Credible Sources and Sophisticated Voters: When Does New Information Induce Economic Voting?

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When does new economic information cause voters to reevaluate the government's competence and ultimately vote economically? Since politically relevant information is often conveyed by actors with incentives to influence voter perceptions, the credibility of information sources can vary significantly. This article randomly varies whether voters receive an aggregate unemployment forecast from the central bank, government or main opposition party using a survey experiment in Denmark linked to detailed panel data. We find that politically sophisticated voters discern differences in institutional credibility and the political cost of the signal and update their unemployment expectations accordingly. Despite failing to differentiate political costs, unsophisticated voters still substantially update their expectations. However, while sophisticated voters intend to engage in substantial prospective economic voting, unsophisticated voters do not relate their new unemployment expectations to their vote intention. These findings suggest that economic information supports economic voting most when it is credible and reaches sophisticated voters.

Obtaining and processing politically relevant information is an essential feature of how voters select governments and hold them to account (e.g., Manin, Przeworski, and Stokes 1999). This is particularly true for economic voting, where aggregate economic information is critical for voters evaluating the competence of their government (Anderson 1995; Fearon 1999). Our goal is to examine the interaction between three key aspects of politically relevant information: the credibility of its source, the ability of voters to recognize costly signals as more credible, and the extent to which voters translate their updated beliefs into political choices.

Since much of the information available to voters is biased,[1] economic information may only affect voter perceptions of economic performance when they regard it as credible. Even then, many voters lack the cognitive capacity to translate such perceptions into vote choices (Duch and Stevenson 2008; Gomez and Wilson 2001, 2006). Given that political actors devote significant time and money to such efforts, relatively incredible information could substantially affect economic voting if voters fail to discern differences in credibility.

In this article, we analyze the conditions under which providing aggregate unemployment forecasts causes different types of voters to reevaluate the government's competence and act politically on their beliefs by engaging in prospective economic voting. Our survey experiment, embedded in a rich Danish panel survey conducted in the aftermath of the financial crisis when macroeconomic concerns were the main political issue, focuses on the interaction between varying types and levels of information credibility and the political sophistication of voters. Like Gomez and Wilson

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Data and supporting materials necessary to reproduce the numerical results in the paper are available in the *JOP* Dataverse (https://dataverse.harvard.edu/dataverse/jop) and on John Marshall's website (http://scholar.harvard.edu/jmarshallhttp://scholar.harvard.edu/jmarshall). An online appendix with supplementary material is available at http://dx.doi.org/10.1086/683832. The project was approved by the Danish Data Authority and Statistics Denmark. The DDA handles all collection of individual data, both for research and other purposes. They assess compliance with the law on personal data. There is also an "ethical committee," but this only addresses health research.

1. E.g., Chiang and Knight (2011), Ladd and Lenz (2009), and Nadeau et al. (1999) document that voters do understand that sources of information may be biased.

The Journal of Politics, volume 78, number 2. Published online December 15, 2015. http://dx.doi.org/10.1086/683832
 0022-3816/2016/7802-0001$10.00

(2006) and Luskin (1987), we regard political sophistication as both awareness of politically relevant economic information and the cognitive ability to associate information and political choice. Using a novel context-specific measure, we define political sophistication by the accuracy of a voter's pretreatment current unemployment estimate. We demonstrate that this measure is both highly correlated with standard proxies for political sophistication and is the key factor even when such proxies are controlled for.

The existing literature primarily focuses on differences in credibility emanating from differences in institutional expertise or trust (see Gilens and Murakawa 1994; Lupia and McCubbins 1998; Mondak 1994). We incorporate these insights and design our treatments to capture the political incentives of an information source. Building on the logic of costly signals (Spence 1973), we argue that a message becomes more credible when the source has incentives to have stated otherwise.[2] Although sending such messages can be politically costly, Grose, Malhotra, and Van Houweling (2015) show that US Senators often, and successfully, seek to explain to voters why their roll call votes deviate from constituent preferences. In our context, an opposition claim that the economy is doing well is more credible than an identical government claim because such a claim is costly since it may hurt the opposition's election prospects. Conversely, the government has a clear incentive to tell voters that the economy is performing well. To capture both institutional credibility and costly signals, we randomly assign voters to receive identical unemployment forecasts from either the Danish Central Bank (DCB), the government, or the main opposition party. We thus focus on prospective economic voting, where the selection motive for evaluating government competence may be particularly sensitive to variation in the quality of performance signals (Ashworth 2012; Fearon 1999).

Models of prospective economic voting rely heavily on information affecting voter perceptions of incumbent competence and well-informed voters possessing the will and capacity to vote according to perceptions of economic competence (Healy and Malhotra 2013). Scholars of US politics have argued that the most politically aware voters may respond least to such information because they already possess strong priors (e.g., Converse 1962; Zaller 1992, 2004). On the other hand, it may be that only such sophisticated voters possess the cognitive skills and political knowledge required to detect differences in source credibility and vote on the basis of this information. Since we examine a valence issue about which even the most aware voters are imperfectly informed, and given the complexity of the Danish political system, political sophistication may be necessary for voters to detect differences in source credibility and ultimately vote economically. In contrast with more ideological issues, where individual partisanship is likely to moderate voter beliefs and interpretations of the information that they receive (e.g., Druckman, Peterson, and Slothuus 2013; Gaines et al. 2007; Jerit and Barabas 2012; Zaller 1992) voters are more likely to internalize information about valence issues like unemployment when they deem such information credible.

We first examine how the source and content of unemployment projections affect unemployment expectations. We find that all voters significantly update their unemployment expectations in response to our treatments. However, only sophisticated voters are able to differentiate between information sources. Among such voters, a DCB or opposition forecast that the economy is performing well reduces unemployment expectations significantly more than an equivalent government forecast, while a DCB or government forecast that the economy is performing badly increases unemployment expectations significantly more than an equivalent opposition forecast. While unsophisticated voters substantially downgrade their initially pessimistic expectations and regard the DCB as more credible, they fail to discern differences in message credibility across political parties. Previous vote choices, which are uncorrelated with political sophistication, do not differentially impact belief updating across different treatments.

Using our treatments to instrument for unemployment expectations, our instrumental variable (IV) estimates also show that new economic information translates into economic voting. A percentage point decrease in unemployment expectations increases the probability that the average complier intends to vote for Denmark's coalition government by 3.5 percentage points. This effect, which only affects the parties of the Prime Minister and Minister for the Economy and Interior, could have altered the outcome of Denmark's recent close elections. Providing further evidence of economic voting, lower unemployment expectations increase confidence in the government but do not affect support for nongovernment left-wing parties or attitudes toward redistributive or unemployment insurance policies. Given the difficulty of identifying the effects of economic performance on support for the government, our findings exploiting experimental variation in a large nationally representative sample provide strong causal evidence for economic voting.

However, economic voting is only induced among sophisticated voters. For sophisticated voters, a percentage point decrease in unemployment expectations increases the likelihood of voting for the government by 6 percentage points.

