

What Can Performance Information Do to Legislators?¹

A Budget Decision Experiment with Legislators

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Abstract

Existing studies on the influence of performance information on budgeting decisions are limited and have produced contradictory findings. This paper argues that most previous work has somewhat problematically focused on self-reported use of performance information rather than on the legislative context into which performance information is introduced. This study offers a framework that links performance information to legislators' budgeting decisions. I argue that the impact will differ depending on whether performance information is reflected in the budget proposal, whether the allocation issue concerns a politically difficult value tradeoff for the decision-maker, and whether the implications of the performance information fall into a receptive partisan mind. This paper studies these aspects by manipulating the first two of these factors in an experimental setting involving budgetary decision-making by 57 actual legislators. The control groups consist of 65 undergraduate students. The results show that the introduction of performance information into the legislators' deliberation process leads to stronger deviations from the status quo allocation. I argue that this difference occurs because performance information highlights more clearly the expected consequences of budgetary changes and allows for more pronounced reactions. This paper concludes that more informed decisions based on good performance budgets might also create a situation in which it is more difficult for legislators to compromise because individual positions become more polarized.

Keywords: Budgeting, Legislators, Performance Information, Influence, Experiment

INTRODUCTION

The logic of allocating public resources based on the results produced by public policies is so intuitively appealing that it has long remained the main focus of budget reformers (Hilton & Joyce, 2012). For nearly a century, the budget process has been subject to reforms (Dawes, 1923; Key, 1940; Banfield, 1949; Mosher, 1954; Schick, 1966). Early modifications, such as apportionments, line-itemization, and restrictions on shifting funds, were control-oriented. The aim was to design a system that binds operating officials to the policies set by their superiors. Subsequent changes prioritized the management and planning dimensions of budgeting; performance budgeting, program budgeting and zero-base budgeting were initia-

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tives designed to ensure a more efficient allocation of resources. These systems were based on the assumption that changes in budget structure, procedures and available information would alter actor behavior accordingly (i.e., these changes would support a move from an input-oriented process to a results-focused or performance-informed approach to budgeting) (Bretschneider, Straussman, & Mullins, 1988). In practice, commentators claim that these reforms have failed to live up to their promises and to change the way public monies are allocated (Schick, 1973; Dempster & Wildavsky, 1979; Harkin, 1982; Downs & Larkey, 1986).

Research on the impact of performance information on government budgeting can be divided in two fields. One field is concerned with broad correlations between the content and use of available information on the one hand and final allocation outcomes on the other hand. Results from this field provide mixed insights, but the overall balance is negative and suggests that information has no significant effect on the manner in which government budgets are constituted (Gilmour & Lewis, 2006; Heinrich, 2012). The other field of research focuses on the individual level and has been concerned primarily with how public managers deal with performance data (Pollitt, 2006a). Studies on the use of performance information by politicians, particularly legislators, are rare. Existing works have analyzed the ways legislators use available information in the political process and investigated whether elected officials perceive data related to aspects of performance as useful for their decision-making process (Askim, 2007, 2008, 2009; ter Bogt, 2001, 2003, 2004; Raudla, 2012; Hou, Lunsford, Sides, & Jones, 2011). For this field of research, results are also mixed. However, overall, the reported insights are also more pessimistic than optimistic. To explain the low valuation and influence of performance information on government budgets, researchers from both fields cite the quality or availability of performance information, the personal characteristics of legislators, or the political nature of the budgeting process, which interferes with rational notions of government budgeting.

Recently, a small number of researchers have started to question these conclusions based on methodological and conceptual concerns (Demaj & Summermatter, 2012; Moynihan, 2013; Nielsen & Baekgaard, 2013). With respect to methods, these authors claim that studies based on broad correlations between information provision and budget appropriations and studies that rely on legislators' self-reported information use are unlikely to provide answers to the behavioral question at the heart of performance budgeting (i.e., whether and how information influences legislators' allocation decisions). From a conceptual perspective, most recent research holds that previous works failed to systematically account for the contextual variables that influence the leverage of information on people's judgments (Wilson, 2006). Contextual variables shape the way people perceive the available evidence and alter the use of this information for decision-making purposes. Overall, the problem encountered in current research is that these types of studies are limited to relatively simple conclusions concerning whether performance information influences budgeting decisions.

This paper is based on the validity of these objections and makes two contributions to the study of the impact of information on legislators' allocation decisions. First, this study provides a parsimonious framework that explicates the conditions for information processing in a political decision-making context. This study argues that information's impact on legislators' budgeting decisions will differ depending on three aspects of the context into which the information is introduced: whether performance information is reflected in the budget proposal, whether the allocation issue concerns a politically difficult value tradeoff for the decision-maker, and whether the implications of the performance information fall into a receptive partisan mind. For the case of government budgeting, this framework provides a consistent set of hypotheses concerning the manner in which performance information relates to legislators' decisions. The framework is able to integrate both the politics of public budgeting and

people's behavioral tendencies to process information. As a result, the framework specifies the theoretical conditions for *when* and *how* information is likely to influence legislators' allocation judgments and provides more than an "either-or account" of information's leverage.

Second, to test the hypotheses proposed by this framework, a decision-making experiment was designed and conducted using Swiss state legislators. Like most research related to public management, prior studies of performance information use for budgeting decisions rest primarily on observational or field data (Pitts & Fernandez, 2009; Nielsen & Baekgaard, 2013; Moynihan, 2013). These research designs might be appropriate for establishing external validity, but they fall short in providing internal validity (Ostrom, 2007, p. 2). In particular, while case studies, surveys, and interviews can help establish an accurate understanding of how actual decisions are made, the simultaneous treatment of presumed cause and effect by any non-experimental approach severely limits conclusions about the causality between the variables of interest (Konisky & Reenock, 2013). By conducting an experiment, this study establishes a suitable methodological approach for testing the causality of the proposed model and for producing reliable insights concerning whether and how information *could* influence legislators' budget decisions.

The remainder of this paper begins by providing an overview of existing studies of the impact of information on budget appropriations. The focus of this review is the treatment of legislators' information use for budgeting decisions. The following section explicates the legislative context into which performance information is introduced and considered by legislators. The framework explicates how information relates to legislators' budget decisions and offers three specific hypotheses concerning the likely effects of this process. The methodology portion of this paper discusses the merits of this experimental approach in the context of the question at hand, operationalizes the theoretical constructs and the experimental design, and provides information about the implementation of this approach. Next, the experimental results are presented. The final section presents my conclusions about the implications of this experiment for research, theory, and practice related to performance budgeting for legislators.

RESEARCH ON PERFORMANCE BUDGETING FOR PARLIAMENTS

The Empirical Base Regarding the Impact of Performance Information

Despite the disappointing outcomes of the first budgeting reform period prior to the 1990s,² new attempts at output- and outcome-oriented budgeting were instituted around the globe with the beginning of New Public Management reforms. Depending on the stage of the budgeting process (i.e., preparation, approval, execution, audit and evaluation), reformers and students of government budgeting propose different possibilities for how resource allocation can be explicitly linked to demonstrated performance (e.g., Joyce & Tompkins, 2002). In its most fundamental notion, performance information and associated performance budgets pro-

² See Pollitt & Bouckaert (2011, pp. 75-87) for national trajectories in financial management reform; OECD (2007) for an overview of performance budgeting reforms in Australia, Canada, Denmark, Korea, the Netherlands, Sweden, the United Kingdom, and the United States; Holmes & Shand (1995), Hawke (2007), and Blöndal, Bergvall, Hawkesworth, & Deighton-Smith (2008) for a particular focus on Australia; Osborne & Gabler (1992), Ho (2011), and Hou, et al. (2011) for reforms in local and state governments in the United States, as well as Joyce (2011) for the national government; van Nispen & Posseth (2007) for reforms in the Netherlands; Küchen & Nordman (2008) for reforms in Sweden; Noman (2008) for reforms in the United Kingdom; and OECD (2008) for the New Accounting Model in Switzerland.

vide decision-makers with information concerning how particular results may change if resources are increased or decreased (OECD, 2007). In sharp contrast to previous reform periods, which focused only on the executive branch of government and ignored the role of legislatures (Schick, 1973), today, elected representatives are also asked to compare costs to marginal effects on government performance, to make their expectations clear to the executive, and to judge budget proposals based on the provided performance information (e.g., Pollitt, 2001; Joyce & Tompkins, 2002; Pollitt & Bouckaert, 2011).³ Ultimately, the “goal of adding performance data to budgets is to change resource allocation behaviors” (Moynihan, 2013, p. 4).

Research on performance budgeting reforms tends to focus either on broad correlations between the content and use of performance information and changes within government budgets or on the ways in which individual actors use performance information (Moynihan, 2013). Members of the former field of research are interested in the overall effect of performance budgeting reforms. Reform success is implicitly or explicitly equated with whether observable co-variations exist between the indications of performance information use or provision and appropriated budgets (Moynihan & Lavertu, 2012; Moynihan & Pandey, 2010). This research is motivated by the question of whether the allocation of public resources is indeed based on evaluation results and on projected program success (Willoughby, 2011; Kelly & Rivenbark, 2003; Joyce, 2011). The ‘Government Performance and Results Act’ and the ‘Program Assessment Rating Tool’ (PART) represent attempts to explicitly integrate performance considerations into the appropriation of budgets. For example, Gilmour & Lewis (2006) revealed that the President’s budget proposals tended to contain larger funding increases if government programs reported high PART scores. In contrast, Frisco & Stalebrink (2008) and Heinrich (2012) were unable to find a significant effect of PART scores on Congress’ budget appropriations.

