A Work Project, presented as part of the requirements for the Award of a Masters Degree in

Economics from the Faculdade de Economia da Universidade Nova de Lisboa.

CONFIRMATION BIAS IN ACQUISITION OF INFORMATION BASED ON POLITICAL

AFFILIATION

MARTA VASCONCELOS BARRETO RESINA DA SILVA

33051

A Project carried out on the Master in Economics Program, under the supervision of:

Alexander Coutts

3 JANUARY 2020

ABSTRACT

This paper studies the impact of confirmation bias on the choice between biased sources of political information in a pre-election period. A sample of 204 Portuguese respondents was used, through a survey regarding their political identity and relating it to each one's choice of information sources, as a voter and as a single decision-maker. Significant differences in behaviour were found according to one's political identity. Evidence was found for some significant confirmation-seeking behaviour among right-wing participants, but some hypotheses concerning expressive voting and the effects of various factors on confirmation bias weren't confirmed.

Keywords: Election, Partisan Motivated Reasoning, Selective Exposure, Voter Behaviour

1. INTRODUCTION

The focus of this paper is confirmation bias regarding political information in a pre-election period in Portugal. People tend to look for information which supports their previous beliefs, and consequently reinforce these prior beliefs as truths. This is called confirmation-seeking behaviour. Confirmation bias is a cognitive bias which derives from this desire, translated into favouring information that confirms one's previously existing beliefs. If we imagine a world setting in which individuals are perfectly rational, people would optimally search for information that contradicts their beliefs, in order to learn more and understand the issue from every perspective, and only then would they form their convictions. Although not as common, this behaviour can be observed in certain situations and it is called contradiction-seeking behaviour. What happens when individuals are faced with many different points of view regarding politics? Do they choose to listen to the voices defending their own point of view? Do they choose to learn more about the opposition? What if instead of a large electorate there is only one decision-maker? Is this individual more inclined to a contradiction-seeking behaviour then? These are some of the questions addressed in this paper, along with an analysis of Portuguese voters in the political system. This paper provides the first study of confirmation bias in the context of Portuguese national elections and could have vast implications in terms of how the information is provided affects the outcomes of the elections. The answers to these questions may help understand Portuguese voters and consequently even lead to the creation of policies which promote an efficient gathering of information for individuals.

This study found significant evidence of confirmation bias in right-wing respondents and great differences in behaviour related to opposite political identities, leaving room for some measures for attitude motivation and a rethinking of the way debates and news sources present information to different types of voters. The conclusions presented in this paper can help media

and the government change the offer of the information in a way which benefits different agents, either individual voters or specific political parties.

This paper is organized as follows. First, some of the existing research that this work is based on will be presented and discussed, regarding confirmation bias and recent applications related to politics. Second, voters' search for information for the legislative elections of 2019 will be analysed, taking into account their position in the political spectrum. Third, the effect on confirmation bias of reducing the size of the electorate to a sole decision-maker will be studied, introducing the topic of expressive voting as a possible explanation for this behaviour. These issues will be addressed in the form of hypotheses, which will be tested using a sample of Portuguese individuals. Fourth, the results obtained will be discussed and finally the main conclusions will be presented.

2. LITERATURE REVIEW

The concept of confirmation bias, as a tendency to look for information which supports one's already existing beliefs, has been studied by science and psychology since it was first defined by Peter Wason in the 1960s.

> "Once beliefs are formed, the brain begins to look for and find confirmatory evidence in support
> of those beliefs, which adds an emotional boost of further confidence in the beliefs and thereby
> accelerates the process of reinforcing them, and round and round the process goes in a positive
> feedback loop of belief confirmation." (Shermer, 2011: 6)

Usually, when acquiring new information, confirmation bias and motivated reasoning - rapidly accepting information that confirms pre-existing beliefs and denying that which doesn't - work together to form a critical analysis mechanism which can lead to severe failures in learning. Falk and Zimmermann (2017) found that this unwillingness to embrace new and challenging information is mostly motivated by internal rather than social influences.

One reason for this information and belief bias is cognitive dissonance, the desire to minimize pain or discomfort and avoid disharmony (Festinger, 1957). In general people want

to feel that they are right, therefore they tend to ignore contradictory information. Still, Charness, Oprea, and Yuksel (2019) showed that serious mistakes are prevalent even in environments in which people have no attachment to their priors at all. Although it is important to understand the basis for these cognitive biases, the psychology behind it is not the focus of this paper. Rather, the aim of this study is to show that confirmation bias exists and test its application in the context of national elections in Portugal. As Ziemke (1980) stated in his study "Selective Exposure in a Presidential Campaign Contingent on Certainty and Salience": "The primary issue is not whether such a preference always occurs, but under what conditions selective exposure occurs". This work will follow his lead.

This paper will follow the definitions of Charness, Oprea, and Yuksel (2019) for a confirmation seeking decision maker: one who consistently chooses the information structure biased towards his prior, and a contradiction-seeking decision maker: one who chooses the information structure biased against his prior.

Many experiments have been done to study this concept and apply it to various fields. Psychologists such as Mark Snyder and William B. Swann (Snyder and Swann, 1978), John Darley and Paget Gross (Darley and Gross, 1983), Bonnie Sherman and Ziva Kunda (Kunda and Sherman-Williams, 1993) led several experiments to understand this issue in a more formal way in the psychological domain, noting that many participants ignored information which went against their priors. These early studies allowed the concept to be more clearly understood and were the starting point for other applications.

Focusing on politics, Downs (1957) first noticed the irrationality of acquiring political information for purposes of voting, since "the probability that any one citizen's vote will be decisive is very small". This fact has important implications for further studies, because it shows that in a large electorate merely the cost of looking for information outweighs the little incentive to be well informed before voting. Caplan (2001) explains irrationality as a response to non-

existing repercussions of error, also explaining how the optimality of being irrational comes from a comparison of private costs and private benefits, applied to political and religious beliefs.

