Can the Internet Empower People?

Empirical Studies on Transparency, Accountability, and Open-Mindedness

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Introduction

1. Thematic Introduction

The last two decades have seen an extensive development and diffusion of new information and communication technology (ICT) like broadband internet connections, mobile (online) computing and data storage in the cloud. This technological progress has substantially changed how media are produced and used, how people communicate, and how they process information. Because of the large scope of these changes, this dissertation integrates insights from four different academic disciplines: political science, sociology, communication studies, and economics. The most central mechanism and a common assumption across all three papers is that internet diffusion increases information availability or – vice versa – reduces information asymmetries between different political or social agents. In this dissertation I investigate how these changes are relevant for the political sphere, that is, how internet technologies affect citizens, politicians and the relationship between both. The particular questions answered in the papers are: Does internet diffusion increase political accountability? Why do politicians support governmental transparency? Does internet usage make people more open-minded? Since all research questions ask whether the internet can increase a certain desirable outcome, the dissertation has a strong normative relevance that can be summarized in a single question: Does the internet empower people?

A dissertation in the social sciences aims to explain a social or political phenomenon that could not be satisfactorily explained yet. It should contribute to the existing scientific literature in a unique way, but also be of some practical relevance beyond mere knowledge acquisition. The famous sociologist Robert K. Merton (1960) acknowledges the difficulty of formulating a meaningful research question and suggests researchers to develop their approach to the research question in three steps: First, stating in the *originating question* what one wants to know and what the motivation behind this question is; second, providing the *rationale of the question,* an argument about why a particular question is relevant and worth being answered; third, *specifying the question* by turning the general originating question into more specific and testable questions. This approach has proven worthwhile and will also provide an outline for the following introduction.

The originating motivation to examine the impacts of internet technology in this dissertation stems from its enormous diffusion within the last decade and the way it innovated communication and information processes. Table 1 shows that internet penetration, the proportion of individuals in a country who use the internet, is increasing worldwide

(International Telecommunications Union 2013). In the year 2000, only three countries had a penetration (slightly) higher than 0.5 – the Falkland Islands, Norway, and Canada. Only 54 countries had a penetration rate higher than 0.1. In 2012, the Scandinavian countries, Luxembourg, and the Netherlands have penetration rates close to 1, in 85 countries more than half of the population uses the internet, and 169 countries have a penetration rate above 0.1. About 0.4 of the world population used the internet within the last three months.

Table 1: Internet Penetration Worldwide

	2000	2002	2004	2006	2008	2010	2012
Mean	0.09	0.14	0.20	0.25	0.29	0.35	0.42
SD	0.14	0.19	0.22	0.25	0.26	0.28	0.29
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Q25	0.00	0.01	0.03	0.04	0.06	0.10	0.13
Median	0.03	0.05	0.09	0.15	0.22	0.31	0.41
Q75	0.11	0.21	0.30	0.40	0.47	0.55	0.65
Max	0.59	0.79	0.84	0.90	0.93	0.96	0.97

Source: International Telecommunications Union (2013); 228 countries. Values indicate the proportion of individuals who used the internet from any location in the last three months.

The internet's importance for searching information becomes apparent by looking at Google. In 2012, the most popular search engine on the internet handled about 100 billion search queries a month (Sullivan 2012). Wikipedia, the biggest encyclopedia in the world, has about 4.4 million articles in the English language and consists of more than 60 times as many words as the Encyclopedia Britannica, the next largest English-language encyclopedia (Wikipedia 2014c). Looking at the numbers of Facebook, the biggest social network on the internet, the same dimensions can be found for communication: In the third quarter of 2013, Facebook reported to have 1.19 billion monthly active users (728 million of them are active daily) (Facebook 2013). This extraordinary high usage (about one sixth of the world population) is not restricted to economically developed countries. In June 2013, there were 87 countries in the world with more than one million monthly active users (Allfacebook 2013). Even small countries like Kyrgyzstan or Togo have more than 100.000 active users; for the latter these users represent more than half of the internet-using population. Not surprisingly, researchers' interest in the internet has also increased substantially. Since around the year 2000, the number of newly published scholarly articles on political communication whose subject matter is the internet has exceeded the number of all articles studying television, radio and newspaper together (Chadwick and Howard 2009a).

The role of ICT in numerous recent political events has also drawn increasing attention from researchers and the media. It is supposed that the internet, and specifically social media, played an important role in the organization of the uprisings in several Arabian countries from 2011 to

2012, also labeled as Arab Spring (Breuer 2012; Howard et al. 2011; Wagner and Gainous 2013). While scholars do not agree on how exactly and to which extent the internet impacted the events, the sovereigns of the respective countries appear to have been less doubtful: Nearly all affected governments blocked certain websites and services; and Egypt's government was the first to even switch off the country's entire internet infrastructure (Markoff and Glanz 2011; for an extensive list of references to internet censorship during Arab Spring see Wikipedia (2014a)). Morozov (2009, 2011) points out that authoritarian regimes might actually use the internet to identify opponents and increase political repression. It seems that the communist regime in China also fears the internet's potential to initiate and coordinate political protests, because King et al. (2013) could show that the Chinese internet censorship is mostly concerned with content calling for collective action and social mobilization (much more than with negative criticism of the state). In 2013, disclosures of mass surveillance by the U.S. National Security Agency (NSA) suggest that even in democratic countries the internet might be used in a way that violates basic rights. Such adverse effects of ICT will be discussed in the concluding section of this introduction.

Already three years before Edward Snowden's disclosed the NSA activities in 2013, Wikileaks had already hit the headlines with publishing comparably confidential material. As a whistleblower platform, it guarantees anonymity through sophisticated digital encryptions, so everybody can publish information on their servers that he or she considers as important and relevant for the public. In this way, for example information about war crimes in Iraq and Afghanistan as well as several American diplomatic cables found their way to a broader public. Besides the discussion of the published material, these Wikileaks publications triggered a meta-debate about the potential benefits and harms of an unlimited informed public (Benkler 2011; Brian, McDermott, and Weins 2011).

A prime example from Germany shows how the internet can increase political accountability. In 2011, a newspaper presented first evidence that the German Minister of Defense at the time, Karl-Theodor zu Guttenberg, had violated academic standards in his doctoral thesis from 2007 by not citing several copied passages. Only one day later, an anonymous doctoral student established "Guttenplag"[1], a Wiki-based internet platform for collaborative work that enabled volunteers to document plagiarism in Guttenberg's thesis. Within a short time, contributors of Guttenplag found plagiarized material in 65% of all lines of the dissertation. The frequency and unambiguousness of plagiarism found by Guttenplag led to the revocation of the Minister's

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[1] The name "Guttenplag" is a combination of Guttenberg's name and the German word for plagiarism – "Plagiat".

doctoral degree only one week later. Because the public mostly agreed that Guttenberg deliberately plagiarized to bolster his career and reputation with the prestigious doctoral degree in an illicit way, he eventually had to step down from all political offices in March. Afterwards, Guttenplag and similar platforms continued to investigate doctoral theses of further German politicians. Until today, this has led to the revocation of at least nine more doctoral degrees. In this case, ICT allowed a small number of laymen to gather together, cooperate online, check citations online and inform a large audience about the misconduct within a very short time (see section 1 of this dissertation for an elaboration on such an accountability mechanism). It is barely possible to imagine the occurrence and the success of a similar endeavor offline in a university library.

Regarding the examples above, the rationale, i.e. the relevance of the research questions, is straightforward. First, from a perspective of pure knowledge acquisition, the development and diffusion of digital ICT is a very recent and thus unexplored phenomenon. Indeed, one could compare the advent of the internet with early innovations like the telephone or television and question its impact on established communication theories, research on media effects, or information asymmetries (see section 4). However, detailed investigations of the distinct impact of the internet on a variety of processes, attitudes, behaviors, and institutions have just begun. Second, from a normative perspective, the subjects of this research – governmental transparency, political accountability, and citizens' open-mindedness – all describe desirable outcomes. Therefore, it is relevant to investigate all possible mechanisms that might enhance these outcomes. That information plays a central role for achieving this goal was already hinted to by Robert Dahl (1989) who claims that inequality in information and knowledge is the most severe resource inequality that threatens democracy. He thus considers it even more substantial than inequalities in resources that permit violent coercion or those which stem from wealth and economic position. Manuel Castells (2009:3) further states that "Power is based on the control of communication and information, be it the macro-power of the state and media corporations or the micro-power of organizations of all sorts."

Despite this substantial diffusion of internet technologies and the importance of (political) information availability, one has to bear in mind that most people will use the internet first and foremost for commercial purposes or entertainment and not specifically for political purposes (Prior 2005). 80 years ago, Lippmann (1934) already recognized that the capacity of media to recreate politics is limited by humans' cognitive abilities and motivation to inform themselves about politics, not by technical properties of the media itself. The concept "attention economy"

(Davenport and Beck 2001) relates to the same phenomenon in the digital age: Information is ubiquitous, but the attention people can pay to information is the scarce factor. A similar objection against any substantial impact of the internet is that if people decide to inform themselves about politics online, they will most likely visit an outlet of traditional media like popular newspapers or newscasts instead of a niche site, private blog, governmental site, or watchblog that covers different or more specific topics, represents an ideology different from the mainstream, or allows for a direct investigation of politicians' actions (Norris 1999:89; Webster and Lin 2002).

An even more basic barrier to possible positive effects of information dissemination through the internet is the digital divide (Norris 2001; Warschauer 2004), i.e. inequalities in physical access to and use of ICT. These inequalities can exist between different countries, but also between people with different socio-demographic characteristics within a country. As one can see in Table 1, the inequality in internet access is increasing over time. Moreover, Wei and Hindman (2011) show that the inequalities in internet usage are associated with greater political knowledge gaps than that of the traditional media. This implies that a digital divide has more consequences than inequalities in traditional media usage.

For these reasons, the internet should certainly not be regarded as a panacea that unambiguously empowers people and that has exclusively positive effects on transparency, accountability or other desirable political and social outcomes regardless of existing circumstances. One rather has to specify research questions that help to exactly define under which conditions there might be a certain effect. My approach to specifying such questions is to scrutinize arguments explaining why the internet cannot have any effect (as the objections in the paragraph above), or to analyze inconsistencies between different theoretical argumentations. By comparing different theoretical approaches or developing own theories, I intend to resolve the conflict and expand the scope of the existing literature. Three specific questions are analyzed in the papers of this dissertation. All three papers are single-authored. Their titles and their unique contributions are outlined below. Henceforth, the papers will be addressed with the respective number (see also Table 2 and section 3 for details).

- *Paper 1*: "Can the Internet Promote Political Accountability? Evidence from a Laboratory Experiment"
- *Paper 2*: "Why German Political Elites Support Governmental Transparency – Self-Interest, Anticipation of Voters' Preferences or Socialization?"

- *Paper 3*: "Online and Open-Minded. Cross-Country and Panel Analyses of the Impact of Internet Usage on Liberal Attitudes"

In paper 1 I address the claim that an increase in information availability from technical progress in ICT cannot lead to higher political accountability because people's ability and motivation to process the information remains limited (Bimber 1998; Lippmann 1934). However, Snider (1996) argues theoretically that media can still have an impact on political accountability if politicians anticipate that citizens might potentially get informed about any wrongdoings, although their actual level of information does not increase. My contribution is to transfer Snider's argument to the increased information availability due to the diffusion of new digital ICT and test the claim empirically in a laboratory experiment.

In paper 2, I focus on the importance of politicians' attitudes towards governmental transparency for the successful realization of respective policies and thus for a sufficient information flow to citizens. While the popularity of transparency policies among citizens has been shown empirically (Association of Government Accountants 2010; Piotrowski and Van Ryzin 2007), so far no one has tried to explain or measure politicians' attitudes. The contribution is to pick up three partly contradicting theoretical streams – principal-agent theory, office seeking, and elite socialization – in order to explain elite attitudes in general and deduce their predictions concerning transparency preferences. With survey data from candidates for the German Bundestag 2009 I test which factors are most influential for politicians' transparency support.

In paper 3, I analyze whether internet usage increases liberal attitudes towards social and moral issues. The paper contributes to the literature by showing that internet effects on attitudes differ from those of traditional media theoretically and empirically. The paper is among the first that differentiates internet and television effects in a global context of 57 countries. The findings are also replicated with panel data from the Netherlands.

Regarding the initial question of this dissertation whether the internet can empower people, the results of the papers provide mixed evidence. Paper 1 shows that politicians anticipate that their behavior can be monitored more easily. While they do fear electoral sanctions, they also interpret the monitoring opportunities as distrust in their competence and benevolence. As a result, the intrinsic motivation to represent citizens' interests is partly crowded out by self-interest. This ambivalence in the effects of transparency can also be found in paper 2. There is a high variance in transparency support among politicians, with strong supporters as well as distinct opponents. Party membership is the best predictor for preferences. Paper 3 shows that internet usage actually has a liberalizing effect on social attitudes. However, the effect is weak or even non-existent in

conservative countries. These findings imply that the internet has the potential to empower people, but that obstacles, adverse effects and contextual differences have to be taken into account (see also section 5).

The remainder of this introduction is structured as follows. In section 2, I give an overview of the theoretical framework of this dissertation and provide definitions of the key concepts. Section 3 summarizes the three single papers. In section 4, the dissertation is integrated into scholarly disciplines, different research perspectives and different discourses. Section 5 provides conclusions from this dissertation.

2. Definitions and Theoretical Framework

In this dissertation I claim that the internet can increase three desirable political and social outcomes – political accountability, governmental transparency, and open-mindedness. Research on the effects of technical innovations such as the internet has to carefully explain underlying social mechanisms in order to avoid a technological determinist perspective. For this reason, in this section I will first define the three objects of interest and then explain the theoretical framework that links the internet with these outcomes. This section also aims to show the conceptual similarities between the papers.

2.1. Definitions of the Research Objects

The research object in paper 1 is *political accountability*. In a representative democracy, citizens as sovereigns delegate power to politicians because they lack both the time and the ability for the mass coordination necessary to find binding rules for the whole society. The idea of representation includes that politicians shape policies in the best interest of citizens (Pitkin 1967). Political accountability is the ability to ensure that political elites actually act in the voters' best interest (Fearon 1999). Periodical elections are regarded as the primary mechanism for citizens to hold politicians accountable and sanction those who they are dissatisfied with. However, a main difficulty in holding politicians accountable is that voters lack the information necessary to instruct the government what to do and to judge what it has done (Manin, Przeworski, and Stokes 1999).

The research object in paper 2 is *governmental transparency*. This is "the ability to find out what is going on inside a public sector organization" (Piotrowski and Van Ryzin 2007: 308). It comprises information such as politicians' individual voting behavior in parliament, perquisites of delegates, key figures of all kind of political and economic developments, ex ante expectations or ex post evaluations of policies, and details about placing and costs of public contracts. For the reasons

mentioned in the last paragraph, governmental transparency can be regarded as a precondition for political accountability.

According to Piotrowski (2007: 91), there are five channels through which such information can reach the public: First, proactive dissemination by all kind of public agencies via press releases, provision of statistical figures, publications of historical documents or posting documents online. Second, requesting information that is not proactively provided by any agency but that has to be specifically requested by journalists or citizens. Third, whistle-blowing, the publication of administrative misbehavior or illegal activities. Fourth, leaks, the release of information that is not intended to become public to media outlets. Fifth, open meetings where information is discussed publicly by both political elites and representatives of media or interested citizens.

The research objects in paper 3 are *liberal attitudes*, or more colloquial, as I labeled it in the title of the paper, open-mindedness. In this paper, the interpretation of liberalism corresponds to what can also be labeled as progressive, "classical liberalism" (Janda 1980), or "libertarianism" (Kitschelt 1994; Kriesi 1998). Regarding a two-dimensional ideology space with a socio-economic and a social-moral dimension (Janda 1980; Lipset and Rokkan 1967; Weisberg and Rusk 1970), this definition of liberalism matches the latter dimension. Conversely, this means that peoples' attitudes towards economic equality and the degree of governmental interventions into the market is not of interest here. According to a commonly used definition from social psychology, an attitude is the "psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (Eagly and Chaiken 1993:1). The object of an attitude can be specific (such as a person or a thing) or abstract (such as in this paper, political policies, moral issues, or certain group of people like homosexuals). An attitude is thus considered liberal if it favors the acceptance of individual rights and freedom, tolerance towards diversity, and openness to change. It stands in contrast to conservative attitudes that favor the retention of existing social institutions and compliance with traditional norms and values.

2.2. Theoretical Framework

In the early days of wider internet diffusion in the 1990s, many researchers held strong beliefs about its effects on politics and democracy. The internet was considered "the great equalizer" (Rheingold 1991) and some anticipated the development of an "electronic democracy" (Browning 1996). Bimber (1998) calls those approaches that expect the internet to produce a resurgence of individual-level influence on government and politics "popular claims". They have in common that they expect access to information and communication to become decentralized and, as a result, citizens to become more informed and participative and less dependent on elites

and political intermediaries. In its most extreme form, the populist vision includes a government that is instructed by well-informed citizens via electronic media.

All too often, this kind of expectations share a technological determinist view (Karakaya Polat 2005; Weare 2002): The internet is regarded as a "deus ex machina" (Weare 2002) that inextricably leads to a certain and final outcome, ignoring the fact that technology is actively adopted by people and within already existing social and political institutions. As Bimber (1998:135) states, the central theoretical problem with the populist claim is "the absence of a clear link between increases in information and increases in popular political action". Thus, instead of putting the emphasis on the internet as a technology, Karakaya Polat (2005) suggests to examine the different facets of the internet – the internet as information source, as communication medium, and as virtual public sphere – to establish a causal link between technology and political outcomes which can also be addressed by established theories.

Out of these different facets, this dissertation focuses on the internet as an information source. The facilitation of communication is also accounted for, but only as a means to the exchange of information, not as a means to political participation or as a possibility for more direct forms of democracy. Karakaya Polat (2005) and Weare (2002) suggest that research that praises the internet's potential as an information source (as this dissertation does) have to establish two causal links: first, the link between internet advances and increases in information availability; second, the link between increased information availability and changes in certain political outcomes. Below, I elaborate on the causal links in this dissertation. I furthermore explain how the papers address proposed objections concerning the efficacy of the internet.

The first link seems relatively indisputable. The last section already provided some vivid illustrations of the internet's importance for information search. In a digital environment, recording, storing, searching for, and accessing political information has become much faster, cheaper, and independent of time and place. In short, the transaction costs of information acquisition are much lower. For the first time, ordinary people can become broadcasters of information themselves and reach potentially huge audiences via private blogs or social media (Weare 2002). New kinds of whistleblower platforms such as Wikileaks or the German Guttenplag (see section 1) can provide the public with classified information and reveal political misbehavior. Open government and e-governance (McDermott 2010) are a further source of political information and a new possibility for direct information exchange between government and citizens. As a result, new ICT substantially increase the available (political) information and can improve facilitate investigations and information flows.

In papers 1 and 2, the accountability relationship between citizens and politicians is characterized by information asymmetries concerning the policy process. The relationship is analyzed within a principal-agent framework (Fearon 1999; Ferejohn 1986; Miller 2005). If citizens lack information about politicians' actions and decisions, this leads to moral hazard regarding the behavior of politicians because the information asymmetry represents an insurance against detection of wrongdoing and against electoral sanctions. From a principal-agent perspective, the second link can be established because the increased information availability by the internet (link 1) reduces the information asymmetry and thus leads to more accountability. However, there are still two objections against the validity of this second link.

First, as already outlined in the previous section, citizens' cognitive abilities and motivation to inform themselves about politics might be too limited (Bimber 1998; Lippmann 1934). If "most people, most of the time, are able to find better things to do than participate in politics" (Walker 1991, p. 19), an increased availability of political information will have no effect at all, because no one will process this information. Paper 1 addresses this objection. I show that political accountability does not require that all citizens are well informed about what their representatives are doing. Instead, it is sufficient if a small group of news intermediaries exploits the increased information capacities and has the potential to become better informed about potential wrongdoings.

Second, principal-agent theory suggests that politicians might not support transparency policies to hamper the information flow to citizens [2]. Transparency policies facilitate political accountability and thus decrease politicians' opportunities to enforce self-interests. Snider (2009) emphasizes the issue by asking in the title of his respective study, "Would you Ask Turkeys to Mandate Thanksgiving?". Paper 2 addresses this objection. It compares different motivations that could influence politicians' attitudes towards transparency policies. Besides self-interest, these motivations include the anticipation of voters' preferences (office-seeking) (Strøm 1990) and elite socialization (McClosky 1964; Sullivan et al. 1993). The results show that especially the latter one is a strong driving force. Therefore, politicians' policy preferences cannot be regarded as a clear obstacle to political accountability.

Paper 3 analyzes the impact of internet usage on citizens' attitudes towards social and moral issues. It is thus less concerned with political information, but with the general content of news

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[2] Strictly speaking, paper 2 does not address the impact of the internet. It does, however, relate to the second link, the connection between information availability (transparency) and accountability. The issue of governmental transparency recently gained a lot of importance because of new technology-driven institutions like e-governance, electronic petitions, or open data.

or entertainment programs and how issues are framed in the media. Analogous to paper 1 and 2, the first causal link says that the internet increases information availability. For paper 3, I further argue that internet content has more variety and is more liberal on average than the content of traditional media. This is because its technical features translate into social mechanisms that do not exist for traditional media (see section 3.3.).

The second link for paper 3 is based on cultivation theory (Gerbner 1969), social learning theory (Bandura 1986), and agenda setting and framing theories (Scheufele and Tewksbury 2007). All of these theories propose that people are heavily influenced by the values and worldviews that are dominant in the media. Therefore, using the internet as a source of news and entertainment information leads to more liberal attitudes than consuming traditional media because the content is more liberal (link 1). In distinguishing between the effects of different media, this argument disagrees with the assumption of cultivation theory that asserts a uniform (conservative) effect of all kinds of media (Morgan, Shanahan, and Signorielli 2009).

This section shows that all three papers of the dissertation refer to the internet as an information source. A two-step causal link between the availability of information and the respective outcome can be established. In paper 1 and 2, the crucial link is whether more information could really lead to more accountability. They both address two possible objections, the limitations of citizens to process more information (paper 1) and the willingness of politicians to support transparency policies (paper 2). Conversely, for paper 3 the crucial link is the first one – whether the internet really leads to more liberal content – while the second link has been often validated by different streams of research. This sections further points out that research on internet effects can and should be related to established theories (see section 4).

3. Extended Summaries

This section presents extended summaries of each paper. Table 2 gives an overview over the key features such as the research questions, data sets, and the applied methods.

Table 2: Overview of the Papers

	Paper 1	Paper 2	Paper 3
Title	Can the Internet Promote Political Accountability? Evidence from a Laboratory Experiment	Why German Political Elites Support Governmental Transparency. Self-Interest, Anticipation of Voters' Preferences or Socialization?	Online and Open-Minded. Cross-Country and Panel Analyses of the Impact of Internet Usage on Liberal Attitudes
Status of publication	Submitted to *Journal of Information Technology and Politics*	Submitted to *European Political Science Review*	Submitted to *Communication Research*
Conferences	- 5th Annual NYU-CESS Experiments in Political Science Conference, New York City (USA) - Research Seminar in Applied Microeconomics, Cologne (GER) - Socialbar Köln – Politische Partizipation in digitalen Netzen, Cologne (GER) -PhD colloquium at the University of Duisburg-Essen, Institute of Empirical Political Science, Prof. Achim Goerres	- 38th Annual Conference of the International Association for the Studies of German Politics, London (UK) - 2nd Soclife Winter Workshop, Cologne (GER) - PhD colloquium at the University of Duisburg-Essen, Institute of Empirical Political Science, Prof. Achim Goerres	- PhD colloquium at the University of Duisburg-Essen, Institute of Empirical Political Science, Prof. Achim Goerres
Research question	Can the internet promote accountability although most people will not make use of the increased information availability?	Why do political elites support governmental transparency? Which impact – self-interest, anticipation of voters' preferences, or socialization – is strongest?	Does internet usage increase liberal attitudes? How does the impact of internet usage differ from the impact of TV consumption? How is media impact mediated by countries' liberalism?
Data	Self-collected from a laboratory experiment in the "Cologne Laboratory for Economic Research"	German Longitudinal Election Study 2009 (GLES) - Candidate Campaign Survey, Survey and Structural Data	(1) World Values Survey Wave 5 (2) Dutch Longitudinal Internet Studies for the Social Sciences (LISS) (Panel data)
Technique of data analysis	- Mann-Whitney-U test (continuous var.); - Fisher-Exact test (dichotomous var.);	OLS regression with clustered standard errors	(1) Random intercept models, random coefficient models, empirical Bayes estimation; (2) Fixed effects models
Country	Germany	Germany	(1) 57 countries from all over the world (2) The Netherlands
Units of analysis	Students (playing the role of politicians and citizens)	Politicians (candidates for the German Bundestag 2009)	Citizens

3.1. Paper 1: Can the Internet Promote Political Accountability? Evidence from a Laboratory Experiment

One of the most prominent arguments against any positive effects of ICT on political accountability is that ordinary citizens have limited cognitive abilities and motivation to inform themselves about politics (Bimber 1998; Karakaya Polat 2005; Lippmann 1934). Although the internet increases the availability of information about politics and about politicians' actions, most citizens will not be better informed at all. Some might be even less informed because the substitute the acquisition of political information with new entertainment opportunities of ICT (Prior 2005). In this paper, I address this issue and argue that ICT can still increase accountability via a 'Fire-Alarm Mechanism' (McCubbins and Schwartz 1984). The claim is tested with a self-designed game in an economic laboratory experiment.

Political accountability has been shown to be dependent on the degree of transparency of politician behavior (Besley and Burgess 2002; Cuillier 2008; Olken 2007; Serra 2011). An accountability mechanism works if politicians have to fear that wrongdoings will be sanctioned. To justify this anticipation, *someone* has to monitor politicians' actions and decisions and a sufficient number of voters have to find out about the misdemeanor. It does not require that everyone informs herself directly and in detail. Instead, according to Arnold (2004, p. 13) it is "much more important that information regularly flows to those who act as watchdogs […] and that they have easy ways to communicate with other citizens when they discover representatives doing disagreeable things." McCubbins & Schwartz (1984) illustrate the superiority of such intermediated information with the analogy of a fire alarm as opposed to police patrols, pointing out the first one's less centralized, less active, and less direct oversight.

To go one step further it is enough that politicians believe that their actions might be observed and thus change their behavior in anticipation. In this way, politicians act more in accordance with citizens' interests not only because of actual information flows to citizens but simply because there is a sufficiently high chance citizens could potentially get informed (Snider 1996). In consequence, citizens at large do not need to be actually well-informed; it is sufficient that politicians anticipate that citizens potentially get informed by the watchdogs

What the internet does is decreasing the transaction costs of information acquisition and diffusion. Ordinary citizens likely only benefit slightly from this development directly because they are still limited by their high opportunity costs of information acquisition. However it enables watchdogs that have low opportunity costs (because information seeking is their profession or they might have other specific interest in doing this task), to substantially enhance

their information acquisition. Thus, in actuality, the internet meets the requirements outlined by Arnold (2004) above: It improves the information flow to and from those who act as watchdogs. The internet simplifies journalistic routine investigations, enlarges the circle of people who can act as watchdog, increases possibilities to monitor political behavior, and speeds up and eases information diffusion.

From the theoretical considerations I derive four propositions in the paper:

> P1: Politicians, to a certain extent, overestimate the risk of being monitored in every kind of information environment.
>
> P2: Politicians anticipate that citizens are potentially better informed in an environment with higher diffusion of modern ICT.
>
> P3: In an information environment with higher diffusion of modern ICT, politicians act more in accordance with citizens' interests.
>
> P4: Actual information levels among citizens do not differ between environments with and without modern ICT.

Because information levels and information flows are hard to measure in an uncontrolled environment, I conduct a monetary incentivized experiment in the Cologne Laboratory for Economic Research. Based on a trust game (Berg, Dickhaut, and McCabe 1995), I design a simple experiment that reflects the accountability relationship between a citizen and a politician in different information environments. Subjects play a one-round bargaining game anonymously in groups of two. The citizen has to transfer an amount of money to the politician. During the transfer, the money is multiplied by a factor x that is either two or four. The politician now has to divide the money between her and the citizen but only she knows whether the figurative cake to divide is small (x = 2) or big (x = 4). Citizen's best interest would be an equal split. However, because information is asymmetric, the citizen does not know the actual size of the cake. When she receives an amount equal to the size of half of the small cake, she therefore cannot distinguish whether she actually receives half of a small cake (representation /fair decision) or only a quarter of the big cake (fraud / unfair decision) (Güth, Huck, and Ockenfels 1996). The politician can exploit this lack of knowledge. However, the citizen has the opportunity to acquire information that reveals the size of the multiplier with a certain probability. If she successfully reveals unfair behavior, the politician is sanctioned and outcomes are swapped. The game reflects a situation where a politician can hide unfair behavior behind external contextual factors unknown to the citizen. Different treatment conditions vary the number of watchdogs (zero/three/six) and thus the degree of information that the citizen can receive.

The results of the experiment show that there is no general overestimation of information acquisition (as proposed in P1). In line with P2, politicians (falsely) anticipate that citizens are better informed in the watchdog treatments (while in line with P4, the actual information acquisition is about equal in all treatments). However, this anticipation does not translate into more fair behavior in the watchdog treatments (as proposed in P3). There is some evidence from further analyses that this might be due a phenomenon also known as "hidden costs of control" (Falk and Kosfeld 2006; Frey 1993): Agents intrinsic motivation is crowded out and they reduce their performance because the principals' monitoring is interpreted as a signal of distrust or as a limitation of their choice autonomy

In a further analysis, a remarkable pattern appears: On the one hand, there is no significant difference in anticipations between treatments among politicians who choose to act fair. On the other hand, among the subjects acting unfair, the estimation of information acquisition is more than twice as high in the watchdog treatments. There are two possible explanations: First, politicians play unfair and because they play unfair the possibility that watchdogs will buy information to reveal their decision is more salient to them. Second, politicians play unfair as a consequence of the expectation that their partner will acquire more information. While the research design is not able to evaluate those explanations, the analysis of the decision-making motivations supports the second possibility. In the treatment without watchdogs, fair decisions are motivated about equally by fairness (63%) and risk aversion (55%). In the watchdog treatments, however, there is a substantial difference. Only 22% of fair decisions are motivated by fairness but 89% by risk aversion.

The conclusion of this paper is that on the one hand, ICT can actually increase political accountability, despite objections concerning citizens' motivational and cognitive limits to informing themselves about politics and the small and fragmented audiences of new media. On the other hand, besides this expected primary impact channel, my experiment reveals an unexpected second channel: Higher monitoring possibilities lead to a crowding-out effect of politicians' intrinsic aspiration for representing citizens' interests. This is partly replaced by self-interests, a phenomenon known as "hidden costs of control" in the economic literature. Apparently, politicians who are supposed to act in the best interest of citizens also interpret higher external control as distrust in their competence and benevolence and as limitation of their choice autonomy. In response, their motivation and performance might decrease or they might fall prey to moral hazard.

3.2. Paper 2: Why German Political Elites Support Governmental Transparency – Self-Interest, Anticipation of Voters' Preferences or Socialization?

In the second paper I analyze why political elites support governmental transparency. Governmental transparency – citizens' 'ability to find out what is going on inside a public sector organization (Piotrowski and Van Ryzin 2007: 308) – is beneficial in several ways. It increases governmental responsiveness (Besley and Burgess 2002), civic engagement (Capuno and Garcia 2010), citizens' trust in government (Grimmelikhuijsen 2009), and good governance (Islam 2006). Although their opinion is crucial for the actual policy adoption, to my best knowledge, the attitudes of elites on transparency have never been analyzed. For this reason, I present three different possible motivations that could drive elites' attitudes in the theoretical section. In the empirical analysis I draw on data of Candidates for the German Bundestag from the German Candidate Study (Rattinger et al. 2009).

The first motivation, self-interest, is drawn from principal-agent theory (Barro 1973; Ferejohn 1986). It stresses the informational advantage in the policy process that politicians enjoy over citizens. Politicians can exploit this advantage to enforce their own interests which might differ from citizens' interests (Stiglitz 2002). This behavioral change that economists call moral hazard is caused by an insurance against a risk. Here the insurance is the information asymmetry that leads to a reduced risk of electoral sanctions for wrongdoings. In representative democracies, such moral hazard includes policy divergence (the deviation from citizens' preferred policy), rent extraction (the exploitation of political authority for private benefits), fraud, corruption, and leisure shirking (bad policy outcomes as a consequence of politicians' low effort) (Strøm, Müller, and Bergman 2003). According to principal-agent theory, there should be no rational reason for politicians to support transparency since it would lower the information asymmetry and consequentially decrease the possibilities to enforce their self-interest.

The second motivation, anticipation of voter preferences, is drawn from office-seeking theory (Strøm 1990). From this perspective, politicians that seek office should support policies that are popular among the electorate to increase their chances to win or to retain office. If one assumes that voters are highly in favor of transparency policies (Piotrowski and Van Ryzin 2007), anticipating these preferences might be considered as rational behavior for political elites as well because supporting such transparency policies might lead to more electoral support from voters. From this broader perspective of rational behavior, politicians do not gain utility by enforcing their self-interest, but by supporting popular policies to maximize their chances to win or to retain office. However, this motivation might vary dependent on how much a specific politician

depends on the voters' support, and on how much her specific voters value governmental transparency.

The third motivation, elite socialization, is drawn from elite theory which emphasizes the impact of elites' socialization on their attitudes (Bachrach 1962; McClosky 1964; Stouffer 1955). According to the democratic elitism literature, political elites in general have a particularly high appreciation of democratic values and civil liberties – in any case higher than that of ordinary citizens. Since governmental transparency can certainly be considered a democratic value, elite theory would suggest that elites show strong support for transparency as a consequence of their specific elite socialization. Again, one could argue that elite socialization differs substantially between parties and consequently might lead to more heterogeneous elite preferences. As a result, socialization in left-leaning parties should lead to higher concerns about extending civil rights and liberties (including governmental transparency) than socialization in right-leaning parties that is more concerned with the conservation of the existing order.

The three approaches outlined above provide distinct (and partly conflicting) motivations for politicians to support or reject governmental transparency. However, for my analysis, I do not assume a single explaining motivation or homogenous preferences among political elites. All three motivations will rarely appear in their ideal typical form: the selfish homo oeconomicus who abuses her power and exploits her position at the expense of the citizenry; the unprincipled turncoat who tells the voters what they want to hear; and the benevolent upholder of democratic values. Instead I suggest that there are complementary motivations for political elites to support or reject transparency policies and assume that politicians are influenced by all impacts.

The empirical analysis is conducted with 790 candidates for the German Bundestag 2009. Candidates' attitude towards transparency is measured with two items asking whether parliamentary committees should be held publicly or confidentially and whether the negotiations of parliamentary committees should be broadcasted live via electronic media. Since the data have a hierarchical structure – candidates nested in constituencies – usually multilevel analysis is an appropriate way to address the dependency within a common higher unit (Raudenbush and Bryk 2002; Snijders and Bosker 1999). However, since empirical tests show that the independency assumptions are not violated, I conduct ordinary least square estimation for reasons of parsimony and only adjust standard errors for within-cluster correlation (Williams 2000).

My analysis reveals that neither principal-agent theory nor democratic elitism in its most canonical forms can explain politicians' preferences. I find neither homogeneous support for

transparency policies nor a uniform rejection among candidates for the German Bundestag. By far the strongest predictor for differences in support for transparency policies is party membership. Since it is controlled whether a candidate is member of the German Bundestag, one can eliminate the possibility that this party effect is only existent because each party has a different share of politicians in incumbent positions. Thus it can be ruled out that party differences are motivated by instrumental reasons only. Although I am not able to separate the amount of the party effect that is due to socialization from that which is due to the anticipation of voter preferences, there is still evidence that both motivations exist. First, the impact of direct candidacy, postmaterialist values among the electorate, and closeness of the electoral race are existent for left-leaning candidates but not for right-leaning candidates, which speaks for the existence of anticipation of voters' preferences. Second, the fact that transparency policies are not uniformly rejected, the nearly significant effect of left-leaning ideology on the individual level, and in particular the effect of individual ideology within the more left-leaning parties speaks for the existence of socialization effects. Furthermore, I find evidence for the existence of self-interest motivations. The overall mediocre transparency support, the lower response rate among successful candidates and the higher support for a policy change that increases the information level of candidates themselves can be considered as such.

