Are economists overconfident? Ideology and uncertainty in expert opinion

Received: 1 September 2021 | Revised: 12 January 2023 | Accepted: 24 January 2023

DOI: 10.1111/1468-4446.13001

ORIGINAL ARTICLE

WILEY

Are economists overconfident? Ideology and uncertainty in expert opinion

Austin C. Kozlowski[1] | **Tod S. Van Gunten**[2]

[1]Department of Sociology, University of Chicago, Chicago, Illinois, USA

[2]Department of Sociology, University of Edinburgh, Edinburgh, UK

Correspondence
Austin C. Kozlowski.
Email: akozlo@uchicago.edu

Abstract

Economics frequently serves as an advisory discipline to policymakers, bolstered in part by its claims to a unified intellectual framework and high disciplinary consensus. Recent research challenges this perspective, providing empirical evidence that economists' professional opinions are divided by ideological commitments to either free markets on one hand or state intervention on the other. We investigate the influence of ideology in economics by examining the relation between economists' ideological commitments and the certainty with which they express their expert opinions. To examine this relationship, we analyze data from the Initiative on Global Markets Economic Experts Panel, a unique survey of 51 economists at seven elite American universities. Our results suggest that economists with ideologically patterned views report higher levels of certainty in their opinions than their less ideologically consistent peers, but this boost in confidence is limited to topics that closely pertain to the free market versus interventionism divide.

KEYWORDS
culture and cognition, economists, political ideology, science and knowledge

Austin C. Kozlowski and Tod S. Van Gunten made equal contributions.

1 | INTRODUCTION

Engaging with social science requires grappling with uncertainty. Empirical estimates are always subject to error and theoretical claims rest on differing levels of evidence. The effective consideration of uncertainty is particularly crucial when social science is used to direct policy recommendations. However, scholars in fields including statistics (Gelman & Carlin, 2014; Gelman & Loken, 2014), economics (Manski, 2011, 2019), psychology (Fischhoff & Davis, 2014; Van der Bles et al., 2019) and medicine (Rosenbaum, 2015) argue that experts frequently fail to adequately express scientific uncertainty. These critics instead note a tendency to overstate the support for knowledge claims, an effect which Manski (2019) terms "the lure of incredible certitude." Vigorous debate has developed around the empirical question of how experts communicate scientific uncertainty as well as the normative question of how uncertainty ought to be expressed to a lay audience (Kunovic, 2022; Osman et al., 2018; Van der Bles et al., 2019).

Although pervasive across the social sciences, a tendency to overstate certainty may be particularly consequential within the field of economics. Because of its institutionalized roles in policymaking, economics arguably enjoys the greatest potential to influence public policy among the social sciences (Berman, 2022; Bernstein, 2001; Fourcade et al., 2015; Hirschman & Berman, 2014). Its legitimacy in this advisory role is in part bolstered by the discipline's claims to a unified intellectual framework and high levels of internal consensus (Lazear, 2000; Rodrik, 2015). However, economic knowledge is also politically contested and ideologically freighted. Disciplinary debates over appropriate forms and levels of state intervention in markets align closely with cleavages in partisan politics, and research in political psychology suggests that prior ideological commitments may inflate feelings of subjective certainty. Economics thus stands at a troubling intersection; it provides guidance to political elites and policymakers, yet the ideological divisions of the discipline may induce inflated statements of confidence by experts. Despite its practical and theoretical import, there exists little research on how economists report uncertainty in policy-making arenas, or on how ideology affects the certainty of expert opinion more generally. In this study, we assess the subjective certainty of economists' expert opinions against a normative baseline we call "reflexive confidence," according to which the confidence scholars express reflects disciplinary consensus and personal expertise rather than ideological commitments.

To empirically investigate the subjective certainty of economists' professional opinions, we draw upon the Initiative on Global Markets (IGM) Economic Experts Panel, a public survey of 51 economists at elite universities in the United States. The IGM Panel provides uniquely rich data on the professional opinions of a highly influential economists in the U.S., and results from this survey are frequently cited in media reports to summarize expert opinion on policy issues. Importantly, the IGM Panel also asks its respondents to indicate their level of confidence in each response. We adopt a multilevel modeling strategy to discover how characteristics of questions and of economists predict the reported certainty of a response and the likelihood that an economist gives an "uncertain" response.

We find that patterns of subjective certainty among economists are largely consistent with the standards of reflexive confidence, but important deviations from this standard manifest in the presence of ideology. Respondents generally report less confidence on controversial issues, yet we also find that more strongly ideological economists tend to express greater confidence on ideologically salient topics. In such cases, divisive and unresolved questions in the discipline nevertheless evoke confident responses among ideological economists, sometimes in opposing directions. Our findings shed light on how the social organization of scientific disagreement can affect the subjective certainty of the experts themselves.

1.1 | Consensus and division in economics

A growing literature spanning sociology, political science, and economics itself empirically examines the policy influence of the economics profession. Political scientists have long debated the role of economic ideas in shaping policies (Blyth, 2002; Hall, 1993), and sociologists have studied the relations between the discipline of economics, state institutions, and knowledge-generating organizations (Berman, 2017; Fourcade, 2009; Fourcade et al., 2015;

Hirschman & Berman, 2014; Reay, 2012; Van Gunten, 2017). Economists have acquired institutionalized sources of authority in central banks, international organizations like the International Monetary Fund, high-level advisory bodies, think tanks, and other policy advising organizations. Economists also exert indirect influence by crafting the conceptual frames used to understand, monitor, and regulate the economy (Berman, 2022; Eyal & Levy, 2013; Fligstein et al., 2017; Hirschman & Berman, 2014; MacKenzie, 2011). Finally, top economists occasionally act as public intellectuals, producing op-eds, books, and interviews that specifically aim to interpret current economic affairs for the general public. The scope of economists' practical influence is still subject to dispute; some scholars (including many economists) argue that economists' opinions are frequently elicited but rarely heeded (Prasad, 2006; Reay, 2012). Nevertheless, a substantial body of evidence suggests that, at least in some institutional contexts, the economics profession has switched the rails on trajectories of policy change in important ways (Christensen, 2017; Fourcade-Gourinchas & Babb, 2002).

Economics' apparent influence on policy and politics has motivated many commentators to evaluate the discipline's suitability to such an advisory role (e.g., Levy & Peart, 2017). Many advocates of "mainstream" economics argue that economists have effectively converged towards an empirically grounded consensus on many important policy questions. Research on professional beliefs lends support to this view; surveys of the American Economic Association membership identify broad agreement across many topics (Fuller & Geide-Stevenson, 2014), and prior research using the IGM panel data used in this paper similarly finds a high level of consensus (Gordon & Dahl, 2013). Advocates see this consensus as a reflection of scientific rigor, emerging from a shared intellectual framework and common standards of validity (Lazear, 2000).

However, this depiction of economics as a scientific discipline characterized by broad consensus and internal consistency is starkly at odds with another popular depiction—economics as a factionalized field of warring, politicized camps (Krugman, 2009). This alternate depiction highlights the discipline's perennial debate over the proper balance between free markets and state intervention. Scholars have noted that these two intellectual camps historically corresponded to different sets of academic departments, with a neoliberal economics coming from "freshwater" schools such as the University of Chicago, while a brand of economics more favorable to regulation is fostered in "saltwater" schools such as Harvard, MIT, and Berkeley. Although the distinction may have been more prominent in past decades (Mankiw, 2006), recent evidence suggests that this freshwater/saltwater divide continues to structure hiring and citation patterns within elite economics departments (Onder & Tervio, 2015; Terviö, 2011). Moreover, recent research identifies signs of a persistent division between free market and interventionist tendencies using large scale text analysis of economics articles (Diaf et al., 2022; Jelveh et al., 2018), in networks of policy petition signatories (Beyer & Pühringer, 2019) and survey experiments with academic economists (Javdani & Chang, 2019). Recent research also shows that, despite the high level of consensus found in the IGM panel, there is also a significant degree of ideological alignment, or stratification across a latent free market/interventionism axis (Van Gunten et al., 2016). According to this contending depiction of economics, the discipline's shared intellectual paradigm is not sufficient to resolve longstanding debates that are not only academic but also deeply political.

Thus, even in a professional community characterized by relatively high levels of consensus, some beliefs are controversial, and many of these beliefs are controversial because they reflect a consistent structure of debate: the question of whether the cost of a government intervention is outweighed by the need to alleviate market failures and improve distributional outcomes. This basic division in economics reveals a core challenge in the translation of economists' professional opinions into policy recommendations. In this study, we ask the empirical question of whether experts temper the confidence of their policy recommendations to reflect disciplinary divisions, especially when those divisions are structured by ideology.

We compare economists' confidence against a benchmark which we term "reflexive confidence." The standard of reflexive confidence requires that experts express a degree of certainty in their opinions that reflects the level of consensus in the expert community. When a discipline has converged upon an answer to a question, reflexive experts should express high confidence in that position. Conversely, when a question is ideologically divisive or otherwise unresolved, reflexive experts should express greater uncertainty.

Hence, disagreement within a discipline does not compromise policy advice so long as that disagreement is accompanied by a corresponding expression of disciplinary uncertainty. By qualifying their recommendations with an acknowledgment that the issue at hand is unresolved, experts can signal to policymakers when their claims are suggestive but not definitive. In the case of economics, this means that opinions on divisive issues should be expressed with an attenuated certainty that reflects the discipline's collective ambivalence. To use Pielke's (2007) terminology, reflexive confidence requires that experts act as "honest brokers" rather than "issue advocates" in providing policy advice.

Scholars do not universally endorse this ideal of reflexive confidence. One strand of research argues that expressions of scientific uncertainty can have the unintended consequence of undermining public trust in science (Kunovich, 2022; Osman et al., 2018). These critics argue that the full communication of scientific uncertainty "may do more harm than good," at once obfuscating the actions supported by scientific evidence and leaving room for less rigorous, unequivocal commentators to take over advisory roles (Osman et al., 2018, p. 135). However, this literature emphasizes issues that face the inherent limits of scientific certainty but have reached broad disciplinary consensus, such as anthropogenic climate change or vaccine safety. By contrast, many ideologically salient topics in economics remain highly divisive within the discipline, restricting the possibility of agreed-upon policy recommendations. But ultimately, our intention is not to defend reflexive confidence as a normative stance but to use it as an ideal-typical benchmark against which we compare actual patterns in experts' reported confidence.

