientations with political attitudes specifically
174 (rather than with non-political attitude objects), implies that this hypothesis has to be further
175 specified: Given (a) that ideological orientations can be expected to be associated with the
176 individuals' general attitudes toward the attitude objects and (b) that extreme general attitudes
177 can be expected to be lower in ambivalence than moderate attitudes, the predicted association
178 of ideology with attitudinal ambivalence has to be tested controlling for the association of
179 ambivalence with general attitudes.

180 The main hypothesis of the present research was tested in three Studies that used
181 different datasets of the German Longitudinal Election Study (GLES). Studies 1 and 2
182 investigate attitudes toward political candidates using data that was collected in the context of
183 two different elections. Study 3 investigates attitudes toward political parties using data that
184 was collected in the context of yet another election. The present research differs from
185 previous research on the association of ideological orientations with attitudinal ambivalence
186 by (a) testing the prediction that attitudinal ambivalence tends to be lower at both extremes of
187 the left-right ideological spectrum (b) focusing specifically on political attitudes, (c) using
188 data from large, demographically diverse samples collected in the context of actual federal
189 elections, (d) using non-US samples, and (e) looking at both affective and cognitive attitude
190 components.

191 All data used in the present research as well as the documentations of the datasets are
192 available for scientific research under the links specified in the References and the scripts of
193 the analyses are available under
194 https://osf.io/t2ncp/?view_only=b65254f4891f4aadbe8dd038ab1b1b38. The hypotheses and
195 analysis plans were not pre-registered. However, tests of a-priory hypotheses and post-hoc
196 tests are separated in the manuscript by reporting the former in the Results sections and the

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197 latter in the General Discussion. All analyses were conducted using *R* (R Core Team, 2021)
198 and figures were creates using *ggplot2* (Wickham, 2016).

199 **Study 1**

200 Study 1 investigated the association of political ideology with the ambivalence of
201 political attitudes using data on attitudes toward the two main candidates for the
202 chancellorship in the 2017 German Federal Elections: Angela Merkel of the Christian
203 conservative party (CDU) and Martin Schulz of the social democratic party (SPD).

204 **Method**

205 **Sample.** Study 1 used data of the 2017 Short-term Campaign Panel of the GLES
206 (GLES, 2019), which was conducted as an online survey. Respondents eligible to vote at the
207 elections were recruited trough quota sampling (age, gender, education) from the frame
208 population of a large online access panel run by a commercial service provider (for details,
209 see official study documentation). All respondents with answers on the relevant variables (see
210 below) were included in the analyses which resulted in a maximal sample of 13,808
211 respondents (49.40% women, $M_{age} = 48.84$, $SD_{age} = 14.69$).

212 **Attitudinal ambivalence.** Respondents indicated the strengths of their negative
213 feelings as well as the strength of their positive feelings toward each of the two candidates on
214 five-point scales ranging from 1 (*no negative/positive feelings at all*) to 5 (*very strong*). On
215 the basis of the reported positive and negative feelings, ambivalence scores regarding the two
216 candidates were calculated using a formula proposed by Thompson and colleagues (1995): $[[P$
217 $+ N] / 2] - |P - N|$, where P and N represent the scores for positive and negative evaluative
218 reactions (for a discussion of alternatives to this formula, see Locke & Braun, 2009). As these
219 measures of negative and positive feelings were included in waves 4 and 6 of the campaign

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220 panel, average ambivalence scores across waves were calculated for each candidate ($r = .55$
221 for Merkel and $r = .49$ for Schulz).

222 **General attitudes.** Respondents indicated their general attitudes toward the two
223 candidates on scales ranging from -5 (*I do not think much of the politician at all*) to +5 (*I*
224 *think a great deal of the politician*). These scales were recoded from 1 to 11 and average
225 scores across the waves 4 and 6 of the panel survey were calculated ($r = .90$ for Merkel and r
226 = .81 for Schulz).

227 **Political ideology.** As in the previous studies on ideology and attitudinal ambivalence,
228 a measure of symbolic ideology was used as a measure of the ideological orientation of
229 respondents. Respondents positioned themselves on a scale ranging from 1 (*left*) to 11 (*right*).
230 Average scores across the waves 4 and 6 of the panel survey were calculated ($r = .84$).

231 **Control variables.** Some analyses reported below include the following control
232 variables: gender (0 = *male*, 1 = *female*), age, education (highest school degree coded as *low*,
233 *medium*, or *high*), and region of residence (0 = *Eastern Germany*, 1 = *Western Germany*), as
234 well as political interest – measured on a recoded scale originally ranging from 1 (*very*
235 *interested*) to 2 (*somewhat interested*), to 3 (*in between*), to 4 (*not very interested*) to 5 (*not at*
236 *all interested*) and averaged across waves 4 and 6 ($r = .87$).

237 Results

238 In the data of Study 1, political interest is negatively correlated with political ideology,
239 $r = -.07, p < .001, 95\% \text{ CI } [-.05, -.08]$, as well as with affective ambivalence toward Merkel, r
240 = .09, $p < .001, 95\% \text{ CI } [.07, .10]$, and Schulz, $r = -.12, p < .001, 95\% \text{ CI } [-.11, -.14]$.

241 Political ideology is negatively correlated with affective ambivalence toward Merkel, r
242 = -.09, $p < .001, 95\% \text{ CI } [-.07, -.11]$, as well as toward Schulz, $r = -.09, p > .001, 95\% \text{ CI } [-$
243 .07, -.10]. In terms of linear regressions, these associations indicate that moving from the

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244 leftmost ideological position to the rightmost position is predicted to result in a 10% decrease
245 in affective ambivalence toward Merkel, $b = -0.10$, SE = 0.01, $p < .001$, and a 9% decrease in
246 affective ambivalence toward Schulz, $b = -.09$, SE = 0.01, $p < .001$. These associations remain
247 stable when the control variables listed above are included in the regression models (see Table
248 A1 of the Online Appendix).

249 As recommended by Simonsohn (2018), the prediction of an inversely u-shaped
250 association between political ideology and attitudinal ambivalence was tested using a two-
251 lines test based on the algorithm proposed by the same author to identify the point where the
252 sign of the linear association of ideology with ambivalence changes. Essentially, this
253 approach tests the hypothesis that the average association of x with y is of opposite sign for
254 high versus low values of x without making assumptions about the functional form of $f(x)$. As
255 shown in panel A of *Figure 1* and *Figure 2*, the results of the two-lines tests provide evidence
256 for an inversely u-shaped association between ideology and affective ambivalence toward the
257 two political candidates.

258 As a next step, analyses aimed at accounting for the association of attitudinal
259 ambivalence with the general attitudes toward the two candidates. As *Figure 1* and *Figure 2*
260 show, the association of ideology with the general attitudes toward the candidates (panel B in
261 both figures) as well as the association of the general attitudes with attitudinal ambivalence
262 (panel C in both figures) are clearly inversely u-shaped. To account for the association of
263 affective ambivalence with general attitudes, the two-lines tests were performed with respect
264 to the residuals of the affective ambivalence scores after using general attitudes as a predictor
265 in regression models that included a linear and a quadratic term. As shown in panel D of
266 *Figure 1* and *Figure 2*, the results of these two-lines tests provide evidence for a reversal of
267 the sign of the linear association between political ideology and the variance in affective
268 ambivalence not accounted for by general attitudes only in the case of Martin Schulz.

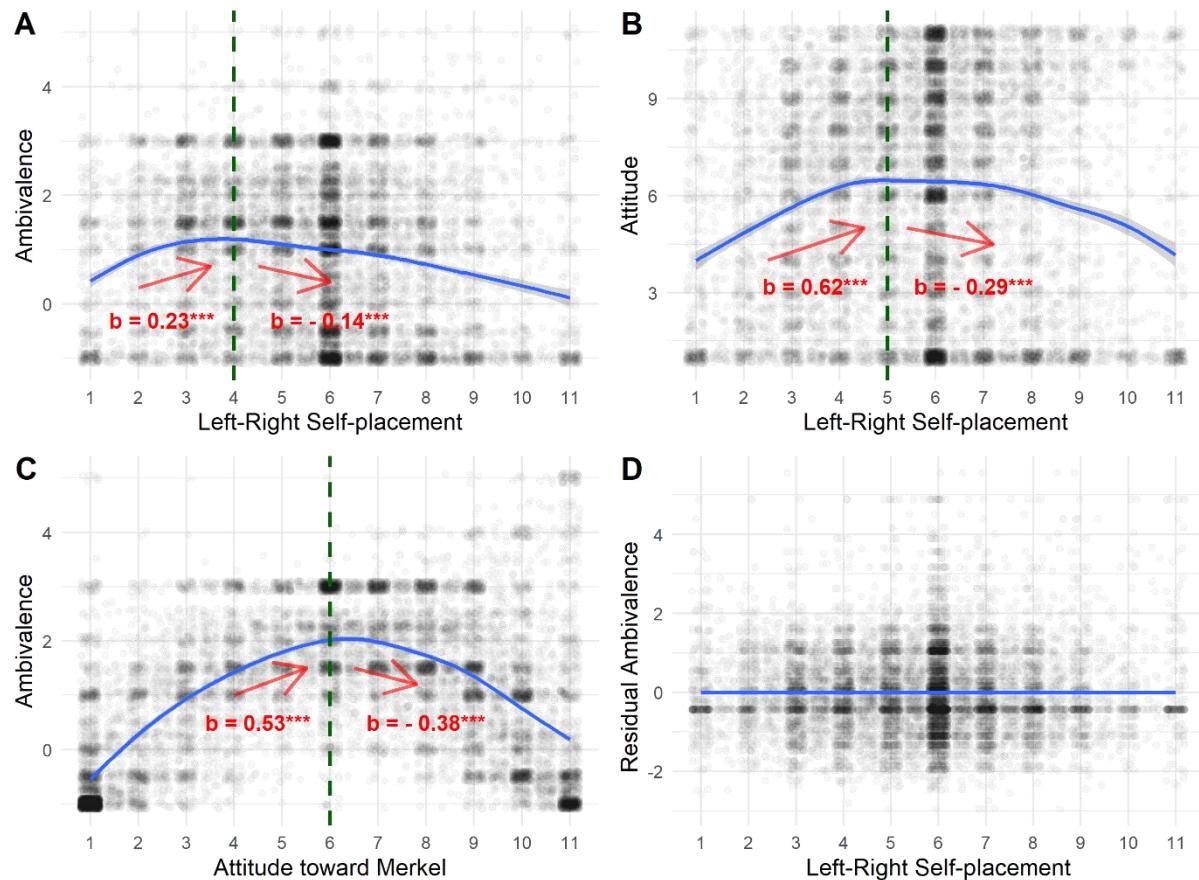
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269 However, the inclinations of the regression lines on both sides of the break point are very
270 subtle. Correlations of political ideology with the residual affective ambivalence toward
271 Merkel, $r = .00$, $p = .82$, and Schulz, $r = .01$, $p = .22$, are non-significant.
272

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273 **Figure 1**

274 *Associations of affective ambivalence and the general attitude toward Angela Merkel with*
 275 *crucial predictors (Study 1)*



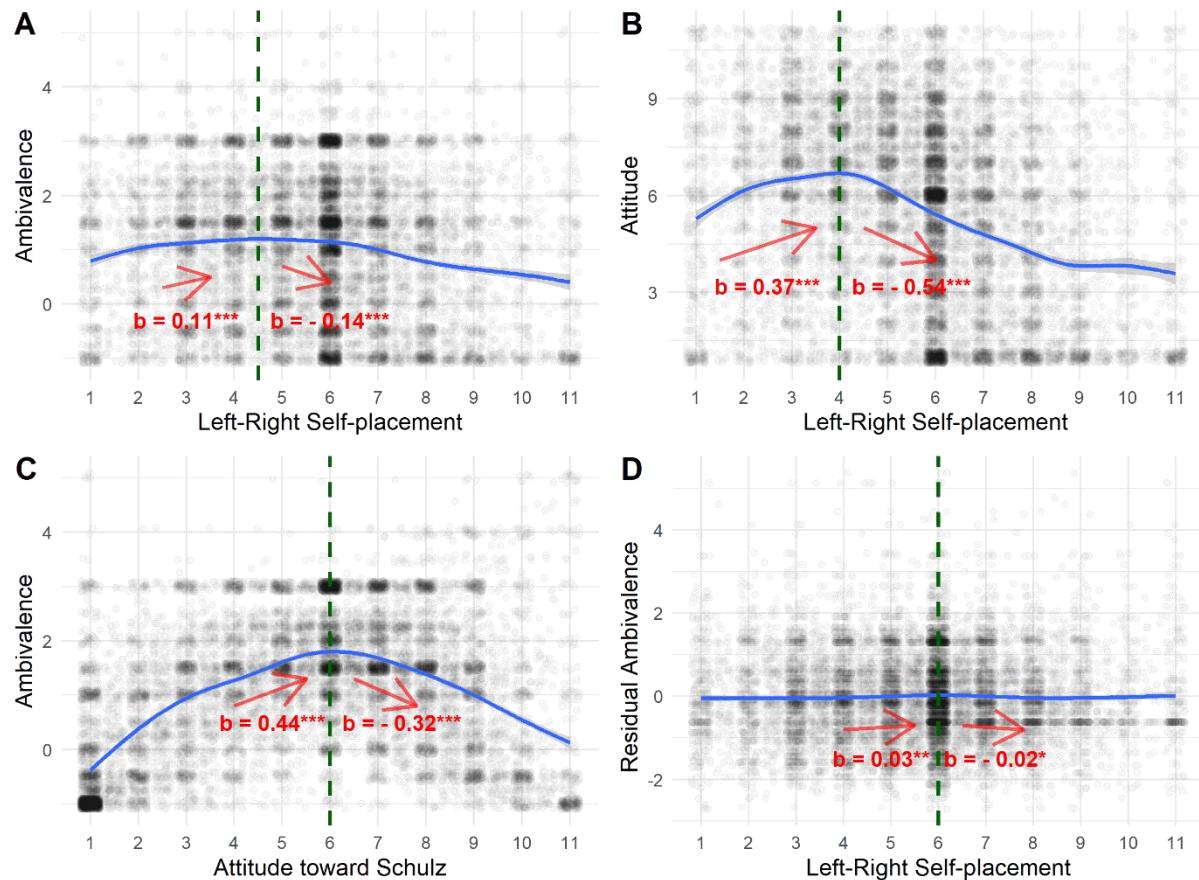
276

277 *Note.* Panel A depicts the association of ideology with attitudinal ambivalence toward A.
 278 Merkel. Panel B depicts the association of ideology with the general attitude toward A.
 279 Merkel. Panel C depicts the association of the general attitude toward A. Merkel with
 280 attitudinal ambivalence. Panel D depicts the association of ideology with the residual
 281 ambivalence toward A. Merkel not predicted by a regression model including general
 282 attitudes as well as a quadratic term for general attitudes as predictors. The solid line depicts a
 283 generalized additive model (GAM) fitted to the data. The dashed vertical line represents the
 284 break point and the arrows and regression weights, refer to the regression lines below and
 285 above the break point of a two-lines test according to the algorithm developed by Simonsohn
 286 (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

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287 **Figure 2**

288 *Associations of affective ambivalence and the general attitude toward Martin Schulz with*
 289 *crucial predictors (Study 1)*



290

291 *Note.* Panel A depicts the association of ideology with attitudinal ambivalence toward M. Schulz. Panel B depicts the association of ideology with the general attitude toward M. Schulz. Panel C depicts the association of the general attitude toward M. Schulz with attitudinal ambivalence. Panel D depicts the association of ideology with the residual ambivalence toward M. Schulz not predicted by a regression model including general attitudes as well as a quadratic term for general attitudes as predictors. The solid line depicts a generalized additive model (GAM) fitted to the data. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

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301 **Discussion**

302 The results of Study 1 clearly support the prediction of a curvilinear association
303 between ideological orientations and affective ambivalence toward political candidates where
304 ambivalence is less pronounced at both extremes of the ideological spectrum. However, the
305 results also indicate that this pattern is due to the association of ideology with general
306 attitudes toward the candidates and due to the association of general attitudes with
307 ambivalence. Once the variance in ambivalence that is associated with general attitudes was
308 controlled in the analyses, there was no or only very weak evidence for an association (linear
309 or curvilinear) between ideology and the residual affective ambivalence toward the two
310 political candidates.

311 **Study 2**

312 Like Study 1, Study 2 investigated the association of political ideology with the
313 ambivalence of attitudes toward political candidates. Compared to Study 1, it used data on a
314 different election with different political candidates that was collected using a different
315 interview mode and sampling design as well as using a different question format to assess
316 positive and negative reactions toward the candidates. In addition, Study 2 differs from Study
317 1 by allowing to distinguish between affective and cognitive ambivalence. Study 2 used data
318 collected in the context of the German Federal Election in 2021, in which Olaf Scholz of the
319 social democratic party (SPD), Armin Laschet of the Christian conservative party (CDU), and
320 Annalena Baerbock of the green party competed for the chancellorship.

