

Public Acceptance of Incentive-Based Spatial Planning Policies: A Framing Experiment

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Abstract

Sustainable spatial planning strongly depends on efficient policy measures. A successful implementation of efficient policies, in turn, crucially depends on their public acceptance. This paper examines whether the way the public is provided with information on spatial planning policies influences the latter's acceptance. Policy makers employ policy frames to influence voters. In a survey experiment among 644 Swiss participants we test goal framing and attribute framing effects by combining framing theory with a causal model for public policies. We show that policy frames can increase public acceptance of market-based spatial planning policies. Moreover, we find evidence that the framing effect differs for the target group of landowners and argue that the latter's personal involvement makes them respond to specific frames. We conclude that the effects of policy frames on public acceptance crucially depend on personal

involvement and that target group populations react to frames differently compared to a less directly affected population.

Highlights

- Policy frames influence public acceptance of spatial planning measures which is a necessary condition for effective implementation.
- An experimental approach for acceptance of spatial planning policies is proposed.
- We combine framing theory with the causal model of public policy to study acceptance.
- Spatial planning policy framing effects depend on personal involvement which is higher with the policy target group than with the overall population.
- Landowners positively respond to positive goal framing, while positive attribute framing increases general acceptance.

Keywords. Land use policy; acceptance; experiment; valence framing; market-based spatial planning measures; causal model of public policy

1. Introduction

Sustainable land use management is an increasingly important political issue. Negative consequences of inefficient spatial planning such as urban sprawl can be observed currently in most industrialised countries (Hasse & Lathrop, 2003; Irwin & Bockstael, 2004; Peiser, 1989; Richardson & Bae, 2004). To counteract inefficient land use and to implement sustainable spatial planning, governments introduce new spatial planning measures. Over decades, politics used spatial planning policy instruments on the basis of command-and-control regulations. Over the last years, a debate over alternative policy instruments arose (Aidt & Dutta, 2004; Böcher, 2012). One of those alternatives consists of incentive-based economic instruments, which “use the market-based coordination mechanism of prices to influence actors’ behaviour” (Böcher, 2012, p. 14; see also Dargusch & Griffiths, 2008). Market-based instruments serve as an efficient solution for environmental policy problems as their incentive-based structure leads to the lowest costs for target groups (Dargusch & Griffiths, 2008; Hahn & Stavins, 1992). However, market-based policy instruments are found to lack in democratic support (Cherry, Kallbekken, & Kroll, 2012; Stadelmann-Steffen, 2011).

The chance of these new policy measures to be implemented crucially depends on their public acceptance. One way to impact the public acceptance is by providing the public with information on a policy measure (Gärling & Schuitema, 2007; Kallbekken & Sælen, 2011; Mallett, 2007). Scholars have largely investigated governments’ information provision and how it affects policy making (e.g. Gelders, 2005; James, 2011; Jennings & Hall, 2012). Providing information can change the level of acceptance of a policy (Boomsma & Steg, 2014) and communicating benefits of a new policy is an important factor for its public acceptance (Boomsma & Steg, 2014; Gärling & Schuitema, 2007; Kallbekken & Sælen, 2011; Mallett, 2007).

The influence of the means by which information is delivered on public acceptance of policies has received relatively little research attention so far. Hardisty, Johnson, and Weber (2010) applied framing theories for environmental taxes by presenting them either as “offset” or “tax”. Their results indicated that replacing the term “tax” by “offset” in the context of a Pigovian tax increases participants’ support of a measure and increases participants’ preferences for the more expensive product. Similar conclusions were drawn by Kallbekken, Kroll, and Cherry (2011, p. 63) who find “evidence that framing the Pigouvian instrument as a tax can significantly decrease support for a Pigouvian instrument.” Cherry et al. (2012) investigated acceptance determinants of three environmental instruments, namely environmental taxes, subsidies and regulations including one variable capturing language. They found language to significantly

influence voters' acceptance of the tax instrument but not for subsidy or regulation. Whether and how policy frames influence the acceptance of environmental policies therefore remains a puzzling question. Regarding existing studies investigating framing effects on environmental or spatial planning instruments, it is striking that no systematic distinction is made between different types of framing. Framing theory argues that different types of frames have "different underlying mechanisms and consequences" (Levin, Schneider, & Gaeth, 1998, p. 150). Accordingly, framing effects vary depending on whether the goal or the attribute of something is framed (Levin et al., 1998). In the context of policy instruments a clear distinction between these different framing types is essential as policy instruments are embedded in a policy which pursues specific goals. Policy interventions allocate costs and benefits to certain groups in the population. At the same time, insights from behavioural studies have shown that voters' preferences are influenced by certain policy frames depending on whether they perceive themselves in a domain of loss or in a domain of gain (Iyengar & Kinder, 1987; Lee & Chang, 2010). Political actors who have the capacity to build and disseminate their policy frames are able to influence the policy-making and electoral outcomes (Chong & Druckman, 2007; Entman, 1993).

Policy frames are not perceived the same way by all actors and often depend on the personal context such as involvement (Maheswaran & Meyers-Levy, 1990). In particular, the individual perception of unfairness is seen as a driving factor for the resistance to efficiency-enhancing measures (Eriksson, Garvill, & Nordlund, 2006; Fujii, Gärling, Jakobsson, & Jou, 2004). Hence, we distinguish the policy target group which is assumed to be highly involved and therefore has a different understanding of unfairness because of their involvement, namely landowners.

This paper provides a novel experimental approach by combining framing theory with the causal model for public policies. We investigate if and how the presentation of a spatial planning measure affects citizens' acceptance of the measure by explicitly differentiating between two different types of frames. This study explores if behavioural insights can be applied to the analysis of public acceptance of spatial planning policies. It studies how public acceptance of market-based spatial planning policy instruments can be promoted by specific policy frames that governments provide to the public. In addition, a closer look at citizens' involvement behind policy acceptance is taken by investigating framing effects for voters who are assumed to have different levels of involvement with the measure.

The following concrete research questions are addressed in this paper: Can the loss aversion assumption be applied to the public acceptance of spatial planning policies? Does the

acceptance level of a policy measure differ depending on whether its goal or attribute is framed positively or negatively? Do the policy addressees of the policy instrument respond differently to policy frames than the rest of the voters?

To answer these research questions, we combine framing theory with public policy research by investigating the influence of policy framing on policy target groups. We test two types of framing, goal framing and attribute framing, with a survey experiment among voters in Switzerland by assigning them to four different treatments consisting of different framings of a new and efficient spatial planning policy.

We study acceptance of spatial planning policy instruments in Switzerland. This has both analytical and practical reasons. Analytically, the case of Switzerland has two main advantages: First, the direct-democratic system in Switzerland leads to a high level of familiarity of Swiss citizens with direct-democratic decisions. This, in turn, increases the proximity to reality of the experiment. Second, the policy area of spatial planning is highly topical and is a source of confrontation in Switzerland and its political system leads to some particularities in this area (Horber-Papazian & Jacot-Descombes, 2013; Knoepfel & Nahrath, 2007; Knoepfel & Narath, 2014): Spatial planning is only crudely regulated at the federal level. More precisely, the law on spatial planning in Switzerland can be described as being “defined as a framework law” (Knoepfel & Nahrath, 2007, p. 721). Thus, due to the principle of subsidiarity, the sub-state levels, namely the cantonal and municipal levels, have considerably large competencies in the area of spatial planning. Regarding private actors, individuals who are affected by a spatial planning policy measure, such as landowners, are entitled to appeal and hence have a relatively large influence in the area of spatial planning (Horber-Papazian & Jacot-Descombes, 2013). Hence, Switzerland is a suitable case for the experiment due to both, the relatively large impact of individuals in the area of spatial planning as well as the individual’s possibility of being a veto player in this policy area by making use of direct-democratic instruments. Practically, the high level of subnational autonomy and the extensive property rights imply that sustainable land use must be achieved by either changes in the law or incentives addressing land owners or both. Both are studied in our public acceptance of market-based policy instruments experiment. Our findings therefore are directly relevant for political praxis.

The paper begins with conceptualizing acceptance as the phenomenon to be explained. We then present the theoretical foundation of framing theories and link them to the causal model of public policies applied for spatial planning policies. In a next step, the hypotheses are formulated before we turn to the experimental survey design, presenting the procedure, method and data. Subsequently, the results are presented and discussed. We find that target groups do

in fact respond differently to frames. We discuss the political implications of this finding in the conclusion.

2 The Phenomenon to be Explained: Public Acceptance of Spatial Planning Measures

When investigating public acceptance, further clarification is required as it is a broad concept, which “has been used to describe many constructs” (Dreyer & Walker, 2013, p. 345; see also Schade & Schlag, 2003). Overall, research on acceptance of public policies in related policy areas such as environmental policies lacks in a clear definition of acceptance (Dreyer & Walker, 2013, p. 345; see also Ricci, Bellaby, & Flynn, 2008, p. 5875). In order to contribute to concept clarification, Dermont, Ingold, Kammermann, and Stadelmann-Steffen (2017, p. 359) distinguish two main perspectives on acceptance in literature: A more general approach (Wüstenhagen, Wolsink, & Bürer, 2007, p. 2683) in contrast to a more specific perspective on acceptance (Batel, Devine-Wright, & Tangeland, 2013). The general approach does not specify the actors involved and does not account for their reactions towards policies. In contrast, the more specific approach focuses on acceptance understood as “one among various reactions” towards a new policy, for instance (Dermont et al., 2017, p. 359). In this paper, we investigate acceptance in the form of a voting decision as a response to the presentation of a spatial planning policy measure. Hence, for this paper, we apply the latter and more direct perspective, which also represents an “actor-centered approach” (Dermont et al., 2017, p. 359) and therefore is well suited for democratic acceptance focussing on voters.

