

What Drives the Selection of Political Information on Google? Tension Between Ideal Democracy and the Influence of Ranking

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Abstract

The emergence of the Internet has altered how individuals obtain information—this also applies to political information. Search engines have taken over the role of political information gatekeepers, thus becoming key players in democracy. However, surprisingly little is known about the role of search engines in the political information process, that is, whether they represent an opportunity or a threat to democracy. Through an online survey experiment, which mimicked a Google web interface, this study examines how Swiss citizens select political information on a political news event from a Google search results page. Although citizens consider textual cues from snippets, they are more likely to select sources of information from the top of a Google results page, regardless of the source. We discuss these findings from a democratic theory perspective.

Zusammenfassung

Das Aufkommen des Internets hat die Art und Weise, wie Menschen an Informationen gelangen, verändert – dies gilt auch für politische Informationen. Suchmaschinen haben die Funktion eines Zugangspunktes zu politischen Informationen übernommen und sind damit zu Hauptakteuren der Demokratie geworden. Erstaunlicherweise wissen wir noch wenig darüber, welche Rolle Suchmaschinen bei der Verarbeitung politischer Informationen spielen. So stellt sich etwa die Frage, ob sie eine Chance oder eine Bedrohung für die Demokratie darstellen. Im Rahmen einer Online-Umfrage und mithilfe eines Experiments, das eine Google Webseite imitiert, analysiert diese Studie, wie Schweizer Bürgerinnen und Bürger politische Informationen im Zusammenhang mit einem aktuellen Ereignis auf einer Google-Suchergebnisseite auswählen. Obwohl die Bürgerinnen und Bürger inhaltliche

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Hinweise berücksichtigen, sind sie eher geneigt, diejenigen Informationsquellen ganz oben auf der Google-Ergebnisseite auszuwählen, unabhängig von deren Quelle. Diese Erkenntnisse werden demokratietheoretisch diskutiert.

Résumé

L'avènement d'Internet a modifié la manière dont les individus obtiennent des informations, y compris des informations politiques. Les moteurs de recherches sont devenus des points d'entrée vers l'information politique, et de ce fait, des acteurs clés de la démocratie. Cependant, il est surprenant de constater que la compréhension du rôle des moteurs de recherche dans le traitement des informations politiques est faible, à savoir s'ils représentent une opportunité ou une menace pour la démocratie. Dans le cadre d'une enquête expérimentale en ligne qui imitait une interface Web de Google, cette étude analyse comment les citoyennes et citoyens helvétiques sélectionnent les informations politiques sur une page de résultats de Google. Bien que les citoyens prennent en compte les repères textuels, ils sont plus enclins à sélectionner des sources d'information au sommet de la page de résultat, quelle que soit la source. Ces conclusions sont mises en perspective avec la théorie de la démocratie.

KEYWORDS

algorithmic personalization, political information selection, referendum, search engines, selective exposure

INTRODUCTION

Information about politics is crucial for a functioning democracy. In his seminal work on democratic theory, Dahl (1989) has stated that individuals must have access to information to weigh different arguments and alternatives to reach an informed and enlightened decision that serves their best personal interest. Similarly, Vowles (2013) claimed that citizens' ideal participation in democracy relies on citizens having full information. Although a broad consensus exists on the significance of political information in a democracy, there is no agreement about how it should be provided or how individuals process it.

Recently, there has been growing interest in how the Internet impacts democracy, notably regarding political information. Xenos et al. (2018) and the Pew Research Center (2016) have noted a generational shift from traditional (i.e., offline) to online media, which has driven more people to seek information via the Internet. For the first time, an information structure incorporates almost all existing information available in one place (Schroeder, 2018). This transition of the information environment has created an easily accessible, unlimited information supply. In other words, people face not only a high-choice information environment, but they also can self-select information instead of having it imposed on them (Hargittai et al., 2012; Neuman et al., 2012). This information revolution has become a promise for enlightened decision making (Hindman, 2009) and, accordingly, for improving democracy through more informed citizen participation. For example, Vössing and Weber (2019) noted that citizens believe that political information they select themselves is more valuable than any they are passively presented with.

Facing information overload, people began to use search engines as a compass to navigate the overwhelming amount of available information (Lee et al., 2016; Pan et al., 2007; Scharnow &

Vogelgesang, 2011). Thus, search engines have taken over the role of political information gatekeepers and become key players in a democracy (Newman et al., 2019; Trevisan et al., 2018).

Scholars have warned about two emerging risks in this new paradigm. First, the filter bubble hypothesis postulates that algorithmic personalization (i.e., pre-selected personalization) filters out information diversity and increases the risk of self-reinforcement (Pariser, 2011). Given this information blindness (Zuiderveen Borgesius et al., 2016) and the lack of transparency of algorithms (Schroeder, 2018), Epstein and Robertson (2015) and Epstein et al. (2017) have asserted that algorithmic personalization is a potential threat to democracy. Second, the selective exposure hypothesis assumes that citizens select only like-minded information sources (e.g., Stroud, 2011). Sunstein (2001) argued that the Internet facilitates the construction of echo chambers filled with only like-minded sources of information. One might then consider that search engines ease the self-selected personalization of information (Zuiderveen Borgesius et al., 2016). However, citizens have two options to self-select information when using a search engine. First, they can type what they want to obtain in the search bar. Second, they can freely select a source of information from an ordered list.

With that in mind, this study tries to shed light on how citizens select information on a political news event from a search engine information environment. This study brings information science and social science together. Although scholars have considered the importance of political content in information selection, they have concluded that algorithmic ranking trumps information content. In other words, previous research has highlighted the importance of ranking, with individuals more often selecting information ranked at the top of the search engine results page (SERP). From a different perspective, the selection of an information source should be based on one's own information utility as a democratic citizen rather than at random or based on ranking. This could be a heuristic choice in terms of shortcuts, or an argument-based choice in terms of content. However, no studies have analyzed the simultaneous influence of ranking and selection of political information sources. The goal of this study is therefore to measure the tension between a democratically ideal selection of political information based on a citizen's utility (according to Dahl, 1989) and the influence of the ranking algorithm.

This brings us to the question of the potentially distorting role of search engines in a democracy. To become politically informed, do citizens simply click on the topmost entries, regardless of the expected content utility? Or do they select information sources based on information snippets, regardless of the position on the Google SERP? This study explores these questions and provides new insight into a hot discussion topic, namely the digitalization of democracy. It furthers Slechten et al. (2021) who pointed out that, although citizens tailor their information exposure, ranking remains the most important predictor of information selection.