321 **Method**

322 **Sample.** Study 2 used data of the GLES Rolling Cross-Section 2021 (GLES, 2022),
323 which was conducted using computer-assisted telephone interviews. The sample of this study
324 is a probability sample of individuals eligible to vote at the elections that results from landline

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325 (60%) and mobile (40%) telephone numbers that are drawn from sampling frames that
326 include all registered as well as generated telephone numbers (for details, see official study
327 documentation). All respondents with answers on the relevant variables (see below) were
328 included in the analyses which resulted in a maximal sample of 6,528 respondents (44.26%
329 women, $M_{\text{age}} = 55.18$, $SD_{\text{age}} = 16.66$).

330 **Attitudinal Ambivalence.** The GLES Rolling Cross-Section 2021 included not only
331 measures of feelings toward the candidates but also measures of their perceived strengths and
332 weaknesses, which allows to differential between affective and cognitive ambivalence. With
333 respect to feelings, respondents indicated their (dis-)agreement with the statements
334 “[Candidate name] triggers negative feelings in me.” and “[Candidate name] triggers positive
335 feelings in me.” using a scale ranging from 1 (*strongly agree*) to 2 (*agree*) to 3 (*neither agree*
336 *nor disagree*), to 4 (*disagree*) to 5 (*strongly disagree*). With respect to strengths and
337 weaknesses, respondents indicated their (dis-)agreement with the statements “[Candidate
338 name] has great weaknesses as a politician.” and “[Candidate name] has great strengths as a
339 politician.” using the same scale. The order of asking about feelings or strengths and
340 weaknesses first versus second as well as the order of asking about the positive or the
341 negative reaction first versus second was randomly determined for each respondent.
342 Ambivalence scores were calculated using the same formula as in Study 1.

343 **Further variables.** General attitudes toward the candidates, political ideology,
344 political interest, and the other control variables were measured as in Study 1.

345 **Results**

346 In the data of Study 2, political interest is negatively correlated with political ideology
347 as well as with attitudinal ambivalence (see *Table 1*). The correlations between the scores for
348 affective and cognitive ambivalence range between $r = .43$ and $r = .49$. The mean scores for
349 cognitive ambivalence (see *Table 1*) are significantly higher than the scores for affective

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350 ambivalence for Scholz, $t(6567) = -27.47, p < .001$, Laschet, $t(6444) = -35.30, p < .001$, and
351 Baerbock, $t(6519) = -34.82, p < .001$.

352 The direction of the linear association of political ideology with affective ambivalence
353 is inconsistent: Political ideology is positively correlated with affective ambivalence toward
354 Scholz and Laschet and negative correlated with affective and ambivalence toward Baerbock.
355 Regarding cognitive ambivalence, political ideology is unrelated to cognitive ambivalence
356 toward Scholz, positively correlated with ambivalence toward Laschet, and negatively
357 correlated with cognitive ambivalence toward Baerbock (see *Table 1*; see also Tables A3 to
358 A5 in the Online Appendix, for the results of regression analyses including control variables).

359 Two-lines tests provide evidence for an inversely u-shaped association between
360 ideology and affective and cognitive ambivalence in the case of Laschet only (for details, see
361 Figures A5 to A10 in the Online Appendix). However, when looking at the variance in
362 ambivalence not explained by the general attitude, there is no evidence for an inversely u-
363 shaped association between political ideology and the residual ambivalence (affective or
364 cognitive) for any of the candidates (see Online Appendix). Correlations of political ideology
365 with the residual affective ambivalence toward Scholz, $r = -.00, p = .75, 95\% \text{ CI} [-.03, .02]$,
366 Laschet, $r = .02, p = .06, 95\% \text{ CI} [-.00, .05]$, and Baerbock, $r = .00, p = .75, 95\% \text{ CI} [-.02,$
367 $.03]$, are not statistically significant. However, the correlations of political ideology with the
368 residual cognitive ambivalence toward Scholz, $r = -.03, p = .01, 95\% \text{ CI} [-.05, -.01]$, and
369 Baerbock, $r = -.04, p < .01, 95\% \text{ CI} [-.06, -.01]$, are statistically significant while the
370 correlation for Laschet is not, $r = .02, p = .23, 95\% \text{ CI} [-.01, .04]$.

371 Discussion

372 In Study 2, the ambivalence scores for cognitive ambivalence were generally higher
373 than the scores for affective ambivalence. Evidence for an inversely u-shaped association
374 between ideology and ambivalence was found only for affective and cognitive ambivalence

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375 toward one of the three candidates. However, when the association of ambivalence with
376 general attitudes was controlled in the analyses, there was no evidence for an inversely u-
377 shaped association between ideology and ambivalence for any of the candidates. There was
378 evidence for weakly negative correlations between ideology and the residual cognitive
379 ambivalence not associated with general attitudes for two of the three candidates.

380 **Table 1**

381

382 *Means, standard deviations, and correlations of political interest, symbolic ideology, and affective as well as cognitive ambivalence toward the*
383 *candidates for chancellorship at the 2021 German federal election (Study 2)*

384

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
1. Political interest	3.81	0.94							
2. Symbolic ideology	5.01	2.08	-.06** [-.08, -.04]						
3. Scholz: Affective amb.	1.14	1.36	-.07** [-.09, -.04]	.03** [.01, .06]					
4. Scholz: Cognitive amb.	1.64	1.36	-.04** [-.06, -.01]	.01 [-.01, .04]	.43** [.41, .45]				
5. Laschet: Affective amb.	0.85	1.33	-.10** [-.12, -.07]	.08** [.06, .11]	.22** [.19, .24]	.11** [.08, .13]			
6. Laschet: Cognitive amb.	1.45	1.43	-.08** [-.10, -.06]	.09** [.06, .11]	.12** [.09, .14]	.20** [.18, .22]	.49** [.48, .51]		
7. Baerbock: Affective amb.	0.78	1.36	-.05** [-.07, -.02]	-.08** [-.10, -.05]	.20** [.18, .23]	.08** [.05, .10]	.19** [.17, .21]	.11** [.08, .13]	
8. Baerbock: Cognitive amb.	1.41	1.47	-.02 [-.05, .00]	-.18** [-.21, -.16]	.07** [.05, .10]	.16** [.14, .18]	.07** [.04, .09]	.15** [.13, .18]	.45** [.44, .47]

385

386 *Note.* Values in square brackets indicate the 95% confidence interval for each correlation. Correlation tables were created using the *apaTables*
387 package (Stanley, 2021). * indicates $p < .05$. ** indicates $p < .01$

389 Study 3 investigated the association of political ideology with attitudinal ambivalence
390 with respect to political parties rather than political candidates as attitude targets. It used data
391 collected in the context of the German Federal Elections 2013 on attitudes toward the five
392 parties represented in the German Bundestag at that time.

393 **Method**

394 **Sample.** Study 3 uses data of the 2013 Short-term Campaign Panel of the GLES
395 (GLES, 2016), which was conducted as an online survey. Respondents eligible to vote at the
396 elections were recruited through quota sampling (age, gender, education) from the frame
397 population of a large online access panel run by a commercial service provider (for details,
398 see official study documentation). All respondents with answers on the relevant variables (see
399 below) were included in the analyses which resulted in a maximal sample of 4,789
400 respondents (49.05% women, $M_{\text{age}} = 46.03$, $SD_{\text{age}} = 14.76$).

401 **Affective ambivalence.** Positive and negative feelings were measured as in Study 1,
402 however, with political parties instead of political candidates as the attitude targets. An
403 affective ambivalence score for each political party was calculated as described in Study 1. As
404 the measures of negative and positive feelings were included in waves 1, 3, and 6 of the
405 campaign panel, average ambivalence scores across waves were calculated ($.86 \leq \alpha \leq .91$).

406 **Further variables.** General attitudes toward the parties, political ideology, political
407 interest, and the other control variables were measured as in Study 1.

408 **Results**

409 In the data of Study 3, as in the previous studies, political interest is negatively
410 correlated with political ideology as well as with attitudinal ambivalence toward the different
411 parties (see *Table 2*).

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412 The direction of the linear association of political ideology with affective ambivalence
413 is inconsistent for the different political parties, ranging from a positive correlation of $r = .33$
414 to a negative correlation of $r = -.14$ (see *Table 2*, see also Table A6 in the Online Appendix,
415 for the results of regression analyses including control variables).

416 Two-lines tests provide evidence for an inversely u-shaped association between
417 ideology and affective ambivalence in the case of all political parties except for the FDP (for
418 details, see Figures A11 to A15 in the Online Appendix). However, when looking at the
419 variance in ambivalence not explained by the general attitude toward the respective party,
420 there is no evidence for an inversely u-shaped association between political ideology and the
421 residual ambivalence for any of the parties (see Figures A11 to A15 in the Online Appendix).
422 Correlations of political ideology with the residual affective ambivalence are positive in the
423 case of four of the five parties, ranging from $r = .03$ to $r = .10$ (see Table A7 in the Online
424 Appendix) and non-significant in the case of DIE LINKE.

425 **Discussion**

426 The results of Study 3 provide evidence for a negatively u-shaped association between
427 ideology and affective ambivalence toward four of the five political parties investigated.
428 However, similar to the previous studies, no evidence for such a pattern was found when the
429 association of ambivalence with general attitudes was controlled in the analyses. There was
430 evidence for weakly positive correlations between ideology and the residual ambivalence not
431 associated with general attitudes, which indicates a linear association between ideology and
432 ambivalence in a direction opposite to the one observed in Study 2.

433

434 **Table 2**

435

436 *Means, standard deviations, and correlations of political interest, symbolic ideology, and affective ambivalence toward the major political parties*
 437 *at the 2013 German federal election (Study 3)*

438

Variable	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Political interest	3.25	1.01						
2. Symbolic ideology	5.61	2.12	-.11** [-.14, -.08]					
3. Ambivalence toward the CDU	0.96	1.29	-.16** [-.19, -.13]	.15** [.12, .18]				
4. Ambivalence toward the SPD	1.26	1.15	-.12** [-.15, -.10]	.04** [.01, .07]	.44** [.42, .46]			
5. Ambivalence toward the FDP	0.77	1.35	-.24** [-.26, -.21]	.33** [.30, .35]	.49** [.47, .51]	.42** [.40, .44]		
6. Ambivalence toward GRÜNE	1.06	1.23	-.12** [-.15, -.10]	-.03* [-.06, -.00]	.34** [.32, .37]	.49** [.47, .51]	.37** [.35, .40]	
7. Ambivalence toward Die LINKE	0.78	1.29	-.15** [-.17, -.12]	-.14** [-.17, -.12]	.32** [.30, .35]	.35** [.32, .37]	.24** [.22, .27]	.45** [.43, .47]

439

440 *Note.* Values in square brackets indicate the 95% confidence interval for each correlation. * indicates $p < .05$. ** indicates $p < .01$.

441

General Discussion

442 The present research investigated the association of political ideological orientations
443 with the level of ambivalence of attitudes toward political candidates (Studies 1 and 2) and
444 political parties (Study 3). The core hypothesis of this research was that attitudinal
445 ambivalence is weaker among individuals at both extremes of the left-right scale compared to
446 individuals with more moderate ideological orientations. Even though there was evidence for
447 the predicted association pattern in most of the cases investigated, there was no evidence for
448 this association pattern once the association of ambivalence with general attitudes was
449 controlled for. Zero-order correlations between ideology and attitudinal ambivalence were
450 very heterogeneous across attitude objects as were the correlations between ideology and the
451 residuals of ambivalence not predicted by general attitudes. The results of this research should
452 be interpreted bearing in mind that the need to control for the association of ambivalence with
453 the general attitudes toward the attitude objects (due to the association of ideology with the
454 general attitudes) set the bar for the tests of potential ideology-ambivalence relations
455 relatively high. While these results do not provide conclusive evidence for the ideological
456 extremity hypothesis regarding the association of ideology with attitudinal ambivalence or for
457 its alternatives (the rigidity-of-the right hypothesis and the elaboration-avoidance hypothesis),
458 this research nonetheless allows for several important insights and considerations for future
459 research.

460 **Operationalizing Ideology**

461 Following prior research on the association of ideology with attitudinal ambivalence
462 (Krochik et al., 2007; Newman & Sargent, 2020; Sargent & Newman, 2021), the present
463 research focused on left-right self-placements as a measure of ideological orientation.
464 However, strong arguments in favor of differentiating between social and economic
465 ideological orientations have been brought forward in the literature stressing that these two

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466 ideology dimensions often differ in their psychological correlates (Costello et al., 2022;
467 Duckitt & Sibley, 2010; Federico & Malka, 2018; Feldman & Johnston, 2014; Jedinger &
468 Burger, 2021; Malka et al., 2014; Malka & Soto, 2015). Since the surveys used in Studies 1
469 and 3 of the present research included items that can be used as proxies for the respondents'
470 social and economic ideological orientation, it is possible to explore whether the pattern of
471 results differs when these ideology dimensions rather than the left-right self-placements are
472 used as predictors (see Online Appendix, for detailed results)². In Study 1, a look at bivariate
473 correlations reveals that social ideology is correlated significantly more strongly with
474 attitudinal ambivalence toward political candidates than economic ideology (the correlation of
475 left-right self-placements with ambivalence ranges in-between; see Table A2 in the Online
476 Appendix). Two-lines tests show that ambivalence is weaker at the extremes of both social
477 and economic ideology than at moderate levels and that this pattern becomes very weak but
478 remains statistically significant when the association of ambivalence with general attitudes
479 toward the candidates is controlled (see Figures A1 to A4 in the Online Appendix). In the data
480 of Study 3, there is no clear pattern of social ideology being correlated more strongly with
481 attitudinal ambivalence than economic ideology (for several parties, it is the opposite) or than
482 left-right self-placements (see Table A8 in the Online Appendix). Again, two-lines tests show
483 that ambivalence is weaker at the extremes of both social and economic ideology than at
484 moderate levels. When the association of ambivalence with general attitudes is controlled, this
485 pattern disappears or become very subtle (two-lines tests are significant for two of the five
486 parties in the case of social ideology and for three of the five parties in the case of economic
487 ideology). Hence, the differential association of different ideology-dimensions with
488 ambivalence seems to vary as a function of historical context and/or attitude object, which

² In these analyses, we used an item that measured attitudes toward immigration on a scale ranging from 1 (*immigration for foreigners should be easier*) to 7 (*immigration for foreigners should be more difficult*) as a measure of social ideology. We use a reverse-coded item that measured preferences regarding taxes and the welfare state on a scale originally ranging from 1 (*lower taxes, although this results in less social services*) to 7 (*more social services, although this results in raising taxes*) as a measure of economic ideology.

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489 resonates with the argument that the reliance on different ideology dimensions can vary
490 between as within individuals (Morgan & Wisneski, 2017).

491 **Interpreting Attitudinal Ambivalence**

492 A finding of the present research that is worth being highlighted is the negative
493 correlation between political interest and attitudinal ambivalence that has consistently been
494 observed in all three studies. How does this finding relate to the rationale of treating more
495 ambivalent attitudes as an indicator of a more open-minded, less rigid cognitive style and how
496 convincing is this rationale? Given that more politically interested individuals can be expected
497 to assign more personal importance to political attitudes and to elaborate more extensively on
498 political topics, the negative correlation between political interest and ambivalence is
499 consistent with findings showing that attitude importance can be associated with more
500 ideologically biased information processing (for an overview, see Howe & Krosnick, 2017),
501 which has also been associated with more rather than less cognitive elaboration and
502 sophistication (Kahan, 2013). With respect to the association of ambivalence with thinking
503 style, recent research indicates that this link is context-dependent: While topic-specific
504 ambivalence can facilitate biased processing of information on that topic (e.g., Clark et al.,
505 2008; Nordgren et al., 2006; Rothman et al., 2017; Sawicki et al., 2011, 2013), more general
506 tendencies to experience ambivalence as well as incidental experiences of ambivalence seem
507 to be associated with more balanced and accurate judgment and decision making (Guarana &
508 Hernandez, 2016; Hohnsbehn et al., 2022; Rees et al., 2013; Rothman et al., 2017; Schneider,
509 Novin, et al., 2021).

510 **Limitations**

511 As a recent meta-analysis by Costello and colleagues (Costello et al., 2022) shows,
512 American samples are overrepresented and demographically representative samples are
513 underrepresented in research on associations of political ideologies with thinking styles. In the

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514 light of these findings, the fact that the present research is based on non-US demographically
515 representative samples constitutes a benefit. However, the exclusive focus on German
516 samples and data collected in the context of German elections is also a clear limitation of the
517 present research. Future investigations of the ideology-ambivalence link within multiple
518 societies would allow for conclusions regarding the generalizability of findings and potential
519 contextual moderators of the association.