A further required specification of acceptance addresses the correct wording and its theoretical implications: while the terms *acceptability*, *acceptance* and *support* are sometimes used as synonyms in the literature, some scholars use one of the terms in a consistent manner without a clear definition (Dreyer & Walker, 2013, p. 345). Dermont et al. (2017, p. 361) argue, that such a heterogeneity of terms “is not just a matter of wording but makes a substantive difference” (see also Batel et al., 2013). Within representative democracies, citizens cannot directly express their acceptance of public policies by voting decisions but only indirectly via their electoral choices. In direct-democracies, in contrast, citizens can vote for or against the introduction of new policies. When making direct-democratic decisions, voters have two main

options to express their acceptance, which are either voting for or against the ballot proposal.¹ Following these considerations, we define the term *acceptance* in the context of direct-democratic decisions as a dichotomous concept characterizing a ballot either as acceptable at the ballot box (voting ‘yes’) or as unacceptable at the ballot box (voting ‘no’). Following the social acceptance conceptualisation by Dermont et al. (2017, p. 361), acceptance is here understood as an “active reaction” as opposed to a “non-opposition”. Hence, acceptance here, operationalised as a direct-democratic decision refers to *support* by citizens as the central actors who “need to express support for the new policy output” (Dermont et al., 2017, p. 363). The understanding of acceptance as support in terms of “voter approval” (Hamideh, Oh, Labi, & Mannering, 2008, p. 152) is also evident by the wording of the acceptance question within the questionnaire. Participants were asked to either “vote for” or “vote against” the proposed spatial planning measure, without providing the response category “don’t know”. The binary operationalisation of acceptance is also in line with previous empirical research of voters’ direct-democratic acceptance determinants (Kriesi, 2005; Pleger, 2017; Stadelmann-Steffen, 2011; Thalmann, 2004). This operationalization offers to capture acceptance in a more realistic setting so that voters are able to link acceptance to decisional situations outside the experimental design of this study. Measuring acceptance by voting decisions enables the highest degree of transferability of the empirical results for practice. Accordingly, Jaensirisak, Wardman, and May (2005, p. 139) claim that “various definitions of acceptability have been used, but a fundamental issue is whether the public would vote for a scheme.” Thus, conclusions drawn in this study may better serve policy implementation in political practises.

¹ Of course, there might be other strategies such as in the form of a protest, thereby nullifying a ballot paper on purpose. These other strategies, however, do not change the final outcome of a direct-democratic decision, which is a percentage of people voting ‘yes’ and a percentage of people voting ‘no’ and if those who voted in favour of the ballot are the majority, the ballot is accepted.

3. Framing Theory and the Causal Model of Public Policy

We employ framing theory as our analytical approach and link it to the causal model of public policy in order to derive our hypotheses.

3.1 Framing Theory

Cognitive psychologists have convincingly shown that people are inconsistent in their judgement and decision-making (Kahneman & Tversky, 1979). They react to the way a decision problem is *framed* and are hence subject to cognitive bias. Frames can be considered as “subtle alterations in the statement or presentation of judgment and choice problems” (Iyengar, 1991, p. 11). Framing allows triggering voters’ unconscious perception of information by the way in which information, for instance about a policy measure, is provided. Framing a decision problem creates particular narratives that promote particular interpretations of the problem in question (Entman, 2007). In terms of political choices, frames can influence voters’ opinions and preferences (Chong & Druckman, 2007; Hardisty et al., 2010).

While framing contains all kind of metaphors, narratives and selective emphasis of a decision problem, the focus here lies solely on logically equivalent frames that emphasize either costs or benefits of a particular policy measure. This type of frame is best captured by *valence frames*, which is also referred to as *equivalency framing* and means presenting a choice problem either in a positive or negative light (Druckman, 2001; Rozin & Royzman, 2001). Valence frames influence voters’ preferences through a cognitive *negativity bias* based on the tendency of people to prioritise negative information over positive information and to overvalue losses in comparison to equivalent gains (Rozin & Royzman, 2001). Due to the negativity bias, people are more risk-prone in a loss-scenario and more risk-averse in a gain-scenario. Through different weights of relative costs or benefits placed on a policy measure, citizens are expected to be steered to a particular interpretation of this policy measure.

In framing effects literature, Levin et al. (1998) developed a typology of valence framing effects that distinguishes *attribute framing* and *goal framing* as specific causal effects (see Table 1). This distinction is essential, as Levin et al. (1998) identified a lack of clear dissociations between different types of valence framing as the cause for ambiguous and contradictory findings from literature on how framing affects decisions. They declare that “different studies have employed different operational definitions of framing and thus have tapped different underlying processes” (Levin et al., 1998, p. 149).

Attribute framing places the frame on an attribute or characteristic of the decision objects and affects the way a decision problem is evaluated by a person. Decision preference reversal is induced by different weight being given to different characteristics of a decision object. These different emphases of attribute frames influence the encoding of information as well as the further processing of that information. A positive attribute of a decision object is more likely to activate positive associations, while a negative attribute induces negative associations (Levin et al., 1998, pp. 164–165). For example, consumers tend to prefer hamburgers, which are described as consisting of 75% lean meat over hamburgers which are described as having meat that contains 25% fat (Levin & Gaeth, 1988). Applied to public policies, people tend to prefer policies described as “bonuses” to policies described as “penalties”, even when these descriptions are just two sides of the same coin (McCaffery & Baron, 2005).

Goal framing describes the framing of an action or inaction, which affects the persuasiveness of a communication (Levin et al., 1998, pp. 164–165). The valence of a goal frame can either be positive by drawing attention to potential benefits or gains from an action, or it can be negative by focusing on potential costs or losses from inaction. While both positive and negative framing conditions promote the same goal, the valence of the message is likely to influence its persuasive power. Since people are more strongly motivated by avoiding a loss than by obtaining a gain, the negative frame of the goal message is expected to be more persuasive. For example, pamphlets on breast self-examination describing the negative consequences of inaction have proven to be more effective on individual behaviour than pamphlets describing the positive consequences of action (Meyerowitz & Chaiken, 1987). Applied to public policies, people tend to be more supportive of policies, which are described as avoiding negative consequences of the status quo compared to policies, which are described as achieving positive consequences of the policy intervention (Arbuthnott & Scerbe, 2016).

These two types of valence frames display distinct features: While goal framing focuses on the substantial problem to be solved, attribute framing focuses on different aspects of the decision object. With attribute framing, positive frames refer to something desirable about the decision problem, while negative frames refer to something undesirable about the decision problem (Levin et al., 1998).

Table 1 – Differences between Attribute Framing and Goal Framing

<i>Framing Type</i>	<i>What is framed</i>	<i>What is affected</i>	<i>Frame Operationalization</i>
Attribute framing	Object attributes or characteristics	Object evaluation	Rebate for positive action vs. penalty for negative action
Goal framing	Consequences of action or inaction, goal of a behaviour	Impact of persuasion	Avoiding urban sprawl & inefficient land use vs. achieving densification & efficient land use

Source: Modified table based on Levin et al. (1998, p. 151).

Framing effects have been studied in a broad range of academic fields including political behaviour, in order to explain citizens' policy reasoning and their voting choices (Chong & Druckman, 2007; Iyengar, 1991; Mendelberg, 2001; Rodriguez, Laugesen, & Watts, 2010; Slothuus & Vreese, 2010). The risk aversion assumption underlying framing effects has been proven to be also influential in direct-democratic voting (Bowler & Donovan, 2000). In political communication, frames serve as “bridges between elite discourses about a problem or issue and popular comprehension of that issue” (Nelson, Oxley, & Clawson, 1997, p. 224).