To analyze information selection by search engine users, our study exploits an online survey experiment that mimicked a Google webpage. This experiment was conducted during a real-world campaign for a referendum vote on combining tax and pension reform in Switzerland in May 2019. As demonstrated by Trevisan et al. (2018), a significant political news event, notably a referendum campaign, boosts the volume of political information searches online. With that in mind, a referendum campaign is a suitable context to investigate how citizens use search engines. The findings based on a binary logistic regression indicate that citizens tend to select political information sources based on ranking. Heuristic or argument-based selection of political information—disregarding the ranking—remains infrequent and depends on the type of information source. The result has important implications for the functioning of a democracy.

SEARCH ENGINES AND POLITICAL INFORMATION SELECTION

Building on Boudreau and MacKenzie (2014) and Lutz (2006), political information can be defined as all the information available to citizens about political actors, institutions, and policies. The study by Vowles (2013) asserts that ideal participation in democracy relies on citizens having full information.

This is especially true in a referendum campaign setting in which citizens are directly involved in policy making. First, De Vreese's (2007) discussion of referendum campaigns highlighted that most of the electorate face a referendum in a state of relative ignorance. Most citizens lack reliable knowledge to hold an opinion because of the diversity and technicalities of the policies at stake. This is in sharp contrast to an election context where citizens form an opinion by updating their already existing opinion through a learning process (Graber, 2004). Second, the hot cognition hypothesis postulates that referendums are contentious, affect-laden, emotionally charged, and debated along partisan lines (Yeo et al., 2015). In contrast to an election context, where vote choice based on heuristic shortcuts is an easily accessible strategy, it can be expected that referendums are conducive to diverse motivated information selection strategies.

Bozdog (2013) and Courtois et al. (2018) define a search engine as an information intermediary that facilitates the information-seeking process. In light of the information overload, a search engine filters, prioritizes, and personalizes information sources into an ordered list. It is worth noting that a search engine does not generate content itself (Schroeder, 2018); rather, it simplifies users' access to a wide range of information only after they type in queries to obtain customized, abridged lists of information that could fulfill their search expectations (Flaxman et al., 2016).

Many recent studies have demonstrated that more than 90% of people use a search engine as a compass for navigating the Internet, including the political information it offers (Lee et al., 2016; Scharnow & Vogelgesang, 2011). Stephens et al. (2014) proved that citizens are motivated to use search engines to obtain political news and information. In Switzerland, Milic et al. (2018) empirically demonstrated that the political information supply is distributed and accessed via the Internet more and more frequently. Indeed, the Reuters Digital News Report (Newman et al., 2020) indicated that 77% of Swiss citizens use online media as a source of news.

In this new paradigm, scholars have warned about the risk of personalizing one's political information repertoire. First, the filter bubble hypothesis assumes that algorithms filter out information diversity (Pariser, 2011). In line with this, Muddiman (2013) concluded that search engines provide access to mainstream rather than diverse information because they follow a market model during political campaigns. What is more, Hong and Kim's (2018) findings confirm the information cascade hypothesis, which states that search engine users mostly read information that is also read by others. In contrast, a recent growing body of evidence in communication science suggests that the filter bubble fear is exaggerated (Flaxman et al., 2016; Fletcher & Nielsen, 2017; Haas & Unkel, 2017; Unkel & Haim, 2019). With two explorative studies, Haim et al. (2018) rejected both the self-selection and algorithm personalization hypotheses. Furthermore, Steiner et al. (2020) demonstrated that search engine algorithms ensure content diversity. In sum, these authors assert that the bubble might have burst.

Second, the awakening of the selective exposure hypothesis postulates that Internet users self-select like-minded sources of information, creating an echo chamber (Sunstein, 2001). Scholars have found mixed evidence regarding self-selected personalization. On one hand, higher choice, and higher degree of control online motivate individuals to exclude dissonant information from their repertoire (Bennett & Iyengar, 2008; Iyengar & Hahn, 2009; Knobloch-Westerwick et al., 2014). On the other hand, some literature has concluded that the risk of a fragmentation of citizenry online is overrated (Fletcher & Nielsen, 2017). Individuals do not exclude dissonant information from their repertoire just because they can (Garrett, 2009; Valentino et al., 2009). To the contrary, the higher degree of control on the Internet also eases access to dissonant information (Song et al., 2020).

HYPOTHESES

Online information is characterized not only by high choice (Valentino et al., 2009) but also by the heterogeneity of information sources available (Kammerer & Gerjets, 2012). Pirolli (2007) explained that web users gauge the value of an information source online from heuristic cues (i.e., information scent) and try to match their search expectations with the available "information scent." Based on the

so-called information foraging theory, it is expected that Web users exploit either the ranking or the textual content of the information snippets (e.g., URL, summary, headline) as cues to identify their desired information source.

The literature provides us with considerable evidence indicating that individuals use ranking as a heuristic cue to select information sources. To be precise, they more frequently select search results that appear at the top of the page (Ghose et al., 2019; Kammerer & Gerjets, 2014; Trevisan et al., 2018; Haas & Unkel, 2017). First, individuals blindly believe that search engines will rank their most personally relevant result at the top of the results list. Pan et al. (2007) described this as contemporary trust in search engines. Furthermore, under the satisficing principle, individuals choose satisfactory rather than optimal solutions (Krosnick & Alwin, 1987); thus, they expect search engines to rank the most satisfactory solution at the top of the results list. Second, psychological science's investigation of the importance of serial position in a rank-ordered list (Haugtvedt & Wegener, 1994) has identified a primacy effect: Placing an item at the top of a list reinforces its probability of being selected. Third, due to limited cognitive capacity, humans only consider one choice at a time when dealing with a list; for this reason, items at the top and bottom have an advantage in terms of recall (Mantonakis et al., 2009). Fourth, Höchstötter and Lewandowski (2009) concluded that individuals seldom scroll down the search engine's results page. This suggests that search results below the fold are rarely selected.

Thus, the first hypothesis states that *when searching for political information online, citizens more often select the search result ranked at the top of a SERP* (H1).

Literature in political sciences provides a different perspective. Building upon dual process models of reasoning (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986), the literature indicates that information processing modes are driven by two different paths. Systematic information processing relies on a comprehensive analysis of the content. In comparison, heuristic information processing rests on peripheral cues to reach a shortcut decision. That is, a SERP provides a short preview of the information (i.e., snippets), with a headline, summary, and URL. This visual suggestion—with only approximately 200 characters and a link to the full content—supplies various textual cues, rather than argument-based content.