Lazarsfeld, Berelson, and Gaudet (1944) studied the political role of personal influence among the communication channels in a presidential election period in the United States of America and concluded that conversations are more significant in shaping people's opinions than formal media, particularly in less interested people or the ones who hadn't made a decision yet. Later, the study before a presidential election was further developed accounting for the role of the internet, which concluded that this new agent facilitates and magnifies the effects of confirmation bias for individuals who favour the political party more likely to succeed and who used online news infrequently (Iyengar and Hahn, 2009; Knobloch-Westerwick and Kleinman, 2012; Pearson and Knobloch-Westerwick, 2019).

Due to a desire to preserve loyalty and consistency with a preferred party and maximize differences with the out-party, partisan motivated reasoning often leads people to pay special attention to being consistent with their partisan identity. This paper will focus on a particular issue to study the influence of partisan motivated reasoning in the policy domain, as for example Bolsen, Druckman, and Cook (2014) have done for the case of energy policy. In addition, Iyengar, Sood, and Lelkes (2012) studied political polarization in the American population and found that partisans increasingly dislike their opponents and campaigns support and reinforce voters' stereotypical beliefs about supporters and opponents. This result will used in this paper to find out if an exposure to the opponents' success affects partisans' views, particularly if a campaign on the success of the opposition impulses a negative reaction from respondents.

Another concept studied in this paper is expressive voting, "when a person prefers one alternative, say A, to be the election outcome, but at the same time prefers to express support for the other alternative, say B." (Carter and Guerette, 1992). Former research has shown that individuals can vote instrumentally or expressively and these have different implications in

political outcomes (Brennan and Buchanan, 1984; Carter and Guerette, 1992; Fischer, 1996; Brennan and Hamlin, 1998; Hamlin and Jennings, 2011).

Robbett and Matthews (2017) found strong evidence of expressive voting by varying the size of the electorate and showed that "partisan bias is not an artefact of unincentivized questionnaires, but rather an important driver of voting behavior". This paper will follow their design in the sense that it looks for evidence of expressive voting by presenting individuals with a decision that they will face alone or as a member of a large electorate. Another important conclusion that this paper unravels is that when voters have access to useful information the partisan gap decreases, although they also observe a (near) elimination of partisan gaps when information is free, which will be the case in this paper.

An effective way to encourage the formation of accurate beliefs, as shown by Charness et al. (2019), would be a policy designed to expose people to information that they would not voluntarily seek out themselves, since people are capable of making effective use of optimal information sources even when they are unable to select optimal sources in the first place.

This paper relies partly on methods such as the ones used by Freedman and Sears (1967) or Iyengar et al. (2008), providing subjects with information and tracking their choices, but also on self-reports (Ziemke, 1980; Chaffee and Miyo, 1983; Chaffee, Saphir, Graf, Sandvig, and Hahn, 2001; Stroud, 2008).

3. METHODOLOGY

For the purpose of this study, a survey was distributed online using the Qualtrics platform. Refer to appendix 1 for the full version of the survey.

Even though the democracy in Portugal is not characterized by extremes, meaning extremist right- or left-wing ideologies do not have much power in the political system, unlike other countries (for instance the United Stated of America, where most previous studies were based), there are clear and fundamental differences in the most important issues when running

a country for left- and right-wing parties. For instance, when it comes to government intervention, the fiscal system, government priorities, social policies, strategic companies' ownership, investment strategies or public services provision, left- and right-wing parties offer very different and conflicting views. Therefore, the division of voters between left and right within the political spectrum allows for a solid insight to the respondents' beliefs and ideals. To this end, respondents are classified as left or right based on their self-reported answer in the first part of the survey. After this initial classification, participants were asked which information sources they gave relevance to before the elections. This part of the survey included several multiple choice questions divided into debates, interviews, antenna times and electoral programmes – the main sources of information from each electoral party. Respondents then selected which ones – from which parties – they watched, read or listened to, enabling a categorization of each individual in terms of confirmation-seeking or contradiction-seeking, according to their choices and their previously established identity. The ones who chose only sources of information from their alignment's political parties are classified as confirmation-seeking, while the ones who do the opposite are contradiction-seeking. For this purpose, only the six parties with seats in the parliament before the election were considered, since these represent the majority of votes and their ideals and policies are the base point for the newer, smaller and more ideological extreme parties.

In a first stage, this study aims to prove a significance of confirmation-seeking behaviour by testing whether different partisans accessed different information pre-election.

Hypothesis 1: People suffer from a confirmation bias when choosing between biased sources of information in a pre-election period.

To study heterogeneous effects more in depth, two more hypotheses will be tested, to investigate whether the effects are different for (a) more committed partisans and (b) the importance given to politics. People who are highly committed to their identity will be more

8

likely to listen only to the corresponding political parties, agreeing with their strong convictions, while the ones who give politics a higher importance are more likely to make an effort to be as informed as possible due to their interest on the subject than people who attribute it little or no importance. Refer to appendix 7.2 for two additional hypotheses on heterogeneous effects.

Hypothesis 1(a): Individuals who claim a higher intensity in their commitment to their political identity will be more likely to suffer from confirmation bias.

Hypothesis 1(b): People who attribute more importance to political issues are less likely to suffer from confirmation bias.

In a second step, the survey focuses on a bathroom law in schools issued recently by the Portuguese government to further analyse respondents' reactions to different sources of biased information. Respondents are presented with a new dispatch which foresees the use of bathrooms and locker rooms in schools by transgender children according to their wishes and asked their opinion on the issue – if they strongly or partly support unisex or biological gender separated bathrooms and locker rooms. Right-wing respondents are expected to prefer bathrooms separated by biological gender, since they are guided by more traditional values, while left-wing partisans will generally defend a choice for transgender individuals.

From here, they are put in a situation where they are the only decision-maker and get to choose between two pieces of information, in favour and against the law. This step attempts to see the effect of going from one voter to a decision maker - increasing their decision-making power - on confirmation bias. An individual who is a sole decision-maker should choose what he believes is best for the society, therefore he should want to learn more about the subject and not stick to the arguments already embedded in his beliefs. Participants are shown the title and source of each article, which implicitly provide their position on the issue, so when choosing one of these two articles respondents are showing (or not) evidence of confirmation bias and expressive voting (if confirmation bias decreases when they are the sole decision-maker).