1.2 | Ideology as simplification and constraint

A great deal of prior research suggests that deviations from reflexive confidence may be substantial. A long literature in cognitive science and related disciplines has established that overconfidence is a prevalent phenomenon in both the general population (Kahneman & Tversky, 1982; Moore & Healy, 2008) and in expert communities (Baumann et al., 1991; Lin & Bier, 2008; Liu et al., 2017). While prior studies have effectively described this general tendency to express unjustified levels of confidence, we know comparatively little about where overconfidence is most likely to emerge in disciplinary debates. Drawing upon theories from political psychology, we argue that subjective certainty may be elevated in areas of debate that are ideologically organized. Prior scholars describe ideology as simplifying complex phenomena and providing straightforward interpretations for difficult questions (Lodge & Taber, 2005; Sniderman et al., 1991). Hence, when ideological thinking is activated, respondents are liable to speak with heightened confidence because the question at hand appears familiar, clear, and simple.

Although the term "ideology" is commonly deployed polemically and imprecisely, research in public opinion offers formal methods for identifying ideological organization, or "constraint," in a population. The most basic mode of measuring ideological constraint is with inter-issue correlations (Converse 1964; Baldassarri & Gelman, 2008; Kozlowski & Murphy, 2021). By this operationalization, a population exhibits high constraint if holding an opinion on one issue implies holding certain opinions on other issues. In the electorate, this typically manifests when some respondents are consistently liberal across issues and others are consistently conservative.

Ideological constraint was historically regarded as a desirable sign of the respondents' political sophistication (Converse 1964), but more recent research describes the potential dangers of ideological organization. In spatial terms, ideology manifests as the flattening of a multidimensional opinion space (Martin, 2002). When inter-issue correlations are low, each topic presents its own axis of disagreement distinct from other questions, yet when issues are highly correlated, all disagreements are mapped onto relatively few axes of opposition. At the extreme case of perfect inter-issue correlation, all differences of opinion can be explained by a single dimension of ideological difference. Della Posta (2020) refers to this phenomenon as "pluralistic collapse" because the varied patterns of alliance and opposition that emerge from cross-cutting opinion groups are replaced by unidimensional disagreement across topics. In this sense, ideological constraint implies a simplification of the field of opinions; the many possible forms of alignment or disagreement are reduced to a single axis of ideology.

Not only does ideology manifest a simple, unidimensional structure of disagreement, but it may result from respondents cognitively simplifying issues to generate their opinions. Specifically, ideological constraint can emerge if respondents' opinions across issues are guided by a single underlying consideration or value (Tourangeau et al., 2000; Zaller and Feldman 1992). When a single evaluative consideration such as "egalitarianism" or "free enterprise" determines responses across a range of issues, it is likely to have two effects. First, it induces correlation between issues because the same orienting consideration patterns responses across questions. Second, it simplifies the issues at hand by reducing them to a single facet, which is likely to induce subjective certainty. Indeed, prior evidence suggests that respondents who balance multiple considerations in answering a question feel greater ambivalence and uncertainty than respondents who rely on a single consideration (Alvarez & Brehm, 2002; Barker, 2018; Feldman & Zaller, 1992).

This conceptual framework provides a potential link between ideological organization and subjective certainty. Ideology manifests as a singular axis of difference that organizes disagreements across issues, and this pattern can emerge through respondents selecting their responses according to a single logic of evaluation. Because ideologues simplify issues by privileging a single consideration, they avoid the uncertainty and ambivalence that results from conflicting considerations. We therefore should expect to find elevated certainty in the areas of the opinion space that are tightly correlated. Although this theory derives from studies of public opinion, measuring ideology as inter-issue constraint can be equally extended to fields of expert opinion (Herzon, 1980). However, due to the lack of surveys of experts and the scarcity of measures of confidence, the connection between ideological constraint and subjective certainty in this context is theoretically motivated but empirically underdeveloped.

A few prior studies have examined the relation between confidence and ideology, though mostly in non-expert communities. Using a sample from the general public, Ortoleva and Snowberg (2015) find that overconfidence is correlated with more extreme ideological dispositions. While these findings are largely consistent with our expectations, it remains possible that experts would not suffer the same distortions to confidence as the electorate at large, given scientific norms and incentives to base their opinions on available evidence. Moreover, Ortoleva and Snowberg calculate overconfidence as a stable, respondent-level attribute, and are therefore unable to examine variation in overconfidence across questions. Liu et al. (2017) are among the few authors to investigate the relationship between ideology on overconfidence among experts, but they test for an effect of ideological orientation (liberal or conservative) rather than ideological strength or extremeness. They accordingly find no such effect; rather, years of experience is the main determinant of confidence in their study population. Thus, the relationship between ideology and subjective certainty in expert communities remains an open research question.

Although ideology is not its central focus, Philip Tetlock's (2005) influential work on cognitive style and forecasting ability remains pertinent. Borrowing an analogy from Isaiah Berlin, Tetlock compares the predictive abilities of "foxes," who rely on diverse, eclectic styles of thought, and "hedgehogs," who apply one big idea across many different cases. He finds that hedgehogs tend to display overconfidence in their beliefs; they more often attach extreme probabilities to their predictions than foxes (2005:171). Tetlock's description of hedgehogs "knowing one big thing," is closely related to our depiction of ideologues relying on a singular axis of evaluation across issues. Yet our own approach departs from Tetlock's in a crucial respect. Tetlock treats the fox/hedgehog cognitive styles as basic psychological traits of experts, and locates individuals on this scale using a battery of self-assessments regarding cognitive style. By contrast, we operationalize ideology as a pattern of structured disagreement in a field of expert opinion, and classify experts as ideological to the extent that they participate in this socially organized pattern of debate. While Tetlock's theory may posit that "hedgehog" economists would be more confident across all issues, our approach suggests that overconfidence should only manifest in those areas of debate that are ideologically organized. Our investigation thus shifts the analytic focus from internal, psychological traits that inspire overconfidence to the disciplinary fissures where heightened confidence is likely to arise.

1.3 | Economic ideology and certainty of expert opinion

The ideological divide in economics grew from both the internal academic dynamics of the discipline and its historically intimate connection to politics. Modern interventionist economic thought has its roots in Keynesian macroeconomics, which emerged in the wake of the Great Depression and achieved dominance by providing policymakers with the much-needed levers to control inflation and unemployment. Harvard and MIT were strongholds for the mainstream Keynesian approach in the mid-20th century, and these institutions were tightly networked with policymakers in the Kennedy and Johnson administrations (Bernstein, 2001; Henriksen et al., 2022). During this period, a competing school of neoliberal economic thought emerged at the University of Chicago, enjoying significant academic prestige but remaining relatively marginalized in policy arenas. Yet this ordering reversed in the 1970s and 80's as stagflation and financialization created demand for more laissez-faire economic policy. With the political ascendancy of Reagan and Thatcher, policymakers in the U.S. and abroad began to increasingly draw upon Chicago economists and economic ideas for guidance (Mudge, 2008; Prasad, 2006). By the beginning of the 21st century, American economics was no longer so balkanized into "saltwater" and "freshwater" schools, but economists representing these theoretical tendencies had carved out durable roles in liberal and conservative political institutions.

Recent empirical evidence affirms the persistence of this "free market versus interventionism" divide in contemporary American economics. Applying automated text analysis to economists' publications, Jelveh et al. (2018) locate authors on a latent ideology scale that strongly predicts political campaign contributions and petition signatures. They find that this latent ideological factor also predicts economists' empirical estimates of elasticities relevant to policies such as the optimal top-income tax rate or minimum wage, motivating differing policy recommendations. Van Gunten et al. (2016) similarly find evidence of a latent ideological axis in the IGM survey of elite economists. Using principal components analysis (PCA), they find that the single most explanatory dimension across all issues corresponds closely to the free market versus intervention division, with the highest loading questions including issues such as raising the minimum wage and implementing a voucher system for schools.

We argue that strong ideological dispositions, whether they favor free markets or government intervention, are likely to induce heightened confidence in academic economists' professional opinions. As described above, political ideology can inflate confidence by simplifying complex issues and by privileging a select few ideologically-consistent considerations. The free-market versus interventionism distinction structures disagreement across a wide swath of policy-relevant topics in economics, and therefore could similarly thus serve as an orienting consideration that informs opinions across many distinct issues. Economists who consistently answer questions in accordance with this logic may be prone to overconfidence because their task of producing an opinion is facilitated by the simplicity and availability of the necessary considerations. By contrast, economists who sample a wider diversity of considerations when answering a question are likely to express greater uncertainty and their responses would display less ideological patterning. Moreover, the free-market versus interventionism distinction closely corresponds with partisan politics in the American context. Thus, free-market/interventionist ideology in economics may not be merely analogous to political ideology, it may in fact be an extension of it.

Consider an expert presenting her views on school vouchers, one of the most ideologically salient issues in our data. Manski (2019) argues that economic theory does not provide a clear prescription regarding the design of educational systems (e.g., state controlled or privatized) because this depends on empirical variables such as the strength of market imperfections and neighborhood effects. Asked to evaluate the merits of school voucher programs, a free-market oriented economist may disregard these issues and conclude that the gains in competitiveness would bring net social benefits. Because this opinion follows easily from a core commitment and is not complicated by conflicting considerations, the expert rates her response as highly certain. However, an interventionist economist might claim that disadvantaged students and parents would lack the information to make optimal decisions, and the results would only exacerbate social inequality. Because this opinion follows directly from his own prior convictions, he expresses his opposing view with equally high confidence.

This example showcases an important deviation from the standard of reflexive confidence; a question that is unresolved by the discipline nevertheless elicits confident recommendations from experts. This poses a significant problem for economics as an advisory discipline because policymakers guided by a single economist (or by a single pole of the ideological spectrum) may be led to believe that a given question is more resolved than it truly is. We therefore argue the effectiveness of an advisory discipline is compromised if such ideologically-charged questions evoke highly confident yet contradictory opinions. And indeed, we observe this very case in our data.[1]

Among academic economists, we expect a continuous range of ideological dispositions, encompassing strong interventionists, free market advocates, and centrists. Critics at times portray economics as a haven of free-market fundamentalism, but empirical studies of economists' opinions complicate this view. Drawing on a survey of the American Economic Association, Klein and Stern (2007) argue that only 8% of its membership can be rightly labeled "free-market economists." On the other hand, economists at American universities do widely support "pro-market" stances on several prominent policy topics such as free trade, especially compared to the general public (Fuller & Geide-Stevenson, 2007). Overall, prior research suggests that while some economists occupy the ideological poles, others take more centrist views on questions of public policy, recognizing at once that intervention may be necessary to attain desirable distributional outcomes but that such interventions may diminish market efficiency or incur dead-weight loss (Jelveh et al., 2018; Van Gunten et al., 2016).