Some recent analyses have stated that textual cues are of prime importance in an online information environment (Kessler & Engelmann, 2019; Sundar et al., 2015). First, Messing and Westwood (2014), Sülflow et al. (2019), and Winter and Krämer (2014) demonstrated that sources are a prevalent driver of information selection online. Indeed, these scholars demonstrated that source credibility—that is, the expected quality of the information content—can influence information selection when considering a political information environment. Unkel and Haas (2017) concluded that the credibility of a source (i.e., its reputation) positively influences information selection on a SERP. Second, it is also necessary to integrate literature on motivated reasoning and selective exposure (see Yeo et al., 2015, for a review) to analyze information selection. According to this theory, individuals have goal-oriented information-seeking strategies. In a search engine information environment, such strategy relies upon the prevalence of textual cues to identify information sources, for example, political party or a like-minded source of information.

Altogether, citizens' ideal participation in democracy hangs on full information (Vowles, 2013)—if possible—or at least on information selection based on one's optimal information utility. As previously mentioned, the hot cognition hypothesis (Yeo et al., 2015) and the relative absence of prior knowledge on the policy at stake motivate diverse information selection strategies. On a SERP, it can be assumed that such selection strategies are driven by textual cues from snippets rather than by an unknown ranking algorithm. It can be hypothesized that citizens exploit textual cues to select either heuristic or systematic reasoning to form their opinion, as defined by the dual process models of reasoning (Eagly & Chaiken, 1993; Petty & Cacioppo, 1986).

With that in mind, the literature on referendum campaigns highlights three political information selection scenarios when facing a SERP. First, citizens might use textual cues to select information provided by trustworthy and knowledgeable political actors. In the Swiss direct democracy, Kriesi (2005) demonstrated that the government remains the most relevant actor in this context. As a

pivotal source of information, the government's role is to provide factual and impartial political information (Hessami, 2016). Consequently, citizens exploit textual cues from the snippet to identify Web pages from the government. In other words, *when searching for political information online, citizens more often select governmental Web pages, no matter the ranking* (H2).

Second, following a recommendation of one's preferred political party relates to a partisan heuristic. Colombo and Kriesi (2017) and Dermont and Stadelmann-Steffen (2019) indicated that party attachment influences the selection of political information in a referendum. Consequently, we hypothesize that *when searching for political information online, citizens more often select the Web page of their preferred political party, no matter the ranking* (H3).

Third, recent literature in political science has demonstrated that citizens also rely on policy arguments to form their opinions (Boudreau & MacKenzie, 2014; Bullock, 2011; Colombo & Kriesi, 2017). Overall, individuals using argument-based strategies to form their opinion are more likely to use textual cues to reach information sources such as quality media, which provide topic- or event-related information. To be precise, the content and quality of the coverage of the arguments vary between different types of media. For example, in contrast to quality newspapers that produce long articles, interviews, and editorial work, free newspapers do not offer detailed coverage of referendum campaigns (Gerth et al., 2012). Thus, the fourth hypothesis assumes that *when searching for political information online, citizens more often select Web pages from quality media, no matter the ranking* (H4).

METHODS AND DATA

Overview and Context

Data were gathered using a bilingual (German and French) survey distributed by the polling agency Qualtrics. Respondents were recruited from an opt-in panel, using a quota sampling method. They received an online survey invitation link and were invited to complete the survey either using a computer or a smartphone. The experiment lasted approximately 11 minutes. It spanned from April 8 to 15, 2019, that is, six weeks before the ballot day. The response rate was 52.5%.

The hypotheses were tested using a between-subjects survey experiment. This type of experiment is adequate to measure the simultaneous influence of ranking and sources of information. That is, it applies a different treatment (i.e., variation in ranking) across groups but keeps search results constant (i.e., same textual content). This disentangles the influence of ranking versus textual content on the selection of information sources on a SERP. Thus, the dependent variable was the nominally scaled absolute selection rate (0;1) of the search results. Further, the experiment mimicked a Google search engine interface by creating a similar layout (see Figure 1) to increase external validity. With external validity in mind, partial random ranking was also introduced in every treatment group. This introduced variation at the respondent level. A binary logistic regression was subsequently used.

The survey was conducted during a real-world campaign for a referendum in Switzerland in May 2019. The referendum concerned a law to change corporate tax and to enhance the financing of public retirement provisions (“Steuerreform und AHV-Finanzierung,” STAF). Both topics—corporate tax and retirement provisions—are highly disputed and had been voted on only two years earlier. Therefore, a lively campaign and strong predispositions were at work for most people (Heidelberger, 2019; Milic et al., 2018).

Participants

Respondents were recruited from an opt-in panel using a quota sampling method based on gender, age, and language (75% German; 25% French). To improve data validity, respondents who took more

Control group

The image shows a Google search results page for the query "Volksabstimmung zum Bundesgesetz über die Steuerreform und die AHV-Finanzierung". The results are ranked from 1 to 10. A vertical dashed box on the left side of the results is labeled "Randomized ranking". To the right of the search results, there are ten dashed boxes, each containing a label and a number in parentheses, representing the assigned group for each result. The labels are: Government (1), Government (2), National newspaper, Economic association, National television, Regional newspaper, Personal blog, Free newspaper, Political party, and Neutral platform easyvote.ch.

Treatment group 1

Treatment group 2

Two side-by-side diagrams, each representing a randomized ranking for a treatment group. Each diagram shows a vertical list of 10 items, numbered #1 to #10 on the left. The items are: Government (1), National newspaper, Free newspaper, Economic association, National television, Regional newspaper, Personal blog, Government (2), Political party, and Neutral platform easyvote.ch. The items are enclosed in dashed boxes, and the entire list is enclosed in a larger dashed box. The labels "Random (top 5)" and "Random (top 5)" are placed to the left of the top five items in each diagram.

Treatment group 3

Treatment group 4

Two side-by-side diagrams, each representing a randomized ranking for a treatment group. Each diagram shows a vertical list of 10 items, numbered #1 to #10 on the left. The items are: Government (1), Government (2), National newspaper, Economic association, National television, Regional newspaper, Personal blog, Free newspaper, Political party, and Neutral platform easyvote.ch. The items are enclosed in dashed boxes, and the entire list is enclosed in a larger dashed box. The labels "Random (least 8)" and "Random (least 8)" are placed to the left of the bottom eight items in each diagram.