520 **Conclusions**

521 The findings of the present research strongly suggest that the association of ideological
522 orientations with the ambivalence of political attitudes is highly dependent on the specific
523 political context and the particular attitude object in focus. If we are specifically interested in
524 predictors of the ambivalence of political attitudes, we must conclude that we did not find
525 reliable evidence that would support the prediction that ideology-dependent differences in
526 thinking style are a relevant variable. If, on the other hand, we are particularly interested in
527 the association of political ideology with attitudinal ambivalence in general, we must
528 conclude that political attitude objects do not seem to be well suited to derive general
529 conclusions regarding the association of ideological orientations with attitudinal ambivalence.
530 Yet, investigating predictors of attitudinal ambivalence toward specific politicians, parties, or
531 policy proposals holds the potential to yield very interesting findings and is a promising
532 avenue for future research (for examples, see Federico, 2006; Schneider, Dorrough, et al.,
533 2021). In this respect, it is worth pointing out that the associations of ideology with
534 ambivalence toward different attitude objects reported by Newman and Sargent (2020) are
535 also heterogeneous even though the average association was found to be positive in this study.
536 This suggests that focusing on trait ambivalence (see Hohnsbehn et al., 2022; Schneider et al.,
537 2022; Schneider, Novin, et al., 2021) might be a more promising approach to investigating the
538 general association of ideology with attitudinal ambivalence than assessing state ambivalence

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539 toward sets of attitude objects. Another important conclusion that can be derived from this
540 and other research on attitudinal ambivalence is that large survey programs can gain a lot
541 from using measures that allow for assessing the ambivalence of attitudes in addition to global
542 attitude measures.

543

544

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Online Appendix to:

**Political Ideology and Attitudinal Ambivalence: Investigating the Role of
Ideological Extremity**

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1. Supplementary Materials to Study 1

1.1 Regression Models Predicting Ambivalence from Symbolic Ideology (Table A1)

Table A1

Regression Models Predicting Ambivalence from Symbolic Ideology

Predictors	Merkel (1)		Merkel (2)		Schulz (1)		Schulz (2)	
	Estimates	p	Estimates	p	Estimates	p	Estimates	p
Political Ideology	-0.10	<0.001	-0.11	<0.001	-0.09	<0.001	-0.10	<0.001
Gender (1 = female)			-0.01	0.004			-0.00	0.716
Age			-0.00	<0.001			-0.00	<0.001
Education (1 = medium)			0.03	<0.001			0.01	0.176
Education (1 = high)			0.04	<0.001			0.01	0.144
Region (1 = Western Germany)			0.01	0.152			0.01	0.001
Political Interest			-0.10	<0.001			-0.10	<0.001
Observations	13808		13534		13678		13408	
R ² / R ² adjusted	0.008 / 0.008		0.033 / 0.032		0.008 / 0.007		0.035 / 0.035	

Note. Ambivalence scores, political ideology, and political interest were scaled from 0 to 1. Regression tables were created using the *sjPlot* package for *R* (Lüdecke, 2021).

1.2 Correlations of the social and the economic ideology dimension with ambivalence (Table A2)

Table A2

Correlations of the social and the economic ideology dimension with ambivalence

Variable	<i>M</i>	<i>SD</i>	1	2	3	4
1. Symbolic ideology	5.62	2.08				
2. Economic ideology	3.87	1.39	.30** [.29, .32]			
3. Social ideology	5.13	1.67	.42** [.41, .43]	.24** [.22, .25]		
4. Ambivalence toward Merkel	0.96	1.41	-.09** [-.11, -.07]	-.02 [-.03, .00]	-.16** [-.17, -.14]	
5. Ambivalence toward Schulz	1.06	1.30	-.09** [-.10, -.07]	-.03** [-.05, -.02]	-.13** [-.15, -.11]	.47** [.46, .48]

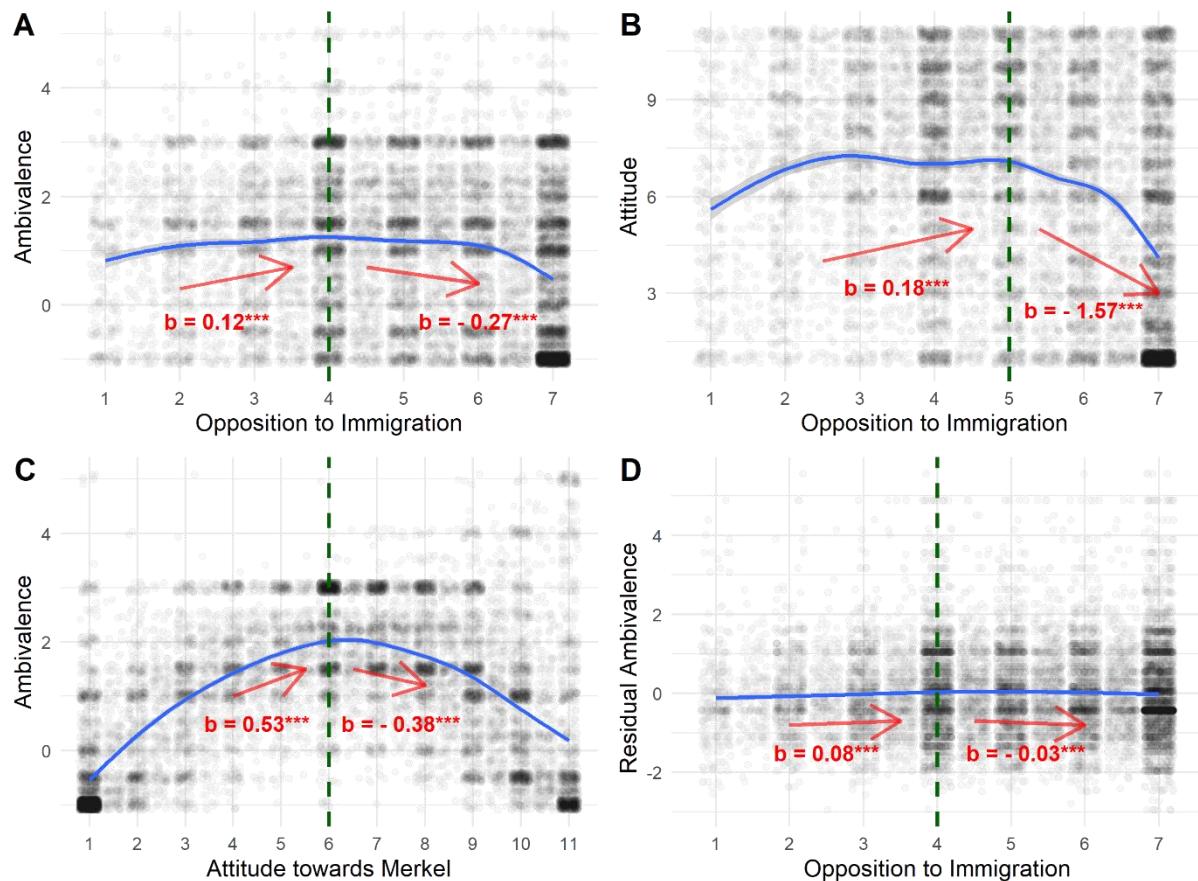
Note. Opposition to immigration, which was measured on a scale ranging from 1 (*immigration for foreigners should be easier*) to 7 (*immigration for foreigners should be more difficult*) was used as an indicator of social ideology. Attitudes toward taxes and social benefits, which were measured on a scale originally ranging from 1 (*lower taxes, although this results in less social services*) to 7 (*more social services, although this results in raising taxes*) [recode for the present analyses] was used as an indicator of economic ideology. Correlation tables were created using the *apaTables* package for R (Stanley, 2021). * indicates $p < .05$. ** indicates $p < .01$.

Comparing some of the correlations of Table A2 using the *cocor* package for *R* (Diedenhofen & Musch, 2015) reveals that ambivalence toward Merkel is correlated significantly more strongly with social ideology than with economic ideology, $z = -13.84$, $p < .0001$. Similarly, ambivalence toward Schulz is correlated significantly more strongly with social ideology than with economic ideology, $z = -9.39$, $p < .0001$. In addition, the correlation of ambivalence toward Merkel with symbolic ideology is weaker than its correlation with social ideology, $z = -7.33$, $p < .0001$, and stronger than its correlation with economic ideology, $z = 7.10$, $p < .0001$. similarly, the correlation of ambivalence toward Schulz with symbolic ideology is weaker than its correlation with social ideology, $z = -5.08$, $p < .0001$, and stronger than its correlation with economic ideology, $z = 4.76$, $p < .0001$.

1.3 Two-lines tests for the associations of social and economic ideology with ambivalence toward Merkel (Figures A1 and A2)

Figure A1

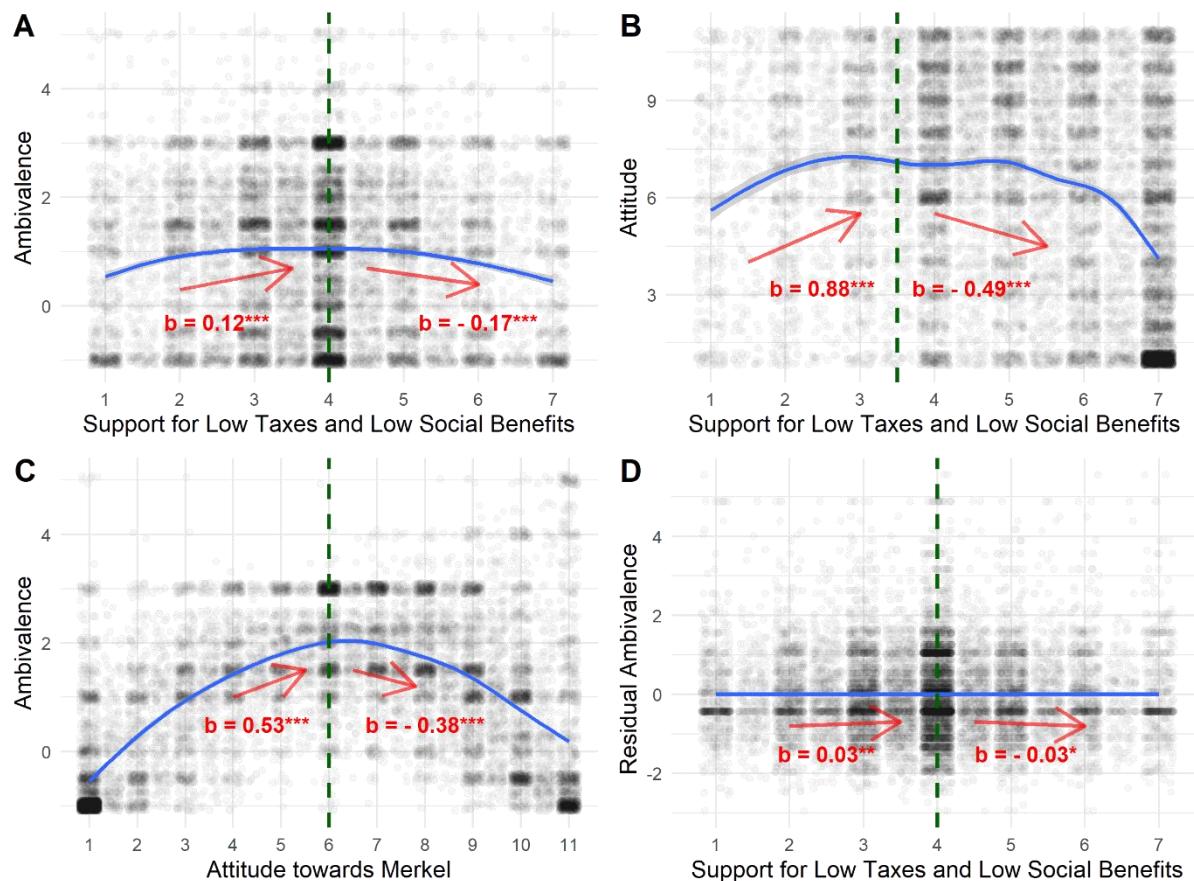
The association of affective ambivalence and the general attitude toward Angela Merkel with opposition to immigration



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A2

The association of affective ambivalence and the general attitude toward Angela Merkel with economic ideology

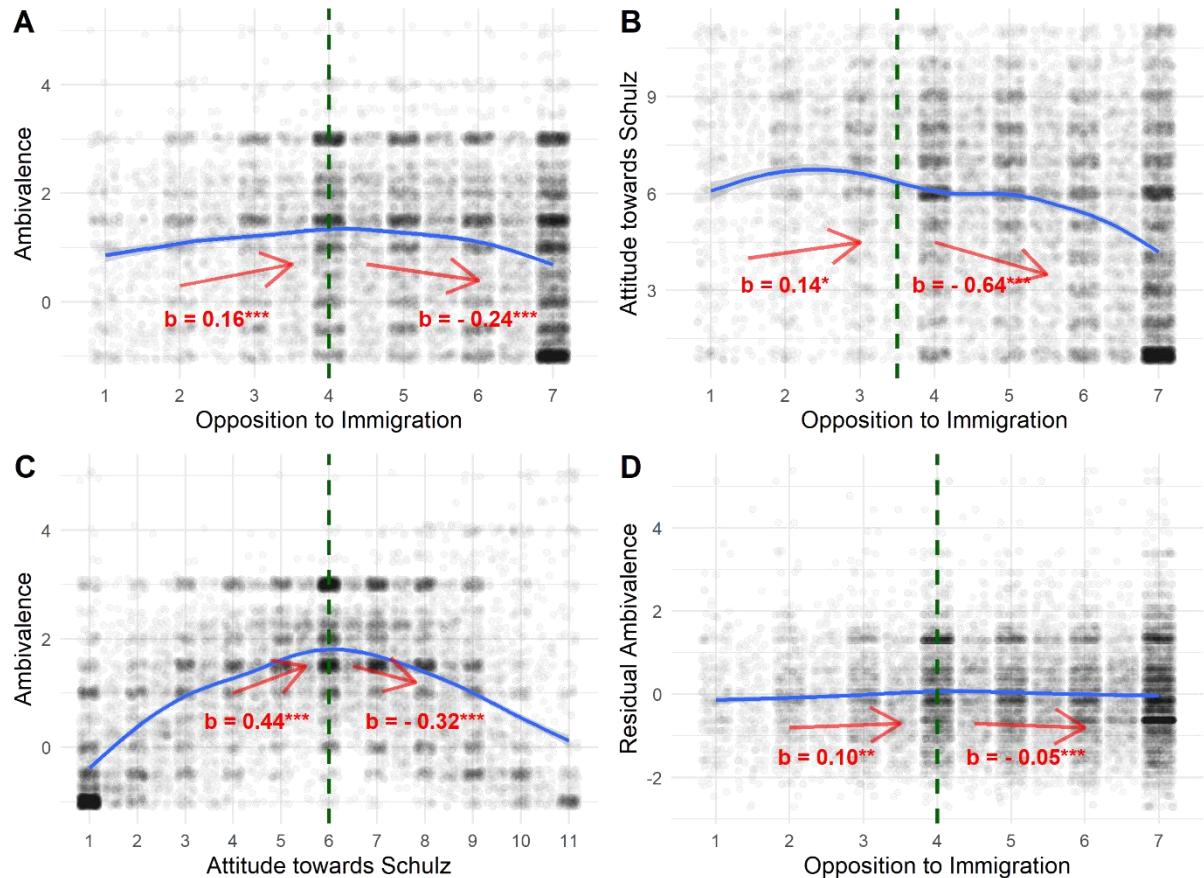


Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

1.4 Two-lines tests for the associations of social and economic ideology with ambivalence toward Schulz (Figures A3 and A4)

Figure A3

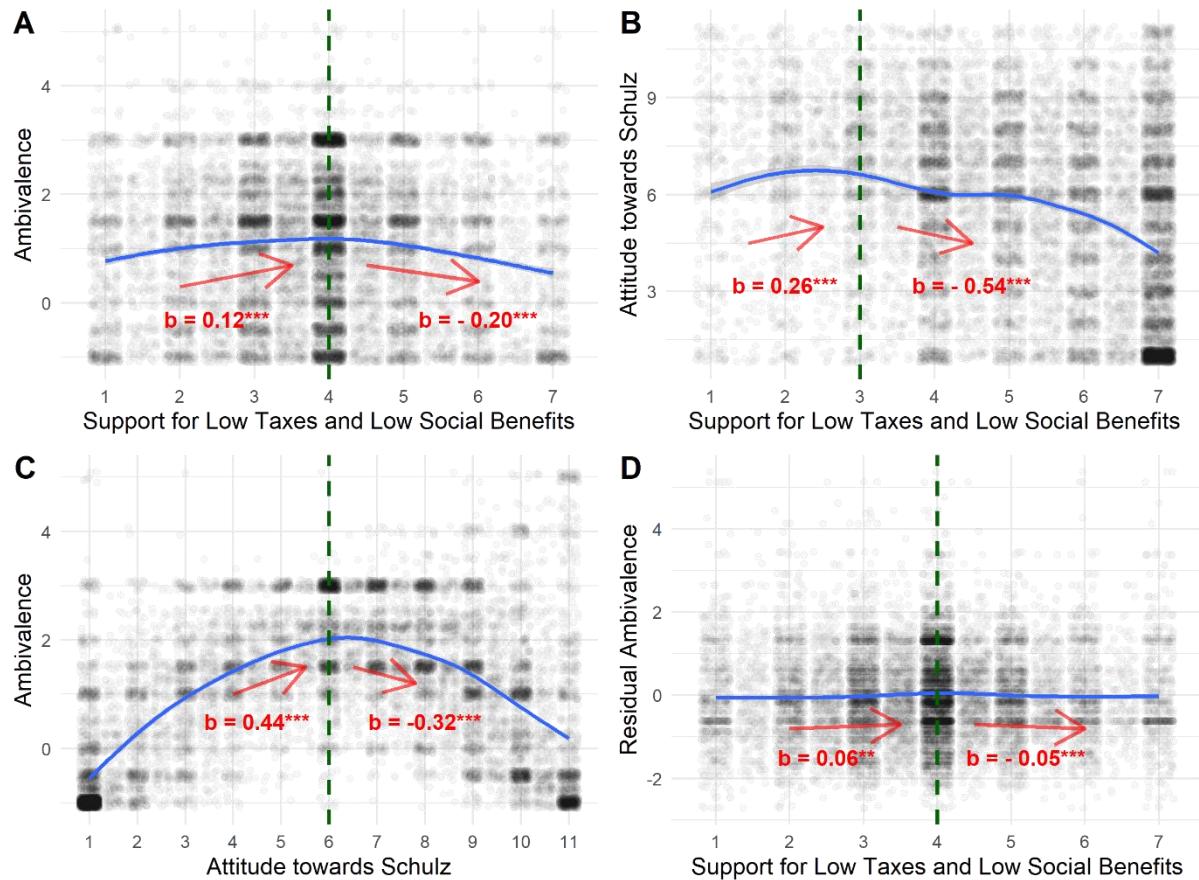
The association of affective ambivalence and the general attitude toward Martin Schulz with opposition to immigration