We also expect economic issues to vary in their relevance to the question of government intervention. In their study of the IGM survey, Van Gunten et al. (2016) find that opinions on issues such as the fundamental value of a bitcoin or the effect of automation on the labor market show little statistical relation to the latent ideological factor they identify. Moreover, Gordon and Dahl (2013) find that many issues are characterized by unanimous agreement across top economists. Some of these issues that have reached consensus refer to basic tenets of economic theory, like the efficiency of free trade. All this suggests that questions vary in their level of "ideological salience," and that even the most ideological economists have many opinions that are unstructured by the free market versus intervention distinction.

This discussion motivates several testable hypotheses. One possibility is that that experts with stronger ideological dispositions always rely on a simplifying and totalizing cognitive style and hence will exhibit a higher level of certainty across topics. However, an alternative hypothesis is that ideological thinking only extends to those topics that evoke the free-market/interventionist distinction. If so, we would only expect to see an inflation of confidence on "ideologically salient" questions which relate clearly to basic disciplinary divide and conjure ideologically patterned responses.

It is also plausible that the effects of ideology are asymmetric—that one side of the ideological spectrum is associated with greater confidence than the other. A long line of research in political psychology has argued that liberals and conservatives differ in their cognitive styles. Notably, Jost (2017) overviews several studies that find that liberals tend to exhibit greater "uncertainty tolerance" than conservatives. To explore this possibility among economists, we also examine differences in effect of ideology between free-market and interventionist economists. We test these plausible hypotheses in the analyses that follow.

2 | DATA

We analyze data collected by the IGM Economic Experts Panel, a unique survey of 51 prominent economists housed at seven elite departments in the U.S. (Harvard, MIT, Berkeley, Chicago, Yale, Stanford, and Princeton).[2] The survey designers purposely selected respondents covering a variety of backgrounds and areas of expertise. While this sample should not be considered representative of the entire discipline, the IGM Economic Experts Panel nevertheless offers rare insight into an important subset of the most influential voices in economics on matters of public policy; several of the respondents have acted as political advisors in the past and many are frequently quoted in news media. The panel is ongoing; participants are presented with one or two questions at a time, approximately once every two to 4 weeks.

Data collection has been continuous since 2011 and we analyze responses through May of 2018, totaling over 200 questions. Questions are generally policy-oriented and often reflect timely debates such as the causes of the 2008 financial crisis and the implications of Brexit. However, some of the questions seem to be included for the purpose of exhibiting consensus among elite economists (Wolfers, 2013). For example, the survey includes several questions concerning basic economic theory, such the impossibility of a perfect collective ranking system. Thus, the set of questions also cannot be considered representative of the full range of questions tackled by economists. However, IGM nonetheless provides a unique glimpse into the patterns of opinion among some of the most influential economists in the United States, and enough substantial matters are considered over the history of the survey that the effects of ideology should still be measurable if they exist.

Responses are given on five-point scale from "strongly disagree," to "strongly agree." The middle response category is labeled as "uncertain." A sixth response, "no opinion," is also available to respondents. We recode "strongly agree" and "strongly disagree" to "agree" and "disagree" to eliminate possible confounding between extreme response and reported confidence.[3] The result is a three-point scale ranging from "disagree" to "uncertain" to "agree." "No opinion" responses are excluded from analysis because they contain no score for confidence.[4]

Because survey responses were collected over a long duration, attrition and nonresponse require careful consideration. The panel initially included 41 participants, but to compensate for attrition over time, survey designers added 10 additional respondents, making a total of 51 panel members. The data available for this paper consist of two partially overlapping pseudo survey waves; the first set of 114 questions asked before replenishment respondents were added to the sample comprise "Wave 1," and the subsequent 127 questions comprise "Wave 2." Some respondents answered only first wave or second wave items, while some answered items in both waves. In our analyses we use all available data but adopt a minimum response rate threshold, dropping respondents from a given wave if their response rate for that wave is below 40%. To compute a latent ideology score for all respondents using PCA, an imputation strategy is necessary to handle missing data. We use an "iterative PCA" imputation approach specifically designed for imputation prior to PCA to minimize the bias of PCA loadings (Josse & Husson, 2012, 2016). This process results in the inclusion of 49 respondents and 241 questions for analysis.[5]

Our first key outcome variable, the certainty with which a view is expressed, is taken directly from the survey. After responding to the question, respondents rate on a scale from 1 to 10 how confident they are in their view. We treat this rating as a continuous measure of subjective certainty for each response. The mean of reported confidence is 5.9, but responses vary considerably, with a standard deviation of 2.46. Our second outcome of interest is selection of the "uncertain" response. We code this variable dichotomously, indicating whether the respondent selected "uncertain" or some other response. 21% of responses are "uncertain."[6]

We include two explanatory variables that each capture the spirit of reflexive confidence: level of disagreement and topical expertise. Level of disagreement is a question-level attribute and is operationalized as the standard deviation of responses to a question. Lower standard deviations therefore represent greater consensus. If economics follows the standard of reflexive confidence, level of disagreement should be negatively associated with reported confidence. We create a measure for topical expertise by following the procedure used by Gordon and Dahl (2013). This coding procedure uses each economist's primary National Bureau of Economic Research (NBER) program affiliation and reduces these 20 program areas into 6 general categories: labor, finance, public finance, macroeconomics, international, and industrial organization. For the few respondents who are not members of the NBER, we use Gordon and Dahl's coding of their field, or in the case of new respondents, we select a code based on works listed on the respondent's CV. We use the same six subfield categories to classify each question in the survey, allowing direct matching between question topics and domain expertise. We retain Gordon and Dahl's coding for the questions included in their study, but for questions that were fielded by IGM after Gordon and Dahl's study we coded their topics ourselves following the same scheme.[7] Expertise is therefore a response-level attribute, and is coded as 1 if the respondent's area of expertise matches the question's topical domain, and is otherwise coded as 0. By the standard of reflexive confidence, respondents should express lower certainty when speaking outside their area of expertise, and therefore expertise should exhibit a positive association with confidence.

We capture the influence of ideology on subjective certainty with three key explanatory variables: the respondent's ideological strength, the question's ideological salience, and the interaction between the two. We use PCA to create the ideology measure for both respondents and questions.[8] Following Van Gunten et al.'s (2016) study of latent ideology in the IGM Panel, we use the respondent's score on the first principal component as a measure of the respondent's ideological strength, that is, the extent to which they hold consistently ideological views. Because we are primarily interested in the strength of ideological convictions rather than their direction (i.e., free market or interventionism), we take the absolute value of respondents' PCA score.

We use each question's factor loading on the first principal component as a measure of the question's ideological salience. Therefore, questions that load high on the first component, and therefore contribute greatly to an individual's ideology score, are considered more ideologically salient than those questions score near zero on the component. For example, the question "the U.S. government should make further efforts to shrink the size of the country's largest banks" clearly relates to respondent's beliefs about government intervention, and empirically receives a high ideological salience score, as we expect. In contrast, a question about how to effectively measure wellbeing in low-income populations does not inherently relate to the free-market/state intervention dimension, and received a low ideological salience score. As with the measure of respondent ideology, we take the absolute value of the factor loading to create a measure of the ideological salience of the question rather than its ideological direction. Therefore, it does not affect ideological salience whether the question is worded such that "agree" signifies a more laissez-faire or interventionist response.

We also calculate the interaction of respondent's ideological strength and question's ideological salience, multiplying the two measures described above. This interaction measure is thus an attribute of a *response* rather than an attribute of a respondent or a question. This measure is highest when the response is given by a strongly ideological respondent to an ideologically salient question.

For control variables, we collected respondents' attributes from their CVs, including any formal partisan affiliations, their gender, and the number of years since they earned their Ph.D. We operationalize formal Left and Right partisan affiliations as either government appointments under Republican and Democratic administrations or affiliations with party-aligned think tanks.[9] To account for the possibility that either freshwater or saltwater economists are particularly confident in their opinions, we use Terviö's (2011) classifications to control for current appointment, coding Harvard, MIT, Princeton, and Berkeley as "saltwater" departments and Chicago, Stanford, and Yale as "freshwater."

Lastly, it is plausible that respondents vary in their propensity to select the middle "uncertain" response. A respondent-level tendency to select (or avoid) the middle response could affect both ideological strength as measured by PCA and is likely correlated with subjective certainty. To distinguish non-ideological and "middling" response patterns, we control for the respondent's percentage of responses that are "uncertain."[10]

3 | ANALYTICAL STRATEGY

Our first outcome measure of interest is the reported confidence of a given respondent on a given question. To account for the structure of the data, in which individual responses are nested within both respondents and questions, we use cross-classified, mixed-effects models with random effects for both respondents and questions. The general equation for these models is expressed in Equation (1), in which Y_{ij} is the predicted confidence of a given response, X_{ij} is the matrix of values for all explanatory variables, β is the vector of coefficients, U_i is the random effect of respondent i on confidence, V_j is the random effect of question j on confidence, and e_{ij} is the respondent-question error term.

$$Y_{ij} = X_{ij}^{T}\beta + U_i + V_j + e_{ij} \quad (1)$$

For our second outcome measure, selection of an "uncertain" response, we follow a similar modeling approach. However, because "uncertain" response is a dichotomous variable, we model effects using cross-classified,

mixed-effects logistic regression instead of a linear model. Because various statistical issues impair the interpretability of interaction effects in categorical models, we also present results from multilevel linear probability models that produce that same substantive findings in Table A2 of the Appendix.

As an alternate test, we also fit fixed-effects models which include fixed effects for all respondents and all questions. Results from the fixed effects models accord with those from the mixed-effects models and account for the possibility of any omitted variables at the respondent- or question-level. Fixed effects models are included in Tables A3 and A4 of the Appendix.

4 | RESULTS

We first construct a measure of latent ideology by applying PCA to the full set of IGM survey responses, following Van Gunten et al. (2016). The scree plot at the top panel of the Figure 1 reveals that a single latent factor captures a substantial fraction of the total variance among all responses. The first component explains approximately 13.8% of the total variance across the 114 questions in Wave 1 and 9.1% of the variance across the 154 questions comprising Wave 2. Twenty-nine respondents answer questions in both the first and second wave, and the correlation of their PCA scores on Wave 1 with their score on Wave 2 is 0.85, suggesting that the same latent construct is being captured by the first component in each wave. We find that the highest scoring questions are on the topics of raising the minimum wage, the Fed raising its interest rate, and the auto manufacturer bailouts, all of which closely relate to the issue of government intervention.