FIGURE 1 Mock Google SERP with ranking assignment by group.

than 30 minutes to fill out the survey and respondents living in Italian-speaking regions were removed, resulting in 821 observations. The sample is demographically representative, with party closeness matching the political forces in Switzerland (see Table 1).¹ Table 1 displays the descriptive statistics as well as the structural consistency tests used to confirm that the experimental groups were homogenous (p -value > .05).²

Procedure

The between-subject experiment replicated a Google information-seeking task. First, respondents were instructed to type search queries describing the referendum-related information they were seeking into a mock Google search bar.^{3,4} Second, respondents were exposed to a mock Google SERP interface with a list of 10 predetermined Google search results. Each respondent experienced only one mock Google SERP interface. They were given the same search results (i.e., textual content), with the only variation being the order the results were presented, depending on their group assignment. Respondents were instructed to select as many search results as they felt were needed to adequately inform themselves and formulate an opinion regarding the referendum vote without any time restriction.⁵ It is worth noting that the mock search queries had no impact on the search results, which were kept constant between respondents to isolate the impact of ranking versus sources of information.

Figure 1 highlights the ranking allocation and the type of information sources for each control and treatment group. To begin with, the control group was the reference. The ten search results were randomly assigned with an individual randomization for every respondent in this group. This baseline not only allowed for valid comparison with treatment groups, but it was also necessary to measure the simultaneous effect of ranking and sources of information. For treatment groups 1 and 2, the top five results were randomly allocated, while the results in the sixth through tenth positions remained fixed—top 5 ranking. For treatment groups 3 and 4, the results in the first and second positions were fixed, leaving the other search results randomly varying—last 8 ranking.⁶

Introducing partial random ranking within every treatment group reinforced external validity. Indeed, Internet users face SERPs that are individually tailored. This means that the order of search results varies across Internet users because of content-based and collaborative algorithm filtering (Cho et al., 2020). This additional variation at the respondent level displayed a different mock SERP for every respondent, no matter their group.

In addition, the experiment replicated a layout that mimicked a real-world Google page (e.g., similar colors, a mock Google search bar, and a reproduction of Google news story headlines repeated from real-world observations) (see Figure 1). The ten predetermined search results were comprised as follows: two governmental information sources (admin.ch); four media information sources, including the online platforms of a quality national newspaper (*Le Temps* for the French-speakers; *NZZ* for the German-speakers), of a free newspaper (*20 Minuten* in both languages), of a regional newspaper (*La Liberté* for the French-speakers; *Der Bund* for the German-speakers), and of the national television

¹ Respondents had to answer “Which political party better matches your political opinions?” The sample’s closest political parties were 24.80% SVP, 16.27% SP, 12.99% FDP, 6.04% CVP, 6.04% Greens, 6.96% Green Liberals, 3.67% BDP, 12.11% other remaining parties, and 11.02% with no political party matching their political opinions.

² Variable voting choice was one exception to this. Treatment groups 2 and 4 differed significantly at the 0.05 level, but not at the 0.01 level. Still, the variable vote choice had no impact on information selection strategy in this experiment. See Online Appendix, Tables A1 and A10.

³ The exact wording was as follows: “The vote concerning the tax policy and AHV financing reform takes place in a few weeks. The campaign just started. So, you probably have only limited knowledge on the topic. We give you the opportunity to use a Google search engine to search for information and to form an opinion related to the vote. Type in the search bar what kind of information you want to obtain related to the vote.”

⁴ The Google experiment proved to be not only robust, but also externally valid. We verified what respondents typed in the mock Google search bar and analyzed Google trends during the real-world referendum. Respondents typed 2.68 (SD = 2.31) words per search query in the mock search bar; 90% of search queries were formed with 1 to 5 words maximum.

⁵ The exact wording was as follows: “Click on the sources you would like to read.”

⁶ Figure 1 pinpoints how the search results were ranked in every treatment groups.

TABLE 1 Descriptive Statistics and Structural Consistency Tests.

Variable	Operationalization	All	Control	1	2	3	4	p-value
N		821	154	174	162	163	168	
Sex (in %)	(0) male	50.86	51.30	48.28	48.15	55.90	50.90	0.629
	(1) female	49.14	48.70		51.85	44.10	49.10	
Age (in %)	(1) 18–34 years old	26.80	29.22	22.41	33.33	25.77	23.81	0.262
	(2) 35–54 years old	37.39	35.71	37.93	34.57	38.65	39.88	
	(3) more than 55 years	35.81	35.06	39.66	32.10	35.58	36.31	
Income (mean)	8-point scale from (0) below CHF 3'000 to (8) above CHF 15'000 gross monthly household income	3.22 (1.71)	3.09 (1.65)	3.11 (1.59)	3.33 (1.69)	3.51 (1.86)	3.10 (1.74)	0.165
Education (mean)	12-point scale from (1) no education to (12) university level	7.37 (2.93)	7.40 (2.97)	7.24 (2.92)	7.17 (2.89)	7.61 (2.85)	7.43 (3.06)	0.668
Political interest (mean)	4-point scale from (1) not at all interested to (4) very interested	2.91 (0.79)	2.92 (0.79)	2.87 (0.81)	2.83 (0.79)	3.01 (0.74)	2.92 (0.80)	0.282
Political knowledge (mean)	Additive index from (0) low political knowledge to (4) high political knowledge	2.44 (1.20)	2.35 (1.21)	2.50 (1.13)	2.30 (1.21)	2.64 (1.21)	2.38 (1.21)	0.064
Trust in government (mean)	10-point scale from (1) not trust at all to (10) fully trust the government	6.44 (1.81)	6.41 (1.93)	6.21 (1.94)	6.52 (1.64)	6.49 (1.80)	6.57 (1.74)	0.387
Party closeness (in %)	(1) not close to a party	55.35	55.33	58.38	58.12	49.69	55.09	0.408
	(2) pretty close to a party	37.64	40.00	34.10	35.62	40.49	38.32	
	(3) very close to a party	7.01	4.67	7.51	6.25	9.82	6.59	
Vote choice (mean)	4-point scale from (1) absolutely no to (4) absolutely yes	2.70 (0.80)	2.69 (0.75)	2.74 (0.75)	2.5 (0.89)	2.66 (0.84)	2.87 (0.74)	0.026
Internet as a source (mean)	(1) I never use the internet (5) I daily use the internet	2.94 (1.24)	2.93 (1.25)	2.84 (1.18)	2.93 (1.25)	3.01 (1.20)	2.98 (1.31)	0.732
Google as a source	(0) Google is not a source	80.88	77.92	85.06	82.10	82.21	76.79	0.288
	(1) Google is a source	19.12	22.08	14.94	17.90	17.79	23.21	
Operating system	(0) Computer	60.17	57.14	62.64	65.43	54.60	60.71	0.284
	(1) Smartphone (in %)	39.83	42.86	37.36	34.57	45.40	39.29	

Note: To verify structural consistency, we ran a Pearson chi-square test for independence for nominally scaled variables, and a one-way ANOVA test for independence for metrically scaled variable. Standard deviations are in parentheses. CHF: Swiss franc.

