

Investigating the origins of political views: biases in explanation predict conservative attitudes in children and adults

Larisa J. Hussak¹ | Andrei Cimpian²

¹Department of Psychology, University of Illinois, Champaign, Illinois, USA

²Department of Psychology, New York University, New York, USA

Correspondence

Larisa J. Hussak, Department of Psychology, University of Illinois, 603 E. Daniel St., Champaign, IL 81820, USA.

Email: hussak2@illinois.edu

Andrei Cimpian, Department of Psychology, New York University, 6 Washington Place, New York, NY 10003, USA.

Email: andrei.cimpian@nyu.edu

Abstract

We tested the hypothesis that political attitudes are influenced by an information-processing factor – namely, a bias in the content of everyday explanations. Because many societal phenomena are enormously complex, people’s understanding of them often relies on heuristic shortcuts. For instance, when generating explanations for such phenomena (e.g., why does this group have low status?), people often rely on facts that they can retrieve easily from memory – facts that are skewed toward inherent or intrinsic features (e.g., this group is unintelligent). We hypothesized that this bias in the content of heuristic explanations leads to a tendency to (1) view socioeconomic stratification as acceptable and (2) prefer current societal arrangements to alternative ones, two hallmarks of conservative ideology. Moreover, since the inherence bias in explanation is present across development, we expected it to shape children’s proto-political judgments as well. Three studies with adults and 4- to 8-year-old children ($N = 784$) provided support for these predictions: Not only did individual differences in reliance on inherent explanations uniquely predict endorsement of conservative views (particularly the stratification-supporting component; Study 1), but manipulations of this explanatory bias also had downstream consequences for political attitudes in both children and adults (Studies 2 and 3). This work contributes to our understanding of the origins of political attitudes.

RESEARCH HIGHLIGHTS

- We hypothesized that an early-emerging explanatory heuristic influences the formation of political attitudes, promoting (1) the view that socioeconomic stratification is acceptable and (2) a preference for current societal arrangements over alternative ones.
- Prior work has suggested that, from a young age, people often explain what they observe heuristically, in terms of easily accessible inherent or intrinsic facts (e.g., this group is poor because they’re unintelligent).
- Correlational and experimental evidence across three studies suggested a unique link between reliance on this inherence heuristic in explanation and conservative (stratification- and, to some extent, tradition-supporting) attitudes.
- These studies contribute to theories on the role of information-processing constraints in the emergence of political attitudes.

1 | INTRODUCTION

In his farewell presidential address, George Washington cautioned the public against the burgeoning two-party system that was beginning to dominate American politics, arguing that such a system ‘... agitates the Community with ill-founded jealousies and false alarms [and] kindles the animosity of one part against another’ (Washington, 1796). Over 200 years later, Washington’s warning seems especially relevant, as political polarization and inter-party animosity has reached an extreme not seen in the past two decades (Pew Research Center, 2014). This increasing partisanship, as well as the prominent role that politics appears to play in the lives of everyday Americans, has spurred a growing body of research on the psychological processes that underlie political ideology. In particular, a number of potential mechanisms have been proposed to explain the diverging ideologies of liberalism and conservatism (e.g., Fraley, Griffin, Belsky, & Roisman, 2012;

Graham, Haidt, & Nosek, 2009; Jost, Glaser, Kruglanski, & Sulloway, 2003). Conservative ideology, especially, has been the focus of much investigation (e.g., Eidelman, Crandall, Goodman, & Blanchard, 2012; Haidt & Graham, 2007; Jost et al., 2003; Stankov, 2009), and research on the correlates, antecedents, and consequences of conservatism makes up a significant portion of the political psychology literature. Here, we add to this rich body of work by taking an approach rarely employed in political research. That is, we adopt a cognitive developmental perspective to explore how early-emerging systematic differences in how people explain their surroundings uniquely predict their endorsement of political ideologies. Before describing and testing this new approach, we briefly summarize past research on the origins of political conservatism.

1.1 | Psychological underpinnings of political conservatism

A number of theoretical accounts describe the psychological experience of political conservatism.¹ Although conservatism is a multifaceted construct, previous investigations have tended to focus on two central tenets of classical conservatism: acceptance of socioeconomic stratification and adherence to tradition (e.g., Burke, 1790).² These ideals reflect the beliefs that hierarchy is an acceptable, and even normative, component of society, and that political or social change should take place in a slow, deliberate manner. The goal of the present studies is to explore the psychological processes involved in adopting hierarchy- and tradition-supporting beliefs, as well as how these processes manifest across development.

Without a doubt, an important means by which people arrive at certain political convictions (be they conservative or liberal) is through careful consideration of the issues involved. This is not the whole story, however. Social and political psychologists have identified a broad spectrum of other, less-explicit processes that also shape one's political orientation. For instance, some have suggested that the value assigned to certain intuitive moral principles or 'foundations', such as ingroup/loyalty vs. fairness/reciprocity, leads people to favor conservative vs. liberal positions, respectively (e.g., Graham et al., 2009; Haidt & Graham, 2007; Van Leeuwen & Park, 2009; but see Schein & Gray, 2015, for a different perspective). To illustrate, conservatives may be more likely to support laws criminalizing flag burning because this act is inconsistent with the value they place on ingroup cohesion. Thus, according to this perspective, people align with certain political platforms in part to the extent that these platforms are consistent with their intuitive moral priorities.

An alternative account of conservatism proposes that right-leaning ideology is an instance of motivated social cognition (e.g., Janoff-Bulman, 2009; Jost & Amodio, 2012; Jost et al., 2003; Matthews, Levin, & Sidanius, 2009; Skitka, Mullen, Griffin, Hutchinson, & Chamberlin, 2002). That is, people endorse conservative ideologies as a result of a drive to satisfy psychological motives (e.g., epistemic motives to avoid uncertainty, existential motives to minimize fear; Jost et al., 2003). For example, some people are higher than others in the need to maintain order and avoid uncertainty, both of which can be satisfied by adopting

core conservative tenets: As all societies contain at least some degree of social stratification, adopting a belief that traditional hierarchical structures are acceptable provides an easy means of satisfying a need for predictability and stability. Thus, the motivated account of conservatism proposes that the adoption of conservative political beliefs is driven by, and ultimately satisfies, psychological needs.

A third perspective on these issues has suggested that information-processing factors may also influence political attitudes (e.g., Deary, Batty, & Gale, 2008; Eidelman et al., 2012; Heaven, Ciarrochi, & Leeson, 2011; Hodson & Busseri, 2012; Onraet et al., 2015; Oskarsson et al., 2015; Stankov, 2009; Wright & Baril, 2011; Zucker & Weiner, 1993). For instance, going along with existing, familiar sociopolitical arrangements is cognitively easier and thus more likely to occur when one is unable or unwilling to expend the effort needed to critically evaluate these arrangements (Eidelman, Crandall, & Pattershall, 2009; Eidelman et al., 2012; Hussak & Cimpian, 2015; Laurin, Kay, Proudfoot, & Fitzsimons, 2013). Thus, low-effort thought may promote conservative, status-quo-maintaining (vs. -challenging) political views. More generally, this perspective suggests that sociopolitical attitudes are influenced by the basic information-processing limitations and preferences that characterize how people reason about the world. We adopt this theoretical perspective here as well, proposing a new information-processing route to political conservatism – one that is shaped by the cognitive machinery people use to explain what they observe around them. We suggest that many everyday explanations are generated via a low-effort heuristic process (Cimpian & Salomon, 2014a, 2014b) that skews the content of people's political beliefs toward conservatism. In addition, because heuristic explanations of social phenomena are common even within the first several years of life (e.g., Cimpian & Steinberg, 2014; Tworek & Cimpian, 2016), an intriguing corollary of our proposal is that politically relevant beliefs begin to form well before adulthood. Thus, the present research identifies an important pathway by which information-processing constraints influence sociopolitical attitudes, and in doing so also provides new insights into the developmental origins of political behavior.

1.2 | Explanation and conservatism

People are curious about why things are as they are; even young children are motivated to make sense of the world around them (e.g., Kidd & Hayden, 2015). One of the cognitive tools used, across development, to accomplish this goal is *explanation*, which we define here as a judgment or inference produced in answer to an (often implicit or unvoiced) 'why?' question (e.g., Carey, 1985; Gopnik, 1998; Lombrozo, 2012; Wellman, 2011).