Researchers in the latter field of research tend to focus on individual-level perception and use of performance information. The empirical focus has been on how managers and professionals deal with performance information (Pollitt, 2006b). Insights concerning how legislators perceive and use the new information within budget documents and whether this information has an influence on budget decisions have been primarily shaped by anecdotal evidence. To the best of my knowledge, only five studies provide substantial material related to aspects of legislators’ performance information use (ter Bogt, 2004; Ezzamel, Hyndman, Lapsley, Johnsen, & Pallot, 2004; Askim, 2007; Johnson & Talbot, 2007; Raudla, 2012). Based on survey and interview approaches, these studies provide ambiguous insights. Self-reported evidence indicates that legislators have low valuations of performance information but it also shows factual and direct use of this information for decision-making purposes. Overall, the tenor of commentators is skeptical (e.g., Bussmann, 1996; Joyce, 1997; Moynihan, 2005; Pollitt, 2006a). The reasons proposed to account for legislators’ information behavior are variable and interconnected. Some of these reasons go back to the very nature of the political process, in which “muddling through” is a dominant characteristic and “the electoral connection” motivates politicians to be more concerned about whose interest will be benefited than maximizing aggregate national welfare (e.g., R. A. Dahl & Lindblom, 1953; Mathews, 1960; Schick, 1976; Mayhew, 2005). Other theories attribute inefficiencies in the

³ Pioneering countries that have adapted their budget appropriation structures to this concept include Australia (Chan, Nizette, La Rance, Broughton, & Russel, 2002), the Netherlands (IOFZ, 2004), Canada (Blöndal, 2001), Sweden (Regeringskansliet, 2000; Sterck, 2007), and several states of Switzerland (Schmidt, 2008). Other countries will soon follow (OECD, 2007).

allocation of public resources to a more general problem: the co-occurrence of evermore complex decision problems and the limited human capacity to perform standard rational analysis (e.g., A. Tversky & Kahneman, 1974; Slovic, Fischhoff, & Lichtenstein, 1977; Simon, 1978; Amos Tversky & Kahneman, 1981). Overall, the budget process is perceived as a phenomenon in which the principles of fair shares of rewards and burdens drive the allocation of increments or decrements to organizational budgets and program funds, pushing considerations of efficiency and effectiveness to the periphery (Wildavsky, 1964; Fenno, 1966; Sharkansky, 1968; Thurmaier, 1992).⁴

Evaluation

Conclusions about the ineffectiveness of performance information in influencing resource allocation do not stand on firm empirical grounds. Most studies of the first reform period focused on the executive body of government, were post-hoc, and relied on semi-structured or unstructured interview data, which were most often gathered from participants from a single jurisdiction or agency (Bretschneider, Straussman, & Mullins, 1988).⁵ In addition, “most of the literature on budget reform is not empirical at all” (Bretschneider, Straussman, & Mullins, 1988, p. 308). Instead, “thought experiments” are applied to reform proposals in an attempt to predict the impact of these proposals by reasoning through analogy. Those studies that include a substantial and more recent empirical component have been claimed to suffer from methodological and conceptual issues (Demaj & Summermatter, 2012; Nielsen & Baekgaard, 2013; Moynihan, 2013). They will be discussed next.

In general, current research on the impact of performance information on legislators’ budget decisions tends to ask respondents to report whether and how frequently they use performance information, which sources they prefer, and whether they are satisfied with the quality of the information they receive and to estimate the impact of this information on their budget decisions. Approaches that rely on case studies, interviews, or survey procedures to gather empirical material face severe limitations with respect to the internal validity of the conclusions they generate (Konisky & Reenock, 2013). Observational studies might help establish an accurate understanding of how legislators actually make budgeting decisions; however, if a particular relationship is of interest to the researcher, these approaches experience difficulties in controlling for other, extraneous influences and in isolating the impact of the factors of interest (Ostrom, 2007, p. 2). For the phenomenon of interest, this limitation is particularly pressing because “budgeting is a horribly complex decision problem” (White, 1985, p. 627). In addition, Feldman & March (1981, pp. 177-178) argued that the “command of information and information sources enhances perceived competence and inspires confidence” and that “decision makers and organizations establish their legitimacy by their use of information.” From this perspective, current conclusions concerning the impact of information on legislators’ budgeting decisions are to be treated with the outmost caution. Interviewing or surveying legislators about their performance information use is more likely to reveal lawmakers’ views about the basis of competent and legitimate positions than to reveal the actual influence of the information on decision outcomes.

⁴ For critiques and a rival explanation to the incrementalist view of budget formation, see Natchez & Bupp (1973), Gist (1977), Kamlet & Mowery (1980), Bozeman & Straussman (1982).

⁵ (Bretschneider, Straussman, & Mullins, 1988, FN 9) mention only the study of (Harper, Kramer, & Rouse, 1969) as a counterexample.

Contradictory empirical findings related to performance information's impact on legislators' budget decisions might also result from conceptual issues. For example, current studies tend to ignore the vital role of context in human information and decision-making behavior (Wilson, 2006). In interviews or surveys, performance information is at the center of the research interest, not legislators and their perceptions of the problems and questions that arise from the government budgeting process. Based on the generated results, current studies make conclusions concerning legislators' information use for budgeting decisions that are detached from the particularity of the political arena and the information needs that this environment generates for its actors (C. H. Weiss, 1983). In one way or another, observational studies measure legislators' reported extent of performance information usage or appreciation and then make claims about the likely effects of this information on the elected officials' decision outcomes. However, this shortcut cannot take into account the many different purposes politicians pursue by using information (Davidson, 1976; Knorr, 1977; Lindblom & Cohen, 1979; Feldman & March, 1981; Whiteman, 1985). In most cases, information serves as political "ammunition for the side that finds its conclusions congenial and supportive" (C. H. Weiss, 1979, p. 429).

Only recently have researchers started to change the way they examine "the behavioral question at the heart of performance budgeting" (Moynihan, 2013, p. 5) (i.e., whether and how performance information can influence legislators' budget decisions). These two new studies (Nielsen & Baekgaard, 2013; Moynihan, 2013) differ from previous works in two important ways. First, both of these studies choose experimentation as their preferred vehicle for establishing internally valid conclusions. Second, Nielsen & Baekgaard (2013) and Moynihan (2013) choose an actor-centered approach and argue for the application of an explicitly political perspective in examining the impact of information on budget decision-making. Both studies operationalize aspects of the political context that are important in determining whether and how performance information might affect allocation decisions. For example, Nielsen & Baekgaard (2013) consider political credit-claiming and blame-avoidance as central aspects of legislators' rationale in processing the content of performance information and making allocation decisions. Nielsen & Baekgaard (2013) show that Danish city councilors increase funding not only in response to high-performing public schools (i.e., credit-claiming) but also as a reaction to poor results in a politically salient policy area (i.e., blame-avoidance). Moynihan (2013) is interested in how variations in the context in which identical performance information is presented alters subjects' tendencies to allocate resources. He finds that changing advocacy, goal ambiguity, and expectancy alter students' budget decisions, although corresponding reports on performance remain the same. The present study shares the methodological and conceptual choices made by Nielsen & Baekgaard (2013) and Moynihan (2013) and provides in the next section an alternative characterization of the relevant legislative context in which performance information is considered by lawmakers.

PERFORMANCE INFORMATION IN A PARLIAMENTARY SETTING

Legislators do not consider performance information in isolation and seclusion. This paper proposes a different operationalization of the context and the political rationale that govern the impact of information on allocation judgments. In this section, I identify three relevant dimensions and highlight the extent to which these dimensions can vary and shape the impact of information on legislators' budget decisions. By budget decision, I mean a legislator's conclusion concerning how to change a given level of funding for the upcoming year. This decision is the initial position of a legislator before hierarchy, internal division of labor, fragmentation of issues, routines, the control of resources and many other aspects come

into play and contribute to the final decision outcome of the entire legislative body (e.g., Wilensky, 1967; Simon, 1976; Lindblom, 1980; C. H. Weiss, 1983; Allison & Zelikow, 1999).

Performance information is not the sole determinant of budgeting decisions: When performance information reaches legislators, it has entered a politically defined *decision scenario*. For this group of actors, the budget problem is not technical or analytical in nature; it is political. In the most general sense, the government budget represents the essence of the political process (Wildavsky, 1964). In defining the scope and scale of state activity, the final budget outcome reflects which needs of the society will be satisfied and which needs will be repelled in the light of scarce resources, as well as whose preferences have prevailed (Wildavsky, 1961). Because public budgeting is a process that produces winners and losers with respect to welfare (Bretschneider, Straussman, & Mullins, 1988, p. 305; Smith & Lynch, 2004, p. 37), information of any kind is not the sole determinant of legislators' budgeting positions. Carol H. Weiss (1983) describes ideology and interests as two other sets of forces that interact with available information and together form the stance of policy makers' decisions. Essentially, the author's 'ideology-interest-information' framework holds that based on the degree to which ideology and interests predispose political actors' positions, the potential for information to impinge on decisions varies.⁶

Ideology is a widely used but highly flexible conceptual tool. Only a small number of notions have generated as much discussion and disagreement within the social sciences as ideology.⁷ For the purpose of this study, ideology implies a coherent set of opinions, attitudes, and values, which justify, explain, and help to judge historical events, identify political right and wrong, and set forth the causal and moral interconnections between politics and other spheres of activity (e.g., Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950; Loewenstein, 1953; McClosky, 1964; Mullins, 1972). Ideologies do not provide ready-made answers for every decision problem in policy-making, but they provide their followers with general orientations. Followers share inclinations, such as "government should not over-regulate private enterprises" or "the environment needs to be protected," which give those followers a direction in which to work out their positions. Interests represent the other driving force of position formation. Interests are primarily defined as self-interest. In the case of politicians, the main interest is assumed to be dictated by the 'electoral imperative' (i.e., the motivation to act and decide in a way that increases the chances for reelection or for chairmanship within parliamentary committees) (Mayhew, 2005). As a general rule, ideology and self-interests do not contradict each other. In fact, psychological and economic research indicates that individuals are highly inclined to skew beliefs to line up with personal interests (Lewellen, Park, & Ro, 1996; Babcock & Loewenstein, 1997; G. Dahl, B. & Ransom, 1999). Therefore, in this paper, I will consider ideology and interests as a single force and refer to this force as political intuitions.

In this conception, political intuitions may posit two hypothetical polar constellations vis-à-vis information. At the one end of the spectrum, decision scenarios or allocation issues exist that prompt harmonious political intuitions among legislators. In contexts where ideological commitments are powerful and personal interests array on the same side of the policy

⁶ See Sartori (1969) for a very similar conception of the role of information in the formation of policy positions.