There are several implications of these findings. At the moment, there is no consensus about governmental transparency among political elites in Germany. So far, the issue was mainly pushed onto the agenda by left-leaning parties. The results imply, however, that governmental transparency has the potential to become a major issue in the future: First, if the demand for transparent governmental work rises among citizens, the anticipation of voters' preferences will lead to higher support among political elites. Second, if the effect of age is interpreted as a cohort effect (such an interpretation actually needs longitudinal data to be tested), with younger cohorts of elites being more supportive of transparency, proponents of transparency will slowly replace older and more skeptical colleagues. On the other hand, there might also be some obstacles on the way to transparent governments: There is (non-significant) indication that members of the parliament are less supportive of transparency than unsuccessful candidates. Furthermore, theoretical considerations by Bowler et al. (2006) (which again would require longitudinal data to test) suggest that candidates of parties in government are less supportive of transparency than candidates of the opposition. Thus, those elites that have more power to adapt transparency policies are less likely to do so.

3.3. Paper 3: Online and Open-Minded. Cross-Country and Panel Analyses of the Impact of Internet Usage on Liberal Attitudes

In the third paper, I argue that internet usage can promote more liberal attitudes. Recall that in section 2.1., I defined liberal as what is sometimes also called progressive, or the social-moral dimension of liberalism that (Janda 1980) calls 'classical liberalism'. That means the claim does not refer to peoples' attitude towards economic equality and the degree of governmental interventions into the market, but only to their acceptance of individual rights and freedom, their tolerance towards diversity and their openness to change.

Scholars from different fields argue that people's attitudes and their perception of the world is strongly influenced by the information they get presented via media (Bandura 1986; Besley 2008; Entman 1989; Gerbner 1969; Inglehart and Baker 2000). However, besides substantial changes in information processing, communication, and the media environment that are associated with recent digital innovations, the impact of the internet on social and moral attitudes has not been adequately addressed so far. There are some studies on the internet's impact on political participation (Norris 2002; Shah et al. 2005; Xenos and Moy 2007), voting (Tolbert and Mcneal 2003) and democratic norms (Chu and Nevitte 2010; Nisbet, Stoycheff, and Pearce 2012). Closest to my analyses of the impact on liberal attitudes are Norris and Inglehart (2009) and Besley (2008). However, the first ones do not differentiate between internet, television and newspaper, but assume a uniform positive impact of media usage on liberal attitudes. The latter one differentiates between media, but on the one hand he analyzes their impact on the more abstract concept of values, on the other hand the analyses are restricted to European countries only.

In the theoretical section, I first show that media effects theories, in particular cultivation theory, suggest that the consumption of media (especially television) leads to more conservative attitudes towards numerous social and more values (Gerbner et al. 1982; Morgan et al. 2009). This is because the high costs of production and distribution of content leads to a small number of broadcasters and to the commercial necessity to satisfy the needs of a large, and thus necessarily heterogeneous, audience. Therefore, TV messages have to be designed to disturb as few as possible, confirm rather than challenge existing views, and steer a 'middle course' (Morgan et al. 2009:40) to serve the mainstream. Empirical evidence includes e.g. more traditional gender roles (Smith and Granados 2009), more stereotypes about foreigners (Mastro 2009), and less environmental concerns (Shanahan, Morgan, and Stenbjerre 1997) among heavy TV viewers.

However, second I argue that contrary; the internet has a positive impact on liberal attitudes because its technical features translate into social mechanisms that are not existent for traditional media. (1) The decentralized architecture of the internet changes the government's ability to control information flows. Censorship is much more difficult. (2) The decreasing costs of information broadcasting leads to a) more (non-corporate) broadcasters and b) to less commercial pressure on professional media. (3) The possibility to state opinions anonymously can terminate a spiral of silence (Noelle-Neumann 1974). (4) The internet facilitates communication and exchange between very different people from diverse backgrounds. In the sense of the (parasocial) contact hypothesis (Allport 1954; Schiappa, Gregg, and Hewes 2005) this can reduce prejudices. Furthermore this can create bridging social capital (Putnam 2000). (5) The required technical knowledge and innovation affinity to use the internet leads to a younger and better educated audience. Altogether this leads to a more liberal agenda and a more liberal framing on the internet and creates an atmosphere of higher openness and tolerance.

To test this claim my approach involves two separate analyses. In the first one I use cross-sectional data of 57 countries from the World Values Survey (WVS)(World Values Survey Association 2009). This allows testing the effect of internet usage on a large number of values and under very different country contexts. The dependent variables are four indices – 'sexual and moral values', 'religious values', 'gender equality', and 'family values', borrowed from Norris and Inglehart (2009). To address within country dependencies and to avoid an underestimation of standard errors, multi-level analysis is used (Rabe-Hesketh and Skrondal 2008; Raudenbush and Bryk 2002). Despite controlling for several socio-demographic and country characteristics, the cross-country approach cannot completely rule out the possibility that the effects of internet exist only because internet users share some unobserved characteristics that are also positively correlated with liberal attitudes (selection effect). Therefore, in the second analysis I draw on panel data of the Dutch Longitudinal Internet Studies for the Social Sciences (LISS) as a further analysis. A fixed effects model controls for all unobserved characteristics that are constant over time which substantially reduces the probability of a mere selection effect.

The results from the WVS show that the internet has a positive effect on liberal attitudes in many countries. Contrary, there is rarely an effect for television and if it exists it is often negative. The effect is moderated by the respective society's average liberalism. In conservative countries the effect is not existent or only weak, but it gets stronger the more liberal the country is. Contrary, for television consumption there is only a weak positive effect on liberal attitudes in liberal countries. In conservative societies, watching television actually has a substantial negative effect

on liberalism. This might be because television in conservative societies is pressured by public, religious, and commercial interests; pressures applicable much less on internet services. The panel analysis with the LISS data from the Netherlands, a very liberal context, mirrors the WVS findings. While there are significant positive internet effects in the fixed effects models, there are no significant effects for television

This paper contributes to the literature of media effects in two ways. First, it clearly demonstrates that different kind of media can have different kinds of impact. In this way it disagrees with traditional cultivation theory that postulates a uniform negative effect on liberalism. Second, the paper shows that internet usage is not only beneficial to the political sphere and political participation, but also to a much broader social sphere and that it can increase people's general open mindedness. Given that even in highly developed countries, high internet penetration rates are a comparably recent phenomenon, one might expect to observe more substantial internet effects in the future. And even in conservative countries where internet usage has no direct positive effect on liberal attitudes, the prospective substitution of (negative) TV effects with (neutral) internet effects can be considered as an indirect positive effect of the internet.

4. Integration into the Literature

This section integrates the dissertation into the literature. First, I will relate the papers to all relevant disciplines of the social sciences. Second, I will integrate them into four different existing perspectives concerning the causal path linking technology and politics. Third, I will integrate the papers into the most important scholarly discourses.

4.1. The Integration into Disciplines

The internet technology and information flows are ubiquitous in virtually every area of people's life and have an impact on many processes, institutions, actions, and attitudes. For this reason, they play a crucial role in many scientific disciplines. In this dissertation, the four most relevant disciplines are economics, political science, sociology, and communication studies. Below, I elaborate on how the four most important elements of the dissertation are covered by these disciplines and to which papers they are related to. An overview can be found in Table 3.

Table 3: Elements of Study, Disciplines, and Papers

Element of Study	Laboratory Experiment	Accountability /Transparency	Attitudes (Elites/Citizens)	Media Effects
Disciplines	Economics	Economics		
		Political Science	Political Science	
			Sociology	Sociology
			Communication Studies	Communication Studies
Paper	Paper 1	Paper 1		
		Paper 2	Paper 2	
			Paper 3	Paper 3

To analyze the phenomenon of accountability (paper 1) and transparency (paper 2), this dissertation substantially draws on principal-agent theory (Arrow 1985; Spence and Zeckhauser 1971), which is originally a theory of the discipline of *economics*: a principal delegates a specific task to an agent and rewards the agent for acting in her interest. The principal-agent relationship is characterized by at least partly different preferences between principal and agent and by asymmetric information. The agent has an informational advantage over the principal regarding the quality and commitment of her own actions because the principal cannot perfectly monitor her. Principal-agent theory suggests that in such a situation with hidden action and hidden information, the agent will maximize her utility by enforcing her self-interest, a situation also described as moral hazard. Moral hazard triggers a behavioral change because there is an insurance against a risk. Here the insurance is the information asymmetry that leads to a reduced risk of being sanctioned. Accountability is the possibility of the principal to get the agent to act in her best interest. It is dependent on transparency, the degree of information about the agent's actions that the principal can receive.

Furthermore, in paper 1 an economic laboratory experiment is conducted, a method that is often used to contest assumptions of perfect rationality (Falk and Heckman 2009; Levitt and List 2007). In economic lab experiments, participants play an economic game. They make decisions that have monetary consequences. The main advantage of lab experiments is that they allow controlling for factors like information levels that are hard to measure in the field. For this reason the lab experiment is an excellent tool to simulate principal-agent relationships.

This dissertation also draws heavily on *political science*. First, political science has also adopted the principal-agent approach of the economic literature (Barro 1973; Ferejohn 1986; Miller 2005). This means that paper 1 and paper 2 deal with a specific case of a principal-agent setting where politicians are in the role of agents. They have to act the best interest of citizens, the principals.

In the political context, transparency means the ability to see what political agents are doing (Piotrowski and Van Ryzin 2007). Accountability here is the ability to ensure that political elites actually act in the citizens' best interest (Fearon 1999).

Second, paper 2 builds on findings of a branch of political science literature called democratic elitism (Bachrach 1962; McClosky 1964; Stouffer 1955). Democratic elitism analyses political elites' attitudes towards political and social issues. It argues that because of their specific elite socialization, politicians have a higher appreciation of democratic values and civic liberties. Consequently, governmental transparency as a civil liberty should be supported by political elites. Because I also take into account the criticism that elites have very heterogeneous preferences (Fletcher 1989; Gibson and Duch 1991; Sniderman et al. 1991), I contrast motivations that stem from elite socialization with two other possible motivations.

Attitudes, those of elites as well as those of citizens, are also a central concept of *sociology*. For this reason paper 2 also has a small sociological component. While explaining an individual's attitude might be most related to social psychology (Eagly and Chaiken 1993; Fishbein and Ajzen 1975), the phenomenon becomes a sociological one if attitudes towards socially relevant issues like immigration or welfare state are predicted by socio-demographic characteristics or compared over different countries (Blekesaune and Quadagno 2003; Mayda 2006). Media use and the use of technology are further relevant sociological issues. For both reasons, paper 3 strongly relates to the sociological literature.

Finally, paper 3 of this dissertation also integrates into the discipline of *communication studies* or, more specifically, the literature of media effects (Jennings and Oliver 2009). Compared to sociology, communication studies focus on the impact and mechanisms of media as the independent variable rather than on dependent variables like attitudes. Most empirical studies that analyze the impact of media on attitudes and values are based on cultivation theory (Gerbner 1969). It argues that consumption of mass media – most prominently television – leads to a subtle "cultivation" of values and world views that are dominant in the media content. For instance, there is evidence that television consumption leads to more conservative gender roles (Signorielli 1991; Smith and Granados 2009), lower acceptance of ethnic minority groups (Boomgaarden and Vliegenthart 2007; Mastro 2009), and fewer concerns about the environment (Shanahan and McComas 1997; Shanahan et al. 1997). Media effects theories identify social learning (Bandura 1986, 2009) as an underlying psychological mechanism. Via agenda setting and news framing (McCombs and Shaw 1972; Scheufele and Tewksbury 2007; Scheufele 1999), media can effectively have an impact on people's attitudes.

The internet is a relevant element of study in all three papers and in all four disciplines. The next section will take a closer look on how ICT can be causally linked with political and social phenomena in different ways.

4.2. Research Perspectives on Internet Politics

Research that analyses the connection between ICT and politics or society covers a broad array of different topics. The Routledge Handbook of Internet Politics (Chadwick and Howard 2009b) provides a good overview. This variety can be explained by the very different perspectives and assumptions that researchers hold regarding the causal paths linking technology and politics. Below, Weare (2002) distinguishes two different fault lines in the scientific discourse that lead to four distinctive research perspectives (see Figure 1).

The first fault line that divides the literature is delineated by the causal direction of the relation between technology and politics. While technological determinists expect technology to drive politics, advocates of a social shaping perspective assume that the existing social order and institutions shape the development and use of technology. Concerning developments in ICT, popular claims (see section 2.2.) represent the first perspective. They expect technology to equalize access to information, increase communication capacities, thus increase political participation, and as a result change the power relation between citizens and politicians. Internet technology is clearly causing political and social outcomes in this view. The reinforcement politics hypothesis (Norris 2001) in turn represents the latter perspective. Even if the internet has an equalizing potential, this approach assumes that it will mostly benefit elites because they have greater access to the technology and a greater impact on the design of institutions that regulate technology. In result, elites will preserve their privileges and the existing power relations are reinforced.

The second fault line distinguishes between the discussed types of effects in the literature. On the one hand, instrumental effects describe the way in which technology enables people to attain their (existing) goals. On the other hand, constitutive effects describe how technology changes the goals themselves. An example of an instrumental effect of ICT is the possibility to increase voter turnout – an already desirable outcome. A constitutive effect might be that ICT lead to a greater demand for direct participation and thus change citizens' preferences.

Figure 1: Different Research Perspectives in Internet Politics

Effect Type

	Instrumental	Constitutive
Technology to Politics	Technology Driven, Instrumental Change **Research Agenda** Uses of Technology Political Outcomes	Technology Driven, Constitutive Change **Research Agenda** Individual Values Public Opinion Social Capital
Politics to Technology	Socially Defined, Instrumental Change **Research Agenda** Design of Technology Legal Environment Technology Access	Socially Defined, Constitutive Change **Research Agenda** Movement Ideologies Normative Theory

Causal Direction

Source: Weare (2002:680)

The upper left quadrant describes the technology-driven instrumental change perspective. It is the predominant causal story in the analysis of internet politics (Weare 2002). It assumes that exogenous changes in ICT change political processes and the ability of individuals and groups to attain their goals. The focus of the research agenda lies on uses of ICT and the changes in policies and political outcomes. Examples for this perspective are studies on political participation (Boulianne 2009; Garrett 2006; Norris 2002; Shah et al. 2005; Tolbert and Mcneal 2003; Xenos and Moy 2007), effects on corruption (Andersen et al. 2011; Bertot, Jaeger, and Grimes 2010), or the use of social media for political action (Baumgartner and Morris 2009; Robertson, Vatrapu, and Medina 2010).

The bottom left quadrant represents the perspective of a socially shaped instrumental change. While this approach also suggests an instrumental effect, it does consider technology to be endogenous, not exogenous. In this context, technology is the outcome of social and political processes that are purposely designed to achieve subsequent effects. Because of the different expected causal direction, research from the socially shaped instrumental perspective focuses on the design of technology and its diffusion. Examples for this perspective are studies on the meaningful design of e-governance (Layne and Lee 2001; OECD 2003; Zavestoki, Shulman, and Schlosberg 2006), analyses of differences in internet access (digital divide) (Bonfadelli 2002;

Norris 2001; Warschauer 2004), or the regulation and censorship of internet content (Deibert 2009; King et al. 2013).

According to the technology-driven constitutive change perspective (upper right quadrant), technology will have a constitutive change on individual goals. The internet is expected to change with whom we interact and how we receive and present information. As a result, ICT will change political socialization and how people interpret their social environment. The focus of this approach lies on the internet's impact on individual values (Besley 2008) or public opinion (Best and Krueger 2005; Chu and Nevitte 2010; Norris and Inglehart 2009).

The bottom right quadrant describes the socially-shaped constitutive perspective. It examines how ideologies or social movements change beliefs, perceptions, or goals of technology. From this perspective, the internet can be considered as a social movement comparable with the environmental movement, the women's rights movement and the civil rights movement. The agenda is therefore strongly normatively driven. An example for research in this field is a study on how internet technology might open up policy processes and increase the demand for plebiscitary elements of democracy (Abramson, Arterton, and Orren 1988; Bohman 2004).

Each of the papers of this dissertation takes a different research perspective. Paper 1 asks whether the internet can increase accountability. In doing so, it considers technology as the causal factor, and it focuses on attaining an already existing goal. By asserting an impact of technology on a certain political outcome, paper 1 clearly takes a technology-driven instrumental perspective. Paper 3 asks whether the internet can lead to more liberal values. Again, technology is regarded as the causal factor. However, instead of an effect on existing goals, the internet is expected to change the goals. In focusing on the impact on value changes, paper 3 clearly takes a technology-driven constitutive perspective. Paper 2 asks why political elites support governmental transparency. In contrast to papers 1 and 3, technology is not regarded as the cause, but as the consequence of policy decisions. Furthermore, paper 2 concentrates on an already existing goal. Focusing on the design of technology-related policies, paper 2 takes a socially shaped instrumental perspective.

4.3. The Integration into Scholarly Discourses

In the preceding section, I presented the two fault lines that divide the literature concerning the causal link between internet and political or social outcomes. Besides this, this dissertation is not based on a central major discourse. This is because the papers combine aspects from different

disciplines and because much research on the internet is still relatively explorative. However, in each paper, one relevant discourse is captured "en passant".

Paper 1 captures one of the most important discourses in economics. On the one hand there is the classic ideal of economics, the homo oeconomicus, who has perfect information, always acts perfectly rational, and is only self-interested (Varian 1992). On the other hand, there is the criticism, mainly from behavioral economists and psychologists, who show that people are concerned about fairness and reciprocity (Bolton and Ockenfels 2000; Fehr and Schmidt 1999), tend to avoid risks (Arrow 1971; Pratt 1964), and deviate from rationality in many further ways (Kahneman and Tversky 1979, 1984).

Paper 1 adds to this discussion by conducting an experiment that analyses participants' decisions under differing information levels. Classical game theory would predict fairer behavior of agents if the principal has more information about their actions. In fact, there is a certain amount of both self-interest and fairness on all different information levels. Most interestingly however, fairness decreases if the agent expects the principal to have more opportunities to monitor his decision. There are related findings in the literature, where people behave less fairly or cooperatively if their behavior is monitored, a phenomenon also known as "hidden costs of control" (Falk and Kosfeld 2006; Frey 1993): Agents reduce their performance because the principals' monitoring is interpreted as a signal of distrust or as a limitation of their choice autonomy. My experiment shows that this monitoring does not even have to occur in reality. The mere possibility is enough to induce hidden costs of control.

Paper 2 captures a similar discourse. It contrasts three approaches that explain elite actions and attitudes by self-interest with one that concentrates on (political) socialization. The first of the former approaches is the political interpretation of the principal-agent model (Ferejohn 1986; Miller 2005). It argues that politicians might engage in moral hazard behavior if citizens do not have full information about their actions. Second, more generally, advocates of the literature on changing institutions (Bowler, Donovan, and Karp 2002; Riker 1980; Shepsle and Weingast 1981) point to politicians' self-interest by suggesting that elites who lose under the current institutional arrangement will support institutional changes while those in power will refuse changes in order to maintain the status quo. Third, the literature of coalition formation and party competition is included, which uses the concept of 'office-seeking' for party behavior that maximizes the chances to control government (Strøm 1990).

The socialization approach is most prominently represented by advocates of democratic elitism (Bachrach 1962; McClosky and Brill 1983; McClosky 1964; Stouffer 1955). They argue that elites' socialization is characterized by high levels of motivation, education, openness, participation in the political system, responsibility, contact with ideological diversity, and the belief in the necessity to find compromise (Sullivan et al. 1993). This specific socialization is expected to lead to a higher appreciation of democratic rights and civil liberties than that of ordinary citizens. However, some researchers interject that elite attitudes might not be as homogeneous and in fact rather dependent on ideology (Fletcher 1989; Gibson and Duch 1991; Sniderman et al. 1991).

One achievement of paper 2 is to compare and to contrast these different approaches that all too often live on their own. Furthermore, the different motivations are applied to the issue of governmental transparency for the first time. The results show a high variance in attitudes among German elites. There is empirical evidence for aspects of socialization as well as self-interest. The strongest predictor for attitudes on transparency policies is party membership. While party membership can also cover self-interest aspects, the control variables in the analysis imply that it is the party's socialization that is a highly influential characteristic. The conclusion is that most political elites have to prioritize between conflicting motivations that have different degrees of influence on their preferences and actions.

Paper 3 captures the discourse on the causal direction of the link between media usage and individual preferences. As I have already argued above, media effects theory argues that individuals' attitudes are strongly influences by the values and worldviews that are dominant in the consumed media content (Bandura 2009; Gerbner 1969; Scheufele and Tewksbury 2007). These theories focus on the supply side of media and ask, "what do the media do to people?" (Katz 1959). This view tends to see peoples' media usage as exogenously determined. The recipient is assigned a very passive, almost 'inert' (Klapper 1963:527) role that in undergoing the media exposure.

In contrast, the Uses and Gratifications (U&G) approach (Katz, Blumler, and Gurevitch 1973) focuses on the supply side of media usage and asserts that in the first place, it is the individual who chooses whether to use the media and which media content is consumed. Conversely to media effects theory, U&G asks, "what do people do with the media?". It argues that people choose the kind of media and the specific content that give them the most gratifications. This behavior of selective exposure (Klapper 1960; Stroud 2008; Zaller 1992) is in line with the theory of cognitive dissonance (Festinger 1957). It states that individuals select (political) information

that is consistent with their attitudes and beliefs and neglect information that is discrepant to avoid cognitive dissonance.

In paper 3 I take a media effects perspective in that I expect internet usage to have a positive impact on the degree of people's liberalism. However, I admit that more liberal people are more likely to prefer the internet over traditional media like television or newspaper and are more likely to choose liberal content in the first place. To take this selection effect into account, my cross-country analysis controls for many variables that could affect internet usage as well as liberalism. The panel data analysis with fixed effects models can further exclude the possibility of a mere selection effect. While the Uses and Gratification approach thus certainly provides valuable insights into people's motivation for using the internet, paper 3 shows that internet usage has an effect on values and attitudes that goes beyond the initial differences that determine the media choice.

One final overarching discourse in the literature revolves around the question whether the internet has more positive or more negative effects on society and politics. This debate will be taken up in the conclusion in the next section.

5. Conclusions from this Dissertation

This dissertation shows that information communication technology has the potential to empower people in several ways. First, paper 1 demonstrates that the internet can increase political accountability via the so-called Fire-Alarm Accountability Mechanism. Although citizens' motivations to inform themselves about politics remains stable, politicians anticipate that citizens might potentially become better informed. In consequence, they avoid inadequate decisions and actions more often because of the fear of electoral sanctions. These findings are in line with research that shows that internet diffusion is an effective way to fight corruption (Andersen et al. 2011; Bertot et al. 2010).

Second, paper 2 shows that a substantial part of political elites is supportive of transparency policies because of socialized convictions or for instrumental reasons. Pure self-interested motivations, however, play only a minor role. Future developments in ICT will further push transparency issues onto the political agenda and chances are high that elites become more supportive for two reasons: First, if the demand for transparent governmental work rises among citizens, the anticipation of voters' preferences will lead to higher support among political elites. Second, since younger cohorts of elites are more supportive of transparency, proponents of transparency will slowly replace older and more skeptical colleagues.

Third, paper 3 points out that people who use the internet become more open-minded. Open-mindedness can already be considered a goal in itself. But having more positive attitudes towards minorities and emancipating from backward societal rules can also increase people's social capital, which is presumably beneficial for social and political participation in a globally connected world. This assumption is in line with findings that internet usage increases participation (Boulianne 2009; Garrett 2006; Norris 2002; Shah et al. 2005; Tolbert and Mcneal 2003; Xenos and Moy 2007). Furthermore, these effects are likely to become more conspicuous, because even in highly developed countries, high internet penetration rates are a comparably recent phenomenon and the intensity of internet usage is still increasing.

So does the internet empower people? The answer to this question is not straightforward because this dissertation also points to obstacles for beneficial internet effects, and even to adverse consequences. Paper 1 shows that politicians can interpret the higher monitoring opportunities of citizens as distrust in their competence and benevolence and as limitation of their choice autonomy. As a result, politicians' intrinsic aspirations to represent citizens' interests are partly crowded out by self-interest. Paper 2 demonstrates that besides substantial support, there are also many reservations against too much transparency, especially among conservative political elites. And about 48% of all candidates oppose the idea that parliamentary committees should be broadcasted live via electronic media and are concerned about media frenzy occurring. Paper 3 shows that the liberalizing effect of internet usage is weakest or even not existent in the most conservative societies.

Furthermore, existing research shows that in many countries, access to internet is hampered and certain kinds of content or services are blocked (Deibert 2009; King et al. 2013). Malesky, Schuler, and Tran (2012) show that in authoritarian countries, transparency might have adverse consequences: Vietnamese delegates of provinces with higher internet subscription rates curtail their activity on query sessions, asking significantly fewer questions and refraining from direct criticisms. This is because without electoral sanctions, transparency does not make delegates more accountable to citizens, but to regime leaders. A very important point is made by (Morozov 2009, 2011) who points out that internet technology can actually be used by governments *against* citizens. Social media certainly fostered the coordination and sharing of information during the protests in Iran in 2009. However, the data collected automatically helped Iran's secret service to gather data about future uprisings and to identify and repress dissidents. "Once regimes used torture to get this kind of data; now they are freely available on Facebook" (Morozov 2009:12).

While Morozov's argument is mainly related to authoritarian regimes, recent insights about the extraordinary extent of digital surveillance activities of the U.S. National Security Agency (NSA) imply that ICT pose a potential threat to politics and society in democratic countries as well. In 2013, the documents leaked by Edward Snowden revealed that the NSA can and does collect data about basically every kind of digital information flow[3]. But if a government has the opportunity to investigate every piece of (political) communication, it is hard to preserve a perspective of the internet as a tool that can foster political participation, coordinate movements, and allow anonymous criticisms. Instead, by enabling the manifold violation of privacy, the internet might even be considered as a potential threat to freedom and democracy.

In summary, the internet, despite some drawbacks and limitations, is a very powerful technology that has the potential to create a "culture of transparency" (Bertot et al. 2010) or work as a "great equalizer" that reduces existing privileges concerning information and communication capacities (Rheingold 1991). Still, recent events have strikingly shown that the very same technology can be used for a massive violation of basic rights as well. The political and social outcomes of an ever increasing diffusion of ICT therefore heavily depend on the way technology is designed, regulated, and used. From this several implications arise for different groups of people.

To *politicians and policy makers,* paper 1 demonstrates that citizens have more opportunities to hold them accountable. Politicians should not misunderstand these opportunities as distrust in their competence or goodwill, but rather as an increasing demand of (parts of) the citizenry for transparency and participation. People who articulate their opinion on social media or public e-governance platforms should be considered as a possibility to increase the political dialogue and to reduce political frustration. Paper 3 also shows the social benefits of internet usage. To reap these desirable effects, politicians should thus actively enforce the expansion of ICT infrastructure. At the same time they have to establish legal regulations that protect the internet from abusive practices such as mass surveillance.

To accomplish these challenging goals*, researcher*s have the crucial task to advise politicians and policy makers about the potential benefits as well as possible dangers of ICT. In this introduction I pointed out that researchers should not be overoptimistic about ICT just because of its increased information and communication capacities. However, the papers demonstrate that despite certain obstacles, the internet can lead to desirable social and political outcomes.

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[3] For an overview of 314 references regarding the global surveillance disclosures from 2013 until present see Wikipedia (2014a).

Researchers have to clearly identify causal links between technology use and such outcomes and take up clear positions on technical, regulatory, and ethical issues.

The fast pace of technological progress gives *developers of ICT* a strong impact on society and political life. The diffusion of ICT does not only change the daily life of many people, but also raises many ethical questions for instance concerning privacy, intellectual property, or discriminating and criminal content (e.g. racism, child pornography). Oftentimes, technical possibilities establish standards long before all consequences can be judged and legal regulation can be adjusted accordingly. Developers of ICT products and services are certainly profit-oriented companies and not obligated to act in any public interest. However, it is desirable that they will recognize their power, think about ethical dilemmas that might arise from technological innovation and design ICT in accordance.

This dissertation has asked whether the internet can empower people. The three papers show that first, ICT can increase political accountability. Second, politicians have mixed feelings about governmental transparency. And third, internet usage, contrary to television consumption, increases open-mindedness. However, the papers have also shown that the internet is no panacea: There are a lot of limitations and sometimes adverse effects. Taken together, there are still many unanswered questions concerning the relationship between internet and society. This introduction has shown how such questions can be systematically approached and which causal links have to be established. In my opinion, designing and testing an accountability mechanism that is equally simple as the one presented in paper 1, but has no adverse motivational effects, is an especially promising approach for further research. While the recent disclosures about global surveillance have cast a shadow on ICT, after cautious consideration of the results of the papers, I conclude that the internet can still empower people.

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Paper 1

Can the Internet Promote Political Accountability?

Evidence from a Laboratory Experiment

Christian Weyand

Abstract. We ask whether technical progress in information communication technology (ICT) can increase political accountability via a 'Fire-Alarm Mechanism': Despite ordinary citizens' cognitive and motivational limitations to inform themselves about politics, ICT substantially increase the monitoring capability of those who act as watchdogs. Because of the resulting higher transparency, politicians anticipate that citizens at large might get more informed about their wrongdoings. To avoid electoral sanctions, they will act more representatively ex ante. Therefore, citizens do not need to be well-informed in actuality, it suffices that there is the potential to become well-informed through the watchdogs. We test this mechanism in a laboratory experiment that reflects the accountability relationship between a voter and a politician in information environments with increasing progress in ICT. In line with the predictions, subjects anticipate higher monitoring and justify their decision with the fear of being sanctioned more often. However, as an unexpected second effect, we find that they also justify their decision less frequently with fairness considerations. Overall, the two opposing effects do not lead to an increase in accountability. Our results imply that progress in ICT has the potential to increase accountability, but policy designers have to take negative side effects of higher control into consideration.

1. Introduction

On February 16th, 2011, German newspapers presented first evidence that the German Minister of Defense at the time, Karl-Theodor zu Guttenberg, had violated academic standards in his doctoral thesis from 2007 by not citing several copied passages. Only one day later, an anonymous doctoral student established "Guttenplag"[1], a Wiki-based internet platform for collaborative work that enabled volunteers to document plagiarism in Guttenberg's thesis. Within a short time, contributors of Guttenplag found plagiarized material in 65% of all lines of the dissertation. The frequency and unambiguousness of plagiarism found by Guttenplag led to the revocation of the Minister's doctoral degree only one week later. Because the public mostly agreed that Guttenberg deliberately plagiarized to bolster his career and reputation with the prestigious doctoral degree in an illicit way, he eventually had to step down from all political offices in March. Afterwards, Guttenplag and similar platforms continued to investigate doctoral theses of further German politicians. Until today, this has led to the revocation of at least nine more doctoral degrees.

The Guttenberg scandal provides anecdotal evidence for the way technical progress in information communication technology (ICT) can increase political accountability. Key features in the story are that the internet enabled laymen to investigate the incident, that only a small number of collaborators who analyzed the thesis sufficed to inform a large number of people about the misconduct, and that there were harsh consequences which may have a deterring effect on other politicians. With these features in mind, the goal of this article is to propose a mechanism that establishes a general link between progress in ICT and accountability. To test the efficacy of this mechanism, we conduct a laboratory experiment.

Existing mechanisms that link progress in ICT and political accountability often make bold assumptions about citizens' behavior (Bimber, 1998; Karakaya Polat, 2005). It is assumed that technical progress that increases information availability automatically leads to a well-informed electorate which in turn restores the balance of power between citizens and politicians (Rheingold, 1991). However, these mechanisms ignore long-standing objections that the capacity of media to recreate politics is limited by humans' cognitive abilities and motivation to inform themselves about politics and not by technical properties of the media itself (Lippmann, 1934). In

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[1] The name "Guttenplag" is a combination of Guttenberg's name and the German word for plagiarism – "Plagiat".

comparison, our approach demands less from citizens and does not require a better-informed society. The idea is based on the following two major considerations.

First, political accountability was shown to be dependent on the degree of transparency of politician behavior (Besley & Burgess, 2002; Cuillier, 2008; Eisensee & Strömberg, 2007; Ferraz & Finan, 2008; Olken, 2007; Reinikka & Svensson, 2005; Serra, 2011). Technical progress decreases transaction costs to acquire and share political information and thus increases transparency of politician behavior (Bertot, Jaeger, & Grimes, 2010). If politicians anticipate this relation, they are aware that their action is more open to scrutiny and that wrongdoing is more likely to be detected and sanctioned. Thus, with technical progress in ICT they should act more representative from the outset. Indeed, it seems unlikely that after the Guttenberg scandal any German politician will fake a doctoral thesis again because she anticipates that the potential of being revealed is too high. The possibility of citizens getting informed about wrongdoing thus has a deterrent effect. Serra (2011) shows that such "Bottom-Up" approaches might successfully complement more traditional "Top-Down" accountability approaches. When Eric Schmidt, chairman of Google, stated in the above cited quote that people should worry more about the things that they do instead of whether their actions could be detected, he was replying to concerns about privacy in the digital sphere. But the new opportunities to monitor politician behavior make the same logic applicable: If a politician has something that she does not want the electorate to know, maybe she should not be doing it in the first place.

Second, ordinary citizens' limitations in information processing do not reduce the efficacy of the proposed mechanism because a widely informed society is not a prerequisite for it to work. For the fear of electoral sanctions for wrongdoings to be justified, it is merely necessary that *someone* is *potentially* able to observe a politician's actions. This role is assumed by information intermediaries who act as watchdogs and ring the 'fire alarm' when they detect any wrongdoing (McCubbins & Schwartz, 1984). Thus, for our purposes Fire-Alarm Accountability means that citizens do not actively have to watch out for political mischief, but that they are in the less demanding position of merely having to wait for the watchdogs to report wrongdoing. Compared to ordinary citizens, these watchdogs' opportunity costs of information acquisition are much lower because they have an intrinsic or financial interest in it. Therefore, other than ordinary citizens, they can profit from the increased information availability which means that the Fire-Alarm-Mechanism is strengthened by new ICT. As a result, citizens at large do not need to be actually well-informed; it is sufficient that politicians anticipate that citizens potentially get informed by the watchdogs (Snider, 1996).

Based on a trust game (Berg, Dickhaut, & McCabe, 1995), we design a simple experiment that reflects the accountability relationship between a citizen and a politician in a laboratory setting. Subjects play a one-round bargaining game anonymously in groups of two. The citizen has to transfer an amount of money to the politician. During the transfer, the money is multiplied by a factor x that is either two or four. The politician now has to divide the money between her and the citizen but only she knows whether the figurative cake to divide is small (x = 2) or big (x = 4). The representative decision would be an equal split. However, because information is asymmetric, the citizen does not know the actual size of the cake. When she receives an amount equal to the size of half of the small cake, she therefore cannot distinguish whether she actually receives half of a small cake (representative decision) or only a quarter of the big cake (unrepresentative decision) (Güth, Huck, & Ockenfels, 1996). The politician can exploit this lack of knowledge. However, the citizen has the opportunity to acquire information that reveals the size of the multiplier with a certain probability. If she successfully reveals unfair behavior, the politician is sanctioned and outcomes are swapped. The game reflects a situation where a politician can hide unrepresentative behavior behind external contextual factors unknown to the citizen. With three treatment conditions that vary the degree of information that the citizen can receive, we test whether the politician anticipates the citizen's increased access to information and acts more representatively.