2. In other political contexts, see Adolph (2014), Fearon (1997), or Gilligan and Krehbiel (1987).

Despite substantially updating their beliefs, unsophisticated voters do not translate lower unemployment expectations into support for the government. Since unsophisticated voters are disproportionately swing voters, who change their vote choices and vote intentions across time, this difference cannot be attributed to such voters being strong partisans. Similarly, differences in political preferences do not explain this difference.

Ultimately, our findings suggest that more sophisticated voters better understand the differing incentives of parties to send certain types of messages to voters and update accordingly. Even though more sophisticated voters update less on average, given that their priors are more accurate, changes in their posterior beliefs are more important for vote choice. We thus conclude that economic information supports economic voting to the extent that it is credible and reaches sophisticated voters. This finding may explain why parties tend to target their messages at politically engaged voters who may act on the new information (Adams and Ezrow 2009; Gilens 2005).

WHEN DOES NEW ECONOMIC INFORMATION SPUR ECONOMIC VOTING?

The idea that governments may be rewarded or sanctioned by voters on the basis of their economic performance is well established (see Anderson 2007; Lewis-Beck and Stegmaier 2000). Its logic is that voters impose sanctions retrospectively on the basis of economic outcomes to deter reelection seeking politicians from choosing suboptimal policies (Barro 1973; Ferejohn 1986) or prospectively use the available information to select the most competent candidate (Fearon 1999).[3] Both backward- and forward-looking information can help to evaluate the competence of office holders, but the presence of reliable information is essential (Manin et al. 1999).

To the extent that voting is economic, most studies conclude that it is macroeconomic "sociotropic" aggregates rather than individual-specific "pocketbook" calculations that drive this relationship (e.g., Kiewiet 1983; Lewis-Beck and Stegmaier 2000). Despite its appealing simplicity, the evidence that economic success translates into higher likelihoods of an incumbent being reelected is mixed (Anderson 2007), and researchers have struggled to provide compelling evidence of a causal relationship (Healy and Malhotra 2013).

The conditions under which an individual votes economically can be demanding (Healy and Malhotra 2013). Specifically, prospective economic voting requires that voters obtain economic information, use credible information to evaluate the incumbent's economic competence, and reelect sufficiently competent incumbents (compared to the alternatives). Even assuming that voters possess the necessary information, economic voting still may not occur if (1) receiving new information does not affect voter appraisals or (2) well-informed voters lack the motivation or cognitive capacity to link their vote to their appraisal. We focus on these two conditions and thus examine when the provision of new economic information affects economic voting.

Source credibility

Most politically relevant information is conveyed by agents with well-understood ideological biases and incentives to distort perceptions of the true state of the world (e.g., Baron 2006; Besley and Prat 2006; Gentzkow and Shapiro 2006; Huckfeldt 2001).[4] For example, Larcinese, Puglisi, and Snyder (2011) have shown that pro-Democrat newspapers in the United States are more likely to report high unemployment under Republican presidents. Accordingly, voters must evaluate the information they receive in terms of the credibility of the information source.

A great deal of literature in social and political psychology has argued that the perceived expertise and trustworthiness of an information source is a key determinant of whether a voter internalizes a message's content (e.g., Gilens and Murakawa 1994; Mondak 1994). In particular, when individuals do not seriously engage with the arguments they receive, Petty and Cacioppo (1981) theorize that "peripheral" persuasion may still occur if the source of the message is regarded as credible. Given the low day-to-day salience of politics for many voters, source cues are frequently relied on by voters—especially when the information source is knowledgeable and trusted (Lupia and McCubbins 1998). Consequently, independent sources with context-specific expertise, such as independent central banks staffed by highly trained economists and providing detailed technical data,[5] are more likely to affect voter beliefs than political parties.

While the importance of institutional credibility is relatively clear, the interaction between the source and content of a message has not been studied. We argue that an

3. Voter motives could be either sociotropic or self-interested, or prospective or retrospective. As Ansolabehere, Meredith, and Snowberg (2014) have shown, parsing out these effects is challenging. This is because the same information can be used for all such goals.

4. Voters receiving biased information is also a demand side phenomenon (see Mullainathan and Shleifer 2005). We focus on supply by varying the sources voters are provided with.

5. Tetlock (2010) describes the demand for expert information. Barro and Gordon (1983) describe how independent central banks can credibly solve politicians' commitment problems.

information source can also attain greater credibility if voters understand the source's incentives to send a particular message. If the credibility of a signal increases with the perceived cost to the sender, a message becomes more credible when the source has incentives to have stated otherwise. In Spence's (1973) seminal example of a costly signal, the level of education an individual attains can only signal high ability to employers if the cost of such education is too large for a low ability worker to attain. Similarly, Chiang and Knight (2011) and Ladd and Lenz (2009) find that "surprising" newspaper endorsements disproportionately affect vote intentions.

The role of costly signals is particularly clear in the case of election-motivated political parties talking about the economy. Governments have strong incentives to play up their competence at dealing with the economy and often point to effective policies and macroeconomic forecasts to support their claims. Conversely, opposition parties typically emphasize government failures and argue that they would do a better job instead. Consequently, voters that recognize that opposition politicians face strong incentives to downgrade the government's economic performance should regard an opposition claim that the government is managing the economy well as more credible than an identical government claim. Similarly, government statements pointing to poor economic performance are more credible than identical opposition claims. Our treatments exploit this logic.

Voter sophistication

Which types of voters are able to link political context to the cost and credibility of providing certain types of information and update accordingly? An influential literature has argued that sophisticated voters—those that are both politically informed and possess the cognitive skills required to evaluate the information they receive—are least sensitive to politically relevant information because they possess strong priors on political issues due to strong partisan biases or because they are already well informed on the issue (e.g., Converse 1962; Lodge and Taber 2013; Zaller 1992, 2004). Recent studies in the United States show that a voter's partisan biases affect their willingness to internalize new information (e.g., Boudreau and MacKenzie 2014; Bullock 2011; Gerber and Huber 2010; Jerit and Barabas 2012), while studies from outside the United States have indicated that poorly informed voters are most sensitive to new information (e.g., Duch 2001; Larrenguy, Marshall, and Snyder 2015; Marshall 2015). When faced with credible information, to the extent that such voters can discern it, we might therefore expect the least sophisticated voters to update their beliefs most. Provided such beliefs are internalized, this could translate into significant changes in political behavior.

However, this account ignores the possibility that differences in the source and content of messages—and thus their credibility—may not be perceived equally by sophisticated and unsophisticated voters. Although unsophisticated voters may be especially susceptible to new information because they are politically unaware, this lack of awareness—in conjunction with lower cognitive capacity—may prevent such voters from evaluating a source's credibility. As Duch and Stevenson (2008) and Gomez and Wilson (2001, 2006) have shown, less educated and less politically informed voters struggle to detect subtle factors that are relevant for attributing government responsibility for economic performance. Similarly, voters vary in their ability to differentiate subtle differences in source credibility. Due to a relatively strong understanding of the parties in and out of office and their incentives to win office at the next election (e.g., Prior 2013), sophisticated voters are more likely to recognize differences in source credibility and update their beliefs accordingly. On the other hand, unsophisticated voters may fail to grasp differences in the costliness of different messages and even fail to differentiate expert from nonexpert sources.