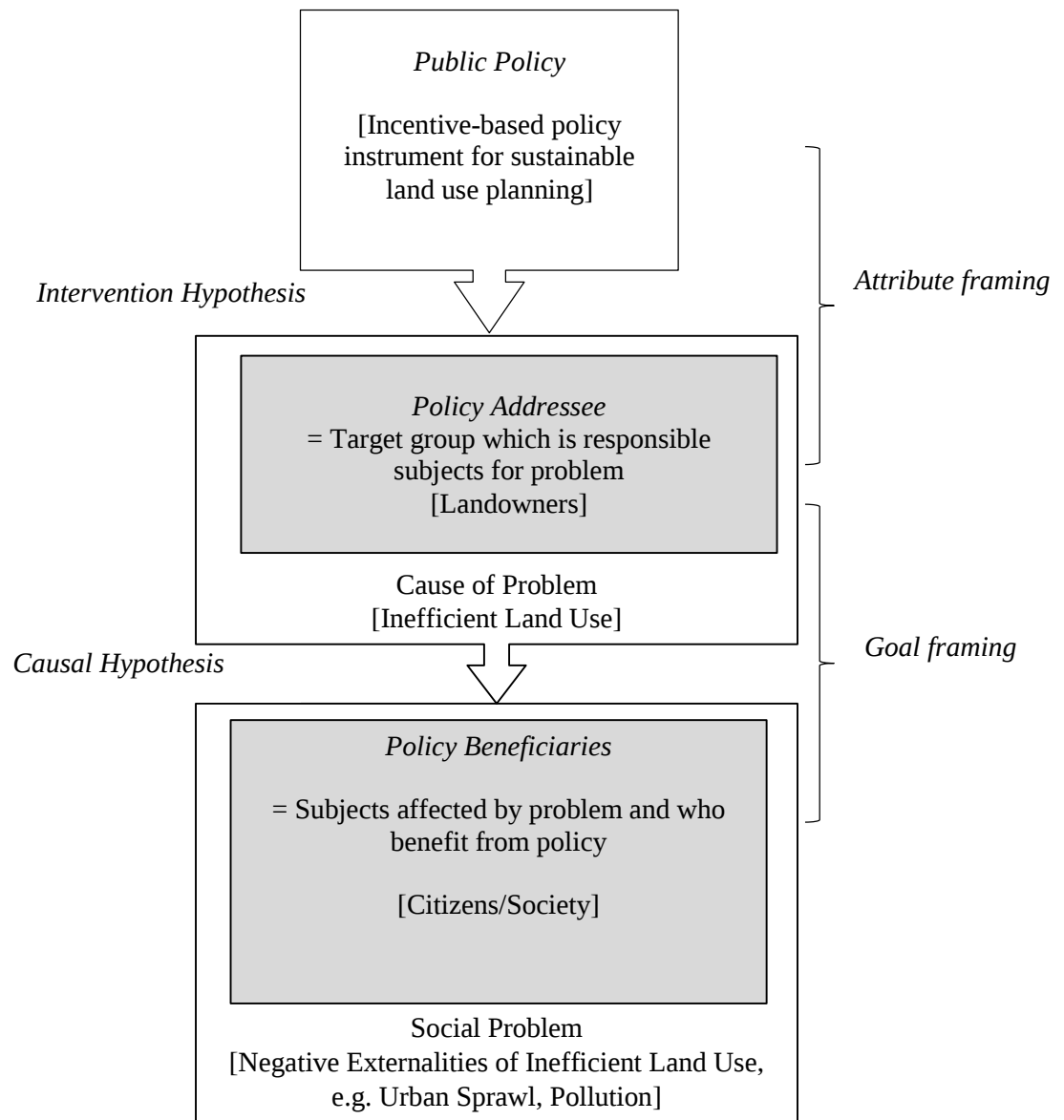
Framing effects do not occur consistently but have been found to be dependent on a variety of factors. Scholars have argued that framing effects are mitigated by personal involvement (Maheswaran & Meyers-Levy, 1990). Higher salience of a decision problem has been found to reduce the effect of framing (Binder, Childers, & Johnson, 2015). Individuals affected by a certain policy instrument are therefore less likely to be subjected to framing effects. The causal model of public policies, locates different groups of citizens with different degrees of involvement in the logic of the policy intervention and allows to further specify goal and attribute framing within the policy. We present the model in the light of framing theory in the following.

3.2 The Causal Model of Public Policy

In order to investigate framing effects of spatial planning measures for direct-democratic voting decisions, these framing effects are applied for the context of public policies. A public policy such as land use policy or spatial planning policy is an intervention in order to resolve a problem (see also Dunn, 2015; Knoepfel, Larrue, Varone, & Hill, 2011). An intervention consists of one or more policy instruments directed towards the same goal. Policy instruments, which can also be referred to as *policy measures*, can be generally defined as techniques or methods by the

state to achieve political goals (Braun & Giraud, 2009, p. 179; Howlett, 2011, p. 22). More concretely, policy instruments are “means to transfer the rather abstract principles and rules set out by policies into concrete and substantive action” (Schaffrin, Sewerin, & Seubert, 2015, p. 260). Policy instruments can be binding to different degrees ranging from mere persuasion to bringing about regulation (Vedung, 1998). The focus of our study lies with economic instruments, i.e. incentives to make certain behaviour more or less costly. However, in practice a social problem can often be addressed indirectly only. For instance, pollution cannot be addressed directly, but only by addressing the polluters causing it. Interventions therefore aim at preventing the causes of the problem by changing the behaviour of the individuals responsible for it. This in turn is expected to rectify the problem in question. A public policy proposal, therefore, can be perceived as a causal model consisting of two subsequent hypotheses: The intervention hypothesis and the causal hypothesis as illustrated in Figure 1 (Rossi, Freeman, & Hofmann, 1988, pp. 120–122). The two hypotheses applied to spatial planning policies and their link to framing theory are clarified in the following and are shown in Figure 1.

Figure 1 – Causal Model of Public Policy Combined with Framing Types



Source: Based on Sager (2016, p. 123); Sager, Ingold, and Balthasar (2017, p. 47)

A spatial planning policy aims to solve social problems such as urban sprawl by changing the behaviour of the policy addressees (those who are responsible for the social problem), which mainly consist of landowners in this context. Following Rossi et al. (1988, pp. 120–122; see also Sager, 2016), it can be distinguished between the *intervention hypothesis* (causal relationship between policy intervention and intended behavioural change of the policy addressees) and the *causal hypothesis* (causal relationship between behaviour change of policy addressees and the resulting impact on policy beneficiaries). While the latter hypothesis refers to the question, *who causes a social problem*, the former hypothesis addresses the question *how*

can the behaviour of the responsible subjects be changed. The effect of the policy on the involved actors varies from limiting choice sets of the policy addressees by either incentivising desired behaviour or sanctioning undesired behaviour. Those who profit from the policy are the policy beneficiaries in the form of a problem solution, irrespective of the chosen intervention. In summary, policy addressees are negatively affected by a policy, even in the case of positive financial incentives, because they have to change their behaviour. Policy beneficiaries, in turn, are positively affected by a policy because they profit from the policy when the social problem is resolved.

In the context of a direct-democratic vote, the causal model of public policy therefore implies different reasoning for the different actor groups when accepting a policy proposal or not. Policy addressees, on the one hand, will have to change their behaviour, which is considered the source of the problem. They therefore are expected to focus on the policy instrument and what it means for them rather than on the problem-solving capacity of the policy as a whole. The voting population as a whole, i.e. all citizens entitled to vote, on the other hand, forms the overall beneficiaries of the resolved problem and consequently can be expected to focus on potential effect of the policy. Addressees, however, are also part of the voting population and hence a subset of the beneficiaries. It can be argued that whether both group's acceptance is needed depends on the group size. If the addressees are a minority, strictly speaking their support is not needed in a direct-democratic vote. However, a voting decision is not determined by one factor only and many other variables impact the individual vote. The experimental design may distract from the multi-faceted nature of democratic choices in that it aims to isolate single effects. Given the many influencing factors, however, we consider it sound to start from the assumption that democratic acceptance depends on both group's acceptance.

The causal model of public policy can be combined with framing theory: We argue that attribute framing refers to the intervention hypothesis, while goal framing captures the causal hypothesis. The attribute describes the characteristics of a policy's instrument and the goal describes the social problem to be solved. The policy instrument, as shown above, is a mere means to change addressees' behaviour. However, the form of the means may be different. It therefore conforms to the notion of the attribute in framing literature. The actual objective of the policy is the resolution of social problems as a substantial phenomenon. The goal thus refers to the consequence of the intervention but not to the latter's form. This conforms to the notion of goal in framing literature.

The core benefit in combining framing theory and the causal model of public policy lies in the differentiated analysis of framing effects along observed campaigning strategies in direct democracy. Campaigns implicitly or explicitly refer to the causal and intervention hypotheses when trying to influence the voters' decisions. Direct-democratic campaigns emphasize potential gains and losses of a new policy proposal. These frames have not been distinctly analyzed in the context of the causal model of a public policy. Consequently, evidence about different frames does not relate to recipient categories relevant for the actual implementation success of a public policy. The conceptual linkage between framing and policy approaches leads to a finer-grained understanding of different framing effects. Beyond analytical gain, this has direct relevance for political praxis in that campaign messages may be designed to better reach specific recipient categories within the voting population.

More specific, bringing together the causal model of public policy with framing theory highlights the role of target groups in isolating framing effects on the acceptance of policy instruments for different groups of voters (see Figure 1) Since landowners as policy addressees are particularly affected by the policy intervention, they are assumed to show particularly high involvement. Citizens with a higher level of personal involvement rely less on decision heuristics and more on cost-benefit-analysis. Regarding spatial planning measures, which imply for instance changes in zoning and building restrictions for specific types of land it can be assumed that landowners show the highest degree of involvement. These considerations are in line with the argument by Fischel (2001, p. 12) who maintains that homeowners are of particular importance when considering land-use regulations because homeowners have "[c]oncern about the vulnerability of their largest asset" that makes them "likely to be the major local political actors". Landowners as policy addressees are directly affected by building regulations or other laws concerning land use and therefore share a different context for the application of policy frames compared to the rest of the population. Whether voters are part of the target group determines how affected by a policy instrument and hence how self-interested they are. The provision of public goods contains a social dilemma for the target group between self-interest (costs to produce a public good) and the gains from the provision of the public good itself.

