# Political Ideology and Overconfidence in Decision-Making 

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#### Abstract

: This dissertation aims to analyze the correlation between overconfidence and political ideologies. Because we live in the European Union that is facing social and economic disintegrations as well as new challenges, it's more usual to see the arising of more extreme, radical political ideologies. In this paper it is studied, based on previous literature, how conservatives/right-wing parties might display higher amounts of overconfidence bias than liberals/left-wing parties. With the assistance of an online survey, overconfidence is tested not only in financial literacy but also in decision making. Subjective and Objective Knowledge are also analyzed independently so that it is possible to correlate both overconfidence and political ideologies. Regression Models are also used. It was confirmed that it's not possible to correlate objective knowledge and political ideology, however it wasn't possible to confirm that conservatives do display higher amounts of overconfidence than liberals. It was concluded that political ideology might not be a good estimator for overconfidence. Keywords: Overconfidence, Political Ideology, Financial Literacy, Decision Making, Subjective Knowledge, Objective Knowledge.


## Resumo

Esta dissertação procura analisar a correlação entre ideologias políticas e o excesso de confiança. Porque atualmente vivemos na União Europeia que sofre com uma desintegração social e económica, e novos desafios, é frequente ver a ascensão de partidos e ideologias mais extremistas e radicais. Nesta dissertação é estudado como Conservadores/ Defensores de partidos de Extrema Direita cometem mais o erro de excesso de confiança do que os Liberais/Defensores de partidos de Extrema Esquerda, algo já defendido anteriormente noutros estudos científicos. Com o auxílio de um questionário realizado online, o excesso de confiança é testado no conhecimento financeiro, assim como na tomada de decisão de cada indivíduo. Conhecimento Subjetivo e Objetivo são também analisados independentemente, de forma a ser possível correlacionar o excesso de confiança com as diferentes ideologias políticas. Modelos de Regressão Linear são também usados. Foi confirmado que não é possível correlacionar conhecimento objetivo com ideologias políticas, no entanto, não foi possível confirmar que pessoas mais conservadoras demonstram maiores níveis de excesso de confiança do que
liberais. Foi concluído que ideologias políticas não são o melhor estimador para prever o excesso de confiança de um individuo.

Palavras-Chave: Excesso de confiança, ideologias políticas, conhecimento financeiro, tomada de decisão, conhecimento subjetivo, conhecimento objetivo.

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## Introduction

The financial crisis of 2008 that affected the entire world ended up dividing European Union in two (Palier, Rovny \& Rovny,2018): the first part, composed by the center and north of Europe, focused around Germany has consistently risen up out of the crisis and continued a steady yet slow monetary and social way. The second group gathering predominantly southern and eastern European nations remains stuck in negative monetary and social circumstances following the crisis. But this disengagement is not happening only due to economic reasons : the thousands of refugees that are coming from countries like Syria and Afghanistan and are dividing countries regarding whether Europe should help them or not; the continuous attempt of one of European's main motor, Great Britain, to leave Europe for good, as well as the constant fight to keep the Euro coin alive has been weakening and discrediting the European Union as we know (Woods, 2016). In fact, this loose of faith has been showed by the change in political ideologies that are being represented in the European Union. Since the 2014 EU parliament elections, the number of parties that are anti-Euro and/or anti-Europe have been increasing consistently: The extreme right parties have been gaining coverage in countries like France (National Front with Marine Le Pen), Austria (FPÖ and ÖVP coalition), Hungary (Fidesz), amongst others. In fact, in the beginning of 2019 an article made by the Portuguese magazine Visão (Europeias: Direita nacionalista governa em dez países da UE., 2019) stated that only Portugal, Ireland, Luxembourg, Malta, United Kingdom and Romania didn't have a conservative/Extreme right-wing party in their parliament, nor represented in the European Parliament. Yet, since October 2019 this situation already changed with the entry of the political party "Chega" in the Portuguese parliament. This is not totally unexpected as it was already proved that after periods of uncertainty and fear, the right -wing parties gain more power and importance
(Allen,
2015).