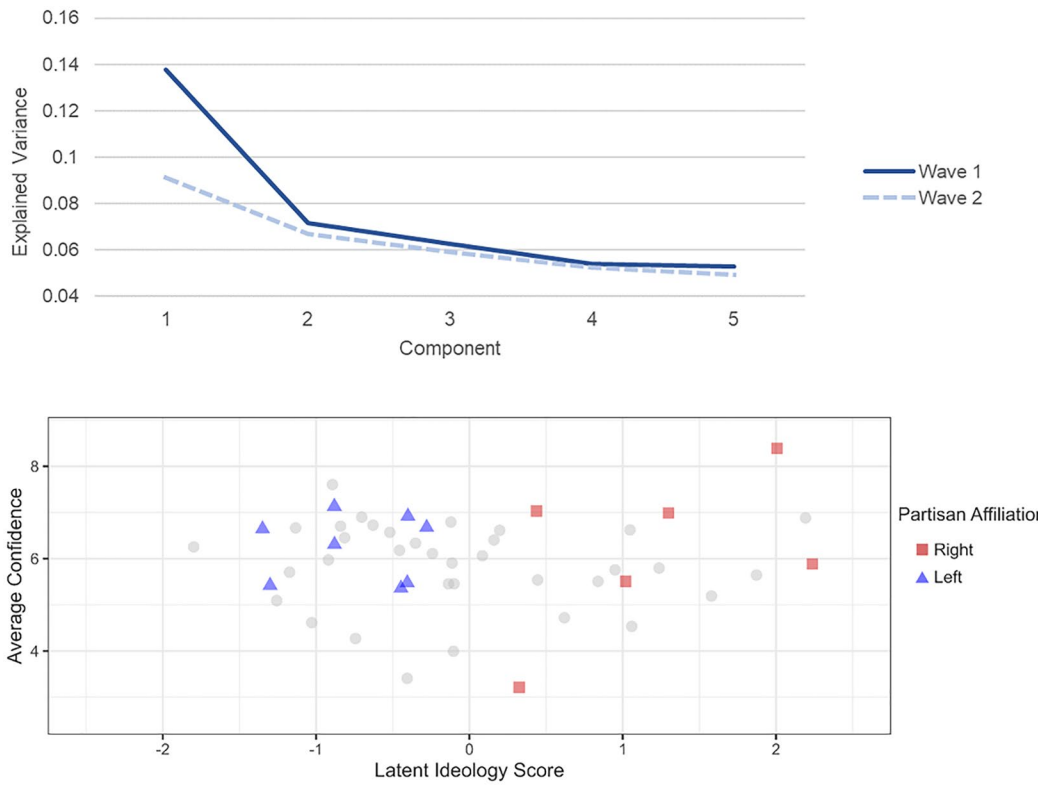

FIGURE 1 Scree plot from principal components analysis (top) and a scatterplot of latent ideology scores from first principal component and average confidence of responses (bottom).

The lower panel of Figure 1 shows the relationship of economists' scores on the latent ideology factor with their partisan affiliations and average reported confidence. The ideology measure successfully sorts all Left affiliated economists to one side and all Right affiliated to the other. The close correspondence of our score derived from survey response and the respondents' formal partisan affiliations attests to the factor's success at capturing ideological divisions. Position on the *y*-axis represents the respondent's average confidence. We observe no clear linear trend across the ideological spectrum; left leaning economists do not appear to express a different average level of confidence than right leaning economists. We do note that the economists with the lowest average confidence tend to score near zero on the ideological scale, providing some preliminary support for our hypothesis that direction of ideological disposition matters less than the strength of that disposition.

Next, we examine the relationship between the respondent's ideological strength, the question's ideological salience, and the confidence of the response. Results from mixed-effects linear regression models predicting self-reported confidence are presented in Table 1. Model 1 includes only the respondent's ideological strength—operationalized as the absolute value of the respondent's PCA score—and the question's ideological salience—the absolute value of the question's loading on first component from PCA. We find no evidence that more ideological economists give more confident responses than their less ideological counterparts. Interestingly, it appears that more ideologically salient questions—questions that pertain more closely to the issue of government intervention—are answered with decreased confidence. In Model 2 we introduce an interaction term between the respondent's ideological strength and the question's ideological salience. Respondent's ideological strength remains nonsignificant and the question's ideological salience retains its negative effect with the addition of this interaction. However, the effect of the interaction itself is positive and highly significant. This suggests that when an ideological economist responds to an ideologically salient question, they express greater confidence than their less ideological peers.

Model 3 of Table 1 adds control variables but removes the interaction term. With the inclusion of controls, neither the respondent's ideological strength nor the question's ideological salience has a significant effect on reported confidence. Two controls exhibit significant effects. First, the level of disagreement on a question shows a strong, negative effect on reported confidence. This effect implies that questions that enjoy high consensus tend to evoke more confident responses than those that raise dispute. This is consistent with the "reflexive confidence" model we describe above: economists' subjective confidence reflects the collective consensus of peers. Expertise similarly shows a significant positive effect, meaning that economists report higher confidence on questions in their areas of specialization. Affiliation with the Democratic or Republican Parties, affiliation with a "saltwater" economics department, gender, and years since earning a doctorate all lack significant association with reported confidence.

Model 4 is the full model, including all controls and the key interaction term between respondent's ideological strength and question's ideological salience. The respondent's ideological strength still shows no association with the confidence of their responses net of controls. It is worth noting that because our sample only includes 49 economists, this test is somewhat underpowered. The effect of the question's ideological salience also remains nonsignificant. By contrast, we find that the interaction between the respondent's ideological strength and the question's salience remains significant and positive after the inclusion of controls. This suggests that ideology only exerts a clear effect on confidence when both the respondent *and* the question are ideologically charged. Among controls, we again find that disagreement tempers confidence and expertise heightens it, but no other controls achieve significance.

Directly calculating the confidence of ideological and non-ideological economists on ideologically-salient questions provides a sense of the magnitude of these effects. Comparing the average confidence between the 20% most ideological economists and the 20% least ideological economists for the top 20% most ideologically-salient questions, we find that the more ideological economists report confidence 1.2 points higher on average than their less ideological peers. It is notable that domain expertise is only associated with a 0.896-point increase in confidence in Model 4 above, smaller than the potential boost due to ideology.

We present visualizations to clarify the interaction effect observed in Table 1. Figure 2 displays the relationship between respondent's strength, question's ideological salience, and reported confidence net of controls. Estimates are derived from the mixed effects model presented in Model 4 of Table 1. The dashed line represents the association

TABLE 1 Estimates from mixed-effects linear regression predicting self-reported confidence of response.

	(1)	(2)	(3)	(4)
Respondent ideological strength	0.386	0.231	0.372	0.248
	(0.256)	(0.260)	(0.294)	(0.297)
Question ideological salience	−0.511***	−0.690***	0.047	−0.099
	(0.081)	(0.094)	(0.068)	(0.083)
R. ideo. strength x Q. ideo. salience		0.216***		0.175**
		(0.059)		(0.059)
Level of disagreement			−3.081***	−3.076***
			(0.195)	(0.194)
Resp. rate of uncertain response			−1.648	−1.657
			(2.456)	(2.456)
Right affiliation (yes = 1)			0.057	0.054
			(0.497)	(0.497)
Left affiliation (yes = 1)			0.246	0.246
			(0.430)	(0.430)
Saltwater department (yes = 1)			0.210	0.210
			(0.306)	(0.306)
Female			−0.008	−0.009
			(0.412)	(0.412)
Years since degree			0.012	0.011
			(0.016)	(0.016)
Expertise			0.903***	0.896***
			(0.057)	(0.057)
Constant	5.962***	6.089***	6.793***	6.900***
	(0.265)	(0.267)	(0.871)	(0.872)
N	8425	8425	8425	8425
Random effects (Std Dev.)				
Respondent	0.990	0.9890	1.038	1.038
Question	0.776	0.775	0.486	0.485
Residual	2.093	2.092	2.062	2.061

Significance thresholds for two-tailed *t* test: *$p < .05$; **$p < .01$; ***$p < .001$.

between the question's ideological salience and reported confidence for a respondent with the minimal observed ideological salience. The weak, downward slope indicates that non-ideological economists experience no boost in confidence when responding to ideologically-salient questions; indeed they suffer a non-significant decline. The solid line represents confidence for a respondent with the maximal observed ideological strength. For such a respondent, we see increasing expected confidence for questions with greater ideological salience. Hence, there is only a small difference between ideological economists and their non-ideological counterparts when responding to neutral questions, but a sizable gap in confidence emerges when an ideologically-salient question is at hand.[11]

We next present more granular evidence of this phenomenon. Figure 3 displays unpooled OLS estimates of the association between respondent's ideological strength and their reported confidence for the questions ranking in the top, median, and bottom 20 in ideological salience. The topics of the highest scoring questions closely pertain to the free market versus state intervention debate. Topics include the federal minimum wage, interest rates, the auto

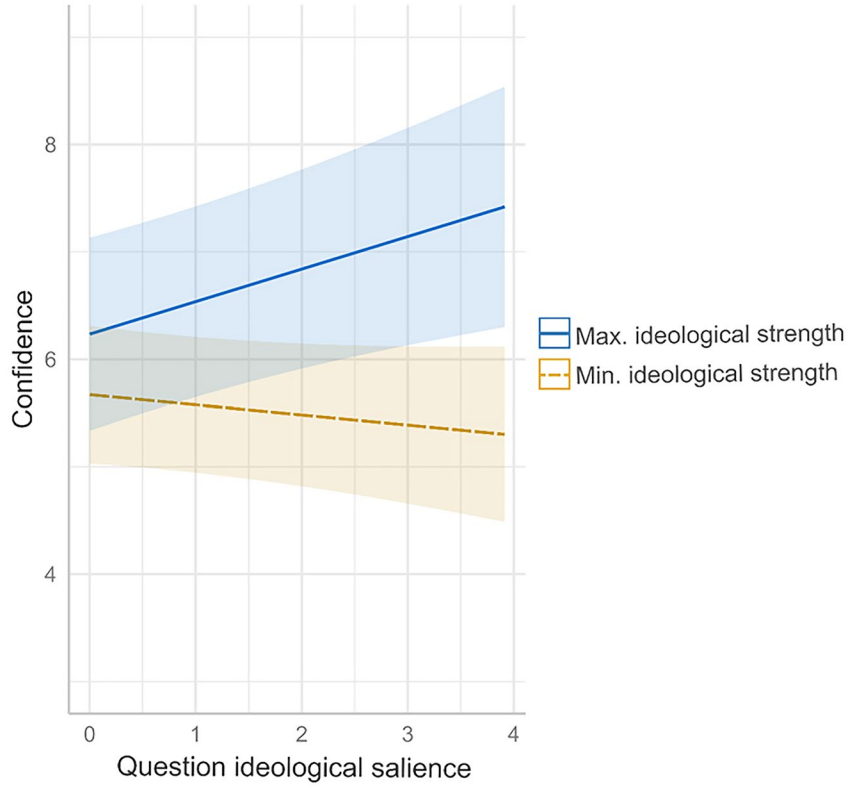

FIGURE 2 Expected confidence of response by question's ideological salience, stratified by respondent's ideological strength. Estimates derived from a mixed-effects model with controls (Model 4 of Table 1).

industry bailouts, the Obama era stimulus package, and breaking up "too big to fail" banks. For the great majority of these questions, we see the most ideological economists give substantially more confident responses than their non-ideological counterparts, with differences in several instances amounting 2.5 points on a 10-point scale. For certain questions, it appears that results may be driven by a few highly ideological outliers. However, in additional robustness tests we find that removing all responses from the three most ideological economists and from the 15 most ideologically salient questions from the sample does not substantively alter aggregate results.

