Let's look at the facts:
An investigation of psychological biases in policymakers' interpretation of policy-relevant information

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PhD Dissertation

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Acknowledgements

People say that it's awkward when acknowledgments are too long and cheesy. If this is true, a slippery bridge and a broken wrist may very well have saved us all from a very awkward situation. Thus, I am forced to write the following with my left hand and I have to keep it short.

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bigger and much more important. I am happy for all the adventures we have already had together and I cannot wait to see what our future will bring – having you in my life makes me the luckiest man on earth!

Chapter 1.
Introduction

In the year 2000, United Kingdom's then Secretary of State for Education and Employment, David Blunkett, spoke to a group of leading academics at an Economic and Social Research Council seminar in London. Blunkett represented a cabinet that had placed the vision of a more modern government at the top of its agenda (Cabinet Office 1999a), and central to this agenda was the idea that "[g]ood quality policy making depends on high quality information" (Cabinet Office, 1999b, paragraph 7.1). In his speech, Blunkett called for more policy decisions to be based on evidence, including evidence from the social sciences:

> Social science should be at the heart of policy making. We need a revolution in relations between government and the social research community – we need social scientists to help to determine what works and why, and what types of policy initiatives are likely to be most effective (Blunkett as cited by BBC, 2000).

David Blunkett's call for a more prominent role of evidence is illustrative of a general surge in confidence in the idea that information is key to good policy-making. Evidence-based policymaking has become a buzzword in democratic systems all over the world (OECD 2017), reflecting a widespread belief that policymakers will make better decisions if provided with factual information in the form of e.g. policy-relevant scientific evidence and systematic policy evaluations (Sanderson 2002; Maynard 2006; Heinrich 2007; Clarence 2002; Davies, Nutley, and Smith 2000).[1] Policy-relevant evidence should allow policymakers to engage in strategic, outcome-focused policymaking where the attainment of political goals is maximized through factually informed decisions (Nutley and Webb 2000, 20). As a result, governments have built infrastructures to ensure that policymakers have access to sound, policy-relevant information through channels such as performance measurement (Moynihan 2008; Van Dooren 2011) and scientific advice (Doubleday and Wilsdon 2012;

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[1] Ironically, a year into my PhD, in the fall of 2016, Donald J. Trump was elected president of the USA and since then, we have had to get used to the idea of "alternative facts" (Bradner 2017) and that "truth isn't truth" (Kenny 2018). In that sense, the role of factual information in politics has been openly and quite fundamentally challenged (Oxford Dictionaries (2016) even named "post-truth" word of the year 2016). It is too early to evaluate the long-run consequences of this experience but until now, the idea of evidence-based policymaking is still being promoted by scholars as well as practitioners (OECD 2017).

Wilsdon, Allen, and Paulavets 2014), and policymakers have never had access to more information than they do today (Walgrave and Dejaeghere 2017).

While a lot of effort has been devoted to ensuring that policymakers have access to policy-relevant information, much less effort has been devoted to understanding how policymakers interpret the information. This is unfortunate as even the hardest facts have to be interpreted by human beings in order to inform decision-making (Moynihan 2008). Policymakers have to make sense of the information and translate it into decisions, and therefore we cannot understand the role of information in policymaking without understanding how policymakers interpret the information.[2]

The purpose of this dissertation is to improve our understanding of how policymakers interpret information. In order to do so, I draw on important insights from psychologically informed literature about people's interpretation of information in general (Lupia, McCubbins, and Popkin 2000; Huddy, Sears, and Levy 2013). Specifically, I draw on literature about voters' interpretation of political information, which has shown that psychological biases often distort how we process and learn from information. Some studies have shown tendencies to reject information that does not support desired conclusions about the world (Kunda 1990; Goren, Federico, and Kittilson 2009; Taber and Lodge 2006; Taber, Cann, and Kucsova 2009; Groenendyk 2013; Kahan 2016a; Cohen 2003; Bisgaard 2015; Baekgaard and Serritzlew 2016; James and Van Ryzin 2017). Other studies have shown that people's interpretation of information is often biased by how the information is presented to them (Tversky and Kahneman 1981; Druckman 2001; Olsen 2015; Druckman 2004; Nelson, Clawson, and Oxley 1997).

While some literature has pointed to the relevance of psychological biases in relation to policymaking (see e.g. Bartels and Bonneau 2014; Jervis 1976; Levy 2013; Hallsworth et al. 2018), almost no direct investigations have been made of psychological processes among actual policymakers (for notable exceptions, see Linde and Vis (2017) and Sheffer et al. (2017)). For reasons to be discussed in Chapter 3, we cannot take for granted that findings of psychological biases among ordinary citizens are generalizable to real policymakers.

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[2] Performance management literature on decision-makers' interpretation of decision-relevant information mainly focuses on managers' interpretation of performance information. For instance, some literature has shown how managers can use comparisons with different kinds of aspiration levels, be they social, historical or political, to evaluate organizational performance (Olsen 2017; Nielsen 2014; Holm 2017; Salge 2011; Meier, Favero, and Zhu 2015). Furthermore, Moynihan (2008) has shown how actors can make strategic interpretations of information in order to defend their (often institutionally defined) interests.

Therefore, one of the main purposes of the dissertation is to investigate psychological biases in real policymakers' interpretations of policy-relevant information.

If policymakers are indeed biased in their interpretation of information, it will call into question core assumptions behind the idea that policy improvements will follow when policymakers get access to factual information. If policymakers' interpretation of information is biased, it is likely that their use of the information will be biased as well, and an important question becomes under what conditions the biases are most and least influential. Thus, the overall research question of the dissertation is whether psychological biases affect policymakers' interpretations of policy-relevant information, and whether contextual factors moderate the impact of psychological biases on policymakers' interpretation?

The rest of this summary report is structured as follows: In Chapter 2, I present the theoretical background of my investigation of the dissertation's research question. I present literature about motivated reasoning and about the influence of how information is presented, and I use this literature to formulate expectations to be tested in the dissertation. In Chapter 3, I present the overall empirical strategy for my investigation. I argue that survey experiments are useful for testing the dissertation's research question. Furthermore, I argue that there is a need to conduct experiments on samples of actual policymakers and discuss how studies of local policymakers make large-n investigations possible, even with relatively low response rates that must be expected when surveying political elites. I end the chapter with an overview of the data that has been collected for the purpose of my investigation. In Chapter 4, I present experimental tests and results from the dissertation's six articles (listed in Table 1) that all contain evidence with relevance for the dissertation's overall research question. Articles A, B, C, and D ask what happens when policymakers hope to reach certain conclusions based on a given piece of information, and articles E and F focus on the effects of how information is presented. The articles show that policymakers are indeed biased in their interpretation of policy-relevant information and suggest that contextual factors do moderate the policymakers' tendency to engage in biased reasoning (in ways, though, that were not expected). In Chapter 5, I conclude with a discussion of the dissertations' contributions and limitations, and I set out an agenda for future research. Needless to say, the chapters draw heavily on content that is also present in the dissertation's articles.

Table 1: Overview of articles in dissertation

Articles	Short titles
A. "How do Elected Officials Evaluate Performance? Goal Preferences, Governance Preferences and the Process of Goal Reprioritization". Co-authored with Casper Dahlmann, Asbjørn Mathiasen, Donald P. Moynihan, and Niels Bjørn Petersen. Published in *Journal of Public Administration Research and Theory* 28(2), pp. 197-211 (doi.org/10.1093/jopart/muy001).	Goal Re-prioritization
B. "The Role of Evidence in Politics: Motivated Reasoning and Persuasion among Politicians". Co-authored with Martin Baekgaard, Casper Dahlmann, Asbjørn Mathiasen, and Niels Bjørn Petersen. Forthcoming in *British Journal of Political Science* (doi.org/10.1017/S0007123417000084).	Role of Evidence
C. "'The numbers say so…': Do justification requirements reduce motivated reasoning in politicians' evaluation of factual information?" *Working paper*.	Justification Requirements
D. "Biased, not blind: An experimental test of self-serving biases in service users' evaluations of performance information". Forthcoming in *Public Administration* (doi.org/10.1111/padm.12520).	Biased, Not Blind
E. "Politicians and Bureaucrats: Reassessing the Power Potential of the Bureaucracy". Co-authored with Jens Blom-Hansen, Martin Baekgaard, and Søren Serritzlew. *Working paper*.	Politicians & Bureaucrats
F. "Public Reporting of Multidimensional Performance: Order Effects on Citizens' Perceptions and Judgment". Co-authored with Oliver James. *Working paper*.	Order Effects

Note: Short titles are used throughout the rest of the summary report.

Chapter 2.
Theoretical background

In this chapter, I present the theoretical background of, and the theoretical expectations to be investigated in, the dissertation. As stated in the introduction, the dissertation's focus on policymakers' interpretation of information is motivated by a growing confidence in the idea that information is key to good policymaking. Before I present literature on and expectations about psychological biases, I find it appropriate to give an introduction to the ideal-typical process of evidence-based policymaking (section 2.1). This is followed by an overview of the theoretical background of the dissertation's investigation. I present literature on (and expectations about) the impact of attitudes and beliefs (sections 2.2 and 2.3) and on biases resulting from how information is presented (section 2.4). As noted in the introduction, the chapter's theoretical expectations are tested in the dissertation's six articles, which means that most of the theoretical arguments are also present in the articles. Specifically, sections 2.2 and 2.3 draw on articles A-D (cf. Table 1 in the introduction), and section 2.4 draws on articles E-F.

2.1. The ideal-typical process of evidence-based policymaking

In the introduction, I noted that the idea of evidence-based policymaking has gained prominence in recent decades. According to this idea, in ideal-typical terms, it makes sense to view policymaking as a cyclical process as illustrated in Figure 1 below. The cycle starts with a political goal-setting phase where the policymakers' job is to set a direction for society and prioritize what problems to (attempt to) solve and what goals to pursue (Davies, Nutley, and Smith 2000, 3). Factual information can play a role in this phase, for example by pointing to societal problems that policymakers find it important to address, but political goal-setting is ultimately an ideological rather than a technical exercise.

Figure 1: The ideal-typical process of evidence-based policymaking
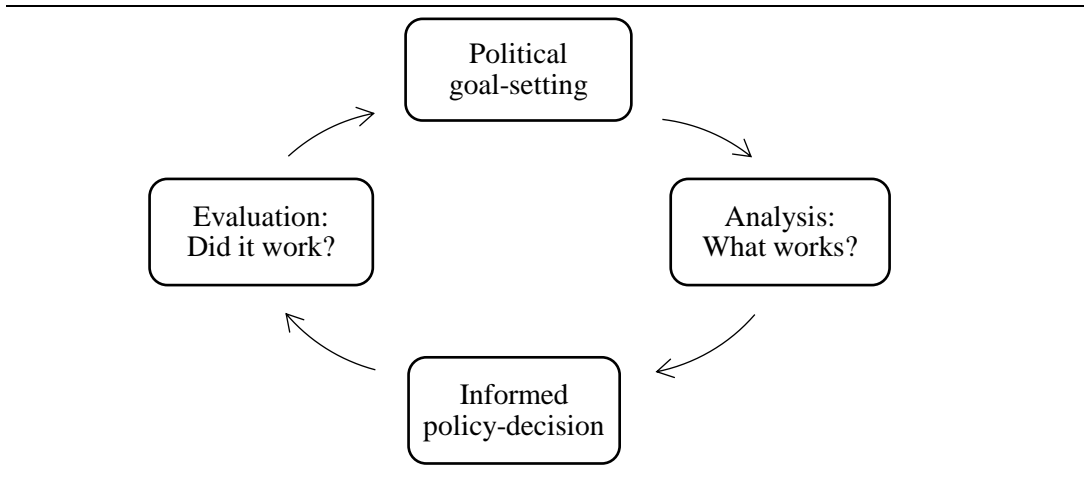
Note: Figure adapted from Nutley and Webb (2000, 26) and Moynihan (2008, 6).

When policymakers have articulated their goals, they should, to use David Blunkett's words (cf. quote in the introduction), use policy-relevant evidence to analyze "what works and why, and what types of policy initiatives are likely to be most effective" in terms of attaining the goals that have been set (Blunkett as cited by BBC, 2000). Policymakers may draw on different kinds of evidence, e.g., scientific evidence, policy evaluations, government reports, reports from think tanks, and benchmark data (Nutley and Webb 2000, 23). In practice, bureaucrats will often play a crucial role in deciding what evidence is relevant and in communicating the evidence to the policymakers (cf. article E, "Politicians & Bureaucrats").

The rationale behind this use of information is that by making informed policy-decisions based on available evidence, policymakers will be able to pursue their political goals more systematically. In that sense, they will be better off in terms of moving society in what they find to be a desired direction than they would by relying on their potentially faulty intuitions, but of course, this is no guarantee of goal attainment. Sometimes, there is not enough (valid) evidence in relation to a given policy to make an evidence-based decision, and even if there is ample valid evidence, the social world can be less predictable than policymakers might hope (Tetlock 2017). Therefore, it is crucial to evaluate policies continuously. If policies do not work, they may need to be adjusted, and if they work very well, there may be room for prioritizing new goals, which would start a new cycle of policymaking.

I call this process of evidence-based policymaking 'ideal typical' to acknowledge that it is not an uncontroversial ideal. It is a rationalist model of policymaking and some may argue that it ignores, or even hides, that politics

is inherently conflictual.[3] At the same time, however, it should be noted that while making policies based on "what works" may sound like a rather technocratic exercise, there is still room for ideological fights and disagreements. I noted above that political goalsetting is an ideological, rather than a technical, exercise as factual information cannot decide what goals should be prioritized in any given situation. To give an example, which I will get back to later on in the dissertation, evidence may show that private schools are better than public schools at ensuring high academic performance among their students, but that public schools have fewer problems with student wellbeing. Should policymakers privatize more schools based on this evidence? Or should they maintain public schools in order to safeguard student wellbeing? The answer depends on the policymakers' prioritization between academic performance and student wellbeing. Some policymakers may have as their top priority to ensure high academic performance, even if it means that they have to accept more problems with student wellbeing. Others may be more concerned about student wellbeing and oppose policies that harm this goal, even if this means that they will have to accept poorer academic achievements. Both views are legitimate, and therefore evidence cannot (and should not) replace attitudes in policymaking. What evidence *can* (and should) do, according to the idea of evidence-based policymaking, is to improve the policymakers' ability to anticipate the consequences of their decisions and thereby help them decide what policies to fight for in order to pursue the political goals they find important.