Hypothesis 2: Increasing the decision-making power decreases confirmation bias.

Each respondent will also be given a choice to read the full article or skip half of it, which is a measure for the engagement and openness to the position they are learning about, and after that they will be asked again their position on the issue presented. This step will show that people can be tolerant and understand different points of view if they are shown the right information, when they learn about the opposite perspective and are able to change their mind.

Hypothesis 3: People who choose to read more of the article contrary to their belief are more likely to change their position on the issue.

Finally, participants will be asked to report what they believe most people answered and to state again their opinion, knowing this time it will be shared in the study.

People usually vote expressively when they believe most voters will vote against their position. This way, they know their choice will not be verified but still make sure their opinion is accounted for. When an individual believes most respondents are against his own opinion, he will be more likely to vote expressively to make sure his voice has a representation. People want their position to be heard and if they believe not many of the other respondents have the same opinion they will be more likely to turn to an extreme position, even if they don't fully defend it. This belief could be a significant driver of expressive voting.

Hypothesis 4: People tend to believe most people have an opinion contrary to their own.

Furthermore, when asked for an opinion while being aware that it will be shared, respondents are expected to present higher expressive voting to show their support for a particular position, relative to the answer they gave when asked what the most "correct" position would be.

Hypothesis 5: Shared responses increase probability of expressive voting.

In addition to these questions, half the respondents were randomly presented a picture reminding of the success of a right- or left-wing party (contrary to their own position) in the elections before being presented these decisions on the new law. This intends to study if being confronted with the opponents' success influences respondents' choices.

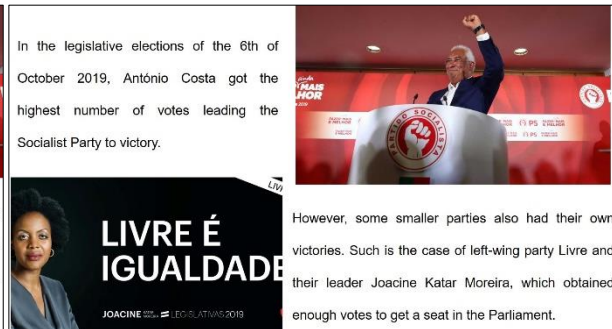**Fig. 1** – screen displayed to left-wing respondents   **Fig. 2** – screen displayed to right-wing respondents

The effects of these images may be evident when respondents express their opinion right after being shown the figures. Since they are reminded of the significance of the opposition, they may be more inclined to express a more extreme view in line with their identity to try and match the other's success.

Hypothesis 6: Respondents who are shown a picture addressing the success of their opponents are more likely to express an extreme view in favour of their political identity.

All these relations will be analysed through Stata using various regressions, presented later in this paper, for both right- and left-wing partisans.

4. RESULTS

The survey was distributed online through the Qualtrics platform to 204 Portuguese respondents. Data was gathered from the 18th of October until the 19th of November 2019, immediately after the legislative elections.

Gender	%	Count		Age	%	Count
Male	26.47%	54		-18	3.92%	8
Female	73.53%	150		19-30	65.69%	134
Total	100%	204		31-40	5.39%	11
				41-50	6.37%	13
Identity	%	Count		51-60	17.16%	35
Left	37.75%	77		+60	1.47%	3
Right	62.25%	127		Total	100%	204
Total	100%	204				

Fig. 3 – sample summary statistics

Testing the hypotheses presented before, using Stata, provided the following results:

Hypothesis 1: People suffer from a confirmation bias when choosing between biased sources of information in a pre-election period.

Table 1 – Hypothesis 1 regressions output

Linear regression							N = 204
sources_left	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.059	0.045	1.32	0.189	-0.029	0.147	
Constant	0.071	0.023	3.10	0.002	0.026	0.116	***

*** p<0.01, ** p<0.05, * p<0.1

Linear regression							N = 204
sources_right	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
right	0.165	0.033	4.99	0.000	0.100	0.231	***
Constant	0.000	.	.	.	.	.	

*** p<0.01, ** p<0.05, * p<0.1

The dependent variables "sources_left" and "sources_right" are dummy variables which take the value 1 if the respondent took information exclusively from left- or right-wing sources, while the independent dummy variables "left" and "right" correspond to 1 if the respondent identifies with the left- or the right-wing respectively. The sources are chosen by the respondent among several debates, interviews, antenna times and electoral programmes from each party, after they've defined themselves as being "left" or "right". Although both regressions show an increase in the probability of choosing sources according to the respondent's political identity due to that same identity, this increase is only statistically significant for right-wing respondents

(p-value = 0.000), making them 16.5% more likely than left-wing partisans to choose biased information sources towards the "right" ideologies.

Hypothesis 1(a): Individuals who claim a higher intensity in their commitment to their political identity will be more likely to suffer from confirmation bias.

Table 2 – Hypothesis 1(a) regressions output

Linear regression							N = 204
sources_left	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.093	0.055	1.68	0.095	-0.016	0.202	*
high_commitleft	-0.118	0.067	-1.76	0.081	-0.251	0.014	*
Constant	0.071	0.023	3.09	0.002	0.026	0.116	***
*** p<0.01, ** p<0.05, * p<0.1							
Linear regression							**N = 204**
sources_right	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
right	0.155	0.040	3.89	0.000	0.076	0.233	***
high_commitright	0.031	0.072	0.44	0.663	-0.110	0.173	
Constant	0.000	.	.	.	.	.	
*** p<0.01, ** p<0.05, * p<0.1							

Regarding commitment to a political identity, the coefficient for a higher intensity in the respondents' affiliation was not statistically significant in determining the probability of choosing sources exclusively from their side at a 10% significance level for right-wing respondents. There is however an interesting result for left-wing respondents, as there is evidence that less committed left leaning respondents appear to exhibit more confirming behaviour than more committed ones (p-value = 0.081). This decrease in probability of choosing biased sources when commitment increases takes the value of approximately 11.8%.

Hypothesis 1(b): People who attribute more importance to political issues are less likely to suffer from confirmation bias.