(rts.ch for the French-speakers; srf.ch for the German-speakers); information from the most important Swiss economic organization (economiesuisse.ch); a personal blog; information from the respondent's preferred party;⁷ and Easyvote, a neutral platform on which information about the referendum is presented in a simplified form for a wide audience (easyvote.ch).⁸

⁷The respondents were asked which party they were voting for. Then, the search result was adjusted specifically for each respondent to fit their preferred political party.

⁸Google snippets are visual suggestions consisting only of approximately 200 characters, a web link, and textual cues about the content. Regarding this experiment, it is necessary to consider that respondents might have failed to interpret textual cues when determining what type of information source they are selecting. Still, citizens interact daily with Google snippets as 90% of individuals use a search engine to navigate the Internet (Lee et al., 2016; Scharrow & Vogelgesang, 2011). With that in mind, it can be assumed that internal validity is strong with respect to textual cues. Further, replicating Google snippets reinforced the external validity of the study.

Measures

Following Jang (2014) and Winter and Krämer (2012), a nominally scaled absolute selection rate was used for the binary logistic regression. The absolute selection rate was a binary variable, where search results obtained scores of 1 if they were selected and 0 if they were not. On average, respondents picked 2.7 information sources. Then, two variables of interest were incorporated. First, the search result's position on the Google experiment's rank-ordered list is a nominally scaled variable, which goes from 0 to 13. Each position in the rank-ordered list gets a nominal value, and there are three other possibilities as follows: being ranked in the top 5 or last 8, or being a sponsored result (i.e., Google ads).⁹ Categories were mutually exclusive. Second, the information source is also nominally scaled. It gathers the different types of political information sources in the mock SERP: government, national newspaper, regional newspaper, free newspaper, national television, economic association, and personal blog.

Finally, control variables such as sociodemographic characteristics, politically related attributes, and information-seeking habits of the respondents were also incorporated.¹⁰ Although individual-related attributes might alter information selection behavior, we refrained from analyzing the role of political-related and demographics attributes as moderator variables as the existing literature finds mixed evidence. On one hand, Slechten et al. (2021) and Trielli and Diakopoulos (2019) highlight that individual-level characteristics moderate selective exposure. On the other hand, Waller (2011) offers persuasive evidence that there are no differences in information-seeking behavior across contrasting population demographics. In line with this, a content analysis of the mock search queries revealed that individual-level characteristics had no influence on what respondents typed in the mock search bar (i.e., motivated or generic search queries).¹¹ Therefore, these variables are included as control rather than moderator variables.

Binary Logistic Regression

As previously mentioned, every respondent was exposed to the same search results with variations in ranking. The inclusion of partial random ranking in every treatment group introduced additional variation at the respondent level. This means that the experiment included variation not only at the group level, but also at the respondent level. To account for this two-level variation, it is suitable to opt for a multilevel logistic regression instead of a cross-table analysis with chi-square test for independence.¹²

To run this regression, the database was reshaped into long format, implying that every respondent is associated with ten decisions regarding an information source in the Google rank-ordered list. Thus, the database was formed of 821 observations multiplied by ten information sources ($N = 8,210$). The dependent variable is the absolute selection rate; that is, a binary variable where search results obtained scores of 1 if they were selected and 0 if they were not.

Given the treatment group design, the database was formed based on 8,210 observations (Level 1 units) nested in the following two clusters: respondents (Level 2 units) and treatment groups (Level 3 units). The clusters' homogeneity was measured with the model's intra-class correlation coefficient (ICC) without fixed effects. The results are 0.11 for Level 2 and 0.12 for Level 3. An ICC that is close to 0 for both clusters implies that variation mainly exists within clusters instead of between them.

⁹These possibilities are derived from the portion of random ranking within every treatment group.

¹⁰See Table 1.

¹¹Please contact the author for further information.

¹²The Pearson chi-square test confirms that the model correctly fits the data. There is no evidence to reject the hypothesis that the fitted model is adequate (p -value = 0.3691). See Table A1 in the online Appendix.

Given that the ICC coefficients are close to 0, it is possible to run a binary logistic regression instead of a multilevel logistic regression.¹³

RESULTS¹⁴

The binary logistic regression emphasizes the online information seeking behavior of citizens facing a SERP. The ranking and type of information source were regressed on the absolute selection rate of search results.

Figure 2 highlights the importance of ranking in information selection. It displays the average marginal effect (AMEs) of ranking with a 95% confidence interval. The dashed line represents the random ranking baseline category (i.e., control group). First, Figure 2 pinpoints a statistically significant difference in the selection of an information source with the extremity of the rank-ordered list in comparison to random ranking: on one side, the probability that an individual will select a search result that is ranked first is four times higher than with random ranking; on the other side, an individual has a lower probability (three times lower) of choosing a search result that is ranked tenth in comparison with a random ranking. Search results that are ranked higher or equal to fifth (top 5) are statistically selected more often than those below that rank. It can be assumed that the positive influence of a top 5 ranking is mostly driven by the first position. Further, the influence of ranking is stronger for Google