These differences may be particularly pronounced for valence issues containing factual information. Since there is consensus among voters that lower unemployment, for example, is regarded as good (Slothuus and De Vreese 2010), credible information is likely to play a key role in changing the beliefs of all voters. For such valence issues, the interpretation of numeric information through a partisan lens is likely to be less salient (Gerber and Green 1998). In contrast, partisan biases may be more important for ideologically charged issues such as immigration (Druckman et al. 2013) or welfare policy (Slothuus and De Vreese 2010), where there is also greater scope for a disjuncture between fact-based beliefs and interpretations (Gaines et al. 2007).

Furthermore, even when economic information does affect politically unsophisticated voters, it is not clear that their political behavior will change. First, models of survey responses argue that such voters simply sample from recent pieces of information without considering their political implications (Zaller 1992). However, while more sophisticated voters may update their beliefs less, their posterior beliefs regarding government competence are more important for their vote choice (Delli Carpini and Keeter 1996). Second, even if unsophisticated voters do internalize new information, they may lack the cognitive capacity to translate it into political action (Gomez and Wilson 2006). This is particularly true when assigning responsibility in institutional contexts

characterized by an open economy and multiple loci of decision-making power or coalitions governments, where even the most willing economic voter may struggle to assign responsibility for economic performance (e.g., Anderson 1995; Duch and Stevenson 2008; Powell and Whitten 1993). Together, these considerations imply that even if unsophisticated voters receive politically relevant information, it may not affect their political behavior.[6]

RESEARCH DESIGN

We examine the political effects of providing politically relevant economic information in Denmark, a country where left-right differences over economic policy remain the salient political division, and governments have oscillated between center-left and center-right coalitions. In 2011, Social Democrat Helle Thorning-Schmidt became Denmark's first female Prime Minister, having narrowly led the left bloc—containing the Social Democratic, Social Liberal, and Socialist People's parties as coalition partners and supported by the Red-Green Alliance—to victory over a center-right coalition led by the Liberals that had held office since 2001.

Dissatisfaction with the government's economic performance was the major issue in the 2011 election (Stubager 2012).[7] Having sustained very low levels of aggregate (gross) unemployment throughout the 2000s, reaching nearly 2% in early 2008, unemployment almost trebled to around 6% by the 2011 election.[8] Sharp increases in the budget deficit also left Denmark with hard fiscal choices regarding welfare and pension reform. The center-right's austerity policies were widely blamed for the failure to produce a stronger economic recovery.[9] Despite this, the left bloc only barely achieved a parliamentary majority in 2011; the seat distribution in Denmark's legislative assembly is shown in the appendix, available online. The shift in political power primarily reflected the rise of the Social Liberals at the expense of the Conservatives.

The Danish economy struggled to improve after the 2011 election, and unemployment rates became more politically salient. In January 2013, unemployment reached 6.5%. Importantly for our study, the DCB estimated that this rate would rise to just below 7% by January 2014.[10] The share of Danes regarding unemployment as the biggest political problem rose from 18% at the 2011 election to 20% by November 2012 and 36% by late 2013.[11] Moreover, within-coalition tensions between the economically liberal Social Liberals and the socialist Socialist People's parties increased and culminated with the Socialist People's Party leaving the coalition in January 2014 over unpopular plans to privatize the country's state-owned energy company.

Data and experimental design

To evaluate the conditions under which economic information with varying levels of credibility affects individual beliefs and economic voting, we embedded a survey experiment in the 2013 wave of the Danish Panel Study of Income and Asset Expectations, an annual panel survey of around 6,000 working age Danes conducted every January/February.[12] The panel, conducted by telephone since 2010, asks about the respondent's financial position, behavioral dispositions and political preferences. Furthermore, the survey data has been linked by Statistics Denmark to the Danish Central Person Registry, a rich administrative data set containing wide-ranging government information about all Danes. The combination of panel political data and detailed respondent histories allows us to describe differential responses to politically relevant information in detail.

Treatments. We examine source credibility by varying the source of simple unemployment forecasts, as well as the forecast itself. Respondents were randomly assigned to one of eight different groups with around 700 members each. The control group received no information, while six treated groups were read the following statement: "Assume that the

6. Alternatively, although unsophisticated voters are typically poorer, it is also possible that such voters care about orthogonal policy issues. We test this alternative explanation empirically.

7. The Danish Election Study polls, available at http://www.valgprojektet.dk/files/Danske%20v%C3%A6lgere%201971-2011%20-%20Februar%202013.pdf, show that the economy was the most importance issue for voters, while nearly 20% specifically cited unemployment. The study also shows that left-wing voters thought the labor market was the biggest issue, while right-wing voters thought the economy in general was the biggest issue. Voters similarly divided over whether a left or right coalition would best fight unemployment.

8. Gross unemployment is the definition used by the government and Statistics Denmark (and reported in the media), and is based on administrative records. Net unemployment, which excludes those in active labor market programs, is around one percentage point lower.

9. Although Denmark's government did not cause the financial crisis, governments are often held responsible for exogenous shocks (Duch and Stevenson 2008) or for failing to respond effectively.

10. The appendix provides additional detail about DCB forecasts.

11. See the DR Nyheder November 2012 poll http://www.dr.dk/Nyheder/Penge/2012/12/03/165138.htm, and the Jyllands-Posten December 2013 poll http://jyllands-posten.dk/indland/ECE6370472/problem-nr-1-arbejdsloeshed/.

12. The first wave randomly chose about 6,000 working age respondents from the Central Person Registry. Annual attrition is around 20%. The sample has been replenished with respondents randomly chosen from the Registry and remains representative of the working age population. The final data set made available for research was anonymized.

[DCB/government/Liberals] estimates that unemployment in 2013 will be [almost 7%/around 5%]."[13]

Respondents were thus informed that the DCB, the government, or main opposition party forecast that unemployment over the next year will be "almost 7%" or "around 5%." As noted above, the true DCB forecast for gross unemployment was almost 7%. However, because only the DCB has publicly stated this, ethical considerations required that our other primes begin with "assume that. . . ." In order to examine the extent to which such wording weakens the treatment, our final treatment group was told "the DCB estimates unemployment in 2013 to be almost 7%." We compare this treatment to the analogous "assume" version and will show no statistical difference in the distribution of unemployment expectations.