The increasing prominence of evidence-based policymaking can be seen as a policy parallel to the performance management movement in public administration (Van Dooren, Bouckaert, and Halligan 2010; Moynihan 2008; Van de Walle and Van Dooren 2011; Gerrish 2016; Holm 2018; Hvidman and Andersen 2014; Hatry 2006). Performance management can be used with many purposes (Behn 2003), but a central idea is that decision-makers, including elected officials (Askim 2011; Nielsen and Moynihan 2017; Van Dooren, Bouckaert, and Halligan 2010), should use performance information to engage in improved, more strategic and outcome-focused decision-making.

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[3] Already in the 1960s, Wildavsky (1966) criticized how "evangelical economizers" had, by "spreading the gospel of efficiency" (Ibid., 308), succeeded in framing economic analytical approaches to policymaking as objective and rational. He worried that, by framing the focus on efficiency as rational, reformers did not acknowledge broader political consequences of their policies (such as consequences for the distribution of the society's resources and power structures in the political system). Therefore, instead of imagining that policymaking can become fully rational, it may be better to acknowledge that politics is, and will always be, a messy process, suffused with fights over power, protection of special interests, and ideological disagreements.

Thus, the cyclical, evidence-based policymaking process in Figure 1 is very similar to how decisions should be made according to the performance management doctrine as presented by Moynihan (2008).

The idea of evidence-based policymaking is intuitively appealing as it promises a systematic way towards the attainment of political goals, but as I argued in the introduction, we cannot fully understand the role of evidence in policymaking without understanding how policymakers interpret information. In order to cast light on this, I draw on psychologically informed literature on people's interpretation of information in general, which has shown that peoples' interpretation is often distorted by psychological biases. Below, I briefly introduce the theoretical background of my psychologically informed investigation and present the expectations that are tested in the dissertation's articles.

2.2. The impact of prior attitudes and beliefs

Four of the dissertation's articles (articles A-D, cf. Table 1 in Chapter 1) investigate how information is interpreted when policymakers know in advance what they hope to conclude based on the information due to prior attitudes and beliefs. These articles draw on the theory of motivated reasoning, which has its roots in social psychological literature and is now among the most prominent theories in political psychology.

The theory of motivated reasoning is based on the premise that when human beings reason about information, their reasoning will always be motivated by goals, defined as any "wish, desire, or preference that concerns the outcome of a given reasoning task" (Kunda 1990, 480). Reasoning goals vary from individual to individual and, for any given individual, from situation to situation, and the goals affect how people approach and interpret information. Sometimes, people are motivated to invest cognitive effort in careful processing of a great deal of information in order to make correct judgments about issues at hand (whatever these correct judgments may be). When this is the case, people tend to be open-minded and nuanced in their interpretation of the information, and they tend to be reluctant to commit to premature and definite conclusions (Kruglanski and Webster 1996, 264). Motivated reasoning scholars use the term "accuracy goals" to describe the reasoning goals behind such open-minded reasoning (Kunda 1990, 480). In other situations, people are motivated to preserve, or "freeze" on predefined judgments, meaning that they know in advance what conclusions they want to reach. When this is the case, people tend to avoid new information that might challenge their desired conclusions, and if they are exposed to new information, they tend to

approach this information with a closed-minded, biased defense of their desired conclusions (Kruglanski and Webster 1996, 264). Motivated reasoning scholars use the term "directional goals" to describe the reasoning goals behind such biased, closed-minded reasoning (Lodge and Taber 2000, 186).

Political science literature on motivated reasoning has mainly focused on *politically* motivated reasoning. In this literature, the most prominent sources of directional goals are political identities and attitudes that people are often motivated to defend when dealing with politically relevant facts and information. For instance, voters are often motivated to evaluate information in ways that are politically convenient in light of their partisan identity (Campbell et al. 1960). Studies have shown that voters often auto-agree with policymakers from their own political party and auto-disagree with policymakers from competing parties (Cohen 2003; Bolsen, Druckman, and Cook 2014; Goren, Federico, and Kittilson 2009; Slothuus and de Vreese 2010; Leeper and Slothuus 2014; Arceneaux and Vander Wielen 2017). Similarly, compared to supporters of opposition parties, voters whose party is in charge of government tend to be less likely to know about government failures and to be more forgiving of such failures if they do know about them (Tilley and Hobolt 2011; Bisgaard 2015; Jerit and Barabas 2012; Groenendyk 2013). Furthermore, when voters are exposed to information about issues that they have political attitudes about, they will often attempt to evaluate the information in ways that support these attitudes. Thus, people will often accept attitude-congruent information uncritically and emphasize the importance of this information and attempt to counter-argue and discount information if it challenges their political attitudes (Lord, Ross, and Lepper 1979; Taber and Lodge 2006; Taber, Cann, and Kucsova 2009; Druckman 2012; James and Van Ryzin 2017). Some studies have even found a tendency among voters to misinterpret attitude-incongruent factual information (Kahan et al. 2017; Baekgaard and Serritzlew 2016).

Based on the existing literature, I expect that elected policymakers will tend to engage in politically motivated reasoning when evaluating policy-relevant information. Policymakers will often have strong political attitudes regarding the issues about which they make policies (in fact, they have been elected based on these attitudes; see also section 3.2.3), and I expect them to be motivated to defend these attitudes.

The dissertation contains tests for two forms of politically motivated reasoning. First, as we argue in article A ("Goal Reprioritization"), there is reason to expect that policymakers will tend to reweight the perceived importance of individual pieces of information in light of the (in)congruence between the information and conclusions they are motivated to defend. In article A, we de-

velop the term "goal reprioritization" to describe this behavior. Goal reprioritization implies that, instead of evaluating information based on their political goals, policymakers will often alter their goals in response to the information. In other words, their ability to use evidence to pursue political goals consistently will be hampered. To continue the school example from section 2.1, imagine a policymaker who thinks that schools should have high academic performance as their top priority and is less concerned about student wellbeing. Imagine also that, for ideological reasons, this policymaker is critical towards contracting out the delivery of public services as she thinks that businesses should not be able to profit from such services. If this policymaker learns that private schools are better at ensuring high academic performance than public schools are, but that public schools have higher student wellbeing, I expect that, instead of accepting that private schools are better at what she finds important, the policymaker will reweight the relative importance of academic achievements and student wellbeing. By increasing the perceived importance of student wellbeing while lowering the perceived importance of academic achievements, the policymaker will be able to use the evidence at hand to defend her attitudes towards the role of the public and private sector in delivering public services. As I return to in Chapter 4, we use the dilemma between academic performance and student wellbeing to test for goal reprioritization in article A (see section 4.1.1).

In order for goal reprioritization to make sense, there needs to be access to information regarding multiple political goals and there needs to be some ambiguity in the information at hand. For instance, in the school example above, there was information about academic achievements and information about student wellbeing, and the two pieces of information had competing implications. As a reasoning strategy, goal reprioritization is psychologically appealing as it allows policymakers to defend their attitudes while maintaining an "appearance of objectivity" (Groenendyk 2013, 50). Because of the ambiguity in the evidence, goal reprioritization allows policymakers to make reasonable (and apparently evidence-based) arguments in support of their political attitudes. However, I do not expect that access to ambiguous information will be necessary in order for policymakers to engage in motivated reasoning. As mentioned, studies have shown that voters tend to misinterpret attitude-incongruent factual information (Kahan et al. 2017; Baekgaard and Serritzlew 2016). There is therefore reason to expect that in situations where policymakers face evidence that unambiguously supports one conclusion, they will tend to misinterpret the evidence if it does not support their desired conclusion. This expectation is tested in articles B and C ("Role of Evidence" and "Justification Requirements") (see Chapter 4).

Motivated reasoning challenges the idea that policy improvements will follow when policymakers get access to policy-relevant information. If policymakers are biased to systematically evaluate information in ways that support their existing political attitudes, it will hamper their ability to learn from the information and change direction if needed. In other words, insights about motivated reasoning question policymakers' ability to use evidence to work systematically towards attainment of the goals they find important.

As I noted above, political science literature on motivated reasoning has mainly focused on politically motivated reasoning resulting from people's desire to defend their political identities and attitudes. However, information does not have to be ideologically laden to trigger directional goals. In fact, some of the first studies of motivated reasoning examined sports fans and their tendency to make biased judgments in defense of their favorite teams (Hastorf and Cantril 1954), and public administration studies have shown tendencies among managers and employees to make self-serving assessments of organizational performance (Meier and O'Toole 2013; Petersen, Laumann, and Jakobsen 2018). So even if policymakers do sometimes make policies about issues they do not have strong political attitudes about, they may still be driven by directional goals in their interpretation of policy-relevant information. In article D ("Biased, Not Blind"), I discuss how the simple act of making a choice can make people engage in post-decisional directionally motivated reasoning about choice-related information. Questioning the desirability of one's choices (compared to alternative choices) is unpleasant, and the literature has shown that when people have made choices, they often seek to defend them (Brehm 1956; Festinger 1957; Gollwitzer 1990; Shultz, Léveillé, and Lepper 1999; Cooper 2007). The literature on choice-driven motivated reasoning has primarily focused on consumer choices, but I expect the insights to apply to policymaking as well. Policymakers make many important choices through their job (they allocate scarce resources, they reform policies etc.), and based on the literature, there is reason to expect that policymakers will be motivated to defend these choices when subsequently interpreting choice-related information.

2.3. Do contextual factors moderate the impact of political attitudes on policymakers' interpretation of policy-relevant information?

In the introduction, I formulated an overall research question for the dissertation, which consisted of two parts. The first part asked if psychological biases affect policymakers' interpretation of policy-relevant factual information, and

the expectations above concern this part of the research question. The second part asked if contextual factors moderate the impact of psychological biases on policymakers' interpretation. If policymakers are biased in their interpretation of information, their use of the information can also be expected to be biased, and an important question is under what conditions the biases are most and least influential. Articles B and C ("Role of Evidence" and "Justification Requirements") contribute to answering this second part of the research question. "Contextual factors" is a very broad concept,[4] but articles B and C focus on two important context factors that, according to the literature, may moderate the impact of attitudes on policymakers' interpretation. In article C ("Role of Evidence"), we investigate the effect of variations in the amount of policy-relevant information on policymakers' interpretation of the information, and in article D ("Justification Requirements"), I investigate whether policymakers alter their interpretation of information when they know that they have to be able to justify it. Below, in sections 2.3.1 and 2.3.2, I present the theoretical background of these two investigations in turn.

2.3.1. Variations in information load

First, while the human tendency to engage in biased reasoning in defense of political attitudes is well established in the literature, it has also been noted that "[p]eople do not seem to be at liberty to conclude whatever they want to conclude merely because they want to" (Kunda 1990, 482). For instance, Leon Festinger argued that people are generally motivated to defend their attitudes and beliefs, but that it is difficult for people to maintain beliefs if they are "clearly invalid" (Festinger 1957, 243). Reality constraints can force people to revise beliefs that are "directly and unequivocally disconfirmed by good evidence" (ibid.) even though this is psychologically uncomfortable. As Ziva Kunda formulates it, people "draw the desired conclusion only if they can muster up the evidence necessary to support it" (Kunda 1990, 483).

Redlawsk, Civettini, and Emmerson draw on these insights and find that when people are presented with information that is slightly at odds with their political attitudes and beliefs, the information tends to have attitude-strengthening effects due to directionally motivated reasoning about the information (Redlawsk et al. 2010). However, when people are presented with information that is highly incongruent with their attitudes and beliefs, this can force them

[4] Examples of contextual factors that are not studied in this dissertation, but are certainly worthy of investigation, are (monetary) incentives to make accurate evaluations of information (Bullock et al. 2015; Prior, Sood, and Khanna 2015) and variations in the degree of politicization in the information environment (Slothuus and de Vreese 2010; James and Van Ryzin 2017).

to give in to the evidence. Redlawsk and his colleagues identify an affective tipping point at which people can no longer ignore the incongruence between their attitudes and factual information, meaning that they have to "take 'reality' into account" (ibid., 583) and revise their attitudes instead of defending them. They define the affective tipping point in relative terms, but in more general terms the substantial conclusion is that people can be forced to make changes in their attitudes and beliefs if they are confronted with overwhelming evidence suggesting that such changes are needed. Therefore, as we argue in article B, there is reason to expect that political attitudes will matter less to policymakers' interpretation of policy-relevant information when they are presented with large amounts of information than when they are presented with smaller amounts of information. This expectation presupposes, of course, that the available information unambiguously supports one conclusion. Otherwise, the policymakers could engage in goal reprioritization in defense of their desired conclusion, cf. section 2.2.

2.3.2. Justification requirements

As mentioned, I also ask whether policymakers' tendency to engage in directionally motivated reasoning about policy-relevant information is affected when they know that they must be able to justify their interpretation of the information. In democratic systems, elected policymakers are required to justify their claims regularly through a variety of institutions, and some literature suggests that this may reduce biases in the policymakers' reasoning.

Scholars have argued that justification requirements[5] work as a "signal to (…) take the role of the other toward their own mental processes and to give serious weight to the possibility that their preferred answers are wrong" (Tetlock and Kim 1987, 707). Because people are motivated to appear rational and competent (Geen 1991; Kunda 1990; Groenendyk 2013; Klar and Krupnikov 2016), they are expected to react to justification requirements with "impression construction" (Leary and Kowalski 1990) by increasing the cognitive effort they invest in evaluating information and by using this effort to make less biased interpretations of the information (Chaiken 1980; Tetlock 1985; Tetlock and Kim 1987; Lerner, Goldberg, and Tetlock 1998). In other

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[5] Researchers in Psychology use the term "accountability" to describe the expectation to be called on to justify one's interpretation of information (Lerner and Tetlock 1999, 255). I refrain from using this term in order to avoid confusion with other kinds of accountability in political science and public administration literature, such as electoral accountability (Canes-Wrone, Brady, and Cogan 2002; Rogers 2017; Lowry, Alt, and Ferree 1998) and performance management as a tool for accountability (Moynihan 2008).

words, justification requirements are expected to create a pressure for accuracy goals in people's interpretation of information.

Justification requirements have proven effective in reducing a wide range of cognitive distortions (Bodenhausen, Kramer, and Süsser 1994; Lerner, Goldberg, and Tetlock 1998; Tetlock 1983; Webster, Richter, and Kruglanski 1996; Miller and Fagley 1991) and have been highlighted as a "simple, but surprisingly effective, social check on many judgmental shortcomings" (Tetlock 1983, 291). However, effects of justification requirements have not been systematically investigated in relation to motivated reasoning. Some researchers have speculated that policymakers may engage in less politically motivated reasoning about policy-relevant information when they expect that they will later be asked to justify their interpretation of the information (Bartels and Bonneau 2014, 226). Bolsen and colleagues (2014) found debiasing effects of a justification-inspired intervention in a motivated reasoning experiment, but in addition to a justification requirement, their intervention consisted of an appeal to be open-minded. We therefore do not know whether it was the justification requirement, the appeal, or the combination of the two that led to less biased reasoning in their experiment. Thus, my investigation in article C (see Chapter 4) is the first to systematically test for effects of justification requirements on the tendency to engage in politically motivated reasoning. I expect that policymakers will engage in a more effortful search for and processing of policy-relevant information when they are asked to justify their interpretation of the information than when they are not asked to justify their interpretation. Furthermore, I expect political attitudes to matter less to policymakers' interpretation of policy-relevant information when they are asked to justify their interpretation of the information.