Table 3 – Hypothesis 1(b) regressions output

Linear regression							N = 204
sources_left	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.124	0.067	1.87	0.064	-0.007	0.256	*
himport_left	-0.095	0.092	-1.03	0.303	-0.277	0.087	
hhimport_left	-0.195	0.063	-3.12	0.002	-0.318	-0.072	***
Constant	0.071	0.023	3.08	0.002	0.026	0.116	***

*** p<0.01, ** p<0.05, * p<0.1

Linear regression							N = 204
sources_right	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
right	0.224	0.051	4.35	0.000	0.122	0.325	***
himport_right	-0.108	0.071	-1.51	0.133	-0.248	0.033	
hhimport_right	-0.165	0.077	-2.14	0.034	-0.317	-0.013	**
Constant	0.000	.	.	.	.	.	

*** p<0.01, ** p<0.05, * p<0.1

Two dummy variables were created in this hypothesis: "himport" when the respondent attributes "big importance" to political issues and "hhimport" when they are of "huge importance". These two variables represent respondents who are highly concerned with politics, relative to the ones who report little or no importance of these issues. In this case, only the coefficients for the highest importance were statistically significant, in both regressions. Since they are negative (-19.5% for left-wing partisans and -16.5% for right-wing partisans) confirmation bias indeed decreases when respondents give higher importance to political issues, relative to when they attribute low importance (base case). In addition, it can also be concluded that left-wing partisans are able to reduce the likelihood of this biased choice of sources by more than right-wing partisans because the coefficient of this reduction is negatively higher.

Hypothesis 2: Increasing the decision-making power decreases confirmation bias.

Table 4 – Hypothesis 2 regression output

Linear regression							N = 204
article_favour	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.259	0.083	3.13	0.002	0.096	0.422	***
in_favour	0.051	0.108	0.47	0.639	-0.163	0.265	
left_in_favour	-0.154	0.145	-1.06	0.289	-0.439	0.131	
Constant	0.564	0.050	11.33	0.000	0.466	0.663	***

*** p<0.01, ** p<0.05, * p<0.1

In this section of the survey, participants are faced with a new dispatch issued by the Portuguese government concerning the use of bathrooms and locker rooms by transsexual children in schools, an issue bringing conflicts between parties and their supporters.

It was expected that left-wing partisans would in general take a more favourable position toward this law, meaning in favour of unisex bathrooms and locker rooms, than right-wing partisans, which generally would be expected to be against it, meaning in favour of bathrooms and locker rooms separated by biological gender.

Table 5 – Hypothesis 2 auxiliary regressions output

Linear regression							N = 204
in_favour	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.354	0.064	5.53	0.000	0.228	0.480	***
Constant	0.205	0.039	5.21	0.000	0.127	0.282	***
*** p<0.01, ** p<0.05, * p<0.1							
Linear regression							N = 204
against	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
right	0.341	0.068	4.99	0.000	0.206	0.476	***
Constant	0.273	0.054	5.05	0.000	0.166	0.379	***
*** p<0.01, ** p<0.05, * p<0.1							

These relations were confirmed in the auxiliary regressions above. Since the coefficient for the independent variable "left" is positive and statistically significant (p-value = 0.000), left-wing respondents are approximately 35.4% more likely to be in favour of the law than right-wing respondents. The coefficient for "right" is positive and statistically significant too, making right-wing respondents approximately 34.1% more likely to be against the law than left-wing.

The independent variable "in_favour" represent the respondent's position when first faced with the new law, taking the value 1 for the choices "1 - Strongly support unisex bathrooms and locker rooms" and "2 - Partly support unisex bathrooms and locker rooms", and 0 otherwise.

The dependent variable "article_favour" represents the choice between the two articles presented, in favour or against the law. The respondent is only shown the title and source of each one, which implicitly indicate their position regarding the issue. The "article_favour"

dummy variable takes the value 1 if the option chosen was ""Dispelling Six Myths About Transgender Identity", from Teaching Tolerance Magazine", and the value 0 if the choice was ""My high school's transgender bathroom policies violate the privacy of the rest of us", from USA Today Magazine".

Since neither "in_favour" nor "left_in_favour" were statistically significant in explaining a change in the probability that "article_favour" is equal to one, no conclusions can be drawn on the effect that being in favour of the law – and additionally being "left" – has in choosing the article which defends that same position.

However, a positive significant coefficient for left-wing respondents resulted from the same regression, which means that the probability of choosing the article in favour of the law increases by approximately 25.9% when comparing with right-wing respondents. If it is true that "left" respondents are generally in favour of the law, then this can be seen as evidence for confirmation-seeking behaviour. Nevertheless, this hypothesis couldn't be confirmed since there is evidence of confirmation bias at an even higher level than in a one voter situation, where an increase in the probability of choosing a source which agrees with the initial position was not significant (refer to hypothesis 1).

Hypothesis 3: People who choose to read more of the article contrary to their belief are more likely to change their position on the issue.

Table 6 – Hypothesis 3 regressions output

Linear regression							N = 204
change_position	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
read_more_article _against_belief	0.139	0.052	2.70	0.007	0.038	0.241	***
Constant	0.006	0.006	1.00	0.319	-0.006	0.019	
*** p<0.01, ** p<0.05, * p<0.1							

Linear regression							N = 204
change_position	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
read_more_article _favour_belief	-0.037	0.029	-1.27	0.204	-0.094	0.020	
Constant	0.051	0.017	3.09	0.002	0.019	0.084	***
*** p<0.01, ** p<0.05, * p<0.1							

In order to test this hypothesis, a dummy variable was created which takes the value 1 when the respondent chooses to read more of the article contrary to their initial belief and 0 otherwise. In this regression, a relation is found between this action and a report in change of the participant's mindset. Choosing to read the entire article increases the probability of actually changing one's beliefs by approximately 13,9%, proven significant by a low p-value. This means that people who are more engaged in what they're reading tend to have a more open mind and are able to appreciate the objectiveness of the opposition's point of view, relative to the ones who choose to skip the second half of the article.

However, respondents who choose to read more of the article which confirmed their belief did not significantly alter the probability of changing their position, as was expected.