In line with our assumptions, the results show that if progress in ICT is high, politicians (falsely) anticipate higher monitoring of their actions. They furthermore increasingly justify fair decisions with the fear of being sanctioned. However, against the expectations, this does not lead to an increase in representative decisions. The reason for this might be that beside this expected main channel, our experiment reveals an unexpected second channel. Intrinsic fairness partly seems to be replaced by self-interests if monitoring opportunities are high. External control might be perceived as distrust or as limitation of the choice autonomy.

The remainder of this article is organized as follows. In section 2 we summarize how developments in ICT are often supposed to increase political accountability and explain why these expectations are not viable. In section 3 we argue that ICT might still have an impact via the often neglected Fire-Alarm Mechanism. In section 4 we explain our experimental design. Section 5 shows the results, section 6 concludes.

2. Internet Diffusion, Information Availability, and Political Accountability

One way to define political accountability is the ability to ensure that political elites act representatively – that is, in the best interest of citizens (Fearon, 1999). Periodical elections are regarded as the primary mechanism for citizens to sanction politicians they are dissatisfied with. However, the main difficulty in holding politicians accountable is that voters lack information to instruct the government what to do and in judging what it has done (Manin, Przeworski, & Stokes, 1999). From a principal-agent perspective, this information asymmetry inherent in the policy process allows politicians to deviate from representative behavior and engage in moral hazard (Barro, 1973; Ferejohn, 1986). Moral hazard is a behavioral change caused by an insurance against a risk. Here the insurance is the information asymmetry that leads to a reduced risk of being sanctioned. In representative democracies[2], moral hazard includes (1) policy divergence, the deviation from the citizens' preferred policy; (2) rent extraction, the exploitation of political authority for private benefits; (3) fraud, for instance, scamming a prestigious academic title to bolster one's political career and to fake expertise; (4) corruption; and (5) leisure shirking, bad policy outcomes as a consequence of politicians' low effort (Strøm, Müller, & Bergman, 2003). If politicians anticipate that such wrongdoings will be sanctioned if observed, a better-informed society should lead to greater political accountability and decrease moral hazard.

Technical progress in ICT such as the internet and mobile devices substantially increases the availability of political information. In a digital environment, recording, storing, searching for, and accessing political information has become much faster, cheaper, and independent of time and place. In short, the transaction costs of information acquisition are much lower. A distinct feature of the internet is that users are not limited to being consumers of information. Instead, they can easily share news with a large network or even become information broadcasters with a huge audience (Weare, 2002), e.g. through social media. As a result, the internet does not only offer new outlets for traditional news media, but also for an increasing number of political blogs, discussion boards, online campaigns or completely new kinds of platforms like Wikileaks (Brian, McDermott, & Weins, 2011) or Guttenplag. Besides different forms of media, institutions like open government and e-governance (McDermott, 2010) are a further mechanism through which technical progress creates a direct information exchange between government and citizens.

Considering the increase in political information and the observability of political action, there are "popular claims" (Bimber, 1998) that the extensive diffusion of ICT can increase political

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[2] The arguments made in this paper apply only to democratic countries with elections as accountability mechanism. Research has shown that transparency can in fact have negative effects on politicians' performance in countries without electoral sanctioning (Malesky, Schuler, & Tran, 2012).

accountability (Castells, 2009; Dahl, 1989; Rheingold, 1991). In summary, their authors formulate the expectation that citizens are enabled to inform themselves more extensively and more independently from traditional information intermediaries like news organizations, interest groups, unions or other elites. Further, citizens are expected to become more participative and communicate more directly with delegates. While there is little doubt that new ICT indeed increase the availability of information, there are qualified objections that the sheer availability will actually lead to a better informed society (Bimber, 1998; Karakaya Polat, 2005).

First, the most important objection are the limitations of human motivation and cognition to accessing and processing political information. In times of modern ICT, the scarce good is the attention that citizens can spend to ubiquitous information rather than the information itself. Despite decreasing transaction costs of information acquisition, citizens still face its opportunity costs, the lost benefits of a forgone alternative activity. Hence, only pieces of information that win the attention of individuals over other information or activities have the chance to get processed to become knowledge and contribute to a more informed society (Noveck, 2000, p. 23). The concept of "attention economy" (Davenport & Beck, 2001) describes the same phenomenon. Consequentially, overall consumption of political information across the different media has only increased marginally, if at all (Prior, 2005). The argument is best summarized by Walker (1991, p. 19): "Most people, most of the time, are able to find better things to do than participate in politics".

Second, if people actually decide to inform themselves about politics online, outlets of traditional media like popular newspapers or newscasts are the most frequented sources (Norris, 1999, p. 89). Those outlets mainly mirror the offline content and are subject to the same gatekeeper filtering (Tewksbury & Rittenberg, 2009). Only a much smaller audience follows "new media" like niche sites, private blogs, publicly accessible governmental data or watchblogs that cover different or more specific topics, represent an ideology different from the mainstream, or allow a direct investigation of politicians' actions (Webster & Lin, 2002). While new media offer valuable information for accountability, they do not play a big role, as most of the public at best receives the same kind of information as before via different channels.

The third and last objection is the possibility of information fragmentation. Due to its pluralist structure, the internet offers a multitude of sources of information for every taste and on every (trivial) issue (Karakaya Polat, 2005, p. 440). This can lead to a very selective consumption limited to a narrow field of information or to a biased perception from consuming only information that is in line with one's own preferences. This effect is possibly enhanced by algorithmic search

filters – used for instance in Google Search or Facebook's News Feed – that try to anticipate users' information preferences (Pariser, 2011). As a result, instead of being broadly informed, people's information consumption might inadvertently become restricted to a few specific issues. Furthermore, the greater media choice also widens the gaps in political knowledge (Prior, 2005). While those with an interest in politics will likely make use of the opportunity to inform themselves better, others more interested in entertainment will take the chance to tune out politics completely and become less knowledgeable.

Altogether, these limitations suggest that most likely it is the relatively rare enthusiasts who make use of the new information environment, get more informed, involve themselves deeper, broadcast their own information and get in direct contact with politicians. For the majority of citizens, however, ICT does not alter the fact that they have only a basic interest in politics. Regarding the merely moderate changes in the overall information level to be expected based on these arguments, an increase in accountability seems unlikely at first glance. In the next section, we will, however, propose a mechanism unaffected by these limitations that still links developments in ICT with higher accountability.

3. Fire-Alarm Accountability Mechanism

The objections above implicitly assume that only a large audience that informs itself directly about politics is able to hold politicians accountable. The starting point of our argumentation, however, is that accountability emerges out of fear of electoral sanctions and create this fear, it suffices that there is a chance that citizens actually get informed (Snider, 1996). In this section, we first elaborate on a "less demanding" mechanism that, in accordance with McCubbins & Schwartz (1984), Prior (2007), Snider (1996), and Zaller (2003), we call "Fire-Alarm Accountability". We then continue with how developments in ICT can strengthen this mechanism.

Citizens rarely monitor politicians' actions directly but usually rely on information delivered by intermediaries. Traditionally, these intermediaries are journalists, interest groups or opposition candidates. They are supposed to act as "watchdogs" who inform fellow citizens if they observe any wrongdoing by politicians. The accountability mechanism works if politicians have to fear that wrongdoing will be sanctioned. To justify this anticipation, *someone* has to monitor politicians' actions and decisions and a sufficient number of voters have to find out about the misdemeanor. It does not require that everyone informs herself directly and in detail. Instead, according to Arnold (2004, p. 13) it is "much more important that information regularly flows to those who

act as watchdogs, that these watchdogs reflect the diversity of interests in a constituency, and that they have easy ways to communicate with other citizens when they discover representatives doing disagreeable things." For this mechanism, the existence of a few well-informed watchdogs is more important than a broadly informed mass. Conversely, a high number of badly-informed citizens does not necessarily decrease accountability (Prior, 2007).

As a matter of fact, the intermediation of information is a classic form of division of labor and can minimize voters' costs of information seeking (Downs, 1957). While information intermediaries face similar transaction costs of information acquisition, they have much lower opportunity costs because information seeking is their profession and they receive an income for this activity. Some might also have some other specific interest in doing this task. This leads to much higher monitoring capacities among intermediaries.

Referring to the oversight functions of the American Congress, McCubbins & Schwartz (1984) illustrate the superiority of intermediated information with the analogy of a fire alarm as opposed to police patrols. Pointing out the less centralized, less active, and less direct oversight of a fire alarm, they state: "Instead of sniffing for fires, Congress places fire-alarm boxes on street corners, builds neighborhood fire houses, and sometimes dispatches its own hook-and-ladder in response to an alarm". For our purposes, Fire-Alarm Accountability means that citizens do not actively watch out for political mischief but are in the less demanding position of merely having to wait for the watchdogs to report wrongdoing.

To go one step further, it is not even necessary that the watchdogs actually observe every action politicians take. It is enough that politicians believe that their actions might be observed and thus change their behavior in anticipation. In this way, more representative behavior occurs not only because of an actual information flow to citizens but simply because there is a sufficiently high chance citizens could potentially get informed. Politicians cannot know with certainty whether an action has been monitored or whether a record exists that might be subject to scrutiny now or at a later point. It is the fear of detection, immediately or at some point in the future, that prevents the wrongdoing ex ante. This fear does not even have to be rational: People tend to be risk-averse and to overestimate small probabilities (Kahneman & Tversky, 1979). We therefore propose that the mechanism works even if the probability of detection is low. Assuming an extreme case, the media could have zero impact on citizens' actual level of political knowledge and still increase political accountability significantly (Snider, 1996).

P1: Politicians, to a certain extent, overestimate the risk of being monitored in every kind of information environment.

As proposition 1 implies, the Fire-Alarm Accountability mechanism should not be misunderstood as a result of developments in ICT. Information intermediaries, monitoring of politician behavior, and anticipated reactions have all existed for a long time. What the internet rather does is decrease the transaction costs of information acquisition and diffusion. Ordinary citizens likely only benefit slightly from this development directly because they are still limited by their high opportunity costs of information acquisition. However it enables watchdogs that have low opportunity costs, to substantially enhance their information acquisition and helps them to monitor political behavior. It is also the watchdogs who can, according to their interests and profession, inform fellow citizens about the information through specific niche media and subsidiary sources. While this function is recognized as a fundamental principle of professional journalism, it is frequently neglected in regard to the new media, citing their often small and fragmented audiences.

Snider (1996) illustrates the impact of new media on accountability with the example of "Government Access TV", public political meetings broadcasted via cable TV. He shows that recording local public affairs meetings and archiving them on videotape in public libraries led to more representative behavior among local politicians. This happened although only few people – mostly professional journalists – attended the meetings or ever requested the tapes. If VHS recording and physical storing can already have an impact on accountability, the impact of modern ICT should be even more significant.

In actuality, the internet meets the requirements outlined by Arnold (2004) above. It improves the information flow to and from those who act as watchdogs. Most obviously, modern ICT simplify journalistic routine investigations tremendously. The required information can often be found in a search engine, making costly and time-consuming searches in physical archives obsolete. New ICT furthermore allow for an increased monitoring of political behavior and are assumed to create an "culture of transparency" (Bertot et al., 2010). By enabling people to broadcast information independently of traditional media, it enlarges the circle of people who can act as watchdog. Also, new phenomena like open data, online campaigns or Wikileaks provide new kinds of information and allow for in-depth investigations. In addition, information can easily be published or forwarded. This speedy and extensive information diffusion is especially useful for fast and spontaneous campaigns. Ultimately, everyone who is 'armed' with a mobile

phone is ready to take a snapshot or a video at any time and share this immediately with potentially the whole world, if she witnesses wrongdoing. Therefore, we further propose that:

P2: Politicians anticipate that citizens are potentially better informed in an environment with higher diffusion of modern ICT.

And, as an immediate consequence of proposition 2 and the fear of electoral sanctions outlined above:

P3: In an information environment with higher diffusion of modern ICT, politicians act more representatively.

In summary, the Fire Alarm Accountability approach is effective despite high opportunity costs of information gathering for citizens, small audiences of new media, and information fragmentation. Ordinary citizens do not have to change their behavior to become "well-informed citizens" (Schütz, 1964) who follow all relevant political issues, judge candidates on the basis of profound knowledge and vote rationally. We rather see "monitorial citizens" who "are keeping an eye on the scene. They look inactive but they are poised for action if action is required. The monitorial citizen is not an absentee citizen but watchful, even while he or she is doing something else" (Schudson, 1998, p. 311). Hence, to some extent, ICT reverse the logic of information acquisition. For a long time, people actively had to look for information. Nowadays it is the information that has to search its audience more actively. The idea is maybe best described by a college student in a focus group interview among young voters who plainly stated: "If the information is that important, it will find me" (New York Times 2008). The last proposition thus is:

P4: Actual information levels among citizens do not differ between environments with and without modern ICT.

4. Methodology

We design an experiment where subjects play a trust game with incomplete information in pairs, taking either the role of a citizen or a politician. The citizen has to trust the politician to make a representative decision, but has the possibility to acquire information to decrease her informational disadvantage and to sanction wrongdoing. To test our hypothesis that technical progress in ICT increases accountability, we compare three treatments that differ in the number of watchdogs. Before we describe the game in detail, we first give a rationale for using a laboratory experiment and describe the organizational procedure. Subsequently, the game is

related to our theory and to existing experimental research. Finally, the treatment design is introduced and predictions are made.

4.1. Rationale for a Laboratory Experiment

For our purposes, a laboratory experiment has several advantages. Information levels of different actors and information flows between persons are hard to measure in an uncontrolled environment. Particularly potential information flows are virtually impossible to measure exactly because by definition they do not exist (Snider, 1996, p. 27). In a laboratory experiment, different levels of information can explicitly be induced. It is then possible to elicit beliefs and identify how players' behavior changes. The randomization mechanism of the experiment guarantees that different beliefs or behaviors can only be caused by varying information levels without any uncontrolled confounding factors.

Alternative approaches cannot provide information that is precise enough. The main problem with a survey among actual politicians to capture behavior under different conditions of (expected) public awareness is social desirability. It is hard to imagine that a politician would admit that she would act towards her own benefit rather than that of the citizens if she was sure that her behavior is not recorded or sanctioned. And even if answers were honest, a politician might also unconsciously change her behavior because of monitoring activities. Another approach could be a between-case design in which countries, constituencies, etc. differ in the amount of information that is accessible to the public or a longitudinal design where the amount of accessible information is changing over time. For example, Besley & Burgess (2002) show that the Indian government acts more responsive in areas where newspaper circulation is high. However, data that are both precisely measured and exhibits enough variance in information availability is rare.

4.2. Organization

The experiment was conducted in the Cologne Laboratory for Economic Research (CLER), University of Cologne, Germany.[3] All subjects of the laboratory's subject pool of approximately 4,000 persons were invited to participate in the experiment via email, using the recruitment software ORSEE (Greiner, 2004). Invited subjects could sign up on a first-come, first-serve basis. A total of 112 subjects, mostly undergraduate students from the University of Cologne, participated in the experiment. The invitation email did not state the content of the experiment.

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[3] www.lab.uni-koeln.de

We conducted three treatments in four sessions[4], each lasting for about one hour. Each participant could take part in one session only. Subjects were randomly assigned to computer booths separated by privacy shields by drawing an ID number when entering the lab. Decisions and payments were linked to this ID and experimenters were not able to relate this information to subjects' names. Furthermore, subjects were not allowed to communicate during the sessions. This procedure guaranteed absolute anonymity. At the end of a session, earnings were paid in cash. Subjects earned an average of 8.94 euros that were paid in addition to a 2.50 euros show-up fee. The experiment was programmed with z-Tree (Fischbacher, 2007).

Subjects received instructions (see appendix A1) on a paper when they entered the lab. They were allowed as much time as they needed to familiarize themselves with the instructions and the procedure of the experiment. Instructions were neutrally worded (e.g. 'Person B' instead of 'politician') to avoid any framing effects. Afterwards, they had to answer some simple questions to guarantee that they understood the game. Experimenters checked these answers and there was an opportunity to clarify misunderstandings and to ask any further questions. After the game, participants received a short survey in which they should explain their decision and answer some demographic questions.

4.3. The Game

In our game, subjects are randomly matched in groups of two. In each group, one subject takes the role of a citizen and the other the role of a politician. The game is played for only one round. Figure 1 depicts the game stages and payoffs.

1. At the beginning, the citizen has 300 points that she has to transfer to the politician.[5]
2. During this transfer, the points are multiplied with a factor x. The multiplier x has either a value of 2 (probability = 0.2) or 4 (probability = 0.8). The actual value of the multiplier is only revealed to the politician.
3. The politician now has to divide the multiplied amount of points and transfer a certain share back to the citizen. In case of the small multiplier x = 2, the politician has no other option but to divide the total amount of 600 points into two equal shares. In case of the large multiplier x = 4, the politician has the choice to either divide the 1200 points in two

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[4] Treatment 1 was conducted in two separate sessions with 24 participants each. Treatment 2 and 3 were conducted in single sessions with 32 participants each.

[5] Since the citizen has no other choice than transferring her complete endowment, strictly speaking we do not face a trust game but a dictator game where the citizen does not know the size of the cake to distribute. However, we designed this element of a trust game to create an endowment effect (Kahneman, Knetsch, & Thaler, 1990), which describes the psychological effect that a good is valued higher if it is possessed and has to be given up. At the same time, this was intended to induce a feeling that the citizen "has a right" to an equal share.

equal shares (fair decision) or to transfer back 300 of the 1200 points and keep 900 for herself (unfair decision/"hiding behind small cake"). To increase the number of relevant observations (the occurrence of the big multiplier where the politician actually has a choice between the fair and unfair split), we use the strategy method (Selten, 1967). This means that before the actual multiplier is shown to the politician, she has to state her choice conditional on the small and the big multiplier coming up. The decision of the actual multiplier is then realized.

Figure 1: Design of the experiment
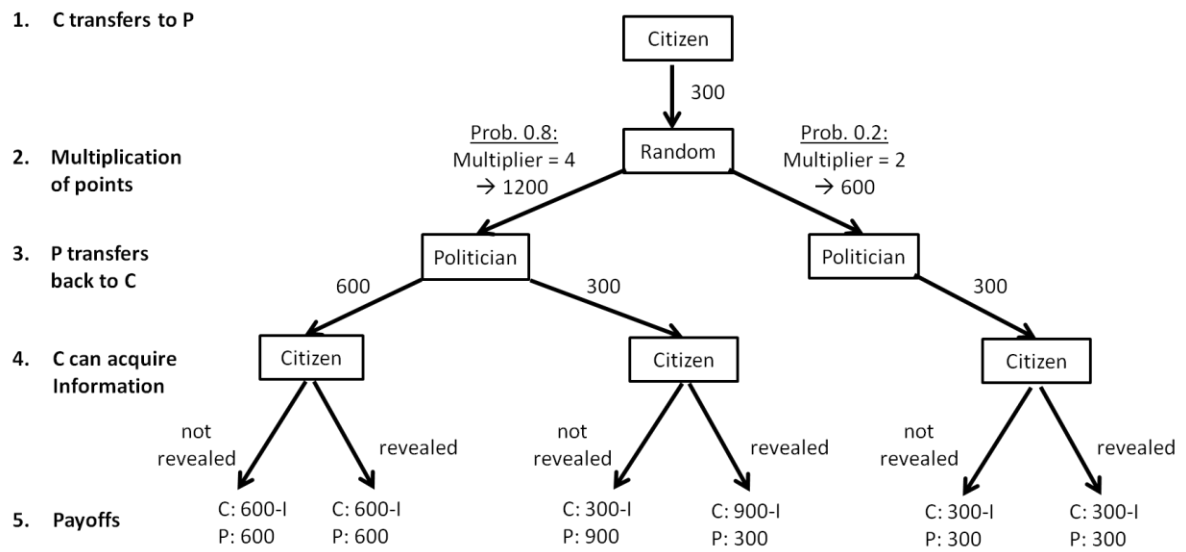
4. The citizen now receives her share dependent on the multiplier x and the politician's decision. Now, she has the opportunity to acquire information which will reveal the actual value of the multiplier to her with a certain probability. Each piece of acquired information will increase this probability by 0.05. Costs for acquiring information increase exponentially.[6] The citizen cannot spend more points for information acquisition than she has minimally available, that is 300. Thus, a 100% chance to reveal the multiplier is not possible. The exact costs and revealing probabilities can be found in Table 1. Again we use the strategy method to obtain more relevant observations: Before the citizen finds out the size of the actual transferred amount, she has to state how much information she wants to acquire in case of receiving 300 or 600 points, respectively. Buying information in the latter case is not rational because the citizen can conclude unfair behavior without the additional information and will only decrease her payoff by buying it.

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[6] The exact function is: $3 \times n^2 - 5 \times n + 30$ for n>0 with n=number of acquired information. The exponential function reflects convex opportunity costs: Spending more time on information investigation disproportionally increases the costs of abstaining from other productive activities.

5. The payoffs are calculated with an exchange rate of 60 points = 1 euro[7]. If the citizen (1) did not buy any information, (2) failed to reveal the true multiplier, or (3) revealed unfair behavior by the politician, the outcomes depend on the politician's division. If the citizen reveals wrongdoing by the politician, the outcomes are swapped. This means that the citizen receives 900 points and the politician 300 points. The swapping can be interpreted as a sanction for disclosed wrongdoing. In each case, the citizen bears the costs for information acquisition.

Table 1: Costs and revealing probability for information acquisition

Pieces of information acquired	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Revealing prob.	0	0.05	0.1	0.15	0.2	0.25	0.3	0.35	0.4	0.45	0.5	0.55	0.6	0.65	0.7	0.75	0.8	0.85	0.9	0.95	1
Costs for citizens	0	28	32	42	58	80	108	142	182	228	280	338	402	472	548	630	718	812	912	1018	1130
Costs for watchdogs (in points)	0	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	262	278	294	310

Note: Decisions never available in the game are shaded in grey.

In addition to these decisions, we asked for the participants' beliefs about their partner's decisions. Politicians had to estimate the number of information pieces their matched citizen would acquire. This allows us to measure anticipations about information levels. Citizens had to guess whether their partner would divide the share representatively or not (before they received their share). While we incentivized the politicians' guesses with an additional 50 points in case it was correct to obtain their true belief, citizens' guesses could not be incentivized because this would reveal the politician's decision ex post (which we guaranteed to keep secret if it was not revealed by information acquisition). However, citizens had no incentive to misreport their true belief.

4.4. Relation to Theory and Existing Experimental Research

Our design has the basic structure of a trust game (Berg et al., 1995). The trust game with incomplete information reflects the real-life situation of a representative democracy. Citizens have to hand over decision-making competences but also financial resources in the form of taxes to elected representatives. The multiplier reflects the idea that everyone will be better off if resources are invested in public or social goods like national defense, fresh air, education or social

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[7] This exchange rate leads to a large variance in politicians' payoffs – 5 euros for revealed wrongdoing, 10 euros for a fair split, and 15 euros for an unrevealed unfair split. We therefore consider this one-shot decision as non-trivial for subjects.

welfare. Citizens have to trust that representatives will act in their best interest. At the same time, citizens do not have full information about the policy process and can only partly distinguish between the politicians' performance (here: the fairness of the distribution) and contextual factors (here: the random choice of the multiplier). Thus politicians have the possibility to line their own pockets while blaming contextual factors for the bad outcome, a behavior called "hiding behind a small cake" in the experimental literature (Güth et al., 1996; Mitzkewitz & Nagel, 1993; Ockenfels & Werner, 2012). We furthermore add an audit mechanism known from the tax compliance game (Alm, Jackson, & McKee, 1992; Graetz, Reinganum, & Wilde, 1986) to reflect the probability that wrongdoing by politicians is revealed by citizens.

Our design substantially adds to bargaining games with incomplete information and opportunity for information acquisition. In existent designs, the revealing probability is either given exogenously (tax compliance games), or a player only has the choice between acquiring none or full information. If full information is acquired, the revealing probability is 1. In our design, information acquisition is instead continuous with an increasing revealing chance for higher information acquisition. From the politician's perspective, this does not only imply a certain risk that her actions are revealed but also ambiguity[8] about the detection probability. Not knowing how much information the partner will acquire, the proposer does not know the risk that his action is revealed. This ambiguity reflects the real life situation that a politician can anticipate that her action is potentially monitored, but there is high uncertainty whether there is actually any monitoring taking place, or whether the resulting monitoring record is actually subject to scrutiny.

4.5. Treatments and Predictions

We apply three treatments. The treatments reflect different informational environments for the Fire-Alarm Accountability mechanism caused by technical progress in ICT.

The baseline treatment (T1) corresponds exactly to the design described in section 4.4. T1 reflects an information environment in which information acquisition is relatively costly for citizens and in which their information levels are consequentially limited. Parameters of the exponential cost function are chosen accordingly (cf. Table 1). The watchdog treatments (T2) and (T3) resemble T1 with one difference each: In T2, three out of sixteen citizens (the watchdogs) have a flatter (linear) cost function[9] for information acquisition. The other thirteen have the same

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[8] A risky event has known probabilities for certain outcomes. In contrast, an ambiguous event has unknown probabilities for certain outcomes. An ambiguous event thus is a risky event for which the risk is not quantifiable. For this reason, there is a higher degree of uncertainty (Ellsberg, 1961).

[9] The exact function is: $16 \times n - 10$ for $n>0$ with n=number of acquired pieces of information. The linear function reflects increasing transaction costs with negligible opportunity costs.

cost function as those in T1. In T3, six citizens have the flatter cost function, while ten have the same as those in T1. The lower acquisition costs allow the watchdogs to buy up to nineteen pieces of information (95% revealing chance). While citizens know which of the two cost functions they have, politicians do not know with which kind of citizen they are matched with. T2 and T3 reflect information environments in which transaction costs are lower because of progress in modern ICT. However, only those few persons without substantial opportunity costs can make use of the technical developments.

To predict differences between treatments, one has to distinguish between classical game theory and empirical findings from experiments that systematically differ from the classical theory.

Classical game theory assumes rational actions that maximize utility and neglects factors like fairness, reciprocity or risk aversion. If a citizen believes that the politician will choose the unfair split, she has the highest expected utility by buying five pieces of information.[10] This corresponds to a revealing chance of 0.25. In T1, given this revealing chance, it is still rational for the politician to choose the unrepresentative action.[11] A citizen could also believe that the politician will choose the fair split, which implies not to buy any information. In this case, the politician has an even higher incentive to choose the unfair split. Hence, a rational politician will always choose the unfair split in T1. As a result, there is a Nash equilibrium (Nash, 1951) – a situation in which no actor has an incentive to change her strategy unilaterally – where the citizen always buys five piece information and the politicians always chooses the unrepresentative action.

The analogue procedure shows that T2 has the same Nash equilibrium[12]. Indeed, a rational watchdog will buy the maximum possible nineteen pieces of information. For a politician matched with a watchdog it is thus rational to act representatively. However, the probability to be matched with a watchdog is only 0.19 (3/16). Hence, considering the probability to be matched with a watchdog, wrongdoing is still the rational decision.

In T3, the situation is different. Since the probability to be matched with a watchdog is 0.38 (6/16), it is not rational for the politician to choose the unfair split anymore.[13] However, if the citizen anticipates this, expects a fair decision, and therefore does not buy any information, it is

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[10] Maximize: Expected utility^{voter} = utility$^{voter}_{revealing}$(900) × revealing chance + utility$^{voter}_{non-revealing}$(300) × non-revealing chance − Information Cost

[11] Expected utility$^{politician}_{unaccountable}$ = utility$^{politician}_{revealing}$(300) × 0.25 + utility$^{politician}_{non-revealing}$(900) × 0.75 > Expected utility$^{politician}_{accountable}$ (600)

[12] Expected utility$^{politician}_{unaccountable}$ = [utility$^{politician}_{revealing}$(300) × 0.25 + utility$^{politician}_{non-revealing}$(900) × 0.75] × $\frac{13}{16}$ + [utility$^{politician}_{revealing}$(300) × 0.95 + utility$^{politician}_{non-revealing}$(900) × 0.05] × $\frac{3}{16}$ > Expected utility$^{politician}_{accountable}$ (600)

[13] Expected utility$^{politician}_{unaccountable}$ = [utility$^{politician}_{revealing}$(300) × 0.25 + utility$^{politician}_{non-revealing}$(900) × 0.75] × $\frac{10}{16}$ + [utility$^{politician}_{revealing}$(300) × 0.95 + utility$^{politician}_{non-revealing}$(900) × 0.05] × $\frac{6}{16}$ < Expected utility$^{politician}_{accountable}$ (600)

again rational for the politician to betray. Again, the citizen could react to the politician's anticipation and increase information acquisition. There is no Nash equilibrium in pure strategies in T3. The choice of strategy depends on the beliefs about the other player's strategy.

As already hinted to in the theoretical part, we argue here that politicians will not act purely rational as proposed by standard game theory. This argument is supported by the fact that non-rational behavior has also been observed in economic experiments frequently.

First, many decisions are driven at least to a certain kind by *fairness and reciprocity* (Bolton & Ockenfels, 2000; Fehr & Schmidt, 1999). Even in dictator games with unilateral decision-making, no possibility to sanction, and absolute anonymity, one can find fair behavior (Forsythe, Horowitz, Savin, & Sefton, 1994). Therefore, in each treatment, we should find some share of politicians that choose the representative decision not because of any accountability mechanism but because of fairness. This reflects the fact that in representative democracies, politicians are not solely motivated by self-interest but by other factors like ideology, socialization, altruism, etc.

Second, people tend to be *risk-averse* (Arrow, 1971; Pratt, 1964): Up to a certain degree, they prefer a lower risk-free outcome over a higher risky outcome in expectation. Furthermore, they tend to substantially *overestimate small probabilities* of risks (Kahneman & Tversky, 1979). In our game, if citizens acquire the rational amount of information, the disclosure risk is relatively small. However, we expect politicians to overestimate the risk of their action being disclosed.

Third, the information acquisition decision is not rational either (Gabaix, Laibson, Moloche, & Weinberg, 2006; Rötheli, 2001). This insecurity about the partner's rationality leads to an *ambiguity* problem (Ellsberg, 1961) for politicians: Politicians are not confronted with a certain risk, but with an unknown risk of disclosure. Both risk aversion and ambiguity aversion should lead politicians to overestimate the risk of disclosure and result in more representative behavior.

Because of these rationality biases, contrary to standard theory, we expect to see representative behavior in every treatment. Although we expect citizens' actual information acquisition not to vary substantially between the treatments, we expect politicians to act more representatively in T2 and T3 than in T1. This is because of increased ambiguity: Not knowing which kind of citizen they are matched with, the range of revealing probabilities that is limited by citizens' endowment varies between 0 to 0.95 in T2 and T3 and 0 to 0.5 in T1. However, in contrast to standard theory, we do not expect to see substantial differences between T2 and T3: First, we expect that the probability to be matched with a watchdog is overestimated in any case, and second, ambiguity is increased to the same level in both treatments. The slightly higher probability of

being matched with a watchdog should not substantially change politicians' behavior. If these expectations are correct and T2 and T3 do not differ significantly, both treatments could be merged in the analysis.

The treatment conditions reflect the Fire-Alarm Accountability Mechanism that should lead to more representative behavior without increasing information levels among ordinary citizens. The testable implications of the four supposed propositions are the following hypotheses:

H1: In all three treatments, politicians overestimate the amount of acquired information.

H2: Politicians' anticipated level of citizens' information acquisition: T3 ~ T2 > T1

H3: Representative decisions: T3 ~ T2 > T1 > 0

H4: The actual information acquisition among citizens does not differ across treatments.

5. Results

In this chapter, each hypothesis is tested and illustrated by a figure. To evaluate the efficacy of the mechanism, we further analyze the motivation for subjects' decisions in the experiment using an open-survey question. Since there are only 56 observations[14] for each hypothesis, the normality assumption as the prerequisite for parametric tests such as the t-test is hard to justify. Therefore, we use two-sided non-parametric tests, namely the Mann-Whitney-U test[15] for continuous variables and the Fisher-Exact test[16] for dichotomous variables. Besides the hypotheses tests, we control for a number of demographic covariates like sex, age, and experience with game theory. Because none of them changes the treatment effects, we report these regression estimates only in appendix A2.

Because predictions of the hypotheses do not differ between the two watchdog treatments T2 and T3, we first of all test whether the two treatments can be merged.[17] Since there is no significant difference in the variables of interest – fairness, actual information acquisition, and beliefs about information acquisition – T2 and T3 can be merged to a single watchdog treatment

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[14] Hypotheses always refer to either citizens or politicians. Therefore we can draw on only half of all 112 subjects for the hypotheses tests.

[15] The Mann-Whitney-U test, also known as Wilcoxon rank sum test, tests whether values in one sample of independent observations are significantly larger than those in another sample (Mann & Whitney, 1947; Wilcoxon, 1945). The test is non-parametric and commonly used in experiments to compare different treatments.

[16] Fisher's exact test is a significance test used for contingency tables (Fisher, 1922). It is the exact version of the chi-squared test and is particularly strong for categorical variables with a low number of cases.

[17] The test results are not included in this paper but can be requested from the author.

which we name TW. Merging the two treatments creates the dual benefits of parsimony and a higher statistical power because of an increased number of observations

Table 2: Demographic Characteristics of Subjects by Treatments

	T1		TW	
Variable	mean	sd	mean	sd
Age (19-65)	24.42	3.76	25.50	6.16
Female (0-1)	0.56	0.50	0.58	0.50
Semester (1-20)	6.50	3.97	7.32	4.64
Exp. game theory (0-1)	0.33	0.48	0.41	0.50
Lab exp. (0-3)	1.42	1.11	1.64	1.13
Ideology (0=left - 9=right)	4.54	1.74	4.48	1.64
N	48		64	

Table 2 provides an overview of the demographic characteristics of participants separated by treatments. Participants have an average age of about 25 years and 75% of participants are between 22 and 27. On average they have been studying for seven semesters and a substantial part has experience with game theory and laboratory experiments. There are slightly more female subjects. Political ideology on the left-right continuum is close to be normally distributed. None of the differences between treatments is statistically significant. This is in line with the randomized allocation of participants.

Figure 2: H1 – Overestimation of Information Acquisition by Politicians
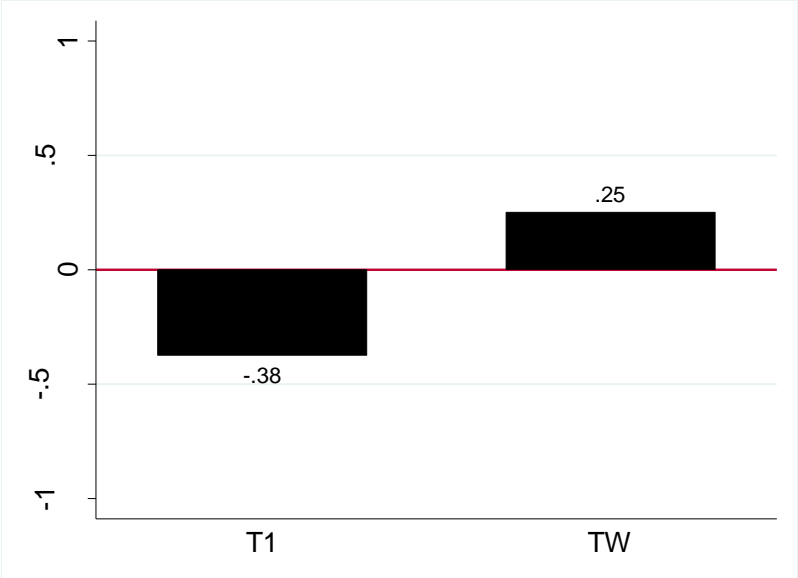
Regarding hypothesis H1, Figure 2 shows the amount of overestimation – that is the difference between politicians' belief of citizens' information acquisition and the actual acquisition. In

hypothesis H1, we expected politicians to overestimate the amount of information acquired by citizens in each treatment. There is indeed a slight overestimation in the watchdog treatments (about 0.25 pieces of information). However, in T1 we actually observe underestimation of information acquisition. Because of these mixed findings and the marginal size of overestimation in TW, hypothesis H1 has to be rejected. In any case, the difference between the two treatments is not statistically significant (U-Test: $p = 0.83$).