Studies on valence framing effects have shown to be context-dependent (e.g. Rettinger & Hastie, 2001; Wang, 1996; Weber, Blais, & Betz, 2002). The case of spatial planning measures is particularly suitable to test for public policy frames because its target group is easily distinguishable and relatively stable over time. Public benefits of a protected landscape and private costs of behavioural change can be localised in a clear fashion and assigned to the policy

beneficiaries on the one hand and the policy addressees on the other hand. Landowners are more involved in spatial planning and hence process information more systematically and are therefore assumed to be less vulnerable to framing effects (cf. Maheswaran & Meyers-Levy, 1990). Voters facing a decision problem tend to process information and form an opinion systematically, when they attach importance to the issue they have to decide on (Kriesi, 2005; Maheswaran & Chaiken, 1991). The degree of personal importance to an issue is closely related to the degree of personal involvement. The target group of a public policy is blamed for the social problem and as a consequence bears the burden of providing the remedy to the problem by a behavioural change. The effects of framing effects should therefore vary between landowners and non-landowners. As target group with high involvement landowners are more likely to be able to locate themselves in a domain of loss or gain regarding the policy instruments. The different involvement levels between landowners as the policy target group and the rest of the population is in this perspective a crucial factor for the context-dependency of policy frames.

3.3 Hypotheses

When framing the goal of a policy measure negatively by describing the losses that are potentially avoided rather than by describing potential gains, the frame sets a loss-scenario. Due to the assumption of a negativity bias, implying that losses outweigh the wins, a negatively framed argument is expected to be more likely to win support for a policy change. The goal framing hypothesis can therefore be formulated as follows:

Goal Framing H₁: A spatial planning measure, which is presented with a *negatively* framed policy goal is more likely to be accepted compared to the same policy measure presented with a positively framed goal.

Due to a cognitive negativity bias and consequently the loss-averse nature of people, framing theory suggests people prefer rebates over penalties. Here, the rebate and penalty are simply two sides of the same coin so that a rebate is a positive penalty and a penalty is a negative rebate. Baranzini and Carattini (2016) have shown that labelling a carbon tax as climate contribution can enhance its acceptance and similar findings were found by Hardisty et al. (2010). Butler and Maréchal (2007) found evidence that different frames of pension system reforms in Switzerland had a significant effect on voting preferences. Since people have a negativity bias and are loss-averse, a negative frame configuration creates a situation of potential loss, while a positively framed configuration creates a situation of potential gain.

People tend to prefer a reward over a penalty because they have a penalty (loss) aversion. Therefore, it can be expected that positively framed attributes of a policy measure by means of focusing on a rebate leads to a preference of this rebate framing over a negative attribute frame focusing on a penalty. Accordingly, the attribute-based framing hypothesis is as follows:

Attribute Framing H₂: A spatial planning measure which is presented with a *positively* framed policy attribute is more likely to be accepted compared to the same policy which is presented with a negatively framed attribute.

However, we expect the framing effects to be context-dependent. As discussed above, due to their higher personal involvement, the policy target group is more likely to be able to place themselves in a domain of loss or gain regarding a new policy instrument and therefore are less likely to respond to attribute framing compared to the rest of the population. Whether the policy design is framed as a rebate or penalty should have no influence on the landowners' acceptance of the ballot proposal. An opposite context-dependent hypothesis can be formulated for goal framing that directs attention either to the public benefits of the policy instrument or the problematic behaviour of the target group. The positive framing highlights the favourable preservation of the landscape that provides benefits to all. The negative framing of containing building activities directs attention to the unfavourable behaviour of landowners that is seen as the policy problem. Landowners that are unlike the rest of the population affected by both the public benefits as well the private costs, might therefore be more likely to react to goal framing. Accordingly, the involvement-based framing hypotheses read as follows:

Involvement H_{3a}: Landowners as the target group of spatial planning policies are less likely to be influenced by attribute framing than non-landowners.

Involvement H_{3b}: Landowners as the target group of spatial planning policies are more likely to be influenced by goal framing than non-landowners.

Based on this theoretical framework, the empirical research design of this paper will be clarified by presenting the procedure, data and participants of the experiment.

4. Experimental Survey Design

In recent years, interest in the application of experimental research designs within the area of political science and public policies increased (Druckman, Green, Kuklinski, & Lupia, 2011; Dunn, 2015). An experimental research design has several advantages over other empirical research designs. One of the most important advantages lies in the possibility to provide controlled conditions, which increase transparency and thereby facilitate conclusions as regards to the causal inference (Druckman et al., 2011; Iyengar, 2011; Schram, 2005). Moreover, Smith (1994) stresses that experiments are especially suitable for evaluating policy proposals. Because of the advantages of experiments compared to other methods, Druckman et al. (2011, p. 9) conclude that “experiments are becoming an increasingly common and important element of a political scientist’s methodological tool kit.”² Additionally, the use of an online-based experiment has the advantage to reach participants not limited by geographical constraints (Iyengar, 2011). This is especially important for research topics that address a population rather than a specific target group sample (e.g. students), which applies for the public acceptance of spatial planning measures.

In order to test the framing hypotheses, a survey experiment was run by randomly assigning participants to four different frames of a market-based spatial planning policy measure with two groups receiving a positive frame and two groups receiving a negative frame.³ Accordingly, the experimental design constitutes a *between-subject design*, i.e. a measurement of the treatment effect by comparing groups with different people (Hamenstädt, 2012, p. 83).

4.1 Procedure and Method

The data for the experiment was fielded in May 2016 by means of an online survey. The survey experiment was programmed using the online survey software *Qualtrics* and participants were recruited by *Qualtrics* through a panel of Swiss citizens. The experiment started with the following introductory text for all four treatment groups, which introduced the instrument as an incentive-based spatial planning measure,

“The government plans to introduce a new policy for sustainable spatial planning which is based on financial incentives. If someone wants to build on his/her parcel of land, the

² See Kirk (2013) for an overview of experimental designs used in behavioural and social sciences.

³ It is important to emphasize that we did not control for local, regional, national and international dimensions of the policy measure, which might have caused different perceptions by the voters.

person then has to either pay a fee or receives money depending on how sustainable the construction is. The aim of this measure is to influence construction behaviour in a way that decreases the price for sustainable construction projects and increases the price for non-sustainable construction projects.”

After the introduction, the participants were randomly assigned to one of four different treatments consisting of two types of framing (*goal framing* and *attribute framing*) of which each comprised a positively framed and a negatively framed treatment. The four different treatments are presented in Table 2.⁴

In order to avoid negativity biases by the word *taxes*, which was found by previous studies (Cherry et al., 2012; Hardisty et al., 2010; Kallbekken et al., 2011), the term *fee* was used instead. After the treatment, the respondents were asked for their acceptance of the spatial planning measure followed by the completion of a post-treatment questionnaire, which included other relevant spatial-planning variables such as whether the participants own land or not and questions addressing their socio-demographic characteristics (see Appendix A.1 for a detailed illustration of the experiment flow). Those who stated to own land were also asked for the type of land they own. Additionally, respondents were asked whether they were planning to buy land for building purposes in the near future. These questions allow a more precise measurement of the policy target group and allow to separate landowners and those aiming at becoming landowners in the near future from the citizenry at large as the beneficiaries. Controlling for material self-interest allows to more precisely isolate behavioural influences on citizens' acceptance of policy instruments.

⁴ There is no control group in the experiment since there is no neutral form of valence framing that could inform respondents of a control group. Since citizens learn about an incentive-based policy instrument either based on a positive frame (rewarding behaviour) or a negative frame (punishing behaviour), the validity of the experiment is not undermined by the missing control group. For a detailed discussion on randomisation within experiments see Bowers (2011).

The wording within the treatments was partly taken from arguments provided by opponents and proponents during political campaigns concerning spatial planning ballot proposals. This was done in order to ensure that the connotations of crucial land use related formulations (for instance “concrete covering of the landscape”) were perceived either negatively or positively by all participants identically.

Table 2 – Experimental Design for the Treatment Variables ‘Goal’ and ‘Attribute’

Treatments			
<i>Goal treatment</i>		<i>Attribute treatment</i>	
Introduction:		Introduction:	
“The following argument clarifies the benefit of the measure for the spatial planning management. You will then be asked to decide on the introduction of the spatial planning tool.”		“The following description clarifies the measure for the spatial planning management. You will then be asked to decide on the introduction of the spatial planning tool.”	
<i>Positively framed argument</i>	<i>Negatively framed argument</i>	<i>Positively framed instrument</i>	<i>Negatively framed instrument</i>
“The goal of the spatial planning measure is to improve landscape protection. The incentive system promotes efficient land use, protects the landscape and increases the sustainability of spatial planning.”	“The goal of the spatial planning measure is to reduce a concrete covering of the landscape. The incentive system antagonizes urban sprawl, damps the consumption of land and prevents negative consequences for the landscape.”	“A financial subsidy rewards efficient spatial use (compact construction) when building on a parcel of land.”	“A financial fee sanctions inefficient spatial use (urban sprawl) when building on a parcel of land.”

The dependent variable for all models was voters’ acceptance operationalized as a dichotomous variable, thus participants were asked to either accept (vote ‘yes’) or reject (vote ‘no’) the policy instrument.

In order to analyse the relationship between dichotomous variables, different tests for independence were ran. More precisely, the differences between the different treatment groups were tested by chi-square tests and Fisher’s exact tests (Kühnel & Krebs, 2014; Larose & Larose, 2014). Additionally, logistic regression analyses were used to estimate the direction and strength of treatment effects on the voting decisions. Logistic regression analyses were also run to investigate the influence of other control variables such as landownership. For the logistic regression models, Bayesian statistics was applied as it has several advantages compared to likelihood-based methods (see also Hosmer, Lemeshow, & Sturdivant, 2013, p. 409; Hox, 2010, p. 273; Schoot et al., 2014).