2.4. The impact of how information is presented

So far, I have presented the theoretical background of articles A-D, which all concern the distortive impact of prior attitudes and beliefs on policymakers' interpretation of policy-relevant information. Articles E and F ("Politicians & Bureaucrats" and "Order Effects") concern psychological biases resulting from how information is presented. The literature has shown that even small, seemingly arbitrary changes in the presentation of information can cause systematic and quite substantial changes in people's interpretation of – and decision-making based on – the information. As I also discuss in Chapter 5, information providers may be in a powerful position to influence policymakers' interpretation of information through choices regarding the presentation of the information. The dissertation contains tests of four prominent ways in which poli-

cymakers' interpretation of policy-relevant information may be biased by factors related to the presentation of the information. Thus, in sections 2.4.1-2.4.4, I present theoretical expectations about equivalence framing effects, issue framing effects, source cue effects and order effects on policymakers' interpretation of information.

2.4.1. Equivalence framing effects

Equivalence framing effects are effects of "different, but logically equivalent, words or phrases [that] (…) cause individuals to alter their preferences" (Druckman 2001, 228). Equivalence framing effects were first discovered by Tversky and Kahneman (1981), who developed prospect theory in the study of citizens' risk preferences. In their Asian Disease problem, Tversky and Kahneman asked citizens to choose between two programs to counteract a fictitious exotic disease. They told respondents that 600 lives would be lost if nothing was done to counteract the disease and both programs had an identical expected value of 200 saved lives. One program was risk-seeking, the other program was risk-averse, and Tversky and Kahneman discovered that if the two programs were presented in a domain of gains, focusing on the possible numbers of saved lives, a vast majority of the respondents preferred the risk-averse program (ibid., 453). If the programs were presented in a domain of losses, focusing on the possible numbers of deaths, a vast majority preferred the risk-seeking program (ibid.).

Since Tversky and Kahneman's work, equivalence framing effects have been studied in other settings and in relation to other types of preferences besides risk preferences (Levin, Schneider, and Gaeth 1998; Druckman and Nelson 2003; Druckman 2001; Druckman 2004; Valentino and Nardis 2013). Today, equivalence framing effects are recognized as "one of the most stunning and influential demonstrations of irrationality" (Druckman 2004, 671). In public administration literature, equivalence framing has gained prominence since Olsen (2015) found that citizens made more positive evaluations of a hospital if they were told that it had a satisfaction rate of 90 percent compared to an equivalent scenario where the hospital was presented with a dissatisfaction rate of 10 percent (ibid.). Similar effects have been documented among public managers and employees (Belardinelli et al. 2018; Bellé, Cantarelli, and Belardinelli 2018).

Equivalence framing effects are thought to emerge because of differences in the associations that are unconsciously activated in people's working memory in reaction to information, depending on how the information is worded (Druckman 2004). For instance, when people evaluate a hospital

based on the number of *satisfied* users, the positive labelling of the information (the word "satisfied") tends to activate positive considerations outside of people's awareness, which in turn affect their mindset in a positive direction. In contrast, when people evaluate the hospital based on the number of *dissatisfied* users, the negative labelling of the information (the word "dissatisfied") tends to activate negative thoughts, thereby affecting people's mindset in a negative direction.

Recently, equivalence framing effects have been documented on elected policymakers' risk preferences using replications of Tversky and Kahneman's Asian Disease problem (Sheffer et al. 2017; Linde and Vis 2017). Furthermore, results have suggested that policymakers' risk preferences become less vulnerable to the framing of outcomes if the policymakers are familiar with the type of decision at hand (Linde and Vis 2017). However, no one has studied equivalence framing effects on policymakers' support for actual policies for which the policymakers are responsible in their own jurisdictions and may have attitudes about.[6] Based on the literature, there is reason to expect that policymakers will tend to make more favorable evaluations of positively framed policy-relevant information than of logically equivalent but negatively framed information, although this expectation is weakened by the results of Linde and Vis (ibid.).

2.4.2. Issue framing effects

While equivalence framing effects occur because of different but logically equivalent wordings of information, issue framing effects occur when "by emphasizing a subset of potentially relevant considerations, a speaker leads individuals to focus on these considerations when constructing their opinions," which in turn affects people's preference formation based on the information (Druckman 2004, 672). Thus, issue framing effects occur because emphasis has been placed on qualitatively different aspects of an issue.

Issue framing effects were e.g. demonstrated in the Ku Klux Klan study by Nelson, Clawson, and Oxley (1997) where university students were more willing to let hate groups like Ku Klux Klan rally at their university if the question was framed as a matter of free speech rather than of risk to public order. In

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[6] In their experiments, Linde and Vis (2017) actively attempted to prevent ideology from interfering with their results (ibid., 111) and therefore refrained from describing actual policies for which their respondents could have preferences. However, I think that because of the central role of ideology and preferences in policymaking, we have to allow for the interference of these factors in our results in order to investigate psychological biases in policymaking.

relation to government spending, it has been demonstrated that "when government spending for the poor is framed as enhancing the chance that poor people can get ahead, individuals tend to support increased spending. On the other hand, when it is framed as resulting in higher taxes, individuals tend to oppose increased spending" (Druckman 2001, 1043).

In contrast to equivalence framing effects that are thought to work through processes outside of people's awareness, cf. the section above, issue framing effects are thought to occur because of more deliberate processes (Druckman 2001; 2004). When issue frames are used in the presentation of information, the frames tend to make people reprioritize the relative importance of competing considerations with relevance for the information at hand (ibid.). In the Ku Klux Klan example, most people tend to support freedom of speech but they also tend to find public order important. By highlighting one of these considerations in relation to the choice to let (or not let) Ku Klux Klan rally at their university, more people tend to make their decision based on that consideration.

In the existing literature, issue framing effects are well established among citizens, and scholars have worried that political elites "face few constraints to using frames to influence and manipulate citizens' opinions" (Druckman 2001, 1041). As we argue in article E ("Politicians and Bureaucrats"), there is reason to expect that policymakers will be susceptible to issue framing as well and that they will therefore tend to make different evaluations of information depending on the information-related considerations that are emphasized in the presentation of the information.

2.4.3. Source cue effects

A third way in which information providers may be able to affect policymakers' interpretation of policy-relevant information is by highlighting policy advocates that are either ideologically aligned or unaligned with the policymakers when presenting the information to them. The literature on source cue effects has shown that when people make judgments based on information, their judgments are often affected by signals from the social environment (Cohen 2003). If people are told how others interpret some information, this knowledge tends to affect their own interpretation of the information.

Source cue effects may occur because of directionally motivated reasoning resulting from people's motivation to agree with certain groups of individuals and disagree with other groups. This explanation is widespread in political science literature on voters' reactions to party cues. As mentioned in section 2.2, studies have found that voters are often motivated to make judgments

that are consistent with the judgments of policymakers from their own political party (Campbell et al. 1960; Bolsen, Druckman, and Cook 2014; Leeper and Slothuus 2014; Arceneaux and Vander Wielen 2017). However, an alternative explanation of source cue effects is that people use source cues as heuristics that allow them to make sense of information without analyzing the information thoroughly. According to this idea, if people learn about the judgments of other groups of well-informed individuals who have the same political goals and values as themselves (Gilens and Murakawa 2002, 31), mimicking these judgments will often lead to "approximately rational" behavior, even if people are not well informed themselves (Sniderman, Brody, and Tetlock 1991, 165).

Existing political science literature on source cues has primarily focused on parties (and thus, policymakers) as cue senders. However, as we argue in article E, policymakers may also be susceptible to source cue effects, and there is therefore reason to expect that they will tend more often to evaluate policy-relevant information in support of policies if they are told that the policies are advocated for by groups with whom they are ideologically aligned.

2.4.4. Order effects

In addition to the tests of equivalence framing, issue framing, and source cue effects, the dissertation's investigation of biases resulting from factors related to the presentation of information includes a test of order effects on judgments based on sequences of information. Order effects are evident when people evaluate sequences of information in systematically different ways, depending on the order in which the information is being presented (Hogarth and Einhorn 1992). Order effects have been investigated in a variety of domains, such as consumer choices (Bond et al. 2007; Carlson, Meloy, and Russo 2006), jury verdicts (Tetlock 1983; Davis 1984), and political campaigning (Chong and Druckman 2010). The literature identifies two prominent kinds of order effects.

Some studies have suggested that when people make judgments based on sequences of information, first impressions based on early pieces of information tend to have larger effects on judgments than information encountered later in the sequence (Bond et al. 2007; Carlson, Meloy, and Russo 2006; Nickerson 1998; Tetlock 1983). These studies suggest that people form initial dispositions based on early pieces of information, and that these dispositions bias evaluations of subsequent information. If people form a favorable first impression of some object of evaluation, they will tend to make more favorable evaluations of subsequent pieces of information about that object of evalua-

tion, which, in the end, will lead them to make more favorable overall evaluations (Bond et al. 2007). Scholars use the term "primacy effects" to describe the disproportional impact of first impressions based on early pieces of information.

Other studies have found exact opposite effects where last impressions based on later pieces of information are disproportionately influential on judgments (Davis 1984; Hogarth and Einhorn 1992). This can be explained with limitations in the human working memory, meaning that people have to base their judgments on whatever considerations are accessible in their mind at any given point in time. Zaller notes that "the more recently a consideration has been called to mind or thought about, the less time it takes to retrieve that consideration or related considerations from memory and bring them to the top of the head for use" (Zaller 1992, 48). Scholars use the term "recency effects" to describe the disproportional impact of last impressions based on later pieces of information.

There is a potential for order effects on policymakers' decision-making whenever they encounter multiple pieces of policy-relevant information in sequence. This is usually the case as policymakers are rarely able to form well-informed attitudes based on single pieces of information. For instance, public organizations tend to pursue a variety of goals (Boyne 2002; Andrews, Boyne, and Walker 2006; Kaplan and Norton 1992; Song and Meier 2018; Chun and Rainey 2005; Holm 2018), and if policymakers encounter information on, say, school policies, they will have to take into account a variety of outputs and outcomes. Based on the literature, we expect in article F ("Order Effects") that order effects will be evident in evaluations of sequences of information, but we do not have a priori expectations regarding the predominance of either primacy effects or recency effects.

Chapter 3.
Empirical strategy

In this chapter, I introduce my empirical strategy for investigating Chapter 2's theoretical expectations. I make two important and cross-cutting design choices. In section 3.1, I argue that survey experiments are useful for testing the dissertation's expectations, and in section 3.2, I choose the empirical setting for my experiments. I discuss the need for direct investigations of actual policymakers and argue that by studying policymakers at the local level it is possible to conduct large-n investigations, even with relatively low response rates that must be expected when studying political elites. I end the chapter with an overview of the data collections carried out for the purpose of my investigation. Due to the focus on cross-cutting design choices, the chapter does not include a presentation of the specific designs that have been used to test the theoretical expectations. For information about specific designs, I refer to Chapter 4 and the dissertation's articles.

3.1. Research design

The aim of this dissertation is to investigate psychological biases in policymakers' interpretations of policy-relevant information. Specifically, in order to test the theoretical expectations in Chapter 2, I need to investigate causal effects of attitudes and beliefs on policymakers' interpretation of varying amounts of evidence and with and without requirements to justify their interpretation. Furthermore, I need to investigate causal effects of factors related to the presentation of the information. This is not straightforward as I have to address at least two major challenges.

My first major challenge concerns how to observe policymakers' interpretation of policy-relevant information in a way that allows me to test my theoretical expectations. One possible strategy for gathering insights of relevance to the theoretical expectations could be to ask policymakers about their own experiences, for example through qualitative interviews or surveys with questions about the issue. However, this strategy would be problematic given that my expectations concern psychological processes that policymakers may not be aware of (Taber and Lodge 2016; Levin, Schneider, and Gaeth 1998; Druckman 2001). Therefore, in order to cast light on psychological biases, I need to observe policymakers' interpretation of actual information and analyze this interpretation against the empirical implications of my theoretical expectations. This task is complicated by the fact that different policymakers

make decisions about different issues and are therefore exposed to very different (and not necessarily comparable) information. I have therefore made it a priority to create a controlled environment where I can observe a sufficient number of policymakers' interpretations of comparable pieces of information.

My second challenge concerns causality as I need to be able to rule out alternative explanations of behavior consistent (or inconsistent) with my theoretical expectations. For instance, policymakers' interpretations of a piece of information might very well vary with information-related political attitudes, not because of (in)congruence between these attitudes and the information (which is what I expect in section 2.2) but because of other, potentially unmeasured, factors correlating with the political attitudes. This could happen, for example, if there is a relationship between policymakers' education and their attitudes, and if education affects how policymakers interpret information. In that case, differences in interpretation might emerge because of differences in education and not because attitudes bias the interpretation. Furthermore, providers of information might choose to design policy-relevant information in certain ways in anticipation of policymakers' reactions. For instance, in preparing information with relevance to a given policy, information providers might frame the information differently depending on policymakers' stated attitudes towards that policy. In that case, it would not be the presentation of information that affects how the information is interpreted and used (which is what I expect in section 2.4) but rather the (expected) interpretation and use that affect the presentation of the information, meaning that there would be a situation of reversed causality (Blom-Hansen, Morton, and Serritzlew 2015; James, Jilke, and Van Ryzin 2017).

In order to address these challenges, I have chosen to base the dissertation's articles on survey experiments. As I discuss in Chapter 5, survey experiments are not free of problems (for instance, they often involve quite artificial settings, meaning that they can be criticized in terms of their ecological validity), but the method is ideal in terms of dealing with the challenges discussed above. Survey experiments allow me to observe a large number of policymakers' interpretations of comparable pieces of information in a controlled environment, which can be designed for the explicit purpose of testing my theoretical expectations. Furthermore, the method allows me to create exogenous variation in the factors that I expect to affect policymakers' interpretations, meaning that the causal interpretation of my results becomes much more straightforward. In Chapter 4, I return to the specific tests of my theoretical expectations but first, in the section below, I choose the empirical setting in which to test my expectations.