For hypothesis H2, we analyze politicians' beliefs about information acquisition. The average belief over both treatments is 3.8. Given that it is rational for citizens to buy 5 pieces of information, this is further evidence that there is no overestimation of information acquisition among politicians. Within the TW treatment, on average politicians believed that citizens would buy 4.5 pieces of information, which is significantly more than the amount of 2.9 expected on average by the politicians in T1 (U-Test: $p = 0.094$). These findings are in line with hypothesis H2: Politicians anticipate the probability to be matched with a watchdog and expect higher information acquisition in TW.

Figure 3: H2 – Politicians' Belief about Information Acquisition by Decision Representativeness and Treatment
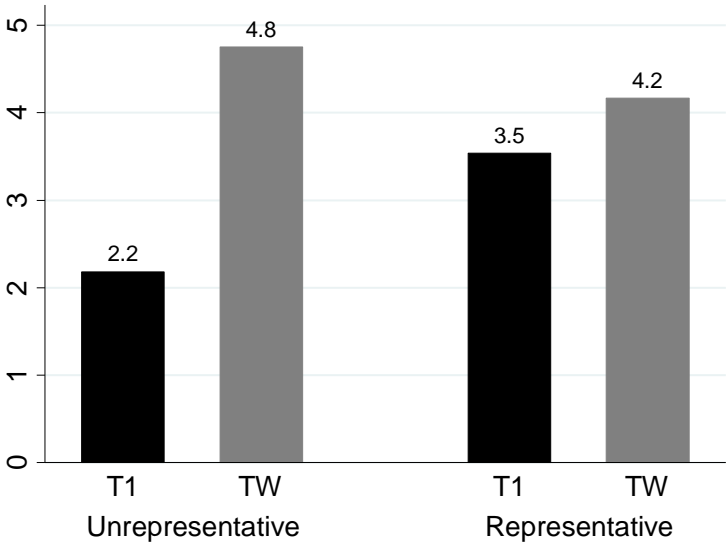
An interesting pattern appears when beliefs of politicians that choose the fair split are compared with those who choose the unfair split (Figure 3). There is no significant difference between treatments among those who choose to act representatively. On the other hand, among the subjects acting unrepresentatively, the estimation of information acquisition is more than twice as high in the watchdog treatments (U-Test: $p = 0.038$). There are two possible explanations: First, politicians play unfair and because they play unfair the possibility that watchdogs will buy

information to reveal their decision is more salient to them. Second, politicians play unfair as a consequence of the expectation that their partner will acquire more information. The research design is not able to evaluate those explanations. Still, the subsequent analysis of subjects' decision motivation that follows below is more in line with the second option.

Figure 4: H3 – Average Share of Representative Splits
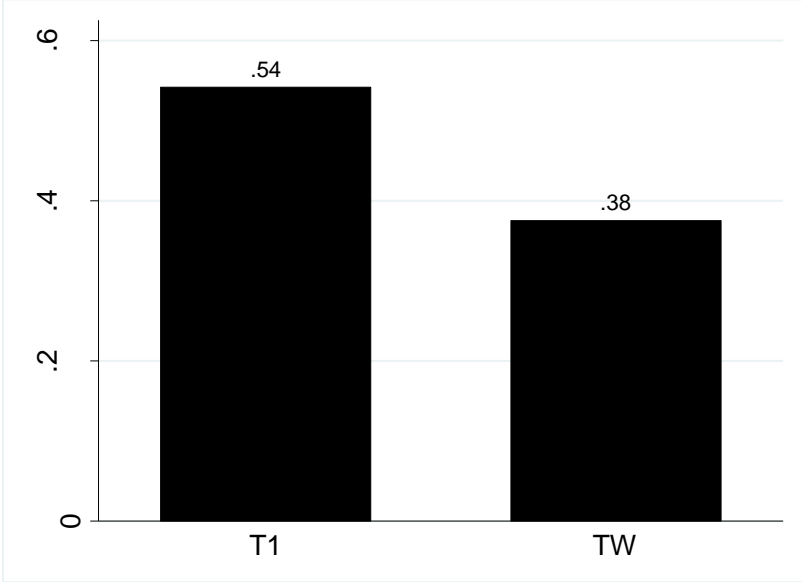
Hypothesis H3 assumes that the anticipation of higher information acquisition will translate into more representative behavior. As Figure 4 illustrates, the empirical results do not confirm this. On the contrary, in the watchdog treatments there are even fewer representative decisions than in the T1 treatment without watchdogs. Although the difference is not significant (Fisher's exact: $p = 0.28$), the existence of watchdogs does not increase fairness among politicians. If at all, the opposite is the case.

There are related findings in the literature, where people behave less fairly or cooperatively if their behavior is monitored, a phenomenon also known as "hidden costs of control" (Falk & Kosfeld, 2006; Frey, 1993): Agents reduce their performance because the principals' monitoring is interpreted as a signal of distrust or as a limitation of their choice autonomy. In our watchdog treatments the situation is slightly different since there is no increase in control per se. There is merely the possibility that a matched partner gets cheaper access to control which she can, but does not have to exert to a greater extent. However, the phenomenon might be related. As seen in Figure 3, subjects expect actually higher control in an environment where higher control is possible. Therefore, the mere possibility of higher control might have the same effect as an actual increase in control. We will take this possibility up again when discussing subjects' decision-making motivations.

Figure 5: H4 – Amount of Acquired Information among Non-Watchdog-Citizens
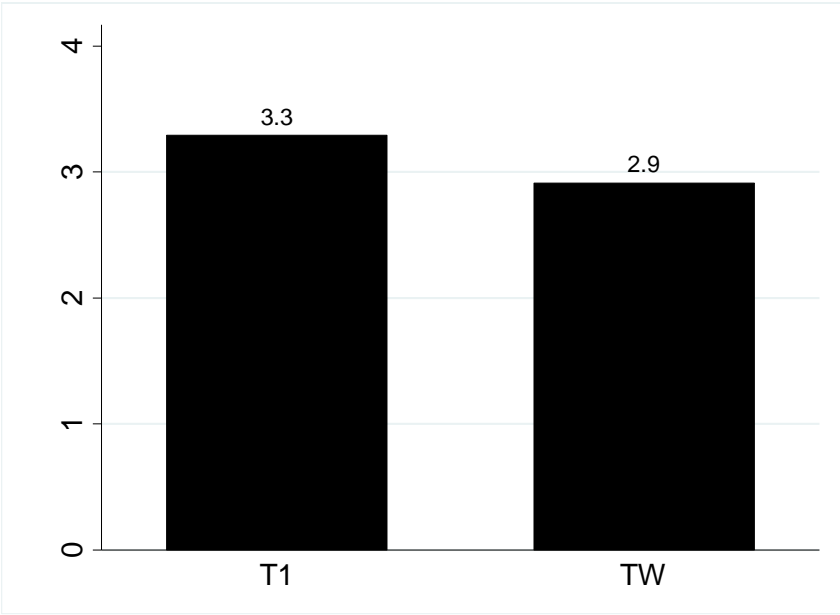
Hypothesis H4 states that information acquisition among ordinary citizens (all non-watchdogs) should be equal in all treatments. Figure 5 depicts the related results. With an average of 3.3 in T1 and 2.9 in TW, there is indeed no significant difference in information acquisition. Even if watchdogs – who buy 7.7 pieces of information on average and therefore significantly more than ordinary citizens (U-Test: $p = 0.054$) – are included in TW, information acquisition does not significantly differ between treatments. These findings are in line with hypothesis H4. Regarding citizens' beliefs (not depicted), we find that citizens who expect the politician's decision to be unfair buy significantly more information than those who expect fairness (U-Test: $p = 0.096$). However, the share of citizens who believe in fairness is 0.375 in both treatments. This shows that although citizens exploit the information mechanism when they expect an unfair decision, they do not seem to believe in the efficacy of watchdogs.

Figure 6: Motivations for Politicians' Decision
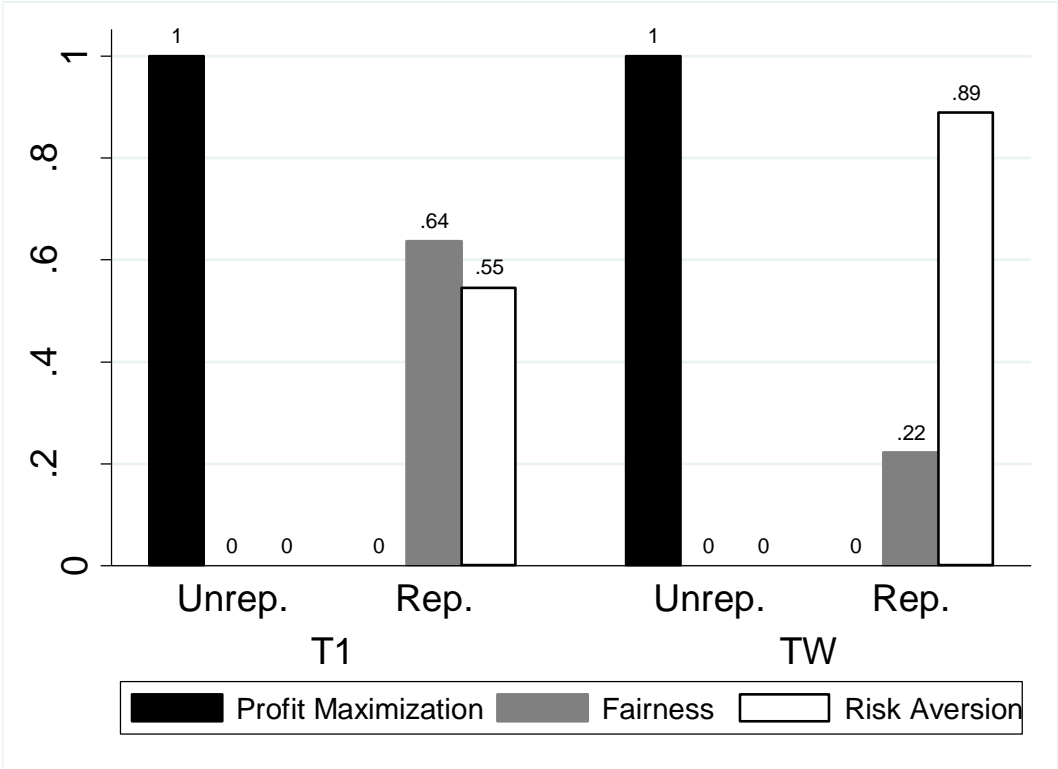
In an open question in the survey that followed the experiment, participants were asked to elucidate their decision-making in the game. We code answers in three distinctive rationales (multiple classifications possible). For subjects in the role of politicians these objectives are (1) rational maximization of profits, (2) fairness considerations, and (3) risk aversion regarding the risk of being observed by citizens and losing money.[18] Figure 6 shows how subjects justify their decision. In both treatments, no other motivation than profit maximization is stated among those who choose the unfair split. Though this is also the only logical rationale for the unrepresentative choice, it indicates that participants answer the question honestly and consistently with their decision. In T1, fair decisions are motivated about equally by fairness (63%) and risk aversion (55%). In TW, however, we find a substantial difference. Only 22% of fair decisions are motivated by fairness but 89% by risk aversion. This decline in fairness over treatments is statistically significant (Fisher's exact: $p = 0.09$), the rise in risk aversion is close to significance (Fisher's exact: $p = 0.12$).

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[18] Examples for the coding of answers for each rationale, with author comments in parentheses, are: (1) rational maximization: „I decided according to the highest possible payoff. As person B [politician], I expected the probability to receive only 300 points [that is getting an unfair split revealed] to be very low." (2) Fairness: "Above all, I thought about fairness." (3) Risk aversion: "As B [politician], only in case of a multiplier of 4 and a transfer of 300, I would be affected by A's [the citizen's] information acquisition. However, then I would be subject to the risk of receiving only 300. For this reason I decided to transfer 600 because it guaranteed 600 points for me as well."

Increased aversion of the detection risk is exactly what we predicted for the watchdog treatment. However, as illustrated by Figure 4, this does not lead to an increase in fair behavior. This could be explained by the assumption that intrinsic fairness is crowded out by the existence of watchdogs: In this case, the increase in risk aversion could be overcompensated by the decrease in intrinsic fairness.

Figure 7: Motivations for Citizens' Decision
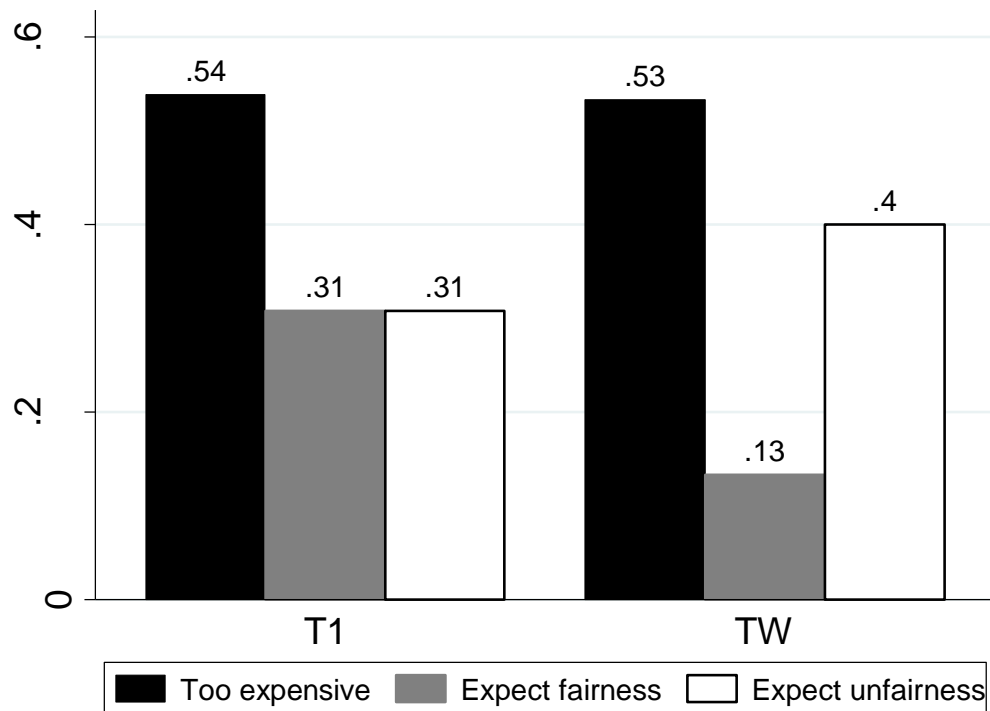
Analogously, we code citizens' answers to the open question into three distinctive rationales: (1) the conviction that information is too expensive; in other words, aversion for the risk that information acquisition will not lead to successful detection and might only cost further money, (2) the belief that the politician will transfer a fair split and (3) the belief that the politician will transfer an unfair split.[19] Figure 7 shows how subjects in the role of the citizen justify their decision. In both treatments, slightly more than half of the subjects think that information is too expensive, i.e. that for the risk of losing money the detection probability is not high enough. In T1, about a third of citizens expect politicians to be fair while another third expects unfairness. In TW, expected fairness is decreasing and expected unfairness is increasing. Although both changes

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[19] (1) Too expensive: „Since information acquisition always bears the risk to lose money, I disregarded that option and did not gamble with my minimum payoff." (2) Expected fairness: "I was confident that the other player is good and fair." (3) Expected unfairness: "When I learned I was person A [citizen], it was all or nothing. 80% [revealing chance, the subject was a watchdog] is a high probability and the most probable choice of person B [politician] is to transfer 300. That is why I decided for buying such high 'I' [amount of information]."

are insignificant, they are noteworthy because they are in line with the actual changes in fairness and politicians' rationales between treatments.

In summary, there is mixed evidence for the proposed mechanism. While politicians indeed anticipate higher information acquisition (which actually, as proposed, remains stable) in an information environment with watchdogs, this does not lead to more representative behavior. One possible explanation for this phenomenon might be that the existence of watchdogs leads to crowding-out effects. However, the design of the experiment cannot clearly distinguish the two effects and the low number of observations does not allow for drawing conclusions about which explanation is stronger. Furthermore, caution is generally warranted when drawing conclusions because of the inductive nature of experiments: For example, the unexpected crowding-out effect was not theorized about in advance, but derived from the specific observations in the laboratory experiment.

6. Conclusion

In this paper, we propose that technical progress in ICT can increase political accountability via a Fire-Alarm Accountability Mechanism. We further argue that for this mechanism to work, it suffices that politicians anticipate citizens to be potentially instead of actually informed because someone might observe their actions. To test these propositions, we designed an experiment that reflects the accountability relationship between a voter and a politician in different information environments. The results suggest that, in line with the propositions, politicians in the watchdog treatments (1) falsely anticipate higher information acquisition (although actual acquisition remains stable), and (2) more politicians justify their fair decision with the fear of being sanctioned. However, contrary to the prediction, subjects act less fairly. They justify their distribution decision less frequently with fairness considerations, although – or precisely because – subjects are aware of higher monitoring possibilities.

The contribution of the paper is twofold. On the one hand, we show that ICT can actually increase political accountability, despite objections concerning citizens' motivational and cognitive limits to informing themselves about politics and the small and fragmented audiences of new media. On the other hand, besides this expected primary impact channel, our experiment reveals an unexpected second channel: Higher monitoring possibilities lead to a crowding-out effect of politicians' intrinsic aspiration for representative actions. This is partly replaced by self-interests, a phenomenon known as "hidden costs of control" in the economic literature. Apparently, politicians who are supposed to act in the best interest of citizens also interpret

higher external control as distrust in their competence and benevolence and as limitation of their choice autonomy. In response, their motivation and performance might decrease or they might fall prey to moral hazard.

This paper highlights that developments in ICT have an impact on political accountability. It does, however, also show that new monitoring opportunities and transparency policies are a double-edged sword. When designing such policies and for evaluating their impact, the opposing directions of the positive disciplining effect and the negative effect of distrust of increased controlling possibilities have to be kept in mind. Which of the two effects is more dominant depends on a variety of factors like monitoring probability, strength of sanction, opportunism of the politician, who is the one that monitors, etc. Further research on the exact relationship between monitoring and accountability is necessary to successfully leverage the great potential of new ICT to increase political accountability.

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Appendix

A1: Example of Instructions (Translated from German)

- INSTRUCTIONS -

Welcome to the experiment and thank you very much for your participation. From now on up to the end of the experiment, please stop all communication with other participants. In case of a violation of this rule we have to exclude you from the experiment.

Please read these instructions carefully. If you have any questions, now or during the experiment, please raise your hand. One of the experimenters will come to you and answer your questions. Before we begin with the experiment, a short test will be conducted to ensure that you completely understand the instructions.

Payoff and Anonymity

In this experiment you can earn money. How much you earn depends on your decisions as well as on the decisions of the other participants. During this experiment your payoff will be calculated in points. At the end of the experiment, the total points you earned will be converted to euros with the following exchange rate:

60 points = 1 euro

For your appearance you will receive an additional payment of 2.50 euros. Your payoff and your decisions will be kept confidential. Neither during nor after the experiment will any participant learn with whom she interacted.

Decision Situation

All participants play in randomly allocated groups of two. In each group there are two types of persons, person A and person B. Which role you will be assigned to is also random.

From the 16 persons A in the laboratory that participate in the experiment, six will be randomly assigned to the role of a person A+. A person A+ differs from a person A by lower costs that result from acquiring information (see below). Apart from that, the experimental procedure and the decision situation of person A+ and person A are the same. Only the six assigned persons A+ will find out about their special role. In particular, person B is not able to find out whether she is matched with a person A or a person A+ before she takes her decision. For that reason, in the following instructions as well as within the experiment itself, person A and person A+ will be synonymously labeled as person A, unless there are explicit differences.

The game is played for only one round, e.g. each decision is taken only once. Person A starts with 300 points, person B with 0 points.

The procedure of the game is as follows:

1. Person A has to transfer all of her 300 points to person B. There is no other option for person A in this first step.
2. During the transfer from person A to person B the points will be multiplied by a factor X. This multiplier X will either take a value of 2 with a probability of 20% or a value of 4 with a probability of 80%. The determination of the actual multiplier can be illustrated as follows. A random number (displayed with two decimal places) between 0 and 100 is drawn. If the random number is smaller than 20, the multiplier is 2. If the random

number is bigger than 20, the multiplier is 4. Only person B gets to know whether the points are actually doubled to 600 or quadrupled to 1200.

3. Now person B has all points at her command. Depending on the value of the multiplier that is 600 or 1200 points respectively. Before person B gets to know the actual amount of points, she has to take an allocation decision for both possible cases:

   - Case 1: If the points were doubled to 600, person B has to send back 300 points to person A.
   - Case 2: If the points were quadrupled to 1200, person B has the choice to send back either 300 or 600 points to person A.

   Furthermore, for both possible cases, person B has to estimate how much information player A will acquire in the next step (see below). After person B has taken both decision and both estimates, she will get to know the actual multiplier. The respective decision and estimate will be realized. The decision and the estimate for the non-occurring multiplier however are irrelevant now. If the estimate matches the actual amount of information acquired by person A exactly, person B receives an additional 50 points.

   While person B is taking her decisions, person A has to estimate whether person B will send back 300 or 600 points in case of a multiplier of 4 (and thus an amount to allocate of 1200).

4. Now, points are returned to person A dependent on the value of the multiplier and the decision of person B. Person A then has the possibility to acquire information that will reveal the true value of the multiplier to her with a certain probability. Each piece of acquired information will increase the probability to find out the actual value of the multiplier by 5 percentage points. The more information is bought, the more costs occur for person A. Person A cannot acquire more information than she has guaranteed points available, e.g. she can buy information for a maximum of 300 points. This means person A can at maximum acquire 10 pieces of information, whereas persons A+ can acquire up to 19 pieces of information. Thus, a revealing chance of 100% is never possible. At maximum, person A can reach a revealing chance of 50%, person A+ one of 95%. The progression of revealing chance and costs is illustrated in the following table:

Number of acquired information	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Revealing chance	0%	5%	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%	100%
Costs for person A (in points)	0	28	32	42	58	80	108	142	182	228	280	~~338~~	~~402~~	~~472~~	~~548~~	~~630~~	~~718~~	~~812~~	~~912~~	~~1018~~	~~1130~~
Costs for person A+ (in points)	0	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246	262	278	294	~~310~~

Note: The costs for person A are calculated as follows: $3*information.^2 - 5*information + 30$ (if information > 0)

The costs for person A+ are calculated as follows: $16*information -10$ (if information > 0)

For the respective persons, non-available decisions are shaded grey and crossed out.

Whether the acquired information will reveal the actual multiplier can be illustrated as follows. A random number between 0 and 100 is drawn. If the revealing chance of person A is higher than this random number, the multiplier will be revealed to person A. If the revealing chance smaller than the random number, the multiplier remains unknown. If person A does not reveal the actual multiplier, she will not get to know it after the experiment either.

Before person A gets to know how many points she actually received by person B, she has to decide how many points she wants to acquire for both possible cases (300 or 600 points). After person A has taken both decisions, she gets to know how many points person B actually transferred. The respective decision about the acquisition of information will be realized, the other decision becomes irrelevant.

Payoffs

- If person A decided against the acquisition of any information, the experiment is completed and the payoffs are realized according to the current allocation of points.
- If person A acquired information, but this did not reveal the actual multiplier (the revealing chance is smaller than the random number), the experiment is also completed and the payoffs are realized according to the current allocation of points.
- If person A reveals the actual multiplier because of her information acquisition, there are two possibilities.
  a) If person A by this means reveals the information that the multiplier was 2 and person B transferred 300 of 600 points back to her, the experiment is completed and the payoffs are realized according to the current allocation of points.
  b) If person A by this means reveals the information that the multiplier was 4 and person B transferred 300 of 1200 points back to her, the payoffs will be switched. Person B receives 300 points and person A receives the remaining 900 points minus the costs for the information acquisition.

The experimental procedure together with the respective payoffs is depicted in the following figure once again.

| 1. A transfers to B | | | Person A | | |
| 2. Multiplication of points | | Prob. 0.8: Multiplier = 4 → 1200 | Random | Prob. 0.2: Multiplier = 2 → 600 | |

Tree diagram:

1. **A transfers to B** — Person A → 300 → Random
2. **Multiplication of points** — Prob. 0.8: Multiplier = 4 → 1200 (left); Prob. 0.2: Multiplier = 2 → 600 (right)
3. **B transfers back to A** — Person B (left): 600, 300; Person B (right): 300
4. **A can acquire Information** — Person A nodes: not revealed / revealed
5. **Payoffs**
   - A: 600-I / B: 600 (not revealed)
   - A: 600-I / B: 600 (revealed)
   - A: 300-I / B: 900 (not revealed)
   - A: 900-I / B: 300 (revealed)
   - A: 300-I / B: 300 (not revealed)
   - A: 300-I / B: 300 (revealed)
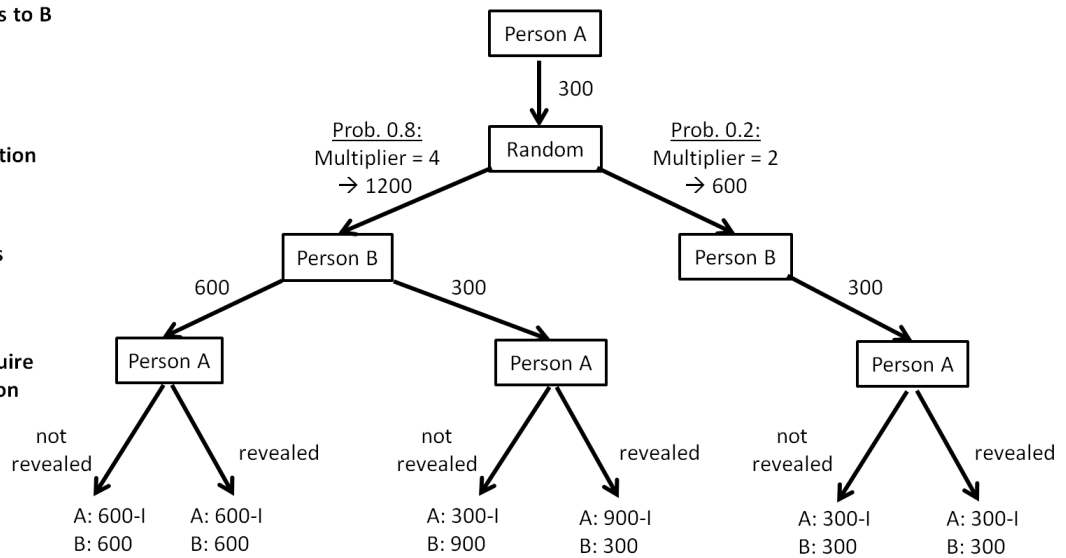
I = Information acquisition costs; (not) revealed = Person A gets to (does not get to) know the actual multiplier

When you read these instructions, please answer the questions on the attached sheet that should familiarize you with the decision situation. The experiment begins when all participants have answered the questions correctly.

After the experiment you will see a short survey on your screen which we kindly ask you to fill out while we prepare the payments.

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A2: Regression Estimates

	H1	H2(unfair)	H2(fair)	H3	H4
		Belief about	Belief about		Acquired
	Overestimation	I. acquisition	I. acquisition	Fairness	Information
Treatment Dummy	-0.101	2.101*	-0.194	-0.126	0.636
	(-0.07)	(2.17)	(-0.14)	(-0.94)	(0.62)
Age	0.018	0.156	-0.261	-0.007	0.225
(19-65)	(-0.09)	(1.18)	(-1.32)	(-0.29)	(1.18)
Female	-0.366	-0.888	-1.604	-0.050	-1.63
(0-1)	(-0.31)	(-0.93)	(-1.13)	(-0.33)	(-1.17)
Semester	0.099	-0.003	-0.034	0.024	-0.1
(1-20)	(0.66)	(-0.02)	(-0.16)	(1.10)	(-0.45)
Exp. Game Theory	0.49	-0.932	2.014	-0.088	-1.573
(0-1)	(0.31)	(-0.94)	(1.41)	(-0.54)	(-1.35)
Lab Exp.	0.348	-0.202	0.99	-0.088	0.334
(0-3)	(0.53)	(-0.55)	(1.43)	(-1.19)	(0.61)
Ideology	-0.911	-0.155	0.336	-0.069	0.242
(0=left-9=right)	(-1.77)	(-0.56)	(0.8)	(-1.15)	(0.79)
Constant	2.145	0.384	8.319	1.051	-1.534
	(0.37)	(0.1)	(1.64)	(1.41)	(-0.37)
N	54	29	25	54	54
Adj. R-squared	0.01	0.066	0.123	0.011	-0.025

Note: t statistics in parentheses; * p<0.05, ** p<0.01, *** p<0.001

Paper 2

Why German Political Elites Support Governmental Transparency

Self-Interest, Anticipation of Voters' Preferences or Socialization?

Christian Weyand

Abstract. We compare three analytically distinctive motivations that could explain transparency support among German political elites: (1) Principal-agent theory suggests that elites have no incentive to reduce their informational advantage over voters. (2) From an office-seeking perspective, it is beneficial to support popular issues such as transparency. (3) Democratic-elitism suggests a specific elite-socialisation leads to high support of civil liberties like transparency. Analysing survey data of candidates for the German Bundestag 2009, we find high variance among elites and complementary influence of the motivations. Membership in left-leaning parties has the strongest positive effect. We find anticipation effects among candidates that are highly dependent on voters' support and whose voters are in favour of transparency at the same time. Further, transparency support is higher among young candidates. The findings imply that more transparency policies might be implemented in the future if public support for transparency increases and older candidate cohorts are replaced.

'Of the three sources of power the most important for sovereignty is the power over the thoughts that give trust. Violence can only be used negatively; money can only be used in two dimensions, giving and taking away. But knowledge and thoughts can transform things, move mountains and make ephemeral power appear permanent'

(Mulgan 2007: 27)

1. Introduction

Why do political elites support governmental transparency? To address this question, we draw on three established theories that can explain elite preferences: principal-agent theory, office-seeking and democratic elitism. From each theory we derive an analytically distinct, ideal-typical motivation to support transparency policies: self-interest, anticipation of voters' preferences, and elite socialization. We combine these three motivations into an explanatory framework and suggest that their influence on elites' preferences is complementary. For the empirical analysis we draw on data of the German Candidate Study 2009 (Rattinger et al. 2009) that surveys candidates for the German Bundestag 2009. The contribution of this work is twofold.

First, to the best of our knowledge, we are the first to investigate the attitudes of political elites towards governmental transparency.[1] We define governmental transparency as citizens' 'ability to find out what is going on inside a public sector organization (Piotrowski and Van Ryzin 2007: 308). It can be achieved by disclosing information such as politicians' individual voting behaviour in parliament, perquisites of delegates, key figures of all kind of political and economic developments, ex ante expectations or ex post evaluations of policies, and details about placing and costs of public contracts. Recently, revolutionary movements during the Arab Spring, the publications of classified material by Wikileaks, the rise of Pirate Parties in Europe, and similar events made 'citizens' right to know' a heavily debated issue not only in Germany. Political scientists underline the importance of governmental transparency as well. There is a bulk of empirical literature that shows how governmental transparency is beneficial for citizens: Transparency increases responsiveness (Besley and Burgess 2002), civic engagement (Capuno and Garcia 2010), trust in government (Grimmelikhuijsen 2009), and good governance (Islam 2006). Therefore, Robert Dahl (1989) might not exaggerate in his seminal work 'Democracy and its Critics' when he claims that inequality in information and knowledge is the most severe resource

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[1] The empirical investigation of public support for governmental transparency has started to become a matter of interest for some researchers in recent time. C.f.: Association of Government Accountants (2010); Cuillier and Piotrowski (2009); Cuillier (2008); Driscoll et al. (2000); Piotrowski and Van Ryzin (2007). In summary, this research shows high support for transparency among the public. In contrast, there is only one study (McDonagh 2010) which surveys elite attitudes towards the issue. However, this study is mainly concerned with the subsequent evaluation of benefits and problems of the introduction of a freedom of information law and only provides some descriptive statistics.

inequality that threatens democracy. He even considers it more substantial than those differences in resources that permit violent coercion or stem from wealth and economic position.

Second, by focusing on the motivations of legislators to adopt policies, we add to the literature of policy representation. Most often, this literature focuses on the impact of public opinion on policies (Page and Shapiro 1983; Monroe 1998; Burstein 2003; Brooks and Manza 2006). The idea behind this kind of democratic representation is that public opinion affects elite preferences and that political elites will consequently create policy outcomes according to public opinion. In other words, this approach assumes the ideal democratic case that political elites solely execute the public will. It neglects the possibilities that the causality can also work vice versa, elite preferences affect public opinion, or that elites pursue their own interests and thus affect policy outcomes directly (Hill and Hinton-Anderson 1995; Rae and Taylor 1971). Although we will not participate in the debate about the causal direction of the public opinion-policy linkage, we acknowledge the importance of elite preferences. Chances for the implementation of a specific policy will be low, if there is prevailing resistance among legislators, even if public support for it is high. For this reason, we directly focus on explaining how preferences are motivated and thus ask under which circumstances political elites are willing to change policies. Empirical analyses of different elites' motivations have often investigated institutional change, in particular changes of electoral institutions such as direct democracy (Bowler et al. 2006; Ziemann 2009). Like direct democracy, governmental transparency weakens elites' control over the political agenda and thus has a 'redistributive feature' (Tsebelis 1990). For this reason, elites' motivations to support transparency are less obvious than the citizens'. Therefore, support for governmental transparency does not only have important practical consequences. With three different underlying motivations, it also offers a unique possibility for a theoretical investigation of the formation of elite preferences using three different theories.

The first one is principal-agent theory. It stresses the informational advantage in the policy process that politicians enjoy over citizens. Politicians can exploit this advantage to enforce their own interests which might differ from citizens' interests (Stiglitz 2002). According to principal-agent theory, there should be no rational[2] reason for politicians to support transparency since it would lower the information asymmetry and consequentially decrease the possibilities to enforce their self-interest. The second theory we draw on is office-seeking: If one assumes that voters are highly in favour of transparency policies, anticipating these preferences might be considered as rational behaviour for political elites as well because supporting such transparency policies might

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[2] Rationality here is defined as choosing the one alternative out of a space of action that maximizes an agent's utility.

lead to more electoral support from voters. From this broader perspective of rational behaviour, politicians do not gain utility by enforcing their self-interest, but by supporting popular policies to maximise their chances to win or to retain office. Third, elite theory emphasises the impact of elites' socialization on their attitudes (Bachrach 1962; McClosky 1964; Stouffer 1955). According to the democratic elitism literature, political elites in general have a particularly high appreciation of democratic values and civil liberties – in any case higher than that of ordinary citizens. Since governmental transparency can certainly be considered a democratic value, elite theory would suggest that elites show strong support for transparency as a consequence of their specific elite socialization.

The three approaches outlined above provide distinct (and partly conflicting) motivations for politicians to support or reject governmental transparency. However, for our analysis, we do not assume a single explaining motivation or homogenous preferences among political elites. All three motivations will rarely appear in their ideal typical form: the selfish homo oeconomicus who abuses her power and exploits her position at the expense of the citizenry; the unprincipled turncoat who tells the voters what they want to hear; and the benevolent upholder of democratic values. Instead we suggest that there are complementary motivations for political elites to support or reject transparency policies and assume that politicians are influenced by all impacts.

For the empirical analysis, we draw on data of the German Candidate Study (Rattinger et al. 2009) that surveyed candidates for the German Bundestag 2009, among other thing, about their opinion towards transparency of the German parliament to the public. Using data from Germany has several advantages. If differences between different groups of political elites exist in a consensus-oriented democracy such as Germany, they should be even more prominent in majoritarian democracies like the U.S. or the UK. Furthermore, the mixed-member proportional representation system with three kinds of candidacy modes – constituency candidacy, party-list candidacy and mixed mode – differ substantially in their dependency on voters' favour. This provides the opportunity to disentangle the different impacts on support for transparency. In addition, the multi-party system of Germany makes it possible to control for a wide range of party socialization influences.