4.2 Participants

In total, 797 participants were recruited, but participants who did not complete the experiment were removed from the dataset. The final dataset consists of a representative sample of a total of 644 Swiss citizens who were at least 18 years old.⁵ The citizenship and the age restriction were set to ensure voting rights of the participants. These restrictions aimed at making the vote appear to be more realistic for the participants as Swiss citizens are used to direct-democratic decision (Milic, Rousselot, & Vatter, 2014). Participants had a mean age of 47 ($SD = 16$) of which 48% were female and 52% male. Summary statistics of all variables and their operationalization are shown in Appendix A.2.

As mentioned above, the participants were randomly allocated to one of four treatment groups. Each two of the four treatment groups, in turn, belonged to the two framing groups, goal framing and attribute framing. In total, 323 participants were aligned to the goal-framing group and 321 participants to the attribute-framing group. The positive goal-framing subgroup included 163 participants and 160 participants were assigned to the negative goal-framing subgroup. Regarding the attribute-framing groups, the negative attribute-framing subgroup comprised 160 participants and the positive attribute-framing subgroup contained 161 participants (see Appendix A.2).

5. Results

The results of the framing experiment are presented separately for goal framing and attribute framing. First, we discuss the overall treatment effects before turning to the conditional framing effects of target group involvement. The results for the voting decisions divided by both framing groups, goal and attribute framing, are shown in Table 3. Within the goal framing-group, 78% of the participants voted in favour of the measure and 22% rejected the measure. In contrast, 69% of the attribute framing-group voted ‘yes’ and 31% voted ‘no’. Within the sample, the landowner share — as the policy target group — amounts to 25%. Regarding the type of land, 77% stated to own land with an overbuilt surface, 11% said they own building land with nothing built on it yet and 12% own non-building land.

⁵ In this regard, representativeness refers to the screening criteria that have been applied in order to ensure that the age and gender distribution within the sample corresponded to the distribution at the national level.

Table 3 – Framing Type and Voting Decision

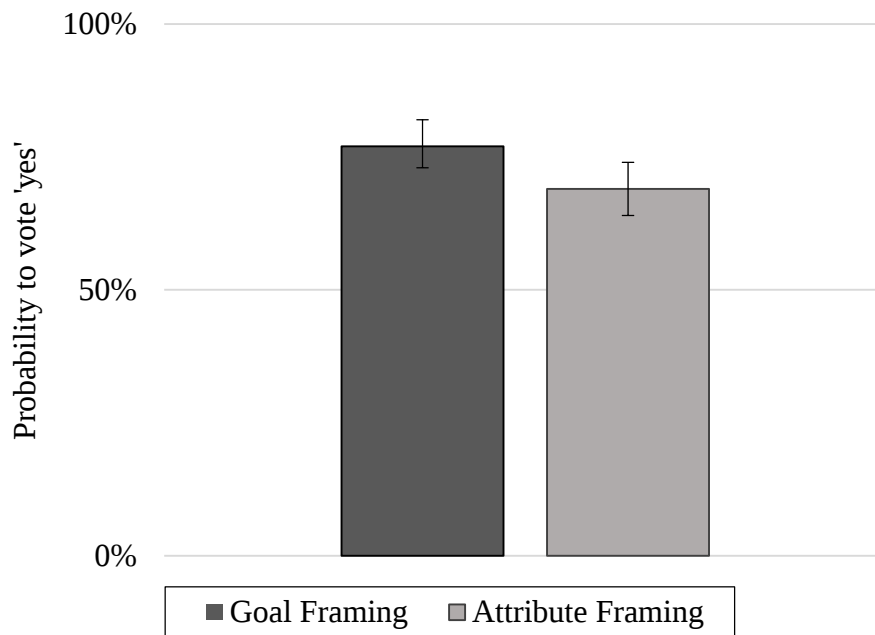
<i>Voting Decision</i>	<i>Framing type</i>	
	<i>Goal framing in percent (N)</i>	<i>Attribute framing in percent (N)</i>
,Yes'-votes	78% (251)	69% (222)
,No'-votes	22% (72)	31% (99)
Number of individuals	323	321
Chi-Square	6.388**	
Total number of individuals	643	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

Comparing both framing types, goal framing seems to be more effective as it yields a significantly higher rate of acceptance than attribute framing ($X^2 = 6.388$, $N = 643$, $p = .012$). Additionally, a logistic regression was run of the framing type on the voting decision resulting in a significant effect.⁶ As illustrated by Figure 2, the probability for participants in the goal-framing groups to accept the ballot is 77% (95%-CI 0.73-0.82) as opposed to attribute framing, which is 69% (95%-CI 0.64-0.74).

⁶ Key statistics of the logistic regression: $p = .014$; Mean: 0.445; S.D.: 0.181; 95%-CI 0.09-0.80; DIC: 743.395; $N = 644$ Also after controlling for potential confounders, the difference between the framing types remains significant ($p = .003$, see Appendix A.3).

Figure 2 – Predicted Probabilities of Voting Decision by Framing Type



Notes: Dependent variable is voting decision regarding the policy instrument (dichotomous variable ‘yes’/‘no’). Model ran with MLwiN 2.35 through MCMC estimation. Logit model based on Bayesian estimation (300,000 iterations, last 500 used for summary statistics, burn-in: 50,000, thinning: 1). Bars represent 95%-CI.

5.1 Goal Framing

Within the group with the positive goal frame, 79% voted for the policy measure, while 21% voted against it. The results are similar for the group with the negative goal frame, wherein 77% voted ‘yes’ and 23% voted ‘no’. The results for policy measure acceptance by applying goal framing are shown in Table 4. To test whether there was a significant relationship between *goal framing* and *acceptance*, a chi-square test was run. The results revealed no evidence for a significant relationship ($X^2 = 0.127$, $N = 323$, $p = .722$). Participants who were confronted with a positive goal framing did not accept the policy measure significantly more often than participants who were confronted with negatively framed goal. Consequently, the *goal-framing hypothesis H₁*, which assumed that a “spatial planning measure which is presented with a negatively framed policy goal is more likely to be accepted compared to the same policy measure presented with a positively framed goal” cannot be confirmed at first.

However, when analysing only the subgroup of landowners, the results for the goal framing change substantially. Within the landowner subgroup, 91% accepted the policy measure when

they received the positive goal frame while 9% rejected it. Of those landowners who received the negative goal frame, 70% voted for and 30% against the measure. To test the significance of the effect of goal framing on the acceptance of landowners, a Fisher's exact test and a logistic regression were carried out. Results show that landowners who were confronted with the positive framing did accept the policy measure significantly more often than landowners who were assigned to the negative frame.⁷ Thus, when a measure is framed to protect landscape, landowners are significantly more likely to approve the policy measure (Fisher's exact test; one-tailed $p = .027$).⁸

Table 4 – Goal Framing and Voting Decision

<i>Goal-Framing Group</i>	<i>Goal framing</i>	
	<i>Positive Frame in percent (N)</i>	<i>Negative frame in percent (N)</i>
,Yes'-votes	79% (128)	77% (123)
,No'-votes	21% (35)	23% (37)
Number of individuals	163	160
Chi-Square	0.127	
Total number of individuals	323	
<i>Subgroup Landowner</i>	<i>Positive frame</i>	<i>Negative frame</i>
,Yes'-votes	91% (29)	70% (33)
,No'-votes	9% (3)	30% (14)
Number of individuals	32	47
Fisher's exact test	$p = .027$	
Total number of individuals	79	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

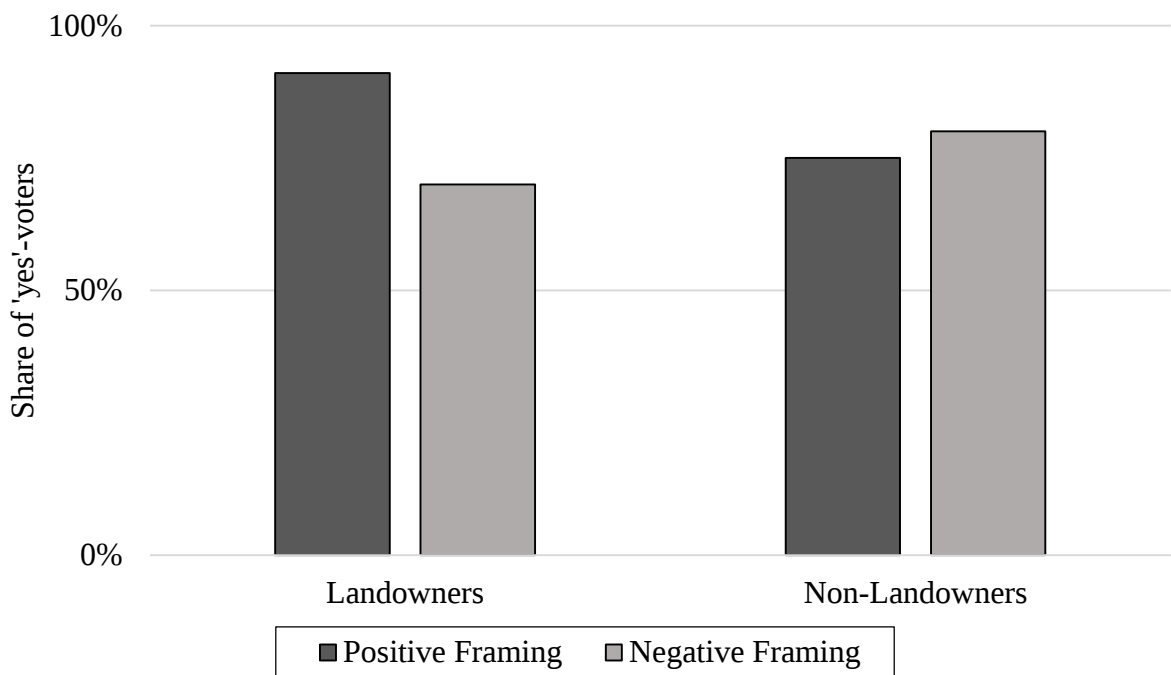
Landowners' differences become even more evident by comparing the two subgroups landowners with non-landowners only, instead of comparing landowners with the whole sample receiving a goal framing treatment. Figure 3 contrasts the share of landowners and non-landowners to vote 'yes' depending on the framing. A positive framing treatment led to 91% of

⁷ Interaction term between positive goal framing and landownership also revealed a significant relationship (mean: 1.768, S.D. = .794, 95%-CI: 0.30-3.43, $p = .026$, N = 313 applying Bayesian logistic regression analysis, 300,000 iterations, last 500 used for summary statistics, burn-in: 50,000, thinning: 1).