The positive association between the respondent's ideological strength and subjective confidence becomes inconsistent when we look at the 20 questions of middling ideological salience. Modest positive effects appear for some questions, but other questions display apparently negative effects, and many questions show no effect at all. Respondent's ideological strength and reported confidence show no clear relationship for the 20 least ideological questions.

Having examined the relationship between ideology and reported confidence, we next investigate another measure of economists' subjective certainty—their decision to select "uncertain" as their response to a policy question. We use mixed-effects logistic regression models, predicting whether a given response is "uncertain" or not, with responses nested within both respondents and questions. To establish robustness, we include comparable mixed effects linear probability models which display the same patterns of effects in the Appendix. All models exclude the respondent-level "percent uncertain response" control variable because its inclusion singular model fit.[12]

Results are presented in Table 2. Model 1 shows the base associations of respondent's ideological strength and question's salience with giving an "uncertain" response. Patterns resemble those from models predicting the confidence of responses: respondents' ideological strength has no significant effect on giving an uncertain response, and

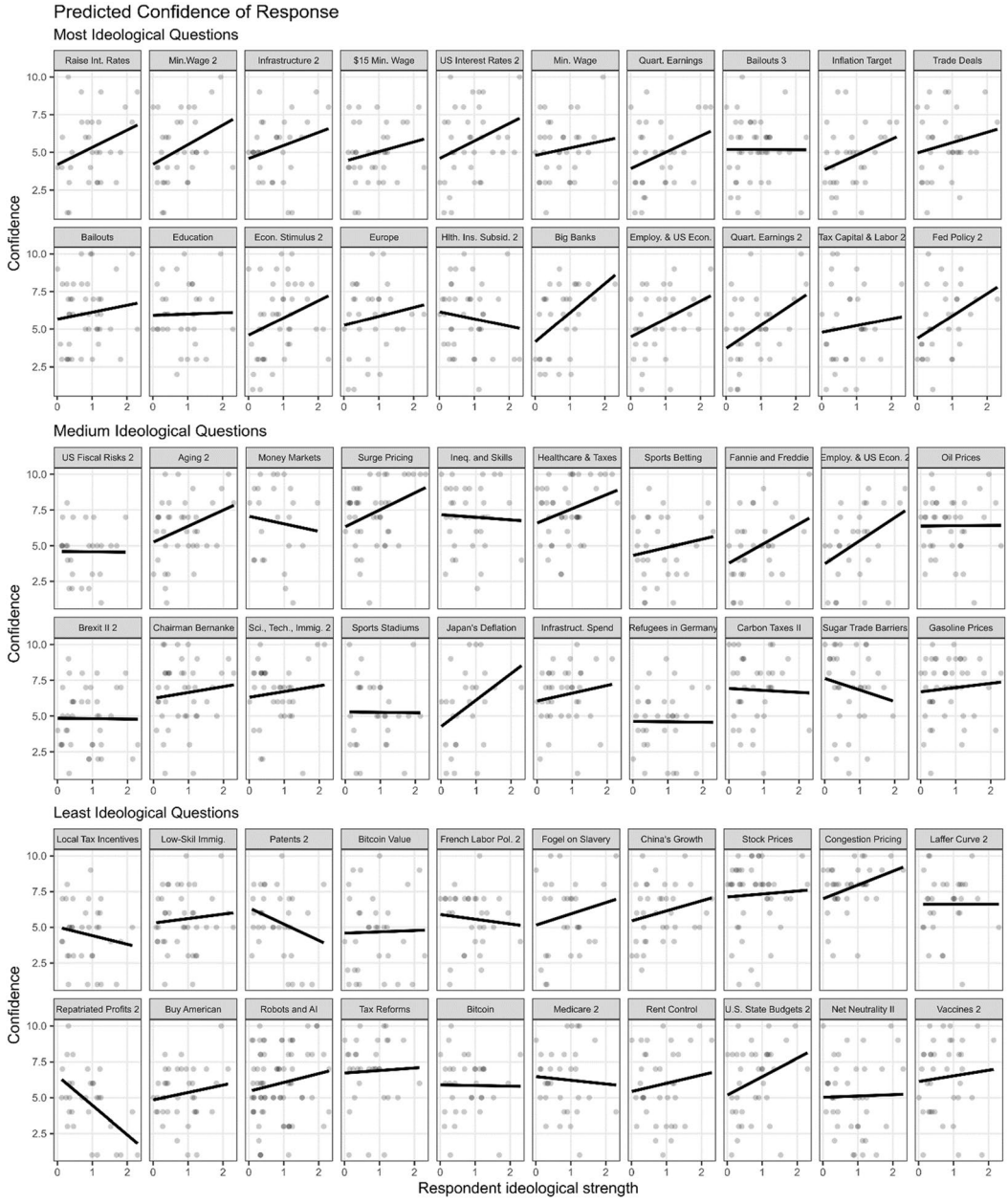

FIGURE 3 Respondents' ideological strength predicting confidence of responses for questions with high, medium, and low ideological salience. Line segments represent unpooled estimates from OLS models of respondents' ideological strength predicting confidence of response. Gray dots represent respondents' reported confidence for that question.

higher ideological salience of a question is associated with greater probability of an uncertain response. Model 2 adds the interaction term between respondent's ideological strength and question salience. After including the interaction effect, we find that respondent's ideological strength begins to show a positive association with giving an "uncertain" response. This suggests that, on non-ideological questions, ideological economists are somewhat *more* likely to express uncertainty than their non-ideological peers. Although this was finding was not anticipated by our theory, it

TABLE 2 Estimates from mixed-effects logistic regression models predicting an "uncertain" response.

	(1)	(2)	(3)	(4)
Respondent ideological strength	0.038	0.290*	0.063	0.315*
	(0.120)	(0.134)	(0.117)	(0.132)
Question ideological salience	0.689***	0.922***	−0.067	0.163
	(0.104)	(0.120)	(0.084)	(0.102)
R. ideo. strength x Q. ideo. salience		−0.297***		−0.294***
		(0.075)		(0.075)
Level of disagreement			4.347***	4.353***
			(0.291)	(0.291)
Right affiliation (yes = 1)			0.086	0.087
			(0.209)	(0.208)
Left affiliation (yes = 1)			−0.152	−0.153
			(0.171)	(0.171)
Saltwater department (yes = 1)			−0.054	−0.053
			(0.123)	(0.123)
Female			0.268	0.269
			(0.164)	(0.164)
Years since degree			−0.013*	−0.013*
			(0.006)	(0.006)
Expertise			−0.073	−0.062
			(0.072)	(0.072)
Constant	−2.126***	−2.328***	−3.480***	−3.692***
	(0.157)	(0.166)	(0.283)	(0.289)
N	8425	8425	8425	8425
Random effects (Std Dev.)				
Respondent	0.429	0.429	0.369	0.369
Question	0.971	0.971	0.604	0.605

Significance thresholds for two-tailed *t* test: *$p < .05$; **$p < .01$; ***$p < .001$.

stands strongly at odds with the alternate hypothesis that ideologues are overconfident across all topics. We also see that question's ideological salience displays a yet stronger positive effect on the probability of an uncertain response. Mirroring our models of confidence, we see a strong positive interaction effect between respondent's ideological strength and question's ideological salience, suggesting that, when responding to ideologically charged questions, economists with stronger ideological convictions have a lower likelihood of selecting the "uncertain" response.

Model 3 adds control variables and removes the interaction term. Neither the respondent's ideological strength nor the question's ideological salience show significant effects in this model. Disagreement displays a powerful positive effect on the likelihood of an uncertain response, meaning that economists are more likely to express uncertainty when a topic lacks consensus. We also see a weak negative effect of "years since degree" on likelihood of reporting uncertainty, suggesting that junior economists are more likely to voice uncertainty than their seniors.

Model 4 includes the interaction effect along with all controls. We see that even with controls, the main effect of ideological strength remains positive and significant. However, we find that the interaction effect is also highly significant, but its effect is negative. This suggests that ideological economists are not always overconfident, but that they enjoy a boost of certainty when addressing ideologically salient issues. Among the control variables, percent agreement and years since degree remain the only significant predictors of uncertain response.

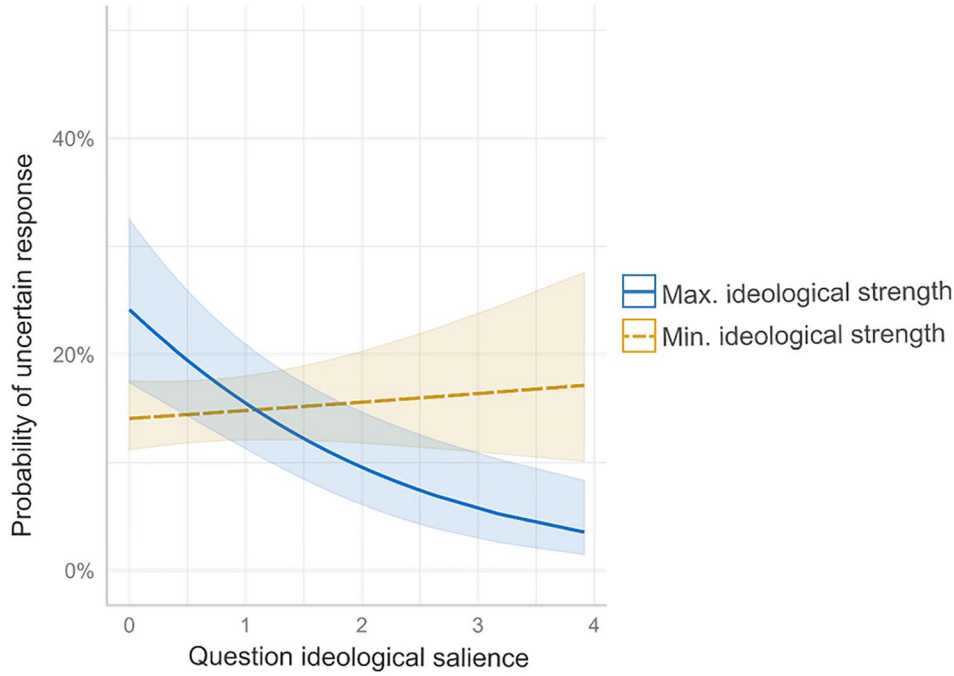

FIGURE 4 Estimated probability of giving an "uncertain" response by question's ideological salience, stratified by respondent's ideological strength. Estimates derived from a mixed-effects logistic regression model (Model 4 of Table 2) with all control variables fixed at their mean.