The remainder of this article is organised as follows. In the theoretical section, we start the investigation with a brief introduction about the role of information in the policy process. We then present the three motivations that are drawn from the literature and apply them to the issue of transparency support. Finally, we show how the different approaches are related and can be considered complements. In section 3 we introduce the dataset used for this study, explain the

operationalisation of the variables and outline the methodological proceeding. Section 4 shows the empirical results. In section 5 we conclude.

2. Literature Review and Theoretical Framework

2.1. The Role of Information in the Policy Process

Figure 1: Theoretical Framework
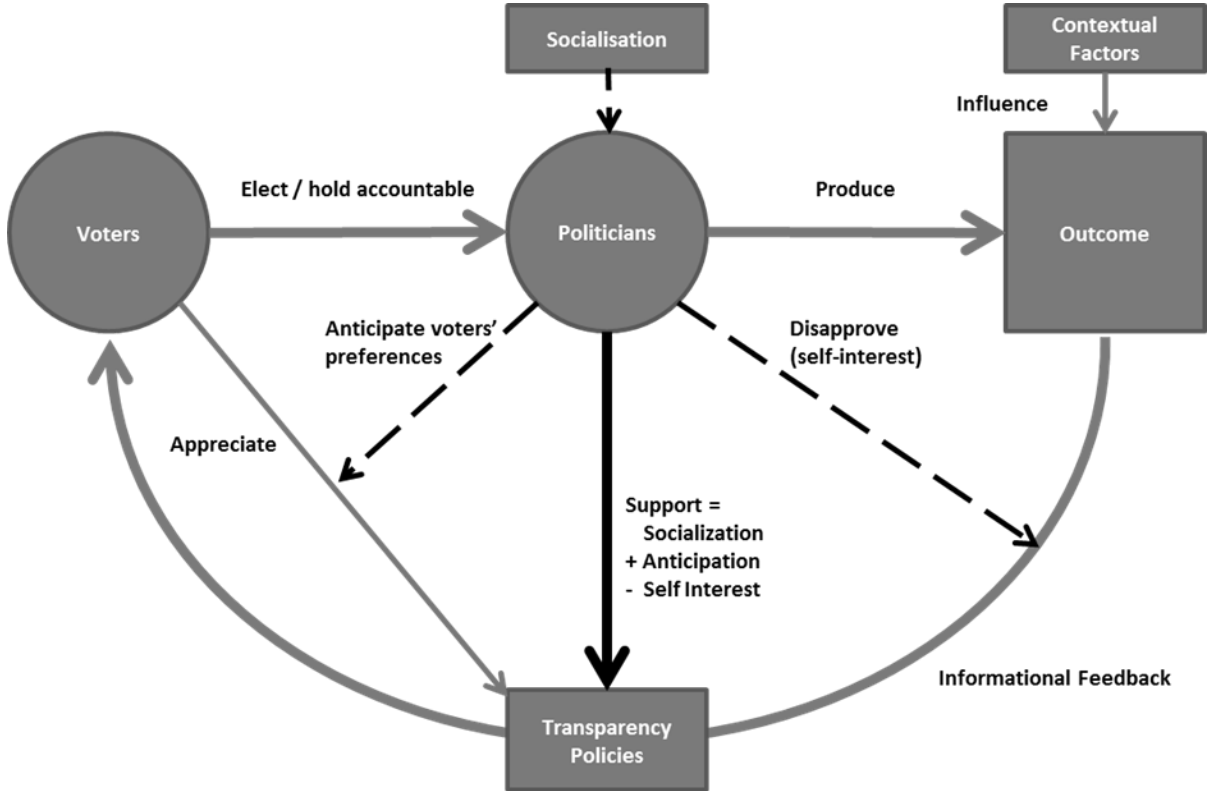
Note: The bold grey lines depict the policy process. The black lines depict motivations to support/reject transparency policies. While the dashed black lines illustrate the three analytical motivations, the bold black line is the overall support for governmental transparency as a complementary result of the three motivations.

Figure 1 depicts the role of information in the policy process. In a representative democracy, citizens as sovereigns delegate power to politicians. Ordinary citizens simply lack the time as well as the ability for mass-coordination that is necessary to find binding rules for the whole society. The idea of representation is that politicians shape policies in the best interest[3] of citizens (Pitkin 1967). However, the actual policy outcome is not only formed through politicians' actions and decisions but is also influenced by several contextual factors that are beyond the influence of the

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[3] The definition of *one* best interest is tricky for several reasons. First, there are various concepts of representation (Mansbridge 2003). Second, there are doubts that voters themselves know what is their best interest (Manin et al. 1999). Third, electoral heterogeneity allows public officials to play off some voters against others to escape from the electoral control mechanism and undermine their accountability to anyone (Ferejohn 1986).

individual politician, such as budget constraints, veto powers, party strategy, economic development, etc.[4] To hold politicians accountable, i.e. to ensure that they act in the citizens' best interest, there are periodical elections. If citizens are dissatisfied with the politicians' performance, they can replace them in the next legislative period.

However, evaluating politicians' performance is not a straightforward matter. Citizens can only evaluate their own well-being, i.e. the outcome they perceive (Ferejohn 1986). But they usually lack information about politicians' actions and decisions (hidden action) as well as about the details of contextual influences (hidden information). This is why Easton (1965) calls the policy process a 'black box'. This lack of information limits the possibility to hold politicians accountable, as citizens cannot distinguish between the politicians' performance and the contextual factors. Thus they can only partly identify actions that are not in their interest. To remedy this problem, intermediaries have the crucial task to provide voters with informational feedback and to make the policy process as transparent as possible. Only a transparent information flow enables citizens to evaluate politicians' performance on a basis different than the actual policy outcome.

According to Piotrowski (2007: 91), there are five channels through which such informational feedback can flow: First, *proactive dissemination* by all kind of public agencies via press releases, provision of statistical figures, publications of historical documents or posting documents online. Second, through *requested information* that is not proactively provided by any agency but has to be specifically requested by journalists or citizens. The release of the information is often examined for each individual case and is based on legal rights such as a freedom of information act. The third and fourth are less formal channels: *whistle-blowing* – the publication of administrative misbehaviour, and *leaks* – the release of information to some media outlets that is not intended to become public. The fifth and last channel are *open meetings* where information is discussed publicly by both political elites and representatives of media or interested citizens. Notably, most information released via any of these channels reaches citizens through some kind of information intermediary such as journalists, broadcasting agencies, bloggers, etc. Ordinary citizens most often lack the time, the interest or the cognitive ability to acquire such information on their own.

Information that reaches citizens via whistle-blowing or leaks is an import source for revealing and preventing wrongdoing. Nevertheless, these kinds of information flows are not intended by the government and thus cannot be considered in a study that asks for motivations why

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[4] For reasons of convenience we just consider such contextual factors as exogenous here, although we are aware that each of these influences is the result of complex processes that deserve their own fields of research.

politicians (purposely) support transparency. Contrary, information flowing through the other three channels can be actively controlled by politicians. Among all the binding decisions politicians come to, they also determine to which degree they reveal information about their own actions, decisions and performance to the public (Manin et al. 1999). So to some extent, by regulating governmental transparency they can determine the degree to which they can be held accountable. Besides the role of information in the policy process, figure 1 also includes the three motivations assumed to drive politicians' transparency support and that will be elaborated on in the next sections.

2.2. Self-Interest

The policy process as described above corresponds to the typical characteristics of a principal-agent relation (Barro 1973; Ferejohn 1986; Miller 2005): A principal (citizen) delegates a specific task to an agent (politician) and rewards the agent for acting in her interest. The principal-agent relationship is characterised both by at least partly different preferences between principal and agent and by asymmetric information. The agent has an informational advantage over the principal regarding the quality and commitment of her own actions because the principal cannot perfectly monitor her. Principal-agent theory suggests that in such a situation with hidden action and hidden information, the agent will maximise her utility by enforcing her self-interest, so-called moral hazard. Moral hazard is a behavioral change caused by an insurance against a risk. Here the insurance is the information asymmetry that leads to a reduced risk of being sanctioned. In representative democracies, moral hazard includes policy divergence (the deviation from citizens' preferred policy), rent extraction (the exploitation of political authority for private benefits), fraud, corruption, and leisure shirking (bad policy outcomes as a consequence of politicians' low effort) (Strøm et al. 2003) [5].

In a world of perfect information, i.e. with absolute transparency, as it is often assumed by neoclassic economic theory, citizens can perfectly observe politicians' behaviour and precisely distinguish their performance from other impacts. Thus they can exactly detect when politicians try to enforce their own interest. With perfect transparency, politicians have no incentive to cheat on citizens in any way because any kind of fraud would immediately be sanctioned in the next elections. Vice versa, in a world with absolute non-transparency, i.e. without any information flow, once the voter delegates her power to the politician she has no further impact on the formation of the policy outcome. The principal-agent approach suggests that after the election, a

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[5] Since this kind of moral hazard behaviour has negative consequences for all voters, we consider the assumption of homogeneous voter interests concerning transparency justifiable. The above mentioned limitation of accountability as a result of heterogeneous voter preferences and ambiguity about a "best interest" thus carries less weight here.

politician has no incentive to stick to the voters' interest. This is because politicians are aware that voters have no way to evaluate the formation of the outcome in any case. The consideration of these two extreme points illustrates that the amount of transparency determines the politicians' ability to realise their self-interest against the voter's interest. In its most canonical form, principal-agent theory thus suggests a homogenous disapproval of all information flow to citizens. There should not be any support for transparency policies at all.

However, self-interest motivations can also explain heterogeneous preferences among elites. Based on considerations in the literature on changing institutions (Riker 1980; Shepsle and Weingast 1981; Tsebelis 1990), Bowler et al. (2002) propose that those elites who lose under the current institutional arrangement will support institutional changes while those in power will refuse changes in order to maintain the status quo. In line with this argument, the authors argue that expanding direct democracy gives new actors ('outsiders') access to the public policy agenda and thus weakens the power of the actual legislators. In fact, their empirical results show that candidates of the ruling party are much less in favour of direct democracy than those of the opposition. The same could be shown for incumbent members of parliament compared to their respective contenders. Analogous to the argument for direct democracy, governmental transparency opens political institutions and increases information levels of outsiders. Political elites who are not in government or in parliament could gain more control over policymaking by increased governmental transparency. From a self-interest perspective, a politician who is member of the parliament and thus has more control over the policy process, should less likely support governmental transparency.

2.3. Anticipation of Voter Preferences

From a self-interest perspective, politicians maximise their utility by engaging in moral hazard. But the utility notion can be regarded in a broader way. The main idea in this section is that voters evaluate politicians' policy positions and that politicians can gain utility by attracting voters' support for promoting specific policies (Wlezien 1996; Highton 2012; Pietryka and Boydstun 2011). This argument is in line with early theorists such as Downs (1957), who states that parties maximise electoral support to gain governmental control, or Schumpeter (1942), who claims that the whole democratic process is virtually defined by different political elites' competition for citizens' support. The literature of coalition formation and party competition uses the concept of 'office-seeking' for party behaviour that maximises the chances to control government (Strøm 1990). We borrow this term to describe individual elite behaviour. From this

perspective, politicians that seek office should support policies that are popular among the electorate to increase their chances to win or to retain office.

Since voters highly appreciate governmental transparency (Piotrowski and Van Ryzin 2007), elites might increase their utility by committing themselves to transparency policies. Contrary to the principal-agent approach above, politicians' utility here stems from attracting electoral support and not from enforcing self-interest[6]. This idea is closely related to the argument that elections are a mechanism to select 'good types' of politicians (Fearon 1999). Those politicians who support a high level of transparency might qualify as such good types in the eyes of citizens and thus have a competitive advantage over political opponents that reject transparency. Consequently, from this office-seeking perspective, supporting transparency is generally beneficial for politicians. But how much utility a politician can gain from supporting transparency policies exactly depends on two factors: first, how much the specific politician depends on the voters' support, and second, how much her specific voters value governmental transparency.

Dependency on the voters' support is strongly linked to the candidacy mode of the politician. Pure constituency candidates are highly dependent on the voters' favour since they campaign as individuals for a single seat in their constituency. Their campaign is more constituency oriented, while list candidates' campaign is more party oriented (Klingemann and Wessels 2001; Lancaster and Patterson 1990). Pure constituency candidates thus should be more responsive to voters' interest for office-seeking reasons compared to list candidates that have only an indirect connection to the voters and stick to party interests. Empirical data show that candidates in Germany indeed differ substantially in demographic characteristics, campaigning, and in positions taken up according to the mode of candidacy (Wüst et al. 2006; Zittel and Gschwend 2008).

The dependency on voters' support could furthermore be influenced by politicians' expectations about the closeness of the electoral race. If a specific candidate can expect a bold majority of the votes in her constituency or for her party list, attracting further voters' support is much less crucial as if there is a close race between two or more candidates. Conversely, if the election outcomes are expected to be very narrow, support for governmental transparency might tip the scales.

How much voters appreciate governmental transparency depends on the voters' ideology. Left ideology is usually considered egalitarian, liberal and progressive. Civil liberties like transparency

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[6] Strictly speaking, reelection concerns are also central to principal-agent theory and therefore can be considered as self-interest as well. Our notation of self-interest that we derive from principal-agent theory however is limited to moral hazard behaviour.

and having a say a core issues. Actually, Piotrowski and Van Ryzin (2007) can empirically show that left-leaning citizens are more concerned with governmental transparency than right-leaning ones. And left-leaning voters usually vote for left-leaning candidates and for left-leaning parties. Because politicians anticipate their respective voters' preferences, office-seeking behaviour implies that both left-leaning candidates and candidates from left-leaning parties show stronger support for transparency than their right-leaning competitors.

Furthermore, the voters' appreciation of transparency might depend on the respective structure of their constituencies. Consequently, the candidate can anticipate a different popular demand for governmental transparency depending on the structure of the constituency. This assumption is based on the cleavage theory by Lipset and Rokkan (1967) who suggest that the electoral outcome is also a result of the conflicts arising from the structure of a society. For Germany, this approach is taken up by Magin et al. (2009) who analyse how the electoral outcome can be predicted from the composition of the regional social structure. The authors find that the church-state cleavage and the materialism-postmaterialism cleavage significantly shape the regional electoral outcomes in Germany. Thus, issues that address one of these conflicts might be particularly relevant for the structural impact on voters' support. Postmaterialist values include the desire for having a say, more control and more participation in politics (Inglehart 1977). Since transparency can be considered as an important means to these ends, the demand for transparency policies should be higher among voters with postmaterialist values. Irrespective of their own ideological preferences which will be discussed in the next section, candidates should anticipate this demand for transparency in their constituency.

2.4. Elite Socialization

While the two former approaches point out motivations to maximise two different kinds of utility – enforcing self-interest and attracting voters' support – elite theorists explain politicians' preferences with their socialization. This elite socialization is specific in two ways (Sullivan et al. 1993): First, elites, to a large share, are selectively recruited from a strata that is higher educated, more affluent, more cosmopolitan, and thus more tolerant than average. Second, after choosing a political career, elites undergo a political socialization in an institutional environment with high levels of participation, great responsibility, much contact with ideological diversity, and the belief in the necessity to find compromise. In both socialization stages social learning (Bandura 1977) occurs: Politicians observe, adapt, and replicate behaviour and values of their specific environment.

According to democratic elitism in its most canonical form, this socialization makes political elites highly committed to democratic values and civil liberties, especially more than ordinary citizens (Stouffer 1955; Bachrach 1962; McClosky 1964; McClosky and Brill 1983). Elites are seen as the 'carriers of the democratic creed' (McClosky 1964) that defend democracy against a public that is often quite intolerant towards such values. If one agrees with Stiglitz (2002: 29) that 'in democratic societies citizens have a basic right to know, to speak out, and to be informed about what the government is doing and why and to debate it', one should consider governmental transparency as such a basic democratic value. Consequentially, democratic elitism would suggest that politicians support transparency and intentionally reduce the information asymmetry inherent in the policy process although this might be against their own interests.

Democratic elitism assumes that the similar socialization process of elites leads to homogenous preferences. However, it neglects that much of the political socialization happens within political parties that are in competition and that vary a lot in ideological convictions. For this reason, the social learning experience differs substantially between parties and consequently might lead to more heterogeneous elite preferences. So, one could expect that – additional to preexisting individual preferences – socialization in liberal parties increases concerns about civil rights and liberties or social equality while socialization in conservative parties increases sensibility for economic or security issues. Indeed, empirical evidence exists that there is no consensus but rather a high heterogeneity among political elites concerning civil liberties (Sniderman et al. 1991; Gibson and Duch 1991; Fletcher 1989). Conservative elites are no more approving of civil liberties than are conservative citizens but less approving than left-leaning elites and also left-leaning citizens (Sniderman et al. 1991; Guth and Green 1991).

In a less canonical form that considers heterogeneity among politicians, elite theory would therefore suggest that left-leaning candidates and candidates from left-leaning parties support governmental transparency more than their more right-leaning counterparts. Notably, these differences stem from strong convictions that are a result of different socialization. As opposed to the two former approaches, rational calculus does not play any role here. This motivation could thus be analogous to the concept of 'policy-seeking' used in the party-competition literature (Strøm 1990).

Recently, governmental transparency is often mentioned in connection to concepts like e-governance or open government. These terms broadly describe measures that use new technologies to increase public participation and collaboration and therewith create a 'culture of transparency' (Bertot et al. 2010). This is because the concepts are based on basic principles of

the internet namely openness, equality, neutrality, knowledge exchange, and collaboration. Heavy users of information technologies should be more socialized to these principles and more convinced about its potential benefits. As a result they do higher appreciate governmental transparency. Indeed, among ordinary citizens, frequent online information seeking increases the support for access to public records (Cuillier and Piotrowski 2009). If the occupation with information technology and the exposure to its values has a similar effect on political elites, politicians that use the internet extensively to interact with citizens should be more supportive to governmental transparency.

2.5. The Complementation of Motivations

In the previous sections we presented three different theoretical approaches that can potentially explain political elites' preferences: enforcement of self-interest, anticipation of voter preferences, and elite socialization. While principal-agent theory suggests low support for transparency policies, elite theory and office-seeking provide motivations for high support. Although these perspectives are analytically distinct, they can be related to each other.

First, principal-agent theory and democratic elitism (in their most canonical forms) both compare transparency preferences of political elites and citizens, but their predictions are contradictory: While principal-agent theory suggests higher transparency preferences among citizens, democratic elitism assumes higher support among politicians. The opposing predictions are a result of the assumed difference in the driving forces behind elite preferences: self-interest or socialization, respectively. Second, both self-interest and anticipation of voter preferences are based on rational considerations, i.e., politicians' considerations on how to maximise their own utility. Since transparency preferences are contrary for these two motivations, there is a trade-off. A politician must deliberate about whether enforcing self-interest or attracting voters' support will be more beneficial for her utility. Third, elite socialization and office-seeking motivations point in the same direction, but the respective reasons to support transparency are completely unrelated. Elite socialization points to a sincere intrinsic conviction – a 'policy-seeking' motivation – while anticipation of voters' preferences emerges from utility-maximizing considerations.

Instead of asking which of these three motivations is *the one* that explains politicians' preferences, we consider these motivations to be complementary factors that shape politicians' preferences together. A politician who is only trying to enforce her self-interest, or who is doing everything to gain her voters' favour, or who is acting solely according to higher moral values will rarely appear in existing democracies and thus has to be considered as ideal-typical only. Instead, we suggest

that most political elites have to prioritise between conflicting motivations that have different degrees of influence on their preferences and actions. While self-interest might be a driving force for decisions, ideological convictions might limit its extent to a certain set of actions. While a politician might want to decide according to her ideological convictions, pragmatic considerations might make her deviate from own preferences and anticipate those of her voters. Because of the simultaneous occurrence of all three motivations, an absolutely unambiguous and minute disentanglement of impacts in the empirical part is impossible. This is especially true for the concept of ideology, because both the individual left/right classification and the party membership are assumed to have an impact via socialization and also via instrumental anticipation of voters' preferences. We will instead analyse which of the three motivations do exist at all and under which conditions one can find them.

3. Data and Methodology

For the analysis we use data from the German Longitudinal Election Study (GLES), more specifically from one of its components, the German Candidate Study.[7] The candidate study surveys all candidates from the six parties represented in the German Bundestag 2009. The population exists of 2,077 candidates. Questionnaires were sent to the candidates via mail starting from 4th of November 2009 (that is shortly after the elections), with two reminders after one month each. Candidates also had an option to participate online. Altogether 790 complete questionnaires could be realised which corresponds to 38% of the population. The realization rate varies with party affiliation between 30% for the CSU (Christlich-Soziale Union) and 47% for the Greens (Bündnis 90/Die Grünen). Furthermore the realization rate is lower for successful candidates (32%) than for those who failed to enter the parliament (41%). Taking the different number of candidates per party into account, the different realization rates lead to a considerable overrepresentation of FDP (Freie Demokratische Partei), Greens and The Left (Die Linke) in the sample. With the exception of the Bavarian-only CSU, all parties have a share of about 20%.

A selection bias between different groups of respondents can often be found in social surveys. However, in an analysis of the issue of transparency, the occurrence of a selection bias might be especially relevant because the decision to reveal information in a social survey can be considered as transparent behaviour itself, although anonymity is guaranteed. Therefore, participation in this

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[7] C.f. Rattinger et al. (2009). There is similar data from 2005 available, c.f. Gschwend et al. (2005) However, we will not use it here for two reasons. First, there is no information about the constituency number, so survey data cannot be matched with contextual data. Second, various candidates were surveyed both in 2005 and 2009. For reasons of anonymity, however, the data have no panel structure and those candidates cannot be identified. Thus, the issue of autocorrelation cannot be addressed.

survey is likely to be correlated with the dependent variable, support for transparency policies. This means that our sample is probably more supportive for transparency policies than the general population of political elites in Germany. On the other hand, this might make the results more conservative: If there are any effects in this more homogenous and supportive sample with lower variance in transparency support, these effects should be even more prominent in a more heterogeneous and less supportive population with higher variance. To control for possible biases caused by selection bias, we validate all analyses with two different post-hoc weights: one adjusted for party differences among the whole population of candidates, the other adjusted to the party composition of the current German Bundestag. The weighted analyses do not differ considerably and can be found in table A1 in the online appendix.

3.1. Dependent Variable: Support for Governmental Transparency

The dependent variable is an index for support of governmental transparency. There is an item set asking for candidates' attitudes towards several much discussed parliamentarian reforms. Three of these items concern transparency. Candidates are asked to indicate their position on a 7-point scale with labelled extreme points that are:

(1) 'Parliamentary committees should always be held publicly' to 'Parliaments have to offer the chance for confidential consultation and for coming to a compromise'

(2) 'The negotiations of parliamentary committees should be broadcasted live via electronic media' to 'The parliamentarian process must not become a media frenzy'

(3) 'Members of parliament should have the right to unrestricted access to records of the ministerial bureaucracy' to 'Unrestricted access to records is superfluous or even harmful'

The first two items measure what we defined as governmental transparency, an information flow from politicians to citizens. Conversely, the third item measures an information flow from bureaucrats to politicians. Motivations to indicate support for item three thus might be reverse because approval here means increasing politicians' information level, not reducing their informational advantage over citizens. For this reason item three is excluded from the transparency support index.

We conduct a principle component analysis to see whether the two remaining items measure the same concept. According to the Kaiser Criterion both items score on a single factor, explaining 82% of the variance. A reliability check provides a Cronbach's Alpha of 0.78. Both numbers are considerably higher than those of an index with all three items. The dependent variable

transparency is constructed by the factor scores using regression method.[8] A high value on the index indicates strong support for governmental transparency.

One objection to this operationalisation could be that the two items are very specific and might only relate to legislative transparency and the work of parliamentary committees. This objection is justified, as a higher number and more diverse items would increase reliability. Nevertheless, we believe that a general inclination for transparency exists and that candidates that support legislative transparency also support transparency in different governmental fields. At least for citizens this claim appears to be true, as they show consistent preferences among a wide range of transparency items (Piotrowski and Van Ryzin 2007). Furthermore, if candidates for a legislative body support legislative transparency, which means they reduce their own informational advantage, they should be supportive of transparency of other public agencies that they are not related to all the more. Thus, despite the particular nature of the items, the index should allow for measuring a general preference for governmental transparency.

Another problem that always exists in survey research is the social desirability bias. It might be especially strong for politicians since they are public persons and supposed to act as role models. Political elites will not answer surveys as ingenuously as citizens do, but will partially answer strategically according to role expectations. Since transparency can be considered as a democratic value, one could argue that there is an upward bias for support for transparency. However, we consider this objection as minor. First, absolute anonymity is guaranteed. Second, and more important, the items are coded in a way that both extremes can reflect desirable conditions. Whether transparency or offering 'confidential consultation' and avoiding 'media frenzy' are considered more desirable depends on individual preferences. For this reason, we consider the candidates' answers to these items as a valid measurement of their real opinion and intention for decisions and actions.

3.2. Independent Variables

For analytical purposes, the independent variables are distinguished according to the three different theoretical approaches to elites' support for transparency.

To capture the potential effects of self-interest as suggested by principal-agent theory, we use a dummy variable *MdB* that indicates whether the candidate was successfully elected into the

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[8] For comparison, we also applied principal factor analysis (instead of principal component analysis) and computed factor scores by the Bartlett method (instead of regression method). All possible scores correlate by 1.0.

German Bundestag 2009. Furthermore, we will compare transparency preferences among candidates with comparable data of citizens.

To measure the anticipation of voters' preferences, we create dummies for the type of candidacy[9]: The *constituency candidate* who only runs for a constituency; the *mixed type* who runs for a constituency but is backed up via party list; and the *list candidate* who only runs via party list. On the contextual level we create an index indicating the existence of *postmaterialism* values in each constituency. Adopting the procedure from Magin, Freitag and Vatter (2009) we use an additive index combining a) the z-standardised shares of work force with higher educational degree and b) 1,000 inhabitants per km². Furthermore the variable *closeness* is a proxy for the closeness of the electoral race in a constituency. It measures the gap in first votes in per cent between the winner of a constituency and the closest opponent.

Socialization effects are measured with dummy variables for each party[10] and a variable *right* that indicates candidates' self-reported assessment of individual ideology on a scale from 1 = very left to 10 = very right. Furthermore, a dummy *internet* indicates when candidates used the internet five hours and more for discussing and informing voters about issues during their campaign.

As controls, we include several demographic variables. There is a dummy for *female* candidates, a variable for *age* and two dummies for education: Considering the generally high level of education among candidates, only politicians with a university degree are considered as having *high education*, those with high school degree (Abitur) have *medium education*, below is the reference group of *low education*. The dummy *GDR* indicates socialization in East Germany, defined as being born there and being 15 years or older before 1989. Finally, we include a dummy *East* that relates to the location of the current constituency of a candidate. All variables of interest are summarised together with the respective expectations in table 1.

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[9] The type of candidacy is correlated with several other characteristics that might have an impact on candidates' preferences. Wüst et al. (2006) show that candidate types differ e.g. in age, experience, party affiliation, incumbency status, succeeding chance, and expected closeness of the race in their constituency. However, we argue that most of this confoundedness can be eliminated by the other covariates.

[10] Our design cannot clearly distinguish whether effects of party dummies are caused by political socialization within the party or by earlier socialization that might have influenced the selection into the candidate's party. We alleviate this issue by controlling for individual ideology and for demographic characteristics. Furthermore, the effect of party dummies might be accounted to majority/minority status of the party. A brief comparison of our data from 2009 with the earlier wave from 2005 (Gschwend et al. 2005) shows that actually members of the SPD increased their transparency support in 2009 when they became opposition party after four years in government. However, we do not find a respective decrease when the FDP became governing party in 2009. Furthermore we find strong increases among members of the Greens and The Left although their status did not change. This inconclusive pattern suggests that majority/minority status is not a dominant explanation. Eventually, we cannot rule out the possibility that part of the effect is caused by size of the party, with small parties (FDP, Greens, The Left) being more supportive of transparency.

Table 1: Summary of Hypotheses

Variable	Explanation	Expected Effect
Self-Interest		
MdB	Member of German Bundestag (Ref.: Not member)	-
Anticipation of Voters' Preferences		
Direct Candidate	Constituency-only candidate (Ref.: List candidate)	+
Mixed Type	Constituency and list candidate (Ref.: List candidate)	+
Closeness	Gap between winner and runner-up candidate of a constituency (in per cent points of first votes; high values = small gap)	+
Postmaterialism	Postmaterialism index (Pop. density + share of workforce with higher degree)	+
Elite Socialization		
Left/Right	Ideology measurement (High values = right)	-
Internet	5h or more communication with voters via internet (Ref.: No or less than 5h communication via internet)	+
Party Dummies	(Ref.: CDU)	+

Note: The left/right measurement and the party dummies can be considered as measurement of anticipated voters' preferences as well.

The dependent variable as well as all continuous variables of the analysis are z-standardised for the regression models. Therefore, coefficient sizes are straightforward to interpret and easy to compare, as a one-unit change in the independent variable always corresponds with a change of one standard deviation of the dependent variable. The data of both levels are matched via the number of the respective constituency. For pure list-candidates which do not campaign via a constituency we determine the local party branch the candidate belongs to and match the respective constituency. Descriptive statistics of all variables can be found in table A2 in the online appendix.

3.3. Analysis and Models

The data in the analysis have a hierarchical structure: candidates nested in constituencies. Ignoring the fact that individual observations nested in one common unit on the higher level are in general not completely independent leads to an underestimation of standard errors (Snijders and Bosker 1999; Raudenbush and Bryk 2002). For this reason, multilevel analysis is usually an appropriate way to address this kind of data. However, an empirical look at the variance components of the data reveals that a likelihood-ratio test and a Lagrange multiplier test both fail to reject the null hypothesis that the variance between constituencies is zero (Rabe-Hesketh and Skrondal 2008). In this data, the variance on the candidate level i.e. within one constituency is much higher than the variance between different constituencies. The independency assumption for observations on the individual level seems not to be violated here. For reasons of parsimony,

we therefore decide to use ordinary least square estimation.[11] Nevertheless, to obtain robust variance estimates, we take possible effects into account and adjust standard errors for within-cluster correlation, also known as Huber-White-Sandwich Estimators (Williams 2000). These standard errors are also robust against minor deviations from the OLS assumptions.

The empirical approach consists of two steps. In the first step we estimate OLS regressions covering five different blocks of independent variables. The first block only consists of demographic variables serving as controls. The second model adds the variable that indicates self-interest motivations. The third block adds the variables that measure anticipation of voter preferences. In model four we include variables that measure individual socialization effects. In the fifth model we include party dummies. Since all variables are z-standardised, effect sizes can easily be compared.

After estimating the main model with all relevant variables, in a second step we include interaction terms[12]. This is necessary because effects of variables of individual ideology and party dummies might be caused by socialization motivations, or the instrumental anticipation of voter preferences, or both. To further examine the elusive effect of anticipation of voter preferences, we calculate all possible interaction effects between variables that measure dependency on voters' support (candidate type, closeness of the race) and voters' preferences for transparency policies (postmaterialism index, left/right measure, party membership). To check the robustness, we extend the final main model from the first step by each of these interactions individually and test if it can improve the model significantly via chi-squared test. For those interactions that improve the main model, we provide the marginal effects.

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[11] To validate the findings, we also estimate random intercept multilevel models. The results are basically the same and can be found in table A1 in the online appendix. We furthermore run a series of regression diagnostics considering outliers and influential cases, normal distribution of residuals, homogeneity of variance, multicollinearity and model specification. The assumptions of OLS regression are mostly met.

[12] Although there is no significant variance component between constituencies, cross-level-interactions can be included in the model if strong theoretical considerations indicate its existence (Raudenbush and Bryk 2002: 258).

4. Results

4.1. Descriptive Results

Figure 2: Violin Plots of the Transparency Items
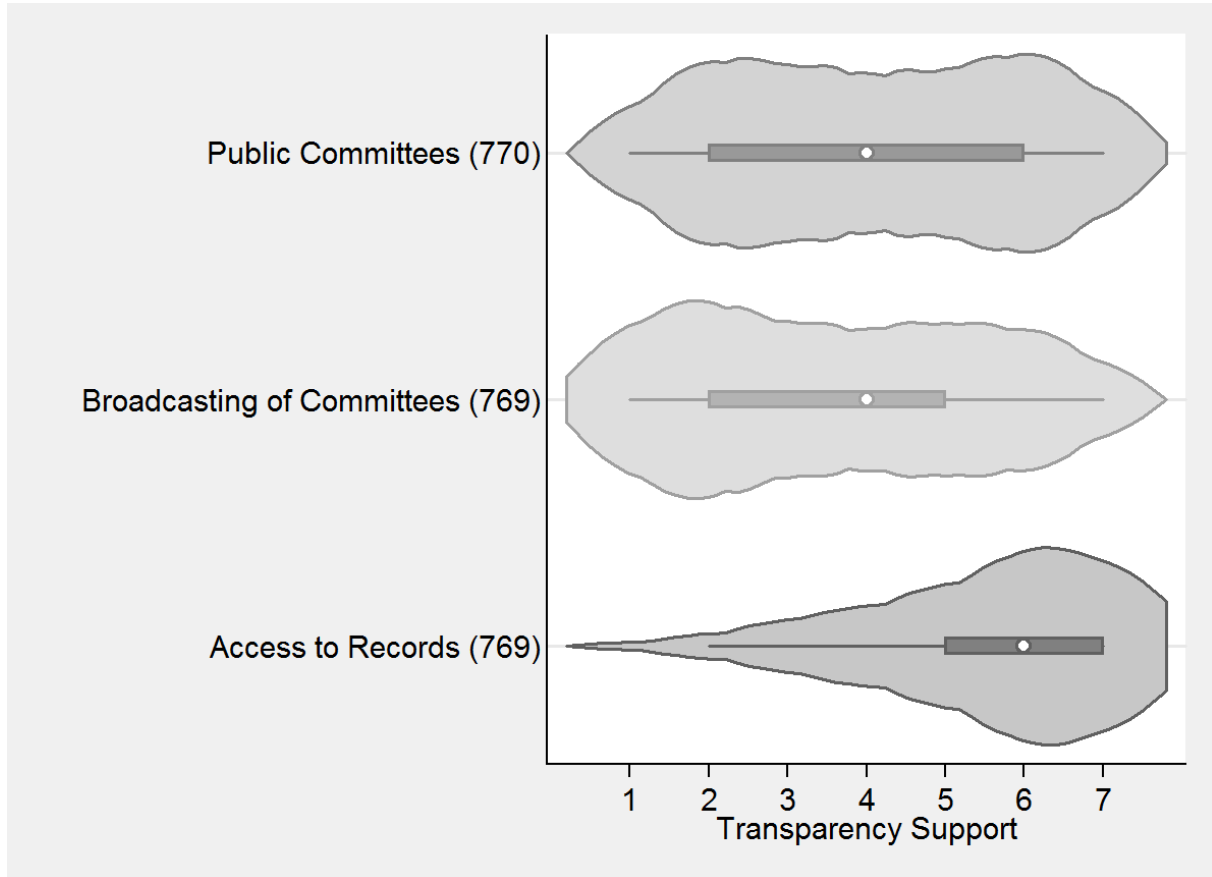
Note: High values on the x-axis indicate high support for governmental transparency. The inner part displays an ordinary box plot. The outer part is a kernel density estimation with a bandwidth of 0.8, mirrored along the box plot.

In this section we provide descriptive statistics of the dataset. Figure 2 displays violin plots (Hintze and Nelson 1998), a combination of box plot and kernel density function, of the three transparency-related items in the dataset. The first two constitute the dependent variable. Support for publicly held committees and broadcasting of committee work both receive a median support of 4, which is at the centre of the scale. Support for the latter one is slightly lower and has considerable density in the strongly rejecting range of the scale. Still, both items have a high variance and utilize the whole range of the scale. The high variance indicates that there is no consensus for support for transparency among German political elites. Opinions on this question differ considerably. On the other hand, support for members of parliament having access to records of the ministerial bureaucracy is substantially higher and the variance is distinctly lower. It seems that political elites are indeed much more in favour of transparency when they can gain an

informational advantage themselves, as opposed to revealing their own information to the public. This can be considered as first evidence for the existence of self-interest motivations. Furthermore, it underlines the decision to exclude this item in the governmental transparency index because it seems to measure a different concept.