Hypothesis 4: People tend to believe most people have an opinion contrary to their own.

Table 7 – Hypothesis 4 regressions output

Linear regression							N = 204
majority_against	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
in_favour	0.032	0.074	0.43	0.667	-0.114	0.178	
Constant	0.533	0.043	12.36	0.000	0.448	0.618	***

*** p<0.01, ** p<0.05, * p<0.1

Linear regression							N = 204
majority_in_favour	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
against	0.086	0.064	1.34	0.181	-0.041	0.213	
Constant	0.257	0.043	6.00	0.000	0.173	0.342	***

*** p<0.01, ** p<0.05, * p<0.1

The dependent variables "majority_against" and "majority_in_favour" are dummy variables which represent whether the respondent believes most participants of the survey are against or in favour of the law. Since coefficients are not statistically significant, at a 10% significance level, there is no evidence of a higher probability of voting on an opposite position due to beliefs on the majority's convictions.

Hypothesis 5: Shared responses increase probability of expressive voting.

Table 8 – Hypothesis 5 regressions output

Linear regression							N = 204
best_in_favour	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
in_favour_change	-0.429	0.035	-12.28	0.000	-0.497	-0.360	***
Constant	0.429	0.035	12.28	0.000	0.360	0.497	***

*** p<0.01, ** p<0.05, * p<0.1

Linear regression							N = 204
best_against	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
against_change	-0.299	0.138	-2.17	0.031	-0.570	-0.027	**
Constant	0.442	0.036	12.42	0.000	0.372	0.512	***

*** p<0.01, ** p<0.05, * p<0.1

For respondents who changed their opinion after reading the article, when they were still assured their answer would be anonymous, this hypothesis intends to test the effect of their initial position on their answer when they know it will be shared. In sum, how much does their expressive initial opinion influence the shared opinion they will defend. Both for participants who were initially in favour of the law and then changed their mind, and for respondents who were first against it and then turned around to defend it, corresponding coefficients are negative and statistically significant. Therefore, for these two regressions the conclusion is the same: respondents who changed their mind after reading an article defending the position against their initial reaction are less likely to publicly defend their initial position. This decrease in probability of defending initial opinions is approximately 42,9% for respondents who were initially in favour and 29,9% for those who were initially against.

From these results, the study concludes that people are able to absorb new information and incorporate it to their own thought to the point of defending an opposite position to where they stood at first.

Hypothesis 6: Respondents who are shown a picture addressing the success of their opponents are more likely to express an extreme view in favour of their political identity.

Table 9 – Hypothesis 6 regressions output

Linear regression							N = 204
extreme_in_favour	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.124	0.056	2.22	0.027	0.014	0.235	**
group1	0.032	0.051	0.64	0.525	-0.068	0.132	
Constant	0.094	0.034	2.77	0.006	0.027	0.161	***

*** p<0.01, ** p<0.05, * p<0.1

Linear regression							N = 204
extreme_against	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
right	0.163	0.058	2.83	0.005	0.050	0.277	***
group1	0.030	0.060	0.50	0.621	-0.089	0.148	
Constant	0.129	0.045	2.84	0.005	0.039	0.219	***

*** p<0.01, ** p<0.05, * p<0.1

The regressions above attempt to explain increases in the probability of taking an extreme position according to one's political identity and the effects of being presented with an image depicting the opponent's success right before expressing an opinion on the issue. Dependent variables "extreme_in_favour" and "extreme_against" represent the more extreme views when respondents were first asked their opinion: "1 - Strongly support unisex bathrooms and locker rooms" or "5 - Strongly support bathrooms and locker rooms separated by biological gender" (1 to 5 multiple answer). The predicted reactions of left- and right-wing partisans towards the law were verified, as positive coefficients for being "left" and "right" are statistically significant in increasing the probability of taking an extreme position according to each political identity. However, due to high p-values, there is no evidence that being a part of group 1 – respondents who were shown the pictures – has a significant impact in increasing the probability of taking an extreme position, relative to those who weren't shown the image.

4.1. DISCUSSION OF THE RESULTS

A significant confirmation bias was found for right-wing respondents, in the choice of biased sources of political information in a pre-election period. However, it is worth noting that this result could also be due to various reasons instead of confirmation bias, as people may have accessed them for other purposes other than information. Besides, these variables do not

account for the respondent's views before consulting these sources of information. In the case that these materials had the power to change one's opinions, this change is not accounted for, and they are classified only based on their position now. So, if for instance a "left" person became "right" from consulting these information sources they will be classified only as "right" from the beginning of the survey, providing evidence for confirmation bias when it is actually the opposite situation.

Nevertheless, attributing higher importance to political issues decreases confirmation bias especially for left-wing respondents, as would be expected, since greater interest impulses a need to know more about each subject from all points of view, leading to a larger contradiction-seeking influence.

Some evidence was found for the idea that deciding alone for the rest of the society even increases confirmation bias, unlike what would be expected from expressive voting thinking. According to expressive voting logic, respondents would be more likely to suffer from confirmation bias in a situation where their decision-making power was lower. On the contrary, if the control is concentrated in one individual, then the desire to vote expressively should be reduced, confirmation bias would decrease and contradiction-seeking behaviour would arise in order to make the best decision for the society using as much information as possible. This was not the case in this study, which could be a reflection of the specific sample used, a result from a difference in attractiveness of the articles - which led respondents to choose an article even if the reasoning behind their choice wasn't agreeing with it in the first place -, or ultimately represent the true rationale for Portuguese individuals.

From this study it was also possible to infer that if people are engaged and interested in the information they're receiving they are able to absorb it and modify their opinions. People can be open-minded and show greater tolerance if the right information is shown to them and they choose to listen to it. As shown by previous studies, the theory that when respondents have

access to useful information the partisan gap decreases applies to Portuguese individuals, as they are more likely to agree with the opposite position. These respondents, who changed their mind after reading an article defending the position against their initial one, are significantly less likely to publicly defend their initial position even when they know it will be shared. This proves that people are capable of making effective use of optimal information sources, in accordance with previous studies.