⁷ In a widely recognized article, Gerring (1997) offers a comprehensive definitional analysis of ideology as an intellectual concept.

question, the value tradeoff prompted by an allocation issue is unproblematic. Information that is incompatible with the current constellation of political intuitions is expected to have a small chance of changing the current knowledge of the decision-maker. At the other end of the spectrum, allocation issues exist that cause a conflict among legislators' political intuitions. In such decision scenarios, ideology and interests fail to provide a clear orientation toward a given allocation issue. This failure does not occur because these dimensions lack salience. This difficulty in deciding arises because an allocation issue embeds two or more competing values or interests and requires the individual to make a tough if not impossible tradeoff (e.g., Payne, Bettman, & Johnson, 1993; Luce, 1998; Anderson, 2003; Hanselmann & Tanner, 2008). Therefore, decision-makers are more likely to welcome information that helps them to recast the nature of the allocation problem.

Performance information is not available in isolation: Within these polar constellations of political intuitions, performance information may enter the individual decision-making process. Schick (2011) suggests that the function of performance information is to inform decision-makers about what segment of society will get more or less of services, outputs, results, or any other relevant measurement if a particular budget is increased or decreased. However, even under the most favorable circumstances, performance information itself cannot provide the ultimate basis upon which legislators make budgetary choices. As Joyce (1997, p. 54) notes, "one cannot simply reward those agencies whose measures indicate good performance (performance in excess of some agreed-upon target, for example) and take resources away from those whose measures indicate bad performance." In some instances, bad performance measures might be the very piece of evidence legislators seek to increase funding for an agency or a program. Therefore, in a parliamentary setting, performance information is always embedded in a *budget proposal*, which specifies the resource implications of this data based on previously defined outcome targets.

Like any other kind of policy information (e.g., Bardach, 1984; Majone, 1992), performance information must be considered to be data that has been purposefully assembled to convey a particular meaning; in this case, this meaning is the net marginal utility of expenditures. The international trend of embedding performance information in budget proposals, thus linking this information with particular budget questions, suggests that we view performance information as a type of evidence invoked by the budget initiator to support its budgetary conclusions. Logic dictates that the better the fit between the evidence and the conclusion or statement, the more pronounced and the better is the case made for an argument (Lorenz, 1973). Recent performance budget reforms can be interpreted as attempts to improve this fit and increase the consistency between budget proposals and performance information. Budget reformers claim that ideally, agencies' "bids would be supported by description and analysis of why the changes are sought and of how the funds are expected to produce the planned results" (Schick, 2011, p. 23).

With respect to pending allocation issues and from a budget initiator's perspective, "good performance information" must support budget proposals. Vice versa, "good budget proposals" should be consistent with the available performance information. A better causal fit between budgetary conclusions and performance information implies that consistent proposals illustrate more clearly the expected marginal utility of expenditures and can therefore be expected to represent a more pronounced budget request. This effect, in turn, enables legislators to better evaluate the consequences of their budget decisions and can be expected to facilitate more pronounced judgments about whether legislators agree or disagree with or support or oppose the budget initiator's proposal. In short, the aim of adding performance information to budget proposals is to include momentum in legislators' consideration of the status quo of the funding situation. Therefore, changes in allocations, rather than the absolute

levels of public budgets, reflect the impact of performance information. There is no doubt that in practice, the quality of the performance information that is embedded in budget proposals must be improved continuously to better highlight which policy increments and decrements follow from changes in funding (Matheson & Kwon, 2003; OECD, 2007). However, the critical question is whether this purposefully assembled performance information is associated with a budgetary proposal that is consistent with the information and ultimately, whether preparing such a proposal makes a difference for legislators' budget decisions.

Performance information is partisan: As stated by Wildavsky (1964, p. 5), "the victories and defeats, the compromises and the bargains, the realms of agreement and the spheres of conflict in regard to the role of national government in our society all appear in the budget. In the most integral sense the budget lies at the heart of the political process." Therefore, it is in the nature of budgeting and as a consequence, in the nature of the performance information embedded within budget proposals to champion particular political ideas and positions. Performance information is therefore *partisan*, not per se but in effect. Therefore, improving the causal fit between evidence and conclusions does not necessarily imply that legislators' budget decisions can be influenced accordingly. With this statement, I am not referring to the psychological mechanisms that are known to hamper the ability of a person to accurately understand the content of information (A. Tversky & Kahneman, 1974; Kahneman, Slovic, & Tversky, 1982). These mechanisms can only explain why people form distorted conclusions. However, these mechanisms fail to account for recent observations that these distortions differ systematically among opposing political blocks.

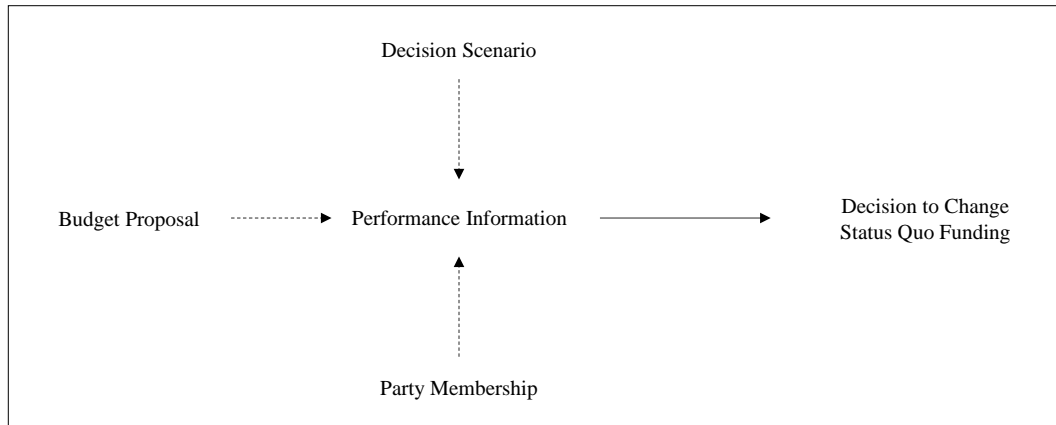
In a series of treatments, Dan Kahan and his colleagues introduced the so-called 'Cultural Cognition Thesis,' which holds that people's values will unconsciously shape the process through which available information is interpreted and produce conclusions that fit pre-existing commitments to worldviews and groups (Kahan, 2011, 2012, 2013a, 2013b; Kahan, Braman, Cohen, Gastil, & Slovic, 2010; Kahan, Jenkins-Smith, & Braman, 2011; Kahan et al., 2012; Kahan, Slovic, Braman, & Gastil, 2006). Psychological mechanisms associated with "motivated reasoning" (Kunda, 1990) ensure that people's bounded consideration of policy information does not aim for accuracy. Instead, reasoning is employed to reach conclusions that are in line with the suggestions of one's beliefs and group loyalties. These mechanisms explain why citizens continue "intense political contestation over empirical issues on which technical experts largely agree" (Kahan, Jenkins-Smith, & Braman, 2011, p. 147). Examples of such issues include the significance of human activity for global warming (Armitage, 2005; Cameron, 2005); the safety of nuclear power waste disposal sites (Jenkins-Smith, Silva, Nowlin, & Delozier, 2011); the effectiveness of vaccinating school-aged girls against the human papilloma virus (Colgrove, 2006); and the contribution of stricter gun regulations to decreasing crime (Boylan, Kates, Lindsey, & Gugala, 2013).

This human tendency, which becomes relevant when individuals process policy-relevant information for decision-making purposes, represents a crucial factor for understanding the impact of performance information on legislators' allocation decisions. Because performance information reveals the consequences of budgetary changes for policy results and therefore for certain segments of society, this data is useful for some legislators and challenges the positions of other legislators. The Cultural Cognition Thesis suggests that for legislators to whom a given piece of performance information is congenial, latent political intuitions might indeed be intensified and transformed into strong predispositions, eventually increasing support. In contrast, opponents might be even more inclined to object to a suggested course of action, simply because unwanted consequences are outlined more clearly. Therefore, budget proposals that are consistent with the suggestions of the available performance infor-

mation do not necessarily win arguments; instead, such proposals can “make people on the wrong side dig in even deeper” (Krugman, 2013).⁸

Figure 1 depicts how these three aspects relate to performance information. The framework suggests that performance information’s impact on legislators’ budgeting decisions depends on the following factors: first, whether performance information is consistently reflected in the budget initiator’s proposal; second, whether the allocation issue concerns a politically difficult value tradeoff; and finally, whether a legislator is ideologically receptive to the implications of this information.

Figure 1: Performance Information in a Parliamentary Setting



This framework suggests the following hypotheses for *how* performance information impacts budgeting decisions, *when* this influence is more likely to occur, and *whose* stance is affected by the implications of the available data:

- H1 (how): Performance information helps making a more pronounced budget request and therefore causes legislators to choose more extreme deviations from the current level of funding. Associated budget proposals reinforce this effect, especially when these proposals are consistent with the implications of the available information.*
- H2 (when): The influence of performance information is contingent upon the decision scenario. Performance information has a larger impact in situations where legislators face conflicting political intuitions and seek help in recasting the nature of the problematic allocation issue.*
- H3 (whose): The influence of performance information is contingent upon a legislators’ party membership. Because performance information highlights which segments of society will obtain more or less from altered funding, this information reinforces legislators’ political inclinations and increases both political support and political opposition.*

⁸ For the so-called ‘backfire effect’, see Nyhan & Reifler (2013).

METHODOLOGY

Analyzing Budgeting Decisions with Experiments

This study proposes the experimental method as a promising research approach to drawing insights on the impact of performance information on legislators' budgeting decisions and to testing the hypotheses proposed by the framework. In its simplest form (Campbell & Stanley, 1963; Lijphart, 1971; Konisky & Reenock, 2013) and in the ideal experimental setting, two *equivalent groups* are used to test a theoretically interesting independent variable whose presence is assumed to have an effect on a specific outcome of importance. Subjects are *randomly assigned* to either the treatment or control group to account for known and unknown factors of influence (Margetts, 2011, p. 191). The treatment group is exposed to the *stimulus*, while the control group is not exposed to this stimulus. Finally, the researcher *measures* subjects' response to the outcome of interest. If the average outcome differs significantly between the treatment and control groups, then a researcher can assume with high certainty that the relationship of interest is causal. However, experiments are rarely used in public management research. In her review on the value of this method for this field, Margetts (2011) is able to identify only ten articles that report results from experiments. Barriers specific to experimentation in public management remain intact: the difficulty of recruiting subjects, such as bureaucrats or politicians, the need for practical solutions, which outrank "truth" or theoretical abstraction, and logistical constraints, such as a lack of training in the experimental method for public management researchers. However, overcoming these barriers offers the opportunity for knowledge accumulation, rigor, and theoretical orientation (Lijphart, 1971).