However, what does this mean to the future of our economy and society as we live in? Should we be prepared for some potential flaws that right-wing parties are keener to make? And if yes, how so?

## Literature Review

## Overconfidence

Overconfidence has been one of the most popular, consistent and common bias made by the human being (Johnson \& Fowler, 2011; Moore \& Healy, 2008). In fact, Plous in his book "The Psychology of judgement and decision making" 2003, already stated that "No problem in judgment and decision making is more prevalent and more potentially catastrophic than overconfidence" (page 217). It is believed that overconfidence can be accountable for some part of why business people who have more confidence tend to pursuit more entrepreneurial ideas, even though it is known how low the rate of success of a startup is (Camerer \& Lovallo, 1999; Koellinger, Minniti \& Schade, 2007). Overconfident CEOs also tend to disregard more corrective feedback than less confident ones (Chen, Crossland \& Luo, 2015), and financial crisis were more harshly felt in banks managed by overconfident CEOs (Ho, Huang, Lin \& Yen, 2016). This last study also showed how overconfident CEOs are bigger risk-takers and how this was correlated with higher expected default probability of banking institutions in different financial crisis from 1999 to 2009. To all intents and purposes, overconfidence is extremely analyzed in Financial studies, where scientists have created hypothetical models to dissect the involvement of overconfidence on financial markets (Scheinkman \& Xiong, 2003; Malmendier \& Tate, 2005).

Another important example of the consequences of this bias are wars, since it was already proven that decision makers that are more confident tend to engage more in conflicts and riskier decisions (Johnson \& Tierney, 2011). Accidents like Fukushima and Chernobyl could also had been avoided if there were less faith concerning the efficiency of the nuclear power plants (Song \& Kim, 2014).
However, overconfidence is also responsible for having a positive impact on people. It was already proven that people who display higher amounts of confidence and positivism are mentally happier, more proactive in the daily life and healthier (Taylor \& Brown, 1994). The extra dose of conviction can also help someone take that extra step in more challenging projects as well as not giving up so easily, which might, sometimes, be extremely beneficial in someone's life. (Bénabou \& Tirole, 2002).

But what is in fact the overconfidence bias? Overconfidence can be defined as "the tendency of individuals to overestimate their abilities" (Hill, Kern, \& White, 2012 - page 188). Overconfidence started being discussed in the early sixties (Muthukrishna, Heine, Toyakawa,

Hamamura, Kameda \& Henrich, 2014) and since then, a lot of different attributions have been made in order to better understand this bias, however, there's still a lot of confusion regarding the different terminology used to define it (Chen, Crossland, \& Luo, 2015) .In order to simplify our research it is going to be followed the work done by Moore and Healy (2008) where it was distinguished three main types of overconfidence:

1. Over-estimation, like the own name says, it is the overestimation of one's current capability, by thinking that they are better than they actually are. For example, one person might overestimate the time needed to complete a certain task, by thinking that they are going to be more efficient than they really are. (Buehler, Griffin \& Ross, 1994);
2. Over-placement, when one might think that they're superior to the average person in completing a certain task and/or having some type of knowledge. For example, one individual might believe he/she is better at choosing a career, comparing to others, disregarding the fact that they will be in a group that will also have the same over-placement type of thinking (Windschitl, Rose, Stalkfleet \& Smith, 2008).
3. Over-precision, when someone is too sure that they are accurate on their results/decisions/beliefs. One study made by Highhouse, 2008, already proved that managers tend to believe that they are more accurate at collecting relevant information from interviews than they actually are.