Nevertheless, the results of this study also failed to confirm some hypotheses presented initially. This is the case of the hypothesis that people believe most people have an opinion contrary to their own. The latter intended to prove that believing most people defend the opposite position to one's point of view affects expressive voting, by increasing the need to voice one's opinion contrasting with a common thought. However, since no significant relation was found between respondents' opinions and what they believe others defend, this theory could not be proven.

This paper was also unable to confirm that higher intensity in political commitment increases confirmation bias. In this sample, confirmation bias decreased for more committed left-wing respondents regarding their political identity, against what was expected. This may have happened because people who are more connected to a specific identity want to know what they're up against to defend themselves better, so in this case they would get information from the opposition. Another reason for this result could be the fact that they responded to the survey after the elections had taken place and the outcome may have led respondents to overestimate the intensity of their commitment due to pride or outrage over the outcome.

Lastly, the hypothesis that respondents who are shown a picture addressing the success of their opponents will be more likely to express an extreme view in favour of their political identity than those who weren't show that image failed to be confirmed by a lack of significance in this sample.

Many reasons could have led to these results. The first part of the survey that this paper is based on relies exclusively on self-report methods, assuming respondents are always truthful and have knowledge about their identity regarding politics. Since all the data was gathered after the election respondents were asked about, people could still be overly enthusiastic or resenting the outcome, which could have led to biased answers.

Most studies which have previously been done dealing with these issues come from the United States of America, a country where the political spectrum is much more extreme and clearly divided. In Portugal, on the other hand, there is very little representation of extreme views and people tend to not have such a clearly defined idea of political identity. For this reason, results from previous studies have to be carefully analysed and some of them cannot be promptly generalized for Portuguese respondents, as they do not apply at least in the same way. What this study did conclude is that Portuguese people, especially those who identify as "left" are more open-minded and tend to suffer less from confirmation-seeking behaviour, which led to some difference in the results.

Another important limitation in this particular paper which could have led to these differences in results concerns the sample obtained as it may not be representative of the Portuguese population. Most respondents claimed to identify with the right wing (approximately 62% of total respondents) and belonged to the age group from 19 to 30 years old (approximately 66% of total respondents). Given that left-wing parties obtained more votes than the right in the election, and that Portugal notes an increasingly ageing population, the sample obtained with this survey does not represent the entire population accurately.

5. CONCLUSION

Although some results from past research did not apply to this sample, there is evidence of confirmation-seeking behaviour by Portuguese people in politics, particularly when looking at right-wing respondents. Significant differences were found between groups of respondents

from the left and right, indicating greater tolerance and openness from the left-wing respondents than from the right, the latter generally presenting greater confirmation bias. Surprisingly, confirmation-seeking behaviour is enhanced when the respondent turns into the only decision-maker. In the case that this is not representative of the population, future research should focus on this matter using different approaches. These results may be helpful in understanding voters' behaviour, elections results and ways to promote a balanced information supply to individuals.

This work should be continued as politics are a fundamental part of society and it is essential that voters have full information to make the best choices. In an era which relies on the internet more than ever consumers have an advantage in reaching information easily but are also confronted with an excess of information and biased sources which make it more difficult.

6. REFERENCES

Bolsen, Toby, James N. Druckman, and Fay Lomax Cook. 2014. "The Influence of Partisan Motivated Reasoning on Public Opinion." *Political Behavior,* 36(2):235–62.

Brennan, G., and Alan Hamlin. 1998. "Expressive voting and electoral equilibrium". *Public Choice*, 95(1/2):149-175.

Brennan, G., and James Buchanan. 1984. "Voter Choice: Evaluating Political Alternatives." *American Behavioral Scientist*, 28(2):185–201.

Caplan, B. 2001. "Rational Ignorance versus Rational Irrationality." *Kyklos,* 54(1):3–26.

Carter, J.R., and Stephen D. Guerette. 1992. "An Experimental Study of Expressive Voting." *Public Choice*, 73(3):251-260.

Chaffee, Steven H., Melissa Nichols Saphir, Joseph Graf, Christian Sandvig, and Kyu Sup Hahn. 2001. "Attention to Counter-Attitudinal Messages in a State Election Campaign." *Political Communication*, 18(3):247-272.

Charness, Gary, Ryan Oprea, and Sevgi Yuksel. 2019. "How Do People Choose Between Biased Information Sources ? Evidence from a Laboratory Experiment." *Working Paper*

1–14.

Darley, John M. and Paget H. Gross. 1983. "A Hypothesis-Confirming Bias in Labeling

Effects." *Journal of Personality and Social Psychology,* 44(1):20–33.

Downs, Anthony. 1957. "An Economic Theory of Political Action in a Democracy." *The

Journal of Political Economy,* 65(2):135–50.

Falk, Armin and Florian Zimmermann. 2017. "Information Processing and Commitment."

Behavior and Inequality Research Institute and University of Bonn.

Festinger, L. 1957. "A theory of cognitive dissonance." *Stanford University Press*.

Fischer, A. 1996. "A Further Experimental Study of Expressive Voting". *Public Choice*,

88(1/2):171-184.

Hamlin, Alan and Colin Jennings. 2011. "Expressive Political Behaviour: Foundations, Scope

and Implications." *British Journal of Political Science,* 41(3):645–70.

Iyengar, Shanto and Kyu S. Hahn. 2009. "Red Media, Blue Media: Evidence of Ideological

Selectivity in Media Use." *Journal of Communication,* 59(1):19–39.

Iyengar, Shanto, Kyu S. Hahn, Jon A. Krosnick, and John Walker. 2008. "Selective Exposure

to Campaign Communication: The Role of Anticipated Agreement and Issue Public

Membership." *Journal of Politics,* 70(1):186–200.

Iyengar, Shanto, Gaurav Sood, and Yphtach Lelkes. 2012. "Affect, Not Ideology: A Social

Identity Perspective on Polarization." *Public Opinion Quarterly,* 76(3):405–31.

Knobloch-Westerwick, Silvia and Steven B. Kleinman. 2012. "Preelection Selective

Exposure: Confirmation Bias versus Informational Utility." *Communication Research,*

39(2):170–93.