Unemployment projections, typically one and two years in the future, from both the DCB and the government are frequently communicated in print and electronic media. This information is communicated either in the form of predicted (gross) unemployment percentages or as the predicted number of full-time equivalent unemployed. News reporting of such projections often, if not always, notes the direction of the change relative to current unemployment levels.[14] This last feature is implicit in our measure, where subjects are themselves first asked to state their own belief about the current unemployment rate before being treated.

These sources vary considerably in their credibility among voters of all political stripes. The DCB is highly regarded by voters and is not perceived as right-wing or an instrument of government, while political parties are viewed with skepticism. Among our control group, 67% of respondents trusted or greatly trusted the DCB, while only 17% and 27% trusted or greatly trusted the government and Liberals, respectively.[15] Eurobarometer data indicate that trust in Denmark's political parties is very similar to the European Union mean (European Commission 2011).

Outcome variables. We consider two types of outcomes: unemployment expectations and economic voting. To capture unemployment expectations we asked respondents the following: "What is your best estimate of what unemployment will be in 2013? We would like your best estimate, even if you are not entirely sure."[16] This question was asked immediately after respondents received their treatment, and the 20 respondents who answered that the unemployment rate would exceed 50% were removed.[17] Unlike more partisan issues, Lenz (2012) finds no evidence of reactivity biases for valence issues like unemployment. Summary statistics are provided in the appendix.

Economic voting is measured by vote intention and evaluations of the government, although we also consider various placebo tests examining other outcomes. We code indicator variables for intending to vote for Denmark's main political parties, as well as groups for the governing coalition (Social Democrats, Social Liberals, and Socialist People's parties) and right-wing parties. To reduce concerns about experimental demand biases, vote intention was elicited 18 questions—10–20 minutes later, after detours through unrelated questions—after the treatment was administered. Because turnout in Denmark regularly exceeds 85%,[18] and 72% of respondents ultimately reported voting for the party they intended to vote for eight months prior to the 2011 election, vote intention represents a good approximation for what would happen if an election was held immediately. To assess voter perceptions of government competence, we asked respondents how much confidence they have in the government. Respondents were provided a 5-point scale ranging from great mistrust (1) to great trust (5) in the government.[19]

Political sophistication. To capture both political awareness and cognitive skills, political sophistication is measured by a respondent's estimate of the current unemployment rate. We operationalize a sophisticated voter as one whose (pretreatment) current unemployment estimate is within 1.5 percentage points of the true 6.5% level. We thus count around half the sample as sophisticated, while 70% describe themselves as well informed about Danish politics.[20] Our measure not only accurately captures awareness of politically relevant economic information, but the appendix shows that it also rep-

13. Survey treatments and questions are translated from Danish; see the appendix for Danish phrasing. It is important to emphasize that in Danish the prime translates as a prospective estimate.

14. We provide links to two examples from two major newspapers: http://www.business.dk/oekonomi/danmark-er-gaaet-i-staa (Berlingske) and http://politiken.dk/oekonomi/dkoekonomi/ECE2606878/corydon-opjusterer-vaekstskoen-men-foraaret-er-lunefuldt (Politiken).

15. These numbers are in line with mass surveys conducted by Statistics Denmark: in 2011, they found that while 82% trusted the DCB, only 59% trusted Parliament. See report summary http://www.dst.dk/da/Statistik/bagtal/2011/2011-01-19-borgerundersoegelsen2010.aspx.

16. From a Bayesian perspective (see the appendix), this response can be thought of as an individual's posterior unemployment belief (updated after receiving new information).

17. These individuals were very evenly spread across treatment conditions, with between two and four omitted respondents in each group. Including these observations does not affect the results.

18. See the Institute for Democracy and Electoral Assistance http://www.idea.int/vt/countryview.cfm?CountryCode=DK.

19. This question was asked 11 questions after the treatment was administered.

20. We obtain very similar results using other cutoffs such as estimating within 1 or 2 percentage points or when using the absolute deviation from the true current unemployment estimate.

resents a "sufficient statistic" for political engagement and cognitive skills in two important respects. First, the absolute difference between the current unemployment rate and the respondent's estimate is significantly negatively correlated with frequency of watching the news, regular discussion of politics, income, education, the number of correct answers on a math test, and a respondent's self-reported level of political information. Second, our measure of political sophistication captures the effect of other measures of political sophistication on unemployment expectations. In particular, the appendix shows that when we interact the absolute difference between the respondent's estimate and the true unemployment rate with our treatments, the previously significant baseline effects of standard proxies for political sophistication, and their interactions with our treatments, all cease to be statistically significant. In addition, we show in the appendix that our measure of political sophistication is uncorrelated with measures of partisanship based on previous vote choice.

Identification and estimation

Given its random assignment, treatment status is well balanced across pretreatment covariates. The appendix confirms such balance across 16 political and socioeconomic variables frequently included in observational studies regressing political preferences on a set of covariates. Our empirical analysis can now straightforwardly identify the causal effects of the treatments.

To estimate the average treatment effect on the treated of each information treatment on unemployment expectations, we estimate the following equation using ordinary least squares (OLS):

$$Unemployment\ \ expectation_i = Z_i\alpha + \varepsilon_i, \qquad (1)$$

where the vector α represents the effect of each treatment contained in our vector of treatment conditions Z_i. To examine how the effects of our treatments vary across sophisticated and unsophisticated voters, we split our sample and estimate the effects for different types of voter separately.[21] Robust standard errors are reported throughout.

To identify our ultimate quantity of interest—the effect of unemployment expectations on economic voting—we instrument for unemployment expectations using our information treatments. By exploiting only variation induced by our randomly assigned treatments, this IV strategy overcomes the concern that economic expectations may be correlated with omitted variables that also affect political preferences. Since voters with different prior beliefs about the unemployment rate may update their beliefs in different directions in response to the same treatment, a benefit of this approach is the ability to scale the reduced form effect of each treatment by its impact upon the average voter's unemployment expectations. This means that the most credible sources will be weighted more heavily. Using equation (1) as the first stage, we thus estimate the average causal effect among compliers—individuals for whom our information treatments induced respondents to change their unemployment expectations—across different unemployment expectation levels.[22] Accordingly, we estimate the following equation using two stage least squares (2SLS):

$$Y_i = \tau Unemployment\ \ expectation_i + \delta Current\ \ unemployment\ \ estimate_i + \xi_i, \qquad (2)$$

where Y_i is vote intention, confidence in the government, or a placebo outcome. We include the respondent's pretreatment estimate of the current unemployment rate to enhance efficiency, although the appendix shows that this choice does not affect our results. We again examine heterogeneity using subsamples.

The key additional assumption underpinning the IV estimates is the exclusion restriction. This requires that our instruments only affect our outcomes through unemployment expectations.[23] Perhaps the most plausible risk of violating this assumption arises where information treatments prime respondents to think more carefully about government performance and policies (beyond the effect of changing beliefs about unemployment expectations), inducing bias if such thinking systematically affects support for the government. We assess this possibility by looking at whether belief in the importance of political information for either private economic decisions or as part of the respondent's job differs across treatment groups (or comparing the control to all treated respondents) and find no difference (see the appendix).