Figure 3: Means and Standard Deviations of Transparency Support for Several Subgroups in the Sample
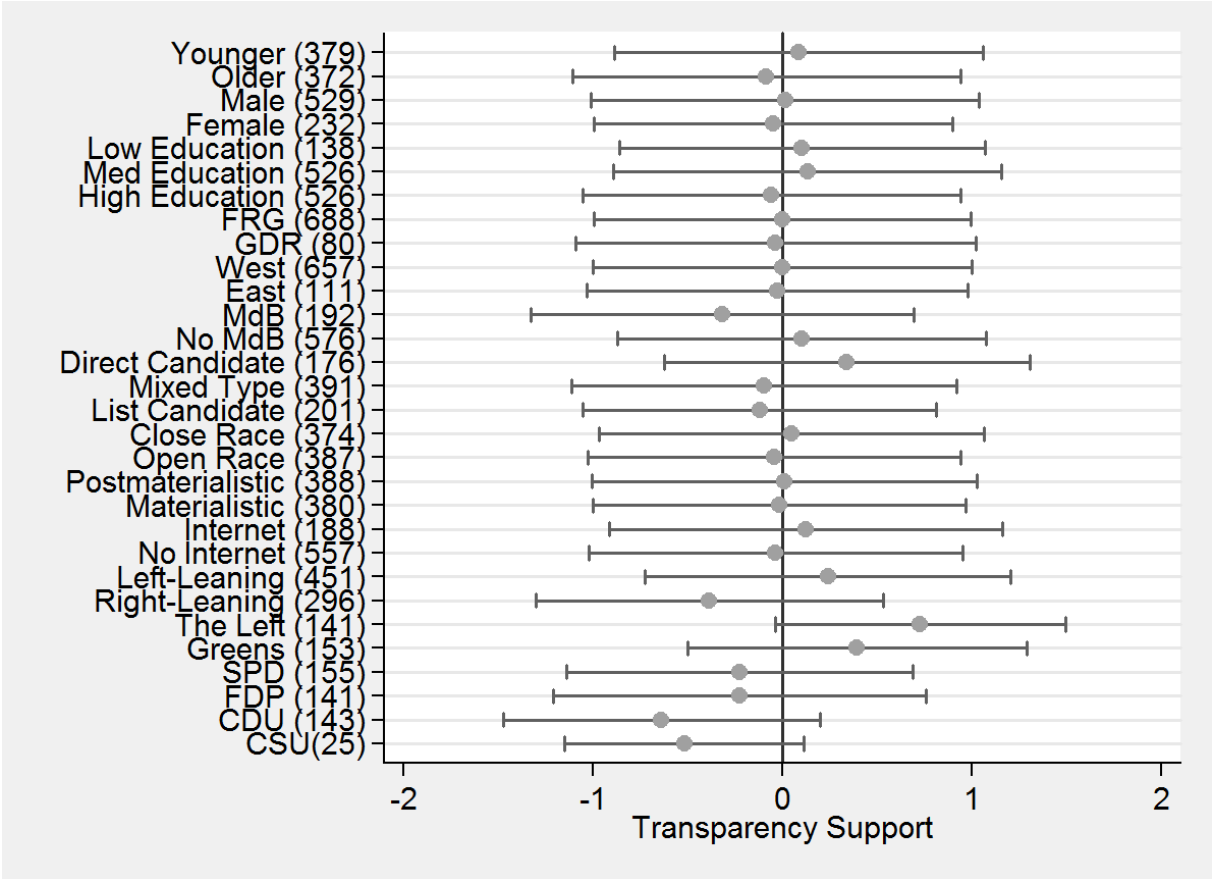
Note: The dots represent the average transparency support for the specific group. The lines depict the mean ± one standard deviation. The number in brackets indicates the number of observations. Reading Example: 143 candidates from the CDU have a mean transparency support of about -0.7, the standard deviation reaches from about -1.5 to 0.1. Continuous variables have been dichotomised at the median for this figure.

In Figure 3 we show how support for governmental transparency is distributed among several subgroups of political elites. First of all, there are only small differences between different demographic groups. Younger and lower educated candidates show slightly higher transparency support, while there are basically no differences regarding gender, region of constituency, and place of socialization. A one-sample mean-comparison test shows that support among members of the German Bundestag is significantly lower than among unelected candidates (p<0.001). This finding supports the idea of self-interest motivations proposed by principal-agent theory. Concerning office-seeking effects, we find mixed evidence. There is significant higher support

among pure constituency candidates compared to both other types (p<0.001), whereas there is no significant difference between the two latter types. However, whether a constituency is materialistic or postmaterialistic and whether the electoral race is open or close has only a marginal impact on candidates' transparency support. Concerning socialization effects, we find only slightly higher support among candidates that use the internet to be in contact with voters compared to those who do not (p=0.029). The effects of ideology are however especially strong. On the individual level, the left-leaning candidates in the sample score about 0.5 units higher on the transparency index than the right-leaning candidates (p<0.001). On the party level, we find the highest impact of all subgroups in the descriptive analysis. There is low support among candidates of the two conservative parties, slightly below average support among candidates of FDP and SPD (Sozialdemokratische Partei Deutschlands) and high support among members of the Greens and The Left. Nevertheless, there is still substantial variance within each party.

In summary, the descriptive statistics show that support for governmental transparency is at a medium level and that there is high heterogeneity among German political elites. A comparison with citizens' level of support is difficult, as the data do not provide the same items for ordinary citizens and comparable data asking for transparency preferences are rarely available. However, according to a representative survey, 88% of the German population support the 'disclosure of non-personal political data' by public authorities (Forsa 2010). Among the U.S. citizenry, support for governmental transparency is also high (Piotrowski and Van Ryzin 2007; Association of Government Accountants 2010). Although they are not perfectly comparable, these findings indicate that citizens might have higher preferences for transparency than elites. It also raises doubts about whether the democratic elitism's claim that political elites show higher support for democratic values and civil liberties is valid concerning the issue of governmental transparency. Instead, the higher support among citizens supports the idea of self-interest motivations. In addition, the descriptive results underline the strong impact of ideology and thus the importance of socialization effects. They also support the idea of anticipation of voter preferences. Since the variables are highly intercorrelated, however, we have to draw on multivariate analyses to try to disentangle effects.

4.2. Multiple Regression Results

Figure 4 shows the results of the OLS regression in graphical form. In model 1 we include six demographic characteristics of the candidates as control variables.[13] Age and high education have

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[13] In a trial run, we also included a variable "experience in politics" (candidate's aggregated years of incumbency in different public offices) and dummies for occupational group. However we do not include these variables here because they do not have significant impact but reduce the number of observations substantially.

a significant negative effect on transparency support. While a change of one standard deviation (11.44 years) in age changes transparency support by only 0.1 standard deviations, the impact of high education is more than twice as strong. However, the impact of candidacy in the eastern part of Germany and socialization in the former GDR are neither significant nor of any substantial strength. [14] Considering adjusted R^2, the demographic variables together can only explain a modest share of the total variance.

In model 2 we include a variable that should measure self-interest motivations. In line with our expectations, members of the German Bundestag support transparency policies significantly less than unelected candidates. This effect is stronger than that of any demographic control variable. Although adjusted R^2 triples, it remains on a rather low level.

In model 3 we add four variables that measure motivations of anticipated voters' preferences. Both the direct constituency candidate and the mixed type who runs for a constituency and on a party list show substantially more support for transparency than the reference group, the pure list candidate. In fact, direct candidates show over half a standard deviation more support for transparency than list candidates. This is the strongest impact of all variables so far and indicates that the degree of dependency on voters' electoral support increases candidate's support for transparency. The impact of the closeness of the electoral race and the degree of postmaterialist values in a candidates' constituency, however, have only a marginal impact. Including the variables of anticipated voters' preferences again triples the value of adjusted R^2. Although the postmaterialism index and the closeness of election measure are not significant individually, the four variables indicating this theoretical motivation are jointly significant ($Chi^2=10.65$).

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[14] Since the sample in this study is not representative, in a strict sense inference statistic is not valid here. For this reason significance values should not be overinterpreted and more attention should be paid to the strength of coefficients.

Figure 4: Regression Main Results
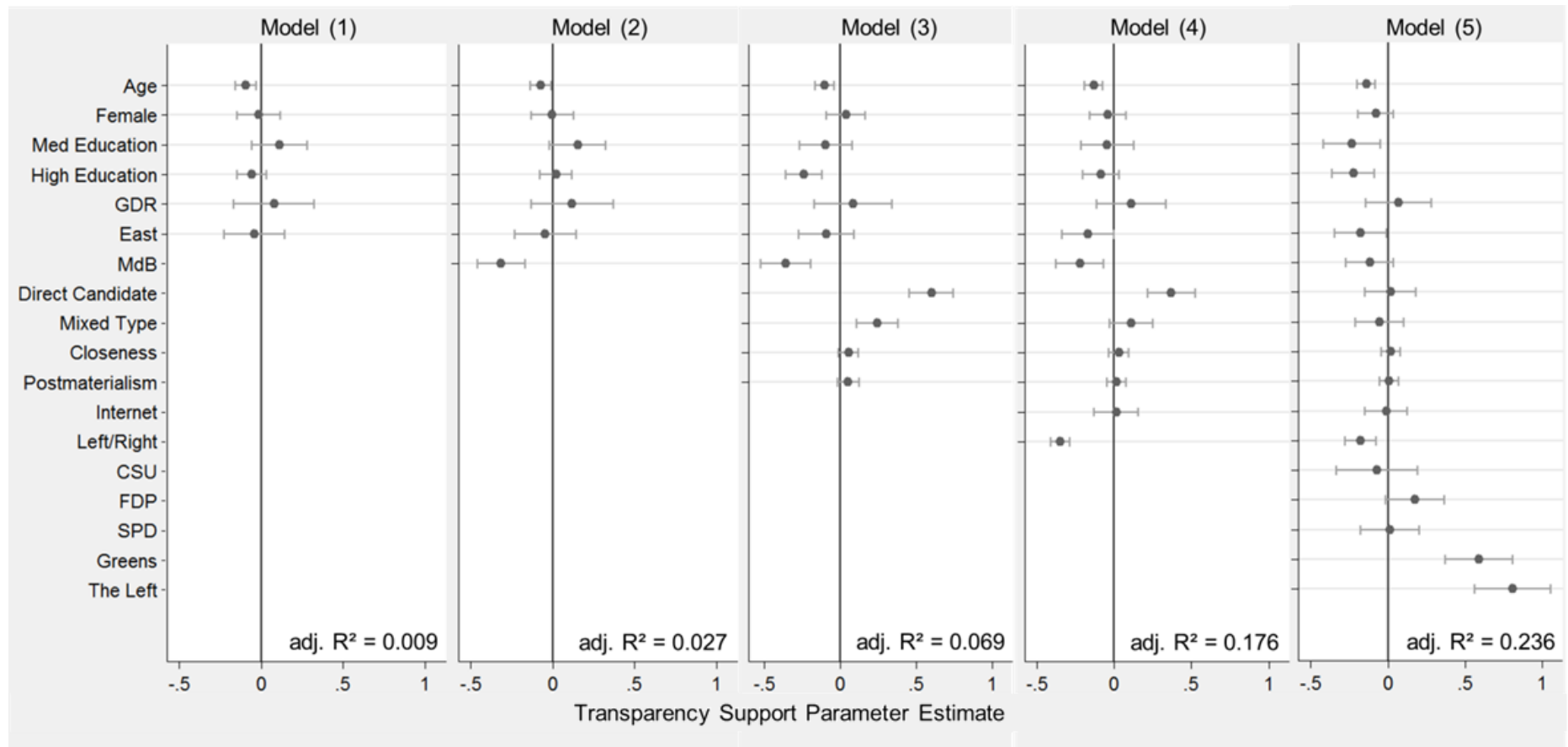
Note: Although looking similar to figure 3, figure 4 provides inference statistical results. The dots represent the regression coefficient for the specific variable. The lines depict the 95% confidence interval (one-sided test) for the specific estimation. Thus, if the line does not intersect the zero-line, there is a significant effect at a 5% level. Reading Example: In model 2, being member of the German Bundestag has a coefficient of about -0.3 with a confidence interval reaching from about -0.4 to -0.2. Since the confidence interval does not intersect the zero-line, the effect is significant at a 5% level.

To arrive at model 4, in the next step we add two variables that measure motivations stemming from individual socialization: a measure of ideology on a left/right dimension and a dummy whether the candidate uses the internet for contact with voters. Although internet usage had an impact in the descriptive part, after controlling for further variables, there is no substantial effect left. Quite on the contrary, the impact of individual ideology is particularly strong and highly significant. One standard deviation (2.29 units) towards a more right-leaning attitude decreases support for governmental transparency by about 0.35 units. After including the ideology measure the adjusted R^2 increases by about 0.1. But including this variable also decreases the impact of the candidacy mode and being member of the German Bundestag, which can be explained through the correlation of these variables with ideology. Many of the constituency candidates belong to the left-leaning parties, The Left and the Greens, while many members of the German Bundestag belong to the more conservative parties, CDU (Christlich Demokratische Union) and SPD. Interestingly, however, the effects of age and being candidate in a constituency in the eastern part of Germany gain in strength after including the ideology measure.

In model 5 we finally include party dummies to control for the impact of party socialization. In line with our expectations, membership in the left-leaning parties (The Left and the Greens) has the strongest positive effect on transparency support. Furthermore, the FDP, the liberal party, has a significantly positive effect. The FDP is usually considered more right-leaning than the SPD, but civil liberties are usually considered as a central issue of liberal parties. Thus, this result appears intuitive as well. Members of the SPD support transparency still considerably more than candidates of the CDU or CSU, but the effect is not significant. The impact of party membership on support for governmental transparency is extraordinarily strong. This becomes apparent in several ways: First, the coefficients, in particular those of the Greens and The Left, are the highest among all variables and all models. On average, support for transparency is one standard deviation higher for a member of The Left compared to a member of the CDU. Second, after including the party dummies, those variables that measure other motivations lose considerably in impact. Third, even though there are already many variables in the model, the party dummies are still able to increase adjusted R^2 to a value of 0.236. The (regular) R^2 value of 0.256 tells us that about 25% of the variance in transparency preferences can be explained by this final main model.

In this model, apart from party membership only age has a significant (negative) impact on transparency preferences. The only other variable that has a similar (negative) effect – although it is statistically insignificant – is running for a constituency in the eastern part of Germany. All other variables that showed significant impact in previous steps become marginal after including

the party dummies. This is particularly true for the individual left/right ideology and the candidacy mode that appeared to have a substantial impact before. At least partially, this loss of impact can be explained by the high correlation between party membership and ideology and party composition of the different candidate types.

However, the idea of other motivations than party socialization should not be abandoned that quickly. First, left-leaning parties' candidates' support for transparency might not only be motivated by party socialization, but also by anticipating that these parties' voters have stronger preferences for transparency policies. Second, it might be the case that we observe anticipation motivations only in some specific constellations, for instance when a candidate is both highly dependent on voters' support and these voters are strongly in favour of governmental transparency at the same time. For this reason, interaction effects are calculated as explained in the methodological section to check the robustness of the main model.

Of all possible interactions, four specific ones improve the final main model significantly. The respective marginal effects are depicted in Figure 5. The upper left figure shows the difference in transparency support between a direct candidate and a list candidate conditioned on ten different levels of individual ideology. It becomes apparent that for left-leaning candidates, e.g. candidates scoring 1-3 on the left/right scale, there is a significant positive effect of direct candidacy on transparency support.[15] On the other hand, there is no difference between candidacy modes for more right-leaning candidates (with the exception of two right-extreme candidates scoring on 10). These findings show that direct candidates, for instrumental reasons, consider their voters' preferences more than list candidates. To (left-leaning) voters' favourable transparency preferences, direct candidates respond stronger than list candidates. This difference is not existent for candidates whose (right-leaning) voters consider transparency as a comparably minor issue.

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[15] One could argue that these findings on the tails of the distribution are based on a low number of observations. However, inflated confidence intervals pay respect to the low n on the tails

Figure 5: Marginal Effects on Support for Transparency
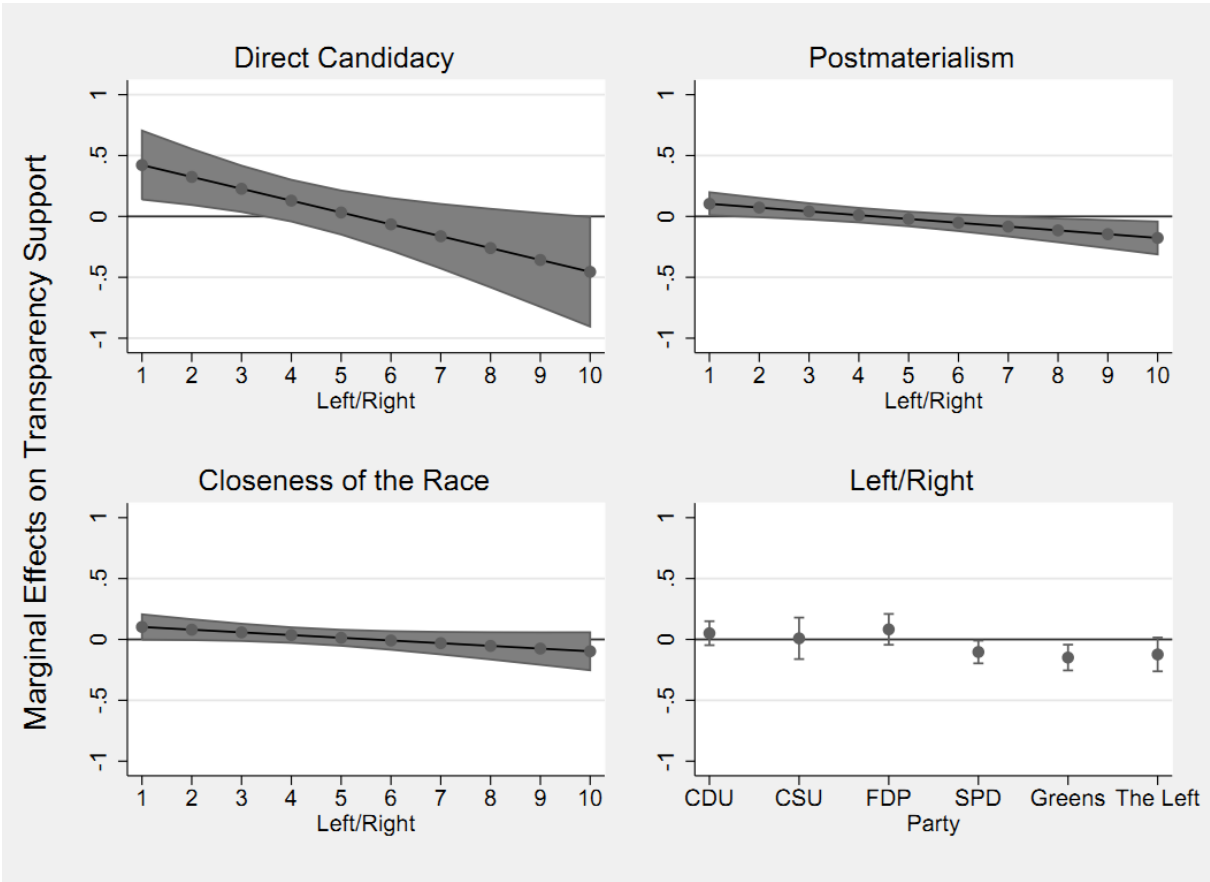
Note: The y-axis depicts the marginal change in transparency support for a change of one unit of the variable indicated by the particular headline conditional on different values of the moderating variable on the x-axis. The grey area illustrates a 95% confidence interval (one-sided test). Thus, if the shaded area does not intersect the zero-line, there is a significant effect at a 5% level. Reading example: Direct candidacy has a positive impact of almost 0.5 points on transparency support, significant at the 5% level. There is no significant impact of direct candidacy for moderate or right-leaning candidates.

We find a similar pattern for the impact of postmaterialism and closeness of the electoral race. Both have a significant positive effect on transparency support for left-leaning candidates, but not for right-leaning ones. However, effect sizes are less substantial than those for direct candidacy. Surprisingly, for postmaterialism we find a significant negative effect for strongly right-leaning candidates. The bottom right figure shows how individual ideology affects transparency support within different parties. In the main model, individual ideology lost its significance once partisan membership is controlled for. Now the individual ideology has an effect in addition to party ideology, but only for the more left-leaning parties. Within the SPD, the Greens and The Left, left-leaning candidates show higher support for transparency than their more right-leaning party colleagues. Within the more right-leaning parties individual ideology has no further impact on transparency support.

After including party dummies in the main model, all variables that measure anticipation of voters' preferences lose impact on transparency support. The analysis of interaction effects illustrates the more sophisticated interplay between the variables. While being more dependent on voters' support (constituency candidate, close electoral race) alone does not affect candidates' transparency support, there is an effect in combination with strong voter preferences for transparency (left-leaning candidates). Apparently, candidates are aware of heterogeneous voter preferences. The combination of two characteristics that measure high voter preferences for transparency (postmaterialism + left-leaning ideology; left-leaning ideology + left-leaning party) also increases transparency support. Although there are a number of non-significant interaction terms, both findings emphasise the existence of a motivation that is driven by the anticipation of voters' preferences.

5. Conclusion

Our analysis reveals that neither principal-agent theory nor democratic elitism in its most canonical forms can explain politicians' preferences. We find neither homogeneous support for transparency policies nor a uniform rejection among candidates for the German Bundestag. Instead, the high variance in preferences among elites suggests that governmental transparency policies are clearly not a trivial issue to decide on.

By far the strongest predictor for differences in support for transparency policies is party membership. Since we control whether a candidate is member of the German Bundestag, we can eliminate the possibility that this party effect is only existent because each party has a different share of politicians in incumbent positions. Thus we can rule out that party differences are motivated by instrumental reasons only. Although we are not able to separate the amount of the party effect that is due to socialization from that which is due to the anticipation of voter preferences, we can still find evidence that both motivations exist. First, the impact of direct candidacy, postmaterialist values among the electorate, and closeness of the electoral race are existent for left-leaning candidates but not for right-leaning candidates, which speaks for the existence of anticipation of voters' preferences. Second, the fact that transparency policies are not uniformly rejected, the nearly significant effect of left-leaning ideology on the individual level, and in particular the effect of individual ideology within the more left-leaning parties speaks for the existence of socialization effects. Furthermore, we find evidence for the existence of self-interest motivations. The overall mediocre transparency support, the lower response rate among successful candidates and the higher support for a policy change that increases the information level of candidates themselves can be considered as such.

Our analysis further reveals that there are some variables that are often said to affect preferences but that do not have any impact on transparency support. Neither gender nor education or being socialised in the former GDR has any impact on transparency preferences. Although it is often associated with transparency, internet-usage has no impact. Additionally, we find only weak evidence for any structural impact of candidates' constituencies. Postmaterialism and closeness of the electoral race show only weak impact in interaction with ideology. Also, there is no difference at all between candidates running for a constituency in the east or in the west. Apparently, with the exception of age, demographic characteristics and features of candidates' constituencies can mostly be ignored. Party membership, individual ideology and candidacy mode are able to predict essential parts of elite preferences.

What are the implications of these results? At the moment, there is no consensus about governmental transparency among political elites in Germany. So far, the issue was mainly pushed onto the agenda by left-leaning parties. The results imply, however, that governmental transparency has the potential to become a major issue in the future: First, if the demand for transparent governmental work rises among citizens, the anticipation of voters' preferences will lead to higher support among political elites. Second, if the effect of age is interpreted as a cohort effect, with younger cohorts of elites being more supportive of transparency, proponents of transparency will slowly replace older and more sceptical colleagues. On the other hand, there might also be some obstacles on the way to transparent governments: There is (non-significant) indication that members of the parliament are less supportive of transparency than unsuccessful candidates. Furthermore, theoretical considerations by Bowler et al. (2006) (which would require longitudinal data to test) suggest that candidates of parties in government are less supportive of transparency than candidates of the opposition. Thus, those elites that have more power to adapt transparency policies are less likely to do so. Furthermore, one should bear in mind that under certain conditions higher transparency and accountability can also have adverse effects (Malesky et al. 2012; Cross 2013)

The contribution of this work is twofold. First, it is the first to investigate the current topic of governmental transparency from the perspective of political elites. The analyses show that political elites in Germany are neither selfish homines oeconomici nor unprincipled turncoats or benevolent upholders of moral standards. Instead, we find a complex connection of different motivations. Second, the article contributes valuable new insights to the literature of policy representation. Instead of focusing on public opinion, we developed a framework to explain elite preferences. We believe that this theoretical framework of complementing motivations can be

useful for the analysis of further elite preferences as well. While there are some interesting and relevant findings, further research and better data are necessary to better understand politicians' motivations to support governmental transparency and to disentangle those effects that remain ambiguous. Longitudinal data could be helpful for observing how preferences react to changes of the institutional position of political elites. Comparable survey data of citizens could allow for testing propositions of principal-agent theory and democratic elitism that are related to differences between elites' and citizens' preferences.

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Appendix

Table A1: Comparison of Different Model Estimations

	OLS	Multi-Level	Weight Bundestag	Weight Population
Age	-0.137***	-0.138***	-0.142***	-0.137***
	(0.034)	(0.035)	(0.037)	(0.035)
Female	-0.040	-0.045	-0.056	-0.042
	(0.071)	(0.074)	(0.078)	(0.071)
Med Education	-0.098	-0.083	0.035	-0.065
	(0.118)	(0.122)	(0.122)	(0.116)
High Education	-0.085	-0.077	-0.037	-0.068
	(0.089)	(0.103)	(0.090)	(0.088)
GDR	0.052	0.046	0.105	0.074
	(0.129)	(0.130)	(0.138)	(0.129)
East	-0.153	-0.146	-0.127	-0.147
	(0.100)	(0.117)	(0.107)	(0.101)
MdB	-0.101	-0.098	-0.059	-0.094
	(0.093)	(0.092)	(0.094)	(0.092)
Direct Candidate	0.077	0.069	0.060	0.076
	(0.101)	(0.111)	(0.109)	(0.101)
Mixed Type	-0.004	-0.007	-0.027	-0.004
	(0.095)	(0.097)	(0.097)	(0.095)
Closeness	0.022	0.024	-0.003	0.017
	(0.039)	(0.037)	(0.043)	(0.039)
Postmaterialism	0.003	0.009	0.004	0.005
	(0.038)	(0.036)	(0.034)	(0.037)
Internet	-0.005	-0.010	-0.013	-0.004
	(0.082)	(0.080)	(0.085)	(0.082)
Left/Right	-0.105	-0.107*	-0.060	-0.095
	(0.072)	(0.063)	(0.073)	(0.071)
CSU	0.055	0.090	0.021	0.052
	(0.164)	(0.209)	(0.167)	(0.164)
FDP	0.313*	0.313**	0.339**	0.317*
	(0.127)	(0.120)	(0.126)	(0.127)
SPD	0.235	0.240	0.310*	0.251
	(0.158)	(0.149)	(0.156)	(0.156)

Greens	0.786***	0.782***	0.866***	0.801***
	(0.161)	(0.152)	(0.163)	(0.161)
The Left	1.087***	1.090***	1.194***	1.109***
	(0.198)	(0.189)	(0.198)	(0.196)
Constant	-0.365**	-0.366*	-0.475***	-0.398**
	(0.140)	(0.146)	(0.136)	(0.138)
Observations	703	703	703	703
Adjusted R²	0.236		0.224	0.237

Note: All variables are z-standardised. Values in brackets are standard errors.

Table A2: Summary Statistics of All Variables

Variable	N	Mean	Sd	Min	Max
Public Committees	770	4.11	2.01	1.00	7.00
Broadcasting of Committees	769	3.69	2.03	1.00	7.00
Access to Records	769	5.55	1.55	1.00	7.00
Age	762	46.36	11.44	19.00	76.00
Female	773	0.31	0.46	0.00	1.00
Edu_Low	772	0.13	0.33	0.00	1.00
Edu_Medium	772	0.18	0.39	0.00	1.00
Edu_High	772	0.69	0.46	0.00	1.00
GDR	790	0.10	0.30	0.00	1.00
East	790	0.15	0.35	0.00	1.00
MdB	790	0.25	0.43	0.00	1.00
Constituency Candidacy	790	0.23	0.42	0.00	1.00
List Candidacy	790	0.26	0.44	0.00	1.00
Mixed Mode	790	0.51	0.50	0.00	1.00
Closeness	783	-0.13	0.10	-0.53	0.00
Postmaterialism	790	0.00	1.00	-1.16	5.42
Internet	760	0.25	0.43	0.00	1.00
Left/Right	760	4.71	2.29	1.00	10.00
CDU	790	0.19	0.39	0.00	1.00
CSU	790	0.03	0.18	0.00	1.00
FDP	790	0.19	0.39	0.00	1.00
SPD	790	0.20	0.40	0.00	1.00
Greens	790	0.20	0.40	0.00	1.00
The Left	790	0.19	0.39	0.00	1.00

Paper 3

Online and Open-Minded

Cross-Country and Panel Analyses of the Impact of Internet Usage on Liberal Attitudes

Christian Weyand

Abstract. Does internet usage promote liberal attitudes? From our theoretical perspective, internet effects differ from those of traditional media: Via different technical mechanisms the internet changes who can broadcast and control information and it connects people with very different backgrounds. This leads to a more liberal agenda and an atmosphere of higher openness and tolerance. Our claim is tested with data from 57 countries of the World Values Survey. Multi-level analyses reveal that internet usage has a significant positive effect on liberal attitudes in many countries. The more liberal a country is, the stronger is the effect. In contrast, television viewing tends to have no effect in liberal countries and is even related with more conservative attitudes in conservative countries. Similar effects can be reproduced with fixed effects models and panel data from the Dutch LISS panel. Therefore, the effects are not caused by unobserved heterogeneity that would explain both internet usage and liberal attitudes. In conclusion, internet effects clearly differ from traditional media effects and the further diffusion of internet technology has the potential to increase open-mindedness.

1. Introduction

In this paper we ask whether internet usage promotes liberal attitudes. In this context we use the term liberalism to describe a higher acceptance of individual rights and freedom, tolerance towards diversity and openness to change. The internet revolutionizes how people receive information: Access to digital information is comparatively easy and cheap, and it can be accessed independent of both broadcasting time and location of the information carrier and the information receiver. The mass media that create content and intermediate information are also subject to substantial changes: Information broadcasting is not restricted to big agencies anymore. In principle, the internet gives everyone the possibility to create own content and reach a huge audience. Especially in countries with low liberalism and authoritarian structures, the internet leads to a substantial increase in information availability and communication opportunities. As a result, the internet creates by far the closest approximation to a situation where everyone can instantly access all existing information and communicate with every existing individual.

Scholars from different fields argue that people's attitudes and their perception of the world is strongly influenced by the information and the symbolic environment they are presented with via media (Bandura 1986; Besley 2008; Entman 1989; Gerbner 1969; Inglehart and Baker 2000). Substantial changes in the media landscape and the way people process information should therefore somehow affect people's attitudes. For example, one might expect that a girl from Iran who watches all seasons of 'Sex and the City' via foreign internet stream will have different opinions about marriage, sexuality, or gender roles than an otherwise similar girl from Iran who only watches content produced by the 'Islamic Republic of Iran Broadcasting'[1]. Along the same lines, a person who watches a stereotypical portrayal of homosexuals in the mainstream media should have different attitudes than a person who informs herself using an internet platform of an association of homosexuals.

Despite these intuitively reasonable expectations, surprisingly little research has been conducted on the internet's impact on people's attitudes towards political and social issues. There are some studies on the internet's impact on political participation (Norris 2002; Shah et al. 2005; Xenos and Moy 2007), voting (Tolbert and Mcneal 2003) and democratic norms (Chu and Nevitte 2010; Nisbet, Stoycheff, and Pearce 2012). Closest to our analyses of the impact on liberal attitudes are

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[1] The Islamic Republic of Iran Broadcasting (IRIB) is the main governmental broadcasting agency. Freedom of expression and dissemination of ideas by the IRIB has to be in line with Islamic laws and national interests (Pahlavi 2012). The Constitution of the Islamic Republic of Iran furthermore prohibits the establishment of private broadcasting agencies.

Norris and Inglehart (2009) and Besley (2008). With the exception of the latter one, however, these studies do not differentiate between internet, television and newspaper, but assume a uniform positive impact of media usage on liberal attitudes. And while Besley does distinguish between different media, he merely analyzes their impact on the more abstract concept of values and furthermore restricts his analysis to European countries.

In the theoretical part of this paper we argue that the choice and the intensity of different kinds of media consumption have an impact on social and moral attitudes. More specifically, internet usage should lead to more liberal attitudes because its technical features translate into social mechanisms that do not exist for traditional media: (1) The decentralized architecture of the internet changes the government's ability to control information flows. In comparison to a system with traditional big broadcasting agencies, censorship is much more difficult to enforce. (2) The decreasing costs of information broadcasting lead to a) more (non-corporate) broadcasters and b) to less commercial pressure on professional media. (3) The possibility to state opinions anonymously can terminate a spiral of silence (Noelle-Neumann 1974). (4) The internet facilitates communication and exchange between very different people from diverse backgrounds. In the sense of the (parasocial) contact hypothesis (Allport 1954; Schiappa, Gregg, and Hewes 2005), this can reduce prejudices. Furthermore, it can create bridging social capital (Putnam 2000). (5) The required technical knowledge and innovation affinity for using the internet implies a younger and better educated audience. Taken together, this should lead to a more liberal agenda and a more liberal framing of content on the internet and create an atmosphere of higher openness and tolerance.

To validate this claim empirically, two analyses with different datasets are conducted. The first analysis draws on data of 57 countries from the World Values Survey (WVS). This allows for testing the effect of internet usage on a large number of values and in very different country contexts. To address the hierarchical nature of the data, multi-level analyses are conducted. Controlling for socio-demographic variables excludes the possibility that a positive effect of internet usage on liberal attitudes exists because on average, internet users are younger, better educated and live in countries with high internet penetration, characteristics that are positively correlated with liberal attitudes as well. The second analysis draws on data of the Dutch Longitudinal Internet Studies for the Social Sciences (LISS). Fixed effects models with panel data allow for overcoming some limitations of the cross-sectional data. In particular, they control for all unobserved characteristics that are constant over time, which substantially reduces the

probability of a mere selection effect. Although a survey approach cannot ensure a causal link, it is the only feasibly way to answer the research question.

The results from the WVS show that internet usage has a positive effect on liberal attitudes in many countries. Conversely, there is hardly any effect for television, and where it exists, it is often negative. Interactions of media effects with the average liberalism of a country show a uniform pattern. In liberal countries, both internet and television consumption have a positive effect on liberal attitudes, but the effect of internet is much stronger. In conservative countries, the effect of internet is small and positive, but not significant. Television, however, has a significant negative effect on liberal attitudes. This might be because television in conservative societies is under pressure from public, religious, and commercial interests; pressure much less applicable to internet services. The panel analysis with the LISS data from the Netherlands mirrors the WVS findings. While there are significant positive internet effects in the fixed effects models, there are no significant effects for television.

The remainder of this paper is organized as follows. The theoretical section is segmented into three subsections: Section 2.1 gives a short definition of the concept of liberalism. Section 2.2 elaborates on how media effect theories explain the impact of traditional media. In section 2.3, we explain why the internet has a different impact than traditional media. In section 3, we briefly explain the research strategy. Section 4 presents the results from the World Values Survey data. Section 5 shows the results of the panel analyses. Section 6 concludes.