3.2. Empirical setting and data

3.2.1. Don't policymakers behave like other human beings?

I am by no means the first to argue that insights about psychological biases are important for understanding policymakers' behavior. For example, International Relations scholars have a long tradition of drawing on psychological insights in analyses of state leaders' foreign policy decision-making (Jervis 1976). The latest edition of *The Oxford Handbook of Political Psychology* devotes an entire section to this, including analyses of psychological biases as a source of intelligence failures and faulty threat perceptions (Levy 2013; Stein 2013; see also Lake 2011). Furthermore, some literature on evidence-based policymaking has pointed to psychological biases as an obstacle to factually informed policymaking (Bartels and Bonneau 2014), and Public Administration scholars are becoming increasingly aware of the importance of psychological insights, including insights about psychological biases, in explaining different kinds of decision-making (Grimmelikhuijsen et al. 2017). Recently, the Behavioural Insights Team in London even released an entire report about the impact of psychological biases on policymaking (Hallsworth et al. 2018).

However, while existing literature has contributed importantly by pointing to the relevance of psychological biases in policymaking, few direct investigations have been made of psychological processes among actual policymakers (for important exceptions, see Sheffer et al. 2017; Linde and Vis 2017). From a practical perspective, it is notoriously difficult to collect useful data among actual policymakers because, compared to other pools of potential subjects, the population is limited in size and policymakers are often reluctant to participate as experimental subjects (Druckman and Lupia 2012, 1178). From a theoretical perspective, behavioral scientists often assume (explicitly or, more often, implicitly) that their research is about general *human behavior*, meaning that "the findings one derives from a particular sample [of subjects] will generalize broadly; one adult human sample is pretty much the same as the next" (Henrich, Heine, and Norenzayan 2010, 63). As a result, researchers with an interest in the behavior of elite policymakers have "[adopted] terminology and insights obtained from studies conducted with nonelite samples" (Sheffer et al. 2017, 2) assuming that if ordinary citizens' reasoning is distorted by psychological biases, the same will be the case among policymakers.

I find this shortage of empirical evidence to be problematic. Although there are certainly factors, including psychological factors, regarding which it

would not seem plausible to expect systematic differences between policymakers and other human beings,[7] and although it is definitely reasonable to expect some similarities between policymakers and other human beings with regard to psychological biases, it is also clear that there is something special about policymakers. I find reason to expect that policymakers, on average, will vary from other citizens with respect to at least three important factors that may very well affect how they reason about information. In the sections below, I discuss how policymakers' reasoning may be affected by their political expertise, by their passionate relationship to their attitudes, and by the large real-world impact of their decision-making.

3.2.2. Policymakers are political experts

First, it can be argued that policymakers are better off than ordinary citizens in terms of navigating through the often large amounts of complex information that is needed to form a factually informed attitude towards a given policy. Being evidence-based in one's attitude formation requires a lot of time and effort, and because it is not feasible for most people to thoroughly evaluate a lot of information (Downs 1957), they have to rely on reasoning shortcuts to simplify the world, although this can result in faulty judgments. However, policymakers devote themselves professionally to politics, meaning that they have much more time to navigate through policy-relevant information (it is their job to do so), and they tend to build up a political expertise, making it easier to make sense of policy-relevant information (Zaller 1992, 6). In that sense, policymakers can be seen as professional information users who should, ideally, hold higher standards of facts than other citizens, and who might therefore, on average, engage in more nuanced reasoning. In accordance with this argument, some literature has suggested that political expertise tends to limit the impact of e.g. equivalency frames on people's political preference formation (Druckman 2004).

The difference between ordinary citizens' and elite policymakers' political expertise is central to the literature on political heuristics. As noted in section 2.4.3, scholars argue that citizens can take advantage of elite cues to compensate for their lack of information and "be knowledgeable in their reasoning about political choices without necessarily possessing a large body of knowledge about politics" (Sniderman, Brody, and Tetlock 1991, 19). Assuming that citizens are able to identify policymakers who share their political

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[7] For example, I would find it odd to expect that policymakers do not share some basic psychological needs (e.g. needs for social belongingness, autonomy, competence etc.) with other people (Maslow 1943; Gagné and Deci 2005).

goals, and that they are able to identify these policymakers' policy endorsements (Gilens and Murakawa 2002, 31), they should be able to use this to make "choices that are approximately rational" (Sniderman, Brody, and Tetlock 1991, 165). This line of reasoning, of course, assumes that elite policymakers are able to digest information in a way that, to use Sniderman, Brody, and Tetlock's words, is "approximately rational" (ibid.).

However, some literature suggests that political expertise may strengthen rather than weaken certain psychological biases. For instance, it has been argued that political knowledge can serve as "ammunition with which to counterargue incongruent facts, figures, and arguments" (Taber and Lodge 2006, 757). This may make knowledgeable people more resistant to persuasive attempts (Zaller 1992), meaning that there may e.g. be weaker framing effects among political experts.[8] However, the improved ability to counterargue incongruent facts, figures, and arguments also means that political experts are better off in terms of defending desired conclusions based on information. Thus, political knowledge has been found to magnify people's tendency to engage in directionally motivated reasoning (Taber and Lodge 2006; Taber, Cann, and Kucsova 2009).

3.2.3. Policymakers are passionate about their attitudes

Another personal characteristic on which policymakers may vary from other citizens, and which may also affect their reasoning, is attitude importance defined as "the degree to which a person is passionately concerned about and personally invested in an attitude" (Krosnick 1990, 60). Policymakers have chosen a career path where attitudes play a crucial role. It is their job to form attitudes and to fight for these attitudes in their decision-making. I therefore find it reasonable to expect that policymakers, on average, will feel more passionate about their attitudes than other citizens. Passionately held attitudes have been found to evoke strong emotional reactions in people, and people tend to be more motivated to defend such attitudes than less passionately held attitudes (Eagly and Chaiken 1993). As a result, attitude importance has been linked to weakened framing effects (Druckman and Nelson 2003) but also to increased tendencies to engage in directionally motivated reasoning (Taber and Lodge 2006; Taber, Cann, and Kucsova 2009).

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[8] Note, however, that it has been suggested that while political expertise may weaken the effects of equivalence framing, political experts may be more affected by issue frames as knowledgeable people are better at connecting their opinions and the considerations suggested by frames (Nelson, Oxley, and Clawson 1997; Druckman and Nelson 2003).

3.2.4. Judgmental mistakes matter in policymaking

Political expertise and attitude importance are personal characteristics that may affect policymakers' reasoning about information. In addition to these personal characteristics, policymakers vary from other citizens in the role they serve in society and this, as well, may affect their tendency to be affected by psychological biases. For instance, policymakers differ from most other human beings with respect to the societal impact of their decision-making, and there is reason to believe that this will affect their mindset when they approach decision-relevant information. Dan Kahan writes about ordinary citizens that:

> On most of the policy-relevant facts (...) an ordinary person's "beliefs" are of no policy significance. She just does not matter enough as a consumer, voter, participant in public deliberations, and so on, to affect the incidence of the risk in question (say, climate change as a result of human CO_2 emissions) or the adoption of any policy to reduce it (say, enactment of a carbon tax). Accordingly, any "mistake" someone makes in acting on mistaken beliefs about those facts will be costless in that regard (Kahan 2016b, 4).

Because of the limited societal impact of most citizens' actions, at least at the individual level, citizens have a limited incentive to invest cognitive effort in thorough, unbiased evaluations of policy-relevant information. However, the same cannot be said about policymakers as they are at the center of decision-making processes with huge importance to many people. They have been elected to be the ones who make decisions about, say, whether or not to enact a carbon tax, and therefore, any "mistake" a policymaker makes in acting on mistaken beliefs about policy-relevant facts will *not* be costless. Following Kahan's line of reasoning, policymakers should feel a responsibility to invest cognitive effort in thorough, unbiased evaluations, meaning that they might approach policy-relevant information with another mindset than other citizens.[9]

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[9] The idea that professional roles may matter to peoples' reasoning has been aired by Kahan (2016b) who argued that professionals may develop "habits of mind, acquired through training and experience, distinctively suited to specialized decision-making" which may in turn insulate them from certain psychological biases (Ibid., 8). The idea has found support in a study of politically motivated reasoning among judges, where Kahan et al. (2016) found that state judges from the USA were, like members of the general public, affected by their ideological worldviews when asked about issues like climate change and marijuana legalization. However, when asked to respond to statutory interpretation problems, the judges differed from the general public by not being affected by ideology, suggesting that they entered a professional, impartial mindset when making decisions within their professional domain (i.e. decisions involving legal reasoning).

3.2.5. Choice of empirical setting and data used in the dissertation

It is clear from the sections above that there are arguments pointing in different directions with regard to psychological biases among policymakers. Some arguments suggest that policymakers will tend to be more affected by psychological biases than other citizens in their interpretation of policy-relevant information. If this is the case, we can learn a lot about psychological biases in policymaking by studying the phenomenon among ordinary citizens; the results will simply tend to be conservative. However, other arguments suggest that policymakers will be less biased, and in that case, generalizing from citizen behavior to policymakers will be problematic. In any case, based on the existing evidence, we cannot take for granted that policymakers behave like other citizens. Druckman and Lupia argue that "typical experimental subjects often lack the experience needed to act "as if" they were professional legislators" (Druckman and Lupia 2012, 1178). To cast light on psychological biases in policymaking, I have therefore made it a top priority to collect data among elected policymakers.

As I noted in section 3.2.1, however, collecting useful data on elected policymakers is difficult from a practical perspective. While thousands of citizen responses can easily be collected within days or even hours, there is only a limited number of policymakers and many of them are reluctant to participate as research subjects (ibid.). Therefore, studies of psychological biases among policymakers are typically based on a very limited number of respondents. For instance, Linde and Vis (2017) surveyed 46 Dutch members of parliament, and Sheffer and colleagues (2017) surveyed samples of Canadian, Belgian, and Israeli members of parliament with $18 \leq n \leq 113$. Very small sample sizes would be problematic to my investigation given that, as I argued in the sections above, policymakers may evaluate policy-relevant information in ways that are more nuanced than suggested by existing literature on psychological biases. I need quite large sample sizes to be able to identify even small effects.

Following the considerations above, I have chosen to focus on policymakers at the local level, which seems like an ideal pool of respondents in terms of balancing the need for real policymakers and the need for large samples. As will be clear below, my most important source of data is city councilors in Denmark. There are 2,445 city councilors in Denmark, which means that large samples can be expected, even with relatively low response rates.[10] Danish city

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[10] My dissertation contains answers from around 1,000 Danish city councilors, which is equal to around 40 percent of all Danish city councilors. If I had chosen to study Danish members of parliament, a response rate of 100 percent would only produce 179 responses.

councilors are elected through municipal elections every four years. Municipal elections are characterized by professionalized election campaigns (Hansen 2017), extensive media coverage (Albæk and Andersen 2013; Elmelund-Præstekær and Skovsgaard 2017) and relatively high voter turnout, fluctuating around 70 percent (Hansen 2018). About 95 percent of the city councilors represent political parties that also compete over power in the national parliament.[11] The city councilors are responsible for the local delivery of core welfare services, such as public schools, childcare, elderly care, and employment activities, and the municipal budgets represent about half of the entire public expenditures in Denmark. In that sense, while city councilors may not be as professional political actors as e.g. members of national parliaments, they are real policymakers who have been elected to make decisions of enormous importance to the citizens in their jurisdictions.

Table 2 summarizes the data collections that have been made for the dissertation's articles. In addition to the data on Danish city councilors, the dissertation contains data collected among city councilors from other countries and among (non-policymaker) citizens. In article E ("Politicians and Bureaucrats"), we have as a high priority to address the external validity of our claims and therefore run our experiments on city councilors in Denmark, Belgium, Italy, and the USA. Citizen data are used differently across articles. In articles B and C ("Role of Evidence" and "Justification Requirements"), representative samples of citizens are used in explorative analyses of differences between policymakers' and citizens' behavior, whereas articles D and F ("Biased, Not Blind" and "Order Effects") are solely based on citizen data. In later chapters, I will discuss the relevance of articles D and F in relation to policymaking, but following the arguments above, it is clear that caution is needed when generalizing from these articles' results to the behavior of actual policymakers.

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[11] The remaining councilors represent local parties or have been elected as individuals without affiliation to a political party.

Table 2: Overview of data collections in dissertation

No.	Used in article	Description	Respondents	Data collected
1*	A, B, and C	Experiments testing for politically motivated reasoning, including moderating effects of information load and justification requirements.	Danish city councilors (n = 988)	November-December 2014
2	C and E	Experiments testing for equivalence framing effects, issue framing effects, source cue effects, and effects of justification requirements on effort in search for and evaluation of information.	Danish city councilors (n = 1,025)	November-December 2016
3	E	Experiments testing for equivalence framing effects, issue framing effects, and source cue effects.	Italian city councilors (n = 1,756)	November-December 2016
4	E	Experiments testing for equivalence framing effects, issue framing effects, and source cue effects.	Flemish city councilors (n = 2,257)	February-March 2017
5	E	Experiments testing for equivalence framing effects, issue framing effects, and source cue effects.	US city councilors (n = 884)	April-May 2017
6	B	Experiments testing for politically motivated reasoning, including moderating effects of information load.	Representative sample of Danish citizens (n = 1,006)	November 2016
7	C	Experiment testing for moderating effects of justification requirements on politically motivated reasoning.	Representative sample of Danish citizens (n = 2,109)	December 2016
8	C	Experiment testing for effects of justification requirements on effort in search for and evaluation of information.	Representative sample of Danish citizens (n = 1,063)	February 2017
9	D	Experiments testing for choice-driven motivated reasoning.	Political Science students (n = 234)	September 2015
10	D	Experiments testing for choice-driven motivated reasoning.	Political Science students (n = 232)	September 2016
11	D	Experiments testing for choice-driven motivated reasoning.	Political Science students (n = 238)	September 2017
12	F	Experiment testing for order effects.	Representative sample of British citizens (n = 1,304)	December 2017

Note: I refer to the individual articles for more thorough descriptions of data collection procedures. *: Data collection no. 1 was carried out in advance of my PhD scholarship, in collaboration with Niels Bjørn Grund Petersen, Casper Mondrup Dahlmann, Asbjørn Hovgaard Mathiasen, and Martin Baekgaard.

Chapter 4.
Results

Having decided on the dissertation's overall empirical strategy, I now move on to the specific tests of Chapter 2's theoretical expectations. In sections 4.1 and 4.2, I present results from articles A-D about the impact of attitudes and beliefs on policymakers' interpretation of information and moderating effects of information load and justification requirements. In section 4.3, I present results related to equivalence framing effects, issue framing effects, source cue effects, and order effects on policymakers' interpretation of information.