In particular, the experimental method offers three major advantages compared to the observational approaches that have been applied to study the impact of performance information on budgeting decision outcomes. First, the experimental method allows researchers to observe the effect of a small number of decisive variables on the aspects of interest. In this way, even highly complex phenomena, such as budget decision-making, can be reasonably reduced to a few specific relationships while other factors are held constant (J. A. Weiss, 1982). This scenario is difficult to achieve with case studies, surveys or interviews. Statistical tools can help to isolate effects within observational data, but these tools are unable to establish the degree of certainty pertaining to the relationships among variables in the same way that experiments can (Lijphart, 1971, p. 684). Second, even the most reliable insights have a limited range of applicability. The experimental method illuminates this range by deliberately creating the kinds of situations in which cause and effect are claimed to hold (Foschi, 1997). Again, for the analysis of observational data, partial correlations can be applied to explore these circumstances. However, the statistical method represents only "an approximation of the experimental method" (Lijphart, 1971, p. 684). Third, the experimental method examines causality by manipulating one or more independent variables and measuring triggered effects on the dependent variable. This temporal ordering of cause and effect permits straightforward conclusions about the causality of relationships, in contrast to other methods, such as interviewing or surveying, where researchers face serious threats to internal validity due to the simultaneous treatment of independent and dependent variables (Webster & Sell, 2007).

Experiments do not attempt to produce findings that generalize from an observed sample to a larger, unobserved population as statistical generalizations aim to do (Dooley, 2001). Experiments are meant to test theoretical ideas (Campbell & Stanley, 1963; Roth, 1995) and are designed to create the circumstances most favorable for observing propositions from these ideas on the behavior of subjects. The goal of experiments is to uncover mecha-

nisms of human behavior that hold across scenarios in which the same theoretical constructs apply (Henshel, 1979; Lucas, 2003). Due to the researcher's full control of the experimental environment, life in natural scenarios differs in many ways and legislators are not expected to act the same way inside and outside of the experimental treatments applied here. Therefore, there are threats to the external validity of experimentally drawn inferences (i.e., the possibility that the relationship studied does not hold in the real world). To control for this threat, there are several dimensions of "realism" that controlled experiments in general and this study in particular must address (Brunswik, 1955), not only to enhance the behavior of the subjects and to increase the internal validity of the test but also to ensure that the findings are relevant to individuals who aim to understand the impact of performance information on legislators' budgeting decisions (Drabek & Haas, 1967). Therefore, this experiment is conducted using real Swiss state legislators, who deliberate about an actual allocation issue with realistic political tradeoffs and consider current performance information.

Budgeting Context of Swiss State Legislators

To create an experimental decision situation in which legislators' confrontation with performance information resembles the natural scenario, a basic understanding of Switzerland's political control structures and the implications of these structures for the budget appropriation process is necessary. In this context, Schedler (2001) gives a detailed account:⁹

- The Executive Council is a collegial authority of five to seven ministers. There is neither a president nor a prime minister. All councilors have equal rights. Together, the councilors constitute a single decision-making body.
- The Swiss states' political systems belong to the so-called 'concordant' democracies. In contrast to the 'competitive' democracies of Anglo-Saxon countries, virtually all major political parties are represented in the Executive Council.
- Unlike the Westminster system but similar to the U.S. system, the legislatures in Switzerland's states (i.e., the Legislative Councils) are part of a system of 'checks and balances.' Neither branch can dismiss the other branch and remove it from power. There is a strong separation of powers and a self-understanding of a Legislative Council as the institutional opposition to the governing Executive Council.
- Laws are the major instrument by which long-term political influence is exerted. On the other hand, the budget reflects the short- and medium-term value that is credited to a certain policy area or field of activity. Contrary to U.S. programs, in Switzerland, a close link between legal obligations and financial resources does not exist. This scenario may lead to situations in which laws are not enacted due to a lack of resources.
- The legislatures appropriate performance budgets on a yearly basis. A performance budget allocates a one-line budget and a performance contract to each of the administrative departments. The legislatures approve how much money is devoted to which purposes.
- The budget proposal is initiated by the Executive Council and its agencies. The budget proposal presents information pertaining to the short- and medium-term consequences of legislators' decisions in terms of costs, government outputs, and policy outcomes

⁹ Although Schedler (2001) focuses on the federal level, the crucial features of the political system and of the budgeting process also apply to the state level.

over four to six years and provides the executive's suggestion concerning whether and how resource allocation should change.

- Swiss legislators are part-time parliamentarians, and parliamentary secretariats are comparatively weak. Therefore, Swiss parliaments are restricted in their ability to take action. Think tanks are rare; if existent, these bodies are institutionalized and close collaboration with political parties or parliaments is not the rule. Therefore, information brought into the Legislative Councils by the executive branch is seldom challenged by other sources and can hardly be subjected to further scrutiny.

From the legislators' perspective, the budget proposal they receive from the Executive Council serves three functions. First, this proposal represents a starting point for obtaining an overview of current government activities and for evaluating how well departments and agencies are equipped for short- and mid-term challenges. Second, the budget document provides information concerning government inputs and outputs and how successfully the targeted outcomes for each department or agency are met. This information is usually presented for the last, the current and the upcoming budget years, as well as for the subsequent three planning years. In this way, the financial ramifications of legislators' budget decisions for the current account and the investment account are highlighted in a six-year perspective. Lastly, the budget document and the corresponding information provide the executive's point of view on why these changes have unexpectedly occurred or intentionally been initiated. From the Legislative Council's perspective, the ultimate goal during the budget process is to judge whether a particular budgetary development proposed by the executive is right or wrong, good or bad, and consequently, whether a budget proposal is to be supported or opposed.

For several reasons, Swiss state legislators represent suitable subjects for studying the relationships between legislators, performance information, and budget decisions. First, for more than a decade, most of the Swiss state legislatures have been familiarized with performance budgets. Performance information is an integral part of the executive's budget proposal. Only for a few other OECD countries are performance budgets a means for allocation and not merely a label or container for performance-related data (Schick 2011). Second, performance information originates from a separate and independent government body. Similar to presidential systems, the institutional and personal independence of Swiss state legislators from the executive branch prevents these legislators from receiving performance information that they have themselves "helped to craft." Third, unlike in parliamentary systems, the executive's budget proposal is not only formally but also factually subject to legislative approval. This scenario makes it more likely for performance information to be considered by legislators as a relevant part of the executive's budgetary proposal. Finally, the lack of separate information capacities of Swiss state parliaments and the absence of private alternatives grant executive-based performance information an exceptional role in legislators' budget deliberations.

Experimental Setting and Implementation

Experimental allocation issue: This study applies the logic of the ideology-interests-information framework to create experimental decision scenarios that resemble the legislative context and incorporate the political rationale of budgeting decisions. To this end, the allocation issue to be decided in the experiment must require subjects to weigh politically salient values. A purely technical allocation issue would be more accurate for the executive's perspective, but would violate the nature of the situations legislators face. Therefore, a workshop with representatives from state Executive and Legislative Councils' secretariats was conducted in order to ensure that the experimental allocation issue would fit the realities of the Swiss

political landscape. The goal was to identify a policy area on which legislators would have a clear stand; that is, an allocation question which is rather uncontroversial within a given parliamentary party but highly conflictual among different fractions. For the Swiss context, the policy area of ‘road network capacity,’ and especially attempts to enlarge it, represent an issue on which state legislators have a clear position. What makes allocation questions on the enlargement of the road network uncontroversial within a given political party but highly conflictual among them is not the issue of roads as such, but rather implications on other political values; that is, on ideologically- and interest-laden reference points, such as the ‘environment’ or the ‘economy’ (Frey, 1992). In Switzerland, legislators of right-wing parties generally tend to support the enlargement of the domestic road infrastructure because they claim it as a fundamental requirement for economic well-being. Left-wing legislators, on the other hand, usually oppose such attempts, based on environmental considerations.

Decision scenario ‘harmonious intuitions’: To create a politically unproblematic value tradeoff where political intuitions are in line, the tendencies of Swiss right-wing politicians to support an enlargement of the road infrastructure and left-wing politicians’ attitude to oppose such attempts need both to be reinforced. This is achieved by introducing another reference point that is directly affected by any budgetary decision on the state road infrastructure. Legislators facing this decision scenario are therefore told that extra money for an enlargement of the road infrastructure would be funded by decreasing financial support for environmental protection and, in the case of a budget decrease for road infrastructure, freed up resources would be spent for environmental protection measures. Irrespective of a legislator’s position on the political left-right spectrum, this is an unproblematic value tradeoff, because the political intuitions it prompts overlap. Left-wing politicians are expected to opt for decreasing the budget for road infrastructure, since nature represents, from this ideological view-point, a well-balanced organism to which men and their constructions are conceived as potentially destabilizing factors. This “natural tendency” of left-wing politicians to cushion nature from human irritation is further enforced by associated implications on the financial means for environmental protection, which would be increased at the same time. Stereotypical right-wing ideology suggests the opposite issue-positioning; from this point of view, the budget for road infrastructure is to be increased, since a proper road infrastructure represents a desired outcome based on mutual advantage considerations (Kymlicka, 2002). This “natural tendency” of right-wing politicians is further enforced by associated changes on the counter account, because the increased budget for road infrastructure would be financed by reducing means for environmental protection – to which there is general opposition (Dunlap, Xiao, & McCright, 2001).