2. Literature Review and Theoretical Argument

2.1. The Concept of Liberalism
The term liberalism is not an unambiguous one. In this paper we use it as a measure of degree of peoples' acceptance of individual rights and freedom, their tolerance towards diversity and their openness to change. It stands in contrast to conservatism, the preference of retention of existing social institutions, and the compliance with traditional norms and values. This understanding of liberalism also corresponds to what can be labeled as progressive, 'classical liberalism' (Janda 1980), or 'libertarianism' (Kitschelt 1994; Kriesi 1998). Regarding a two-dimensional ideology space with a socio-economic dimension and a social-moral one (Janda 1980; Lipset and Rokkan 1967; Weisberg and Rusk 1970), our definition of liberalism corresponds with the latter dimension. Conversely, this means that peoples' attitude towards economic equality and the degree of governmental interventions into the market will not be of any interest here.

Classical liberalism can be related to other scientific concepts such as basic social values (Schwartz 1992) and postmaterialism (Inglehart 1977). Actually, Barnea and Schwartz (1998) and Schwartz, Caprara, and Vecchione (2010) show that liberal issues like civil liberties and acceptance of immigrants can be explained well by the values universalism, self-direction, benevolence, and –to some lesser extent – stimulation. Also, Inglehart acknowledges that at the end of the day, postmaterialism, liberal attitudes, and related concepts are only different terminologies that all emphasize human choice and autonomy over conformity and discipline (Welzel, Inglehart, and Klingemann 2003:342).

The subjects under scrutiny in the empirical analyses are attitudes towards such issues as same-sex marriage, euthanasia, foreign people, religion, single parentship, or whether men make better politicians than women. Although these attitudes apply to a number of specific and diverse issues, we expect all of them to belong to the same underlying concept of liberalism. Thus, a person that supports same-sex marriage, for instance, should be much more likely to hold a positive attitude towards immigrants than a person that believes that only a man and a woman should be allowed to marry. This is because basic characteristics of liberalism like openness, willingness to change, tolerance, or acceptance of different lifestyles are all facilitated by the same character traits which are high self-esteem, low anxiety, and a positive attitude towards human nature (Barnea and Schwartz 1998). In consequence, for our theoretical argument this means that internet usage should have a similar effect on a diverse array of attitudes, because they are all based on the same underlying dimension of liberalism.

2.2. Media Effects Theories: How Media Affect People

Media effects theories are a class of related theories that ask, broadly speaking, how media usage affects peoples' attitudes and behavior. Although originally associated with communication research, media effects theories have a large overlap with different social sciences because they study the impact on an array of issues as diverse as violent behavior, child development, political participation, purchasing decisions, or body image concerns.

Given the ubiquity of media and their quasi-monopoly over the presentation of various kinds of information, a reasonable observer might conclude that media exposure has tremendous political and social consequences (Bartels 1993:267). However, for a long time, there was a broad consensus that media only have "minimal consequences" (Katz and Lazarsfeld 1955; Klapper 1960). The proposers of minimal effects mostly refer to the observation of relatively stable voter preferences during the election year despite heavy media campaigning (Berelson, Lazarsfeld, and McPhee 1954; Lazarsfeld, Berelson, and Gaudet 1948). As they assume that audiences screen out

those pieces of information that are not in line with their own preferences and that media consumers furthermore have only little attention and understanding, the authors from this period conclude that media messages merely tend to reinforce existing political preferences (Entman 1989). However, media effects regained scholarly attention some decades later when researchers began to explain underlying psychological mechanisms of media effects (Bandura 1986, 2009), developed specific models like agenda setting, framing and priming (Scheufele and Tewksbury 2007) that explain how media affect the audience, and measured patterns of media images and messages and how this content is cultivated into certain values and worldviews (Gerbner 1969).

The psychosocial foundation of media effects can be explained with the mechanisms of social cognitive theory (Bandura 1986). Traditional learning theories focus on learning from the feedback of one's own actions. However, "virtually all behavioral, cognitive, and affective learning from direct experience can [also] be achieved vicariously by observing [other] people's actions and its consequences for them" (Bandura 2009:98). This social learning can either occur from the immediate social environment but also from models of the symbolic environment of mass media (Bandura 2009:97-98). While individuals' direct experience from their physical and social environment is very restricted to what they encounter during their daily routines, the expansion of information and communication technology makes the symbolic environment ubiquitous. Furthermore, symbolic models with information about human values, styles of thinking, and behavioral patterns can be transmitted simultaneously to countless people in widely dispersed locations. In consequence, the social construction of reality and public opinion might be influenced more by the media than by anything else.

Scheufele and Tewksbury (2007) outline three main mechanisms how media can affect peoples' attitudes. First, Agenda Setting Theory (McCombs and Shaw 1972) argues that media can strongly influence the salience and the 'felt importance' of an issue on the public agenda by the frequency and positioning of the respective issues. Cohen (1963:13) encapsulates the idea: Media "may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think *about*." Second, priming can be considered as a temporal extension to the agenda setting model (Iyengar and Kinder 1987): By influencing the salience of issues, media also set benchmarks for evaluating and judging certain issues. Third, framing describes the idea that by emphasizing certain aspects or considerations, by the wording or mode of presentation and the way of characterization of a specific news, media have an impact of how an issue is understood and evaluated by the audience (Scheufele 1999). By embedding

news and information in a subjective framing, framing effects have an affective and normative component.

Empirical Findings

A large extent of empirical research on media content and media effects has been conducted along the lines of Cultivation Theory (Gerbner 1969). This theory argues that the consumption of mass media – most prominently television – leads to a subtle 'cultivation' of values and worldviews that are dominant in the media content. "Despite obvious surface-level differences across genres and program types, deeper analysis often shows that surprisingly similar and complementary images of society, consistent ideologies, and stable accounts of 'facts' of life cut across many different types of programs" (Morgan, Shanahan, and Signorielli 2009:36). This is because the high costs of production and distribution of content lead to a small number of broadcasters and to the commercial necessity to satisfy the needs of a large and thus necessarily heterogeneous audience. Therefore, TV messages have to be designed to disturb as few viewers as possible, confirm rather than challenge existing views, and steer a "middle course" (ibid.:40) to serve the mainstream. As a result, the mainstream is biased to the right on political issues (Gerbner et al. 1982). In particular, research shows that cultivation theory can explain television's conservative impact on a number of social issues.

In a meta-analysis, Smith and Granados (2009) find that existing research on gender-roles on television shows that women are often portrayed in traditional or oversexualized roles. Among the audience, this leads to higher agreement to sexual stereotypes and to sex typing, i.e. acting in accordance to the norms of one's gender. In effect, a patriarchal worldview is conserved. Similarily, regarding traditional family values, Signorelli (1991) found that adolescents who watch more television are more likely to want to get married, to stay married with the same person for their whole life, and to have children.

Concerning xenophobia, Mastro's (2009) review shows that ethnic minorities are underrepresented in US television in most genres and are often portrayed as lower-status individuals or less successful persons. They are, however, overrepresented in crime content and as criminals. As a result, the majority group often cultivates these stereotypes from the symbol environment. It might even be the case that this media content has an impact on the self-concept of the minority group. Similarly, Boomgaarden and Vliegenthart (2007) show that the more frequently newspapers report about immigration related topics, the higher is the electoral popularity of anti-immigrant parties.

Television consumption also has an impact on highly moral-driven and religion-related attitudes. Gerbner et al. (1982) show that stronger TV consumption leads to more conservative attitudes towards homosexuality, abortion and legalization of marihuana. The cultivation differential, the difference between light and heavy viewers, is especially strong for liberals.

Finally, there are also media effects on issues related to the materialism-postmaterialism cleavage. In a literature review, Morgan et al. (2009) summarize that TV viewing, especially news and crime-related content, increases perceived criminality and fear of crime. It also leads to higher support for more severe punishments and to the perception that imprisonment is more effective than rehabilitation. Furthermore, television viewing leads to apathy about environmental concerns (Shanahan and McComas 1997; Shanahan, Morgan, and Stenbjerre 1997). Paek and Zhongdang (2004) show that heavy viewing of (western style) media leads to more consumerist attitudes among Chinese. In summary, there is much evidence that traditional media lead to more conservative attitudes on a large number of issues. However, one has to bear in mind that most of these findings are derived from populations of the US or Western European countries. As we will show in the next section, media effects might differ among countries.

2.3. Why Internet Effects are Different

Some researchers claim that the internet does not differ from traditional media in its cultivating effects (Morgan et al. 2009). They argue that the most frequented web services usually belong to the same big corporations that also maintain the most popular television services or at least depend in the same way on advertisements. Therefore, the cultivation process of television is not eliminated by internet usage but rather partly substituted and complemented in the same manner.

However, we argue that the internet is indeed different. Initially, the internet was founded on the basic principles of openness, equality, change, sharing, and participation, principles that are underlying liberalism as well. The World Wide Web was developed for the global exchange of (scientific) information, but its founder Tim Berners-Lee also encouraged private and commercial contributors to participate. From the beginning on, all technical developments were made available without patents in order to facilitate technical progress and participation. These original principles are still very characteristic for the web today and are visible for example in the huge amount of open source software and other free content and services, collaborative wikis, communities and blogs where everyone can contribute and access information, and the principle of net neutrality, i.e. that every kind of service and data is treated equally.

Besides this very general liberal spirit, there are five specific technical features that facilitate respective social mechanisms that lead to more liberal attitudes. Four of these mechanisms operate on a meso/media level and have the potential to lead to a more liberal agenda and framing of internet content compared to that of traditional media, thus possibly having a substantial impact on the audience's attitudes. The fifth mechanism, exposure to diversity, directly influences the users' attitudes. The direct effect and the effects via the meso level together lead to an atmosphere of higher openness and tolerance on the macro level. Figure 1 summarizes the relationships that are outlined in detail below.

Figure 1: Summary of the Theoretical Mechanisms
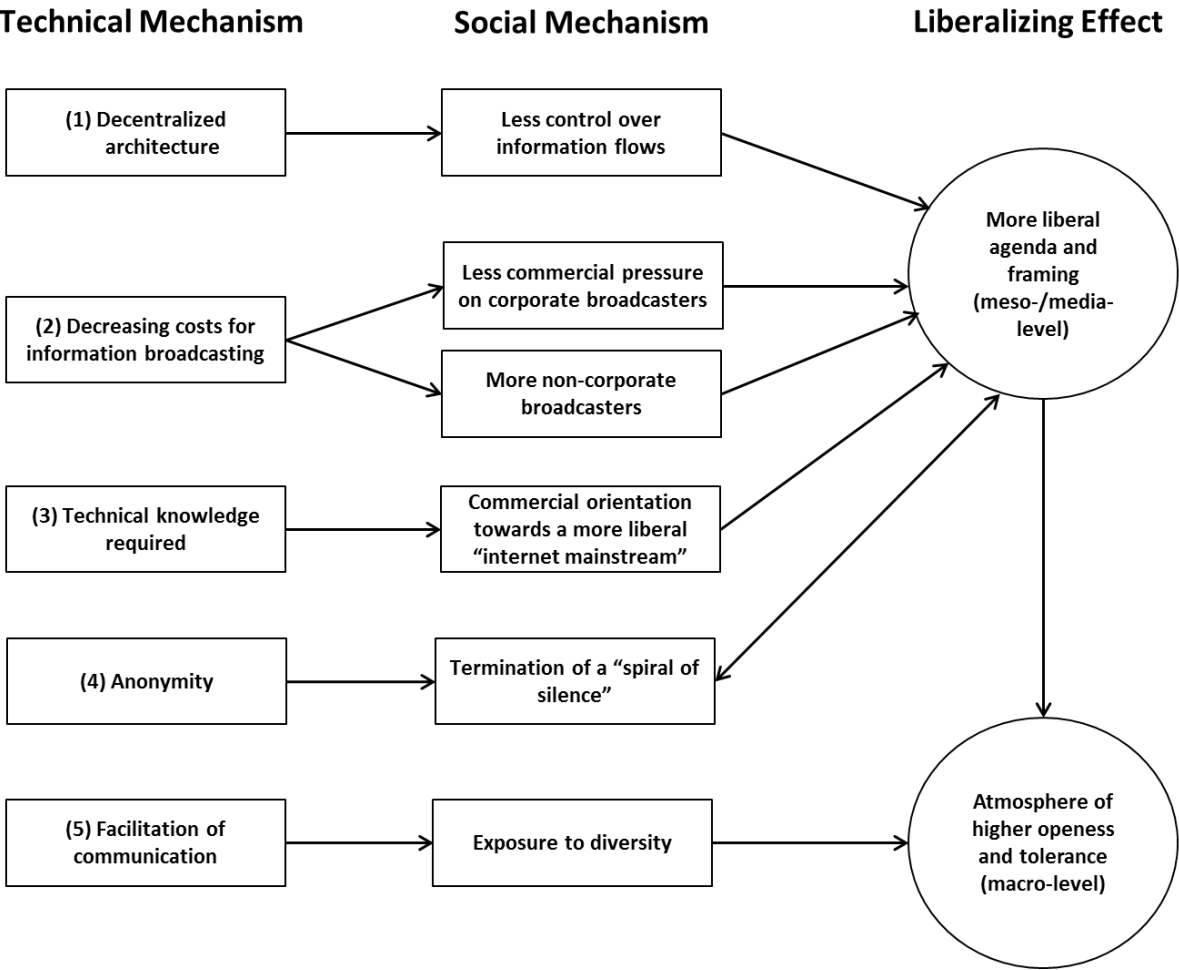
First, the internet's decentralized architecture changes the ability to control information flows. The most extreme case are authoritarian regimes where traditional media can be forced to completely disregard certain issues or worldviews. An example is the content of the Iranian governmental broadcasting agency that has to be in line with Islamic laws and national interests (see footnote 2). Usually, blocked content advocates democratic principles or is critical towards the government, minority issues, sexual content, or religious principles. That means the blocked

content tends to be liberal. The censorship can be enforced effectively for television, radio and newspapers because the respective broadcasting companies and publishers are usually owned by the government itself or because their small number makes it easy to control them. To some extent, the internet can be controlled and censored as well (Deibert 2009; King, Pan, and Roberts 2013)[2]. However, even for the most sophisticated censorship systems like the 'Great Firewall of China' it is not possible to control every single web page, reveal the anonymity of every broadcaster of critical information, block all content from foreign servers, or prevent users from establishing secure connections to proxy servers outside of China.

Second, the internet decreases costs of information broadcasting. Even in democratic countries with free press, traditional media companies will not make use of the whole range of possible content because, as it is argued above, they have to serve a huge heterogeneous audience to cover the high costs of broadcasting. The result is a concentration towards the mainstream, which leads to a neglect of niche topics and to the assumption of a conservatively biased stance in order to prevent alienation of viewers and advertisement clients with too much openness towards controversial issues. With much lower costs of production and distribution of content via the internet, this commercial pressure is distinctly reduced. As Nie et al. (2010) argue, the internet saturates the whole space of political views. This means that more specific audiences who honor more progressive content can be served. While this certainly leads to more content that is conservative as well, for commercial reasons a positioning towards the left might be more promising since the mainstream media are already right of the center and the audience on the internet is younger and more educated (see argument 3).

Furthermore, apart from professional media companies and commercial interests, the internet gives virtually everyone the possibility to become a (non-corporate) broadcaster of information (Weare 2002). To those who are portrayed in a stereotypical way in the traditional media, the internet offers the opportunity to present an own view of themselves. This idea is in line with Harwood and Roy (2005) who argue that the amount and the quality of stereotypical framing of gender roles or minorities is partly an issue of media control and ownership. Usually, in traditional media both, men and members of the majority group are overrepresented as owners and as on-air appearances in influential programs. This might lead to the respective stereotypical portrayal.

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[2] King et al.'s (2013) finding that pornography belongs to the most censored kinds of internet content in China illustrates that authoritarian governments' censorship does not only aim to maintain the political order, but also to conserve a moral order.

Third, the usage of the internet requires some technical knowledge and some willingness to adopt innovations. For this reason, the average audience of the internet is disproportionally younger and better educated (Bonfadelli 2002; Norris 2001; Sahgal 2013) than the average population, and thus on average also more liberal. For commercial reasons, an orientation along the 'internet mainstream' will lead to more liberal content than an orientation along the 'television mainstream'. Thus, independently of the preexisting attitudes, liberal and conservative users of the internet will both be exposed to more liberalism.

Fourth, the internet gives the possibility to state opinions anonymously. Some people, out of fear of social isolation, tend to restrain to communicate their true opinions if they perceive the majority of the society not to be in favor of their opinion. If, in consequence, fewer people openly voice this specific attitude, the feeling of belonging to a minority increases even more. In this way, a certain opinion (usually the one that is most prominently featured in the mainstream media) becomes dominant. This process, first proposed and called 'spiral of silence' by Noelle-Neumann (Glynn, Hayes, and Shanahan 1997; Noelle-Neumann 1974), especially occurs when it comes to highly morally charged issues and attitudes. The internet has the potential to resolve this spiral from two directions: First, the internet's anonymity can dissolve the fear of social isolation, even if the own opinion is perceived to be unpopular. Second, as argued above, the internet offers a much broader range of opinions, including those of minority opinions and niche issues.

Fifth, the internet facilitates communication and exchange between very different people from diverse backgrounds. Two established theories argue that this could lead to more openness and tolerance. First, the contact hypothesis (Allport 1954) argues that conflicting groups can mutually reduce prejudices by interpersonal exchange. The mechanism also works via parasocial contacts (Schiappa et al. 2005) in the media. Amichai-Hamburger and McKenna (2006) argue that the internet with its protected environment might especially increase the chances of positive contacts compared to the chances for such face-to-face contacts in the real word. Second, contact to individuals from different backgrounds in a shared context – as it is given in many internet communities and networks – produces bridging social capital (Putnam 2000). Bridging social capital are weak ties to members of different groups that lead to cooperation, social tolerance and social solidarity. For instance, Kobayashi (2010) and Cole and Griffiths (2007) show that online gaming communities are able to provide these benefits and that boundaries regarding appearance, gender, sexuality and age could be bridged.

Empirical Evidence

There is empirical evidence that the internet might actually have a liberalizing impact. Closest to our argument is Besley (2008), who shows that internet usage is associated with liberal "openness to change values", while entertainment television consumption is associated with conservative values. However, both internet and television enhance conservative "self-enhancement values". Best and Krueger (2005) show that people who participate politically online show more liberal attitudes than those who participate offline, but the difference is very small. A recent survey by the Pew Research Center shows that in 25 countries Muslims who use the internet show more open attitudes towards Western popular culture and Christianity (Sahgal 2013).

Also related are the findings of Zhu and He (2002), who categorize Chinese respondents into one of three groups: materialists, post-materialists, and communists. The authors show that internet users and users of foreign media are disproportionally more often represented in the post-materialist group. An interesting observation is also made by Golbeck and Hansen (2011) who show that liberal media have much more followers on Twitter than their conservative counterparts. For instance, CNN Breaking News (@cnnbrk) has more than four times as many followers as Fox News (@FoxNews), although Fox News has more regular cable subscribers; the New York Times (@nytimes) has nearly three times as many followers as the Wall Street Journal (@WSJ), although the latter one has a distinctly higher print circulation. Concerning the spiral of silence, Ho and McLeod (2008) and Liu and Fahmy (2011) both find that people are more willing to express their opinion on same-sex marriage in a computer/internet setting than in a face-to-face setting, and that they show less fear of isolation in the latter setting.

While they are not directly related to social values, some more prominent findings exist in regard to democratic attitudes and participation. Citizens who use the internet have higher levels of political knowledge and engage more in political discussions which in turn increases political participation (Norris 2002; Shah et al. 2005; Xenos and Moy 2007). Tolbert and McNeal (2003) show that access to internet and online election news increased reported voting in the US presidential elections. Nisbet et al. (2012) show that internet use is associated with higher demand for democracy across 28 African and Asian countries. The effect is stronger in countries with greater democratization and higher internet penetration. Chu and Nevitte (2010) show that internet usage has a positive effect on support for democratic norms and for an open government. However, internet users show less confidence in the government and have a worse evaluation of the workings of democracy. The effects of broadcasts are exactly reversed: Television consumption has a negative effect on support of democratic norms and open

government, but leads to more positive evaluations of the government and the workings of democracy.

Regarding the theoretical arguments and the related empirical findings we propose:

H1a: *Internet usage leads to more liberal attitudes towards social and moral issues.*

H1b: *Television consumption leads to more conservative attitudes towards social and moral issues.*

National Differences in Internet Effects

Some of the arguments for certain media effects we made above are dependent on who is in control of the information broadcasting as well as on characteristics of the audience. Therefore, we expect the media effects to differ between countries.

For television consumption the argument is straightforward and one-directional. We outlined that the content of TV broadcasts is aligned to the mainstream because of commercial interests, because it might be completely controlled for political or religious reasons, or even because it is being used purposely for propaganda. As a consequence, in very conservative countries the 'anti-liberal effect' of television is strongest. The more liberal a society becomes, the weaker the effect gets. In very liberal countries the television effect might not exist or be even slightly positive. We therefore propose:

H2: *The negative effect of television on liberalism is stronger in conservative countries.*

The effect of internet usage might be affected by the society's liberalism in two directions. On the one hand, the disadvantages posed by the traditional media's complete censorship and orientation towards the mainstream, combined with the benefits to be gained from internet use, i.e. the possibility of minorities to broadcast, the termination of a spiral of silence, and the exposure to diversity, make access to information from the internet more valuable in conservative countries. This would suggest a stronger liberalizing effect in more conservative societies. On the other hand, while all the arguments above remain valid, the internet cannot be considered as the single remedy against deep-seated conservatism: At least the domestic internet content is likely still heavily influenced by the dominant opinions in the respective society. Although in conservative countries the internet might broaden the agenda and offer more liberal content than traditional media, the prevailing attitude might remain mostly conservative. This would suggest a weaker liberalizing effect in more conservative societies. As a result, in more conservative societies the mechanisms that empower internet users are opposed by effects of domestic content that might weaken the internet effect. For this reason we abstain from formulating a directional hypothesis.

3. Research Strategy

The ideal design to address the research question would be a natural experiment where part of a population is granted access to the internet while the rest is restricted from access but equal in every other characteristic. For a more realistic scenario, one could compare regions with different internet penetration. But for a reasonable comparison, these regions should not differ in any other aspect than internet penetration, which is a very unrealistic assumption in itself. The disadvantage of any controlled laboratory experiment is that one cannot measure the long-term impact of media usage. Therefore, a repeated survey among the same individuals is the best possible approach to the research question, although strictly speaking no causal link can be established.

Our approach involves two separate analyses. In the first one we use cross-sectional data of 57 countries from the World Values Survey (WVS) (World Values Survey Association 2009). This allows for testing the effect of internet usage on a large number of values and under very different country contexts. In the second analysis we draw on panel data of the Dutch Longitudinal Internet Studies for the Social Sciences (LISS) as a further analysis that addresses some problems of the cross-sectional data.

The data of the WVS have a hierarchical order – individuals nested in countries. To address within-country dependencies and to avoid an underestimation of standard errors, multi-level analysis is used (Rabe-Hesketh and Skrondal 2008; Raudenbush and Bryk 2002).[3] We proceed in three steps. First, a random intercept model provides the average effects of internet and television consumption over all countries. It considers country differences in the dependent variables, i.e. differences in average country liberalism. Controlling for these country differences as well as for the most important socio-demographic variables that determine internet usage (age, gender, and education) mostly precludes that the coefficient of internet usage is a mere selection effect[4].

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[3] A possible alternative approach that is especially common in economics would be to use clustered standard errors (Williams 2000; Wooldridge 2002) that adjust the standard errors for intra-cluster correlation. For a theoretical and empirical comparison of multi-level analysis and clustered standard errors see Primo, Jacobsmeier, and Milyo (2007). In our case, the differences of the results are close to zero. However, to estimate cross-level interactions and specific coefficients for each country, we use multi-level analysis.

[4] Such a selection effect corresponds to the theoretical perspective of the Uses and Gratifications Theory (Katz, Blumler, and Gurevitch 1973). Instead of asking "what do the media do to people?" (Katz 1959), it asks what people do with the media. It argues that people select those media that give them the most gratification, a behavior called selective exposure (Klapper 1960; Stroud 2008; Zaller 1992). From this perspective the correlation between internet usage and liberal attitudes does not exist because internet usage leads to more liberal attitudes, but because liberal

Second, since we assume that media effects depend on the country context, we want to obtain effects for each country individually. Random coefficient models allow the coefficients of internet and television to vary between countries. In fact, likelihood-ratio tests show that the random coefficient models can explain the data better than random intercept models (compare Table 1 in the next section). To assign values to each country's random coefficients, empirical Bayes (EB) predictions are calculated as suggested by Rabe-Hesketh and Skrondal (2008:109).[5] These coefficients can be interpreted as the difference in liberalism between a user and a non-user of the same country and with the same socio-demographic characteristics.

Third, we want to obtain a clear pattern how the liberalism of a country moderates the strength of effects of internet and television on individual's liberalism. Therefore, a cross-level-interaction between average country liberalism and media usage is added to the random coefficient model. Since the random intercept in these models already controls for country differences in the dependent variable, including the average country liberalism would be redundant and lead to collinearity. For this reason, the average liberalism is only included in the interaction term, but not as a main effect itself.[6]

With the data of the LISS panel we try to further address the issue of self-selection. There might be further characteristics that are correlated with liberalism and with internet usage that are omitted in the cross-sectional models. This omission might lead to an overestimation of the internet effect when liberal persons actually just use the internet more often. Therefore, we run a fixed effects model which measures how changes of media usage over time affect changes in liberalism. A fixed effects model controls for all unobserved characteristics that are constant over time which substantially reduces the probability of a mere selection effect. This does not mean that a significant coefficient in a fixed effects model is evidence for causality, but a selection effect can be only present if there is an omitted variable that is correlated with media use and changes over time. Furthermore, the LISS captures media consumption in much more detail than the WVS. Since we conduct two separate analyses, the operationalization of variables follows in the respective result sections.

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persons tend to use the internet more often than conservatives do because they expect to find more liberal content there.

[5] There are two predominant approaches to assign values to random coefficients: maximum likelihood estimation and empirical Bayes prediction (Rabe-Hesketh and Skrondal 2008: 106). EB has the advantage that for inference statistics, uncertainty regarding the predictions can be estimated. Furthermore it has the smallest possible variance and therefore is the best linear unbiased predictor (BLUP). Because of the high number of observations on the individual level, the ML estimates and the EB predictions correlate about 0.99 in our analysis.

[6] Thus the effect of the interacting variables is included in a form of x1 + x1*x2 instead of x1 + x2 + x1*x2. For a very similar approach concerning cross-level-interactions in fixed effects models see Möhring (2012).

4. Cross-Country Evidence from the World Values Survey

For the main analyses we use data of the fifth wave of the World Values Survey (WVS). The data were collected in 57 countries from all over the world between 2004 and 2008. Prior waves cannot be considered because they do not include items concerning media usage. The broad coverage of countries allows for analyzing the effects of internet under very different institutional backgrounds.

Dependent Variables

As dependent variables we borrow four[7] attitudinal indices developed by Norris and Inglehart (2009). These are (1) liberal sexual and moral values, (2) religious values and practices, (3) egalitarian gender equality values, and (4) liberal family values. The indices result from a principal component analysis[8] over 21 diverse items from the WVS that were chosen because they were surveyed in most participating countries. In the theoretical section we argue that there is *one* underlying concept of liberalism that can explain many different attitudes. However, in the literature, different social and moral issues are usually discussed separately. Drawing on four different indices allows us to demonstrate that the media indeed affect attitudes to numerous concepts similarly. In fact, the results below are robust across different operationalizations (compare footnote 7 and the consistent results in section 5 and 6).

The first index, sexual and moral values, is constructed from an item battery that asks respondents how justifiable they consider the following six issues on a scale from 1 to 10: abortion, divorce, homosexuality, prostitution, euthanasia, and suicide. Justification of these issues is regarded as liberal. The second index, religious values, is constructed from five items: How important god is for the respondent; whether she regards herself as religious; whether she prays or meditates; how important religion is in her life; and how often she attends religious services. Since religiosity is correlated with many conservative attitudes, non-religiosity is regarded as an indicator for liberalism. The third index, gender equality, is constructed from three

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[7] Norris and Inglehart originally derive five indices in their analysis. However, we omit one index – tolerance of low ethical standards in public life – because it does not relate to the concept of liberalism.

[8] One could argue that structural equation modeling (SEM) is the more appropriate method for the index construction and the further analyses of media effects, as SEM can reveal the underlying correlation structure between single items and a latent variable like liberalism. However, the exact correlation structure of the items is only of minor interest for our purpose. To invalidate the possible criticism that our results stem from arbitrarily constructed indices, we further estimate the media effects on two opposite cases as dependent variables: a) a single 'liberalism' index constructed from all included items, and b) some selected individual items (justification of homosexuality, justification of euthanasia, importance of god, men make better business executives than women, approval of women as single parent). The results mirror the pattern observed with the four indices and are available from the author on request.

items. Respondents are asked how much they agree with the statement that men make better business executives or political leaders than women, and whether university is more important for a boy than for a girl. Finally, for the fourth index, family values, respondents have to state whether they approve a woman as a single parent without stable relationship; how important the family is in their life; and whether marriage is an outdated institution. Approval of single parentship, disapproval of marriage and low importance of family are considered as liberal attitudes.

All indices are coded in a way that they range from 0 to 10 with increasing values indicating more liberal attitudes.

Independent Variables

The WVS covers media usage with one item battery:

"People use different sources to learn what is going on in their country and the world. For each of the following sources, please indicate whether you used it last week or did not use it last week to obtain information"

Someone is classified as a user or non-user of the particular medium depending on whether she indicated its usage in the last week. In this way, three dummy variables for the main channels of communication – internet, broadcasts, and newspapers – are created. Newspapers are included for comparison only and will be dropped later because of weak effects. We are aware that these items are prone to measurement error. People might have used the particular medium in the last week for the first time. Conversely, a regular user just might have abstained from the media use during the time range asked for in the interview. However, these deviations should be randomly distributed. In future surveys, additional questions that ask more precisely for the kind and purpose of the information obtained and for the duration of usage would still be preferable.

As control variables on the individual level we include respondent's age, gender, political interest, and education in three categories – low, medium, and high – recoded from the highest education level attained. On the country level the control variables are GDP per capita (The World Bank 2013) and Press Freedom (Freedom House 2011) of the respective survey year, as well as an aggregated value of the respective dependent variable as a measure of a country's liberalism. In the regression analyses below, all continuous independent variables will be z-standardized to allow for a better comparison of effect sizes.

Results

Table 1 shows the mean values for each liberal attitude as well as penetration rates of internet, newspaper and television for each country. Table 2 shows the bivariate Pearson correlation coefficients of these key variables. Four conclusions can be drawn.

Table 1: Summary of Key Variables

	Liberal Attitudes				Media Penetration		
	Sexual & Moral Values	Religious Values	Gender Equality	Family Values	Internet	Newspaper	Broadcasts
Andorra	**6.47**	5.45	7.49	**4.36**	0.49	0.85	0.94
Sweden	6.10	6.15	8.04	2.65	0.71	**0.92**	0.98
France	5.10	5.79	8.02	3.65	0.38	0.62	0.95
Norway	5.33	6.02	**8.49**	2.43	**0.75**	**0.92**	**0.99**
Spain	4.89	5.59	7.72	3.98	0.27	0.63	0.91
Netherlands	5.29	5.72	7.45	3.68	0.67	0.75	0.97
Germany	4.59	5.77	7.42	2.61	0.40	0.82	0.96
Switzerland	5.44	4.09	7.71	2.69	0.62	0.91	0.95
Slovenia	4.85	4.83	6.74	2.80	0.35	0.63	0.90
Great Britain	4.57	5.18	6.85	2.41	0.49	0.72	0.93
New Zealand	4.63	5.10	7.21	1.90	.	.	.
Uruguay	4.46	4.24	6.78	3.36	0.19	0.30	0.90
Finland	4.50	4.31	7.08	2.84	0.57	0.89	0.97
Australia	4.98	4.73	6.98	2.02	0.54	0.85	0.98
Bulgaria	3.97	5.21	6.37	2.84	0.19	0.63	0.97
Canada	4.05	3.32	7.40	2.57	0.53	0.72	0.95
Japan	3.87	5.89	5.64	1.85	0.46	0.90	0.98
Hong Kong	3.09	6.03	5.86	2.23	.	.	.
Argentina	3.87	3.13	6.71	3.39	0.21	0.47	0.90
Serbia	4.17	3.40	6.25	2.51	0.29	0.73	0.89
Chile	3.41	3.01	5.92	3.70	0.34	0.64	0.93
Russian Federation	2.93	4.77	4.90	2.89	0.21	0.54	0.94
United States	3.64	2.62	6.86	2.13	0.69	0.68	0.90
Taiwan	3.15	4.74	5.90	1.18	0.34	0.56	0.90
Peru	.	2.10	6.56	2.38	0.30	0.61	0.87
South Korea	2.88	4.94	5.54	1.27	0.65	0.75	0.94
Ukraine	2.82	3.82	5.20	2.68	0.11	0.61	0.92
Mexico	3.25	1.86	6.19	3.15	0.22	0.48	0.89
Viet Nam	1.31	6.07	5.61	1.43	0.10	0.39	0.95
Italy	2.68	2.55	6.83	2.23	0.40	0.71	0.95
China	1.29	**6.46**	5.45	1.04	0.11	0.23	0.75
Cyprus	2.93	2.90	6.56	1.66	0.36	0.76	0.90
Brazil	2.70	1.55	6.43	2.65	0.24	0.36	0.86
Colombia	2.03	1.46	6.42	.	0.17	0.31	0.89
Moldova	2.33	2.66	5.54	2.27	0.20	0.55	0.90
Guatemala	2.25	1.03	6.60	2.71	.	.	.
Thailand	2.11	2.42	5.41	2.29	0.14	0.50	0.91
Poland	2.43	1.69	5.96	2.07	0.28	0.56	0.97
South Africa	2.29	1.61	5.99	2.05	0.14	0.60	0.82
Romania	1.90	1.57	5.93	2.44	0.14	0.51	0.94
Trinidad and Tobago	1.61	1.24	7.08	1.46	0.21	0.81	0.93
Ethiopia	1.12	1.13	7.21	1.83	0.18	0.53	0.79
Zambia	2.66	1.32	5.57	1.52	0.18	0.43	0.72

	Sexual & Moral Values	Religious Values	Gender Equality	Family Values	Internet	Newspaper	Broadcasts
India	2.68	2.39	4.43	1.30	0.09	0.52	**0.61**
Malaysia	2.36	1.28	4.43	1.42	0.37	0.87	0.92
Turkey	1.42	1.71	5.68	0.50	0.22	0.60	.
Georgia	1.09	1.99	4.78	1.11	0.15	0.26	0.98
Rwanda	0.97	0.75	5.12	1.89	0.12	**0.10**	0.63
Mali	2.88	0.86	3.24	1.27	0.22	0.32	0.71
Burkina Faso	1.71	1.04	4.39	0.78	**0.08**	0.19	0.66
Morocco	1.49	0.62	4.99	0.41	0.27	0.31	0.87
Iran	1.30	1.43	3.92	0.85	0.19	0.51	0.85
Indonesia	0.80	0.90	5.31	0.31	0.21	0.53	0.91
Ghana	1.40	0.68	4.53	0.71	0.09	0.23	0.82
Iraq	0.60	2.00	3.25	0.14	.	.	.
Egypt	1.63	1.12	**2.96**	**0.13**	0.09	0.24	0.79
Jordan	**0.37**	**0.33**	3.92	0.48	0.17	0.42	0.86
Overall	3.01	3.1	5.99	2.14	0.31	0.57	0.89
Max	6.47	6.46	8.49	4.36	0.75	0.92	0.99
Min	0.37	0.33	2.96	0.13	0.08	0.10	0.61
Median	2.85	2.66	5.99	2.18	0.22	0.60	0.91
S.d.	1.52	1.90	1.27	1.01	0.19	0.21	0.09

Note: Country averages are composed by the mean values of all respondents of a country. For each category, the lowest third is shaded dark, the medium third is shaded light gray, and the highest third is white. Countries are ordered in descending order of average liberalism (the mean of all four indices).