4.1. Are policymakers biased by attitudes and beliefs?

As stated in Chapter 2, I expect that policymakers will tend to engage in motivated reasoning when interpreting policy-relevant information. Policymakers will often have strong political attitudes towards the issues about which they make policies, and I expect that they will tend to be motivated to defend these attitudes. Furthermore, policymakers make important choices through their job, and based on literature on choice-driven motivated reasoning, I find reason to expect that policymakers will be motivated to defend these choices when subsequently interpreting choice-related information.

4.1.1. Goal reprioritization in light of political attitudes

The first form of motivated reasoning that is tested for in the dissertation is goal reprioritization in light of policymakers' political attitudes. In section 2.2, I expected that policymakers will tend to reweight the perceived importance of individual pieces of ambiguous information in light of the (in)congruence between the information and conclusions that the policymakers are motivated to defend. In article A ("Goal Reprioritization"), we test this expectation on a sample of Danish city councilors using an experimental design made for the purpose of the test.

In our experiment, we asked respondents to evaluate a table with fictional performance information about two schools. The table contained information about test scores and student wellbeing at the two schools, and we asked the respondents to evaluate, based on this information, which school performed best overall. High test scores as well as high levels of student wellbeing are desired school outcomes, but we designed the table's information to be am-

biguous in the sense that the school that performed best on test scores performed worst on student wellbeing, and the other way around. Thus, in order to evaluate which school performed best, respondents had to choose which indicator to give the highest priority, meaning that, by analyzing the respondents' answers, we could observe their prioritization between the two performance indicators.

To test for goal reprioritization, we randomly assigned our respondents to either a non-politicized or a politicized version of the information. In the non-politicized version, the schools were presented with the sterile names "school A" and "school B"; in the politicized version, respondents were told that the schools were public and private. Within each condition, we further randomized which school performed best on what indicator, meaning that the experiment had a total of four experimental conditions.[12]

The sterile, non-politicized conditions served as a baseline, allowing us to observe respondents' prioritization of test scores and student wellbeing in the outset, that is, without a link between attitudes and information to distort the prioritization. In comparison, by revealing the sector affiliation of the schools in the politicized conditions, we expected to activate a motivation to defend ideologically founded attitudes regarding public and private delivery of public services. The relative role of the public and private sector in delivering public services is highly contested in Danish politics, and Danish city councilors decide on a regular basis whether to contract out services for which they are responsible in their municipalities. Most city councilors therefore have strong attitudes towards the issue and according to the idea of goal reprioritization, the councilors were expected to reprioritize the relative importance of test scores and student wellbeing in light of these attitudes when evaluating the politicized information. Our design allowed us to test this expectation by analyzing respondents' prioritization of test scores and student wellbeing in the baseline conditions compared to the politicized conditions, in light of their attitudes towards public and private service provision. Figure 2 shows the relationship between respondents' attitudes[13] and their predicted probability of

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[12] In one condition, school A performed best on test scores and worst on wellbeing, in another condition, school B performed best on test scores and worst on wellbeing, in a third condition, the public school performed best on test scores and worst on wellbeing, and in a fourth condition, the private school performed best on test scores and worst on wellbeing.

[13] We measured respondents' attitudes with three items from Baekgaard and Serritzlew (2016) and constructed an index (called "pro public") ranging from 0-1, where higher values correspond to a stronger preference for the public sector.

giving the highest priority to student wellbeing in the four experimental conditions.

Figure 2: Predicted probability of prioritizing wellbeing over test scores
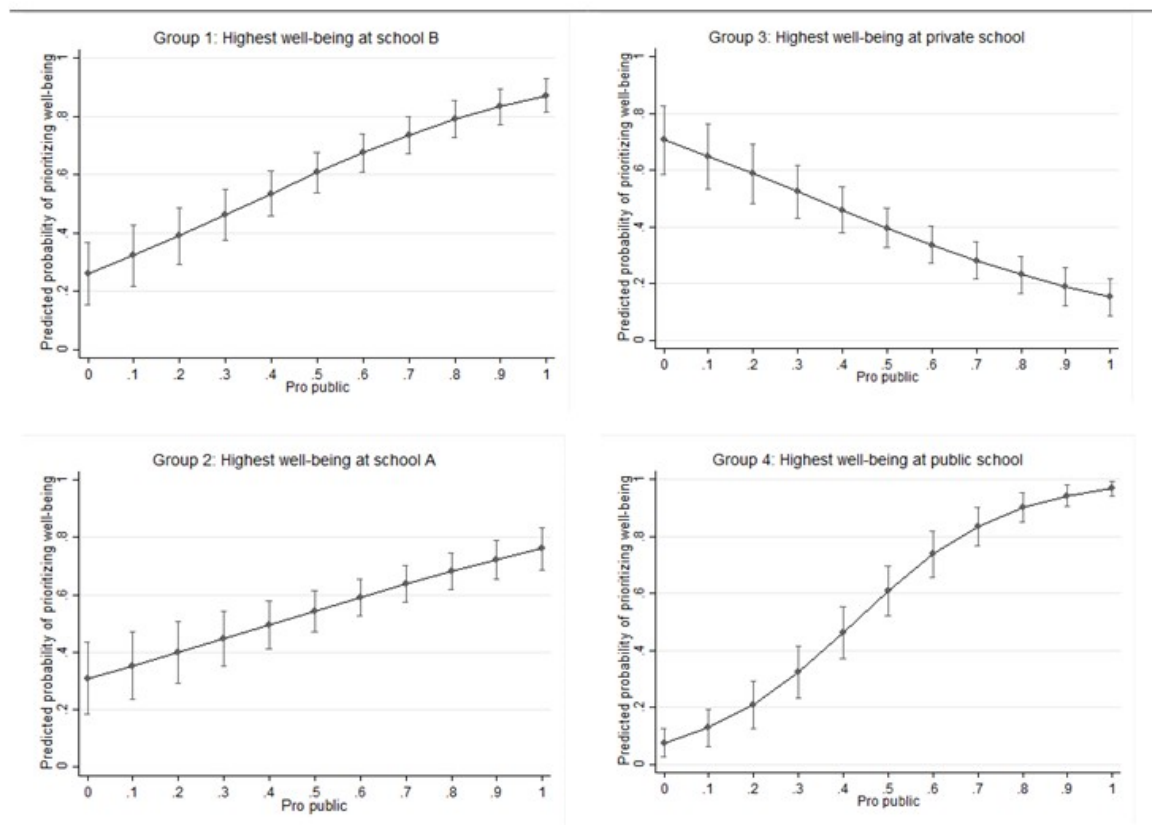
Note: Brackets indicate 95 % confidence intervals. Reprint from article A ("Goal Reprioritization").

As the left-most panels of Figure 2 show, city councilors who prefer the public sector tend to find student wellbeing more important than test scores in our experiment's baseline conditions (that is, when the schools' sector affiliation is not revealed), whereas councilors who prefer the private sector tend to find test scores more important. However, when respondents learn that the schools are public and private, they reprioritize the goals, as expected, in defense of their attitudes. Thus, when respondents learn that the public school performs better on test scores and worse on wellbeing (group 3), the relationship between preferring the public sector and giving high priority to student wellbeing becomes negative. Now, the vast majority of the city councilors who prefer the public sector begin to find test scores more important than student wellbeing, whereas councilors who prefer the private sector begin to give higher priority to student wellbeing. Similarly, when respondents learn that a public school performs better on wellbeing and worse on academic achieve-

ments (group 4), the baseline condition's positive relationship between preferring the public sector and giving high priority to student wellbeing becomes even stronger.

4.1.2. Motivated numeracy in light of political attitudes

The evidence from article A shows a tendency among policymakers to engage in goal reprioritization in defense of political attitudes when interpreting ambiguous information. As I argued in section 2.2, however, I do not expect access to ambiguous information to be necessary for policymakers to engage in motivated reasoning. In situations where policymakers face evidence that unambiguously supports one conclusion, I expect them to misinterpret the evidence more often if it does not support their desired conclusion.

In the dissertation, this expectation is tested in four motivated numeracy experiments (Kahan et al. 2017; Baekgaard and Serritzlew 2016) that have all been run on samples of Danish city councilors and are reported in articles B and C ("Role of Evidence" and "Justification Requirements"). In each experiment, city councilors were presented with a table of fictional performance information about two public service providers and asked to evaluate, based on the table, which provider performed best. As in article A's goal reprioritization experiment, respondents were randomly assigned to non-politicized baseline conditions where the providers' sector affiliation was not revealed or to politicized conditions where one provider was labelled public and the other private. Examples of the tables are shown in Figure 3 below, which shows material from article C's experiment. Here, the information was about user satisfaction with different providers of elderly care.

As can be seen in Figure 3, the tables in the experimental material were cognitively demanding, as they contained absolute numbers that were not informative by themselves. In order to make sense of the information, satisfaction rates needed to be computed. However, contrary to the information in article A's goal reprioritization experiment, the information was unambiguous in the sense that one provider had a higher satisfaction rate than the other, meaning that respondents' answers could be coded as either correct or incorrect.[14] Respondents could correctly choose the provider with the highest satisfaction rate or they could misinterpret the information and choose the provider with the lowest satisfaction rate. In article B's experiments, the tables

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[14] In Figure 3, provider A has the highest satisfaction rate in group A (83 percent vs. 74.4 percent satisfied users), provider B has the highest satisfaction rate in group B, the municipal provider has the highest satisfaction rate in group C, and the private provider has the highest satisfaction rate in group D.

concerned service areas other than elderly care,[15] and the specific numbers in the tables were different from the ones in Figure 3, but the experimental material was designed based on the same logic. As in Figure 3, the tables in article B's experiments were unambiguous in the sense that answers could be coded as either correct or incorrect, and respondents were randomly assigned to non-politicized baseline versions of the information where the providers' sector affiliation was not revealed[16] or to politicized versions where one provider was public and the other was private.

Figure 3: Experimental groups A-D in article C ("Justification Requirements")

	Number of satisfied users	Number of dissatisfied users
Supplier A	83	17
Supplier B	127	43

Group A

	Number of satisfied users	Number of dissatisfied users
Supplier A	127	43
Supplier B	83	17

Group B

	Number of satisfied users	Number of dissatisfied users
Municipal supplier	83	17
Private supplier	127	43

Group C

	Number of satisfied users	Number of dissatisfied users
Municipal supplier	127	43
Private supplier	83	17

Group D

Note: Reprint from article C ("Justification Requirements").

With this experimental design, it was possible to test for the expected bias in policymakers' interpretation by analyzing respondents' ability to identify the best performing provider in the politicized conditions compared to the baseline conditions, in light of their attitudes towards public and private service provision. In the baseline conditions (groups A and B in Figure 3), only the respondents' numeracy should affect their ability to correctly identify the best

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[15] The tables in article B concerned schools, rehabilitation centers, and providers of road maintenance.

[16] One of the dissertation's four motivated numeracy experiments (experiment 3 in article B) was designed to test for moderating effects of information load and did not have non-politicized conditions (cf. section 4.2.1 of this summary report).

performing provider. On the contrary, in the politicized conditions (groups C and D in Figure 3), there was a link between the information and respondents' attitudes towards public and private service delivery. Attitudes towards public and private service delivery were expected to bias policymakers' ability to identify the best performing provider in these experimental conditions correctly.

The results in articles B and C were overall supportive of this expectation. In the baseline conditions, the vast majority of the city councilors were able to identify the best performing service provider correctly, and there was no significant association between the councilors' attitudes and their ability to identify the best performing provider. However, when the city councilors were told that the providers were public and private, their ability to identify the best performing provider began to depend on the political convenience of the correct evaluation in light of their attitudes. Thus, in the politicized conditions, city councilors were much better at identifying the best performing service provider when the information supported their desired conclusion than when the information challenged it. The overall pattern was the same in all four experiments,[17] and combined with the evidence of goal reprioritization in article A, the results provide strong evidence of politically motivated reasoning.

Following the discussion in sections 3.2.1-3.2.4, it is interesting to make some explorative comparisons between policymakers' and ordinary (non-policymaker) citizens' behavior. As mentioned in section 3.2.5, in addition to the dissertation's policymaker data, some data has been collected among citizens as well. For instance, all four motivated numeracy experiments were run on representative samples of Danish citizens as well, and interestingly, the impact of attitudes on citizens' evaluation was *not* found to vary significantly from the impact of attitudes among policymakers (see article B's appendix A2 and article C's appendix A1). I return to the comparison of policymakers and citizens in section 4.2 and in Chapter 5.

4.1.3. Choice-driven motivated reasoning

The evidence presented in sections 4.1.1 and 4.1.2 concerns politically motivated reasoning in light of policymakers' political attitudes. However, in Chap-

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[17] The dissertation's articles contain a total of six statistical models comparing the relationship between policymakers' attitudes and their ability to correctly understand politicized vs. non-politicized information. Four of these models provide statistically significant evidence of bias whereas in two models (model 4 in article B's Table 1 and model 1 in article C's Table 1), coefficients point in the expected direction but are not statistically significant.

ter 2, I argued that factors other than political attitudes may motivate policymakers to engage in biased reasoning as well. I argued that in addition to being motivated to defend political attitudes, policymakers make important choices as part of their job (allocate scarce resources, reform policies etc.) and that they may be expected to attempt to defend these choices when subsequently interpreting choice-related information.

The dissertation does not include a test for choice-driven motivated reasoning among policymakers, and I therefore do not test this expectation directly. However, I do provide some related evidence in article D ("Biased, Not Blind"), where I set out to investigate motivated reasoning in a case where political attitudes are not relevant to people's evaluations. In the article, I investigate choice-driven motivated reasoning in public service users' evaluation of performance information about their own service providers. I hypothesize that when service users have chosen to use a certain service provider instead of competing options, they will be motivated to defend their choice through post-decisional motivated reasoning about choice-relevant information. Specifically, I hypothesize that service users will engage in goal reprioritization, seeking to magnify the perceived importance of advantages associated with their chosen provider (relative to alternative, unchosen options) while downplaying the importance of relative disadvantages associated with that choice.

In the article, I report nine experimental tests of this hypothesis, which I ran on samples of first-semester students at Aarhus University's Department of Political Science. In each test, respondents were presented with a table of information about the performance of Aarhus University's Political Science degree program compared to that of another Danish university. They were asked to rate the importance of each individual piece of information for an overall evaluation of the educational quality in the two programs. I randomized whether Aarhus University was shown to perform better or worse than the other university, and I expected respondents to find the information most important when Aarhus University performed best. The results in article D generally but weakly support my expectation. In all nine tests, respondents did rate information as most important when Aarhus University performed best compared to when a competing university performed best. However, the effects were small and, in most tests, statistically insignificant.[18] Even when I pooled data in order to maximize the power of the studies, the results did not become consistently significant.