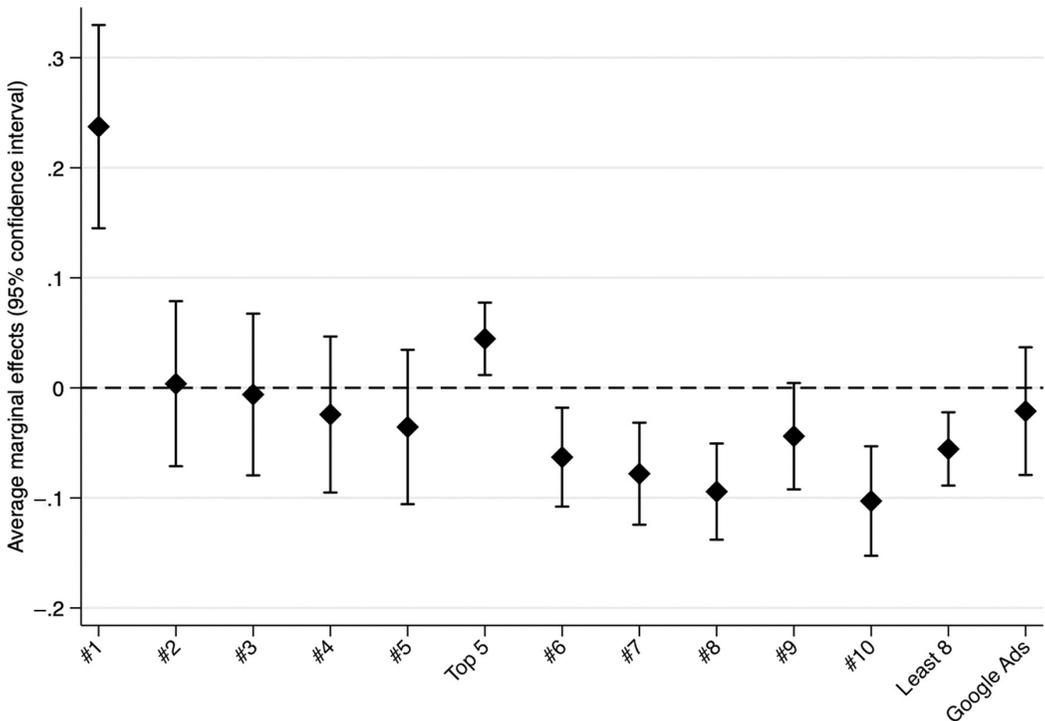


FIGURE 2 Political Information Selection on a SERP—Influence of Ranking.

Note: The control group (i.e., random ranking) is the baseline category.

¹³To verify the robustness of our findings, we also ran a multilevel logistic regression and obtained similar results. Please consult Table A4 in the online Appendix. For further details on multilevel logistic regression, see Sommet and Morselli (2017).

¹⁴The results for the binary logistic regressions are visually represented to ease interpretation (see Figure 2, 3 and 4). Please consult the online Appendix Tables A1, A2, A3, A5, and A6.

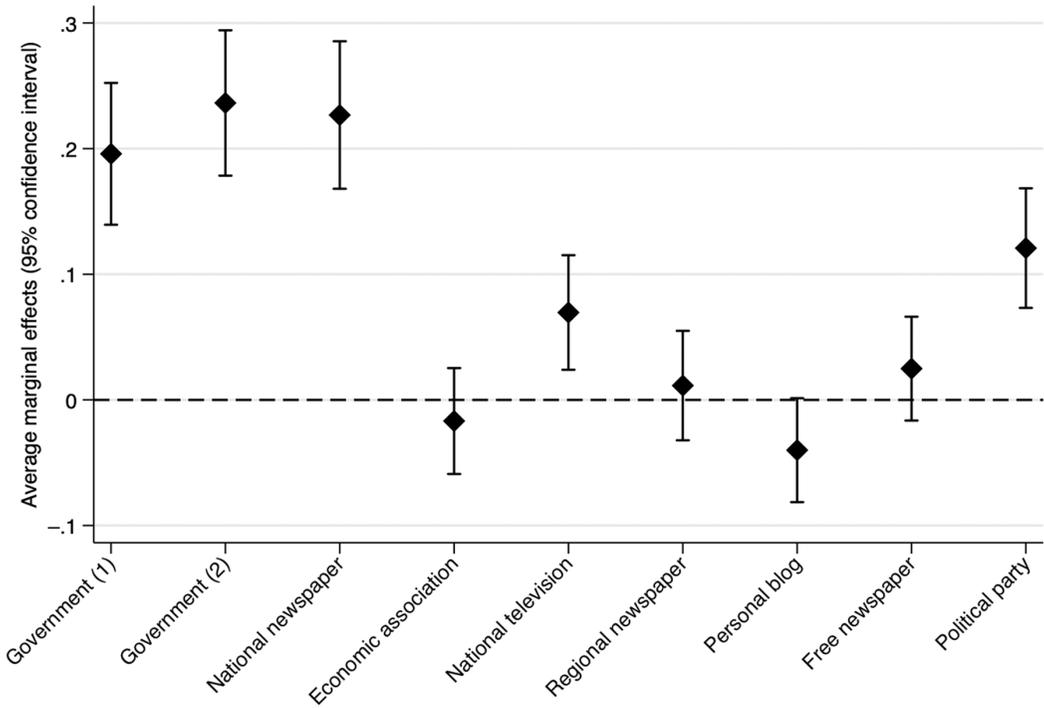


FIGURE 3 Political Information Selection on a SERP—Influence of Textual Cues.

Note: The selection of the easyvote.ch neutral platform is the baseline category.

results ranked below the fifth position. Indeed, for a search result, having a sixth through tenth ranking significantly reduces the probability of being selected. Subsequently, it is also worth noting that our model identified no differences in selection between a sponsored result (i.e., Google ads), no matter its topmost position, and a random ranking. In summary, H1 is accepted.

Figure 3 illustrates the importance of political information sources (i.e., textual content) in selection of search results. It displays the average marginal effects of textual content with a 95% confidence interval. The dashed line represents the baseline category; that is, the selection of the easyvote.ch neutral Web page. It is necessary to use this neutral platform as the baseline category to isolate the influence of party cues or like-minded information sources. First, the variation in selection of search results indicates that users exploited the textual cues from snippets to identify their desired source of information. Thus, the results pinpoint a sharp increase in the selection of governmental sources of information in comparison to the baseline category. This difference is also statistically significant with all other sources of information, except the national newspaper and preferred political party webpage. Hence, concerning the media, respondents tended to rely heavily on the national newspaper and national television (i.e., quality media). This is especially true for the national newspaper. A third source of information is also highly significant: one's preferred political party. In other words, respondents based their selection on cues that arose from either the government, a preferred political party, or quality media. To the contrary, respondents neglected the economic association, regional newspaper, free newspaper (i.e., tabloid), and personal blog as sources of information.