To help us make sense of our experiences, explanations need to be generated quickly, in the moment. This poses a challenge, however, because there are several resource-intensive operations that need to be performed while constructing an explanation (e.g., retrieving relevant factors from long-term memory, weighing these factors against one another in working memory, evaluating the plausibility of the selected answer). Due to these complexities, the explanations generated in everyday life often take shortcuts – for example, by relying on the



first thing that comes to mind rather than performing an exhaustive memory search (Cimpian, 2015; Cimpian & Salomon, 2014a, 2014b; Hussak & Cimpian, 2014). This heuristic reliance on easily accessible information comes at a cost, though, insofar as it gives rise to a bias in the content of the explanations generated: When memory is queried about a certain entity, the information that's most easily accessible is often *inherent* information (Lewis, 1983; Weatherson & Marshall, 2014) – that is, information about the entity itself rather than its context, history, or relations with other entities (e.g., Higgins, 1996; Hussak & Cimpian, 2014; McRae, Cree, Seidenberg, & McNorgan, 2005). As a result, people have a tendency to explain events and patterns in the world (e.g., why engagement rings typically have diamonds) as being due to the inherent features of the entities involved (e.g., diamonds are beautiful), overlooking non-inherent factors that are available in memory but less likely to be retrieved in the moment (e.g., marketing campaigns; Tworek & Cimpian, 2016). A similar heuristic process was previously proposed as an account of people's tendency to overattribute behavior to internal traits (i.e., the correspondence bias; Gilbert & Malone, 1995; Trope & Gaunt, 2007). In a sense, the proposal of an *inherence heuristic* in explanation (Cimpian & Salomon, 2014a, 2014b) suggests that this tendency to rely on easily accessible inherent factors extends beyond people's explanations of behavior, characterizing instead how they make sense of a wide range of observations.³

Relying on an inherence heuristic when explaining has important consequences for people's reasoning about society. Most relevant to our argument here, explaining via inherent features tends to imbue the explananda (i.e., the observations being explained) with a degree of naturalness and meaningfulness. If patterns are thought to arise because of the inherent properties of their constituents, then it also appears natural, and even good, that they should exist as such (Tworek & Cimpian, 2016). As may be clear by now, this bias in everyday explanation has implications for political thought as well. For example, if someone views the organization of society, including the inequality present in all modern civilizations, as being due to the inherent features of the various groups involved, then what might follow is the belief that this inequality is natural and therefore should not be tampered with. Thus, the extent to which one relies on easily accessible inherent information when explaining social phenomena might influence the extent to which one resonates with core conservative ideals described above: acceptance of stratification and adherence to tradition.

To clarify, explaining social structures in terms of inherent features may not always license stratification- and tradition-supporting beliefs. For example, if someone explained why one group has higher status than another by saying that the high-status group is greedy and dishonest, such an inherent explanation would not promote acceptance of the status quo. This being said, most outputs of the heuristic process described here will nevertheless be consistent with conservative attitudes. This is so because the information that's most easily accessible in response to a particular retrieval cue (e.g., the high status of a group) typically matches that cue in valence, in addition to other semantic dimensions (e.g., Gomes, Brainerd, & Stein, 2013; Manning & Kahana, 2012; Nelson, Dyrda, & Goodmon, 2005). In fact, matching or similarity computations are one of the strengths of heuristic (or 'Type 1')

processes (Evans & Stanovich, 2013; Kahneman, 2011; Sloman, 1996) and are performed automatically on a routine basis. Thus, the first things that will come to mind when considering a group's high status (a positive cue⁴) will tend to be similarly positive facts about the group itself (e.g., they're smart). Of course, any one reasoner might happen to have strong mismatching associations with any one retrieval cue (e.g., this high-status group are dishonest), or could be motivated to perform a more thorough memory search. Under most circumstances, however, reasoners will have just these accessible, cue-matching facts at their disposal when constructing an explanation; as a result, the explanations generated via this process are likely to be hierarchy-enhancing ones.

Initial evidence for the hypothesis that low-effort, heuristic explanations of sociopolitical patterns foster conservative attitudes comes from a recent series of studies by Hussak and Cimpian (2015). They found that, when asked to explain various facts about unfamiliar societies (e.g., that, on Planet Teeku, the Blarks have more money than the Orps), both children and adults preferred explanations that appealed to the inherent features of the groups involved (e.g., the Blarks are more intelligent),⁵ and this preference in turn predicted endorsement of the status quo and of the belief that the high-status groups deserve their privileged position.

Although this evidence is suggestive of a link between heuristic explanations and conservative thought, it is far from sufficient. First, Hussak and Cimpian (2015) examined only one of the two underlying dimensions of conservatism (namely, participants' acceptance of socioeconomic stratification), and did so rather indirectly, with a broad set of questions that did not precisely target participants' reasoning about stratification. The present work assessed this dimension of conservatism more directly and also aimed to measure the second dimension of conservatism: adherence to social traditions. Second, since Hussak and Cimpian only assessed participants' reasoning about the status quo in unfamiliar societies, it was important to test our argument using issues of current political relevance. Thus, one of the goals of the present work was to test whether low-effort inherent explanations are also linked with conservative attitudes toward actual political issues (e.g., affirmative action, federal housing).

1.3 | The present research

We tested the hypothesis that explaining social phenomena via easily accessible inherent facts is associated with, and leads to, endorsement of politically conservative attitudes. In addition, we tested (1) whether the heuristic processes involved in explanation constitute a *unique* source of conservative ideology, not reducible to previously identified inputs into conservative thought, and (2) whether this low-effort explanatory heuristic promotes conservative attitudes in children as well. With respect to the last point, the inherence heuristic has been shown to operate across development (Cimpian & Steinberg, 2014; Hussak & Cimpian, 2015; Tworek & Cimpian, 2016). And, while the phrase 'conservative attitudes' might call to mind positions on complex social and economic issues, the principles thought to be at the core of conservative ideology (acceptance of stratification and adherence to

tradition) are actually not far removed from topics that have a rich history in developmental psychology (such as children's reasoning about groups, fairness, and inequality; e.g., Bigler & Liben, 2007; Dunham, Chen, & Banaji, 2013; Fehr, Bernhard, & Rockenbach, 2008; Heberle & Carter, 2015; Kinzler, Shutts, DeJesus, & Spelke, 2009; Martin & Halverson, 1981; Olson, Dweck, Spelke, & Banaji, 2011; Rhodes, Leslie, & Tworek, 2012). Therefore, we hypothesized that inherent explanations would lead not just adults but also children to endorse stratification- and tradition-supporting beliefs. Testing this claim allowed us to examine some of the earliest instantiations of political reasoning, whose manifestation in childhood is largely unexplored so far (but see Reifen Tagar, Federico, Lyons, Ludeke, & Koenig, 2014). As we elaborate in the General Discussion, this type of investigation opens many fruitful avenues for future research on sociopolitical attitude formation.

In what follows, we report the results of three studies that investigated the hypothesized link between inherent explanations of politically relevant phenomena and endorsement of conservative views. The results of these studies supported the presence of such a link in participants' reasoning about unfamiliar societies (Studies 1a, 1b, 1c, and 3), as well as their own society (Study 2). In addition, this link was present even when statistically adjusting for participants' moral beliefs (Study 1a) and the psychological needs invoked by the motivated-cognition account of conservative thought (Studies 1b and 1c). Finally, this link was present in children as young as 4 (Study 3). However, across studies, the evidence was particularly clear for a link between inherent explanations and the stratification-supporting component of conservatism; our conclusions are more tentative with respect to the tradition-supporting component.

2 | STUDY 1A

In Study 1a, we examined the link between participants' explanations for sociopolitical patterns (and, in particular, the extent to which these explanations are biased toward inherence) and their support for the two ideological pillars of conservatism: acceptance of stratification and adherence to tradition. To examine the unique predictive power of explanation, we also included measures of participants' moral beliefs as a control.

2.1 | Method

2.1.1 | Participants

Participants were 103 adults (50 men, 53 women; $M_{\text{age}} = 34.13$ years, $SD = 11.49$ years) recruited from Amazon's Mechanical Turk (MTurk) service. All tasks were completed online in a single session, and participants were compensated \$0.75. Twelve additional participants were tested but excluded from the final analysis because they had IP addresses from outside of the US ($n = 3$) or because they failed the attention check embedded in one of our measures (see below for details; $n = 9$).

2.1.2 | Materials

We administered four measures to (1) assess the relationship between inherent explanations and political conservatism and (2) test a competing account of this relationship – namely, that it is a byproduct of participants' moral beliefs, which may shape both their explanations and their political beliefs.

Explanations

Participants read four vignettes describing status disparities on 'alien planets' (from Hussak & Cimpian, 2015; see Appendix A in the Supplemental Materials). We used unfamiliar sociopolitical groups in order to avoid reliance on previously encountered explanations.⁶ In addition, because we also planned to test the hypothesized link between inherent explanations and conservative attitudes with young children (see Study 3 below), we chose materials that could be easily understood by both adults and children. Each vignette described a status disparity between two groups (e.g., the Blarks have a lot more money than the Orps). Each vignette was also accompanied by pictures of two people (e.g., a Blark and an Orp) of the same race and gender. The two people were also similar in overall appearance and differed only in their clothing. The assignment of the two pictures to the two groups within each vignette was counterbalanced across participants.

After reading about each disparity, participants were asked to rate two answers to a 'why?' question concerning the disparity (e.g., 'Why do the Blarks have more money than the Orps?'): an inherent answer (e.g., maybe the Blarks are smarter or are better workers) and an extrinsic answer (e.g., maybe the Blarks won a war or found gold). Because the 'why?' questions focused on the high-status group, which is a positively valenced retrieval cue, the inherent answers likewise focused on positively valenced facts of the sort that are generally most accessible in memory in response to such cues (e.g., Gomes et al., 2013). To match the overall tone of the explanations, we used positively valenced facts in the extrinsic answers as well. Participants rated their endorsement of each explanation on a 9-point scale (1 = 'really not right', 9 = 'really right').