Figure 4 visually displays how the relationship between the question's ideological salience and probability of an uncertain response is conditional on the respondent's ideological strength. Although ideological economists show a slightly greater probability of expressing uncertainty for non-ideological questions, they are much less likely to give an uncertain response on ideologically salient questions. For a question with the maximum observed ideological salience, ideological economists have less than a 5% probability of selecting "uncertain" while their non-ideological peers have a roughly 20% chance.

Lastly, we test for partisan asymmetries in the effect of ideology on confidence. Until this point, we have measured respondents' ideological strength using the absolute value of their scores on the latent ideology factor, combining the two sides of the ideological spectrum. Here we test if the effects of ideology on confidence differ between free market and interventionist economists. We accomplish this by creating separate measures for "interventionist ideology" and "free market ideology." For economists who score negative on the first principal component (indicating interventionist leanings), their "interventionist ideology" score is equal to their "ideological strength" score from the prior models, and their "free market ideology" score is set to zero. Economists with a free-market leaning likewise have a "free market ideology" score equal to their prior ideological strength, and an "interventionist ideology" score of zero. We present these results because of their theoretical importance, but in the spirit of reflexive confidence we acknowledge that these estimates are susceptible to instability given the small number of economists in our sample.

Model-based results are presented in Figure 5, and full models are presented in Appendix Table A5. The solid line represents the predicted confidence for a maximally interventionist economist at varying levels of question salience, and the dotted line represents the confidence of a maximally free market economist. We see that both lines trend upward, suggesting that, as ideological salience increases, the confidence of both interventionist and free market economists increases. The dashed line represents the confidence of a non-ideological economist (scoring zero on the latent factor), and exhibits a slight decline as ideological salience increases. Numeric estimates (presented in Table A5) confirm that both interventionist and free market ideological strength exhibit significant interaction effects

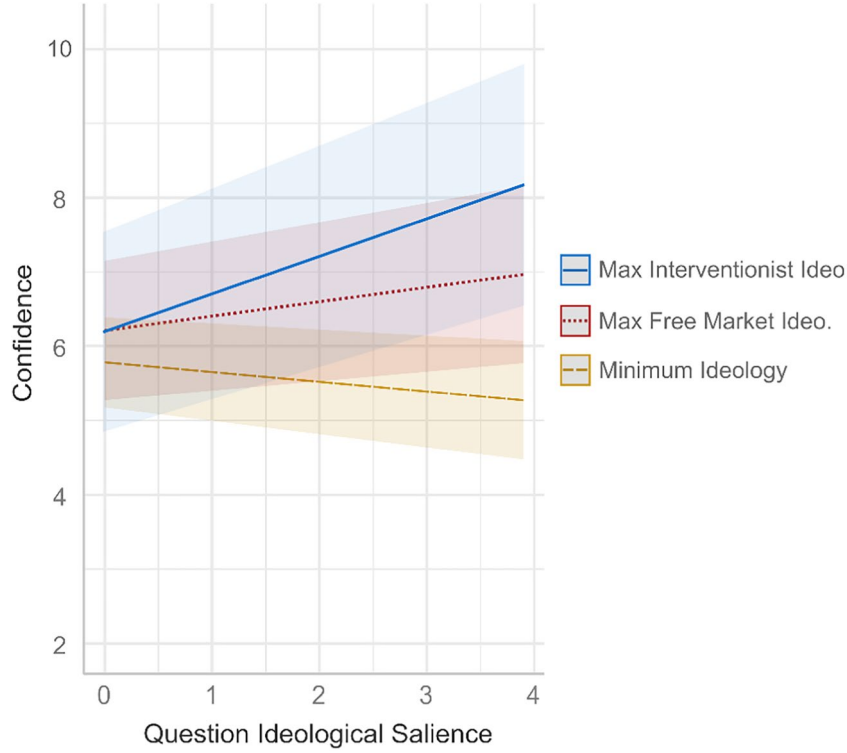

FIGURE 5 Expected confidence by question's ideological salience for a maximally interventionist economist, maximally free market economist, and a non-ideological economist. Estimates derived from a mixed-effects model with controls (Model 2 of Table A5 in Appendix).

with ideological salience. These results suggest that the interaction between ideology and certainty that we have examined in this study is not confined to one side of the ideological spectrum, but manifests at both poles.

Furthermore, although the difference is not statistically significant, it is still noteworthy that interventionist ideology shows a stronger effect on confidence than free market ideology. We do not have sufficient evidence here to conclude that interventionist economists experience a greater ideological boost in confidence than their free market counterparts, but these findings do strongly counter the opposite hypothesis—that ideology only affects confidence for free-market economists. A large literature in political psychology argues that conservative ideology is associated with lower "uncertainty tolerance" (Jost, 2017), but our findings suggest that such a principle does not apply to the professional opinions of conservative economists.

5 | CONCLUSION

In this study, we examined the confidence with which economists express their expert opinions, highlighting the relationship between subjective certainty and the discipline's age-old ideological divide over the appropriate level of state intervention in markets. Leveraging a unique dataset of elite economists' policy recommendations and self-reported confidence, we find that strongly ideological economists express greater confidence in their expert opinions than their less ideological peers, but that this boost is limited to those questions on ideologically salient topics.

Our findings recast overconfidence as a feature of structured disagreement rather than a durable attribute of individuals. Our evidence does not suggest that ideologues exhibit a generalized overconfidence, nor do our results provide support for the common hypothesis that conservatives are more "uncertainty avoidant" than liberals. Rather,

we find that overconfidence can be expected at certain positions in a discourse—within the topics that reflect a core structure of the debate and among the experts who organize their opinions according to that structure. In other words, where the structure of a discourse is the least complex, confidence is heightened.

In several important ways, the economists included in our survey meet the expectations of "reflexive confidence" that we put forth for a policy advising discipline. The respondents generally express greater uncertainty when professional consensus is limited or when a question falls outside their areas of expertise. Moreover, we find that the ideological patterning of professional opinions is not ubiquitous; many economists' policy recommendations are seemingly unstructured by the traditional free market versus interventionism divide. However, even within a discipline functioning largely as we would hope, we find that distortions of certainty associated with ideology are still substantial.

Ideological overconfidence in economics may be particularly consequential due to the discipline's institutionalized roles in policymaking. If a political party or a policy think tank were advised by a strongly ideological economist, this organization may receive an inflated sense of certainty on questions that are still unsettled in the discipline. Moreover, two policymaking organizations advised by economists from opposite ends of the ideological spectrum may feel equally confident in opposing policy initiatives. Partisan policymakers are thus likely to receive contrary information about the state of the economy and the effect of their policies. This means that actors at the poles of the political spectrum are likely be divided not only by their values and their concerns but by their very understandings of the world.

Ideological divisions within economics may be exacerbated by the discipline's close relation to politics and policy, but it is likely that similar ideological patterning exists in other social scientific fields as well. Disciplinary debates are often organized around a few key axes of opposition, which can be theoretical, methodological, or topical (Abbott, 2001). While other disciplines' divisions may be more insulated from national politics, they nonetheless have consequences for the production and communication of scientific knowledge.

More generally, our study sheds light on what happens when the social organization of scientific disagreement is compressed along a single axis. As stances on scholarly questions become more highly intercorrelated, positions in social scientific debate become easily identified with positions on a singular ideological spectrum. In economics, these ideological positions not only denote differences in opinion, but also map onto social differences, specifically the historic freshwater/saltwater departmental divide as well as the liberal/conservative political spectrum. Similar correspondences between social position and discursive stances are likely to exist in other disciplines as well (Bourdieu, 1988).

Ideology manifests as a "flattening" of discourse, and our findings suggest that such unidimensionality can distort the reflexivity of the discipline's practitioners. Recent trends in political polarization have elicited widespread fears of political "echo chambers" and commentators have decried polarization's degrading effect on civic discourse. Our findings suggest that this problem is not only a political one but a scientific one. When the social organization of scientific opposition is reduced to a single dimension, the task of determining truth becomes a simple operation, with practitioners on each side of the debate confident in the truth of their quick conclusions.

ACKNOWLEDGMENTS

The School of Social and Political Science at the University of Edinburgh provided research funding. We thank Natan Misak and Andrea Carlo Magnaghi for providing research assistance. A previous version of the paper was presented to the London School of Economics Sociology Department, the Social Theory and Evidence Workshop at the University of Chicago, and the Annual Meeting of the American Sociological Association. We thank John Levi Martin, Stephen Raudenbush, and Georg Rilinger for providing helpful feedback.

DATA AVAILABILITY STATEMENT

Our data is publicly available at https://www.igmchicago.org/igm-economic-experts-panel/.

ORCID

Austin C. Kozlowski https://orcid.org/0000-0001-8458-1129

ENDNOTES

[1] The responses to the voucher question include a free-market leaning economist selecting "Strongly Agree" with self-rated confidence at a perfect 10 and an intervention-leaning economist selecting "Disagree," also with a confidence of 10.

[2] Data are publicly available; more information can be found at https://www.igmchicago.org/igm-economic-experts-panel/.

[3] Preserving extreme responses does not substantively affect findings.

[4] In supplemental analyses, we test whether "no opinion" responses behave similarly to "uncertain" or low confidence responses, and we find that they do not. Respondents have the option of leaving short comments explaining their response, and these comments suggest that "no opinion" more often reflects a total lack of knowledge on the question's topic while "uncertain" and low confidence reflect ambivalent, conflicted, and complicated opinions. We find no relationship between ideology and "no opinion" responses.

[5] Our approach to these issues is similar to Van Gunten et al. (2016), but we incorporate additional data in wave 2 and include two additional respondents.