To examine the next hypotheses, it is necessary to measure the interaction effect of ranking with sources of information. To ease interpretation, both the variable ranking and textual content were re-operationalized. On one side, a new categorical variable for ranking with three categories was created: at random, top 5, and last 5. This new subdivision relied upon our preliminary results. On the other side, political sources of information were grouped into six categories. This builds on our

preliminary results and on Tate's (2010) classification of information sources on a SERP. First, the governmental Web pages are grouped into the first category. This matches Tate's (2010) "informational" category with Web pages supplying factual (i.e., neutral) information. Second, Tate (2010) gathers information sources that aim at influencing public opinion into one category termed "advocacy." Two political information sources from the mock SERP match this classification: political party and economic organization. However, considering the relevance of political party cues in a referendum context (Colombo & Kriesi, 2017; Dermont & Stadelmann-Steffen, 2019) and H3, it is more precise to separate these two political sources of information, rather than grouping them into an "advocacy" category. Third, Tate (2010) explains that users also encounter "news" Web pages, which present topic- or event-related information. To obtain a finer-grained measure, the analysis divided the "news" category into quality "news" Web pages (i.e., national newspaper, regional newspaper, and national television) and the tabloid "news" Web page (i.e., free newspaper). Finally, the personal blog Web page fits into the "personal" Web page category.

Figure 4 displays the average marginal effects of the ranking categories for the different information source categories with a 95% confidence interval. In other words, it measures the interaction effect of textual cues from snippets with the ranking in the ordered SERP. It measures the tension between ideal democracy (i.e., selection based on citizen's utility) and the influence of the ranking's algorithm. The dashed line represents the baseline category; that is, the interaction between random ranking and the selection of the easyvote.ch neutral Web page. To begin with, the logistic regression with interaction effects confirms the findings in Figure 3. Hence, respondents are mostly using textual cues to identify three political information sources: governmental, political party, and quality media.

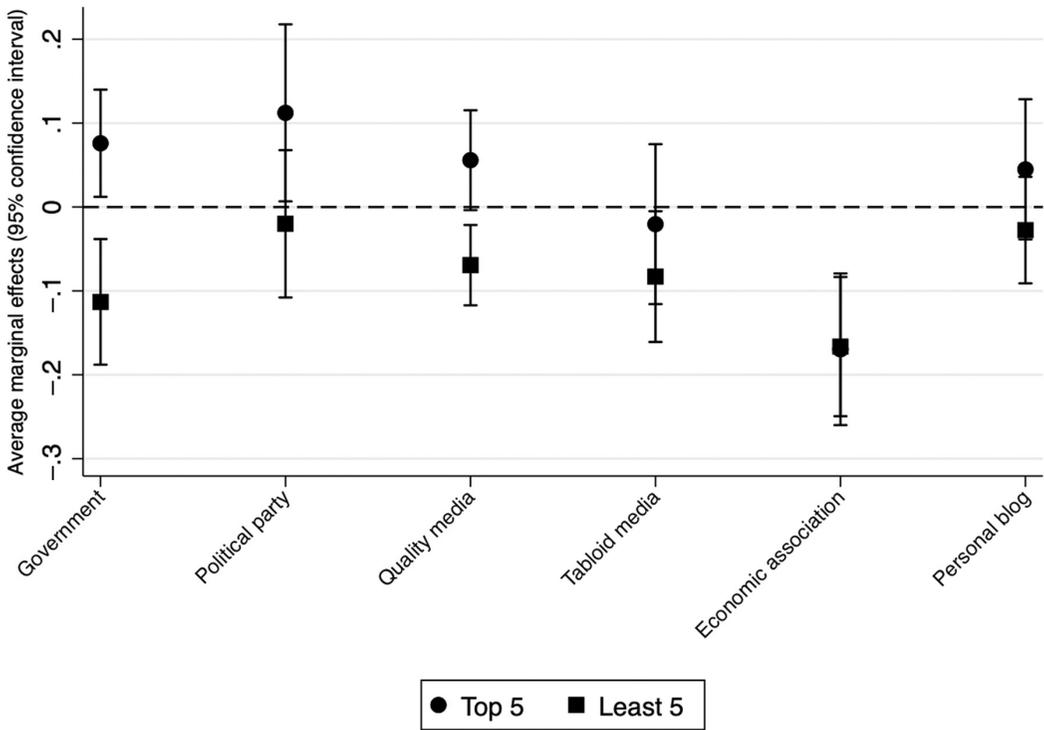


FIGURE 4 Political Information Selection on a SERP—Interaction Effect Between Ranking and Political Information Source.

Note: The interaction between random ranking and the easyvote.ch neutral platform is the baseline category.

To the contrary, the economic association and tabloid are mostly ignored.¹⁵ Additionally, a statistical difference in selection rate between the top 5, last 5, and random ranking exists for governmental and quality media Web pages. For example, the probability of selecting a governmental Web page is 65% higher with a top 5 ranking and 32% lower with a last 5 ranking in comparison to a random ranking. Consequently, H2 and H4 are rejected. In contrast, the selection of a preferred political party Web page as a source of information seems to be independent of ranking. The probability of selecting a political party Web page is 70% higher with a top 5 ranking. Nevertheless, this difference is statistically not significant with a last 5 ranking. Though a top 5 ranking increases the probability of selecting the Web page of one's preferred political party, respondents are still using textual cues to identify their preferred political party Web page, even if it is ranked below the fifth position. To sum up, H3 is accepted.

Finally, it is also worth mentioning that a slightly higher absolute selection rate was observed for respondents who have higher education and higher political interest, as well as for those who use the Internet, and more specifically Google, as a source of political information. To deepen the analysis, a distinction was made between computer and smartphone users, and between Google versus non-Google users, to account for different modes of political information consumption. As robustness checks, a distinction was also made between French-speaking versus German-speaking respondents because the survey experiment was bilingual, and a distinction was made between those voting in favor of or against the referendum policy because the structural consistency tests detected a slight difference between treatment groups 2 and 4. Nevertheless, the results with these four differentiations remained identical to the results already mentioned (see the online [Appendix](#), Tables A7, A8, A9, and A10). Two exceptions are worth noting. First, a regression with only smartphone users detected a strong positive influence of a first position, but no negative influence of a ranking below the fifth position. It can be hypothesized that the size of the screen reinforces the prevalence of the first position. Second, a first position had no significant influence on selection for respondents that regularly use Google to inform themselves about politics. One might postulate that Google users are either more accustomed to textual cues, or they are aware of the ranking algorithm. This calls for further studies.

DISCUSSION

The ever-growing importance of the Internet has affected the literature on political information selection. A broad body of literature has rejected fears related to the filter bubble hypothesis and has emphasized the seminal importance of ranking in online information selection on a SERP. However, few scholars have examined the tension between ideal information seeking in a participatory democracy (i.e., information selection based on citizen's utility) and the influence of ranking on political information selection.¹⁶ This analysis has shown that ranking, and to a lesser degree, the sources of information from snippets are important to the selection of political information on a SERP.