Political attitudes

Participants' political attitudes were assessed in the context of the vignettes described above. After rating the inherent and extrinsic explanations, participants answered four questions that measured their conservatism: two that measured their acceptance of socioeconomic stratification (e.g., 'How negative is your impression of the current inequality between the Blarks and the Orps?')⁷ and two that measured their adherence to social traditions (e.g., 'How much of a priority should it be to change the way things are on Planet Teeku?'; see Appendix A in the Supplemental Materials for the full set of questions). Each question was answered using a 9-point scale.

A factor analysis of these four questions with maximum likelihood extraction (Fabrigar, Wegener, MacCallum, & Strahan, 1999) revealed a single factor (eigenvalue = 3.25). All four items loaded highly on this factor (loadings > .80). Given the unidimensional structure of this



measure, we averaged the four items into an overall conservatism composite ($\alpha = .94$) and used this composite as the dependent variable for most analyses. (The same unidimensional structure was identified in Studies 1b and 1c, so the four conservatism questions were averaged there as well.) We should note that tradition- and hierarchy-supporting conservative beliefs often load onto two separate factors (e.g., Feldman & Johnston, 2009). The most likely reason why they didn't in our data is that participants had no knowledge about the alien societies other than the disparity information we provided; thus, the only social 'tradition' participants could have adhered to was this economic disparity. For this reason, the conclusions we draw about the tradition-supporting component of conservatism are necessarily more tentative. (In Study 2, where we used familiar issues such as abortion and universal health care, we were better able to examine these two components separately.)

Inherent thinking

We also measured participants' more-general tendency to rely on inherent explanations, beyond the context of our vignettes about unfamiliar groups. This tendency was assessed with the Inherence Heuristic Scale (Salomon & Cimpian, 2014), which consists of 15 items that require participants to rate their agreement with intuitions that follow from low-effort inherent explanations for everyday facts (e.g., 'It seems natural that engagement rings typically have diamonds'). All items were rated on a 9-point agreement scale ($\alpha = .84$), and four additional 'catch' items were included as an attention check. The catch items were designed to elicit either strong agreement or disagreement (e.g., 'It seems right to kill other people for fun'). Using Salomon and Cimpian's (2014) criterion, we excluded participants who answered two or more of the catch items in the unpredicted direction ($n = 9$).

The Moral Foundations Questionnaire

We included the Moral Foundations Questionnaire (Graham et al., 2011) to test the possibility that individual differences in moral intuitions account for the link between inherent explanations and conservative attitudes. This 30-item measure assesses participants' adherence to five moral 'foundations' (harm/care, fairness/reciprocity, ingroup/loyalty, authority/respect, and purity/sanctity; α s = .64, .69, .78, .73, and .88, respectively). According to Moral Foundations Theory (MFT; e.g., Graham et al., 2009), conservatives value ingroup/loyalty, authority/respect, and purity/sanctity when making moral judgments more than liberals do. Therefore, we adjusted for participants' responses on

these three dimensions when testing the relationship between their preference for low-effort inherent explanations and their conservative ideology.

2.1.3 | Procedure

Participants first read each vignette and rated the associated explanations and conservatism items (in randomized order). Next, they completed the Inherence Heuristic Scale and the Moral Foundations Questionnaire in randomized order.

2.1.4 | Open data

The data for this and all subsequent studies are available on Open Science Framework: https://osf.io/rm4gd/?view_only=29b524d61a524bc0aa5b3aaf859972b7.

2.2 | Results and discussion

We hypothesized that participants who are more reliant on inherent explanations of sociopolitical phenomena would also espouse more conservative-leaning beliefs (that is, acceptance of stratification and adherence to tradition). In line with this hypothesis, participants' preference for inherent explanations in our vignettes describing unfamiliar societies (operationalized as the difference score between the ratings for inherent and extrinsic explanations) was significantly correlated with the conservatism composite measure, $r(101) = .60, p < .001$ (see Table 1 for the full correlation matrix). Participants' preference for inherent explanations was also correlated with the two components of conservatism separately: acceptance of stratification, $r(101) = .59, p < .001$, and adherence to tradition, $r(101) = .58, p < .001$. Moreover, when entered alongside the MFT dimensions of ingroup/loyalty, authority/respect, and purity/sanctity into a regression analysis predicting the conservatism composite, the preference for inherent explanations remained a significant predictor, $\beta = .58, p < .001$ (for full regression results, see Table 2). These results suggest that the relationship between inherent thinking and conservative ideology is not simply a byproduct of participants' moral beliefs.

Next, we explored whether participants' broader tendency to rely on low-effort inherent explanations (as measured by the Inherence Heuristic Scale) predicts their endorsement of conservative ideals. In particular, we hypothesized that greater reliance on inherent thinking

TABLE 1 Inter-correlations among the measures in Study 1a

	1.	2.	3.	4.	5.	6.
1. Preference for Inherent Expl.	1	.29**	.60***	.18~	.21*	.22*
2. General Inherent Thinking (IH)		1	.21*	.45***	.47***	.41***
3. Conservatism Composite			1	.20*	.30**	.18~
4. MFQ: Ingroup/Loyalty				1	.77***	.69***
5. MFQ: Authority/Respect					1	.71***
6. MFQ: Purity/Sanctity						1

$N = 103$. ~ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

TABLE 2 Multiple regression analysis predicting participants' conservatism from their preference for inherent (vs. extrinsic) explanations and the control variables in Study 1a

Predictor	β	t	p
Preference for Inherent Explanations	.58***	7.19	<.001
MFQ: Ingroup/Loyalty	-.06	-0.45	.655
MFQ: Authority/Respect	.33 [†]	2.48	.015
MFQ: Purity/Sanctity	-.14	-1.22	.226
R^2 total	40.9%		
F	16.94***		
N	103		

* $p < .05$; *** $p < .001$.

(in general) would predict a stronger preference for inherent explanations of the specific sociopolitical phenomena in our study, which would in turn predict more conservative positions regarding these phenomena. Indeed, a bootstrapped (10,000 replications) product-of-coefficients mediation analysis revealed the predicted indirect effect, $ab = .17$ [.07, .31], $SE = .06$. This indirect effect was also significant when the three relevant moral foundations were added as covariates in the mediation model, $ab = .17$ [.07, .31], $SE = .06$ (see Figure 1).

The results of this study provide initial evidence that explaining sociopolitical patterns in terms of easily accessible inherent facts predicts endorsement of politically conservative positions, beyond the previously identified association between moral beliefs and political thought.

3 | STUDY 1B

In Study 1b, we test our hypothesis against the motive-based account of political ideology. To do so, we replaced the moral belief questionnaire with measures tapping the three classes of motives that have been hypothesized to underlie conservative ideology (Jost et al., 2003): (1) epistemic, (2) existential, and (3) ideological.

3.1 | Method

3.1.1 | Participants

We recruited 100 MTurk participants (63 men, 37 women; $M_{age} = 34.34$ years, $SD = 12.39$ years), who were paid \$0.75. Fifteen additional participants were tested but excluded from the final sample because they had IP addresses outside of the United States ($n = 3$) or because they failed the attention check in the Inherence Heuristic Scale ($n = 12$).

3.1.2 | Materials and procedure

The materials and procedure were identical to those in Study 1a, with the exception of the competing variables assessed. In this study, we tested whether the link between inherent explanations and conservative attitudes is simply a byproduct of participants' epistemic, existential, and ideological motivations (Jost et al., 2003). To avoid participant fatigue, we selected a single measure to assess each of these broad dimensions, for a total of three control measures; however, the next study (Study 1c) includes alternative operationalizations of these dimensions to ensure a fair test of the motive-based account.

Measure of epistemic motives: Need for Cognition Scale

The epistemic preference for simple, unambiguous judgments has been linked with conservatism (Jost et al., 2003). As a measure of this preference, we asked participants to complete the Need for Cognition Scale (Cacioppo, Petty, & Kao, 1984), an 18-item measure that assesses the desire to engage in effortful thinking (e.g., 'I find satisfaction in deliberating hard and long for hours'; $\alpha = .89$). Including this scale allowed us to assess the possibility that the relationship between inherent explanations and political conservatism may simply reflect a general tendency to prefer low-effort thought (Eidelman et al., 2012).