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A4

The association of affective ambivalence and the general attitude toward Martin Schulz with economic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

2. Supplementary Materials to Study 2

2.1 Regression Models Predicting Ambivalence from Symbolic Ideology (Tables A3 to A5)

Table A3

Regression Models Predicting Ambivalence toward Olaf Scholz from Symbolic Ideology

Predictors	Affective Ambivalence (1)		Affective Ambivalence (2)		Cognitive Ambivalence (1)		Cognitive Ambivalence (2)	
	Estimates	p	Estimates	p	Estimates	p	Estimates	p
Political Ideology	0.04	0.006	0.04	0.006	0.02	0.237	0.02	0.104
Gender (1 = female)			-0.00	0.525			0.01	0.012
Age			-0.00	<0.001			-0.00	<0.001
Education (1 = medium)			0.01	0.278			0.02	0.061
Education (1 = high)			0.02	0.115			0.02	0.034
Region (1 = Western Germany)			0.00	0.610			0.02	<0.001
Political Interest			-0.06	<0.001			-0.03	0.027
Observations	6526		6451		6472		6399	
R ² / R ² adjusted	0.001 / 0.001		0.010 / 0.009		0.000 / 0.000		0.013 / 0.011	

Note. Ambivalence scores, political ideology, and political interest were scaled from 0 to 1.

Table A4*Regression Models Predicting Ambivalence toward Armin Laschet from Symbolic Ideology*

Predictors	Affective Ambivalence (1)		Affective Ambivalence (2)		Cognitive Ambivalence (1)		Cognitive Ambivalence (2)	
	Estimates	p	Estimates	p	Estimates	p	Estimates	p
Political Ideology	0.09	<0.001	0.08	<0.001	0.10	<0.001	0.09	<0.001
Gender (1 = female)			-0.01	0.113			-0.00	0.515
Age			0.00	<0.001			0.00	<0.001
Education (1 = medium)			0.01	0.526			0.01	0.348
Education (1 = high)			0.01	0.156			0.02	0.035
Region (1 = Western Germany)			-0.01	0.263			0.00	0.479
Political Interest			-0.10	<0.001			-0.09	<0.001
Observations	6493		6418		6370		6300	
R ² / R ² adjusted	0.007 / 0.007		0.023 / 0.022		0.008 / 0.007		0.015 / 0.014	

Note. Ambivalence scores, political ideology, and political interest were scaled from 0 to 1.

Table A5

Regression Models Predicting Ambivalence toward Annalena Baerbock from Symbolic Ideology

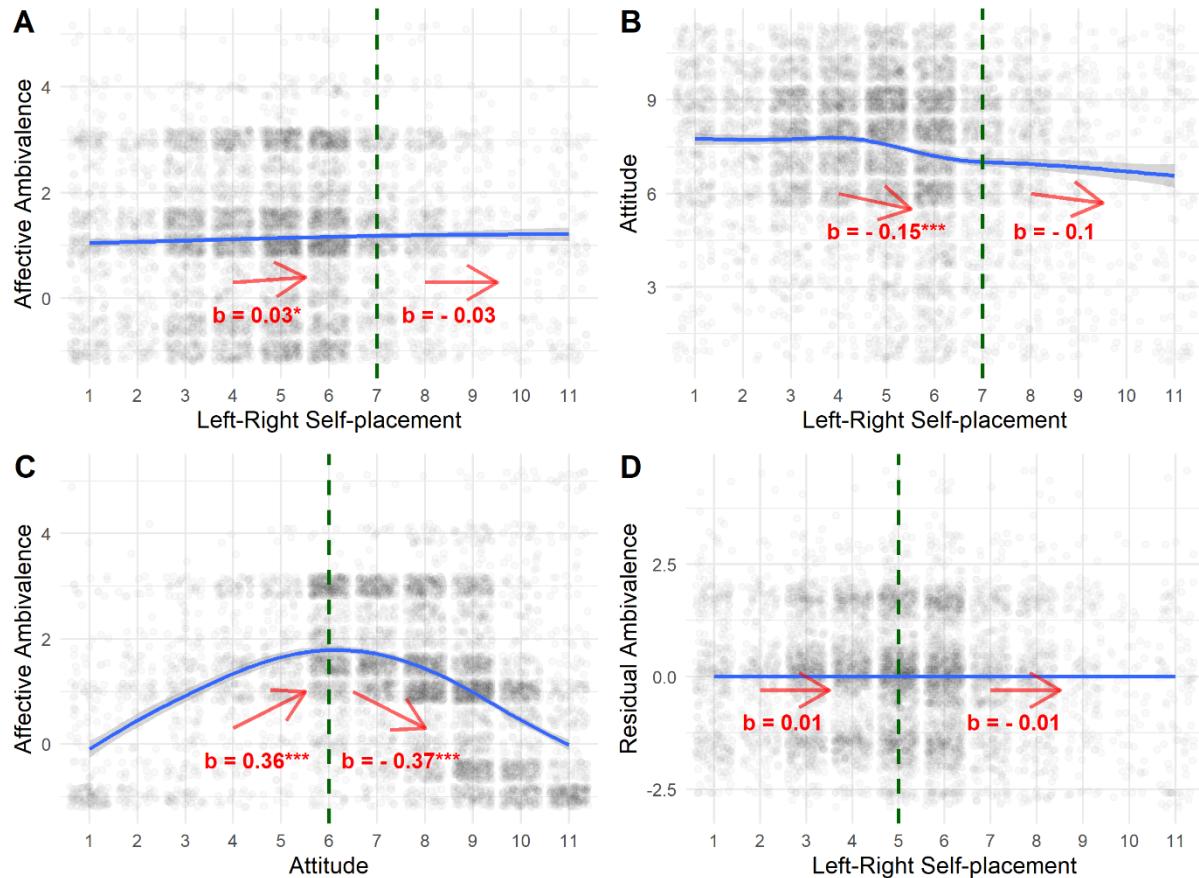
Predictors	Affective Ambivalence (1)		Affective Ambivalence (2)		Cognitive Ambivalence (1)		Cognitive Ambivalence (2)	
	Estimates	p	Estimates	p	Estimates	p	Estimates	p
Political Ideology	-0.09	<0.001	-0.10	<0.001	-0.21	<0.001	-0.21	<0.001
Gender (1 = female)			-0.00	0.502			0.02	0.014
Age			0.00	<0.001			-0.00	0.013
Education (1 = medium)			-0.01	0.329			0.00	0.867
Education (1 = high)			-0.02	0.118			0.03	0.017
Region (1 = Western Germany)			0.02	0.007			0.05	<0.001
Political Interest			-0.05	<0.001			-0.04	0.002
Observations	6528		6452		6416		6344	
R ² / R ² adjusted	0.006 / 0.006		0.014 / 0.013		0.034 / 0.033		0.045 / 0.044	

Note. Ambivalence scores, political ideology, and political interest were scaled from 0 to 1.

2.2 Two-lines tests for the associations of symbolic ideology with affective and cognitive ambivalence toward Scholz (Figures A5 and A6)

Figure A5

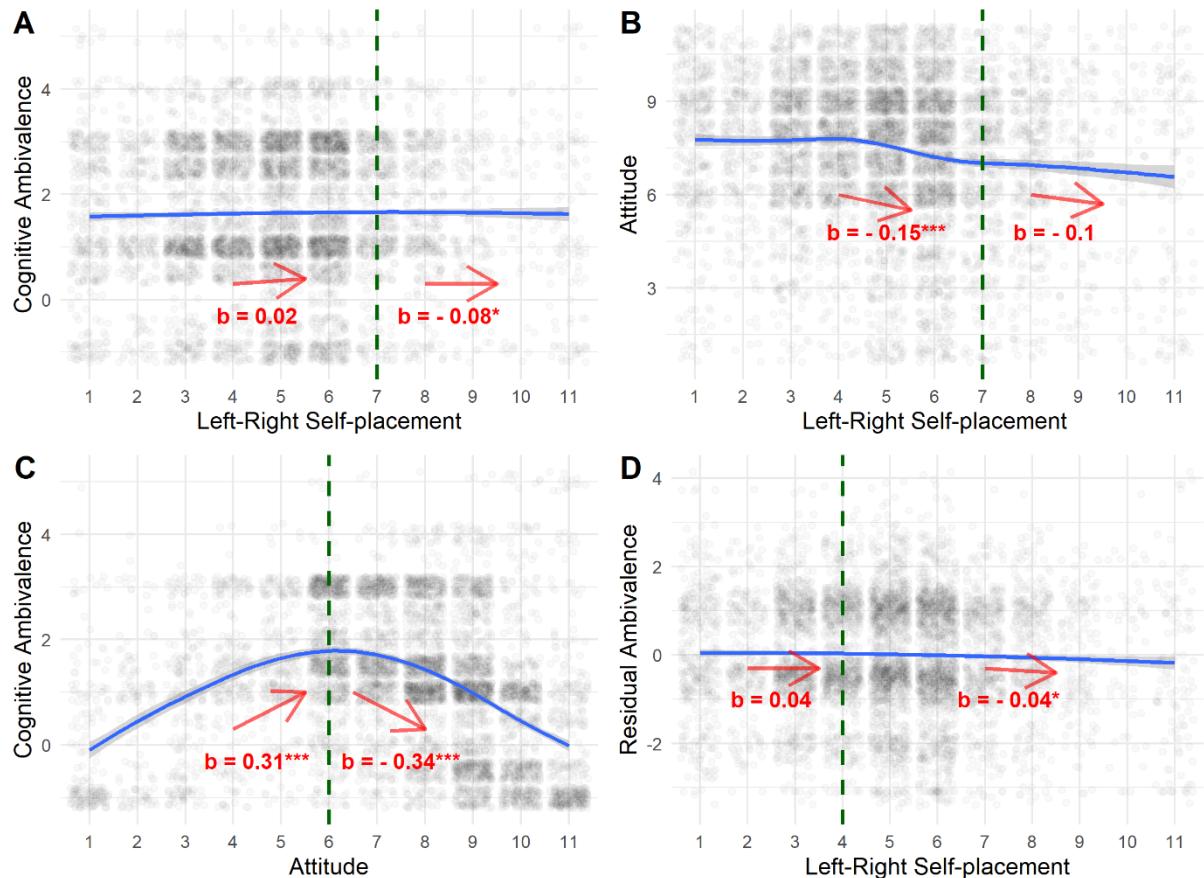
The association of affective ambivalence and the general attitude toward Olaf Scholz with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A6

The association of cognitive ambivalence and the general attitude toward Olaf Scholz with symbolic ideology

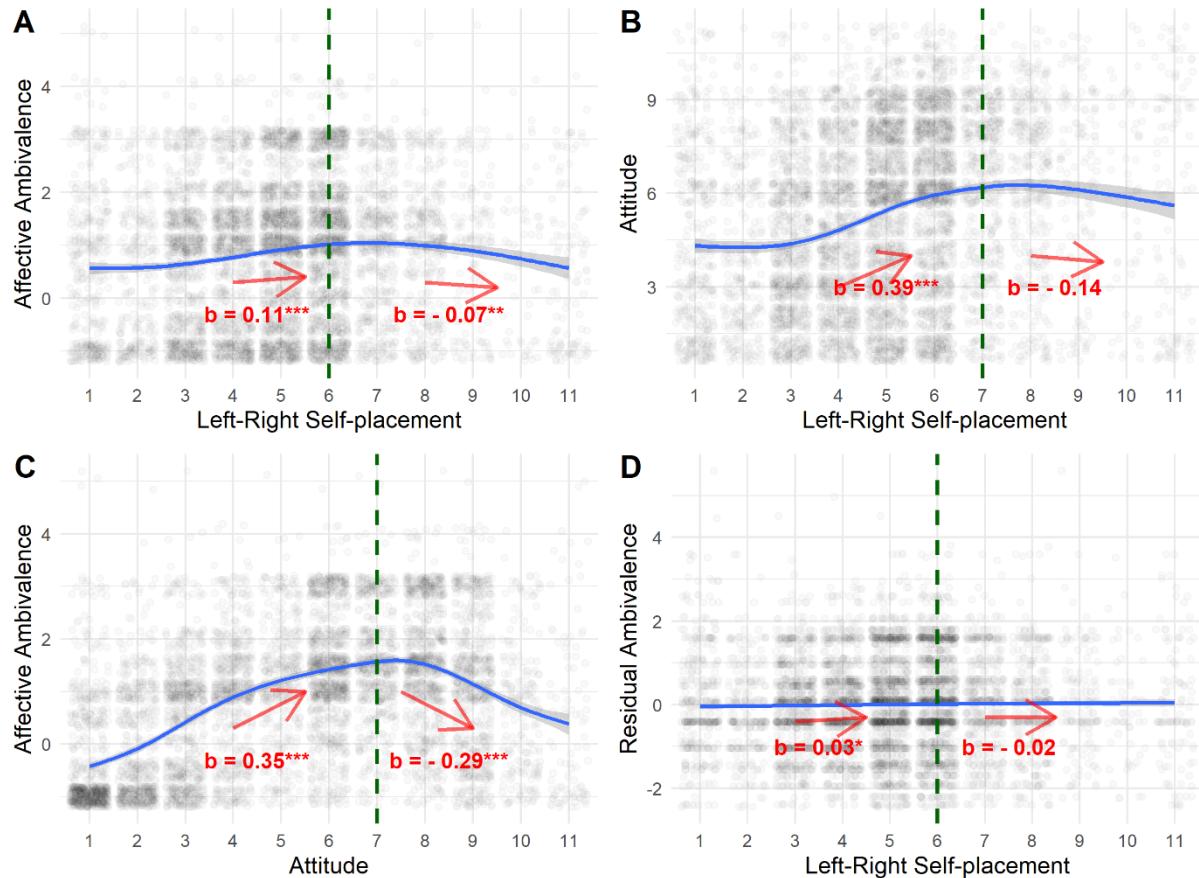


Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

2.3 Two-lines tests for the associations of symbolic ideology with affective and cognitive ambivalence toward Laschet (Figures A7 and A8)