EFFECTS OF INFORMATION SOURCE ON UNEMPLOYMENT EXPECTATIONS

We first examine how our information treatments affect the unemployment expectations of the average voter. Addressing our main hypothesis, we then show that the average effects mask the key role played by voter sophistication in explaining

21. We obtain similar results when interacting our treatments with voter sophistication but split the sample to simplify interpretation when comparing many treatment effects across groups.

22. More formally, we estimate the local average causal response—the linearized causal effect of unemployment expectations, weighted toward areas where the density function of complier responses is greatest (Angrist and Imbens 1995).

23. Although some respondents update in different directions in response to our treatments, the discussion in the appendix shows that the monotonicity assumption is unproblematic.

systematic differences in how different types of voters respond to economic information with varying levels of credibility.

Belief updating on average

Figure 1 plots the distribution of unemployment expectation responses by treatment condition. Before turning to our main results, it is clear from panel A that the "assume" wording does not affect the distribution of the DCB 7% projection responses.[24] This suggests that the statement wording is not biasing voter responses. Henceforth we pool the DCB 7% treatment groups.[25]

The leftward shift in density associated with all treatments indicates that all information sources reduce unemployment expectations on average across respondents. The reduction reflects systematic pessimism in a population where the mean control group member expected an unemployment rate of 9.0%. Despite its optimism relative to the true DCB claim, the 5% treatments dragged expectations below the 7% treatment groups. In all cases, the information treatments reduced the variance of the distributions, providing further evidence that the treatments affected respondents.[26]

Consistent with previous findings regarding differences in credibility due to higher trust and greater expertise, receiving information from political parties caused the average voter to update their beliefs less than receiving information from the DCB. The DCB treatments also induced more similar responses from voters (i.e., a smaller standard deviation in responses), especially compared to the opposition treatments. Although it could have been the case that simply being primed by a source increased confidence in the source, the appendix shows that receiving a treatment does not affect trust in either political party.

The government and opposition source treatments also reduced unemployment expectations. Panel B clearly shows a downward shift in modal unemployment expectations for both treatments. Surprisingly, given that the opposition has a political incentive to criticize government economic performance, the Liberal party's projections did not cause voters to differentially change their beliefs relative to the predictably optimistic government message. Averaging across the full sample, we therefore find no evidence that voters are sensitive to costly signals.

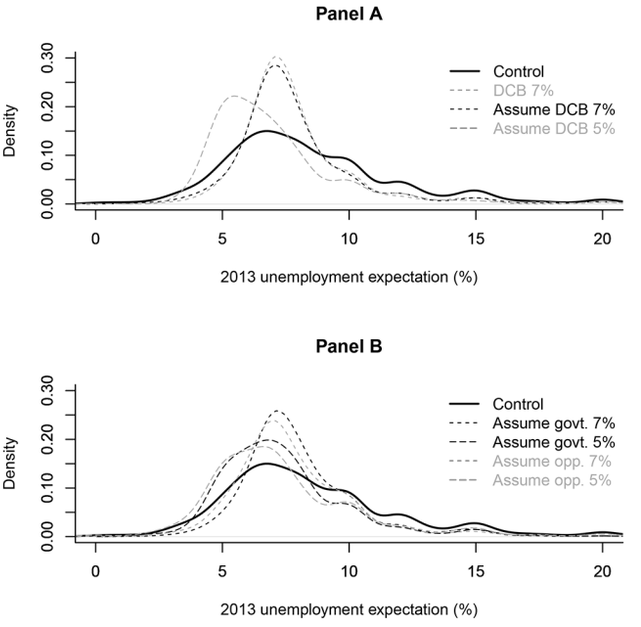

Figure 1. Unemployment expectations by DCB treatments. For graphical exposition, the *x*-axis is truncated so that the 1% of the sample with expectations above 20% are not visible. DCB = Danish Central Bank.

Estimating equation (1), column 1 in table 1 confirms our graphical analysis. Receiving the 7% treatment reduces unemployment expectations by around 1 percentage point, while the 5% treatment subtracts a further 0.5 percentage points. The tests of the differences between treatment effects at the foot of the table show that, at both forecast levels, the DCB's claim has a significantly larger impact on unemployment expectations than the government's, while the difference between the DCB and the opposition is almost statistically significant. There is no discernible difference between the government and opposition 5% or 7% treatments. However, we now demonstrate that averaging across all respondents hides important differences by voter sophistication.

Voter sophistication and differences in source credibility

Respondents saw credibility differences between the DCB and political parties on average. However, our main argument is that politically sophisticated and unsophisticated voters respond differently. We explore this possibility in columns 2 and 3 of table 1 by respectively splitting the sample between unsophisticated and sophisticated voters. The results show that sophisticated and unsophisticated voters indeed respond very differently to unemployment forecasts.

24. Tests comparing the mean and variance of the distributions cannot reject the null hypothesis of identical sample moments.

25. This similarity may not extend to other treatments; however, any bias is likely to be downward.

26. Distributional tests confirm that the variance reduction is statistically significant. Although these belief shifts could in part reflect anchoring biases (Tversky and Kahneman 1974), it is hard to see how such explanations could explain the changes in economic voting we document below.

Table 1. Effect of Information Treatments on Unemployment Expectations (%)

	Outcome: Unemployment Expectations		
	Full Sample (1)	Unsophisticated Voters (2)	Sophisticated Voters (3)
Control	9.012*** (.185)	11.461*** (.362)	7.070*** (.078)
DCB 7% treatment (combined)	−1.123*** (.197)	−2.498*** (.387)	-.031 (.084)
Government 7% treatment	−.848*** (.213)	−1.876*** (.421)	.066 (.096)
Opposition 7% treatment	−.923*** (.223)	−1.801*** (.435)	−.226** (.098)
DCB 5% treatment	−1.663*** (.230)	−2.391*** (.470)	−.907*** (.098)
Government 5% treatment	−1.218*** (.233)	−2.294*** (.446)	−.621*** (.098)
Opposition 5% treatment	−1.335*** (.236)	−2.194*** (.458)	−.781*** (.104)
Coefficient equality F tests (p values)			
DCB 7% = Government 7%	.08*	.02**	.13
DCB 7% = Opposition 7%	.16	.01**	.00***
Government 7% = Opposition 7%	.65	.82	.00***
DCB 5% = Government 5%	.02**	.81	.00***
DCB 5% = Opposition 5%	.10	.63	.16
Government 5% = Opposition 5%	.57	.79	.08*
Observations	5,705	2,533	3,172
Outcome mean	7.98	9.51	6.76
Outcome standard deviation	3.55	4.72	1.24
Current unemployment estimate mean	8.58	10.97	6.67

Note. The dependent variable is a respondent's unemployment expectation for the end of 2013 (%). All specifications are estimated using OLS, with robust standard errors in parentheses. The coefficient tests at the foot of the table report the p value from a two-sided F test of coefficient equality. Sophisticated voters are defined as respondents whose current unemployment estimate is within 1.5 percentage points of the true rate in January 2013 (see main text for further details). DCB = Danish Central Bank.