Measure of existential motives: the Belief in a Dangerous World Scale

People who feel threatened and fearful (e.g., about their safety, about their place in society) are more likely to endorse conservative views

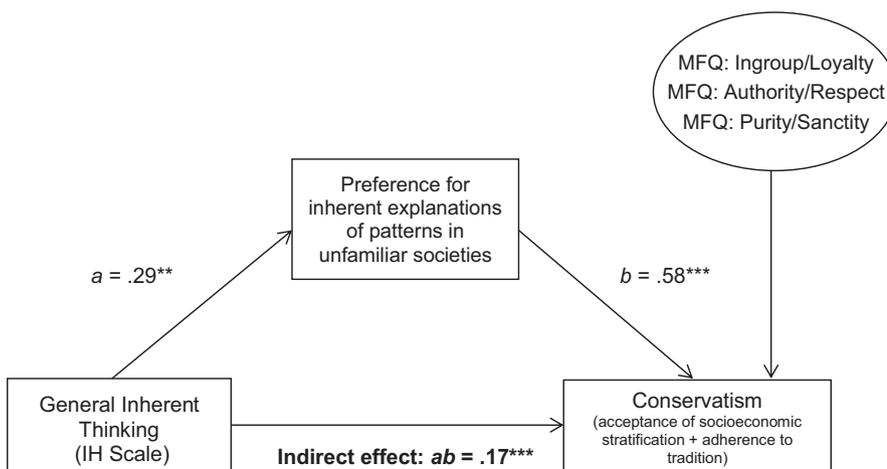


FIGURE 1 Participants' reliance on the inherence heuristic (IH) predicted their politically conservative judgments regarding unfamiliar societies by way of their explanations for the structure of these societies (Study 1a). The three control scales (Moral Foundations Questionnaire [MFQ]: Ingroup/Loyalty, Authority/Respect, and Purity/Sanctity) were included as covariates on the b path. Standardized coefficients are depicted. ** $p < .01$; *** $p < .001$



as a means of allaying these negative emotions (e.g., Duckitt, Wagner, du Plessis, & Birum, 2002; Jost et al., 2003). To measure this ‘existential motive’, we administered the Belief in a Dangerous World Scale (Altemeyer, 1998), a 12-item scale that assesses individual differences among participants in their fears concerning the stability of their society (e.g., ‘Any day now, chaos and anarchy could erupt around us. All the signs are pointing to it’; $\alpha = .93$). Higher scores reflect greater fears that the world is a dangerous and unpredictable place (and thus greater receptiveness to conservative views and policies).

Measure of ideological motives: the General System Justification Scale

The General System Justification Scale (Kay & Jost, 2003) is an eight-item instrument that measures participants’ motivation to see existing sociopolitical conditions as justifiable and fair (e.g., ‘Society is set up so that people usually get what they deserve’; $\alpha = .83$). In our analyses, the General System Justification Scale served to control for the ideological motive to endorse the status quo (e.g., Jost & Hunyady, 2002), which could in principle be at the source of both inherent explanations (e.g., Morton, Postmes, Haslam, & Hornsey, 2009) and conservative beliefs.

3.2 | Results and discussion

Replicating the results of Study 1a, we found that participants’ preference for inherent (over extrinsic) explanations of social phenomena was significantly correlated with their endorsement of conservative views, $r(98) = .53, p < .001$ (see Table 3 for the full correlation matrix), as well as their endorsement of the individual components of conservatism: acceptance of stratification, $r(98) = .50, p < .001$, and adherence to tradition, $r(98) = .54, p < .001$. (Again, however, the results for the tradition-supporting component should be viewed with caution, since this component was not factor-analytically distinguishable from the stratification-supporting component.)

Next, we conducted a multiple regression analysis with the conservatism composite as a dependent variable and four independent variables: participants’ endorsement of inherent (vs. extrinsic) explanations and three scales measuring the three motives previously hypothesized to underlie conservatism (Need for Cognition [epistemic motive], Belief in a Dangerous World [existential motive], and General System Justification [ideological motive]). Consistent with our account, participants’ preference for inherent (vs. extrinsic) explanations emerged as a significant predictor in this regression model, suggesting

TABLE 4 Multiple regression analysis predicting participants’ conservatism from their preference for inherent (vs. extrinsic) explanations and the control variables in Study 1b

Predictor	β	<i>t</i>	<i>p</i>
Preference for Inherent Explanations	.52***	5.57	<.001
Need for Cognition	-.10	-1.07	.286
Belief In a Dangerous World	-.04	-0.45	.657
General System Justification	.04	0.43	.670
<i>R</i> ² total	29.4%		
<i>F</i>	9.87***		
<i>N</i>	100		

****p* < .001.

that it explains unique variance in participants’ conservatism, $\beta = .52, p < .001$ (see Table 4 for the full regression results).

We also tested whether participants’ more-general reliance on inherent explanations (as measured with the Inherence Heuristic Scale) predicted their preference for inherent explanations in the specific context of our fictional vignettes, and in turn their conservatism toward the sociopolitical arrangements described in these vignettes. As in Study 1a, this indirect pathway was significant, $ab = .18 [.09, .31], SE = .06$, and remained so when controlling for participants’ epistemic, existential, and ideological motives, $ab = .17 [.08, .30], SE = .05$ (see Figure 2). Thus, Study 1b provides further evidence that reliance on inherent explanations of social patterns uniquely predicts the adoption of conservative attitudes.

4 | STUDY 1C

In the preceding study, the particular instruments we selected to measure epistemic and existential motives did not actually track participants’ conservatism (see Table 3) and were thus weak competitors for the measure of inherence bias in explanation. In Study 1c, we selected alternative measures of these two motives (see below) and tested again whether they can account for the hypothesized relation between participants’ inherence bias and their conservatism. We expected that participants’ explanatory preferences would continue to predict their conservatism above and beyond individual differences in their epistemic and existential needs.

TABLE 3 Inter-correlations among the measures in Study 1b

	1.	2.	3.	4.	5.	6.
1. Preference for Inherent Expl.	1	.31**	.53***	-.02	.16	.29**
2. General Inherent Thinking (IH)		1	.02	-.10	.21*	.37***
3. Conservatism Composite			1	-.09	.05	.20*
4. Need for Cognition				1	-.23*	.08
5. Belief In a Dangerous World					1	-.35***
6. General System Justification						1

N = 100. **p* < .05; ***p* < .01; ****p* < .001.

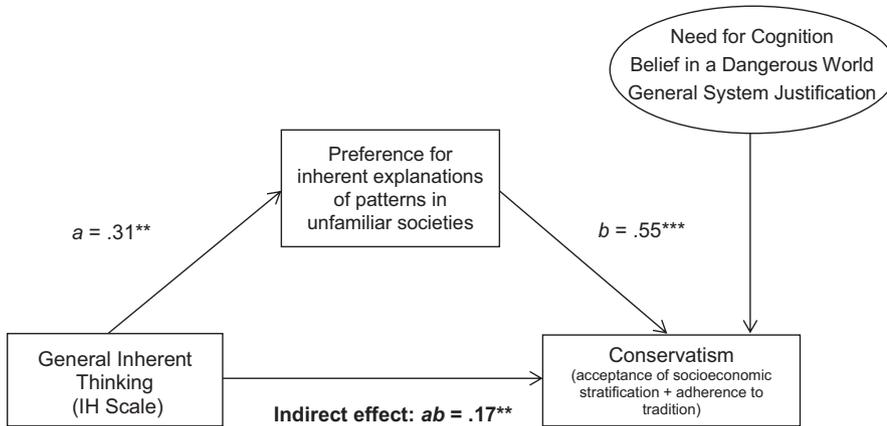


FIGURE 2 Participants' reliance on the inheritance heuristic (IH) predicted their politically conservative judgments regarding unfamiliar societies by way of their explanations for the structure of these societies (Study 1b). The three control scales (Need for Cognition, Belief in a Dangerous World, and General System Justification) were included as covariates on the b path. Standardized coefficients are depicted. $**p < .01$; $***p < .001$

4.1 | Method

4.1.1 | Participants

Participants in Study 1c were 103 adults (39 men, 63 women, 1 did not indicate gender; $M_{\text{age}} = 33.85$ years, $SD = 10.88$ years) recruited from MTurk, and paid \$0.75. Twenty-four additional participants were tested but excluded from analyses for having an IP address outside of the United States ($n = 4$) or for failing the attention check embedded in the Inherence Heuristic Scale ($n = 20$).

4.1.2 | Materials

Study 1c was identical to Studies 1a and 1b, with two exceptions: (1) Our controls consisted of two alternative measures of epistemic and existential motives, and (2) we revised the two vignette-based questions measuring adherence to tradition to better differentiate these questions from those measuring acceptance of stratification. These changes are detailed next.

Alternative measure of epistemic motives: the Need for Cognitive Closure Scale

The 42-item Need for Closure scale (Webster & Kruglanski, 1994) measures the motivation to arrive at clear, unambiguous judgments and avoid uncertainty (e.g., 'When I am confused about an important issue, I feel very upset'; $\alpha = .91$). This scale has consistently predicted individual differences in conservative, status-quo-supporting political attitudes (e.g., Jost et al., 2003) and is thus likely to provide an adequate measure of the epistemic motivations argued to foster conservatism.

Alternative measure of existential motives: the Belief in a Competitive-Jungle World Scale

People who believe the world to be a competitive 'jungle' in which one is constantly struggling for survival and power are also more motivated to adopt conservative beliefs in order to legitimize this worldview (e.g., Duckitt et al., 2002). We measured this existential motive with the 20-item Belief in a Competitive-Jungle World scale (Duckitt et al., 2002; e.g., 'It's a dog-eat-dog world where you have to be ruthless at times'; $\alpha = .95$).