Figure A7

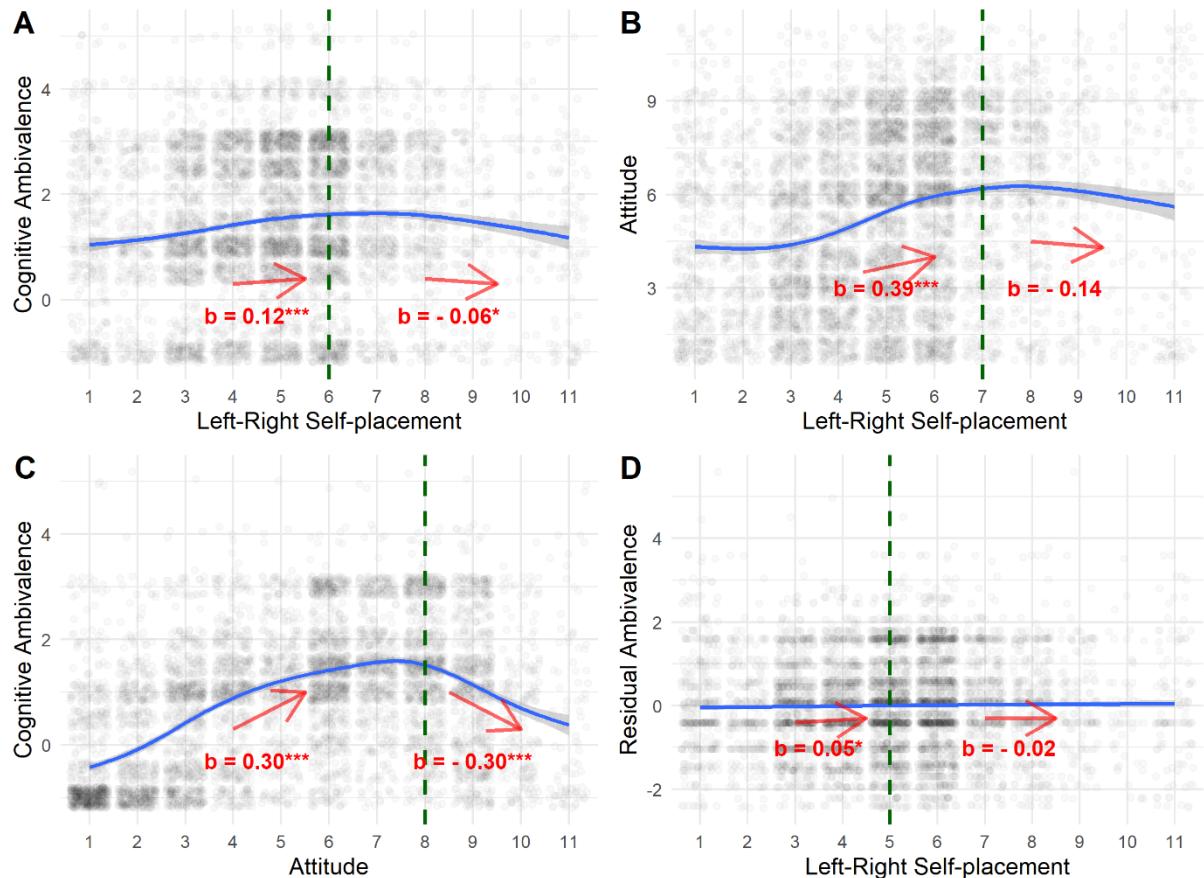
The association of affective ambivalence and the general attitude toward Armin Laschet with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A8

The association of cognitive ambivalence and the general attitude toward Armin Laschet with symbolic ideology

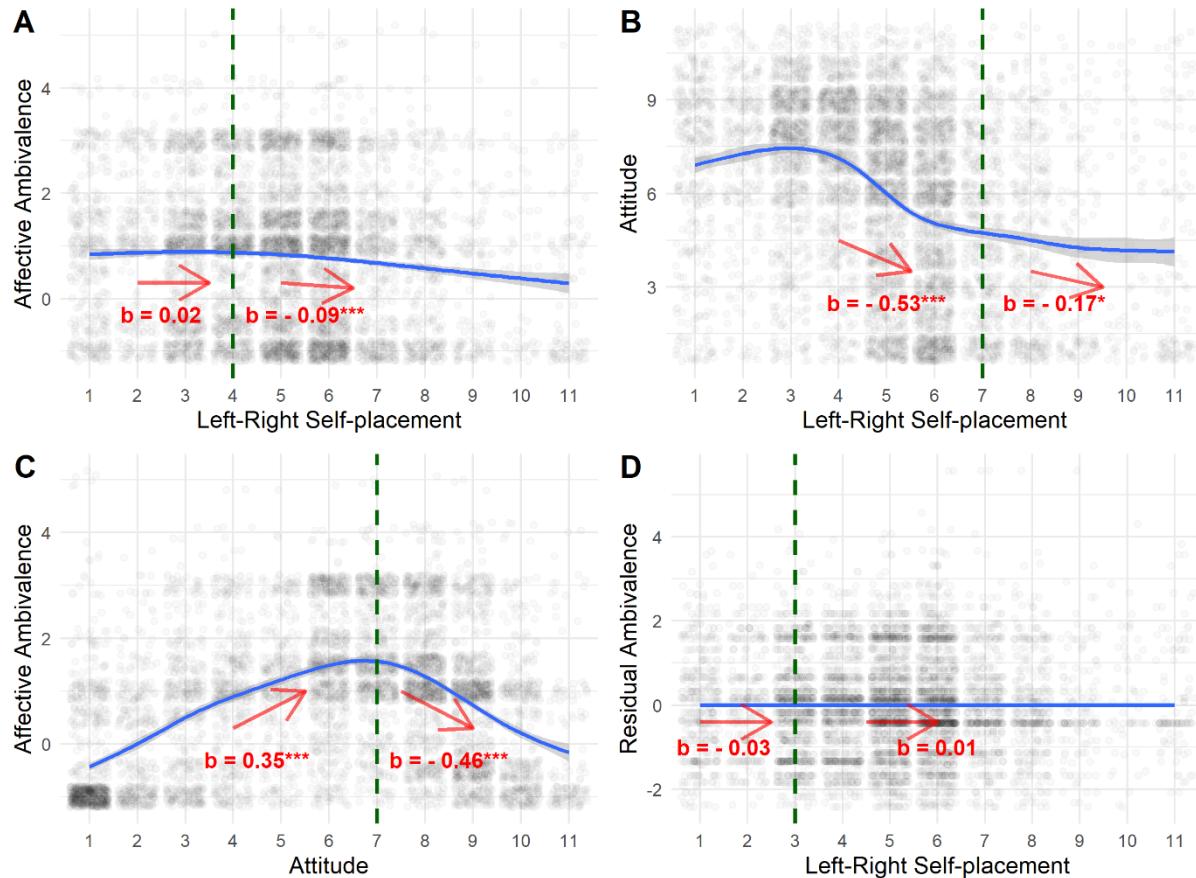


Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

2.4 Two-lines tests for the associations of symbolic ideology with affective and cognitive ambivalence toward Baerbock (Figures A9 and A10)

Figure A9

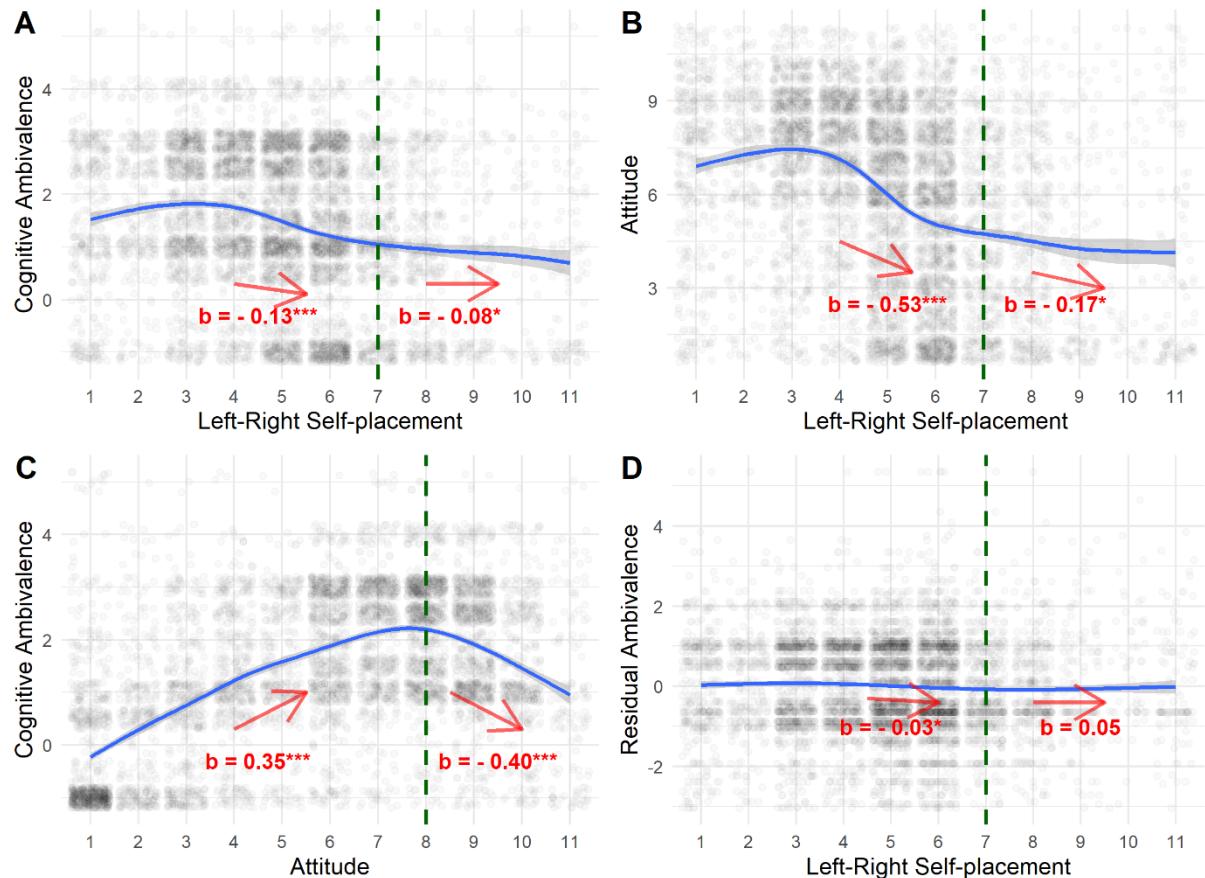
The association of affective ambivalence and the general attitude toward Annalena Baerbock with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A10

The association of cognitive ambivalence and the general attitude toward Annalena Baerbock with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

3. Supplementary Materials to Study 3

3.1 Regression Models Predicting Ambivalence from Symbolic Ideology (Table A6)

Table A6

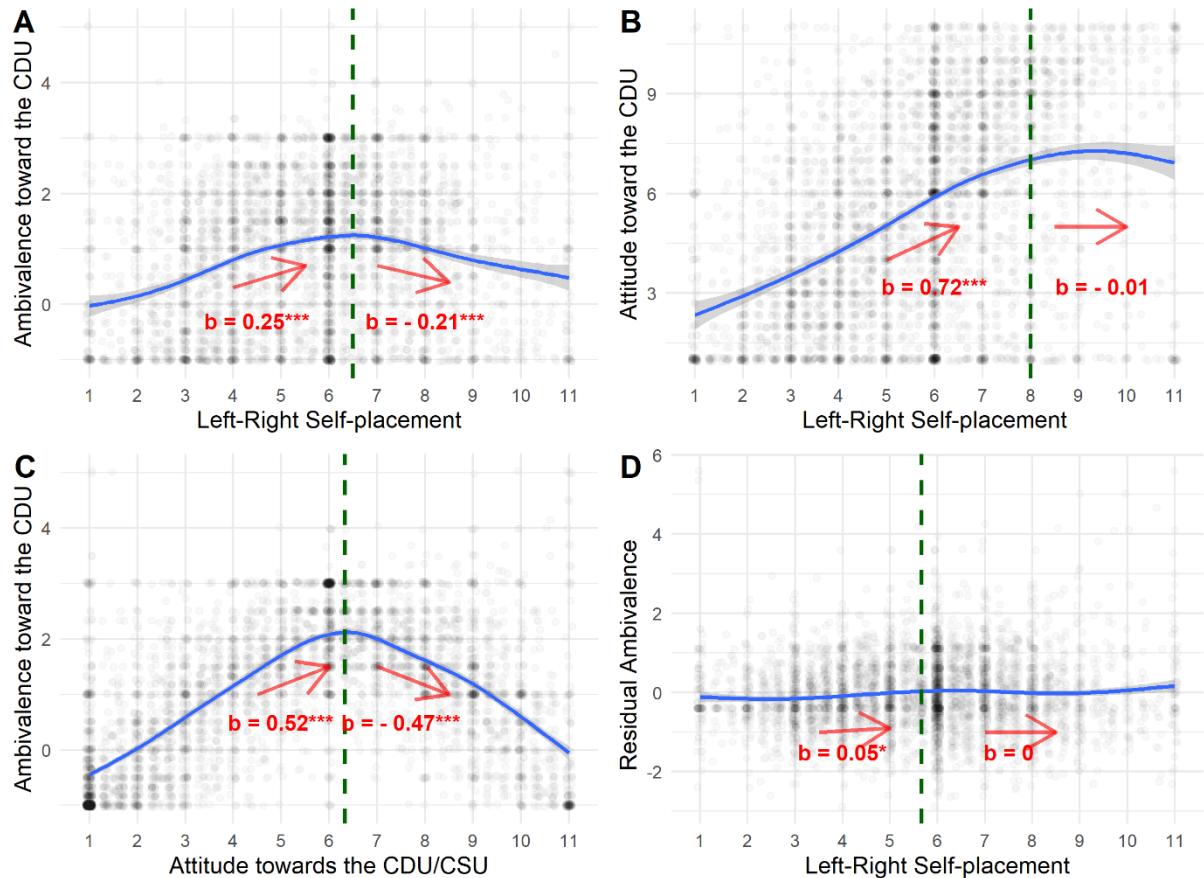
Regression Models Predicting Ambivalence toward the different political parties from Symbolic Ideology

	CDU (1)		CDU (2)		SPD (1)		SPD (2)		FDP (1)		FDP (2)		Green Party (1)		Green Party (2)		The LEFT (1)		The LEFT (2)	
Predictors	Estimate s	p	Estimate s	p	Estimate s	p	Estimate s	p	Estimate s	p	Estimate s	p	Estimate s	p	Estimate s	p	Estimate s	p	Estimate s	p
Political Ideology	0.15	<0.00 1	0.14	<0.00 1	0.04	0.00 4	0.03	0.010	0.34	<0.00 1	0.32	<0.00 1	-0.03	0.02 5	-0.04	0.004	-0.14	<0.00 1	-0.16	<0.00 1
Gender (1 = female)		0.01	0.356		0.01	0.037			0.04	<0.00 1			0.03	<0.00 1			0.03	<0.00 1		
Age		-0.00	0.017		-0.00	0.010			-0.00	<0.00 1			-0.00	0.158			-0.00	<0.00 1		
Education (1 = medium)		0.01	0.145		0.01	0.144			-0.01	0.130			-0.01	0.176			-0.01	0.075		
Education (1 = high)		0.02	0.055		0.03	<0.00 1			-0.01	0.152			-0.01	0.069			-0.04	<0.00 1		
Region (1 = East Germany)		0.03	<0.00 1		0.02	0.006			0.01	0.154			0.01	0.080			0.03	<0.00 1		
Political Interest		-0.11	<0.00 1		-0.08	<0.00 1			-0.13	<0.00 1			-0.07	<0.00 1			-0.08	<0.00 1		
Observations	4789		4788		4786		4785		4781		4780		4785		4784		4784		4783	
R ² / R ² adjusted	0.022 / 0.022		0.045 / 0.044		0.002 / 0.001		0.022 / 0.021		0.106 / 0.106		0.153 / 0.152		0.001 / 0.001		0.019 / 0.017		0.021 / 0.020		0.059 / 0.058	

3.2 Two-lines tests for the associations of symbolic ideology with affective ambivalence toward the different political parties (Figures A11 to A15)

Figure A11

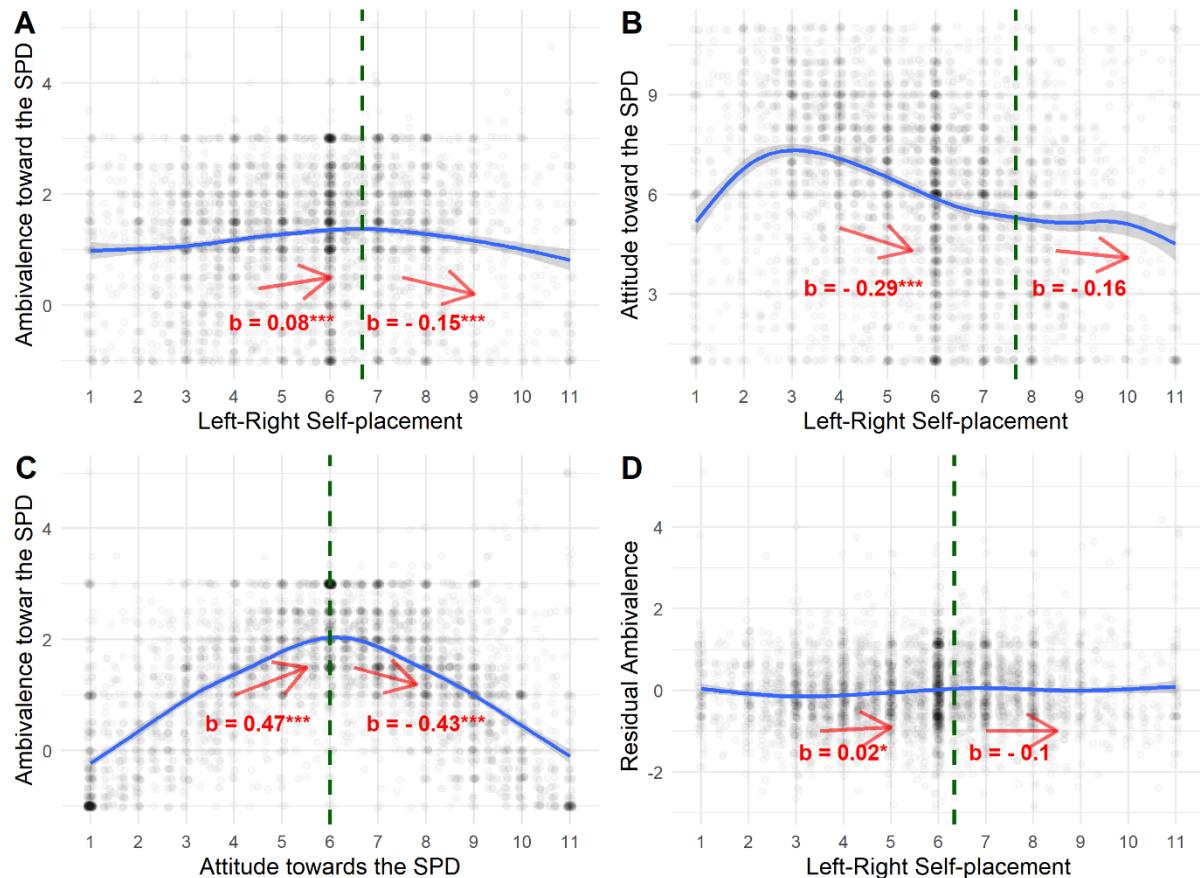
The association of affective ambivalence and the general attitude toward the CDU with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A12