Decision scenario ‘conflicting intuitions’: To create a politically problematic value tradeoff where political intuitions contradict, natural tendencies of Swiss state legislators to decrease or increase funding for road network capacity need to be in opposition. To make the given allocation issue difficult for any legislator, funding for road infrastructure is now coupled to the level of business taxation. Legislators facing this decision scenario are therefore told that extra money to fund potential budget increases for the state’s road network is financed by raising the business taxation level, whereas decreasing the financial means for road infrastructure is accompanied by tax cuts for businesses. In this situation, individual issue-positioning becomes problematic, since the given value tradeoff cuts across ideological and interest-based inclinations – irrespective of a legislator’s position on the left-right spectrum. The “natural tendency” of a right-wing legislator to support budget increases for road infrastructure is opposed by associated increases in taxation for business that would follow. From this ideological stand point, redistributive taxation schemes are to be opposed, since they reduce the inherent efficiency of markets, increase government’s power to regulate economic

exchanges (Kymlicka, 2002), and, because power corrupts, market regulations represent, as Hayek famously phrased it, “the first step on the road to serfdom” (Hayek, 1944, p. 70). The antagonist left-wing politician faces a difficult value tradeoff as well, but for different reasons. The “natural tendency” to prevent nature from human irritation through extended constructions is slowed down by associated implications on business taxation. From this ideological view-point, taxation represents an ex post correction of disparate market outcomes. Taxation is necessary because of an unequal distribution of physical and human capital within the society (Rawls, 1971). Decreasing taxation for businesses would only limit the possibility to reduce inequalities within the society (Krouse & McPherson, 1988).

Performance information, budget proposals, and decisions: After having been confronted with one of these two decision scenarios, all participating legislators are provided with an identical stock of performance information on the department of road infrastructure. Based on the standard information aspects of Swiss performance budgets (Schedler, 1994, 2001),¹⁰ the report makes the following causal argument: 1) Due to increases in population and in needs for mobility, the state’s road infrastructure is under serious pressure from traffic volume; 2) as the outcome indicators report, the target value on acceptable hours of traffic congestion, set by the Legislative Council, has been continuously exceeded. It is projected to be three times higher by next year. The overall policy outcome goal of a fast and continuous transportation infrastructure is therefore at risk; 3) in order to meet the target value for traffic congestion and to ensure outcome attainment, the state road network capacity would have to be extended over the next four years. However, the current investment budget to execute this development plan is not sufficient (see Appendix A of this paper).¹¹

Next, subjects are confronted with one of two possible budget proposals which vary with respect to their consistency with what available performance information indicates. In one version, the Executive Council suggests acting in order to meet the target value for traffic congestion the Legislative Council has set. In its proposal, the Executive Council therefore consistently applies for an increase of the current investment budget for road infrastructure. In the other version of the budget proposal, however, the Executive Council does not suggest enlarging the road infrastructure in order to meet the outcome target set by Legislative Council. The budget proposal ignores the indications of available performance information and inconsistently suggests remaining at the current level of investment funding.

Finally, legislators are asked to form a position on the allocation issue and to make a budget decision they would be willing to support in the upcoming meeting of their own party’s faction. Subjects are provided with a scale ranging from –100 to +100 percent and indicate their outcome by scrolling a modulator.¹² The resulting decision indicates a legislator’s attempt to change the current level of investments in the state road infrastructure, and hence her or his desire to vary the capacity of the road network, compared to the previous year. Negative real values were transformed into absolute values and formed the basis of further

¹⁰ Outcomes and indicators, financial statistics, a department’s goals and activities, policy environment, outputs and indicators, and future priorities. Overall, and ideally, information on these different dimensions together comprise a model which suggests a causal relationship between external challenges and intended political outcomes on the one hand and public funding on the other hand.

¹¹ All numbers and projections were based on real levels and suggestions from the secretariats of the Executive and Legislative Councils.

¹² Despite some criticism about the use of single-item measures, Moynihan & Pandey (2010, p. 857) report that research from diverse research areas finds single items not less reliable than multiple measures of the outcome of interest.

analysis. This way, deviations from the current level of investments funding are not ‘averaged out’ by opposed arithmetic operators from left-wing or right-wing legislators.

Control groups and sampling: Since manipulation occurs only on the *Decision Scenario* and the *Budget Proposal*, while the stock of performance information is identical for all experimental subjects, this design would not offer conclusions on whether we should expect the same findings to occur from the treatments if performance information would not be present at all. Therefore, two control groups are introduced that face one of the two budgetary decision scenarios and make their budgeting decisions but receive no performance information or budget proposal for deliberation. Overall, this experimental setup employs a 2 (Scenario: harmonious intuitions vs. conflicting intuitions) x 3 (Proposal: none vs. inconsistent vs. consistent) between subjects-factorial design (Cook & Campbell, 1979) to test the framework’s hypotheses (Table 1).

Table 1: Control and Treatment Groups

Scenario	Proposal		
	none	inconsistent	consistent
harmonious intuitions	N = 30	N = 15	N = 15
conflicting intuitions	N = 35	N = 13	N = 14

Fifty-seven Swiss state legislators volunteered to participate in this experiment. The 21 women and 36 men were, on average, 50 years old, ranging from 25 to 68. Participants represented a total of nine political parties, ranging from the left to the right of the entire political spectrum. Legislators served, on average, for a period of 6.3 years on the state Legislative Council, with a minimum of 1 year experience to a maximum of 21 consecutive years. Thirty-nine participants were members of at least one standing committee, nine were part of two, and one legislator was a member of three different standing committees. Fourteen different standing committees were represented by at least one of their members. Subjects in the control groups represented undergraduate students of the International Affairs & Governance program of the University of St. Gallen, Switzerland. They were, on average, 22 years old, ranging from 19 to 37. Individual position on the political left-right spectrum was self-rated and subjects indicated their stance on a 9-point scale.

Since the aim of the experiment is to draw theoretical generalizations, legislators’ assignment to the four different treatment groups was not guided by aspects of representativeness (Webster & Sell, 2007). For theoretical generalizations, the purpose of empirical testing is to reflect upon whether the predictions are supported or not; in this case, whether the impact of performance information on legislators’ budgeting decision varies according to the difficulty of the value tradeoff, the budget proposal’s consistency with this information, and a legislator’s party affiliation. Ideally, each experimental group would consist of only right-wing and left-wing politicians. This design would be the most promising to analyze performance information’s impact within a given decision scenario, because it would ensure a maximum of within-group variation. Due to the limited number of participating legislators, and since there are also lawmakers from center parties, I applied a stratified random sampling approach for the treatment groups (Manski & McFadden, 1981): first, I defined quotas for each party within an experimental group so that, on the one hand, ideological polarity and potential variation within a particular experimental group would be maximized and, on the other hand, similar ideological polarities, and hence potential variation among experimental groups, could be ensured. Next, individual legislators were randomly assigned to a treatment group until party quotas were filled (see Appendix B of this paper).

RESULTS

An independent sample t-test (Heeren & D'Agostino, 1987) on *perceived decision difficulty* was performed to check whether the two experimental decision scenarios were successful in providing subjects with a fairly easy and a rather difficult value tradeoff. Overall, legislators confronted with the decision scenario aimed to prompt harmonious political intuitions perceived the value tradeoff as significantly easier ($M = 1.95, SD = 1.30$) than those facing conflicting political intuitions ($M = 3.32, SD = 1.47$), $t(55) = -3.74, p < .001, d = -0.99$ (see Appendix C of this paper). In the following sections, the experimental results on the overall model performance and on the specific hypotheses are presented.

What Variation In Subjects' Budgeting Decisions Can The Framework Explain?

To analyze the data on subjects' decisions to deviate from the current level of funding, a straightforward ANOVA design was implemented. It represents a special case of an ordinary least squares regression and allows one to isolate the effects of interest to this study (Wonnacott & Wonnacott, 1990). Table 2 summarizes the model statistics.¹³

Table 2: Results on Performance Information in a Parliamentary Setting

ANOVA on the Absolute Value of Decision Outcomes (N = 122)

	Type III Sum of Squares	Df	Mean Square	F	Sig.
Model	90452.611 ^a	27	3350.097	10.015	.000
Proposal ^b	31058.714	3	10352.905	30.950	.000
Proposal x Scenario ^c	7077.330	3	2359.110	7.053	.000
Proposal x Party ^d	24221.511	21	1153.450	3.448	.000
Error	31777.995	95	334.505		
Total	122230.606	122			

Test of Normality	Kolmogorov-Smirnov ^e			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
	.230	122	.000	.717	122	.000

^a R Squared = .740 (Adjusted R Squared = .666)

^b Proposal: 1=none, 2=inconsistent (status quo), 3=consistent (increase)

^c Scenario: 0=harmonious intuitions, 1=conflicting intuitions

^d Party: 1=Green Party, 2=Social Democratic Party, 3=Green Liberal Party, 4=Evangelical People's Party, 5=Christian Democratic People's Party, 6=Federal Democratic Union, 7=Conservative Democratic Party, 8=FDP.The Liberals, 9=Swiss People's Party.

^e Lilliefors Significance Correction

Overall, the model explains a significant proportion of the variance of subjects' decisions to deviate from the financial status quo, $R^2 = .74, F(27, 95) = 10.02, p < .001$. This result suggests that the legislative framework in which performance information was claimed to operate performs comparatively well in explaining variation in budgeting decisions. All analyzed relationships show a significant effect at the highest level of confidence. For example, performance information and the executive's proposal, respectively, had a significant effect on subjects' decisions to deviate from the current level of funding, *Proposal* $F(3, 95) = 30.95, p < .001$. Given the performance information presented to legislators, it apparently made a

¹³ Significant results of the Kolmogorov-Smirnov and the Shapiro-Wilk tests highlight that the data violate the normality assumption of parametric tests of variances. In this case, these results are not of major concern because the model statistics remain significant, although the true α levels are overestimated, due to a 'thin-tailed', leptokurtic distribution of the raw data (O'Brien, 1979; Bryk & Raudenbush, 1988).

difference whether the executive proposed a consistent budgetary action or whether it decided to ignore the information’s indication. It, too, made a significant difference for the decision outcome whether the allocation issue concerned a difficult value tradeoff where political intuitions were in conflict, or whether the allocation question was politically unproblematic since political intuitions harmoniously suggested how to position, *Proposal x Scenario* $F(3, 95) = 7.05, p < .001$. The same is true for the party affiliation of a subject, *Proposal x Party* $F(21, 95) = 3.45, p < .001$. The next sections illuminate these relationships in more detail and show *how* performance information impacts budgeting decisions, *when* this influence is more likely to occur, and *whose* stance is affected by what available data suggests.

How Does Performance Information Influence Budgeting Decisions?