Revised social conservatism items

We revised the vignette-based questions assessing support for tradition to better highlight the distinction between these and the questions assessing acceptance of hierarchy. Specifically, we removed any reference to economic disparities from the tradition-support questions and instead added mention of other, hierarchy-irrelevant aspects of these societies (e.g., laws, policies; see Appendix A in the Supplemental Materials for revised items). However, a maximum-likelihood factor analysis on the revised conservatism items again revealed a single factor (eigenvalue = 3.29), suggesting that these revisions were not sufficient to differentiate between the tradition- and stratification-endorsing dimensions of conservatism in the context of our vignettes about unfamiliar societies.

4.1.3 | Procedure

As in Studies 1a and 1b, participants first completed the vignette-based measure of explanatory preferences and political beliefs, followed by the two control scales and the Inherence Heuristic Scale in random order.

4.2 | Results and discussion

Participants' preference for inherent (vs. extrinsic) explanations of sociopolitical phenomena was again significantly correlated with their endorsement of conservative positions, $r(101) = .61$, $p < .001$ (see Table 5 for the full correlation matrix). The inheritance bias in participants' explanations was similarly related to their acceptance of economic stratification, $r(101) = .59$, $p < .001$, and their support for traditional practices, $r(101) = .62$, $p < .001$, when these dimensions were considered separately. Furthermore, participants' inheritance bias remained a significant predictor of their conservative beliefs when adjusting for the measures of epistemic and existential motives (the Need for Closure and Belief in a Competitive-Jungle World scales, respectively) in a multiple regression, $\beta = .55$, $p < .001$ (see Table 6 for full regression results). Note that the measures of epistemic and existential motives were actually correlated with participants' conservatism in this study (unlike in Study 1b; see Table 5), affording a



TABLE 5 Inter-correlations among the measures in Study 1c

	1.	2.	3.	4.	5.
1. Preference for Inherent Expl.	1	.23 [†]	.61 ^{**}	.29 ^{**}	.02
2. General Inherent Thinking (IH)		1	.24 [†]	.35 ^{**}	.04
3. Conservatism Composite			1	.30 ^{**}	.29 ^{**}
4. Need for Closure				1	-.13
5. Belief in a Competitive-Jungle World					1

N = 103. [†]*p* < .05; ^{**}*p* < .01.

TABLE 6 Multiple regression analysis predicting participants' conservatism from their preference for inherent (vs. extrinsic) explanations and the control variables in Study 1c

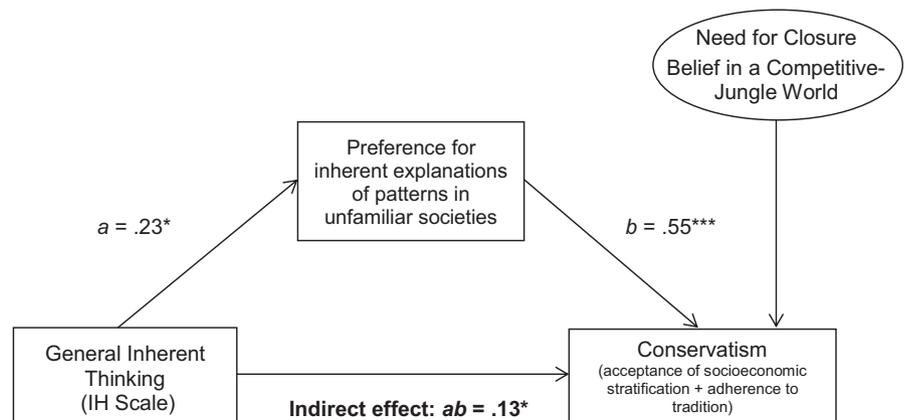
Predictor	β	<i>t</i>	<i>p</i>
Preference for Inherent Explanations	.55 ^{***}	7.32	<.001
Need for Closure	.18 [†]	2.41	.018
Belief in a Competitive-Jungle World	.31 ^{***}	4.22	<.001
<i>R</i> ² total	48.5%		
<i>F</i>	31.04 ^{***}		
<i>N</i>	103		

[†]*p* < .05; ^{***}*p* < .001.

stronger test of the claim that inference-biased explanations account for unique variance in political attitudes.

As in the previous two studies, we also tested the indirect pathway from participants' general reliance on low-effort inherent explanations (as measured with the Inherence Heuristic Scale) to their political conservatism regarding the unfamiliar societies described in our vignettes via their preference for inherent (vs. extrinsic) explanations of these societies. Replicating Studies 1a and 1b, this indirect pathway was significant, *ab* = .14 [.03, .27], *SE* = .06, and remained significant when the two control scales were included as covariates, *ab* = .13 [.03, .26], *SE* = .06 (see Figure 3). Along with the results of Studies 1a and 1b, Study 1c provides further evidence for the unique link between inherent thinking and conservative ideology.

FIGURE 3 Participants' reliance on the inference heuristic (IH) predicted their politically conservative judgments regarding unfamiliar societies by way of their explanations for the structure of these societies (Study 1c). The two control scales (Need for Closure and Belief in a Competitive-Jungle World) were included as covariates on the *b* path. Standardized coefficients are depicted. ^{*}*p* < .05; ^{***}*p* < .001



5 | STUDY 2

Study 2 expanded on the findings of Study 1 in three ways. First, we tested whether the relationship between the inference bias in explanation and endorsement of conservative ideals is a causal one. To do so, we experimentally manipulated the magnitude of participants' inference bias and measured any downstream effects on their political attitudes. Second, we assessed the influence of this inference bias on participants' reasoning about actual, familiar political topics (e.g., abortion, capitalism). The use of such topics afforded a more general test of our hypothesis and highlighted the applicability of our claims to real-world political thought. Third, the use of familiar political topics enabled us to better differentiate the hierarchy- and tradition-supporting dimensions of conservatism, which were closely intertwined in Study 1. By choosing topics that fall on one or the other of these dimensions, we were able to conduct separate tests of the relationship between the inference bias in explanation and these two pillars of conservative thought.

5.1 | Method

5.1.1 | Participants

Participants were 430 adults (205 men, 224 women, 1 did not indicate gender; *M*_{age} = 33.67 years, *SD* = 12.04 years) recruited from MTurk. All tasks were completed in a single session, and participants were compensated \$0.75. Forty-one additional participants were tested but excluded from the final sample because they had IP addresses outside of the United States (*n* = 9) or because they failed the attention check embedded in the Inherence Heuristic Scale (*n* = 32).

5.1.2 | Materials and procedure

To manipulate the tendency to adopt inherent explanations for everyday patterns, we asked participants to fill out one of two 10-item 'scales' (Salomon & Cimpian, 2014; Tworek & Cimpian, 2016). In the 'Anti-IH' condition, participants filled out a scale whose items consisted of explanations couched in terms of extrinsic and historical factors (e.g., 'The only reason our paper, money, and books are rectangular in

shape is historical happenstance'). For our purposes, participants' actual agreement with each item was irrelevant. Instead, the items in this 'scale' were intended to highlight the historical roots of many common conventions, and thus to lower participants' tendency to adopt easy inherent explanations. To enhance the effectiveness of this manipulation, the rating scale for each item was agreement biased (i.e., three out of the four options indicated some level of agreement with the explanation; Petrocelli, Martin, & Li, 2010), and participants were asked to provide justifications for each of their ratings. Participants in the control condition received a scale that was matched in format and item content, except that each item contained only factual information, without any explanatory content (e.g., 'Most of our paper, money, and books are rectangular in shape'; see Appendix B in the Supplemental Materials for full materials).

Following the manipulation, all participants completed a 60-second 'Where's Waldo?' search task that served to disguise the purpose of the study. Afterwards, participants completed two scales – the Inherence Heuristic Scale and a modified version of the Wilson-Patterson Conservatism Scale (Wilson & Patterson, 1970). The Inherence Heuristic Scale was administered as in Study 1 and served as a manipulation check ($\alpha = .86$). The Wilson-Patterson Conservatism Scale (commonly referred to as the 'C-Scale') is a widely used measure of politically conservative attitudes (e.g., Bagley, Wilson, & Boshier, 1970; Bouchard et al., 2003; Wilson & Lee, 1974). In the original C-Scale, 50 politically relevant topics (e.g., gay rights, capitalism, abortion) were presented for participants to indicate their agreement (or disagreement) with. Because the original scale contained topics that are not relevant to the political landscape of the 21st century (e.g., Beatniks, birching, pyjama parties), we adopted a revised version of the C-scale, similar to that in a more recent investigation of political attitudes (Eaves et al., 1997; see Appendix B in the Supplemental Materials for full materials). This scale included topics that could be mapped, at least roughly, onto the tradition- vs. hierarchy-supporting dimensions of conservatism. For instance, participants' attitudes toward topics such as school prayer, divorce, or X-rated movies speak to whether they support the maintenance of traditional values, whereas items such as capitalism, socialism, and unions are clearly relevant to whether participants accept socioeconomic stratification. Of the 25 topics in our revised C-scale, 14 pertained to social, tradition-supporting conservatism; eight pertained to economic, stratification-supporting conservatism; and three were broad indices of political orientation (Republicans, Democrats, liberals). Participants reported their feelings on each item on a 9-point scale (1 = 'very negative feeling', 9 = 'very positive feeling').