* $p < .1$.

** $p < .05$.

*** $p < .01$.

Politically unsophisticated voters regard the DCB as more credible but do not differentiate between political sources. Our estimates in column 2 show that the DCB treatments substantially reduced unemployment expectations among unsophisticated voters. The first and second coefficient equality tests at the foot of the column indicate that the DCB 7% treatment reduced expectations significantly more than the 7% treatment from either political party. The final three coefficient tests, however, indicate that the 5% treatments are statistically indistinguishable. Furthermore, the almost identical coefficients for different political parties—in the third and sixth coefficient tests—clearly demonstrate that unsophisticated voters do not detect differences in the incentives of political parties to send the messages that they receive.

In contrast to unsophisticated voters, sophisticated voters systematically perceive significant differences in source credibility. In particular, only sophisticated voters differentially update in accordance with the incentives for each party to claim that the economy is doing well. Relative to the 7.1% average forecast among sophisticated voters in the control group, sophisticated voters discount positive economic appraisals by the government and emphasize positive economic appraisals by the opposition. For the 7% treatments, the opposition claim that the government is performing slightly better than sophisticated voters previously believed causes voters to significantly reduce their unemployment expectations. The second and third tests at the foot of column 3 show that receiving this message from the opposition significantly reduces unemployment expectations relative to the DCB and government 7% treatments. This finding accords with our theoretical expectation that voters are more likely to regard the economy as doing better than previously believed after receiving a claim from a source with incentives to claim otherwise. Voters may even overshoot the specific opposition forecast, potentially believing that the opposition is still understating economic performance, while high trust of the DCB does not cause voters to deviate from their prior when it is confirmed by the DCB. Among sophisticated voters with cur-

rent unemployment estimates between 5% and 7% and who are thus expected to increase their expectations in response to the 7% treatment, the converse relationship also holds: the appendix shows that receiving a pessimistic forecast (relative to their current perspective) from the DCB or government is more credible than from the opposition. Turning to the 5% treatments, the fourth and sixth coefficient tests similarly show that the DCB and opposition sources cause significantly larger reductions in unemployment expectations than the government source. In this more positive outlook, we also cannot reject the possibility that voters regard the DCB's and opposition's forecasts as equally credible. These results support our claim that sophisticated voters are indeed particularly sensitive to the source of new economic information.

Although they fail to systematically discern differences in source credibility, unsophisticated voters still substantially alter their unemployment expectations. Since the average unsophisticated voter believes the current unemployment rate is 11.0% and expects the rate to reach 11.5% at the end of 2013 (in the control group), the large reductions after receiving either forecast are consistent with previous research emphasizing the malleability of the least informed (e.g., Converse 1962; Zaller 1992, 2004). However, contrary to such theories, we find that sophisticated voters also update their beliefs after receiving new economic information. Column 3 shows that all treatments except the DCB and government 7% projections significantly alter the unemployment expectations of sophisticated voters. The lack of effect for these two treatments reflects the prior of 7.1% (in the control group) hardly deviating from the 7% treatment. Furthermore, relative to the difference between their current unemployment estimate and the treatment projection, sophisticated voters proportionately change their beliefs as much as unsophisticated voters. The next section examines whether these changes in stated beliefs are sufficiently important to translate into vote intentions.

Alternative interpretations

A key concern that could potentially undermine the interpretation of our findings is that differences in sophistication actually reflect differences in partisanship. Although analyses in European contexts have generally found policy preferences to more strongly drive partisan choices (e.g., Adams 2012; Budge, Crewe and Farlie 1976), an influential literature—based primarily on studies from the United States—has found that differential updating is strongly moderated by partisanship (e.g., Boudreau and MacKenzie 2014; Bullock 2011; Healy and Malhotra 2013). However, contrary to the expectation that partisanship would reduce voter responses to the treatments, we find that sophisticated voters are more sensitive to source credibility. Furthermore, in addition to our measure of political sophistication being balanced across measures of previous vote choice, we also find no evidence of differential updating by political allegiance: the appendix demonstrates that respondents who voted for a government (right) party at the 2011 election did not differentially update their beliefs when provided with information from the government (opposition). We similarly found no difference when defining left and right-wing supporters as respondents who voted for the left or right party in the 2007 election. Furthermore, we find no evidence of a more complex conditional relationship: the appendix shows that even within sophisticated and unsophisticated groups of voters, there are no differential responses to treatments by past partisanship.

Although, as noted above, our measure of voter sophistication is highly correlated with measures used in previous studies and serves as a sufficient statistic for such alternative measures in the context of updating economic expectations, we nevertheless examine the robustness of this measure. We compute a summative scale containing commonly used (standardized) indicators of sophistication—namely, education, frequency of watching the news, frequency of discussing politics, self-identification as politically informed, and (log) wages—and divided respondents above and below the median scale score. In the appendix, we show broadly similar differences by this measure of sophistication. For both the 5% and 7% treatments, sophisticated voters update significantly more when the information is provided by the DCB than political parties, while the opposition but not the government 5% claim is statistically significant. Conversely, unsophisticated voters do not differentially update across sources. Unsurprisingly, given the contextual relevance of our measure and its predictive power vis-a-vis standard measures, these estimates are less precise than our preferred measure.

EFFECTS OF UNEMPLOYMENT EXPECTATIONS ON ECONOMIC VOTING

The preceding analysis has shown that information about aggregate unemployment projections affects the expectations of all Danes regarding the economy's prospects. While sophisticated respondents were sensitive to differences in source credibility, unsophisticated voters updated their beliefs more indiscriminately. We now examine the implications for economic voting. We first ask whether lower unemployment expectations increase the likelihood that respondents would vote for the government. Of particular importance for standard political economy models of vote choice, but also strategists determining a party's public statements, we then

Table 2. Effect of Unemployment Expectations on Vote Intention

	Govt. (1)	Soc. Dem. (2)	Soc. Lib. (3)	Soc. Peop. (4)	Right (5)	Liberals (6)
Unemployment expectations (%)	−.035**	−.016	−.016*	−.003	.034**	.024*
	(.014)	(.011)	(.009)	(.007)	(.015)	(.014)
First stage *F* statistic	32.6	32.6	32.6	32.6	32.6	32.6
Observations	5,705	5,705	5,705	5,705	5,705	5,705
Outcome mean	.32	.17	.09	.06	.41	.28
Unem. exp. mean	7.98	7.98	7.98	7.98	7.98	7.98
Unem. exp. standard deviation	3.55	3.55	3.55	3.55	3.55	3.55

Notes. The dependent variables are indicators for intending to vote for (1) a party in the governing coalition, (2) the Social Democratic Party, (3) the Social Liberal Party, (4) the Socialist People's Party, (5) any right-wing party, and (6) the Liberal Party. All specifications are estimated using 2SLS, and control for current unemployment expectations to increase efficiency. Robust standard errors are provided in parentheses.