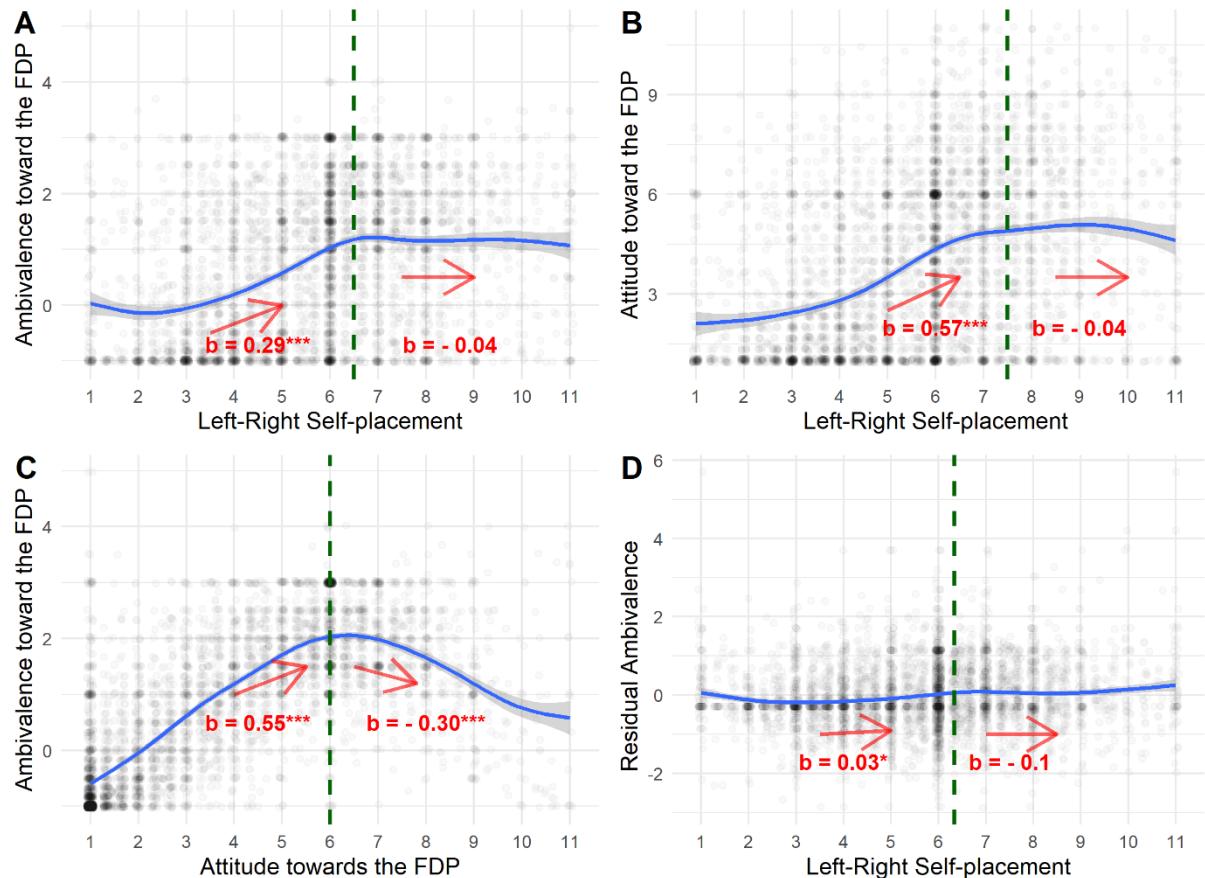
The association of affective ambivalence and the general attitude toward the SPD with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A13

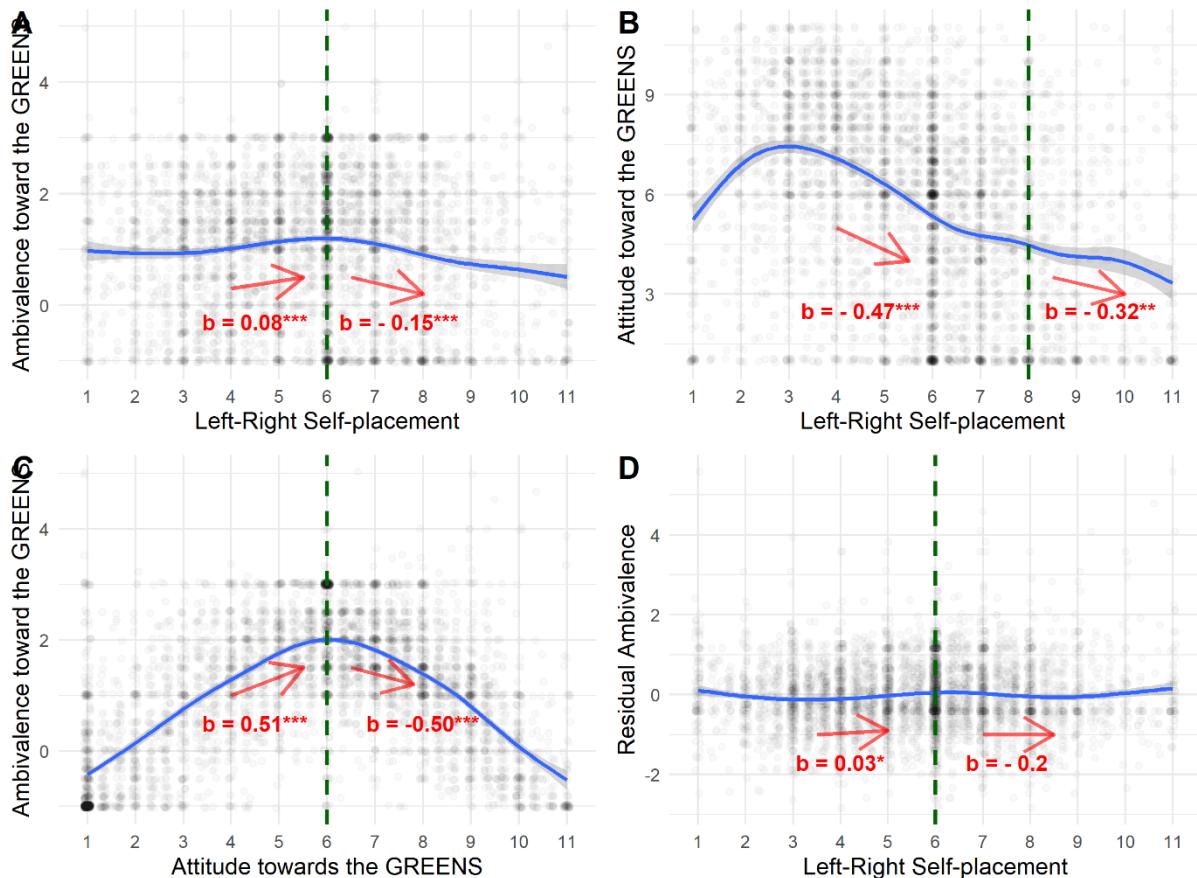
The association of affective ambivalence and the general attitude toward the FDP with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A14

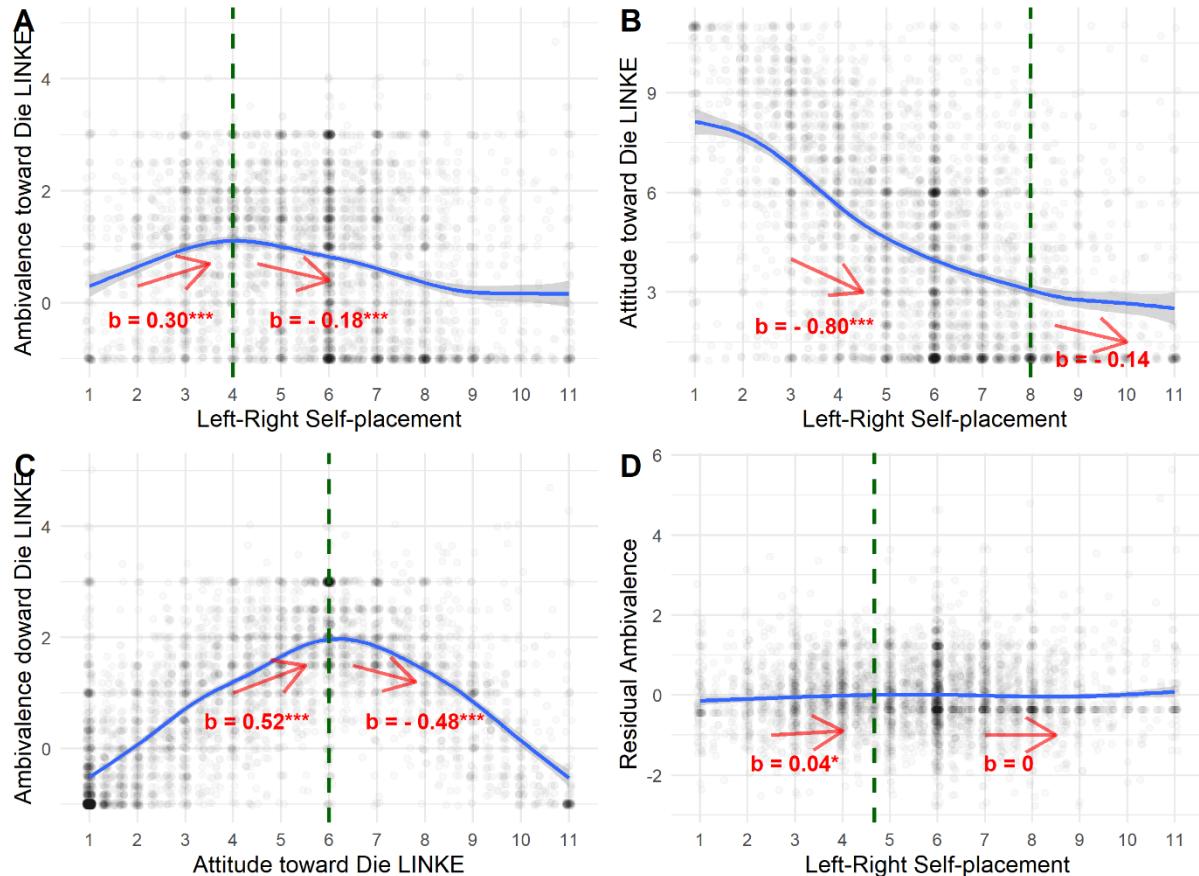
The association of affective ambivalence and the general attitude toward the GREEN party with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A15

The association of affective ambivalence and the general attitude toward Die LINKE with symbolic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

3.3 Correlations of symbolic ideology with the residual ambivalence toward political parties not explained by general attitudes (Table A7)

Table A7

Correlations of symbolic ideology with the residual ambivalence toward political parties not explained by general attitudes

Variable	M	SD	1	2	3	4	5
1. Symbolic ideology	5.61	2.12					
2. Ambivalence toward the CDU	0.00	0.95	.07** [.04, .09]				
3. Ambivalence toward the SPD	0.00	0.90	.06** [.03, .08]	.47** [.45, .49]			
4. Ambivalence toward the FDP	-0.00	0.87	.10** [.07, .13]	.50** [.47, .52]	.46** [.44, .48]		
5. Ambivalence toward the Green party	-0.00	0.89	.03* [.00, .06]	.41** [.39, .43]	.51** [.49, .53]	.48** [.46, .50]	
6. Ambivalence toward Die LINKE	-0.00	0.90	.02 [-.01, .05]	.40** [.38, .42]	.41** [.38, .43]	.44** [.41, .46]	.51** [.49, .53]

Note. Values in square brackets indicate the 95% confidence interval for each correlation. * indicates $p < .05$. ** indicates $p < .01$.

3.4 Correlations of the social and the economic ideology dimension with ambivalence (Table A8)

Table A8

Correlations of the social and the economic ideology dimension with ambivalence

Variable	M	SD	1	2	3	4	5	6	7
1. Symbolic ideology	5.61	2.12							
2. Social ideology	4.90	1.71	.33** [.30, .35]						
3. Economic ideology	3.95	1.36	.32** [.29, .34]	.23** [.20, .25]					
4. Amb. toward the CDU	0.96	1.29	.15** [.12, .18]	.04** [.01, .06]	.10** [.07, .12]				
5. Amb. toward the SPD	1.26	1.15	.04** [.01, .07]	-.02 [-.05, .01]	.03* [.00, .05]	.44** [.42, .46]			
6. Amb. toward the FDP	0.77	1.35	.33** [.30, .35]	.12** [.09, .14]	.21** [.18, .23]	.49** [.47, .51]	.42** [.40, .44]		
7. Amb. toward the Green party	1.06	1.23	-.03* [-.06, -.00]	-.03* [-.06, -.00]	-.04** [-.06, -.01]	.34** [.32, .37]	.49** [.47, .51]	.37** [.35, .40]	
8. Amb. toward Die LINKE	0.78	1.29	-.14** [-.17, -.12]	-.03* [-.06, -.01]	-.08** [-.10, -.05]	.32** [.30, .35]	.35** [.32, .37]	.24** [.22, .27]	.45** [.43, .47]

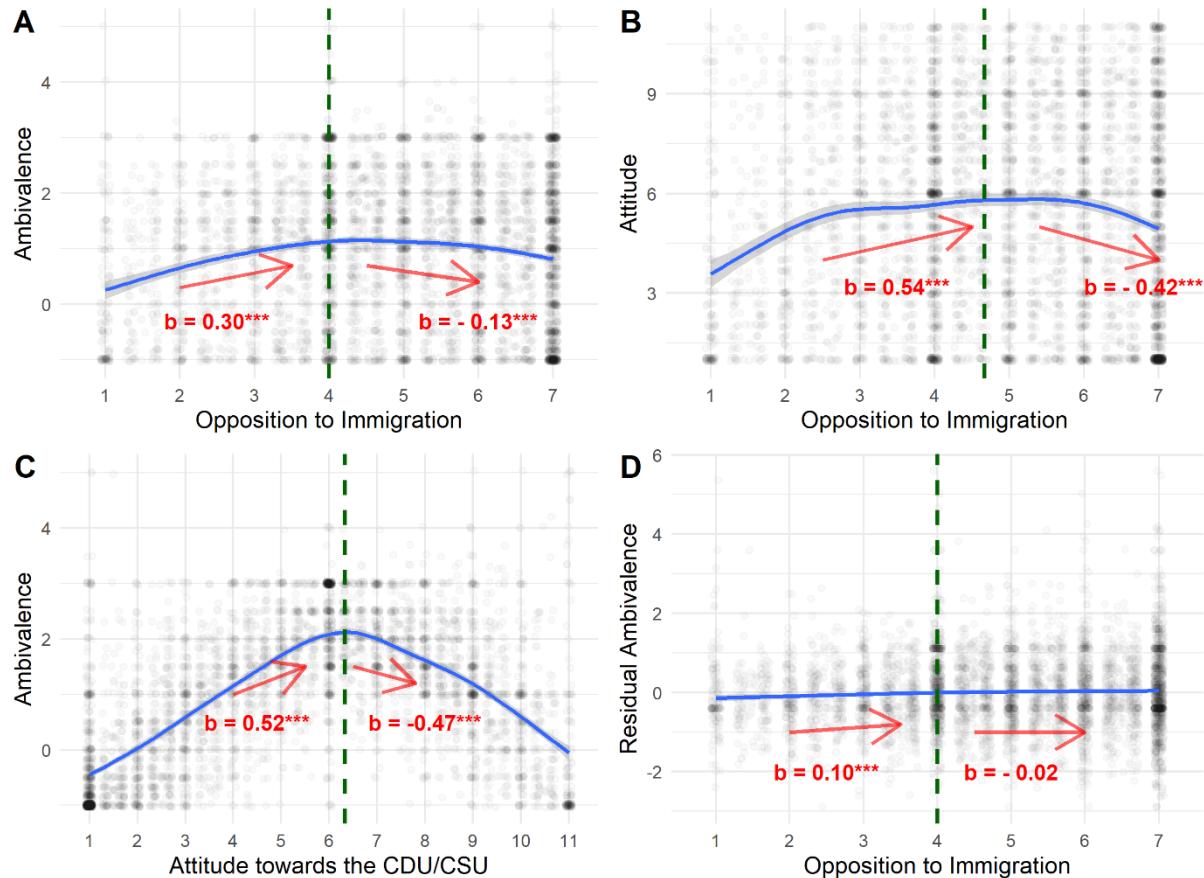
Note. Values in square brackets indicate the 95% confidence interval for each correlation. * indicates $p < .05$. ** indicates $p < .01$.