In a most general sense, Hypothesis 1 is based on the notion that the availability of information helps people, in one way or another, define their stance with respect to a given issue. Based on this notion, Hypothesis 1 claimed that, by introducing performance information to the deliberation of an allocation issue, legislators will be able to form more defined positions and hence can be expected to make more extreme budgeting decisions than without any data. This tendency was claimed to be reinforced by associated budget proposals in general and by consistent ones in particular, since the latter make a more pronounced, stronger argument, and allow for more well-defined positions. This relationship is illuminated in Table 3. To illustrate the results, Table 3 and its statistics provide an overview of the distribution of subjects’ decisions for the cases where there was neither performance information nor a budget proposal available (*none*); when performance information was present but the budget proposal ignored what this information suggested (*inconsistent*); and when the budgetary proposal was consistent with the informational basis (*consistent*). Statistics on each distribution’s central tendency and its dispersion provide an adequate description of how performance information and associated budget proposals influence budgeting decisions.

Table 3: H1 – The Effect of Information on Budgeting Decisions

Effect of *Proposal* on the *Absolute Value of Decision Outcomes*, averaging across *Scenario* and *Party* (N = 122)

		Budget Proposal		
		None	inconsistent	consistent
	Mean	11%	24%	34%
95% Confidence	<i>Lower Bound</i>	9%	14%	20%
Interval for Mean	<i>Upper Bound</i>	13%	34%	49%
	Std. Deviation	9%	26%	38%
	Interquartile Range	10%	31%	51%

Note. Subjects indicated their decision on the investment budget for road infrastructure on a scale ranging from -100% to +100%. For this analysis, negative decision outcomes were transformed into their positive values. The decision made by a subject and hence, the dependent variable therefore indicate a subject’s deviation from the current level of funding compared to the previous year.

Overall, the results presented in Table 3 support the notion suggested by Hypothesis 1. Results on the distributions’ means show that, for example, in the absence of information and budget proposals, subjects’ decisions to deviate from the current level of funding are the lowest (11%). In other words, in the absence of performance data and budgetary advice, respectively, subjects are most inclined to stick to the status quo allocation. As soon as information is provided to the deliberation process, the decisions to change become more pronounced and subjects make more extreme deviations from the current level of funding, even if the associated budget proposal is inconsistent with what available performance information indicates (24%). The highest average deviation from the current level of funding occurs if

subjects receive a budget proposal that is consistent with what the data suggests (34%). The remaining statistics show information on the dispersion of each distribution and provide additional support for Hypothesis 1. These measures highlight how far away individual decisions to change the allocation of public resources are from their respective average. For example, as we move from the column on the left-hand side to the column on the right-hand side, the lower and upper bound of the 95% confidence interval of each mean become wider, the standard deviation increases, and the interquartile range expands. These metrics provide more indication for performance information's potential to accentuate legislators' budgeting decisions.

To consider this observed effect as valid under all circumstances is premature. From a legislators' perspective, allocation issues can be assumed to differ with respect to their political difficulty. They embody value tradeoffs that might range from fairly easy, since political intuitions provide clear orientation, to rather challenging, because ideological and interest-based inclinations might contradict each other. Ignoring the effect the very substance of an allocation issue has on the leverage of information would lead to a distorted view of what performance data is able to achieve within a given budget proposal. The next section therefore discusses how harmonious and conflicting political intuitions moderate the impact of performance information and budget proposals, respectively, on subjects' budgeting decisions.

When Does Performance Information Influence Budgeting Decisions?

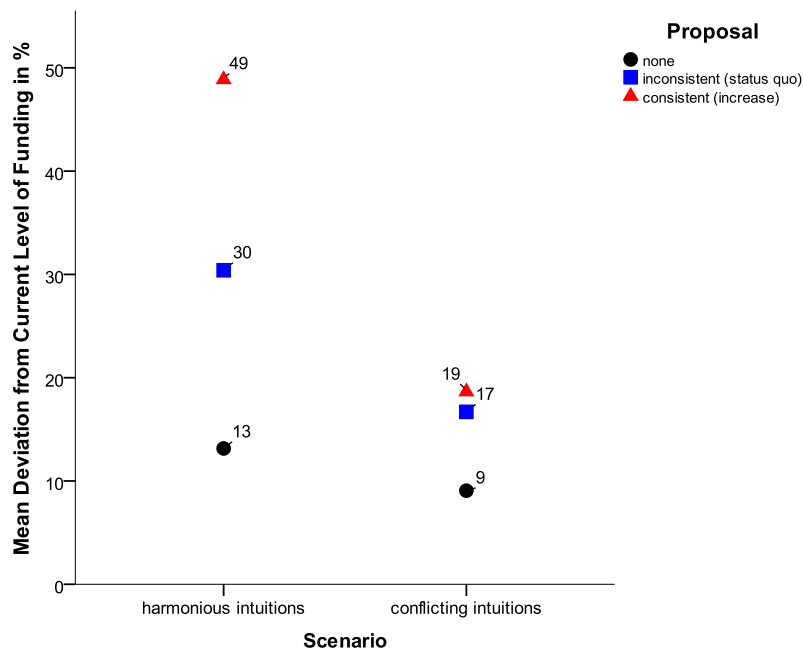
Hypothesis 2 is based on the notion of political position-building, as provided by the ideology-interests-information framework. It suggests that legislators are more likely to welcome information in decision scenarios where ideology and interests fail to provide clear orientation. Under such circumstances, legislators are expected to consider information as a means that may help them to recast the nature of the problematic situation and to realign inclinations that would otherwise cut across. By contrast, and in case the decision scenario is by its virtue politically unproblematic, information is claimed to be not of major interest to subjects. If these relationships are true, we should expect the following decision outcomes within each scenario. First, and by definition, subjects' decisions to deviate from the current level of funding should be more pronounced if political intuitions are in line, whereas conflicting predispositions should cause more conservative deviations from the status quo. Second, if performance data is introduced to the subjects' deliberation processes, budgeting decisions should deviate more strongly from the current level of funding since information allows for more well-defined positioning. Conflicting political intuitions, however, can be expected to provide a more promising turf for this effect. Finally, given a common stock of performance information, subjects' budgeting decisions can be expected to react less strongly to varying executive budget proposals if political intuitions already provide clear orientation on how to position.

Figure 2 depicts the interaction between *Proposal* and *Scenario* on subjects' decisions to deviate from the current level of funding. Overall, and as expected, subjects' deviations from the financial status quo are stronger when information is present. Different than Hypothesis 2 would suggest, legislators' reactions to available evidence are more extreme if their political intuitions are in line. Furthermore, given an identical stock of performance information and a politically difficult value tradeoff, varying executive budget proposals are apparently not able to significantly shift legislators' decisions (17% vs. 19%). I interpret this result as follows: legislators' stronger focus on available evidence and their quest to draw their own budgetary conclusions prevent suggestions from the executive branch from taking

considerable effect. In the light of identical performance information, legislators' baseline deviations from the financial status quo remain intact, no matter what the executive suggests or whether this is consistent with what available information indicates. By contrast, if an allocation issue prompts harmonious political intuitions, different executive proposals do cause highly divergent decision outcomes although the underlying performance information does not change (30% vs. 49%). Available information appears to be less decisive in this scenario than the executive's proposal on how to decide. Under these circumstances, consistent and more pronounced budget requests cause legislators to make more extreme budget decisions.

Figure 2: Hypothesis 2 – The Moderating Effect of Decision Scenario on Information's Impact

Effect of *Proposal* x *Scenario* on the *Absolute Value of Decision Outcomes*, averaging across *Party* (N = 122)



In sum, it is politically unproblematic decision scenarios that provide a more promising context for performance information to impact subjects' decisions to change funding. This effect is intensified if associated budget proposals are consistent with what available evidence suggests. Ironically, this is probably not because legislators would worry more about what given information indicates. On the contrary, strong and overlapping political predispositions presumably shift legislators' attention away from information and redirect it toward the conclusions of the budget initiator. This mechanism appears to open a backdoor for performance information to affect individual decision-making. All this happens under circumstances where influence through information is expected to be rather negligible by the ideology-interest-information framework, proposed by Carol H. Weiss (1983).

Because this experiment measures subjects' absolute deviations from the current level of funding, it is not clear whether increased impact through consistent budget proposals is caused by reactions from both political poles and thus, by the price of stronger resistance, from opposing political camps. After all, the executive's consistent conclusion to increase investments and to enlarge the road network's capacity represents an overt partisan proposal in favor of right-wing Swiss legislators. The final results section will therefore elaborate on

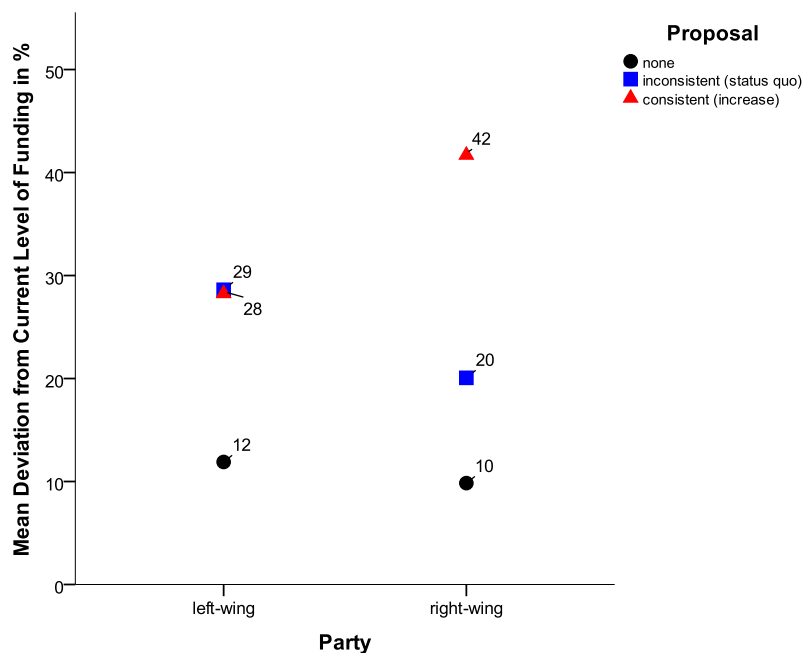
this issue and illuminate whether influence through information is a matter of politically receptive minds.