⁸ Controlling for future landownership did not reveal any significant relationship between the goal framing and the voting decision within the future-landowner group (Fisher's exact test; one-tailed $p = .277$).

landowners and 75% of non-landowners voting ‘yes’. In contrast, within the negative framing sample, more people who do not own land voted in favour of the measure (80%) compared to those who own land (70%). Therefore, we find evidence for varying framing effects depending on landownership – confirming the *involvement hypothesis H_{3b}*. The policy target group is subjected to a goal framing effect but not the citizenry at large.

Figure 3 – Goal Framing and Voting Decision by Landownership



Note: Bars represent percentages (Non-landowners N = 235; Landowners N = 79).

5.2 Attribute Framing

In contrast to goal framing, attribute framing results revealed a significant relationship between attribute framing and acceptance. Participants who were confronted with a positively framed attribute were more likely to vote in favour of the policy instrument compared to participants who were confronted with a negatively framed attribute ($X^2 = 5.445$, $N = 321$, $p = .019$). The findings for attribute framing and policy measure acceptance are shown in Table 5. Attribute framing also remains statistically significant after testing its robustness by including socio-economic and political control variables in a logistic regression analysis.⁹

⁹ See Appendix A.3 for detailed results of the regression models.

However, the results did not point to a significant relationship between attribute framing and acceptance for the subsample of landowners (Fisher's exact test; one-tailed $p = .529$).

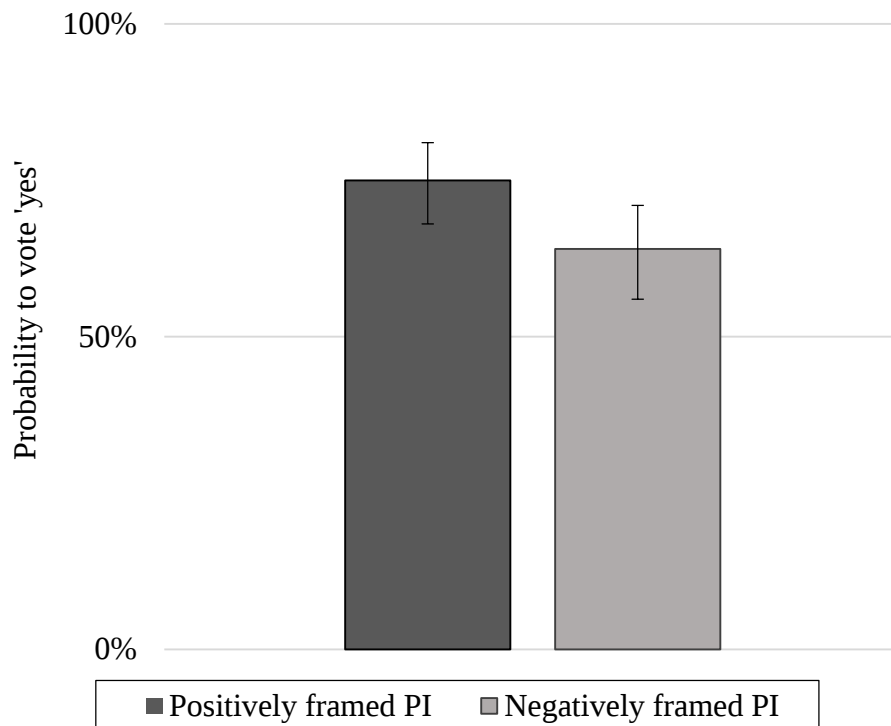
Table 5 – Attribute Framing and Voting Decision

<i>Attribute Framing Group</i>	<i>Attribute framing</i>	
	<i>Positive frame in percent (N)</i>	<i>Negative frame in percent (N)</i>
,Yes'-votes	75% (121)	63% (101)
,No'-votes	25% (40)	37% (59)
Number of individuals	161	160
Chi-Square	5.445*	
Total number of individuals	321	
<i>Subgroup landowner</i>	<i>Positive frame</i>	<i>Negative frame</i>
,Yes'-votes	68% (26)	67% (28)
,No'-votes	32% (12)	33% (14)
Number of individuals	38	42
Fisher's exact test	$p = .529$	
Total number of individuals	80	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

For testing the strength of the impact of attribute framing on participants' acceptance, a logistic regression was run by using a Bayesian approach. The response variable was *voting decision* and the *attribute treatment* represented the only predictor variable. Herein, the significant influence of the framing on the *voting decision* could be confirmed (mean: 0.558, *S.D.* = .247, 95%-CI: 0.08-1.05, $p = .024$, $N = 320$). Participants confronted with the positively framed policy measure attribute tend to accept the measure, while participants assigned to the negative frame were less likely to do so. The predicted probabilities to accept the measure for both types of attribute framing are shown in Figure 4. The probability for participants assigned to the positive attribute frame to accept the policy measure amounts to 75% (95%-CI 0.68-0.81). In contrast, participants assigned to the negative attribute frame had a 12% lower probability to accept the policy measure with a probability of 63% (95%-CI 0.56-0.71) (see Figure 4).

Figure 4 – Predicted Probabilities of Voting Decision by Attribute Framing



Notes: PI = policy instrument. Dependent variable is voting on the policy instrument (dichotomous variable 'yes'/'no'). Model ran with MLwiN 2.35 through MCMC estimation. Logit model based on Bayesian estimation (300,000 iterations, last 500 used for summary statistics, burn-in: 50,000, thinning: 1). Bars represent 95%-CI.

The spatial planning instrument presented in the experiment contained a fiscal component, which is especially relevant for the loss domain. If people receive a frame that implies clearly identifiable fiscal costs such as the fee in the experiment, the rejection of a ballot increases (Bowler & Donovan 2000, p. 35). People who were assigned to the positive frame did not find themselves in a loss domain and as the presented instrument only implied advantages, a large majority accepted that measure. The loss-aversion assumption can therefore explain why participants assigned to a negative attribute are less likely to vote 'yes' than the participants confronted with a positive attribute frame.

The findings on attribute framing are therefore in line with the *attribute-framing hypothesis* H_2 , according to which a "spatial planning measure which is presented with a *positively* framed policy attribute is more likely to be accepted compared to the same policy which is presented with a negatively framed attribute". The negative frame of an instrument's attribute leads to the perception of being in a domain of loss wherein voters are assumed to be particularly risk

averse. The *involvement hypothesis* H_{3a} is therefore confirmed by the results. While an attribute framing effect was found for non-landowners, such an effect could not be found for landowners. The target group of the policy instrument is not influenced by how the instrument is presented to them, in contrast to the rest of the population. Regarding goal framing, the framing effects vary by landownership. As a result, the policy target group has been shown to be subjected to a different treatment effect (goal framing) than the non-target group (attribute framing).

6. Discussion

This paper explored two different types of framing effects on public acceptance of spatial planning measures by means of an experiment. Goal framing and attribute framing were tested to determine whether a positive framing leads to a different degree of acceptance of an incentive-based spatial planning measure compared with a negative framing.

An interesting finding is that the more abstract goal framing was shown to be more effective than the more intervention-specific attribute framing. Goal framing led to a significantly higher rate of acceptance than attribute framing. This finding therefore supports the claim by Levin et al. (1998) to pay particular attention when analysing valence framing effects because different types of valence framing exist which differ in their effects.

The context-dependency of framing effects is confirmed by the results of the experiment. Both tested framing effects vary substantially depending on the target group: In contrast to participants outside the policy addressees, landowners' acceptance of the policy measure is influenced by goal framing but not by attribute framing. Furthermore and contrary to the expectation of standard goal framing theory, landowners who were assigned to a positive goal frame are more likely to accept the policy measure compared to non-landowners assigned to a positive goal.

These findings lead to the questions why landowners react to goal framing but non-landowners react to attribute framing and not vice versa. As argued above, landowners are the main policy addressees of spatial planning measures and hence are more affected by the introduction of a new policy measure. Therefore, they are assumed to be more involved than non-landowners. The argument is that the findings can be explained by personal involvement of the policy target group, i.e. policy addressees.