In this study we're going to focus on the over-precision bias, for the reason that this one is considered to be the most persistent one, sometimes even diminishing the effect of the other two (Moore \& Healy, 2008) as well as over-estimation. Because this particular study will include an online survey, we won't analyze the effect of over-placement, since the participant is totally unaware of the remaining participants and for that reason it won't have the possibility to compare its result with others.
Overconfidence can be caused by two main factors: motivational and cognitive factors (Muthukrishna, Heine, Toyakawa, Hamamura, Kameda \& Henrich, 2014). It can be motivational when an idea is distorted consciously or unconsciously to defend the self-interest or to succumb to peer pressures (Montibeller \& Von Winterfeldt, 2015), whereas it can be cognitive when there's a defective mental process that disrespects some principles that are universally accepted (Montibeller \& Von Winterfeldt, 2015). Both factors can translate in a faulty bias and for that reason should be evaluated with the same degree of seriousness.

Overconfidence bias should be carefully analyzed as it is considered by some as "the mother of all biases" (unknown): when you are extremely confident, it might lead you to fall into other biases in decision making without even noticing it. It is therefore extremely difficult for people to be aware that they are committing this type of bias. People have difficulty to measure accurately its own knowledge and ability regarding some issue, (Bénabou \& Tirole, 2002), and they are even worse to collect relevant data about others (Moore \& Healy 2008). For that reason, it is very tempting for people to overestimate their own abilities and to be overconfident. Moore \& Healy also proved that on difficult tasks, overestimation (thinking you are better than you actually are) is on average more likely to happen, whereas in easiest tasks, over-placement (thinking you are better than others) takes place more often.
It was already demonstrated how overconfidence might vary according to age (Hansson, Rönnlund, Juslin \& Nilsson, 2008), gender and race (Ortoleva \& Snowberg, 2012), population (Stankov \& Lee, 2014), among other issues, including politics (Ortoleva \& Snowberg, 2015).

## Political Ideology

Politics is a concept that was created by Aristotles in Greece with its first of 8 books that were written between 335-323 BCE (Miller, 1998; De Vries, 2007). This famous word represents the different concepts of governance in a country that might exist, and it is logical the natural creation of political parties to represent a group that share the same social, economic and human ideologies.

There has been a recharged enthusiasm for the idea of political belief system (Jost, Federico \& Napier, 2009) and studies already showed how discussing politics enhances the creation of broader and informative opinions regarding public affairs, as well as it increases the tolerance between different parties (Mutz, 2002; Searing, Solt, Conover \& Crewe 2007). It is therefore crucial that different political ideologies can be recognized and discussed freely, as they represent the public's opinion and principles, and also because rare political exchange can breed a culture of resignation and intolerance, particularly if dialog has a deficit of diversity (Gibson, 1992).

Political ideologies' spectrum is divided between two main groups: Left/Right wing and Liberal/Conservative. The first group appeared after the French Revolution (1789-1799), where in the Assembly people who defended the republic and the different groups of people sat on left and people who defended the monarchy and the benefit of the church sat on the right (Knapp \& Wright 2006). The second spectrum: Liberal/Conservative express one's opinion regarding
everyone's freedom of speech and action respecting the state. Even though recent studies already defend that these two spectrums are outdated and don't reflect the whole reality (Haidt, Graham \& Joseph 2009), it simply doesn't exist a measure that has reached the amount of consensus that these two groups have reached. Because of that, this study will be focused on this two main spectrum of political ideologies: left/right and liberal/conservative.