Whose Budgeting Decisions Does Performance Information Influence?

Hypothesis 3 was based on research on the Cultural Cognition Thesis, which holds that psychological mechanisms bias the processing of policy information and skew people's conclusions according to their worldviews and group loyalties. This is why opposing political blocs disagree over established facts, the Cultural Cognition Thesis claims. Based on this view, Hypothesis 3 suggests that, for legislators to whom given performance information is congenial, latent political intuitions might be intensified and turned into strong predispositions, eventually increasing support. Opponents, on the other hand, might be even more inclined to object a suggested course of action, simply because unwanted consequences are outlined more clearly. If this information is associated with a consistent proposal that strengthens the initiator's budget request, this effect can be expected to be more pronounced. Figure 3 reports the results on this relationship.¹⁴

Figure 3: Hypothesis 3 – The Moderating Effect of Party on Information's Impact

Effect of *Proposal* x *Party* on the *Absolute Value of Decision Outcomes*, averaging across *Scenario* (N = 122)



Note: An analysis of subjects' actual budget decisions reveals that party membership correlates with actual behavior to decrease or increase the current level of funding ($r(122) = .57, p < .001$). As expected, left-wing subjects decide on budget cuts whereas right-wing subjects propose increases in investments.

¹⁴ To get a better overview on the relationship of interest, subjects' party affiliation was recoded into either left-wing or right-wing: left-Wing, 1=Green Party, 2=Social Democratic Party, 3=Green Liberal Party, and 4=Evangelical People's Party ($n = 64$); right-Wing, 5=Christian Democratic People's Party, 6=Federal Democratic Union, 7= Conservative Democratic Party, 8=FDP.The Liberals, 9=Swiss People's Party ($n = 58$).

The results, highlighted in Figure 3, provide mixed support for the effect Hypothesis 3 proclaimed. First, and as we would expect, subjects' decisions to change the current level of funding are, on average, similar if no information is present that allows for supporting or opposing reactions (12% vs. 10%). Second, legislators' budgeting decisions become understandably more pronounced as soon as information is introduced to the deliberation process and provides subjects with an impression about the utility of additional funding. Information enables political positioning and reinforces left-wing as well as right-wing inclinations to a similar extent (on average, 28.5% vs. 31%). Finally, and based on an identical stock of performance information given, left-wing legislators decide on an almost identical average deviation from the current level of funding, irrespective whether the executive's budget proposal is consistent with it or not (28% vs. 29%). Apparently, and contrary to what we would expect, budget proposals do not make a difference for legislators' budgeting decisions if the informational basis is not congenial to their political predispositions. Right-wing legislators, by contrast, and as expected, show highly divergent decision outcomes depending on what is suggested by the executive. When confronted with the proposal to increase investments, they decide to deviate by 42% from the current level of funding. In case the executive proposes to continue the financial status quo, right-wing legislators' deviation from the current level of investment is still considerable but amounts only half as much as before (20%).

In sum, the experimental results suggest that performance information tends to increase both political support and opposition. Consistent budget proposals increase support from political camps that ideologically share the implications of available evidence. Right-wing legislators appear to feel even more vindicated in their own world view by performance data and by a budget proposal that fits their predispositions. Interestingly, even budget proposals that run contrary to what the information basis suggests are able to "win" arguments, or at least to cushion ideologically-motivated disagreement with the current level of funding from right-wing legislators. Legislators on the "wrong" side of the evidence are influenced too. They intensify their oppositional stance and appear indeed to "dig in even deeper" (Krugman, 2013; Nyhan & Reifler, 2013). Opposition, however, remains constant in the light of identical challenging information, irrespective of what budgetary conclusion is proposed.

CONCLUSIONS

With respect to legislatures, performance budgets are not meant to replace political dispute over the allocation of resources with some performance-based algorithm. Commentators acknowledge that "there will always be a political and judgment-based dimension to the allocation of public resources" (Hilton & Joyce, 2012, p. 482). Existing conceptual and empirical research, however, falls short in providing an answer to how available performance information is thought to interact with the political dimension in order to influence legislators' budgeting decisions. Studies have traditionally focused on questions such as whether more or better performance scores result in more resources. Based on some aggregate correlations between performance information and self-reported indicators of use, existing studies have given "rise to relatively simplistic debates about whether performance budgeting 'works' or not" (Moynihan, 2013, p. 2, emphasis in original). Recent works have started to focus on the human decision-making process and to account for the decisive role of context for human information use (Demaj & Summermatter, 2012; Moynihan, 2013; Nielsen & Baekgaard, 2013). Now, experimental designs are employed to examine *how* aspects of the political context shape the way performance information is processed and is able to orient elected officials' budgeting decisions. In this paper, I offer a framework that links performance information with legislators' budget deliberations and that systematically accounts for information's impact on decision outcomes. The framework provides specific hypotheses and

experimental insights for *how* legislators' budgeting decisions are shaped by available evidence, *when* influence is more powerful, and *whose* budgeting decisions will be affected by partisan information.

Three conditions were claimed and shown to shape performance information's impact on subjects' budgeting decisions. In the framework proposed, information on what society will get, more or less, if funding would be altered is considered by legislators, first, always as part of a particular budget proposal. There is no doubt that given estimates need to be and indeed are continuously improved through advancements in policy analysis, measurement techniques, and information systems (Matheson & Kwon, 2003; OECD, 2007). But the first conclusion I would draw from this experiment is that, given politically defined outcome goals, good budget proposals excel by drawing conclusions that are consistent with what available performance information suggests. This is when performance information's impact on budgeting decisions appears to be most pronounced.

Second, the proposed framework claims that legislators consider performance information and budget proposals, always with reference to a particular allocation issue, and therefore in the light of a political value tradeoff. Whether pending budgeting questions prompt harmonious or conflicting political intuitions is decisive for how difficult legislators perceive a given budget issue – and ultimately, for the role available performance information can play in their budget deliberations. Contrary to what Carol H. Weiss (1983) proposes in her conceptualization of the basis of policy positions, however, the results of this experiment suggest that information's leverage on decision outcomes peaks for politically easy tradeoffs. This is when available evidence faces highly predisposed subjects and not when political reference points fail to provide orientation. The second conclusion I would therefore draw from this experiment is that good performance budgets will not replace political judgments. On the contrary, in a first-best world, performance information and consistent budget proposals can be expected to reinforce what political judgment already tells is correct.

Finally, the framework proposed in this study claims that because performance information illustrates marginal utilities of allocation changes, its implications will fall naturally into partisan turf. Performance information and consistent budget proposals, respectively, are therefore not welcomed by all political camps and legislators' reactions to it are likely to vary across the ideological left-right spectrum. The last conclusion I would draw from this experimental insight is that adding performance information to the government budgeting process is likely to be a double-edged sword. It might increase support from receptive political camps by providing evidence for preordained positions but it also enables political opposition to articulate more clearly what is to be rejected about allocation changes. In the end, information that was supposed to support more rational choices is also likely to make potentially unreasonable resistance more "intelligent."

This last aspect prompts an important implication of this experiment for the practice of performance budgeting. Unfortunately, better performance budgets, that is, budget proposals with evidence on performance aspects, can make compromise among legislators more difficult. Because individual budget deliberations become more informed, legislators are better able to evaluate the consequences on adhered values and on the particularistic interests that are at stake when public monies are reallocated. It appears that performance budgets can turn latent political inclinations into informed positions and may widen the polarization among legislators with different ideological outlooks. When individual positions become more honed and differences among ideological blocs become more visible, common ground

for compromise erodes and gridlock becomes more likely.¹⁵ This does not suggest, however, that performance budgeting, as a reform project for parliaments, has to be aborted before paralyzing effects begin to spread. After all, there are a myriad of other factors that are known to make legislative stalemate more likely (e.g., Binder, 1999; Brady, 1999). Performance budgets represent, thus, just another factor. After intense and costly efforts in improving performance measurement, performance management, and information infrastructures, government budget reformers, however, could start to consider expanding their attention to mechanisms that facilitate decision-finding among legislators.

Compared to case studies, interviews, and surveys, experiments are in an advantageous position to test theoretical ideas about the circumstances that shape the impact of performance on legislators' budgeting decisions. If researchers prepare their designs with caution and avoid basic threats to internal validity (Druckman, 2005; Wortman, 1983), causality about the relationship of interest can be assumed with high certainty. The generalization of experimental findings to the outside world depends on three aspects: first, external validity depends on how successful critical aspects of the relevant reality could be considered by the setup (Brunswik, 1955); second, whether the experiment's theoretical bedrock accounted for the complexity of human nature and avoided an oversimplified mechanistic view of subjects as stimulus-response machines (Schultz, 1969); and finally, whether the experimental design was able to capture the essence of the theoretical constructs (Kruglanski, 1975). I consider the first two dimensions to have been sufficiently met by the present study. As reported, this experiment's setup was based on the characteristics of the Swiss government budgeting context, its subjects were real state legislators, who deliberated about authentic allocation questions, and considered actual information. Furthermore, the framework tested put the legislative context that governs the impact of information on lawmakers' allocation judgments at the center of interest. It was in the experiment's very interest to account for the political rationale that drives legislators' consideration of performance information for decision-making purposes.

As far as the operationalization of the theoretical constructs is concerned, caution is always advisable (Sartori, 1970). For example, to account for the presence of 'political intuitions,' both experimental allocation issues were based on long-standing ideological divides that exist on the Swiss political landscape. But whether they were truly able to bring political intuitions in line or cause them to contradict will always remain in the mind of the beholder. By contrast, 'performance information' and 'budget proposals' represent more feasible concepts and were developed in consultation with the secretariats of the Executive and Legislative Councils. In addition, 'party affiliation' was given for participating legislators and as long as party-switching remains a rare occasion within political fractions, we can safely assume that this construct was captured for legislators. Subjects of the control groups, however, had to report their ideological position, and subjects' familiarity with the political landscape might have biased their self-assessment. A final limitation for the generalizability of the experimental insights results from the operationalization of 'budgeting decision.' In this study, the dependent variable was defined as an individual legislator's initial judgment about a pending allocation issue. In the course of the political process, however, these individual positions are modified in many different ways. Hierarchy within one's party fraction, policy specialization, and log-rolling represent only three vital aspects for how actual positions are

¹⁵ For 'preference theories' of polarization (i.e., ideological polarization) and legislative stalemate, see Brady & Volden (1998) or Krehbiel (1998); for 'partisan theories' of polarization (i.e., partisan polarization), see Gilmour (1995) or Groseclose & McCarty (2001).

made. Nevertheless, this experiment's findings provide the first insights on how performance information influences the formation of initial allocation positions.