Table 2: Bivariate Correlations of Key Variables

	Sexual & Moral Values	Religious Values	Gender Equality	Family Values	Internet	Newspaper	Broadcasts
Sexual Values	1.00						
Religious Values	0.72	1.00					
Gender Equality	0.72	0.59	1.00				
Family Values	0.57	0.37	0.61	1.00			
Internet	0.73	0.53	0.64	0.25	1.00		
Newspaper	0.68	0.53	0.62	0.26	0.78	1.00	
Broadcasts	0.48	0.51	0.55	0.37	0.56	0.65	1.00

First, there are substantial differences in overall support for the four liberal attitudes. On average, attitudes towards gender equality are comparatively liberal (5.99), while sexual and moral values (3.01), religious values (3.1) and especially family values (2.14) are highly restricted. The same variance can be observed for media penetration rates. While information consumption via TV is common in all sampled countries (0.89), only a share of 0.31 seeks information via the internet. Newspapers have a penetration rate of 0.57.

Second, there is high variance between countries concerning both liberal attitudes and media penetration. Between the lowest and the highest scoring countries, the gap is about 6 points on each attitude scale. Internet penetration ranges from 0.08 to 0.75, newspaper penetration even

from 0.10 to 0.92. Only the diversity of information via broadcasts is smaller, ranging from 0.61 to 0.99, with most countries scoring higher than 0.90.

Third, there is high consistency within countries both in regard to liberal attitudes and media penetration. Many countries show a similar extent of liberalism in each attitude, which means that there are high correlations between the four indices. Few countries score in the upper third on one attitude scale and in the bottom third on another one. One notable exception are some of the East Asian and former communist countries that are very liberal regarding religion, but very conservative on the other dimensions. For example, China is the least religious country, but it is not liberal concerning any other attitude. The same pattern exists for media penetration, with high correlations between the three kinds of media uses.

Fourth, there are high bivariate correlations between liberal attitudes and media penetration. Broadly speaking, European and Anglo-American countries are the most liberal, former communist and Latin American countries are moderate, and African, Islamic and South-East Asian countries are the most conservative. The order of media consumption is the same. On the country level, this correlation can be explained by economic development (Inglehart and Baker 2000)). However, analyses on the individual level that include control variables have to show whether media actually has an impact on liberalism.

Table 3 shows random-intercept models which account for different country means in liberalism for each attitude.

Table 3: Random Intercept Estimations of Media Effects on Liberal Attitudes

	Sexual & Moral Values		Religious Values		Gender Equality		Family Values	
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.
fixed part								
Internet	0.352	0.021	0.214	0.022	0.244	0.022	0.216	0.022
Broadcasts	-0.129	0.027	-0.264	0.027	0.231	0.027	-0.131	0.027
Newspaper	0.059	0.019	-0.005	0.019 n.s.	0.100	0.019	0.079	0.019
Female	0.023	0.016 n.s.	-0.708	0.016	0.912	0.016	0.101	0.017
Age	-0.241	0.009	-0.300	0.009	-0.082	0.009	-0.214	0.009
Education Medium	0.210	0.021	0.082	0.021	0.441	0.021	0.043	0.021 n.s.
Education High	0.565	0.026	0.074	0.026	0.787	0.026	0.172	0.027
Political Interest	0.085	0.009	-0.131	0.009	-0.028	0.009	-0.007	0.009 n.s.
GDP	0.486	0.157	0.995	0.274	0.550	0.154	0.141	0.199 n.s.
Press Freedom	0.759	0.176	0.095	0.309 n.s.	0.237	0.174 n.s.	0.253	0.225 n.s.
Constant	2.622	0.131	3.508	0.224	4.772	0.128	2.040	0.164
random part								
Sigma u (L2)	0.897	0.089	1.577	0.155	0.884	0.087	1.145	0.113
Sigma e (L1)	2.033	0.006	2.115	0.006	2.107	0.006	2.152	0.006
Unconditional ICC	0.35		0.44		0.24		0.24	
Conditional ICC	0.17		0.31		0.14		0.21	
R^2 (Level 1)	0.26		0.16		0.17		0.03	
R^2 (Level 2)	0.65		0.31		0.49		0.08	
Observations	67614		69848		68985		69843	

Note: Full maximum likelihood estimation. Dependent variables range from 0 to 10 with high values indicating liberal attitudes. All continuous independent variables are z-standardized for a better comparability of the effect strengths. All effects not indicated as 'n.s.' are significant at a 0.01 level. R^2 for separated levels are calculated as proposed in Snijders and Bosker (1999:99-105).

First of all, in accordance with our hypothesis 1a, using the internet to inform oneself about what is going on in one's country and in the world has a liberalizing effect on each issue. The effects are statistically significant, although we control for demographic variables like age, education and gender that are known to be correlated with both liberal attitudes and internet usage. The internet effect is strongest for sexual and moral values: Internet users are estimated to be 0.352 points more liberal on average than non-users. One could object that this is not a substantial difference on a scale ranging from 0 to 10. However, in comparison with the coefficients of the other covariates, the effect of internet is one of the strongest: It is stronger than the effects of gender, a standard deviation in age or political interest, or medium education compared to low education. With 0.21 to 0.24 the effect of internet is lower on the three other attitudes, but still substantially high.

The second remarkable pattern is that – in accordance with the hypothesis 1b – information via broadcasts does not have the same substantial and consistent liberalizing effect as internet usage.

Actually, informing oneself via broadcast has a non-trivial negative effect on liberal sexual and moral values (-0.129) and on family values (-0.131). The effect is even stronger on religious values (-0.264). Only on gender equality attitudes, informing oneself via broadcasts has a liberalizing effect, which is almost as strong as the respective effect of internet usage.

Third, informing oneself via newspaper has modest effects compared to broadcasts and internet. There are positive and statistically significant effects on sexual and moral values, gender equality and family values. However, for example for sexual and moral values, this effect is only half as strong as the negative effect of broadcasts and merely a sixth as strong as the positive effect of the internet. On religious values, the effect of newspapers is not significant at all.

Most control variables show the expected effects. Higher age correlates with more conservative positions, higher education with more liberal ones. Political interest has an inconsistent pattern with a positive effect on sexual and moral values and a negative one on religious values and gender equality. Being a woman has a positive effect on family values and, not surprisingly, a remarkably strong one on gender equality. However, women tend to be more religious than men. On the macro level, a country's GDP per capita has a strong impact on sexual and moral values, religious values and gender equality. Only for family values it is not significant. Freedom of the press has a significant impact on sexual and moral values only. However, one has to bear in mind that these two macro variables are highly correlated. The models are furthermore robust against different specifications of the independent variables.[9]

The random part of the estimation shows that the unconditional intraclass correlation[10] is 0.35 for sexual and moral values, 0.44 for religious values, and 0.24 for gender equality and family values. This means that before controlling for any covariates, about 24 to 44 percent of the variance in liberal attitudes can be explained by country-specific factors. These values are statistically significant and substantial enough to justify multi-level modeling. The Snijders and Bosker R^2 on level 1 shows how much of the total variance can be explained by level 1 variables. Values range from 0.26 to 0.03. Family values can be explained much less than the other three attitudes. The variance on level 2 can be explained better and values range from 0.65 to 0.08.

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[9] We test the robustness of the model by using two small changes in the model specification. Adding income – a variable known to be positively correlated with internet usage – to the model slightly decreases the internet's positive coefficient on sexual values. However, this change might merely be the result of excluding about 8,000 observations (including two complete countries, Argentina and Jordan). Excluding political interest – which might be correlated with the dependent variables – does not change any coefficient in a considerable way.

[10] The unconditional ICC refers to the empty model without covariates. The conditional ICC refers to the estimated models with all displayed covariates.

Again, family values are most difficult to explain by our model. Altogether, the findings suggest taking a look on country-specific differences of internet effects on liberal attitudes.

In summary, the random intercept models show that internet usage has a statistically significant and substantial positive impact on different liberal attitudes. With the exception of gender equality, watching television has a significant and also substantial negative effect on liberal attitudes. In comparison, reading newspapers seems to have no relevant impact on attitude formation (or positive and negative effects of different kinds of newspaper content cancel each other out). As has often been observed in previous studies, the country context can explain a huge part of individual attitudes on social and moral issues.

To derive media effects for each country individually, random slope models are computed. They correspond to the random intercept models above, but allow individual coefficients of internet and broadcasts. The likelihood-ratio tests in Table 4 (first row) show that the random coefficient models have a better fit than fixed effects. The individual coefficients for each country that are obtained by empirical Bayes prediction can be found in Tables A1 (internet) and A2 (broadcasts) in the appendix. In most countries there is a positive effect of internet usage and many of these effects are statistically significant. There are few countries with negative internet effect and none is significant. Conversely, there are numerous countries with negative effects of broadcasts. Only few significant positive effects exist and most of them are on gender equality. For both internet and broadcasts, there is a high variance in the size of effects. From the tables alone it is difficult to obtain a clear pattern about which of the 57 countries have stronger effects than others.

Table 4: Likelihood-Ratio Tests for Model Comparison

Null Hypothesis		Sexual & Moral Values	Religious Values	Gender Equality	Family Values
FE = RE	LR chi2(2)	463.75	331.6	128.67	214.36
	Prob > chi2	0.000	0.000	0.000	0.000
RE with = RE without interaction	LR chi2(2)	154.11	253.15	153.96	173.4
	Prob > chi2	0.000	0.000	0.000	0.000

Note: The null hypotheses states that there is no difference in model fit between the two models.

To find such a pattern in the country-specific media effects, cross-level interactions of internet and broadcasts with the country mean of the respective attitude are included in the models. Table 4 (row 2) provides evidence that the interaction effects improve the model fit. Figure 2 shows that there is a consistent pattern across all four attitudes with minor exceptions regarding gender equality values.

Figure 2: Cross-Level Interaction of Media Effects and Country-Aggregated Liberalism
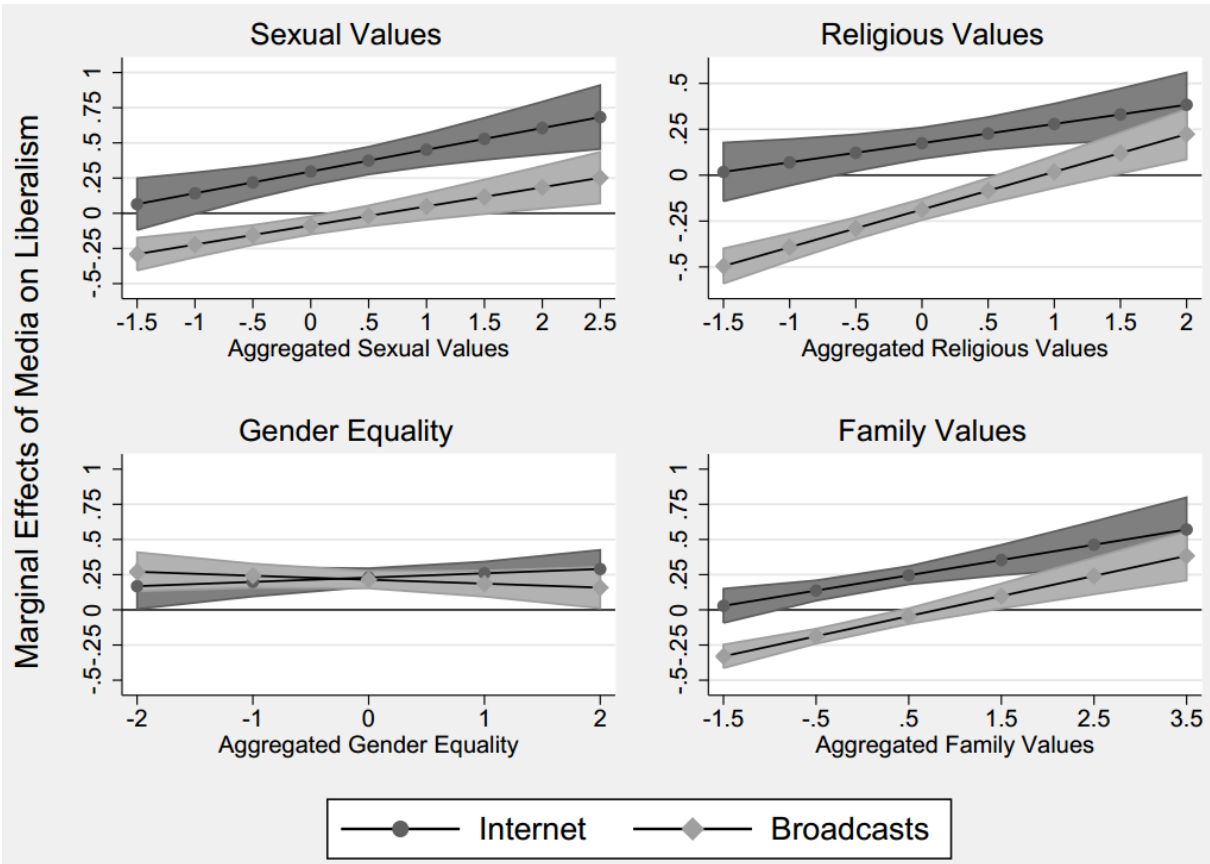
Note: The y-axis depicts the marginal effects of internet and broadcasts on the respective attitude conditional on different values of the country average of the same attitude on the x-axis. The grey area illustrates a 95% confidence interval (one-sided test). Thus, if the shaded area does not intersect the zero line, there is a significant effect at a 5% level. Reading example: Internet usage has a non-significant effect of less than 0.1 on sexual and moral values in a country with a respective aggregated value of -1.5. However, in a country with an aggregated value of 2.5, the effect of internet is about 0.65 and statistically significant. The figure is based on Table A3 in the appendix.

First, in countries with the most conservative values, information via broadcasts has a significant negative impact on individual liberalism. This effect is particularly strong for religious values. Internet usage does not have a similarly negative effect on liberal values, but it also does not have a significant positive effect in those countries.

Second, when the country level of liberalism increases, the effects of both kinds of media usage become more positive. For internet usage this means that its effect is positive and statistically significant in all but the most conservative countries. For broadcasts this means that the negative effect firstly becomes weaker, then non-significant, and in very liberal countries it is eventually also significantly positive. This interaction effect of watching broadcasts and country liberalism is in line with hypothesis 2.

Third, in conservative countries, the differences between the effects of broadcasts and the effects of internet are statistically significant from each other (the shaded confidence intervals do not overlap). While the liberalizing effect of internet is stronger than that of broadcasts across all levels of country liberalism, the difference becomes weaker (and insignificant in the cases of religious values, gender equality, and family values) in more liberal countries.

5. Panel Analyses with the LISS Data

To check the robustness of our cross-sectional findings and overcome the limitations of the cross-sectional data, we conduct a second analysis with data of the LISS panel (Longitudinal Internet Studies for the Social Sciences). The panel consists of 5000 Dutch households, encompassing 8000 individuals. The panel is based on a true probability sample of households drawn from the population register by Statistics Netherlands. Households that cannot participate otherwise are provided with a computer and internet access. Panel members are paid to complete online questionnaires every month. The LISS data is the panel with the highest data quality that we are aware of that includes repeated measurements of both media usage and a range of social and moral attitudes. For our purpose we can draw on five waves from 2008 to 2012.

Although they are not perfectly comparable to the WVS data, we are able to construct four dependent variables that capture the concept of liberal attitudes in a similar way.

For the gender equality index, respondents have to state their agreement with the following eight items: (1) Both father and mother should contribute to the family income; (2) The father should earn money, while the mother takes care of the household and the family; (3) Fathers ought to do more in terms of household work than they do at present; (4) Fathers ought to do more in terms of childcare than they do at present; (5) A woman is more suited to rearing young children than a man; (6) It is actually less important for a girl than for a boy to get a good education; (7) Generally speaking, boys can be reared more liberally than girls; (8) It is unnatural for women in firms to have control over men. These items are similar to those used for the gender equality index of the WVS data. Cronbach's Alpha is 0.73.

To address the sexual and moral values dimension, there is unfortunately only one item to draw on. Respondents have to state on a 5-point scale whether euthanasia should be legally permitted or forbidden. A similar item is also included in the respective index of the WVS, but the LISS index necessarily omits all other aspects captured in the WVS index.

The third index asks for respondents' attitudes towards foreigners. As it is argued in the theoretical section, the acceptance of minority groups is a frequently used indicator of liberalism. Respondents had to state their agreement with the following six items: (1) It is good if society consists of people from different cultures; (2) It should be made easier to obtain asylum in the Netherlands; (3) Legally residing foreigners should be entitled to the same social security as Dutch citizens; (4) There are too many people of foreign origin or descent in the Netherlands; (5) Some sectors of the economy can only continue to function because people of foreign origin or descent work there; (6) It does not help a neighborhood if many people of foreign origin or descent move in. Two items concerning immigrants were not included in the index because they asked for respondents' evaluation of the situation of immigrants in the Netherlands. Cronbach's Alpha is 0.77.

As a final measurement of liberalism a simple self-assessment of political ideology on an 11-point left-right scale is included. While we mentioned above that there are discussions about multiple dimensions of ideology, in the broadest sense, a left ideology corresponds to liberal attitudes on social and moral issues.

Again, all indices are coded in a way that they range from 0 to 10 with increasing values indicating more liberal attitudes.

The LISS panel captures internet usage for different kinds of activities and at different places. For a better comparison with the WVS data, we only consider the overall usage at home which is measured in hours per week. From this item four different user groups are composed – non-users, moderate users, strong users, and heavy users. Television consumption is reported in hours per day and is analogously categorized into four groups. The summary statistics of the dependent and independent variables are depicted in Table 5. Key findings are: First, on average an individual stays within the panel for about 2.8 waves. Second, half of the participants are moderate internet users, another quarter are strong users. Third, about a quarter of participants are classified as strong television viewers, another third as moderate viewers. Fourth, the Dutch have very liberal views on euthanasia and gender equality. Left ideology and xenophobia are closer to the center of the scale. Fifth, the within-individual variance is comparably low and always smaller than the variance between subjects.

Table 5: Summary Statistics LISS Panel

Variable		Share/Mean	S.D.	Min	Max		Observations
Internet							
Non-User (0 - 1h/week)	overall	0.17	0.38	0	1	N	25982
	between		0.32	0	1	n	9221
	within		0.25	-0.63	0.97	T-bar	2.81
Moderate User (1 - 7h/week)	overall	0.52	0.50	0	1	N	25982
	between		0.40	0	1	n	9221
	within		0.35	-0.28	1.32	T-bar	2.81
Strong User (7 - 21h/week)	overall	0.25	0.44	0	1	N	25982
	between		0.36	0	1	n	9221
	within		0.29	-0.55	1.05	T-bar	2.81
Heavy User (>21h/week)	overall	0.05	0.21	0	1	N	25982
	between		0.18	0	1	n	9221
	within		0.14	-0.75	0.85	T-bar	2.81
Television							
Non-User (0 - 1h/day)	overall	0.12	0.32	0	1	N	25339
	between		0.28	0	1	n	9045
	within		0.19	-0.68	0.92	T-bar	2.8
Moderate User (1 - 2h/day)	overall	0.30	0.46	0	1	N	25339
	between		0.38	0	1	n	9045
	within		0.30	-0.50	1.10	T-bar	2.8
Strong User (2 - 5h/day)	overall	0.49	0.50	0	1	N	25339
	between		0.42	0	1	n	9045
	within		0.31	-0.31	1.29	T-bar	2.8
Heavy User (>5h/day)	overall	0.10	0.30	0	1	N	25339
	between		0.26	0	1	n	9045
	within		0.18	-0.70	0.90	T-bar	2.8
Liberal Attitudes							
Xenophobia	overall	4.78	1.63	0	10	N	25959
	between		1.55	0	10	n	9220
	within		0.59	-0.14	8.53	T-bar	2.82
Euthanasia	overall	8.37	2.54	0	10	N	24952
	between		2.43	0	10	n	9024
	within		0.99	0.37	15.37	T-bar	2.77
Gender Equality	overall	6.92	1.31	0	10	N	25963
	between		1.22	1.56	10	n	9220
	within		0.56	2.80	10.20	T-bar	2.82
Left Ideology	overall	4.78	2.16	0	10	N	22431
	between		2.03	0	10	n	8442
	within		0.82	-2.22	10.45	T-bar	2.66

Note: The table distinguishes between overall, between (different individuals), and within (the same individual) statistics.

Table 6: Fixed Effects Estimates of Media Effects

	Xenophobia		Euthanasia		Gender Equality		Left	
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.
Internet Moderate User	0.036	0.019 *	0.053	0.033	0.017	0.018	0.018	0.029
Internet Strong User	0.045	0.023 *	0.082	0.041 *	0.016	0.022	0.060	0.037
Internet Heavy User	0.063	0.039	0.117	0.069 *	0.048	0.037	0.185	0.062 **
TV Moderate User	-0.004	0.025	-0.020	0.043	0.016	0.024	0.035	0.038
TV Strong User	-0.001	0.028	0.019	0.049	0.001	0.027	0.040	0.043
TV Heavy User	-0.040	0.037	-0.004	0.066	-0.032	0.035	0.024	0.059
Wave 2	0.068	0.036	0.049	0.062	-0.047	0.034	0.093	0.052
Wave 3	-0.032	0.067	-0.002	0.114	-0.100	0.064	0.048	0.096
Wave 4	0.018	0.098	0.086	0.169	-0.133	0.094	-0.131	0.141
Wave 5	0.119	0.130	0.146	0.224	-0.081	0.124	0.018	0.187
Age	-0.023	0.032	0.013	0.055	-0.003	0.031	-0.012	0.046
Education	-0.014	0.017	0.047	0.030	-0.012	0.016	-0.063	0.027 *
Political Interest	0.028	0.017	0.010	0.029	0.056	0.016 ***	0.004	0.026
Constant	5.868	1.500 ***	7.547	2.592 ***	7.138	1.430 ***	5.559	2.182 ***
Observations	25246		24283		25250		21821	

Note: *** = p<0.001, ** = p<0.01, * = p<0.05; one-sided tests for internet and TV dummies.

Table 6 shows the results of the fixed effects models. The internet user-type dummies indicate how the political attitudes of moderate, strong and heavy users differ from those of the reference group, the non-users. Although not all coefficients are statistically significant, the pattern shows that the longer people use the internet, the more liberal their attitudes are. For instance, moderate users score about 0.05 points higher on justification of euthanasia, which is not yet significantly different from non-users. For strong users, however, the difference is about 0.08 and for heavy users it is about 0.12, both statistically significant at the 0.1 level. The pattern is similar for xenophobia (where the effect of heavy usage is strongest, but slightly below significance) and for left-wing orientation (where the difference between heavy-users and non-users is even about 0.18). Only for gender equality values we cannot observe any internet effects. Conversely, we cannot find any differences between the different groups of TV consumption. None of the effects is even close to being statistically significant.

The results of the LISS data might be conservative and underestimate the true effects for several reasons. First, it is not possible to compare internet users with a reference group of complete non-users, because by design of the LISS study, every respondent is provided with permanent access to the internet in order to be able to participate in the survey. However, the comparison with absolute internet abstinent persons should have the highest effects. Second, the time between two waves is only one year and the total interval of observation is merely five years. As

can be seen in Table 5, we do not observe that many changes over time in both dependent and independent variables. This leads to weaker effects in a fixed effects model, which only regards changes. Third, with the WVS data, the Netherlands had no significant internet effect and only one significant effect of broadcastings (appendix A1 and A2). Hence, if we conclude that media effects are not that strong in the Netherlands (for instance because it is already one of the most liberal countries), and the fixed effects of the Dutch LISS data are nevertheless significant, fixed effects might be even more substantial in other countries.

6. Conclusion

In this paper, we propose that internet usage can lead to more liberal attitudes. We argue that the internet's technical features translate into social mechanisms that do not exist within traditional media. To test the proposition, we draw on cross-sectional data of the World Values Survey as well as on panel data from the Dutch LISS Panel. The results from both studies consistently show a positive impact of internet usage on liberalism. The effect is moderated by the respective society's average liberalism. In conservative countries the effect is not existent or only weak, but it becomes stronger the more liberal the country is. Conversely, for television consumption there is only a weak positive effect on liberal attitudes in liberal countries. In conservative societies, watching television actually has a substantial negative effect on liberalism. The design of our analyses can nearly exclude that these effects only exist because of audience selection or demographic composition of countries.

This paper contributes to the literature of media effects in two ways. First, it clearly demonstrates that different kinds of media can have different kinds of impact. In this way it disagrees with traditional cultivation theory that postulates a uniform negative effect on liberalism. Although our research design cannot answer *why* the internet has the demonstrated positive effect, we provide a theoretical argument that can explain differences between the internet and traditional media. Further research has to validate these mechanisms. Second, the paper shows that internet usage is not only beneficial to the political sphere by increasing political participation and acceptance of democratic norms. It rather points out that the internet is beneficial to a much broader social sphere and can increase people's general open-mindedness.

What are the implications of these findings? We are probably just at the beginning of observing substantial internet effects. Even in highly developed countries, high internet penetration is a comparably recent phenomenon and the intensity of internet usage is still increasing. Since these countries are on average also the most liberal societies, the positive effects on liberal attitudes

should be strongest here. In more conservative societies, internet effects are weaker or even not existent, and furthermore the penetration rates are distinctively lower. However, it is reasonable to assume that internet diffusion will increase in such countries and that increasing internet usage time will partly substitute television consumption. In this way, even if internet usage itself has no direct positive effect on liberal attitudes in conservative societies, the substitution of negative television effects on liberalism can be considered an indirect positive effect of the internet. Certainly the internet is not a panacea that alone will end discrimination, intolerance and inequality. However, the diffusion of internet technology can be considered one of various processes that can make people more open-minded.

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Appendix

Table A1: Empirical Bayes Predictions for Internet Effects

Country	Sexual & Moral Values		Religious Values		Gender Equality		Family Values	
Andorra	0.46	*	0.82	*	0.24		0.20	
Argentina	1.00	*	0.69	*	0.22		0.35	
Australia	0.62	*	0.41	*	0.30	*	0.18	
Brazil	0.16		0.20		0.58	*	0.00	
Bulgaria	0.88	*	-0.04		0.28		0.64	*
Burkina Faso	-0.10		0.02		0.36		0.06	
Canada	0.29		0.43	*	0.03		0.11	
Chile	0.61	*	0.42	*	0.64	*	0.13	
China	0.45	*	-0.05		-0.09		-0.08	
Colombia	0.85	*	0.21		0.34	*	1.03	*
Cyprus	0.22		0.33		0.05		0.61	*
Egypt	-0.25		-0.30		0.40	*	-0.08	
Ethiopia	0.67	*	0.29		-0.05		0.55	*
Finland	0.45	*	0.27		-0.02		-0.09	
France	0.25		0.27		0.17		0.03	
Georgia	-0.13		-1.01	*	0.14		0.23	
Germany	0.74	*	0.06		0.42	*	0.30	*
Ghana	0.21		-0.29		-0.04		-0.06	
Great Britain	0.36		-0.20		0.09		0.20	
Guatemala	.		.		.		.	
Hong Kong	.		.		.		.	
India	-0.63	*	0.25		0.06		0.11	

Country	Sexual & Moral Values		Religious Values		Gender Equality		Family Values	
Indonesia	-0.02		0.02		0.03		0.05	
Iran	0.10		0.43	*	0.22		0.55	*
Iraq	.		.		.		.	
Italy	0.77	*	0.29		0.24		0.25	
Japan	0.53	*	0.21		0.53	*	0.12	
Jordan	-0.09		-0.01		-0.07		0.08	
Malaysia	-0.28		0.20		0.13		0.38	*
Mali	0.18		-0.13		0.24		0.24	
Mexico	0.60	*	0.53	*	0.33	*	0.16	
Moldova	0.25		0.29		0.44	*	0.35	*
Morocco	-0.15		0.34		0.76	*	-0.10	
Netherlands	0.20		0.30		0.21		0.18	
New Zealand	.		.		.		.	
Norway	0.62	*	0.46	*	0.36	*	0.30	
Peru	.		0.36	*	0.11		0.14	
Poland	0.70	*	0.34		0.40	*	-0.08	
Romania	0.79	*	0.29		0.38	*	0.22	
Russia	0.37	*	0.09		0.08		-0.02	
Rwanda	0.12		-0.06		0.25		0.02	
Serbia	-0.74	*	-0.30		0.42	*	0.53	*
Slovenia	1.40	*	1.15	*	0.34	*	0.30	
South Africa	0.07		-0.18		0.29	*	0.00	
South Korea	0.45	*	0.08		0.52	*	0.33	*
Spain	0.54	*	1.05	*	0.16		0.48	*
Sweden	0.27		0.14		0.28		0.04	
Switzerland	0.84	*	0.58	*	0.68	*	0.28	
Taiwan	0.71	*	0.34		0.38	*	0.32	*
Thailand	-0.15		-0.22		-0.16		0.05	
Trinidad and Tobago	0.08		0.00		0.16		0.14	
Turkey	.		.		.		.	
Ukraine	0.45		-0.12		0.35		0.18	
United States	0.43	*	-0.04		0.11		-0.01	
Uruguay	0.57	*	0.49	*	-0.12		0.23	
Vietnam	0.27		0.20		0.24		0.07	
Zambia	-0.18		-0.04		-0.10		0.25	

Note: * = p<0.05

Table A2: Empirical Bayes Predictions for Broadcasting Effects

Country	Sexual & Moral Values		Religious Values		Gender Equality		Family Values	
Andorra	0.09		-0.06		0.11		-0.16	
Argentina	-0.06		-0.48	*	0.47	*	-0.40	
Australia	0.24		0.20		0.11		-0.13	
Brazil	0.08		-0.12		0.36	*	-0.07	
Bulgaria	0.07		0.07		0.14		0.03	
Burkina Faso	-0.59	*	-0.39	*	0.53	*	-0.35	
Canada	0.24		-0.53	*	0.25		0.06	
Chile	-0.18		-0.44	*	0.23		-0.28	
China	0.09		0.57	*	-0.07		-0.24	
Colombia	0.15		-0.28		0.21		0.91	*
Cyprus	0.08		-0.14		0.35		-0.76	*
Egypt	0.00		-0.38	*	0.36	*	-0.06	
Ethiopia	0.24		-0.35		-0.25		0.54	*
Finland	0.23		0.01		0.25		0.26	

France	0.16		0.05		0.28		-0.09	
Georgia	0.02		-0.24		0.29		-0.08	
Germany	-0.13		0.21		0.18		-0.32	
Ghana	-0.36		-0.55	*	0.48	*	-0.05	
Great Britain	0.44		0.02		0.10		-0.60	*
Guatemala	.		.		.		.	
Hong Kong	.		.		.		.	
India	-0.79	*	-0.39	*	-0.04		-0.18	
Indonesia	-0.37		-0.44	*	0.24		-0.26	
Iran	-0.15		-0.49	*	-0.14		-0.29	
Iraq	.		.		.		.	
Italy	0.09		-0.41		0.22		0.09	
Japan	0.06		-0.01		0.30		-0.29	
Jordan	-0.03		-0.35		0.66	*	-0.27	
Malaysia	-0.14		-0.20		0.00		-0.37	
Mali	-0.74	*	-0.50	*	0.60	*	0.06	
Mexico	-0.40		-0.37	*	0.38		-0.21	
Moldova	-0.47	*	0.02		0.22		-0.16	
Morocco	-0.52	*	-0.15		0.37		-0.04	
Netherlands	0.75	*	0.04		0.15		0.49	
New Zealand	.		.		.		.	
Norway	-0.11		-0.33		0.34		-0.22	
Peru	.		-0.40	*	0.19		-0.08	
Poland	0.08		-0.36		0.23		-0.24	
Romania	0.08		-0.31		0.45	*	-0.14	
Russian Federation	-0.36		0.15		0.37		-0.11	
Rwanda	-0.49	*	-0.15		0.27		-0.77	*
Serbia	0.03		-0.02		0.30		-0.17	
Slovenia	0.12		-0.14		0.04		0.15	
South Africa	0.05		-0.54	*	0.31	*	-0.30	
South Korea	-0.38		-0.06		0.06		-0.29	
Spain	0.18		0.19		0.78	*	-0.48	*
Sweden	-0.01		-0.02		0.12		-0.14	
Switzerland	0.15		-0.17		0.23		-0.08	
Taiwan	0.32		-0.11		0.28		-0.13	
Thailand	-0.06		-0.11		-0.03		-0.18	
Trinidad and Tobago	0.04		-0.51	*	0.01		-0.18	
Turkey	.		.		.		.	
Ukraine	-0.17		-0.08		0.22		0.15	
United States	-0.22		-0.57	*	-0.03		-0.53	*
Uruguay	0.28		0.14		-0.07		0.04	
Viet Nam	-0.01		0.27		0.31		-0.27	
Zambia	-0.29		-0.70	*	0.40	*	-0.07	

Note: * = p<0.05

Table A3: Random Intercept Estimations of Media Effects on Liberal Attitudes with Interaction Effects

	Sexual & Moral Values		Religious Values		Gender Equality		Family Values	
	coef.	s.e.	coef.	s.e.	coef.	s.e.	coef.	s.e.
fixed part								
Internet	0.297	0.059	0.174	0.052	0.229	0.040	0.191	0.037
Internet x Agg.Value	0.155	0.022	0.105	0.027	0.030	0.013 n.s.	0.108	0.020
Broadcasts	-0.087	0.039	-0.187	0.035	0.214	0.037	-0.116	0.030
Broadcasts x Agg.Value	0.136	0.041	0.205	0.035	-0.028	0.039 n.s.	0.143	0.029
Newspaper	0.073	0.019	0.003	0.019 n.s.	0.102	0.019	0.073	0.019
Female	0.024	0.016 n.s.	-0.704	0.016	0.912	0.016	0.101	0.017
Age	-0.234	0.009	-0.294	0.009	-0.082	0.009	-0.211	0.009
Education Medium	0.213	0.020	0.088	0.021	0.428	0.021	0.046	0.021 n.s.
Education High	0.567	0.026	0.084	0.026	0.774	0.026	0.162	0.027
Political Interest	0.082	0.009	-0.134	0.009	-0.026	0.009	-0.005	0.009 n.s.
GDP	-0.168	0.046	-0.045	0.031 n.s.	-0.093	0.044 n.s.	-0.007	0.027 n.s.
Press Freedom	0.040	0.047 n.s.	0.049	0.026 n.s.	-0.063	0.039 n.s.	0.031	0.028 n.s.
Constant	2.455	0.038	3.328	0.031	4.686	0.037	1.963	0.033
random part								
Sigma (Internet)	0.380	0.043	0.332	0.039	0.229	0.032	0.203	0.030
Sigma (Broadcasts)	0.182	0.031	0.142	0.022	0.165	0.028	0.072	0.032
Sigma u (L2)	0.162	0.028	0.068	0.031	0.148	0.026	0.108	0.023
Sigma e (L1)	2.024	0.006	2.108	0.006	2.103	0.006	2.148	0.006
Observations	67614		69848		68985		69843	

Note: Full maximum likelihood estimation. Dependent variables range from 0 to 10 with high values indicating liberal attitudes. All continuous independent variables are z-standardized for a better comparability of the effect strengths. All effects not indicated as 'n.s.' are significant at a 0.01 level.

Papiere in Koautorenschaft (Prüfungsordnung 2008, §8(2))

Alle Papiere wurden ohne Koautoren verfasst.

Verzeichnis der Hilfsmittel (Prüfungsordnung 2008, §8(3))

Für die Papiere habe ich folgende Hilfen in Anspruch genommen (soweit nicht im Acknowledgement / Danksagung der einzelnen Papers angegeben):

- Datenanalyse mit der Software Stata
- Korrektorat (Verbesserung des englischsprachigen Texts, z. B. Punktation, Satzstruktur, Rechtschreibung, sprachlicher Ausdruck)