Comparing some of the correlations of Table A8 using the *cocor* package for R (Diedenhofen & Much, 2015) reveals that ambivalence toward the CDU is positively correlated more strongly with symbolic ideology than with economic ideology, $z = -2.29$, $p = .02$, which is correlated more strongly with ambivalence than social ideology, $z = -3.50$, $p < .001$. Ambivalence toward the SPD is negatively correlated with social ideology and positively correlated with symbolic and economic ideology, while the strength of the positive correlations does not differ significantly. Ambivalence toward the FDP correlates more strongly with symbolic ideology than with economic ideology, $z = -6.26$, $p < .001$, which correlates more strongly with ambivalence than social ideology, $z = -5.41$, $p < .001$. Ambivalence toward the Green party is negatively correlated with all ideology dimensions, which do not differ significantly in the size of their correlations. Ambivalence toward Die LINKE is negatively correlated with all ideology dimensions while the correlation with symbolic ideology is stronger than the correlation with economic ideology, $z = 3.38$, $p < .001$, which is stronger than the correlation with social ideology, $z = 2.50$, $p = .01$.

3.5 Two-lines tests for the associations of social and economic ideology with affective ambivalence toward the political parties (Figures A11 to A15)

Figure A16

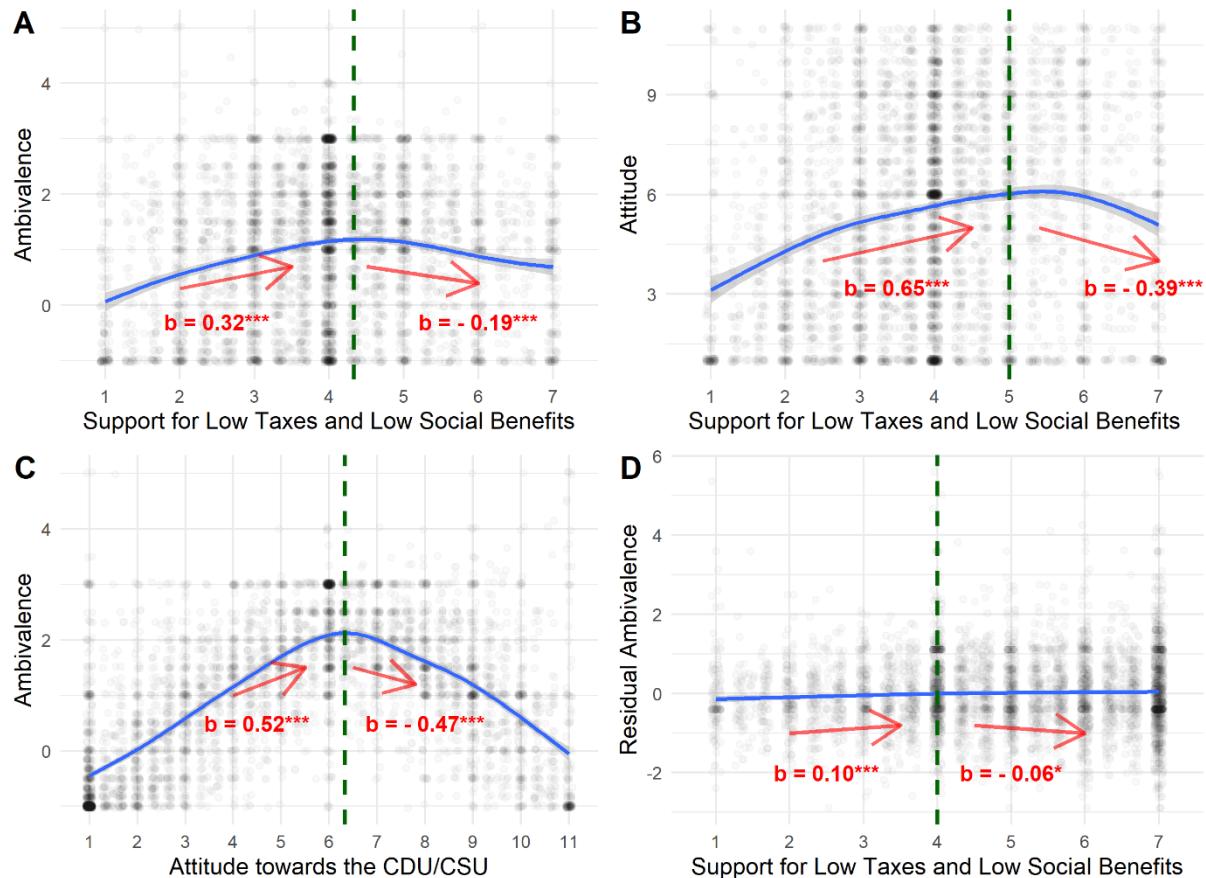
The association of affective ambivalence and the general attitude toward the CDU with social ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A17

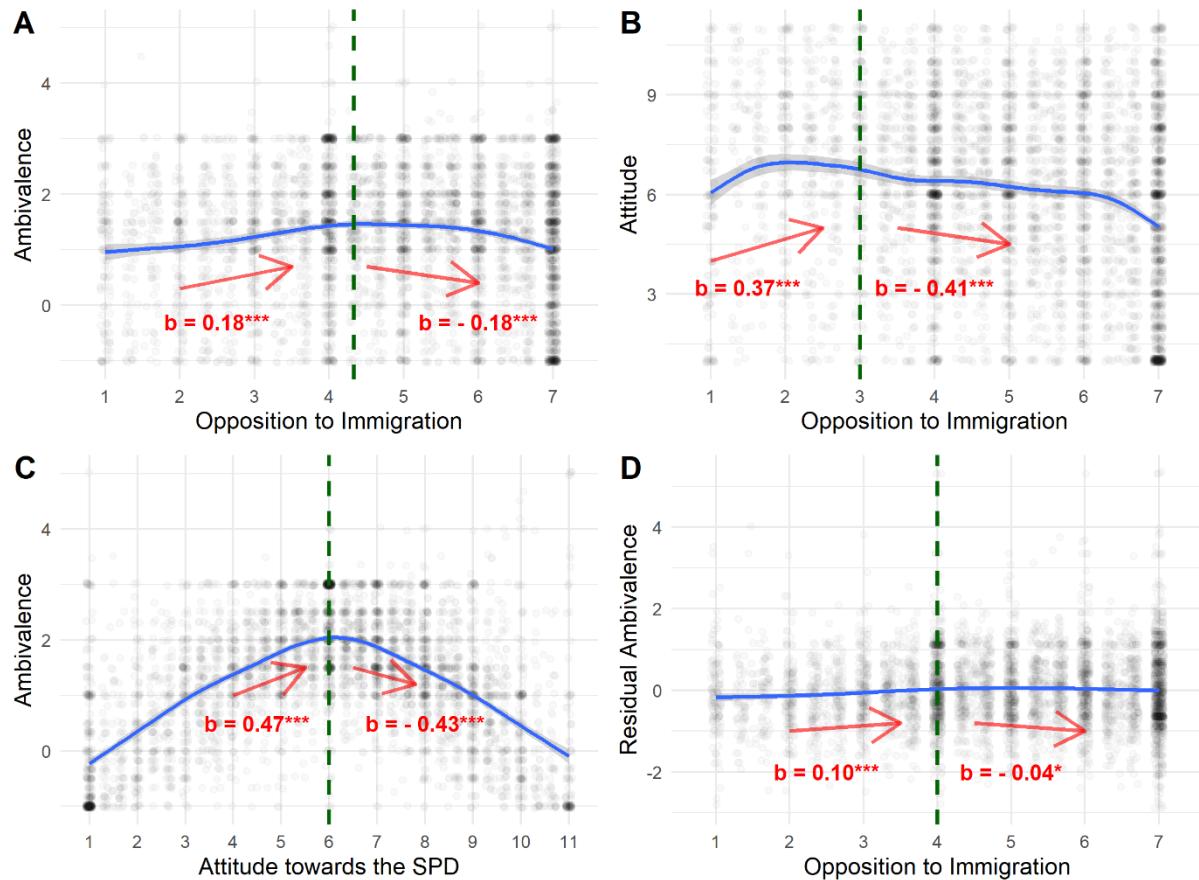
The association of affective ambivalence and the general attitude toward the CDU with economic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A18

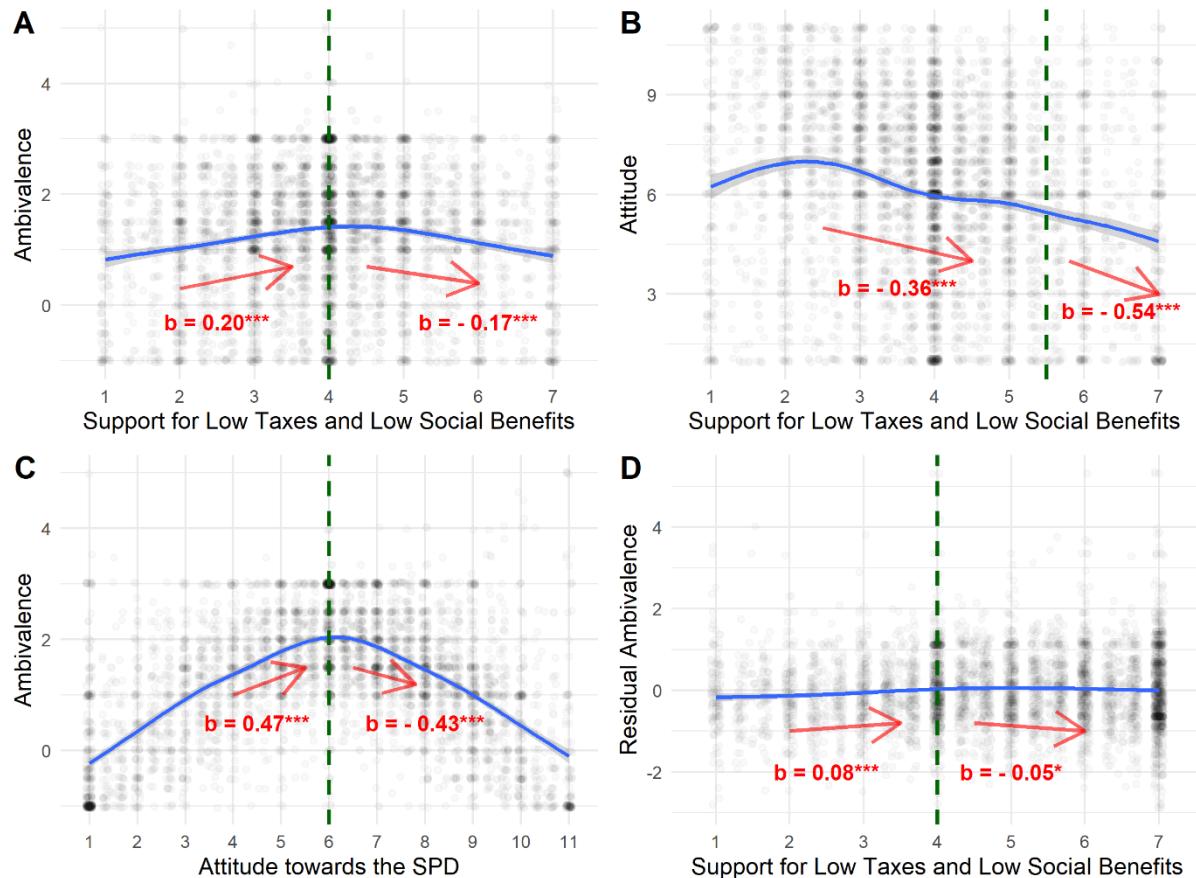
The association of affective ambivalence and the general attitude toward the SPD with social ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A19

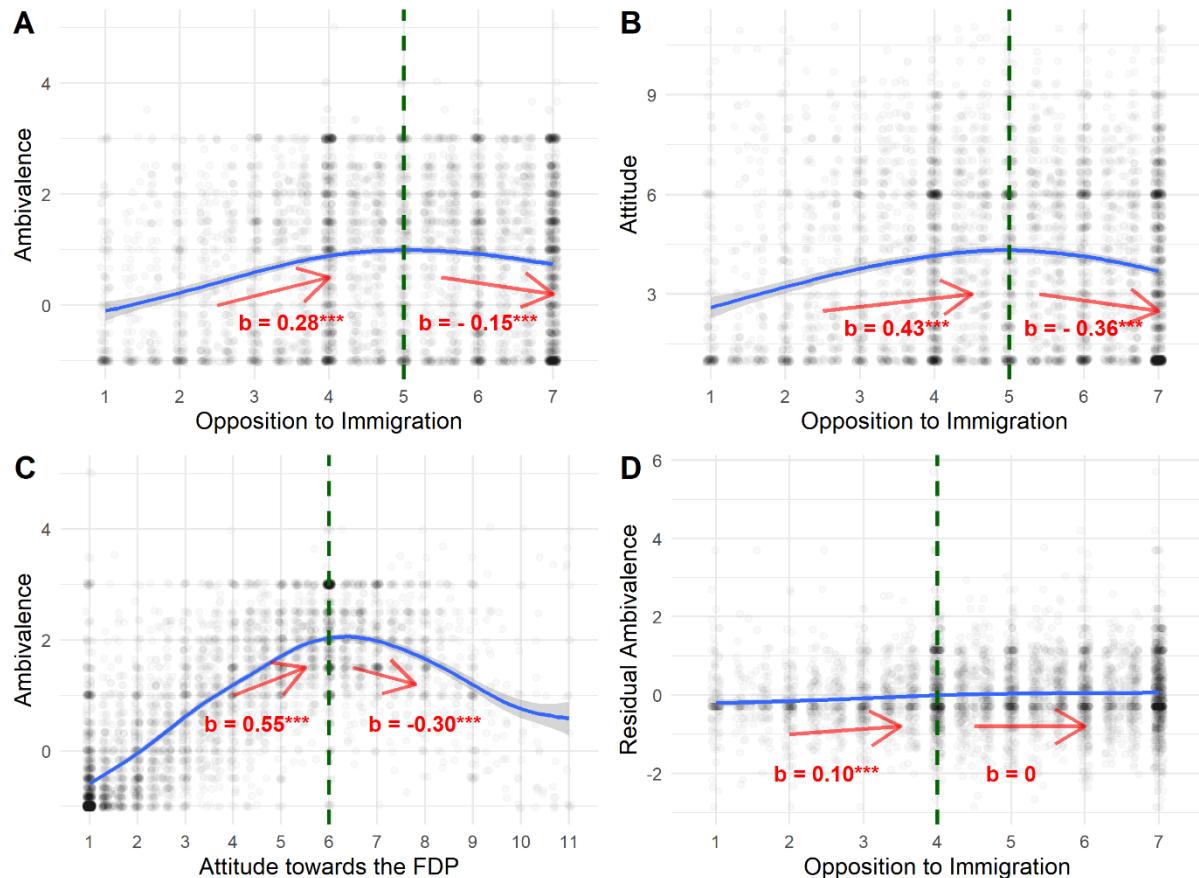
The association of affective ambivalence and the general attitude toward the SPD with economic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A20