Kunda, Z., and Bonnie Sherman-Williams. 1993. "Stereotypes and the Construal of

Individuating Information." *Personality and Social Psychology Bulletin*, 19(1):90–99.

Lazarsfeld, Paul, Bernard Berelson, and Hazel Gaudet. 1944. "The People's Choice." 13–18.

Lightcap, Alexis. 2018. "My high school's transgender bathroom policies violate the privacy of the rest of us." *USA Today*, Nov 29. https://eu.usatoday.com/story/opinion/voices/2018/11/29/transgender-bathroom-debate-privacy-school-lawsuit-column/2123946002/

Mula, Rick. 2016. "Dispelling Six Myths About Transgender Identity." *Teaching Tolerance*, July 26. https://www.tolerance.org/magazine/dispelling-six-myths-about-transgender-identity.

Pariser, E. 2011. "The filter bubble: What the Internet is hiding from you." *Penguin Press.*

Pearson, George David H., and Silvia Knobloch-Westerwick. 2019. "Is the Confirmation Bias Bubble Larger Online? Pre-Election Confirmation Bias in Selective Exposure to Online versus Print Political Information." *Mass Communication and Society*, 22(4):466-486.

Robbett, Andrea and Peter Hans Matthews. 2017. "Partisan Bias and Expressive Voting."

Sears, David O., and Jonathan L. Freedman. 1967. "Selective Exposure to Information: A Critical Review." *The Public Opinion Quarterly,* 31(2):194-213.

Shermer, Michael. 2011. *The Believing Brain: From Spiritual Faiths To Political Convictions – How We Construct Beliefs And Reinforce Them As Truths*. London: Robinson.

Snyder, Mark and William B. Swann. 1978. "Behavioral Confirmation in Social Interaction: From Social Perception to Social Reality." *Journal of Experimental Social Psychology,* 14(2):148–62.

Stroud, Natalie Jomini. 2008. "Media Use and Political Predispositions: Revisiting the Concept of Selective Exposure." *Political Behavior,* 30(3):341–66.

Sunstein, Cass R. 2018. "#Republic: Divided Democracy in the Age of Social Media." *Princeton University Press*.

Ziemke, Dean A. 1980. "Selective Exposure in a Presidential Campaign Contingent on Certainty and Salience", *Annals of the International Communication Association*, 4 (1): 497-511

7. APPENDICES

7.1 SURVEY

Question	Answer
1. Gender	Female
	Male
2. Age	-18
	19-30
	31-40
	41-50
	51-60
	+60
3. Highest education degree	Primary school
	Secondary school
	Bachelor's degree
	Master's degree
	PhD
4. In which area?	Open answer
5. What importance do you attribute to political issues?	1 - no importance
	2 - little importance
	3 - some importance
	4 - big importance
	5 - huge importance
6. In the political spectrum, with which do you identify most?	Right
	Left
6a. How would you classify your commitment to the left wing? *(if in 6. "Left" was selected)*	High
	Low
6b. How would you classify your commitment to the right wing? *(if in 6. "Right" was selected)*	High
	Low
7. Check all the actions you took to prepare for the 2019 legislative elections	Watching at least one debate
	Watching at least one interview to a political party leader
	Watching at least one party's antenna time
	Reading at least one party's electoral programme
7a. Which debate(s)? *(If in 7. "Watching at least one debate" was selected)*	António Costa (PS) - Jerónimo de Sousa (PCP)
	Assunção Cristas (CDS-PP) - Catarina Martins (BE)
	Rui Rio (PSD) - Assunção Cristas (CDS-PP)
	António Costa (PS) - Catarina Martins (BE)
	Catarina Martins (BE) - André Silva (PAN)
	Rui Rio (PSD) - André Silva (PAN)
	António Costa (PS) - André Silva (PAN)
	Rui Rio (PSD) - Jerónimo de Sousa (PCP)
	António Costa (PS) - Assunção Cristas (CDS-PP)
	Assunção Cristas (CDS-PP) - André Silva (PAN)
	Rui Rio (PSD) - Catarina Martins (BE)
	António Costa (PS) - Rui Rio (PSD)
	Leaders of the six parties with parliament seats: António Costa (PS), Rui Rio (PSD), Catarina Martins (BE), Jerónimo de Sousa (PCP), Assunção Cristas (CDS-PP) e André Silva (PAN)
7b. Which interview(s)? *(If in 7. "Watching at least one interview to a political party leader" was selected)*	André Silva (PAN)
	Jerónimo de Sousa (PCP)
	Catarina Martins (BE)
	António Costa (PS)
	Rui Rio (PSD)
	Assunção Cristas (CDS-PP)

7c. Which antenna time(s)? *(If in 7. "Watching at least one party's antenna time" was selected)*	PAN
	PCP
	BE
	PS
	PSD
	CDS-PP
7d. Which electoral programme(s)? *(If in 7. "Reading at least one party's electoral programme" was selected)*	PAN
	PCP
	BE
	PS
	PSD
	CDS-PP
8. Please pay attention to the following picture *(only 50% of the respondents were assigned this question, randomly)*	 *(if in 6. "Left" was selected)* *(if in 6. "Right" was selected)*
A new dispatch issued in Diário da República gives liberty of choice to transsexual children in schools regarding the bathroom and locker rooms they wish to use. This measure is to be applied for children in the process of gender transitioning and is always dependent on the student's parents authorization.	
9. Where do you stand on this issue?	1 - Strongly support unisex bathrooms and locker rooms
	2 - Partly support unisex bathrooms and locker rooms
	3 - Neutral
	4 - Partly support bathrooms and locker rooms separated by biological gender
	5 - Strongly support bathrooms and locker rooms separated by biological gender
10. Now imagine the enforcement of this law depends only on your decision. You are the sole decision-maker and whatever you decide will be applied to the entire society. To help you decide you have two information articles available, but only access to one of them. Which one do you choose to read in order to make the best possible decision?	
	"Dispelling Six Myths About Transgender Identity", from Teaching Tolerance Magazine
	"My high school's transgender bathroom policies violate the privacy of the rest of us", from USA Today Magazine

10a. "Dispelling Six Myths About Transgender Identity", Teaching Tolerance Magazine Myth 1: "Transgender-inclusive bathroom policies put non-transgender students at risk of sexual assault." Transsexual individuals are most frequently the victims of this type of aggression, not the attackers, and schools that have enforced these policies have seen no increase in assault or violence. Myth 2: "Permitting transgender individuals to use the restroom or locker room that matches their gender identity violates the privacy rights of non-transgender people." Transgender individuals don't enter these shared spaces seeking sexual gratification and seeing anatomical features typically associated with another gender exceeds the meaning of privacy violation. Myth 3: "Transgender identity is a mental illness." It is not an illness, just a difference between a person's gender identity and the sex they were assigned at birth.(...)	