Goal framing did not significantly influence participants' acceptance of the policy measure in the overall sample. This is in line with the findings of a meta-analysis showing diverging results

of goal framing effects in policy studies (Gambara & Piñon, 2005). One explanation for this lack of influence is that the goal framing treatment was formulated in an abstract manner so that participants could not localise a reference point used for comparing different decision outcomes (see Bowler & Donovan, 2000; Popkin, 1994). For the experiment, a fairly abstract introduction was required and chosen in order to not frame participants unnecessarily. Caused by too little information about the policy measure, it could be that voters with low involvement were not able to generate a reference point to set themselves in a domain of loss or gain. A finding which supports this assumption is that within the logistic regression analyses including the framing treatment and further control variables, *values* had a significant impact on the voting decision only within the goal framing model (see Appendix A.3 for detailed results of the logistic regression analyses). More precisely, within the goal-framing group, *attitudes towards environment* and *attitudes towards state intervention* significantly influenced the acceptance of the measure. This result could indicate that the goal-framing treatments were too abstract thus participants based their voting decisions on values rather than on the content of the measure and thereby generating a reference point. Landowners, in contrast, were better able to localise a reference point and to place themselves in a loss or a gain scenario because they are more involved in spatial planning measures.

In contrast to standard goal framing theory we find that landowners are more likely to be subjected to goal framing than non-landowners. Since landowners are more involved in spatial planning policies because these might directly affect their property, landowners are more likely to perceive the policy problem from a loss-gain-perspective. The negative framing of urban sprawl is perceived as costs for landowners (loss scenario) and the positive framing of landscape preservation is perceived as benefit (gain scenario). The negative treatment of urban sprawl declares buildings as something undesirable, which should be limited. This is a problem-definition that implies landowners are responsible for the problem. Positive framing avoids this assignment of blame and refers to the preservation of landscape as a positive public good, of which landowners also benefit. In contrast, non-landowners are lacking in direct involvement and hence do not perceive the decision problem as a question of personal loss or gain. Descriptive statistical analyses show that landowners are significantly less likely to accept fiscal costs (fees, taxes) for the provision of the public good (landscape).¹⁰ Goal framing does not

¹⁰ When respondents were asked whether they are willing to pay more taxes to preserve landscape, landowners were significantly less likely to accept this burden for the public good than non-landowners. While only 14% of landowners would accept higher taxes, 21% of non-landowners would accept higher taxes (one-way ANOVA of effect of landownership on willingness to pay higher taxes for better spatial planning significant, $(F(1, 623) = 8.53, p = .004)$).

change this preference, but instead influences how persuasive the message is. When the message evokes associations with personal costs and restrictions, landowners are less persuaded than when the message evokes associations with public gains.

The findings are directly relevant for land use policy decisions in a direct democracy and can be discussed in the light of Swiss spatial planning policy. For voters who do not own land, spatial planning measures provide a public good of preserving landscape. By contrast, landowners are caught in a dilemma between self-interest (avoiding personal costs for the production of the public good) and the benefit of a public good (obtaining public gains). Because landowners face both a loss and a gain, framing is more likely to be effective since it pulls them in one or the other direction by evoking selective associations with either personal costs or public gains. Negative frames of urban sprawl evoke associations of self-interest and place landowners in a loss-scenario. Positive frames of landscape preservation, in contrast, evoke associations with public good and place landowners in a gain-scenario. Whether specific policy preferences are the result of normative factors or rational self-interest (Mehlkop & Neumann, 2012) therefore might be mediated by the frame of the policy goal. This explains why goal framing exerts the same influence as attribute framing.

The case for attribute framing is different: Attribute framing significantly influenced participants' acceptance of the policy, but any significant impact of attribute framing on the acceptance of the subsample of landowners could not be found. Here again, it can be argued that personal involvement makes the difference. Within the experiment, landowners were assumed to have the highest involvement. The findings imply that framing of public policies vary indeed substantially by citizens' involvement and by the framing type. As clarified by the causal model of public policies, spatial planning measures are intended to solve a social problem by changing the behaviour of a specific target group (policy addressees). At the same time, a specific public good is provided to the citizenry as a whole. This has consequences for the processing of political messages by landowners compared to non-landowners. Policy target groups are not only blamed for the social problem but also have the burden of being responsible for providing the remedy to the problem. This may explain why goal framing influences

decision making for the policy addressees in the same way as attribute framing: Both frames evoke either associations with losses or gains.¹¹

Another possible explanation for the significant effect of attribute framing could be voters' tax aversion. Previous research has shown that participants were less likely to support an instrument when it was labelled as *tax* (Cherry et al., 2012; Hardisty et al., 2010; Kallbekken et al., 2011). This influence was intended to be avoided by labelling the negatively framed attribute as *fee* instead of *tax*. However, it could still be that the term *fee* had a similar effect as the term *tax*.

7. Conclusion

In this study, we investigated whether the provision of different policy frames can influence the public acceptance of spatial planning measures. The paper builds upon prior studies on public acceptance in the area of environmental policy measures that revealed a trade-off between acceptance and efficiency (e.g. Cherry et al., 2012; Kallbekken et al., 2011) and complements literature in three regards. Firstly, the concept of public acceptance was employed in the area of efficiency-enhancing instruments in spatial planning policies. Secondly, two different types of framing effects were applied for investigating differentiating framing effects as determinants of public acceptance. Thirdly, by combining framing theory with a causal model of public policies, determinants of acceptance were located in a broader policy framework.

An experimental study was designed to investigate how political messages about market-based spatial planning measures can influence its public acceptance. Therefore, respondents were randomly assigned to two different valence-frames, namely framing of the policy goal and policy attribute, of which each contained a positive and a negative treatment. The findings yielded a significant effect for attribute framing but not for goal framing. Notably, this finding is in line with the argument by Levin et al. (1998) that valence framing encompasses different types of framing, which cause various effects.

Results of this paper lead to the following main conclusions. As expected, significant framing effects were found: The way a policy measure is presented can influence its public acceptance. Combining framing theory with a causal model of public policy enables disentangling of different framing effects on different groups of citizenry. While the affected target group reacts

¹¹ An alternative explanation for the diverging results could be that landowners hold more strong values than non-landowners and due to this precondition are less sensitive to attribute framing. However, this would not explain why the same landowners would be subjected to goal framing instead. Controlling for the effect of attitudes on state intervention into economy and attitudes towards the preservation of environment, the results on the framing effects do not change (see Appendix A.3).

to goal framing, more indirectly affected voters react to attribute framing. It can be concluded that involvement of the policy addressees offers an explanation for inconsistent findings in studies on policy frames. Overall, the effect of goal framing is stronger than the effect of attribute framing.

This leads to the conclusion that policy makers should be aware that not only are different types of frames unequal but also that not all citizens react equally to political messages about new policy measures. Findings show that goal framing and attribute framing do not function equally well and that there are differences depending on the target group. Attribute framing effects seem to work for the cross-section of the population but goal framing effects seem to appear in a different manner. Combining a causal model for public policy and framing effect theories identified landowners as the relevant target group because they are the policy addressees and would therefore be directly affected by a new spatial planning policy. The findings show that landowners' acceptance can only be influenced positively via goal framing effects but not via attribute framing effects.

The finding that landowners are the relevant target group because of their involvement points to another conclusion of this paper. The more involved a group is, the more political resistance can be expected in the case that the target group sees itself in a domain of loss. This finding is also due to the organisational degree and the financial background of this group, which allows landowners to become an important veto player. The acceptance of a public policy measure by an affected target group can be increased by highlighting the public benefits to be obtained.

A limitation of the study in this paper, however, is the small sample size regarding the subgroup of landowners. While the sample allows the statistical reliable comparison of the different framing types within the subgroups, the small sample does not allow drawing reliable statistical inference for the comparison of the subgroups. Nevertheless, the results point in a relevant direction in terms of the involvement of the target group and is corroborated by theoretical considerations and descriptive evidence. We also need to keep in mind, that framing is not the sole determinant for policy acceptance (Pleger, 2017). Still, our study makes a strong case for framing effects. Another limitation of this study is the chosen method: an experiment does not represent reality and it must be kept in mind that it might be that people do not behave in the same way in a polling booth and when they answer questions about their voting intentions. Similarly, however, an experimental research design has several advantages over other empirical research designs. Hence, choosing an experimental research design compared to other empirical methods always implies a "tension between external and internal validity" (Schram,