[6] Descriptive statistics for all variables are presented in Table A1 in the Appendix.

[7] We were assisted in coding by research assistants who were graduate students in an economics department. Multiple research assistants coded each question and engaged in a deliberative consensus process to adjudicate disagreements.

[8] We estimate principal components using the covariance matrix of all items in the IGM survey. Estimating principal components with a polychoric correlation matrix is commonly recommended for ordinal data (Kolenikov & Angeles, 2004, 2009), but we find that this approach performs poorly with our data due to numerous items' low variance. The IGM survey includes many items that exhibit total or near-total consensus, with the full sample selecting the same response except one or two respondents who select the middle response. Some of these questions exhibit very strong correlations despite capturing little covariance. These questions therefore attain powerful item loadings with polychoric PCA despite being largely uncontroversial and non-ideological. Because we are primarily concerned with disciplinary division, an approach that captures covariance over correlation is preferred. We conceptualize ideology as the axis capturing the most disagreement across issues, and the first principal component is the axis explaining the most variance across items, even when estimated on data with a non-normal distribution (Jolliffe, 2002; Robitzsch, 2020). Fortunately, because our items are all measured on a common scale, item variances are directly comparable and the standardization inherent to correlation is unnecessary (Jolliffe & Cadima, 2016). We find that principal components estimated with a polychoric correlation matrix reproduce the substantive findings presented here if the item loadings are weighted by item variance.

[9] The two conservative think tanks represented among the IGM respondents are the Hoover Institute and the American Enterprise Institute. The Hoover Institute describes itself as non-partisan, but is widely considered conservative by commentators. None of the respondents to the IGM are affiliated with liberal think tanks.

[10] The exclusion of the "percent uncertain" control variable does not substantively alter model results.

[11] The confidence bands in Figure 2 represent the range of predicted values given coefficient estimates falling within a 95% confidence interval. These bands provide a sense of the range of likely values, but their overlaps should not be interpreted in terms of significance or non-significance because the two lines are derived from the same coefficients under different observed values. For example, if the true coefficient for ideological strength is high for one estimate, it is equally high for the other, because they are derived from the same model. Therefore, both lines would simultaneously have higher slopes. The overlaps in Figures 2–4 therefore should not be read as suggesting a non-significant interaction.

[12] Results from fixed-effects models included in the Appendix suggest that no omitted respondent-level characteristic (such as a general tendency to give an "uncertain response") explains the interaction effect that we observe.

REFERENCES

Abbott, A. (2001). *Chaos of disciplines*. University of Chicago Press.

Alvarez, R. M., & Brehm, J. (2002). *Hard choices, easy answers: Values, information, and American public opinion*. Princeton University Press.

Baldassarri, D., & Gelman, A. (2008). Partisans without constraint: Political polarization and trends in American public opinion. *American Journal of Sociology*, *114*(2), 408–446. https://doi.org/10.1086/590649

Barker, D. C. (2018). Cognitive deliberation, electoral decision making, and democratic health. *Social Science Quarterly*, *99*(3), 962–976. https://doi.org/10.1111/ssqu.12475

Baumann, A. O., Raisa, B. D., & Thompson, G. G. (1991). Overconfidence among physicians and nurses: The 'micro-certainty, macro-uncertainty' phenomenon. *Social Science and Medicine*, *32*(2), 167–174. https://doi.org/10.1016/0277-9536(91)90057-j

Berman, E. P. (2017). From economic to social regulation: How the deregulatory moment strengthened economists' policy position. *History of Political Economy*, *49*(Supplement), 187–212. https://doi.org/10.1215/00182702-4166323

Berman, E. P. (2022). *Thinking like an economist: How efficiency replaced equality in US public policy*. Princeton University Press.

Bernstein, M. A. (2001). *A perilous progress: Economists and public purpose in twentieth-century America*. Princeton University Press.

Beyer, K. M., & Pühringer, S. (2019). *Divided we stand? Professional consensus and political conflict in academic economics*. Johannes Kepler University/ICAE Working Paper Series. No. 94.

Blyth, M. (2002). *Great transformations: Economic ideas and institutional change in the twentieth century*. Cambridge University Press.

Bourdieu, P. (1988). Vive la Crise!. *Theory and Society*, *17*(5), 773–787. https://doi.org/10.1007/bf00162619

Christensen, J. (2017). *The power of economists within the state*. Stanford University Press.

DellaPosta, D. (2020). Pluralistic collapse: The "oil spill" model of mass opinion polarization. *American Sociological Review*, *85*(3), 507–536. https://doi.org/10.1177/0003122420922989

Diaf, S., Döpke, J., Fritsche, U., & Rockenbach, I. (2022). Sharks and minnows in a shoal of words: Measuring latent ideological positions based on text mining techniques. *European Journal of Political Economy*, *75*, 102179. In Press. https://doi.org/10.1016/j.ejpoleco.2022.102179

Eyal, G., & Levy, M. (2013). Economic indicators as public interventions. *History of Political Economy*, *45*(1), 220–253. https://doi.org/10.1215/00182702-2311007

Feldman, S., & Zaller, J. (1992). The political culture of ambivalence: Ideological responses to the welfare state. *American Journal of Political Science*, *36*(3), 268–307. https://doi.org/10.2307/2111433

Fischhoff, B., & Davis, A. L. (2014). Communicating scientific uncertainty. *Proceedings of the National Academy of Sciences*, *111*(S4), 13664–13671. https://doi.org/10.1073/pnas.1317504111

Fligstein, N., Stuart Brundage, J., & Schultz, M. (2017). Seeing like the Fed: Culture, cognition, and framing in the failure to anticipate the financial crisis of 2008. *American Sociological Review*, *82*(5), 879–909. https://doi.org/10.1177/0003122417728240

Fourcade, M. (2009). *Economists and societies*. Princeton University Press.

Fourcade, M., Ollion, E., & Algan, Y. (2015). The superiority of economists. *The Journal of Economic Perspectives*, *29*(1), 89–114. https://doi.org/10.1257/jep.29.1.89

Fourcade-Gourinchas, M., & Babb, S. L. (2002). The rebirth of the liberal creed: Paths to neoliberalism in four countries. *American Journal of Sociology*, *108*(3), 533–579. https://doi.org/10.1086/367922

Fuller, D., & Geide-Stevenson, D. (2007). Consensus on economic issues: A survey of republicans, democrats and economists. *Eastern Economic Journal*, *33*(1), 81–94. https://doi.org/10.1057/eej.2007.5

Fuller, D., & Geide-Stevenson, D. (2014). Consensus among economists—an update. *The Journal of Economic Education*, *45*(2), 131–146. https://doi.org/10.1080/00220485.2014.889963

Gelman, A., & Carlin, J. (2014). Beyond power calculations: Assessing type S (sign) and type M (magnitude) errors. *Perspectives on Psychological Science*, *9*(6), 641–651. https://doi.org/10.1177/1745691614551642

Gelman, A., & Loken, E. (2014). The statistical crisis in science: Data-dependent analysis – a "garden of forking paths" – explains why many statistically significant comparisons don't hold up. *American Scientist*, *102*(6), 460–466. https://doi.org/10.1511/2014.111.460

Gordon, R., & Dahl, G. B. (2013). Views among economists: Professional consensus or point-counterpoint? *The American Economic Review*, *103*(3), 629–635. https://doi.org/10.1257/aer.103.3.629

Hall, P. A. (1993). Policy paradigms, social learning, and the state: The case of economic policymaking in britain. *Comparative Politics*, *25*(3), 275–296. https://doi.org/10.2307/422246

Henriksen, L. F., Leonard, S., & Young, K. L. (2022). *Intellectual rivalry in American economics: Intergenerational social cohesion and the rise of the Chicago school*. Socio-Economic Review In press. https://doi.org/10.1093/ser/mwac024

Herzon, F. D. (1980). Ideology, constraint, and public opinion: The case of lawyers. *American Journal of Political Science*, *24*(4), 233–258. https://doi.org/10.2307/2110864

Hirschman, D., & Berman, E. P. (2014). Do economists make policies? On the political effects of economics. *Socio-Economic Review*, *12*(4), 779–811. https://doi.org/10.1093/ser/mwu017

Javdani, M., & Chang, Ha-J. (2019). *Who said or what said? Estimating ideological bias in views among economists: Estimating ideological bias in views among economists*. SSRN Working Paper. https://doi.org/10.2139/ssrn.3356309

Jelveh, Z., Bruce, K., & Naidu, S. (2018). *Political language in economics*. Columbia Business School Research Paper. No. 14-57. SSRN.

Jolliffe, I. T. (2002). *Principal component analysis for special types of data*. Springer.

Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: A review and recent developments. *Philosophical Transactions of the Royal Society A: Mathematical, Physical & Engineering Sciences*, *374.2065*(2065), 20150202. https://doi.org/10.1098/rsta.2015.0202

Josse, J., & Husson, F. (2012). Handling missing values in exploratory multivariate data analysis methods. *Journal de la Société Française de Statistique*, *153*(2), 79–99.

Josse, J., & Husson, F. (2016). missMDA: a package for handling missing values in multivariate data analysis. *Journal of Statistical Software*, *70*, 1–31. https://doi.org/10.18637/jss.v070.i01

Jost, J. T. (2017). Ideological asymmetries and the essence of political psychology. *Political Psychology*, *38*(2), 167–208. https://doi.org/10.1111/pops.12407

Kahneman, D., & Tversky, A. (1982). Subjective probability: A Judgement of representativeness. In D. Kahneman, P. Slovic, and A. Tversky (Ed.), *Judgment under uncertainty: Heuristics and biases* (pp. 32–47). Cambridge University Press.

Klein, D. B., & Stern, C. (2007). Is there a free-market economist in the house? The policy views of American economic association members. *The American Journal of Economics and Sociology*, *66*(2), 309–334. https://doi.org/10.1111/j.1536-7150.2007.00513.x

Kolenikov, S., & Angeles, G. (2004). *The use of discrete data in PCA: Theory, simulations, and applications to socioeconomic indices*. Carolina Population Center. Working Paper No. WP-04-85.