The results indeed demonstrate that ranking influences the information selection strategy. These findings are in line with the literature (Ghose et al., 2019; Kammerer & Gerjets, 2014; Pan et al., 2007; Trevisan et al., 2018; Unkel & Haas, 2017). The results also emphasize the tremendous importance of ranking extremity. That is, a first position strongly increases the selection rate, whereas a sixth through tenth position reduces the selection rate. These results seem to indicate cut-offs at the second and fifth positions. This is in line with Höchstötter and Lewandowski (2009) who identified that search results below the fold are rarely selected. In other words, (political) information selection stops where the screen ends. One might conclude that this prevalence of ranking is driven by a contemporary trust in search engines (Pan et al., 2007) and the satisficing principle (Krosnick & Alwin, 1987). That is,

¹⁵See the online Appendix, Table A5.

¹⁶A noteworthy exception is Slechten et al. (2021).

citizens aim for a satisfactory solution rather than an optimal one. Thus, they blindly trust that search engines provide them with their most personally relevant result at the top of the list.

Examining the simultaneous influence of political information sources with ranking, H3 (preferred political party) is accepted. On one hand, a top 5 ranking increases the probability that a citizen selects their preferred political party's Web page in comparison to a random ranking. On the other hand, citizens use textual cues from snippets to identify their preferred political party's cues even if it is ranked at the bottom of the SERP. As for the party cues, this finding matches with Colombo and Kriesi (2017) and Dermont and Stadelmann-Steffen (2019), who concluded that political party cues play a seminal role in a referendum context. In line with dual-process models of reasoning, citizens opt for their preferred political party's cue as a heuristic to guide their political information processing.

On the contrary, H2 (government) and H4 (quality media) are rejected. The selection of governmental and quality media Web pages is dependent on ranking. That is, citizens are less likely to select “informational” or quality “news” Web pages if they are not ranked in a top position. This conclusion not only conflicts with Kriesi (2005) who argues that the government is the most trustworthy political actor, but it also raises the question of the role of search engines' algorithms in the pre-selection and dissemination of political information in a participatory democracy. Hence, “informational” and quality “news” Web pages nurture citizens' systematic reasoning (i.e., argument-based information processing strategy) when facing a referendum. This confirms Slechten et al. (2021) who concluded that, on one hand, ranking is the most prominent factor to predict information selection, but on the other hand, users sometimes defy the algorithmic ranking to tailor their information exposure.

What are the implications from a democratic theory perspective? On one hand, one might argue that the role of the algorithm is not to choose, but rather to reflect mass leanings toward a few sources (Granka, 2013). That is, a “well-designed” algorithm provides citizens with the political information sources they “want” to obtain based on their previous searches in addition to other people's searches on the same topic—that is, collaborative and content-based filtering (Cho et al., 2020). In addition, many scholars have recently demonstrated that search engines provide a high diversity of political information, concluding that the algorithmic filter bubble has burst (Haim et al., 2018; Steiner et al., 2020; Unkel & Haim, 2019).

On the other hand, one might postulate that online political information seeking behavior and algorithmic blurriness is a potential threat for democracy given the lack of transparency in the algorithm pre-selection (Epstein et al., 2017). “Informational” and quality “news” Web pages are seminal to form an opinion with an argument-based strategy—an important element of Dahl's (1989) ideal democracy, where individuals choose information to reach informed and enlightened decisions that serve their best personal interest. Though these Web pages provide factual and neutral political arguments, this empirical study demonstrated that most citizens only consult them if they are ranked in a top position, that is, a top 5 ranking. That is, their selection is dependent of the algorithmic personalization. Alternatively, given that only 3% of searches are potentially related to political information (Waller, 2011), the question is whether the algorithm is sufficiently fed information-wise to deliver diverse political information sources. That is, Muddiman (2013) and Hong and Kim (2018) concluded that search engines provide a highly concentrated distribution of information.¹⁷

Taking Dahl's (1989) idea of the “ideal democracy” seriously, no information should be ranked over another. Citizens must have the opportunity to find sources that help them to reach informed decisions that correspond to their best personal interest.¹⁸ Thus, because we do not know exactly how the algorithm works, the fact that citizens tend to choose top-ranked sources is a potential threat to Dahl's (1989) ideal democracy. In line with Steiner et al. (2020) and Unkel and Haim (2019), this calls for higher algorithmic transparency to ensure that citizens benefit from the Internet high-choice and interactive environment.

¹⁷Of course, one could argue that not searching at all for political information would be a graver danger to democracy than algorithmic ranking.

¹⁸Likewise, Mansfield and Mutz (2009) have asserted that sociotropic models of opinion formation are information-based. Indeed, citizens must have the opportunity to find sources that help them reach informed decisions that serve the nation as a whole.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Though this study deepens the understanding of political information selection on a SERP, the experimental design is not without limitations. First, it would be necessary to also study what individuals type in the Google search bar to have an encompassing understanding of user-interaction with the Google information environment. This is not only in line with Slechten et al.'s (2021) claim that the selective exposure perspective should be adapted to algorithmically governed platforms, but it also aligns with Trielli and Diakopoulos' (2019) findings about search queries in an election context. Are web users opting for generic political search terms? Or are they already indicating their self-selection intentions to the algorithm? This is a research topic that would benefit from additional scholarly attention.

Second, this study highlights how ranking and information sources interact in the information selection strategy. Nevertheless, it neither considers content-based filtering (i.e., what people type in the search bar influences the personalized list) nor collaborative filtering (i.e., what others type in the search bar influence the personalized list) in algorithmic personalization. However, the non-personalization makes the experimental design more conservative. Even though respondents were exposed to a non-personalized list, they still selected the topmost entries.

Third, the study cannot fully assess whether the findings are sensitive to case selection (i.e., tax and pension reform), or whether they can be generalized to other policies. Are strong predispositions regarding the policy strengthening the influence of ranking? Are citizens tailoring their information selection strategy depending on whether the policy is complex or emotional? Furthermore, the findings might also be sensitive to the referendum context. Are citizens adapting their information selection strategy because they can directly decide on policies, in comparison with a context where it is only a political debate without a policy decision, or a policy that is decided by elected representatives? This calls for further studies with other policies and in other political contexts.

OPEN RESEARCH BADGES



This article has earned Open Data and Open Materials badges for making publicly available the digitally-shareable data necessary to reproduce the reported results. The data is available at https://github.com/ZumofenG/P5_SelectPoliticalInformationGoogle/tree/main/stats.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in GitHub repository ZumofenG at https://github.com/ZumofenG/P5_SelectPoliticalInformationGoogle/tree/main/stats.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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