* $p < .1$.

** $p < .05$.

*** $p < .01$.

ask which types of voters vote according to their unemployment expectations. Finally, we examine mechanisms to check our economic voting interpretation of the evidence.

Evidence of economic voting on average

Table 2 reports estimates of equation (2), identifying the average effect of a percentage point increase in unemployment expectations on vote intention among individuals whose expectations are affected by the instruments. The outcomes in columns 1–6 are indicators for supporting a particular party or group of parties. The large *F* statistic confirms a strong first stage (see the appendix for point estimates).

Providing strong evidence for economic voting, the exogenous provision of economic information causes voters to substantially alter their vote intention. Column 1 finds that a percentage point decrease in unemployment expectations causes the average complier to increase their support for the parties of government by 3.5 percentage points.[27] Increased government support is almost exactly mirrored by the decrease in support for right-wing parties in column 5, with the majority of votes coming from the main right-wing Liberal party shown in column 6. In the context of coalition politics, proportional representation, and especially the extremely close recent Danish elections, information about aggregate unemployment could easily have altered the composition of government. Even by the standards of countries with greater clarity of responsibility, the effect is substantial—in spite of vote intention being asked 18 questions after the treatment.

While the allocation of credit and blame for the economy's progress is usually relatively clear when there is a single-party government, voter sanctioning is not obvious among coalition partners (Anderson 1995; Duch and Stevenson 2008). Columns 2–4 disaggregate the government vote share by the three parties in the governing coalition. The results clearly indicate that the two largest coalition partners—the Social Democrats and the Social Liberal Party, who had 44 and 17 seats and 10 and 6 cabinet positions, respectively—are the sole beneficiaries, both gaining 1.6 percentage point increases in the probability of a respondent voting for them for each percentage point decrease in unemployment expectations. This represents a relatively larger gain for the smaller Social Liberal Party. In line with the findings of Anderson (1995) and Duch, Przepiorka, and Stevenson (2015), responsibility is assigned to the parties with greatest control over economic policy: while the Social Democrats led the coalition and secured the Premiership, the leader of the Social Liberals—who campaigned on their centrist economic agenda—became Minister for the Economy and Interior. The intended vote share of the more extreme left-wing Socialist People's Party, which held 16 seats and 6 cabinet positions, is essentially unaffected.

Voter sophistication and the capacity to vote economically

While unemployment expectations significantly affect respondent vote intention on average, it is not clear that unemployment expectations equally affect the political preferences of all voters. We examine the heterogeneous effects—primarily by voter sophistication—of unemployment expecta-

27. The reduced form estimates show similar results in the appendix.

tions on intending to vote for a party in the governing coalition in table 3 by splitting our sample. Despite substantially altering unemployment expectations among unsophisticated voters, our estimates provide clear evidence that economic information only induces economic voting among sophisticated voters.

The small and statistically insignificant coefficient in column 1 indicates that unemployment expectations do not substantially affect vote choice among unsophisticated voters. Thus, although those with the least accurate beliefs about current unemployment both receive and accept information about unemployment, this does not translate into vote intentions.

Conversely, column 2 reports a large effect among sophisticated voters: a percentage point decrease in unemployment expectations increases the probability that a respondent intends to vote for a government party by 6 percentage points. To demonstrate the robustness of these differences by sophistication, the appendix also shows substantively similar results when using our alternative measure of sophistication combining popular measures of political sophistication. Since, as noted above, sophistication is uncorrelated with measures of partisanship, the differential voting responses by sophistication are not being driven by partisan affiliation.[28]

Together, these findings highlight an important limit on the provision of political information: only a subset of those who update their beliefs translate such beliefs into actions, and those who update the most are not necessarily most likely to vote economically. In conjunction with our earlier finding that only sophisticated voters are able to discern subtle differences in source credibility, the results suggest that politically unsophisticated voters lack the will or the capacity to vote according to their evaluations of government competence. To better differentiate a lack of will from a lack of capacity, we investigate whether unsophisticated voters are disproportionately partisan or simply care about other policy issues.

Some standard political economy models suggest an alternative interpretation of our results, that nonpartisan "swing" voters are the most likely to transfer their votes to a party on the basis of competence (e.g., Lindbeck and Weibull 1987). If our sophisticated voters are swing voters, this would explain our results. We test this by exploiting the panel structure of the data set to define an indicator for the 43% of respondents who reported voting for different parties at the 2007 and 2011 elections.[29] Columns 3–4 of table 3 demonstrate that such swing voters are not driving changes in government support. Rather, the effect of unemployment expectations among swing voters, which is identical across swing voter definitions, is statistically indistinguishable from zero.[30] Despite the fact that they do not fail to update their expectations, the appendix shows that Denmark's swing voters—who discuss politics less, are less educated and have lower math test scores—are characterized by low political sophistication. These differences are also likely to be compounded by the complexity of assigning responsibility over economic policy to different parties in Denmark's PR electoral system defined by coalition governments, many parties and unstable alliances in the political center (Anderson 1995; Powell and Whitten 1993).

A second alternative explanation for swing and less sophisticated voters not engaging in economic voting is that economic competence is not a salient issue among these voters (e.g., Shayo 2009). Rising immigration in Denmark has become a second political cleavage in recent years, so it is possible that such voters are instead principally concerned with this issue. However, voter opinions and contextual data do not support this possibility. Columns 5 and 6 in table 3 show that economic voting is similarly prevalent across those supporting and opposing the reinstatement of separate and lower state benefits for immigrants.[31] Furthermore, we show in the appendix that there are no differences by parish (or municipality) immigrant share.

Mechanisms

The key theoretical claim underpinning economic voting is that, conditional on receiving credible information, unemployment expectations affect vote choice through voter perceptions of government competence. We test this mechanism in column 1 of table 4 by examining the effect of unemployment expectations on respondent confidence in the government. The results show that lower unemployment expectations significantly increase confidence in the Danish gov-

28. The appendix also demonstrates that voters who voted for a left party are not more likely to support the leftist governing coalition when their unemployment expectations are lower.

29. The appendix shows that the results are robust to instead using an indicator for the 23% whose 2011 vote differed from their 2012 vote intentions.

30. Given the first stage for swing voters is especially strong, this result does not reflect swing voters failing to update their unemployment expectations. To ensure our definition of swing voters is not picking up shifts to parties offering similar platforms, we also calculated measures for left and right party groupings and examined swings to the left and swing to the right and in each case found similar results. The results are similarly robust to defining swing voters as individuals whose 2011 and 2012 survey vote intentions differed.