We performed a maximum-likelihood factor analysis on the full set of 25 items, followed by a parallel analysis to determine the number of factors to retain (Fabrigar et al., 1999; Horn, 1965).⁸ The parallel analysis suggested retaining five factors; however, there was no discernible separation of social vs. economic topics onto different factors, even after an oblique rotation. Given this uninterpretable factor solution, we grouped the items based on their conceptual content instead, averaging the 14 social conservatism items ($\alpha = .66$) and the eight economic conservatism items ($\alpha = .65$) into two separate composites.

These two composites were significantly correlated, $r(428) = .56$, $p < .001$, but the magnitude of their correlation was not high enough to suggest that they are redundant. The social and economic conservatism composites, along with an overall conservatism composite across all 25 items ($\alpha = .83$), served as our main dependent variables.

5.2 | Results and discussion

Our main prediction was that the manipulation would reduce participants' reliance on inherent explanations, in turn affecting their endorsement of conservative positions. In other words, we expected that the manipulation (Anti-IH vs. Control) \rightarrow inherence \rightarrow conservatism pathway would be significant. We did not, however, have strong a priori predictions about the total effect of the manipulation, beyond the portion of it mediated by participants' inherence bias. The reason is that our manipulation may affect conservatism via multiple pathways, some of which are likely to have an effect opposite to the inherence pathway we are focusing on. For example, because the Anti-IH condition highlights the role of historical accidents, it may heighten participants' epistemic needs for certainty and predictability (e.g., Jost et al., 2003), which might in turn lead them to espouse more, rather than less, conservative beliefs. Such an effect would counteract the effect achieved by lowering participants' reliance on inherent explanations, weakening the total effect of the manipulation. Thus, our main prediction concerned specifically the portion of the effect mediated by participants' explanatory preferences.

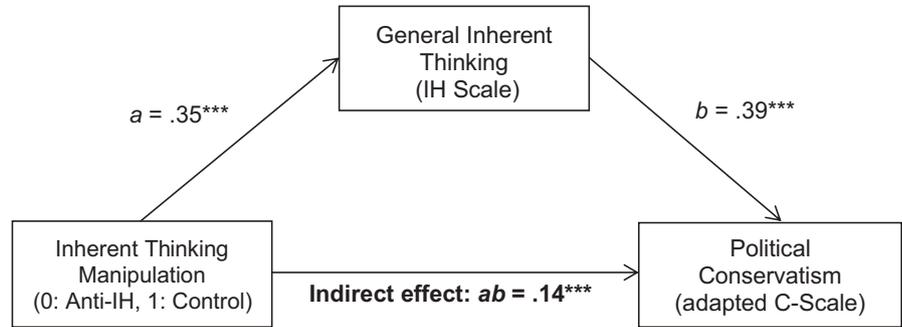
5.2.1 | Manipulation check: effects on inherent thinking

To determine whether the manipulation was effective in altering the tendency to rely on low-effort inherent explanations, we compared participants' scores on the Inherence Heuristic Scale across the two conditions. As expected, participants in the Anti-IH condition ($M = 5.51$, $SD = 1.21$) had significantly lower scores on this scale than those in the Control condition ($M = 5.94$, $SD = 1.22$), $t(428) = 3.70$, $p < .001$.

5.2.2 | Effects on conservatism

We first assessed whether the manipulation influenced participants' overall endorsement of conservative positions (using the main 25-item composite; see the next section for separate analyses for social vs. economic conservatism). Although the means were in the direction consistent with our argument ($M_s = 4.42$ and 4.51 for the Anti-IH and Control conditions, respectively, $SD_s = 0.95$ and 0.99), this difference was not statistically significant, $t(428) = 0.98$, $p = .327$. Recall, however, that our main prediction concerned not the total effect of the manipulation but rather its effect by way of participants' explanatory preferences. To test whether the Anti-IH vs. Control manipulation influenced participants' endorsement of conservative stances via its effect on their explanations, we conducted a bootstrapped product-of-coefficients mediation analysis. As predicted, the manipulation \rightarrow

FIGURE 4 The experimental manipulation reduced participants' tendency to adopt inherent explanations for everyday facts, thereby reducing their endorsement of conservative positions (Study 2). Standardized coefficients are depicted. *** $p < .001$



inherence \rightarrow conservatism pathway was significant, $ab = .14$ [.06, .23], $SE = .04$ (see Figure 4).

Because participants agreed more with the items in the Control than in the Anti-IH 'scale' ($M_s = 3.41$ and 1.90 on a 1–4 scale, respectively, $SD_s = 0.40$ and 0.49), which could have given rise to superficial response biases (e.g., an agreement bias for Control participants), we conducted an additional mediation analysis in which we included participants' agreement with the manipulation scale items as a covariate on the a path (manipulation \rightarrow inherence). Consistent with our original hypothesis, the indirect effect of the manipulation on participants' conservatism via their explanatory preferences remained significant, $ab = .29$ [.12, .50], $SE = .10$.

5.2.3 | Effects on social and economic conservatism

To examine the effects of the Anti-IH vs. Control manipulation on participants' social (tradition-supporting) and economic (stratification-supporting) conservatism, we conducted two separate mediation analyses that were structured as above, except with the social and economic conservatism composites as dependent variables. The results revealed significant manipulation \rightarrow inherence \rightarrow conservatism pathways both for social issues (e.g., gay rights, divorce, school prayer), $ab = .14$ [.07, .23], $SE = .04$, and for economic issues (e.g., unions, property tax, capitalism), $ab = .09$ [.04, .17], $SE = .03$. Moreover, these indirect pathways remained significant when including participants' agreement with the manipulation 'scale' items as a covariate on the a path: $ab = .31$ [.12, .52], $SE = .10$ (social conservatism), and $ab = .20$ [.07, .37], $SE = .08$ (economic conservatism). These analyses suggest that the inherence bias in explanation may promote conservative views in both the social and the economic domains.

To summarize, changes in the extent to which participants used inherent explanations to make sense of the world were accompanied by changes in their positions on many hot-button political issues. These results thus provide initial evidence for a causal link between biases in explanation and political attitudes.

6 | STUDY 3

Study 3 tested whether the output of the inherence heuristic fosters conservative attitudes not just in adults but in young children as well. The inherence heuristic operates throughout development

(e.g., Cimpian & Steinberg, 2014; Hussak & Cimpian, 2015; Tworek & Cimpian, 2016), often leading children to make sense of their observations in terms of easily accessible inherent features. In fact, Hussak and Cimpian (2015) found that, when told about the disparities that were also used in the present Study 1, children aged 4 to 8 generated significantly more (cue-matching, easily accessible) inherent explanations (e.g., the Blarks have more money than the Orps 'because they work harder') than extrinsic explanations (e.g., 'the Orps don't have as many buildings to work at'). Does this bias toward inherent explanations foster downstream beliefs that resemble adults' conservatism? To investigate this link, we provided 4- to 8-year-old children with either inherent or extrinsic explanations for disparities in unfamiliar societies (same as in Study 1) and measured whether the inherent explanations led to greater endorsement of proto-conservative attitudes.

These developmental data also provide a further test of whether the inherence heuristic is a unique source of conservatism, distinct from motivations (see also Studies 1b and 1c). Young children's reasoning about disparities between unfamiliar groups on unfamiliar planets is unlikely to be driven by psychological motives (e.g., motives to minimize fear or avoid uncertainty; Hussak & Cimpian, 2015). Thus, if we find that explanations influence proto-political attitudes in this sample of children, it is unlikely that this link is simply a product of motivated reasoning.

6.1 | Method

6.1.1 | Participants

Participants were 48 4- to 8-year-olds (24 boys, 24 girls; $M_{\text{age}} = 6.81$ years, $SD = 1.61$ years, range = 4.55 to 9.04) from a small city in the Midwestern US. A majority of participants were European American, although demographic information was not formally collected. Children were tested either in a university laboratory ($n = 35$) or in a quiet room in their schools ($n = 13$). Fourteen additional children were tested but excluded because they refused to complete the study ($n = 5$) or because they failed a memory check ($n = 9$; see below).

We recruited only children older than 4 because in prior work (Hussak & Cimpian, 2015) we found that the verbal demands of tasks such as ours exceeded the language skills of younger children. In addition, we recruited children across a wide range of ages (4 to 8 years) to provide a broad exploration of the link between explanations and proto-political attitudes in early childhood.