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[18] One test revealed statistically significant results, two tests revealed marginally significant results, and six tests revealed statistically insignificant results.

The results in article D give reason for some optimism. Findings of politically motivated reasoning have led researchers to fundamentally question decision-makers' ability to make factually informed decisions (Baekgaard and Serritzlew 2016), and sections 4.1.1 and 4.1.2 suggest that this pessimism *is* warranted when decision-makers have political attitudes towards the information. However, if article D's results can be generalized to policymakers, the results suggest that motivated reasoning can, in some situations, be less distortive. Of course, following the discussion in section 3.2 about the need for empirical studies of actual policymakers, a great deal of caution is needed in terms of generalizing article D's results to the behavior of policymakers. However, as I wrote in section 4.1.2, there was no significant difference between policymakers and other citizens in terms of the tendency to misinterpret attitude-congruent information. Based on this evidence, there is no reason to believe that policymakers are fundamentally different from citizens in terms of their tendency to be biased in the outset. I return to this issue in Chapter 5.

4.2. Do contextual factors moderate the impact of political attitudes on policymakers' interpretation of policy-relevant information?

Until now, the focus has been on investigating whether prior attitudes and beliefs do or do not bias policymakers' interpretation of policy-relevant information. The evidence, which I presented above, did show that especially political attitudes are highly distortive to policymakers' interpretation. Policymakers do tend to be motivated to interpret information in ways that support their political attitudes, and they are often capable of doing so. Following these results, an important question is under what conditions these biases are most and least influential. Below, I present evidence on the effects of varying amounts of policy-relevant information and of justification requirements on policymakers' interpretation of information.

4.2.1. Variations in information load

In section 2.3.1, I argued that while political attitudes tend to bias policymakers' interpretation of policy-relevant information, the attitudes should be expected to matter less when the policymakers are presented with large amounts of evidence in favor of a given conclusion. In article B ("Role of Evidence"), we test this expectation on a sample of Danish city councilors using an extension of the motivated numeracy design, which I described in section 4.1.2.

In our experiment, we presented respondents with a table of fictional performance information about two rehabilitation centers and asked the respondents to evaluate, based on the table, which center performed best. As in Figure 3 (see section 4.1.2), the information was cognitively demanding but unambiguous in the sense that responses could be coded as either correct or incorrect. The table reported the number of successful and unsuccessful treatments at the two rehabilitation centers, and if respondents calculated success rates, they would find that one center had a success rate of 83 percent whereas the other had a success rate of 75 percent. Our experiment differed from the design described in section 4.1.2 by not having any non-politicized baseline conditions. All respondents were told that the centers were public and private, and we randomized whether the public or private center was shown to perform best. However, in order to test for the expected effect of varying amounts of evidence, we randomized for each respondent whether the table contained information about one, three, or five kinds of treatments. In all conditions, one provider performed best in relation to all kinds of treatments (meaning that one provider performed better than the other on one, three, or five indicators).

Our theoretical expectations led us to expect that attitudes towards public and private service delivery would bias policymakers' ability to identify correctly the best performing rehabilitation center in the outset, but that the impact of attitudes would decrease when respondents were presented with larger amounts of evidence. Surprisingly, however, our results showed that the larger amount of evidence *increased* rather than decreased the impact of attitudes. As Figure 4 below shows, city councilors' tendency to misinterpret attitude-incongruent information while interpreting attitude-congruent information correctly became stronger when more evidence was included in the table. The difference from one to three pieces of evidence was statistically insignificant, but the difference from one to five pieces of evidence was significant. Our data did not allow us to investigate reasons for these surprising results, but a plausible explanation is that we may have created an experience of information overload (Schick, Gordon, and Haka 1990; Eppler and Mengis 2004) by increasing the amounts of evidence in the tables. In other words, the information may have become too overwhelming to comprehend (with the increasing amount of information, not only one but three or five calculations needed to be made in order to make sense of the information), and respondents may have reacted by drawing on attitude-related cues instead of trying to do the calculations.

Figure 4: Information load, attitudes, and correct interpretations
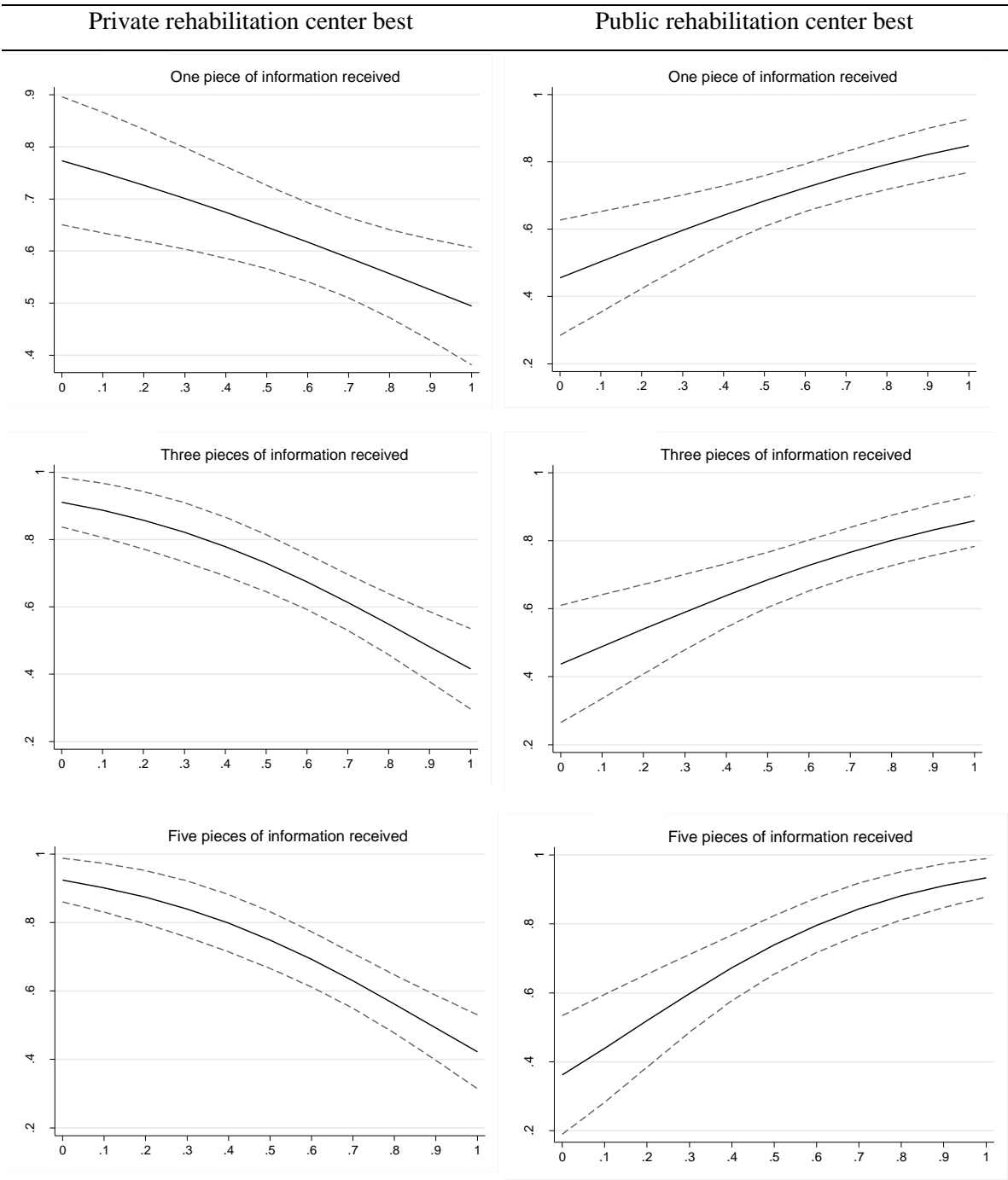
Note: Estimated relationships with 95% confidence intervals. The x-axis runs from 0-1 with higher values corresponding to stronger support for public sector delivery of services. Reprint from article B ("Role of Evidence").

As mentioned in section 4.1.2, the dissertation's motivated numeracy experiments, including the one testing for effects of varying amounts of evidence, were run on representative samples of Danish citizens as well. In article B, changing the amount of evidence to be evaluated did not lead to any significant change (neither a decrease, nor an increase) in the impact of attitudes among

citizens, unlike the evidence among our policymaker respondents. This suggests that there may be some differences between the behavior of policymakers and the behavior of other citizens, but the difference between citizens' and policymakers' reaction to the increasing amount of evidence was not statistically significant (see article B's appendix A3).

The results suggest that policymakers' ability to make factually informed decisions can be improved if they are not overloaded with policy-relevant information. Furthermore, based on the results, there is reason to believe that attitudes may matter less in policymakers' interpretation of information if the information is presented in more easily comprehendible (less cognitively demanding) ways (Eppler and Mengis 2004), but this is a question for future research to investigate.

4.2.2. Justification requirements

In section 2.3.2, I argued that policymakers should be expected to engage in a more effortful search for and processing of policy-relevant information when they are asked to justify their interpretation of the information compared to when they are not asked to justify their interpretation. Furthermore, I expected political attitudes to matter less to policymakers' interpretation of policy-relevant information when the policymakers are asked to justify their interpretation of the information. In article C ("Justification Requirements"), I test these expectations on samples of Danish city councilors, using a decision board experiment and an extension to the motivated numeracy design, which I described in section 4.1.2.

The decision board experiment, which I ran using the open source tool MouselabWEB (Willemsen and Johnson 2011), was designed to test for effects of justification requirements on respondents' effort in searching for and processing information. I asked respondents to click through a homepage with ten boxes of information about the performance of two schools on a variety of performance indicators and to evaluate, based on the information in the boxes, which school performed best overall. In order to see the information in each box, respondents had to click on the box, and the information remained visible as long as the respondents' cursor was placed over the box. Because respondents had to click through the decision board's information, the technique made it possible to track the respondents' behavior when searching for and processing the information. Respondents were free to click through as many of the boxes as they liked and to spend as much time on the information as they liked. I thereby used the number of opened boxes as a measure of effort

in respondents' search for information, and I used the time spent on the information as a measure of effort in respondents' processing of the information.

In order to test for effects of justification requirements, I randomly allocated respondents to either a control group or a treatment group. I asked both groups to evaluate which school performed best, but in addition, I asked the treatment group to justify their evaluation through a written argument for the evaluation. My interest was not in respondents' answers but in the impact of the justification requirement on respondents' behavior before answering the question. The experimental results were mixed but overall supportive of the expected effect of the justification requirement. There was no significant effect on the number of boxes opened, but the justification requirement did make respondents spend more time on the boxes they opened.

In order to test for the expected effect of justification requirements on the distortive impact of political attitudes, I added two experimental conditions to the motivated numeracy experiment, which I summarized in Figure 3 (see section 4.1.2). I asked respondents in these justification conditions to evaluate information about a public and a private provider of elderly care (identical to the information in Figure 3's groups C and D). In addition, I asked the respondents in these conditions to justify their evaluation through a written argument for the evaluation, meaning that I could investigate the effect of the justification requirement by comparing respondents' answers in Figure 3's groups C and D to the answers in the justification conditions. According to my expectation, attitudes should affect respondents' answers less in the justification conditions than in Figure 3's groups C and D. However, as was also the case with variations in information load, the city councilors reacted contrary to my expectation. Instead of becoming less affected by their information-related attitudes, the councilors became significantly *more* affected by these attitudes when they were asked to justify their evaluation.

As previously noted, I ran article C's experiments on representative samples of Danish citizens as well and interestingly, among these citizens, reactions to the justification requirements conformed more to my expectations in Chapter 2. The citizens tended to engage in slightly more effortful processing of (but not search for) information when they were asked to justify their evaluation, and the justification requirement caused the citizens to be less affected by their attitudes in the motivated numeracy experiment. The citizens' reactions to the justification requirements were only marginally significant ($p < 0.10$), but the difference between the policymakers' and citizens' reactions in the motivated numeracy experiment was statistically significant (see article C's appendix A3). I return to possible reasons for this difference between policymakers' and citizens' behavior in Chapter 5 where I also discuss the broader

implications of the results for future research on the behavior of political elites.

4.3. The impact of how information is presented

The results in sections 4.1 and 4.2 all concern the impact of prior attitudes and beliefs on policymakers' interpretation of policy-relevant information. I now move on to the impact of how information is presented. As discussed in Chapter 2, the literature has shown that even small changes in the presentation of information can lead to systematic and quite substantial changes in people's interpretation of the information. Below, I present evidence from articles E and F ("Politicians & Bureaucrats" and "Order Effects") about equivalence framing effects, issue framing effects, source cue effects and order effects on policymakers' interpretation of information.

4.3.1. Equivalence framing effects

In section 2.4.1, I argued, based on the literature on equivalence framing, that policymakers on average should be expected to make more favorable evaluations of positively framed policy-relevant information than of logically equivalent but negatively framed information. In article E ("Politicians & Bureaucrats"), we test this expectation on samples of city councilors from Denmark, Italy, Belgium, and the USA. In our test, we asked respondents to read a policy proposal and indicate to what extent they agreed or disagreed with the proposal. Like in the experiments in sections 4.1 and 4.2, the experimental material concerned a policy area for which the respondents were actually responsible in their councils. In other words, the experiments were not identical across countries due to differences in policy portfolios. In Denmark, Belgium, and Italy, the policy proposal concerned a limitation in the number of manned hours at the municipality's libraries; in the USA, it concerned a limitation in walk-in hours at the local police station.

In order to test for equivalence framing effects, respondents were randomly assigned to one of three experimental conditions. In a positive framing condition, respondents were told that a neighboring municipality had made a similar change a year ago and that 60 percent of the citizens had here been satisfied with the change. In a negative framing condition, respondents were told that a neighboring municipality had made a similar change a year ago and that 40 percent of the citizens had been dissatisfied with the change. Finally, to test whether differences between the preference formation in the positive and negative framing conditions were primarily driven by the positive or the negative framing, the policy proposal was presented without further information in a baseline condition.

The results of the different versions of the experiment are reported in Figure 5 below. Although there were some differences in effect sizes across countries and although it varied whether effects were mainly driven by the positive or the negative framing, our results strongly supported the expectation of equivalence framing effects. In all countries, support for the policy proposal was higher in the positive framing condition than in the baseline where support was higher than in the negative framing condition.