31. We use 2012 survey responses here because the 2013 question is posttreatment.

Table 3. Effect of Unemployment Expectations on Vote Intention, by Voter Sophistication

	Outcome: Intend to Vote for the Government					
	Unsophisticated Voters (1)	Sophisticated Voters (2)	Nonswing Voters (3)	Swing Voters (4)	Keep Immig. Benefits (5)	Lower Immig. Benefits (6)
Unemployment expectations (%)	−.016 (.013)	−.061*** (.024)	−.050** (.023)	−.036 (.023)	−.028* (.016)	−.035 (.027)
Observations	2,533	3,172	2,173	1,654	4,303	1,402
First stage *F* statistic	20.3	66.6	13.4	13.1	23.4	12.7
Outcome mean	.30	.34	.37	.26	.27	.47
Unem. exp. mean	9.51	6.76	7.91	7.91	8.01	7.90
Unem. exp. SD	4.72	1.24	3.57	3.47	3.51	3.69

Note. The dependent variable in all specifications is an indicator for voting for a party in the governing coalition. The head of each column defines the subset of respondents that each specification was estimated for. All specifications are estimated using 2SLS, and control for current unemployment expectations to increase efficiency. Robust standard errors are provided in parentheses.
* $p < .1$.
** $p < .05$.
*** $p < .01$.

ernment, and thus further support the occurrence of economic voting. Consistent with sophisticated voters regarding unemployment as a more important signal of government performance than unsophisticated voters, columns 2 and 3 show that the confidence of sophisticated voters is three times more responsive to a given change in unemployment expectations.

Nevertheless, a potentially confounding explanation of our results is that evaluations of government competence are not changing but rather that lower unemployment expectations have shifted policy preferences toward those associated with left-wing parties (e.g., Meltzer and Richard 1981). Self-interested voters maximizing their expected income should decrease their support for redistribution and unemployment insurance to the extent that higher aggregate unemployment expectations are taken as a signal of economy-wide, rather than individual-specific, economic prospects. If aggregate unemployment expectations instead primarily update a voter's subjective probability of being unemployed, support for redistribution and unemployment insurance

Table 4. Economic Voting Mechanism Tests

	Conf. Govt. (1)	Conf. Govt. (Unsophisticated) (2)	Conf. Govt. (Sophisticated) (3)	Redist. (4)	Unem. Insurance (5)	Red-Green (6)
Unemployment expectations (%)	−.100*** (.029)	−.051* (.029)	−.141*** (.048)	.032 (.030)	−.011 (.018)	.004 (.008)
First stage *F* statistic	33.4	21.2	66.7	32.6	33.5	32.6
Observations	5,688	2,524	3,164	5,705	5,614	5,705
Outcome mean	2.69	2.64	2.73	3.20	2.23	.06
Outcome standard deviation	1.00	1.03	.97	1.02	.61	.25

Note. The dependent variables are (1) a 5-point scale of confidence in the government, (2) a 5-point scale measuring support for redistribution, (3) a 3-point scale measuring support for increasing unemployment insurance, and (4) an indicator for intending to vote for the Red-Green Alliance. All specifications are estimated using 2SLS and control for current unemployment expectations to increase efficiency. Robust standard errors are provided in parentheses.
* $p < .1$.
** $p < .05$.
*** $p < .01$.

should increase. We show these predictions formally in the appendix.

However, changes in policy preferences cannot account for our results. First, we examine 5- and 3-point scales that respectively increase with general support for redistribution and specific support for unemployment benefits. The precisely estimated null effects in columns 4 and 5 of table 4 show no support for either claim.[32] Second, the existence of left-wing parties outside the government provide a further placebo test for our economic voting interpretation. The Red-Green Alliance—the most left-wing party represented in the Danish Parliament—might expect to pick up votes if the information treatments were inducing a change in preferences. Column 6 shows that changes in unemployment expectations do not affect the probability of voting for the Red-Green Alliance. Together, this evidence reinforces the conclusion that economic voting is the principal political manifestation of changes in aggregate unemployment expectations.

CONCLUSION

A key question for democratic accountability is when information causes voters to reevaluate the government's competence and act politically on their beliefs by voting economically. We move beyond existing work by focusing on the interaction between source credibility and voter political sophistication. We show that although unemployment forecasts cause all types of voters to update their unemployment expectations, only sophisticated voters are able to discern both institutional and political differences in source credibility. Despite the fact that poorly informed voters at least minimally engage with new information, only among sophisticated voters—which are neither extreme partisans nor voters that regularly vote for different parties—does information affect economic voting. We conclude that it is the interaction of credible information and political sophistication that explains when new economic information will affect political behavior.

We acknowledge several limits on the external validity of this experiment. First, we only examine Denmark. However, finding effects in Denmark's complex institutional environment and open economy may represent a lower bound on information's effects. Also, in few other countries could we so easily draw the panel and registry data that we use. Second, we cannot study the likelihood that the least politically engaged voters do not translate information into political action because they do not consume the information in the first place (Marshall 2015). Rather, we force respondents to receive new economic information but—contrary to Zaller (1992, 2004)—find that the political behavior of sophisticated voters is more responsive to such information than the behavior of unsophisticated voters. Finally, we do not model or analyze the "real" process by which voters filter information out of conflicting signals. That would represent another valuable project.

The democratic implications of our findings are somewhat mixed. While economic voting is generally regarded as positive for democracy (Anderson 2007), our results show that information about aggregate unemployment is insufficient to induce politically unsophisticated voters to link their unemployment expectations to government performance—and this is not because such voters care about other issues. Nevertheless, since unsophisticated voters cannot differentiate credible from incredible information, the fact that such voters do not act on their information ensures the process cannot be strategically manipulated by political parties supplying incredible information.

Our results also illuminate political party communication strategies. That the least politically engaged voters do not translate their information into political action may explain why political parties in developed democracies target their platforms toward prominent and well-informed voters (Adams and Ezrow 2009; Gilens 2005). Furthermore, our results suggest that parties can benefit electorally from providing specific macroeconomic information, and this is of course prevalent among successful governments. However, since less credible information still affects voter beliefs, our results question why parties do not distort the facts more often. While this may entail losing credibility in some instances (see Druckman 2001), the line between proclaiming truths and falsehoods is often unclear if multiple numbers are available. An important challenge for future research is to understand when political parties choose to send more or less credible signals.

ACKNOWLEDGMENTS

We would like to thank Alberto Abadie, Charlotte Cavaille, Ryan Enos, Alex Fouirnaies, Anthony Fowler, Torben Iversen, Horacio Larreguy, Rakeen Mabud, Victoria Shineman, the editor, and five anonymous referees for valuable advice and comments, as well as participants at presentations at Harvard, the NYU Center for Experimental Social Science Conference 2014, the Midwest Political Science Association Annual Conference 2014, MIT Political Economy Breakfast, LSE, and the European Political Science Association Annual Conference 2014. David Lassen thanks the Danish Council

32. Unreported results show that the effect does not differ by income level. However, the appendix shows that economic voting is confined to those individuals with relatively moderate redistributive preferences.

for Independent Research under its Sapere Aude program for financial assistance.

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