(If in 10. ""Dispelling Six Myths About Transgender Identity", from Teaching Tolerance Magazine" was selected)	
	Keep reading
	Skip

(...) Myth 4: "Children aren't old enough to know their gender identity". Many children know their gender identity from a very young age and they should be supported, as emerging research suggests that social transition may be associated with better mental outcomes among transgender children. Myth 5: "Transgender women are not "real" women, or transgender men are not "real" men". Gender identity refers to a person's deep-seated, internal sense of being male, female or another gender. Gender identity is one determinant of biological sex, along with a other factors including chromosomes, hormones and reproductive anatomy. These concepts have been studied by scientists and psychologists and there is clear evidence that for some individuals there is a difference beyond their individual control. Myth 6: "Someone is not transgender unless they medically transition". Gender identity is an internal sense and medical intervention may not be necessary to achieve a sense of well-being and authenticity or may not be reachable in terms of costs or risks.	

(if in 10a. "Keep reading" was selected)	

10b. "My high school's transgender bathroom policies violate the privacy of the rest of us", USA Today Magazine Alexis Lightcap writes about the reasons that led her and her peers to sue their high school. They ask the Supreme Court to restore the bodily privacy they used to enjoy in locker rooms and restrooms on campus. She was uncomfortable walking into the girls' restroom and finding a boy, feeling the need to run away from the place she once saw as a refuge. (...)	

(if in 10. ""My high school's transgender bathroom policies violate the privacy of the rest of us", from USA Today Magazine" was selected)	
	Keep reading
	Skip

(…) It is natural that young girls care about the privacy of their bodies and worry about who walks in at a vulnerable moment. With the understanding that the school district must listen to all voices and that no one should be discriminated against, she feels that her privacy shouldn't depend on what others believe about their own gender. The school should promote an effective policy that secures the privacy of every student, not considering hers irrelevant.	

(if in 10b. "Keep reading" was selected)	

11. After reading this article, what is you position on this issue? *(Your answer is anonymous and will not be shared)*	1 - Strongly support unisex bathrooms and locker rooms
	2 - Partly support unisex bathrooms and locker rooms
	3 - Neutral
	4 - Partly support bathrooms and locker rooms separated by biological gender
	5 - Strongly support bathrooms and locker rooms separated by biological gender
12. Where do you think most participants on this survey stand?	1 - Strongly support unisex bathrooms and locker rooms
	2 - Partly support unisex bathrooms and locker rooms
	3 - Neutral
	4 - Partly support bathrooms and locker rooms separated by biological gender
	5 - Strongly support bathrooms and locker rooms separated by biological gender
13. Finally, vote on what you believe is the best answer, knowing that this study will reveal the answers given to this question.	1 - Strongly support unisex bathrooms and locker rooms
	2 - Partly support unisex bathrooms and locker rooms
	3 - Neutral
	4 - Partly support bathrooms and locker rooms separated by biological gender
	5 - Strongly support bathrooms and locker rooms separated by biological gender

7.2 ADDITIONAL HETEROGENEOUS EFFECTS

Hypothesis 1(c): As age increases confirmation bias tends to increase.

Table 10 – Hypothesis 1(c) regressions output

Linear regression							N = 204
sources_left	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.102	0.055	1.85	0.066	-0.007	0.210	*
old_left	-0.172	0.050	-3.45	0.001	-0.271	-0.074	***
Constant	0.071	0.023	3.09	0.002	0.026	0.116	***

*** p<0.01, ** p<0.05, * p<0.1*

Linear regression							N = 204
sources_right	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
right	0.147	0.037	4.02	0.000	0.075	0.220	***
old_right	0.071	0.082	0.87	0.386	-0.091	0.234	
Constant	0.000	0.000	0.00	1.000	0.000	0.000	

*** p<0.01, ** p<0.05, * p<0.1*

For left-wing partisans, the coefficient for "old" respondents (dummy variable for age groups above 41 years old) is negative and significant. This could mean that for the left-wing partisans age does not increase the likelihood of confirmation bias, in this sample. However, this result should be further analysed in future research and not hastily generalized, since it could be due to an unbalanced sample, with few older respondents from the left.

For right-wing partisans, there is no significance for an effect of age on confirmation bias, since the coefficient accounting for that effect is not statistically significant. Therefore, nothing can be concluded about the age impact on confirmation bias for right-wing respondents.

Hypothesis 1(d): As the level of education increases confirmation bias decreases.

Table 11 – Hypothesis 1(d) regressions output

Linear regression							**N = 204**
sources_left	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
left	0.106	0.096	1.10	0.272	-0.084	0.295	
heduc_left	-0.060	0.102	-0.59	0.559	-0.261	0.141	
Constant	0.071	0.023	3.09	0.002	0.026	0.116	***

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Linear regression							**N = 204**
sources_right	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
right	0.111	0.075	1.49	0.138	-0.036	0.258	
heduc_right	0.063	0.083	0.76	0.448	-0.101	0.227	
Constant	0.000	0.000	-0.31	0.758	0.000	0.000	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

For this hypothesis, a dummy variable was created which took the value 1 if the respondent had a higher education degree (Bachelor's, Master's or PhD), but the corresponding coefficients for the left- and right-wing regressions were not statistically significant. Therefore, the hypothesis that higher education reduces confirmation bias could not be confirmed.