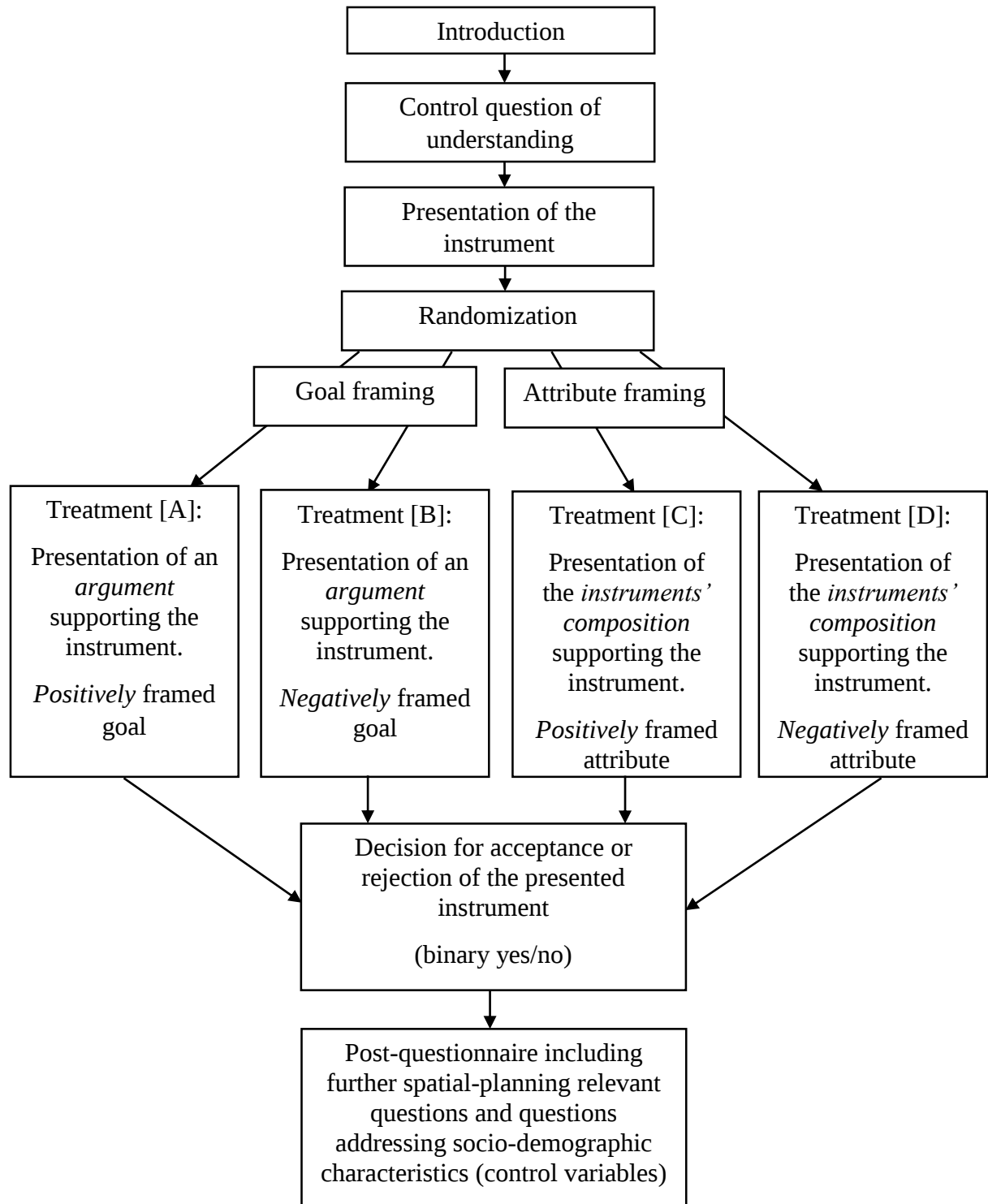
2005, p. 225). Thus, it would likely be a fruitful approach for future research to investigate in to what extent the effects we found apply for a situation in real life compared to further external influences.

We have discussed the findings' practical relevance for land use policy in Switzerland. However, it is important to underline that the relevance of the findings of this paper is not limited to direct-democratic systems. Public acceptance of a policy is also relevant for representative democracies, as surveys show there is a demand by citizens of Western democracies for more direct consultation of the public (Dalton, Burklin, & Drummond, 2001). In representative democracies, landowners also play a key part in shaping – and challenging – sustainable planning practices. Hence, the research findings of this study apply to diverse planning contexts. Without public acceptance public policies are not only less likely to be accepted in a popular vote, but may also lack effective implementation.

In our study, we highlighted that the way a policy design is presented can enhance acceptance substantially, but only when the different levels of involvement by different social groups are taken into account. Future research can deepen the understanding of context-dependent framing effects in public policies by applying our theoretical framework to studies in representative democracies and across different policy areas.

8. Appendices

Appendix A.1 Experiment Flow



Appendix A.2 Variables, their Summary Statistics and Operationalization

	Variable	Summary statistics	Operationalization
Response Variable	Goal framing: voter decision	<i>Shares(N):</i> Yes: 78 (251) No: 22 (71) (Total N: 323)	Dummy: 0 = Accept proposal 1 = Reject proposal
	Attribute framing: voter decision	<i>Shares(N):</i> Yes: 69 (222) No: 31 (99) (Total N: 321)	Dummy: 0 = Accept proposal 1 = Reject proposal
	Landownership	<i>Shares(N):</i> No landowner 74.6 (466) Landowner 25.4 (159) (Total N: 625)	Dummy: 0 = No landowner 1 = Landowner
Control Variables	Comprehensibility of policy instrument	Mean: 3.4286 S.D.: 1.5282 Min.: 0 Max.: 4 (Total N:644)	Self-rating political orientation on a scale between incomprehensible (=0) and comprehensible (=5)
	Future landownership	<i>Shares(N):</i> No intention to buy land 82.3 (445) Intention to buy land 17.7 (96) (Total N: 541)	Dummy: 0 = No intention to buy land 1 = Intention to buy land
	Age	<i>Mean:</i> 46.635 <i>S.D.:</i> 15.559 <i>Min.:</i> 18 <i>Max.:</i> 84 (Total N:643)	Age in years
	Gender	<i>Shares (N):</i> Female: 48.3 (311) Male: 51.7 (333) (Total N: 644)	Dummy: 0 = Male 1 = Female
	Political ideology	<i>Mean:</i> 5.1506 <i>S.D.:</i> 2.0891 <i>Min.:</i> 0 <i>Max.:</i> 10 (Total N: 644)	Self-rating political orientation on a scale between far left (=0) and far right (=10)

Appendix A.2 (*Continued*)

	Variable	Summary statistics	Operationalization
Control Variables	Education	<i>Shares(N):</i> Low: 7.5 (48) Middle: 64.9 (418) High: 27.6 (178) (Total N: 644)	Categorical variable (highest level of education): 0 = Low level of education 1 = Moderate level of education 2 = High level of education
	Location type	<i>Shares(N):</i> City 26.4 (170) Suburb 32.3 (208) Countryside 41.3 (266) (Total N: 644)	Categories: 0 = Countryside 1 = City 2 = Agglomeration
	Attitude towards environment	Mean: 6.947 S.D.: 2.399 Min.: 0 Max.: 10 (Total N: 644)	Self-rating of environmental concerns on a scale between not worried at all (=0) and worried a lot (=10)
	Attitude towards state intervention	Mean: 5.433 S.D.: 2.629 Min.: 0 Max.: 10 (Total N: 644)	Self-rating of strength of government intervention on a scale between least as possible (=0) and as much as possible (=10)
	Attitude towards globalization	Mean: 4.989 S.D.: 3.060 Min.: 0 Max.: 10 (Total N: 644)	Self-rating of globalization attitude on a scale between country should be protected (=0) and country should be opened (=10)
	Trust in Government	Mean: 5.002 S.D.: 2.572 Min.: 0 Max.: 10 (Total N: 644)	Self-rating of trust in national government on a scale between no trust at all (=0) and very high trust (=10)
	Political Interest	Mean: 2.416 S.D.: 1.153 Min.: 0 Max.: 4 (Total N: 644)	Self-rating of political interest on a scale between not interested at all (=0) and very interested (=4)

Appendix A.3 Results Regression Models

<i>Determinants</i>	<i>Goal Framing</i>		CI		<i>Attribute Framing</i>		CI	
	Mean	S.D.	2.5%	97.5%	Mean	S.D.	2.5%	97.5%
<i>Response: Voting Decision</i>								
<i>Constant</i>	-0.329	0.931	-2.157	1.508	-0.548	0.829	-2.161	1.042
Framing Treatment (ref. neg.)	0.244	0.342	-0.417	0.919	0.832	0.296	0.259	1.420
Age	-0.005	0.011	-0.026	0.017	-0.008	0.010	-0.028	0.012
Gender (ref. male)	0.301	0.351	-0.385	0.993	-0.028	0.295	-0.607	0.551
Trust in Government	0.081	0.077	-0.070	0.231	0.120	0.063	-0.004	0.243
Political Interest	-0.230	0.174	-0.575	0.108	-0.009	0.137	-0.278	0.256
Political Ideology	-0.209	0.093	-0.396	-0.030	-0.168	0.073	-0.312	-0.026
Location type (ref. rural)								
Urban	-0.229	0.458	-1.128	0.670	0.013	0.358	-0.685	0.718
Agglomeration	-0.330	0.408	-1.132	0.472	0.464	0.358	-0.234	1.176
Attitudes towards Environment	0.206	0.077	0.057	0.360	-0.105	0.077	-0.257	0.043
Attitudes towards State Intervention	0.224	0.079	0.070	0.381	0.128	0.066	-0.000	0.259
Attitudes towards Globalization	-0.115	0.067	-0.249	0.013	0.040	0.052	-0.062	0.141
Comprehensibility of Policy Measure	0.506	0.119	0.275	0.744	0.438	0.099	0.248	0.636
Education (ref. moderate)								
Low	-0.559	0.679	-1.836	0.829	0.697	0.586	-0.402	1.896
High	-0.955	0.402	-1.749	-0.176	0.144	0.362	-0.561	0.855
Landownership (ref. non-landowner)								
Landowner	0.242	0.417	-0.556	1.077	-0.214	0.335	-0.867	0.446
DIC	283.373				350.149			
N	313				309			

Notes: Dependent variables are the voting decisions within the experiment (dichotomous variable ‘yes’/‘no’). Models ran with MLwiN 2.35 through MCMC estimation. DIC = deviance information criterion. Bold: 95%-credible interval does not contain zero (systematic relationship). Logit model; posterior mean, standard deviations (S.D.) and 95% credible interval of log odds, based on Bayesian estimation (300,000 iterations, last 500 used for summary statistics, burn-in: 50,000, thinning: 1).

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