6.1.2 | Materials and procedure

Children were read four stories about the same unfamiliar societies described in Study 1. However, rather than being asked to evaluate inherent or extrinsic explanations for each phenomenon (as in Study 1), children were simply provided with an explanation. For two of the vignettes, children were told that the relevant social patterns were due to inherent characteristics of the groups involved (e.g., the Blarks have a lot of money because they 'are a lot smarter and are much better workers than the Orps'). For the other two vignettes, the patterns were attributed to extrinsic factors (e.g., 'The town where the Blarks live happens to have much better jobs and a lot more banks'). As with the stimuli in Study 1, these explanations focused on retrieval-cue-matching, positively valenced traits (inherent) or circumstances (extrinsic) (see Appendix C in the Supplemental Materials).

No child heard both types of explanation for the same vignette; however, across the entire sample of children, each vignette was paired an equal number of times with an inherent and an extrinsic explanation. The order of the vignettes and explanations was counterbalanced across children. To ensure that children understood the information provided, we asked them to repeat the explanation on each trial. If they were unable to repeat it, the experimenter reread the vignette and again asked the child to repeat the explanation. If the child could not repeat the explanation after three attempts, the experimenter moved on to the next trial.

After repeating the explanation, children were asked four questions (in random order) to assess their proto-political attitudes toward the issues in question. These questions were simplified versions of the four questions used with adult participants in Study 1: two measured children's acceptance of stratification (e.g., 'Do you think it's bad that the Blarks have a lot more money than the Orps?'), and two assessed their adherence to tradition (e.g., 'Do you think that it's important to change the way things are on Planet Teeku?'; see Appendix C in the Supplemental Materials). Children's ratings were elicited in two steps: Their initial yes/no response (e.g., 'yes, it's bad that the Blarks have a lot more money') was followed up with a question containing a more fine-grained 3-point scale (e.g., 'Is it sort of bad, bad, or really bad?'). Responses were assigned numerical values from 1 to 6, with larger values indicating greater conservatism.

A maximum-likelihood factor analysis on these four questions revealed a one-factor solution (eigenvalue = 1.56; all loadings > .39), just as in Studies 1a–c, which also used stimuli that described unfamiliar societies. Thus, our main dependent variable was an average across all four conservatism questions, although below we also report results for the hierarchy- and tradition-supporting dimensions separately (with the caveat that the questions about support for tradition may also be capturing support for hierarchies, at least in part). Responses to the four questions were averaged separately for vignettes accompanied by inherent and extrinsic explanations; thus, each child received two conservatism scores, one for the inherent trials ($\alpha = .57$) and one for the extrinsic trials ($\alpha = .63$).

After answering all four questions on a trial, children were asked to recall the explanation provided for that vignette as a memory check.

Children were given no feedback regarding their responses. However, children who were unable to recall at least one explanation of each type across the four trials (i.e., one extrinsic and one inherent explanation) were excluded from the dataset ($n = 9$).

6.2 | Results and discussion

Our prediction was that children would be more likely to exhibit conservative attitudes about disparities explained inherently than about ones explained extrinsically. To test this prediction, we submitted children's conservatism scores to a multilevel linear model with explanation type (inherent = 0 vs. extrinsic = 1; within subject [level 1]), children's age (continuous; between subjects [level 2]), and their interaction as predictors. The model allowed each participant's intercept to vary randomly, as well as the slope of the relationship between explanation type and conservatism. All predictors were mean-centered to facilitate the interpretation of their coefficients.

This model revealed the predicted effect of explanation type: Children adopted more conservative views when social phenomena were explained via inherent facts ($M = 3.35$, $SD = 1.07$) than via extrinsic facts ($M = 3.11$, $SD = 1.14$), $b = -.24$, $SE = .11$, $z = -2.11$, $p = .035$. (Separate analyses revealed that the effect of the inherent vs. extrinsic manipulation was similar in magnitude for the two components of conservatism: acceptance of socioeconomic stratification, $b = -.25$, $SE = .17$, and adherence to social traditions, $b = -.23$, $SE = .14$.) The effect of explanation type did not vary with children's age, as indicated by a non-significant interaction between the two predictors, $b = .05$, $SE = .07$, $z = 0.69$, $p = .490$. However, the model revealed a significant decrease in conservatism with age, $b = -.26$, $SE = .08$, $z = -3.11$, $p = .002$. Similar developmental trends have been found in research on children's responses to group-based inequalities (Olson et al., 2011).⁹ Moreover, this result is broadly consistent with our account, insofar as children's reliance on the inheritance heuristic also declines with age (Cimpian & Steinberg, 2014; Tworek & Cimpian, 2016). We also note that this trend is unlikely to be due to superficial 'yes' biases in younger children, as our items were a mixture of forward- and reverse-coded questions.

These results suggest that inherent explanations and proto-conservative views are linked even in young children. When structural inequities in unfamiliar societies were explained by appealing to inherent facts about the groups involved (which are typically easy to retrieve from memory), children thought that these inequities were acceptable and that nothing should be done to address them. These findings suggest that part of the foundation for mature political attitudes may be laid surprisingly early by subtle biases in the ways children make sense of the world.

7 | GENERAL DISCUSSION

Political attitudes and behaviors are an important medium through which individuals interact with their societies. Previous work has demonstrated that political views are shaped in part by individual



differences in moral leanings and psychological needs, as well as a variety of demographic and personality characteristics (e.g., Carney, Jost, Gosling, & Potter, 2008; Duckitt et al., 2002; Pew Research Center, 2015; Pratto, Sidanius, Stallworth, & Malle, 2000). Here, we identified an early-emerging influence on political attitudes that prior research has overlooked. As proposed by the inherence heuristic account (Cimpian & Salomon, 2014a, 2014b) and demonstrated in the present studies, the information that people use to generate explanations for social phenomena has important consequences for downstream political beliefs. We found that a reliance on easily accessible, inherent information in one's explanations predicted conservative views even when taking into account previously proposed morality-and motive-based mechanisms (Studies 1a, 1b, and 1c). Further, we found that this relationship is likely causal and present in children as young as 4 (Studies 2 and 3). Our findings provide a striking illustration of the power of low-level information-processing constraints to influence people's positions on complex sociopolitical issues.

The present research extends the earlier findings of Hussak and Cimpian (2015) in two important directions. First, it provides evidence that explaining sociopolitical patterns such as status hierarchies via easily accessible (and predominantly inherent) information can lead one to not only endorse those patterns but also oppose changes to them – and to existing states of affairs, more generally. Second, the present evidence demonstrates a connection between the inherence bias in explanation and attitudes on real-world sociopolitical issues. While the use of unfamiliar societies in Studies 1 and 3 provided us (and Hussak & Cimpian, 2015) with a tightly controlled means of testing our hypotheses, using the revised C-Scale in Study 2 allowed us to speak to how inherent thinking may influence political behavior outside the lab.

7.1 | Broader contributions

Our studies reveal that basic aspects of the cognitive processes people use to make sense of the world shape their political attitudes, adding to the growing literature on the role of cognitive constraints in political thought (e.g., Deary et al., 2008; Eidelman et al., 2012; Onraet et al., 2015; Stankov, 2009). In addition to identifying a new source of political attitudes, the present research suggests that these attitudes have their roots, at least in part, in early childhood. This framework thus provides a new avenue for political research; specifically, it encourages further investigations into the early instantiations of political thought. Studying the emergence of political attitudes is likely to reveal that such attitudes are present, even if in somewhat inchoate form, well before children become acquainted with the larger, more complex political systems in which they are embedded. Moreover, if the earliest instantiations of political attitudes are influenced by specific cognitive constraints (as we argue), understanding how these mechanisms work may provide insight into how to bridge ideological gaps and foster compromise in a political climate largely characterized by partisan gridlock. Therefore, the current research not only contributes to our knowledge of the formation of political attitudes but may also inform efforts to reduce ideological conflict.

Beyond the psychological study of political thought, the present work also adds to our understanding of the development of social cognition. For instance, although it is well documented that, as they age, children are less likely to perpetuate disparities and hold more negative opinions of inequality (Olson et al., 2011; Rizzo & Killen, 2016), the reasons for this developmental trend are unclear. If, as proposed here, children's proto-political attitudes are driven in part by their explanations, the decrease in support for observed inequalities may be due in part to the parallel decrease in reliance on the inherence heuristic with age (Cimpian & Steinberg, 2014; Tworek & Cimpian, 2016). More specifically, if older children are more likely to explain disparities as being due to extrinsic or contextual factors (as opposed to some inherent characteristics of the people involved), they may view the inequalities as arbitrary in nature and thus worthy of rectification.¹⁰ In contrast, younger children, whose explanations are more reliant on inherent information, may view the same disparities as naturally occurring and fair, and thus may choose to perpetuate them. Thus, the extent of children's reliance on heuristic explanations, perhaps along with other factors (e.g., repeated exposure to inequality; Olson et al., 2011), may account for the shift in children's attitudes toward inequality. By highlighting the potential link between explanation and inequality-rectifying behaviors, as well as sociopolitical attitudes more generally, this work broadens our understanding of early social cognition.