This study's results are preliminary, as is the framework suggested to capture the relevant legislative context of performance information for budgeting. Further research is needed to test the conditions this work claimed to be decisive for the impact of performance information. Future research could focus on testing the claimed relationships under more naturalistic settings and develop non-experimental approaches to study how the factors proposed here influence allocation judgments. This would increase the framework's external validity. Additional work could also be devoted to the identification of other aspects that govern performance information's impact on budgeting decisions. There is still a large proportion of variation left unexplained in subjects' decision outcomes. The most valuable insights, however, are likely to come from research that addresses the origin of legislators' information needs. The major limitation of existing studies, including the most recent experimental ones from Nielsen & Baekgaard (2013), Moynihan (2013), and the present treatment, consists in their implicit assumption that legislators have a natural interest in information for making budgeting decisions. These studies offer insights on what information does to legislators' decisions in those cases where it is being used but we fall short in providing explanations for why legislators decide to consider or ignore evidence in the first place. I am uncomfortable with the fact that existing accounts of legislators' information behavior are based on incrementalist, rational choice, or institutionalist perspectives of the government budgeting process. In retrospect, these views are always able to provide reasons for legislators' nonuse, use, or misuse of information. But because it is difficult, or rather impossible, to trace the societal effects of political allocation judgments back to elected officials' nonuse, use, or misuse of particular information, I doubt that these explanations provide motives strong enough for guiding individual legislators *on the spot* about what to do with policy-relevant facts. Since the decision to use information is based on a psychological process, I share Moynihan's (2013, p. 27) opinion that we will have to develop behavioral theories for understanding the drivers of legislators' information behavior. The role of political intuitions might present a promising start for this endeavor.

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APPENDIX A: EXPERIMENTAL BUDGET DOCUMENT

Ziele und Aufgaben	
<p>Sicherstellen der Mobilität durch einen ökonomisch und ökologisch ausgewogenen Bau, Betrieb und Substanzerhaltung einer der Allgemeinheit dienenden und sicheren Verkehrsinfrastruktur. Die Verkehrswege tragen zur kantonalen Standortattraktivität bei und sorgen für eine effektive Verbindung zu den umliegenden Wirtschaftsräumen. Das Strassenverkehrssystem ist funktions- und leistungsfähig unter Berücksichtigung der Umwelt, Siedlung und Landschaft. Die konkreten Aufgaben und Ziele sind:</p> <ol style="list-style-type: none"> 1) Strassenbau, Projektierung und Bauausführung von Haupt- und Staatsstrassen neu- und ausbauen, einschliesslich Brücken mit dem Ziel, schnelle und durchgängige Verkehrswege zu gewährleisten. 2) Strassenbewirtschaftung; Sanierung, Unterhalt und Betrieb des kantonalen Strassennetzes, einschliesslich Tragstrukturen und Verkehrseinrichtungen mit dem Ziel der Substanzerhaltung. 3) Verkehrsmanagement: Betrieb eines Gesamtverkehrskonzepts zur Beobachtung, Steuerung und Kontrolle der Verkehrsentwicklung mit dem Ziel, einen störungsfreien und sicheren Verkehr zu gewährleisten. 	

Budgetantrag des Regierungsrates	
<p>Aufgrund der Bevölkerungs- und Verkehrszunahme sowie der steigenden Mobilitätsbedürfnisse gerät die Leistungsfähigkeit der Verkehrsinfrastruktur immer mehr unter Druck. Wie dem Indikator des Wirkungsziels "schnelle und durchgängige Verkehrswege" zu entnehmen ist, überschreitet der aktuell budgetierte Wert von 300 Stautunden den vom Parlament vorgegebenen Zielwert von 100 Stautunden um ein Mehrfaches.</p> <p>Um den Zielwert für die Anzahl Stautunden zu erreichen und somit die Schnelligkeit und Durchgängigkeit der Verkehrswege zu gewährleisten, soll das kantonale Strassennetz kontinuierlich erweitert werden. Deshalb liegt der Entwicklungsschwerpunkt in den kommenden Jahren in der Projektierung und Bauausführung von neuen Haupt- und Staatsstrassen. Die zur Umsetzung dieser umfangreichen baulichen Massnahmen notwendigen finanziellen Ressourcen können mit dem gegenwärtigen Budget nicht gedeckt werden.</p> <p>Daher beantragt der Regierungsrat dem Parlament, das Investitionsbudget der "Strassen-Kasse" für das Jahr 2013 um 100% zu erhöhen und im selben Umfang die Mittel der "Umwelt-Kasse" zu reduzieren.</p>	

Leistungen						
Leistungen	R11	B12	B13	P14	P15	P16
Angebotene Netzlänge der Haupt- und Staatsstrassen (in Kilometer)	4000	4000	4200	4400	4600	4800
Befragung Dritter mit der Sanierung von Deckbelägen (Anzahl übergebene Projekte)	150	150	150	150	150	150
Erstellen und Anpassen von Verkehrsmanagementplänen (Anzahl bearbeiteter Pläne)	5	5	5	5	5	5

Wirktungen							
Wirkungsziel	Indikator	R11	B12	B13	P14	P15	P16
Schnelle, durchgängige Verkehrswege	Ziel Anzahl Stautunden auf Haupt- und Staatsstrassen	250	275	300	250	200	150
Substanzerhalt des Strassennetzes	Anteil Deckbeläge in schlechtem Zustand	3	3	3	3	3	3
Störungsfreier, sicherer Verkehr	Anzahl Unfälle	6000	6000	6000	6000	6000	6000

Finanzen						
in Mio. Fr.	R11	B12	B13	P14	P15	P16
Aufwand	41	41	41	41	41	41
Investitionen	100	100	200	225	250	275

Entwicklungsschwerpunkte						
Massnahmen	R11	B12	B13	P14	P15	P16
Projektierung und Bauausführung von neuen Haupt- und Staatsstrassen	100	100	200	225	250	275
Sanierung der Deckbeläge in schlechtem Zustand	40	40	40	40	40	40
Umsetzung Gesamtverkehrskonzept und -Controlling	1	1	1	1	1	1

APPENDIX B: EXPERIMENTAL GROUPS

Table 4: Legislators' Assignment to Experimental Groups

Party ^a	Treatment			
	Non-Dilemma		Dilemma	
	Consistent (Increase)	Inconsistent (Status Quo)	Consistent (Increase)	Inconsistent (Status Quo)
1. Green Party	3	2	1	1
2. Social Democratic Party	4	3	3	3
3. Green Liberal Party	–	1	3	2
4. Evangelical People's Party	1	1	1	–
5. Christian Democratic Party	1	–	–	2
6. Federal Democratic Union	1	–	–	–
7. Conservative Democratic Party	–	1	–	–
8. FDP.The Liberals	1	3	2	1
9. Swiss Peoples Party	4	4	4	4
<i>Total n</i>	<i>15</i>	<i>15</i>	<i>14</i>	<i>13</i>
<i>Ideological Polarity^b</i>	<i>3.4</i>	<i>3.4</i>	<i>3.3</i>	<i>3.2</i>

^a Each party on the left-right spectrum was given a value ranging from 1 (left) to 9 (right). Numbers are given for a party's positioning toward a range of issues, in a historical perspective and relative to each other. Data stems from *smartvote*, a web-based project of *The Swiss Graduate School of Public Administration*, the *National Center of Competence in Research Challenges to Democracy in the 21st Century*, and the *Center of Competence for Public Management, University of Bern*, all located in Switzerland.

^b Std. deviation of ideological positions by experimental group, $\sqrt{\frac{\sum(x-\bar{x})^2}{(n-1)}}$, where x is the group mean and n is the group size.

APPENDIX C: DECISION DIFFICULTY

Scale of 5 items.¹⁶ Note. Each item is followed by a 7-point scale ranging from 1 [*strongly disagree*] to 7 [*strongly agree*].

Please rate your level of agreement with the following statements, with respect to the current decision situation, except for item 1.

1. For me, this decision is... (7-point scale ranging from 1 [*very easy*] to 7 [*very difficult*])
2. I would need more time to decide.
3. I would not ponder for a long time on this decision.
4. I feel very ambivalent about this decision.
5. For this decision, I feel certain which option to choose.

Table 5: Two Independent-Samples T Test on Perceived Decision Difficulty

Scale means (std. deviation) for perceived Decision Difficulty (N = 57).

	<i>t</i> -Statistic	<i>p</i> – value	Scale Means	
			Harmonious Intuitions	Conflicting Intuitions
Overall Decision Difficulty ^{a, b}	-3.65	.001	1.95 (1.30)	3.32 (1.47)
<i>Easiness</i> ^a	-3.17	.002	1.97 (1.22)	3.11 (1.50)
<i>Need for Additional Time</i> ^a	-2.38	.021	1.97 (1.54)	3.04 (1.85)
<i>Readiness to Decide</i> ^a	-1.88	.065	1.87 (1.53)	2.67 (1.69)
<i>Ambivalence</i> ^{c, d}	3.97	.000	6.30 (1.26)	4.48 (2.05)
<i>Certainty of Decision</i> ^c	4.04	.000	5.77 (1.72)	3.74 (2.07)

Note. Ratings for all items on decision difficulty were made on 7-point scales.

^a The higher the score, the higher the level of perceived decision difficulty.

^b To compute the mean of the overall decision difficulty, scale means of *Ambivalence* and *Certainty of Decision* are converted as follows: $8 - x$, where x is the scale mean of each variable.

^c The higher the score, the lower the level of perceived decision difficulty.

^d Levene's test indicated unequal variances ($F = 13.24, p = .001$). Degrees of freedom were therefore adjusted from 55 to 42.

¹⁶ With respect to internal consistency this decision difficulty measures yielded an α of .89 in the study of Hanselmann & Tanner (2008).