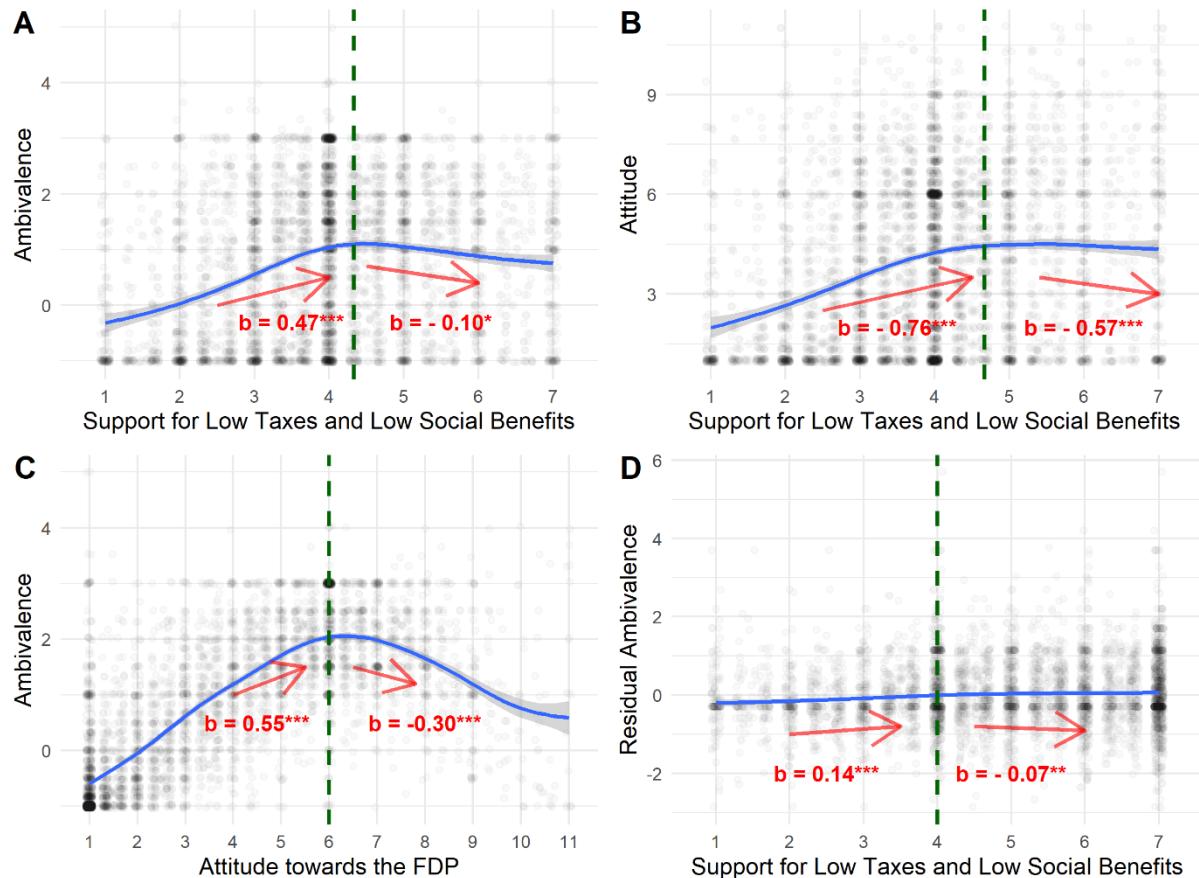
The association of affective ambivalence and the general attitude toward the FDP with social ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A21

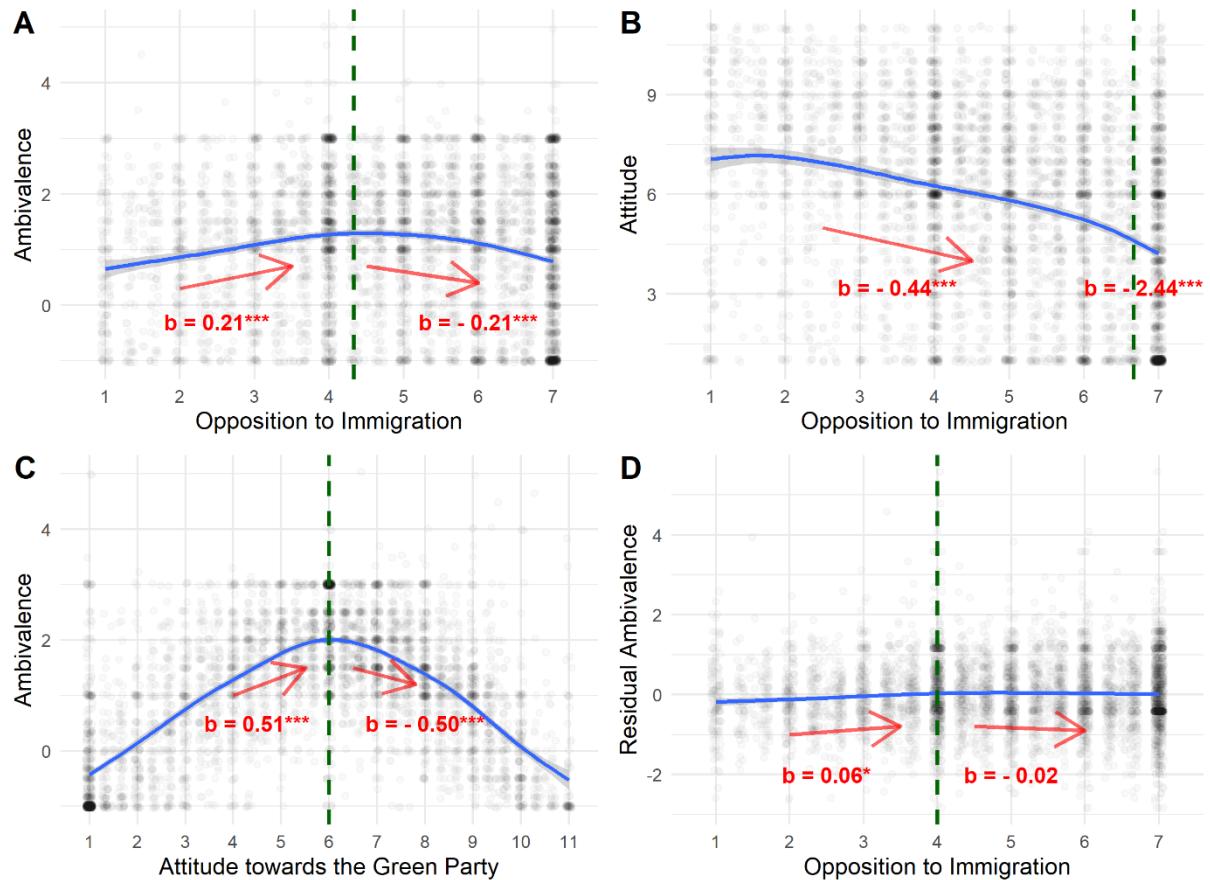
The association of affective ambivalence and the general attitude toward the FDP with economic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A22

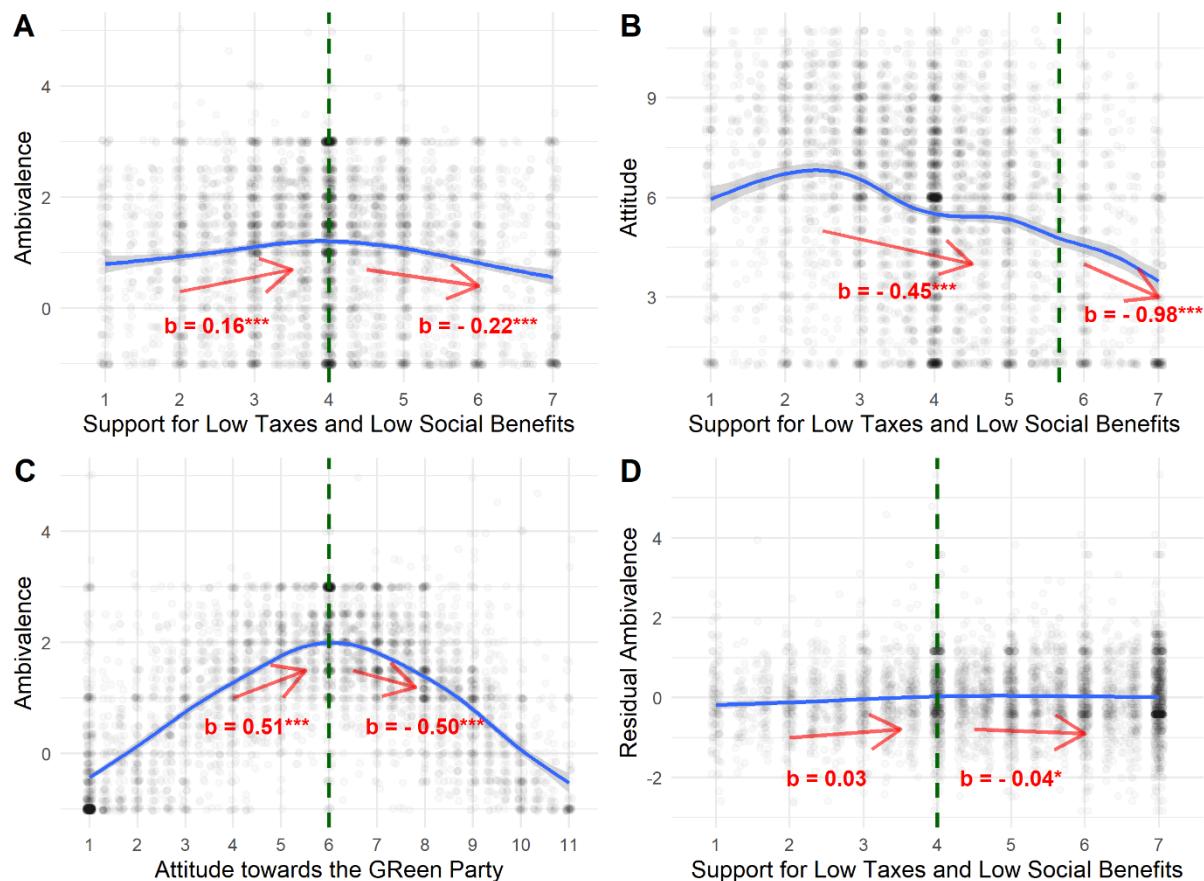
The association of affective ambivalence and the general attitude toward the GREEN party with social ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A23

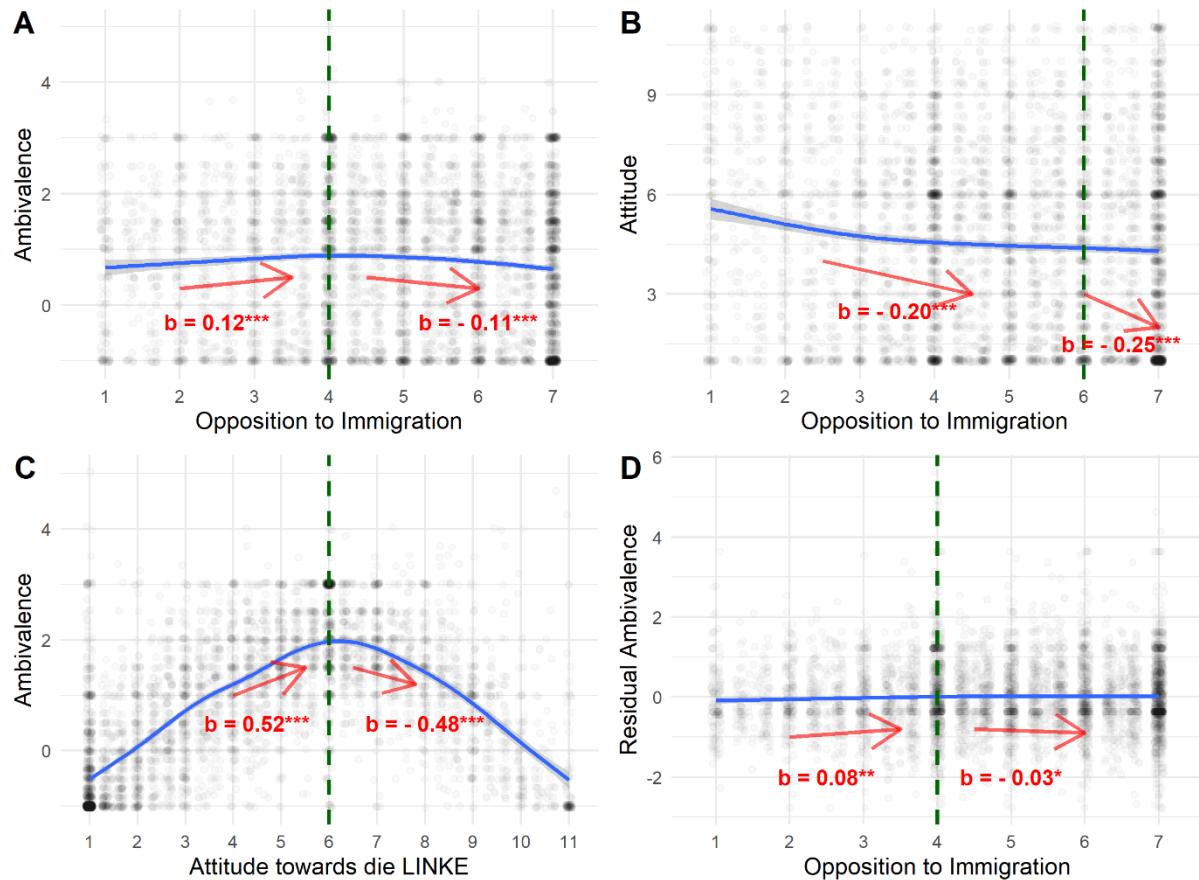
The association of affective ambivalence and the general attitude toward the GREEN party with economic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A24

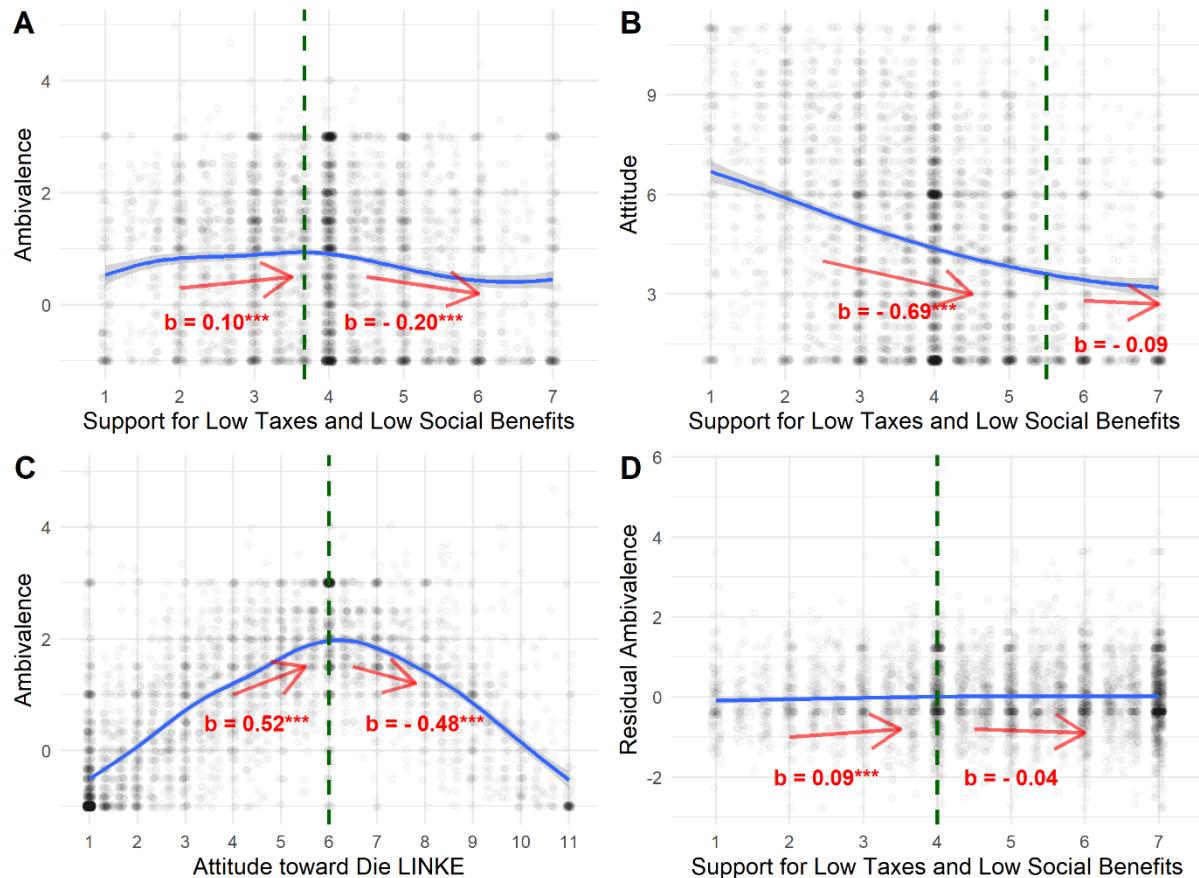
The association of affective ambivalence and the general attitude toward Die LINKE with social ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

Figure A25

The association of affective ambivalence and the general attitude toward Die LINKE with economic ideology



Note. The dashed vertical line represents the break point and the arrows and regression weights, refer to the regression lines below and above the break point of a two-lines test according to the algorithm developed by Simonsohn (2018). *** indicates $p < .0001$, ** indicates $p < .001$, * indicates $p < .05$.

4. References

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Mannheim, November 21, 2022

Dear Dr. Jonason,

Dear members of the Editorial Board,

I am submitting a research article entitled “Political Ideology and Attitudinal Ambivalence: Investigating the Role of Ideological Extremity” for consideration as a publication in *Personality and Individual Differences*. This article builds on the findings of three articles that have previously investigated the association of individual differences in political ideology with attitudinal ambivalence, of which one was published in *Personality and Individual Differences* (Sargent & Newman, 2021, <https://doi.org/10.1016/j.paid.2020.109996>). Interestingly, the three extant articles on this topic yielded inconsistent findings, which makes this topic a very interesting one. I hope you agree that this research yielded interesting findings that are of interest to the readership of *Personality and Individual Differences* and that the article makes a substantial contribution to research on the association of individual differences in ideological orientations with styles of information processing and attitude structure.

This research has not been previously published and is not currently under consideration by another journal. Along with the article, I am submitting a comprehensive Online Appendix. The data used is openly available for scientific research and the code of the analyses is made available on a permanent repository specified within the article.

I look forward to hearing from you.

Sincerely,

Axel M. Burger