7.2 | Questions and directions for future research

One goal for future research on early political attitudes should be to more effectively tap into the two components of conservative thinking: acceptance of stratification and support for tradition. While prior research has found these two constructs to be statistically distinct (e.g., Feldman & Johnston, 2009), here we found them to often load onto a single conservatism factor. This was in part because our measures in Studies 1 and 3 dealt with unfamiliar societies, and thus participants had no knowledge of existing traditions. However, the two components did not load neatly onto two factors even when we used familiar political issues (Study 2). Thus, it remains an important task for future research to better tease apart these two dimensions and to reveal the unique relation of each with the inherence bias in explanation.

An additional question that remains unanswered by the present research concerns the ways in which the inherence heuristic interacts with other processes and beliefs (e.g., morals, motives) to shape political attitudes across development. Young children may not be subject to strong motivations to see their society as just, or have a fully developed appreciation for moral values such as purity/sanctity. However, as they age, these and other factors are likely to influence their political attitudes and behaviors. How might such forces interact with the fundamental explanatory processes that are in place early in life to guide sociopolitical views? One possibility involves a feedback relationship, similar to the motivated correction model proposed by Skitka and colleagues (2002). In this sort of model, the initial intuitions provided by the inherence heuristic are accepted or revised depending

on how well they align with the motivations or moral values of the reasoner. For instance, an inherent explanation of why a politician misrepresented an issue to his constituents (e.g., he's a liar) may be revised by an individual who values ingroup/loyalty and authority/respect. Here, then, it is the *output* of the inherence heuristic process that is acted on by other forces. Alternatively, motivational processes may influence the very process of constructing an explanation – for example, by restricting or expanding the pool of information from which the explanation is formed. According to the inherence heuristic proposal, the process of forming an explanation begins with a memory search for easily accessible information (which is often inherent in nature). Motivated processes – such as those engaged in reaction to threat or uncertainty – may act to restrict or expand the time dedicated to this memory search, potentially altering the range of information retrieved. Any motivations that limit the memory search, for example, may exacerbate the inherence bias in the content of the explanations generated, resulting in more conservative-leaning attitudes. As suggested by the above examples, there are multiple ways in which inherent thinking may interact with other processes to inform political beliefs. Thus, one important goal to pursue in future research would be to shed light on these interactions.

Another key topic for future research concerns the potential moderating effects of demographic group membership. Political affiliations tend to be sharply divided along race, gender, and age lines (Pew Research Center, 2015), and the reasons for these divisions often have to do with the very mechanisms discussed here. For example, although the moral foundations of authority/respect and purity/sanctity consistently predict conservatism in White samples (e.g., Graham et al., 2009), they have significantly weaker predictive relationships with conservatism in Black samples (Davis et al., 2016). Thus, the question arises whether demographic variables moderate the relation between the inherence bias in explanation and political attitudes. Although we did not record information about participants' race/ethnicity in the present studies, we were able to examine whether the relation between inherent explanations and political conservatism was moderated by gender and age in our four adult samples (Studies 1a–c and 2). In Studies 1a–c, we tested for moderation by gender and age by including, simultaneously, the interactions between each of these variables and participants' preference for inherent (vs. extrinsic) explanations in the regression models predicting conservatism (see Tables 2, 4, and 6). In Study 2, we tested for moderation by gender and age by entering these variables as moderators on the *b* path (inherence bias → conservatism) in the main mediation model of that study (see Figure 4).¹¹ Gender did not moderate the relation between inherent explanations and conservatism in any of the four studies. In contrast, age was a moderator in Studies 1b, 1c, and 2 (Study 1a: $\beta = .03$, $p = .905$; Study 1b: $\beta = .52$, $p = .088$; Study 1c: $\beta = .59$, $p = .022$; Study 2: $\beta = .13$, $p = .003$; index of moderated mediation = .05 [.01, .10], $SE = .02$). These interactions suggest that the relation between endorsement of low-effort, inherent explanations and endorsement of conservative views was reliably stronger in older adults than in younger adults. This result aligns with those of several other studies in the judgment and decision-making literature, which have also found older adults to be

more reliant on effort-saving heuristics (e.g., Besedeš, Deck, Sarangi, & Shor, 2012; Klaczynski & Robinson, 2000). Although these results provide an initial hint that the link between explanatory biases and political orientation may become stronger into middle and late adulthood, more systematic investigation of this and other potential demographic moderators (in particular, race/ethnicity) is warranted.

Related to the issue of age, our results suggest that some of the processes that inform political views are largely in place by early childhood. This raises the question of whether there may be other early-emerging predictors of sociopolitical behavior. Prior longitudinal research, for instance, has found that preschool temperament and parental attachment styles are predictive of political party affiliation in adulthood (Block & Block, 2006; Fraley et al., 2012), but there is relatively little work on, for example, how early moral beliefs shape the development of sociopolitical reasoning. As young children have a rich conception of morality (see Killen & Smetana, 2014, for a review), it would be informative to investigate whether the principles that guide early moral reasoning might influence proto-political thought as well.

7.3 | Conclusion

The ability to generate explanations provides people with a means of understanding the complex world around them. Accumulating evidence has revealed that everyday explanations are often heuristic in nature, a fact that has striking consequences for reasoning in multiple domains (Cimpian, 2015; Cimpian & Salomon, 2014a, 2014b; Hussak & Cimpian, 2015; Sutherland & Cimpian, 2015; Tworek & Cimpian, 2016). Here, we have demonstrated that explaining sociopolitical patterns via the inherence heuristic contributes to the adoption of politically conservative principles, both in adults and in young children. As such, this work adds to a nascent body of research on the development of political reasoning.

ACKNOWLEDGEMENTS

We are grateful to our participants and to the Cognitive Development Lab at the University of Illinois for research assistance and helpful discussion.

NOTES

¹ The overwhelming focus on conservative ideology in the early literature on political psychology has led, in some cases, to the treatment of conservatism as a pathology of sorts, with more liberal ideologies being viewed as the default. However, important recent work (e.g., Brandt, Reyna, Chambers, Crawford, & Wetherell, 2014; Skitka, Morgan, & Wisneski, 2015) has demonstrated that many of the biases and motivations that underlie conservative thinking influence liberal mindsets as well.

² Previous work (e.g., Hirsh, DeYoung, Xu, & Peterson, 2010; Jost et al., 2003; Jost, Nosek, & Gosling, 2008) has referred to these two constructs as a *tolerance of inequality* and *resistance to change*. However, we chose the present terminology, *acceptance of socioeconomic stratification* and *adherence to tradition*, as we believe it more accurately reflects the ideals described in classical conservative texts (e.g., Burke, 1790).

- ³ The inference heuristic is distinct from psychological essentialism (for detailed arguments and empirical evidence, see Cimpian & Salomon, 2014a, 2014b; Salomon & Cimpian, 2014). Simply put, the inference heuristic does not output intuitions about essences. However, its inference-biased explanatory output is likely one of the factors that promote the emergence of beliefs about essences during development.
- ⁴ The positive valence described here does not necessarily reflect positive attitudes or opinions about the high-status group (e.g., liking). Rather, it tracks the basic fact that high status is usually seen as desirable.
- ⁵ Although this result was not reported in their paper, Hussak and Cimpian (2015) found the expected valence match in these open-ended explanations: For example, the children tested in Study 2 invoked positive traits in 61% of their open-ended explanations for why a certain group has high status (vs. negative traits in only 2% of explanations).
- ⁶ However, because it was important that participants understand these unfamiliar groups to differ in status per se, we used familiar markers of status (e.g., wealth, academic achievement).
- ⁷ These questions assessed participants' endorsement of social hierarchies more directly and precisely than did Hussak and Cimpian (2015). The set of questions used by Hussak and Cimpian was broader and included items about, for example, how much participants liked the two groups or whether the high-status group deserved their position.
- ⁸ The parallel analysis was conducted with the *paran* command in Stata 13.1.
- ⁹ It is interesting to compare this age-related decrease in conservative responses with the increase in conservatism seen later in life, from middle to late adulthood (e.g., Cox, 2014; Tilley & Evans, 2014; Truett, 1993). Whatever the reasons for the results with children, the later shift in political attitudes is likely due to a somewhat different set of variables, such as the decreases in openness to experience and increases in need for cognitive closure that accompany aging (e.g., Cornelis, Van Hiel, Roets, & Kossowska, 2009).
- ¹⁰ However, the link between extrinsic explanations and progressive or liberal attitudes may not be so straightforward. For instance, Morgan, Mullen, and Skitka (2010) found that the typical pairing of liberal ideology with situational attributions and conservative ideology with dispositional attributions can be easily reversed. Liberals, for example, were more likely to use dispositional attributions than conservatives when explaining the potentially wrongful actions of a Marine, because, according to Morgan et al., liberals' values are more consistent with blaming the Marine. This research suggests that an important missing link between extrinsic (or situational) explanations and liberalism may be the alignment of the explanation (and the subsequent inferences it licenses) with core liberal principles.
- ¹¹ This analysis was conducted with Model 14 in the PROCESS 2.16 macro for SPSS (Hayes, 2013).
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SUPPORTING INFORMATION

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How to cite this article: Hussak LJ, Cimpian A. Investigating the origins of political views: biases in explanation predict conservative attitudes in children and adults. *Dev Sci*. 2018;21:e12567. <https://doi.org/10.1111/desc.12567>