A considerable amount of literature has been published regarding the main differences that separate left-wing/liberals from right-wing/conservative. Thierry Devos's paper explained very clearly how right-wing parties do trust more in institutions, favor social order and national security as well as try to keep the status quo every time it is possible, whereas left-wing parties, do not express the same trust in institutions, and do favor the harmony and equality in a way that they can protect the minorities (Devos, Spini \& Schwartz, 2002).A meta-analysis of Political Conservatism (Jost, Glaser, Kruglanski \& Sulloway, 2003) clearly explains how conservative people are less open to experience, do not enjoy uncertainty, have higher motivational needs for order and structure as well as a sizeable need for closure. People that are more conservative also tend to show a lower self-esteem, are more likely to be moved for reasons that include fear, aggression and anger, and are more pessimistic. On the contrary, liberals are more optimistic (Sowell, 2007; Graham, Haidt \& Nosek, 2009), are more open to experience and are more willing to change both personally and politically (McCrae, 1996). It is therefore very clear how liberals and conservatives differ in personality traits (Graham, Haidt \& Nosek, 2009) which will be reflected in their personal and non-personal decisions. On the other hand, personality traits are not the only traits that distinguishes political ideologies. Art (Carl, Richards \& Heath, 2019), poetry (Gillies \& Campbell, 1985) and music (Glasgow, Cartier\& Wilson,1985) seem also to be part of the numerous traits that differ people with different political belief system.
Nevertheless, it is with this first analysis that we reach the first discussion. It was expected that right ideologies could experience a higher rate of overconfidence since they are more confident about institutions, however since studies show that it is also expected that conservatives have lower self-esteem, we don't find a direct relation between right-wing parties and overconfidence. Nevertheless, conservative people do prefer to keep the same ideas and are less adaptable to change, whereas left-wing parties are more willing to change and accept different ideas and opinions. A recent study about moral foundations and political ideologies also found that liberals score lower levels of Intragroup/loyalty than conservatives (Graham, Haidt \& Nosek, 2009). Due to this, it is expected that liberals are less confident about their opinions
since these are more volatile and therefore, they are less sure regarding the accuracy of one's results/decisions/beliefs. Thus, we hypothesize:

Hypothesis 1: Right-wing/Conservative people show higher amounts of over-precision than left-wing/liberals.

## Financial Literacy and Overconfidence

One part of the literature that further explores overconfidence, also due to the fact that they suffer so much from it, are the financial markets. For that reason, one part of this study will be reserved for financial literacy, and a good estimator of overconfidence in financial wisdom is to analyze both subjective and objective knowledge (Allgood \& Walstad, 2016). Whereas objective knowledge refers to the real knowledge that one might have about a certain topic, measured for example by the number of true answers on one quiz, subjective knowledge is the knowledge one might think he/she has about a certain topic, and for that reason sometimes it doesn't reflect the real knowledge (Allgood \& Walstad, 2016; Xiao \& Porto 2017). The literature also claims that subjective knowledge is not an intermediary of objective knowledge (Allgood \& Walstad, 2016) and that its correlation depends substantially on the personal attributes of each person (Agnew \& Szykman, 2005). In fact, Park \& Lessig (1981) already defended that the difference between subjective knowledge and objective knowledge is one's self confidence. And if this self-confidence makes the subjective knowledge higher than the objective knowledge then we have reasons to believe that we are facing a situation where the individual is demonstrating over-precision.
Considering our first hypothesis already defends that right-wing/conservative people tend to display overconfidence traits more often, it will be argued that subjective knowledge will be presented in higher values than objective knowledge in right-wing/conservatives' people than left-wing/liberals, when asked about their financial literacy. This will be in conformity with our first hypothesis and will enable us to understand if in fact, right-wing/conservative people tend to display more over-estimation both in consumer habits and in financial literacy aspects, as both topics will be explored in the survey. Thus, we hypothesize:

Hypothesis 2: Right-wing/Conservative people show higher amounts of over-estimation than Left-wing/Liberals. This can be showed by the fact that in financial literacy questions, Right-
wing/Conservative people tend to display higher amounts of subjective knowledge than objective knowledge, compared with Left-wing/Liberals.

Nonetheless, just because it is hypothesized that right-wing/conservatives display more overconfidence in financial literacy as well, it can't be immediately stated that the remaining parties are in fact more conscious about their financial knowledge. Left-wing/Liberal people can also be under - confident and for that reason still lack objective knowledge (Moore \& Healy, 2008). Who then displays the most accurate level of confidence that is closer to reality when it comes to financial literacy? Very little evidence has been shown about which political ideologies have a more distinct knowledge regarding financial literacy. In fact, Montagnoli, Moro, Panos \& Wright (2016) on their paper "Financial literacy and political orientation in Great Britain" state that they are the first to conduct a study like this and that center-right and right parties display a slightly higher knowledge of financial literacy than parties from the left and center-left. However due to the fact that this is a study that wasn't published in a journal and that just represents a small sample of the Great Britain's population, it was decided not to focus too much on this paper.