Figure 5: Equivalence framing results
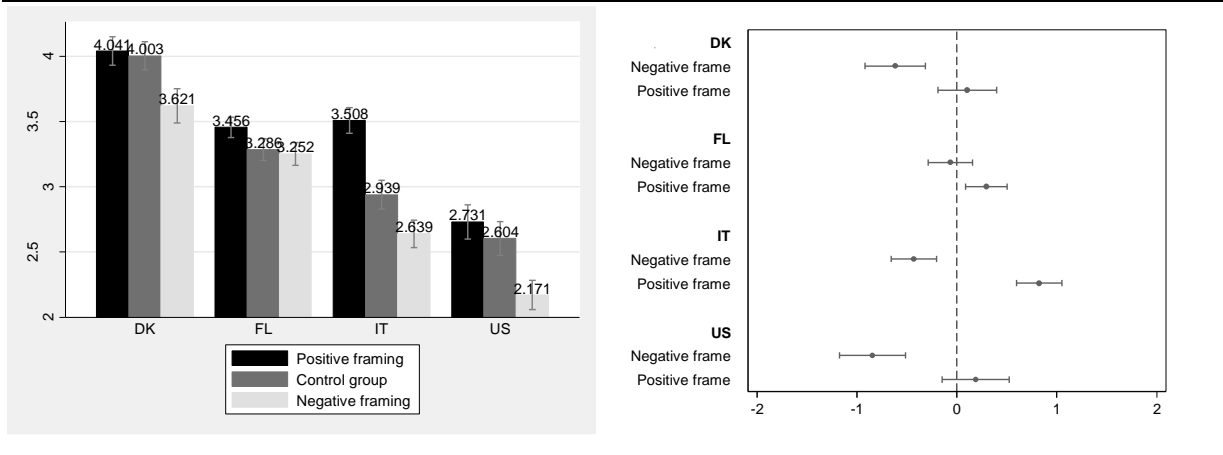
Note: Leftmost panel: The dependent variable runs from 1-5. Rightmost panel: The effects of treatments are calculated as compared to the baseline condition. 95 % confidence intervals. Reprint from article E ("Politicians & Bureaucrats").

4.3.2. Issue framing effects

In addition to the test of equivalence framing effects, article E ("Politicians & Bureaucrats") includes a test of issue framing effects. In section 2.4.2, I argued that policymakers should be expected to make different evaluations of information depending on the information-related considerations that are emphasized in the presentation of the information. In article E, we test this expectation using an experiment where city councilors were asked, like in the test of equivalence framing effects, to respond to a policy proposal and indicate to what extent they agreed or disagreed with it. In the Danish, Italian, and Belgian versions of the experiment, the policy proposal was about improving elderly care in the respondents' municipality; in the USA, the proposal was about improving public parks in the respondents' city.

Like in the equivalence framing experiment, respondents were randomly assigned to one of three experimental conditions in order to test for issue framing effects. The proposal was identical across conditions in terms of content and financial consequences, but in a positive framing condition, we pre-

sented the proposal with a politically appealing title in order to activate positive thoughts and considerations. In a negative framing condition, we reminded respondents of the obvious fact that in order to spend additional money in one policy area, other policy areas would have to be given less priority, which might lead to protests from groups that do not benefit from the changes. Finally, to test whether differences between the evaluations were primarily driven by the positive or the negative framing, the policy proposal was presented without being framed in a baseline condition. In all countries, the positive framing led to significantly more favorable preferences than the baseline, which led to more favorable preferences than the negative framing. The effects were quite large (between approx. 0.5 and approx. 0.8 difference between the positive and negative framing conditions, on a five-point scale) and thus, our results were highly supportive of the expectation of issue framing effects.

4.3.3. Source cue effects

In section 2.4.3, I expected that policymakers will tend to evaluate policy-relevant information in support of policies if they are told that the policies are advocated for by groups with whom they are ideologically aligned (compared to if they are told that the policies are advocated for by groups with whom they are ideologically unaligned). As was also the case with the two kinds of framing effects above, we test this expectation in article E ("Politicians & Bureaucrats") using an experiment where city councilors where asked to read a policy proposal and indicate to what extent they agreed or disagreed with the proposal. In all countries, the proposal concerned outsourcing of technical services to private companies.

To test for source cue effects, we randomly assigned respondents to one of three experimental conditions. In a baseline condition, respondents were presented with the pure content of the policy proposal; in two source cue conditions, the proposal was presented along with information about a left- or right-wing think tank advocating for policies like the one proposed in the experiment. We expected right-leaning policymakers to be more supportive of the proposal than left-leaning policymakers at the outset (in the baseline condition). However, we expected the respondents' preferences to become biased by the degree of ideological alignment between themselves and the think tanks in the source cue conditions of the experiment. For instance, in the condition where respondents learned that the proposal was supported by a left-wing think tank, right-leaning policymakers were expected to form less favorable preferences towards the policy, and left-leaning policymakers were expected

to form more favorable preferences, meaning that they would begin to support policies that are at odds with their underlying ideological preferences.

However, our empirical results were weak and inconsistent with regard to the existence of source cue effects. In Denmark, left-leaning policymakers did, as expected, form more favorable preferences when they learned that the policy proposal was supported by a left-wing think tank but the expected effect of the right-wing think tank cue did not materialize. In the USA, we found a strong positive effect of the right-wing think tank cue among right-leaning policymakers (as expected) but contrary to our expectation, we found a similarly strong positive effect of the left-wing think tank cue among the right-leaning policymakers. In Italy, there was a positive effect of both the left- and the right-wing think tank cues, but contrary to our expectations, the effects were not contingent on the degree of ideological alignment between the policymakers and the think tanks. Finally, in Belgium, the only source cue effect was a positive but only marginally significant effect ($p < 0.10$) of the left-wing think tank cue, which was not contingent on the degree of ideological alignment between the policymakers and the think tank. It is thus safe to say that we did not find support for the expected source cue effects.

4.3.4. Order effects

In section 2.4.4, I expected that policymakers tend to evaluate sequences of policy-relevant information differently depending on the order of favorable and unfavorable information in the sequence. I discussed how primacy effects or recency effects may be present in policymakers' evaluation but did not have a priori expectations with regard to the predominance of either kind of effect. As was also the case with choice-driven motivated reasoning (section 4.1.3), the dissertation does not include tests for order effects among policymakers, and therefore I do not test this expectation directly. However, we provide some related evidence in article F ("Order Effects") where we test for order effects in citizens' perceptions and judgment based on public sector performance information.

For the purpose of the article, we ran a survey experiment on a representative sample of British citizens. We asked participants to respond to a sequence of six pieces of performance information about a school, each included on different pages in our survey. One piece of information was designed to generate positive reactions, one was designed to generate negative reactions, and four were designed to generate neutral reactions among our respondents. To test for order effects, we randomly assigned the respondents to a "positive first" or a "negative first" condition. The content and wording of the information were identical across experimental conditions, but in the positive first condition,

the positive information was placed first and the negative information was placed fifth in the sequence. Contrarily, in the negative first condition, the negative information was placed first and the positive information was placed fifth in the sequence. We asked respondents, based on the sequence of information, to evaluate the favorability of the school and to indicate their willingness to use the school if they were to choose a school for their own child. Thus, we were able to investigate 1) whether respondents made different judgments depending on the order of the positive and negative information and 2) the relative influence of the first piece and later pieces of information. We did find some evidence of order effects in our results. Consistent with recency effects, respondents in the negative first condition found the school slightly more appealing than respondents in the positive first group, and they were more willing to use the school for their own child. However, only the effect on the willingness to use the school was statistically significant.

As with the choice-driven motivated reasoning in section 4.1.3, some caution is needed in terms of generalizing article F's results to policymakers. However, the results do call for further attention to how information is presented as they demonstrate that evaluations of information can be affected even without changing the wording of the information. I return to the generalizability from studies of ordinary citizens to policymakers in Chapter 5.

Chapter 5.
Concluding discussion

In the introduction, I described how in recent years, the idea of evidence-based policymaking has gained momentum in democratic systems all over the world. Central to this idea is the assumption that, by making factually informed decisions based on policy-relevant evidence, policymakers should be able to work systematically towards the attainment of their political goals. However, as I further argued in the introduction, the process from evidence to policy is not a mechanical one. In order for evidence to inform policymaking, it must be interpreted by human beings and therefore, we cannot understand the role of evidence in policymaking without understanding how policymakers interpret policy-relevant information.

With this dissertation, I have contributed important insights of relevance to this issue by asking whether psychological biases affect policymakers' interpretation of policy-relevant information, and whether contextual factors moderate the impact of psychological biases on policymakers' interpretation. As discussed in Chapter 3, I am not the first to argue that insights about psychological biases are relevant in order to understand policymakers' behavior, but in existing literature, researchers have most often adopted insights from studies of (non-policymaker) citizens and assumed that if their reasoning is biased, the same will be the case among policymakers. Following the arguments in Chapter 3, I found reason to investigate the research question more directly, and the dissertation therefore contains, to my knowledge, the most comprehensive investigation of psychological biases among elected policymakers, so far. Four of the dissertation's six articles report large-n experimental investigations of biases in elected city councilors' interpretation of policy-relevant information.

With regard to the first part of the research question, results showed that policymakers are indeed affected by psychological biases when interpreting policy-relevant information. They are biased by factors related to the presentation of information and by political attitudes and beliefs. As I argued throughout the dissertation, these results call into question core assumptions behind the idea that policy improvements will follow when policymakers get access to policy-relevant evidence. If policymakers are biased in their understanding of information, they will probably be biased in their use of the information as well, meaning that they will be hampered in their ability to use policy-relevant evidence systematically to inform decisions.

Furthermore, with regard to the second part of the research question, results showed that contextual factors do matter but in ways that were not expected. Contrary to the expectations in Chapter 2, policymakers' interpretations became *more* biased by political attitudes when they were presented with larger amounts of evidence and when they were asked to justify their interpretations. This is interesting, as, as I discussed in the introduction, following the prominence of evidence-based policymaking, a lot of effort has been devoted to ensuring that policymakers have access to policy-relevant evidence, meaning that policymakers do today have access to enormous amounts of information. Furthermore, in modern democracies, a variety of institutions force elected policymakers to continuously justify their claims (e.g. through committee proceedings, parliamentary debates and through interviews with critical journalists). The dissertation's results suggest that, instead of leading to more informed policies, these factors may make policymakers rely more on attitudes and less on evidence in their decision-making.

5.1. Don't policymakers behave like other human beings? Revisited

In Chapter 3, I discussed how policymakers could be expected to differ from other citizens in terms of personal characteristics and in terms of their role in society, which may in turn affect their reasoning about policy-relevant information. I argued that we could not take for granted that policymakers behave like other citizens, and to cast light on psychological biases in policymaking, I had to collect data among actual, elected policymakers. It is relevant to revisit this discussion in light of the dissertation's results. Although my research question does not concern differences between policymakers and other citizens, and there are few direct policymaker-citizen comparisons in the dissertation, the results do give some empirical basis for an assessment of similarities and differences between policymakers' and other citizens' behavior. This has important implications in terms of the extent to which insights from citizen-based studies (e.g. articles D and F) can be generalized to policymakers. Furthermore, it has important implications in terms of political-psychological theory, as scholars so far have mainly treated psychological phenomena such as biased reasoning as universal attributes of the human mind. The dissertation's results can help us understand the extent to which roles affect reasoning and the extent to which psychological phenomena like biased reasoning should be treated as universal.

The first thing to be noted in this regard is that, in terms of the tendency to engage in biased reasoning, policymakers do actually seem to behave in

ways that are similar to the behavior of other citizens. In most tests, policymakers' behavior was consistent with the theoretical expectations in Chapter 2, i.e. with patterns observed among ordinary citizens in other studies. Furthermore, as mentioned in section 4.1.2, direct comparisons of the impact of attitudes on policymakers' and citizens' interpretation of information revealed no significant differences between the two groups' tendencies to engage in politically motivated reasoning. These results support the idea of psychological biases as a general human phenomenon. Therefore, it *does* seem reasonable to form at least *expectations* about policymakers' behavior based on studies of ordinary citizens (e.g., articles D and F).

However, based on the dissertation's results, it is also clear that one should be careful about generalizing citizens' behavior to policymakers. Thus, the results in articles B and C did reveal systematic differences between policymakers and other citizens in reactions to contextual factors. This was most clear in article C's investigation of the effects of justification requirements. As expected, asking citizens to justify their evaluations decreased the impact of attitudes but the same intervention increased the impact of attitudes among policymakers. Additional analyses in article C suggest that the difference between policymakers' and other citizens' reaction to justification requirements did not result from differences in personal characteristics (such as political expertise and attitude importance, cf. sections 3.2.2 and 3.2.3). Thus, the debiasing effect among citizens was strongest among those who were most interested in politics. Instead, I argue that there seems to be something in the policymaker role, which makes the policymakers react differently to justification requirements. This suggestion is supported by additional analyses in article C showing that the bias-strengthening effects of justification requirements were driven by the behavior of experienced policymakers who had had a long time to learn to behave as policymakers, whereas justification requirements did not lead to stronger biases among recently elected policymakers.

By pointing to the importance of taking roles seriously, the dissertation's results are not only important to the literature on evidence-based policymaking (and factually informed decision-making more broadly). They also contribute to political-psychological theory and to the broader literature on the behavior of political elites by highlighting that although policymakers are certainly human beings like everyone else and although it seems reasonable in most cases to expect similarities between policymakers and other citizens, there are situations where being a policymaker seems to affect behavior. Of course, as noted above, the dissertation's research question was not about differences between policymakers and other citizens, and my ambition was not to make systematic investigations of the impact of roles on peoples' reasoning. I have only scratched the surface of this important issue, and as I discuss in

section 5.3.2, more systematic investigations of the issue are clearly warranted. However, following my results, scholars with an interest in policymakers' behavior (and the political behavior of political elites more generally) need to consider the extent to which roles may affect behaviors of interest. It does seem fruitful to continue to run studies on samples of actual policymakers or, at a very minimum, attempt to identify groups of citizens who behave most like policymakers, instead of uncritically generalizing from citizen-based findings.

5.2. Methodological caveats

While the studies in this dissertation certainly contribute valuable insights about policymakers' interpretation of policy-relevant information, there are some important methodological limitations that should be considered.