Kolenikov, S., & Angeles, G. (2009). Socioeconomic status measurement with discrete proxy variables: Is principal component analysis a reliable answer? *Review of Income and Wealth*, *55*(1), 128–165. https://doi.org/10.1111/j.1475-4991.2008.00309.x

Kozlowski, A. C., & Murphy, J. P. (2021). Issue alignment and partisanship in the American public: Revisiting the 'partisans without constraint' thesis. *Social Science Research*, *94*, 102498. https://doi.org/10.1016/j.ssresearch.2020.102498

Krugman, P. (2009). *How did economists get it so wrong?* The New York Times Magazine. http://www.nytimes.com/2009/09/06/magazine/06Economic-t.html

Kunovich, R. M. (2022). Confidence in science: Perceptions of harmful consequences, scientific uncertainty, and the pursuit of self-interest in scientific research. *Socius*, *8*(8), 23780231221093162. https://doi.org/10.1177/23780231221093162

Lazear, E. P. (2000). Economic imperialism. *Quarterly Journal of Economics*, *115*(1), 99–146. https://doi.org/10.1162/003355300554683

Levy, D. M., & Peart, S. J. (2017). *Escape from democracy: The Role of experts and the public in economic policy*. Cambridge University Press.

Lin, S.-W., & Bier, V. M. (2008). A study of expert overconfidence. *Reliability Engineering and System Safety*, *93*(5), 711–721. https://doi.org/10.1016/j.ress.2007.03.014

Liu, X., James, S., & Arnold, V. (2017). Bureaucratic expertise, overconfidence, and policy choice. *Governance*, *30*(4), 705–725. https://doi.org/10.1111/gove.12257

Lodge, M., & Taber, C. S. (2005). The automaticity of affect for political leaders, groups, and issues: An experimental test of the hot cognition hypothesis. *Political Psychology*, *26*(3), 455–482. https://doi.org/10.1111/j.1467-9221.2005.00426.x

MacKenzie, D. (2006). *An engine, not a camera: How financial models shape markets*. MIT Press.

MacKenzie, D. (2011). The credit crisis as a problem in the sociology of knowledge. *American Journal of Sociology*, *116*(6), 1778–1841. https://doi.org/10.1086/659639

Mankiw, N. G. (2006). The macroeconomist as scientist and engineer. *The Journal of Economic Perspectives*, *20*(4), 29–46. https://doi.org/10.1257/jep.20.4.29

Manski, C. F. (2011). Policy analysis with incredible certitude. *The Economic Journal*, *121*(554), F261–F289. https://doi.org/10.1111/j.1468-0297.2011.02457.x

Manski, C. F. (2019). *The lure of incredible certitude* (pp. 1–30). Economics and Philosophy.

Martin, J. L. (2002). Power, authority, and the constraint of belief systems. *American Journal of Sociology*, *107*(4), 861–904. https://doi.org/10.1086/343192

Moore, D. A., & Healy, P. J. (2008). The trouble with overconfidence. *Psychological Review*, *115*(2), 502–517. https://doi.org/10.1037/0033-295x.115.2.502

Mudge, S. L. (2008). "What is neo-liberalism?" Socio-economic review. *Socio-Economic Review*, *6*(4), 703–731. https://doi.org/10.1093/ser/mwn016

Onder, A. S., & Tervio, M. (2015). Is economics a house divided? Analysis of citation networks. *Economic Inquiry*, *53*(3), 1491–1505. https://doi.org/10.1111/ecin.12164

Ortoleva, P., & Snowberg, E. (2015). Overconfidence in political behavior. *The American Economic Review*, *105*(2), 504–535. https://doi.org/10.1257/aer.20130921

Osman, M., Heath, A. J., & Löfstedt, R. (2018). The problems of increasing transparency on uncertainty. *Public Understanding of Science*, *27*(2), 131–138. https://doi.org/10.1177/0963662517711058

Pielke, R. A., Jr. (2007). *The honest broker: Making sense of science in policy and politics*. Cambridge University Press.

Prasad, M. (2006). *The politics of free markets: The rise of neoliberal economic policies in Britain, France, Germany, and the United States*. University of Chicago Press.

Reay, M. (2012). The flexible unity of economics. *American Journal of Sociology*, *118*(1), 45–87. https://doi.org/10.1086/666472
Robitzsch, A. (2020). Why ordinal variables can (almost) always Be treated as continuous variables: Clarifying assumptions of robust continuous and ordinal factor analysis estimation methods. *Frontiers in Education*, *5*, 589965. https://doi.org/10.3389/feduc.2020.589965
Rodrik, D. (2015). *Economic rules: The rights and wrongs of the dismal science*. W.W. Norton.
Rosenbaum, L. (2015). Communicating uncertainty—Ebola, public health, and the scientific process. *New England Journal of Medicine*, *372*(1), 7–9. https://doi.org/10.1056/nejmp1413816
Sniderman, P. M., Brody, R. A., & Tetlock, P. E. (1991). *Reasoning and choice: Explorations in political psychology*. Cambridge University Press.
Terviö, M. (2011). Divisions within academia: Evidence from faculty hiringand placement. *The Review of Economics and Statistics*, *93*(3), 1053–1062. https://doi.org/10.1162/rest_a_00108
Tetlock, P. E. (2005). *Expert political judgment: How good is it? How can we know?* Princeton University Press.
Tourangeau, R., Rips, L. J., & Rasinski, K. (2000). *The psychology of survey Response*. Cambridge University Press.
Van der Bles, A. M., van der Linden, S., AlexandraFreeman, L. J., Mitchell, J., Galvao, A. B., Zaval, L., & Spiegelhalter, D. J. (2019). Communicating uncertainty about facts, numbers and science. *Royal Society Open Science*, *6*(5), 181870. https://doi.org/10.1098/rsos.181870
Van Gunten, T. S. (2017). Washington dissensus: Ambiguity and conflict at the international monetary fund. *Socio-Economic Review*, *15*(1), 65–84. https://doi.org/10.1093/ser/mwv032
Van Gunten, T. S., Martin, J. L., & Teplitskiy, M. (2016). Consensus, polarization, and alignment in the economics profession. *Sociological Science*, *3*, 1028–1052. https://doi.org/10.15195/v3.a45
Wolfers, J. (2013). Comments on roger Gordon and Gordon Dahl's 'views among economists: Professional consensus or point-counterpoint'. Unpublished comments delivered at the American Economic Association annual meeting, January 5, San Diego http://tinyurl.com/gs9eyep

How to cite this article: Kozlowski, A. C., & Van Gunten, T. S. (2023). Are economists overconfident? Ideology and uncertainty in expert opinion. *The British Journal of Sociology*, 1–25. https://doi.org/10.1111/1468-4446.13001

APPENDIX

TABLE A1 Descriptive statistics.

	Mean	Std. Dev.	Min.	Max.
Confidence	5.90	2.46	1	10
Uncertain	0.21	0.41	0	1
Respondent ideological strength	0.82	0.57	0.01	2.30
Question ideological salience	0.73	0.69	0.00	3.91
Level of disagreement	0.51	0.87	0	0.91
Rate of uncertain response	0.21	0.41	0	1
Right affiliation	0.12	0.32	0	1
Left affiliation	0.18	0.38	0	1
Saltwater department	0.49	0.50	0	1
Female	0.18	0.38	0	1
Years since degree	32.11	10.32	15	51
Expertise	0.23	0.42	0	1
N response level	8425			
N respondent level	49			
N item level	241			

TABLE A2 Estimates from mixed-effects linear probability models predicting an "uncertain" response.

	(1)	(2)	(3)	(4)
Respondent ideological strength	0.006	0.041*	0.013	0.048*
	(0.017)	(0.019)	(0.017)	(0.019)
Question ideological salience	0.082***	0.123***	−0.009	0.032*
	(0.014)	(0.017)	(0.013)	(0.016)
R. ideology x Q. ideological salience		−0.050***		−0.049***
		(0.011)		(0.011)
Level of disagreement			0.482***	0.481***
			(0.037)	(0.037)
Right affiliation (yes = 1)			0.013	0.014
			(0.030)	(0.030)
Left affiliation (yes = 1)			−0.022	−0.022
			(0.025)	(0.025)
Saltwater department (yes = 1)			−0.006	−0.006
			(0.018)	(0.018)
Female			0.038	0.039
			(0.025)	(0.025)
Years since degree			−0.002*	−0.002*
			(0.001)	(0.001)
Expertise			−0.013	−0.011
			(0.010)	(0.010)
Constant	0.157***	0.127***	0.025	−0.004
	(0.022)	(0.023)	(0.039)	(0.040)
N	8425	8425	8425	8425
Random effects (Std Dev.)				
Respondent	0.060	0.061	0.056	0.056
Question	0.135	0.134	0.094	0.094
Residual	0.377	0.377	0.377	0.377

Significance thresholds for two-tailed *t* test: *$p < .05$; **$p < .01$; ***$p < .001$.

TABLE A3 Estimates from linear regression with respondent and question fixed effects predicting reported confidence of response.

	(1)	(2)
R. ideology x Q. ideological salience	0.210***	0.171**
	(0.060)	(0.059)
Expertise		0.912***
		(0.058)
Constant	4.342***	4.126***
	(0.384)	(0.379)
N	8425	8425
Adjusted R^2	0.277	0.298

Significance thresholds for two-tailed *t* test: *$p < .05$; **$p < .01$; ***$p < .001$.

TABLE A4 Estimates from logistic regression model with respondent and question fixed effects predicting an "uncertain" response.

	(1)	(2)
R. ideology x Q. ideological salience	−0.304***	−0.302***
	(0.077)	(0.077)
Expertise		−0.078
		(0.076)
Constant	−0.135	−0.115
	(0.399)	(0.400)
N	8425	8425

Significance thresholds for two-tailed *t* test: *$p < .05$; **$p < .01$; ***$p < .001$.

TABLE A5 Estimates from mixed-effects linear regression models predicting self-reported confidence of response.

	(1)	(2)
Interventionist ideological strength	0.273	0.178
	(0.371)	(0.388)
Free market ideological strength	0.230	0.187
	(0.268)	(0.280)
Question ideological salience	−0.717***	−0.131
	(0.096)	(0.085)
Inter. Ideo. Str. x Q. Ideological salience	0.303***	0.279***
	(0.080)	(0.079)
Free Mkt. Ideo. Str. x Q. ideological salience	0.188**	0.142*
	(0.062)	(0.061)
Controls[a]		
Level of disagreement		−3.076***
		(0.194)
Female		−0.119
		(0.381)
Years since degree		0.015
		(0.015)
Expertise		0.899***
		(0.057)
Constant	6.075***	6.659***
	(0.282)	(0.551)
N	8425	8425
Random effects (Std Dev.)		
Respondent	0.999	1.020

TABLE A5 (Continued)

	(1)	(2)
Question	0.775	0.485
Residual	2.092	2.061

[a]Controls for right affiliation, left affiliation, and saltwater department are excluded due to their close associations with interventionist and free market ideology.

Significance thresholds for two-tailed *t* test: $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.