First, readers might question the generalizability of the dissertation's results because they are mainly based on answers from Danish local policymakers. Just as I argued (and found) that policymakers may sometimes behave differently than other citizens, we cannot take for granted that all policymakers are identical in their behavior. For example, following the discussion above about the importance of taking roles seriously, it is reasonable to argue that the policymaker role will tend to entail different norms and expectations across cultures, and Danish policymakers may behave differently than policymakers from other countries. In article E, we attempt to address this as directly as possible by conducting our studies in Denmark, Italy, Belgium, and the USA, and overall, our results generalize across countries. However, even though these countries represent quite different political, institutional, and cultural settings, it is also clear that they are all western, educated, industrialized, rich, and democratic (WEIRD) (Henrich, Heine, and Norenzayan 2010). Furthermore, all the policymakers who were surveyed in the dissertation are local policymakers. In Chapter 3, I argued that local policymakers were ideal in terms of balancing the need for real policymaker respondents and the need for large samples. However, we cannot take for granted that local policymakers behave like e.g. policymakers at the national level since local policymakers on average are probably less professional political actors than e.g. members of national parliaments.[19] This may affect how they reason about policy-relevant information (cf. arguments in section 3.2.2), and some caution is therefore

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[19] For instance, De Paola and Scoppa (2011) have found that political competence is positively related to political competition, which tends to be lower at the local than at the national level.

needed in terms of generalizing the dissertation's results to other tiers of government. Thus, future research might contribute important insights simply by replicating this dissertation's studies (directly or conceptually) in other countries and tiers of government.

Second, readers might rightfully question the ecological validity of the survey experiments that I have used to test my theoretical expectations (Blom-Hansen, Morton, and Serritzlew 2015, 166). In Chapter 3, I argued that survey experiments were useful in terms of testing my expectations as they allowed me to observe large numbers of policymakers' interpretations of comparable pieces of information in controlled environments, which could be designed for the explicit purpose of testing my expectations with a high level of internal validity. However, this high level of control did not come without a cost. Although I aimed at designing the experiments in a way respondents could relate to (e.g. by presenting respondents with experimental material about policies for which they were responsible in their councils), it was typically necessary to place the respondents in a quite artificial information environment. The experimental material contained fictional information, which was further simplified to control the factors of interest in each experiment. I argue that this was helpful in terms of testing the specific expectations in the dissertation, but I acknowledge that it limits the studies' ability to inform us about how psychological biases affect policymakers' use of information in their everyday, real-world decision-making. Therefore, I encourage scholars to think carefully about how to design experiments in ways that are closer to the reality of interest and to "open up the toolbox" and approach questions with relevance to the dissertation's research question with greater methodological diversity.

5.3. What's next?

As I wrote in the beginning of this chapter, the short answer to the dissertation's research question is that policymakers *are* affected by psychological biases when they interpret policy-relevant information and that contextual factors *do* moderate the impact of psychological biases on policymakers' interpretation (although in unexpected ways). However, many important questions of relevance to the dissertation's research question remain to be answered in future research. In addition to the methodological caveats discussed above, there are questions that have not been addressed or regarding which I have only scratched the surface with my investigation. In the remainder of this chapter, I will discuss important questions of relevance to the dissertation's research question that I hope to see investigated in future research. Section 5.3.1 concerns implications of the influence of factors related to the presentation of information on policymakers' interpretation of the information, and

section 5.3.2 concerns the influence of attitudes and beliefs on policymakers' interpretation of information.

5.3.1. May policymakers be manipulated in their preference formation?

Results in section 4.3 showed that even small changes in the presentation of policy-relevant information can lead to systematic and quite substantial changes in policymakers' interpretation of, and preference formation based on, the information. These results give rise to some fundamental democratic questions that I have mentioned briefly in the summary report so far, but are discussed at more length in article E ("Politicians & Bureaucrats"). Thus, as we discuss in that article, policymakers often have to rely on bureaucrats to decide what information is relevant in any given situation and to communicate the information to them. Ideally, in doing so, the bureaucrats should support the policymakers in pursuing their political goals. As Aberbach, Putnam, and Rockman (1981) argue: "in a well-ordered polity, (…) politicians articulate society's dreams, and bureaucrats help bring them gingerly to earth" (ibid., 262).

However, scholars have long worried that because of their expertise and unique position in the political system, bureaucrats are in a powerful position to influence policymaking. Max Weber argued that "(t)he power position of a fully developed bureaucracy is always overtowering. The 'political master' finds himself in the position of the dilettante who stands opposite the 'expert'" (Weber 1970 [1922], 232), and similar concerns have been expressed since then (Gulick 1937; Niskanen 1971; Miller 2005). Thus, to use the words of Aberbach, Putnam, and Rockman, policymakers may very well articulate dreams for society but bureaucrats will be able to disregard these dreams if they do not share them.

Following the results in section 4.3, there is reason to consider the possibility that existing literature may not have fully grasped the power potential of bureaucrats. Thus, as we argue in article E, if policymakers depend on bureaucrats to decide what information is relevant and to communicate the information to them, and if policymakers' use of information depends on how it is presented to them, then bureaucrats may not even have to disregard the policymakers' dreams for society to pursue their own goals. Scholars have worried that political elites "face few constraints to using frames to influence and manipulate citizens' opinions" (Druckman 2001, 1041), but the results in section 4.3 show that policymakers are not insulated from manipulation themselves.

By designing information strategically, bureaucrats may be able to use psychological insights to manipulate policymakers' preference formation and manipulate them to pursue the bureaucrats' own dreams for society.[20]

Important questions related to this discussion remain unanswered and should be addressed by future research. The results in section 4.3 show that policymakers can be influenced through factors related to the presentation of information, and survey answers in article E show that policymakers are concerned about the undue influence of bureaucrats. However, future research should investigate if (and when) psychological insights are used to manipulate policymakers in practice, as the dissertation's tests do not answer that question. Furthermore, future research should attempt to uncover the conditions under which policymakers are most susceptible to manipulation. A variety of variables might matter in this regard, and for example, the influence of policymakers' trust in the bureaucracy might be worthy of investigation (Druckman 2001). I believe that continued investigation of these and related questions will yield important insights.

5.3.2. Does the policymaker role make it impossible to reduce motivated reasoning?

Another set of important questions concern the impact of roles and role perceptions on policymakers' reasoning about policy-relevant information, and the extent to which policymakers may under some conditions be less affected by their attitudes and beliefs when interpreting policy-relevant information.

Results in the dissertation suggest that being a policymaker affects policymakers' reasoning, but I encourage more systematic investigations of this question. My ability to make causal claims about the effects of being a policymaker is weakened by the fact that my investigation was not designed for the explicit purpose of uncovering such effects. Investigating effects of being a policymaker without compromising internal validity is not methodologically straightforward as the independent variable of interest (the policymaker role) cannot easily be randomized in experiments. However, one strategy could be to randomize the extent to which the policymaker role is rendered salient in experiments and investigate whether this affects policymakers' behavior (Cohn, Fehr, and Maréchal 2014). Alternatively, scholars might be able to investigate the impact of being a policymaker through regression discontinuity

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[20] Of course, other information providers may use these insights to influence policymakers' preferences as well and thus, as noted in section 2.1, policymakers may draw on a wide range of information sources in their decision-making. However, as we show in article E, compared to other actors in the political system, bureaucrats are in a privileged position, as they constitute a very central source of information.

designs, comparing the experimentally measured behavior of narrow winners and losers of elections (Enemark et al. 2016).

In addition to uncovering the extent to which the policymaker role affects policymakers' behavior, it is also important that scholars attempt to uncover *what* it is in the policymaker role that matters. In article C, I discuss how it is a policymaker's job to be partisan (Andeweg 1997), contrary to ordinary citizens who have been found to find social value in appearing politically independent (Klar and Krupnikov 2016). Policymakers are often judged, not based on their ability to make factually correct claims but on their ability to appear consistent in their political views (Tavits 2007; Sorek, Haglin, and Geva 2017). In that sense, one may argue that policymakers are subject to other logics of appropriateness (March and Olsen 2011) than citizens are, which may very well affect their reasoning in relation to policy-relevant information. I believe that in order to reach a deeper understanding of this question, it will be useful to base future investigations on more sociological and qualitative approaches than I have employed in this dissertation. For instance, through qualitative investigations of policymakers' perceptions regarding their professional role and regarding how this role relates to their use of policy-relevant information, scholars may be able to reach important insights about the causes of policymakers' behavior. This may also be helpful in terms of identifying what needs to happen in order for policymakers to develop a less closed-minded approach to information.

When it comes to the possibility of reducing motivated reasoning in policymakers' interpretation of policy-relevant information, it is worth noting that the existing literature has found debiasing effects of incentives to make accurate judgments based on political information (Bullock et al. 2015; Prior, Sood, and Khanna 2015). The literature has focused on the effects of *monetary* incentives on ordinary (non-policymaker) citizens' judgments, but it may be relevant, in future research, to consider the *political* incentives facing policymakers in politics today. It may for example be relevant to look into mass media coverage of politics and its effects on policymakers' behavior. Coverage of politics often resembles coverage of sports events (Groenendyk 2013, xi) in the sense that the political process tends to be viewed as a *battle* with *winners* and *losers*,[21] and it may be viewed as a sign of weakness if policymakers give in to evidence and good arguments and acknowledge that they have been wrong on some issue. It therefore makes sense to view policymakers more as sportsmen/women than as problem solvers. It seems reasonable to argue (speculatively, I admit) that this may contribute to creating a political culture where policymakers, in order to survive in the political game, have to maintain a

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[21] See e.g. Zurcher (2016), Bienkov (2017), Eddy (2017), and Samuel (2017).

closed mind when approaching policy-relevant information. I encourage scholars to investigate this more systematically in the future, also in order to assess the extent to which the mass media, through a more constructive approach to the coverage of politics (Haagerup 2017), may be key to creating a more open-minded political culture.

In the pages above, I have brought up some perspectives out of many that could have been discussed in light of the dissertation and its results. It is clear that important issues remain open for future research to investigate. I hope that the dissertation, in addition to contributing specific results and insights about psychological biases in policymakers' use of policy-relevant information, will inspire others to join the continued search for insights of relevance to the research question. A great deal of work remains to be carried out.

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English summary

In recent years, the idea that information is key to good policymaking has gained momentum. Evidence-based policymaking has become a buzzword in democratic systems all over the world, reflecting a widespread belief that policymakers will make better decisions if provided with factual information, e.g. policy-relevant scientific evidence and systematic policy evaluations. As a result, policymakers have never had access to more policy-relevant information than they do today. However, while a great deal of focus has been devoted to ensuring that policymakers have access to policy-relevant information, much less focus has been devoted to understanding how policymakers interpret the information they encounter. This is unfortunate as even the hardest facts have to be interpreted by human beings in order to inform decision-making. This dissertation casts light on this issue by asking whether psychological biases affect policymakers' interpretation of policy-relevant information and whether contextual factors moderate the impact of psychological biases on policymakers' interpretations.

A comprehensive experimental investigation, involving surveys of several thousand elected policymakers, shows that policymakers are indeed affected by psychological biases when interpreting policy-relevant information. Experiments show that policymakers are biased by prior attitudes and beliefs and by factors related to the presentation of information. Furthermore, contextual factors do matter, but in ways that were not expected. Thus, contrary to theoretical expectations, policymakers' interpretation becomes more affected by political attitudes when the policymakers are presented with larger amounts of evidence in support of a given conclusion and when they are asked to justify their interpretation of the information. Interestingly, this behavior differs from the behavior of representative samples of ordinary (non-policymaker) citizens who were recruited to participate in identical experiments. Results suggest that the policymaker role affects policymakers' behavior, and therefore, the dissertation calls for scholars with an interest in policymakers' behavior (and the behavior of political elites more broadly) to take roles more seriously than they have done so far. Scholars should attempt to run studies on samples of actual policymakers or, at a minimum, attempt to identify groups of citizens who behave most like policymakers, instead of generalizing uncritically from citizen-based findings.

The dissertation's results question core assumptions behind the idea that policy improvements will follow when policymakers get access to policy-relevant information. When policymakers are biased in their interpretation of in-

formation, they are also likely to be biased in their use of the information. Future research should continue to investigate the impact of the policymaker role on the behavior of policymakers (and the impact of roles on political behavior more broadly) as well as the impact of contextual factors on policymakers' behavior.

Dansk resumé

Evidensbaseret politik har udviklet sig til at være et modeord i demokratiske systemer i det meste af verden og i de seneste år har der således været en stigende tiltro til information som nøglen til god politisk beslutningstagning. Men til trods for, at politikere aldrig har haft adgang til mere information end de har i dag, er vores viden fortsat begrænset når det kommer til politikeres fortolkning af den information, de præsenteres for som grundlag for deres beslutninger. Dette er uhensigtsmæssigt, da måden hvorpå information fortolkes må forventes at påvirke, hvordan informationen omsættes til beslutninger. Denne afhandling sætter derfor fokus på politikeres fortolkning af politisk relevant information ved at spørge, om politikeres fortolkning er påvirket af psykologiske biases, og om kontekstfaktorer påvirker styrken af disse biases.

En omfattende eksperimentel undersøgelse af flere tusinde folkevalgte politikere viser som forventet, at politikere er biased, både af forudgående politiske holdninger og overbevisninger og af hvordan information er præsenteret. Kontekstfaktorer påvirker politikeres tendens til at være biased i deres fortolkning men på måder, der overrasker i lyset af afhandlingens teoretiske forventninger. I strid med afhandlingens teoretiske forventninger får politiske holdninger således større indflydelse på politikeres fortolkning, når politikerne præsenteres for større mængder af information, selvom informationen entydigt peger i retning af én bestemt konklusion, og når de forventer at blive bedt om at retfærdiggøre deres fortolkning. Repræsentative stikprøver af den danske befolkning opfører sig mere i overensstemmelse med afhandlingens teoretiske forventninger og resultater tyder således på, at politikerrollen påvirker politikernes adfærd. Dette er en vigtig indsigt for forskning i politikeres adfærd (og politiske eliters politiske adfærd i øvrigt), da det viser, at roller bør tages mere seriøst end det hidtil er gjort. Forskere bør ikke ukritisk generalisere resultater fra borger-baserede undersøgelser til politikere. De bør i stedet gennemføre undersøgelser på stikprøver af folkevalgte politikere eller, i det mindste, forsøge at identificere grupper af borgere, der opfører sig mest som politikere.

Afhandlingens resultater udfordrer grundlæggende antagelser bag idéen on, at politikere vil træffe bedre beslutninger, hvis de får adgang til beslutningsrelevant information. Hvis politikeres fortolkning af information er skævvredet af psykologiske biases, er det således sandsynligt, at også deres anvendelse af informationen vil være biased. Fremtidig forskning bør fortsætte undersøgelsen af politikerrollens betydning for politikeres adfærd (og rollers betydning for adfærd mere generelt), ligesom man også med fordel vil kunne fortsætte undersøgelsen af kontekstfaktorers betydning for måden

hvorpå information fortolkes i forbindelse med politiske beslutningsproces-
ser.