On the other hand, there have been several studies (Choma, Sumantry \& Hanoch, 2019; Onraet, Van Hiel, Dhont, Hodson , Schittekatte \& De Pauw, 2015) that show how rightwing/conservative people show a negative association with intellectual capacity as well as lower scores in numeracy assignments. Although, based on the small amount of papers found and on the serious assumption that it would be made by these papers, it was decided not to come up with conclusions about which party/ideology has more knowledge. Instead it will be hypothesized:

Hypothesis 3: There won't be a distinctive correlation between Political Ideology and Objective Knowledge.

## Why study Overconfidence and Political Ideology

From the First and Second World War, until the Cold War that proceeded after that, the most recent conflicts that changed our history are all marked somehow by political conflicts. It was already discussed above how overconfident people tend to get evolved more easily in conflicts and wars due to the fact that they overvalue their competencies and undervalue their enemies. Overconfident people also tend to make riskier options that might cause financial losses, but how do overconfidence biases might get involved with political ideology?

The majority of the western society lives today in a Democracy and therefore it is expected that the political ideology that is more represent within a country is the one that is going to be represent in its parliament. There have been several studies that try to test the connection between overconfidence and age, gender and even political ideologies, published by Ortoleva and Snowberg in 2015. This last paper reflects the American Political behavior, which is extremely different from the Portuguese/European reality. In the United States of America (USA) the two parties accepted is the Republican and the Democrat Party, and while one is more conservative and the other is more liberal, it's unthinkable to think USA as a country that is separated by left-values and right-values as we know them. That's the reason why political ideology differs so much from country to country and there should be a lot of caution when comparing ideologies between each country. We will focus on the Portuguese reality, since "political opinions and behavior of individuals cannot be explained apart from the environments within which they occur" (Robert Huckfeldt, 1986). For that reason, any conclusions that we might reach with our study won't be extended to any other country as it could lead to misleading reasonings.

This paper is written in a time where the new Portuguese parliament was just elected. This election was noticeable because of the consistent increase of power of the left-party and the decrease of the right-wing representation in the parliament, which is something that is not following the European right-parties' trend. However, three new parties were elected in the parliament, one from the left-wing, the other from the right-wing and the third one who call themselves "social and economic liberals". What are going to be the repercussions of this new mandate? The future of the country will depend of the decisions made by the elected parliament, and that's why it is so important to analyze the relation between this very recurrent bias and the different political ideologies.

## Overconfidence and Decision Making

We currently, more than ever, live in a world where the amount of data and information seem unlimited and every piece of information appears in front of us without permission. Since the human brain is not able to process so much information at the same time (Workman, Jones \& Jochim, 2009; Jones \& McGee, 2018), we only focus on some piece of information, disregarding the entire group of facts that would serve as the root to make a solid good decision. According to Mintzberg, Raisinghani \& Theoret (1976), decision making is the process of committing to some course of action. This process is complex, and in order to make a perfectly rational decision you need to go through a scrutinous analysis of every criteria, weight them, rank them and compute an optimal decision (Johns \& Saks, 2001; Jones \& McGee, 2018). However, even though we try to be as rational as possible, it is very easy to be in a position where there's limited time, some uncertainty or even our own self-interest that appears to modify our decision-making process. This is called bounded rationality and it was a term created by Herbert Simons in 1947 in his book "Administrative Behavior" (Shannon, McGee \& Jones, 2019) that explain how human judgements might deviate from reality thanks to this constant mental shortcut that we make.

Decisions form important individual, political, business outcomes and being aware of how to improve the quality of these outcomes would be extremely beneficial for the overall society (Milkman, Chugh \& Bazerman, 2009). In order to do this, it is crucial to pay attention to the numerous biases that might affect one's reasoning. Decision making has been studied by several different fields including management, marketing and psychology (Harrington \& Ottenbacher, 2009), and it's important to enhance how costly it can be in the long term to make a wrong decision (Milkman, Chugh \& Bazerman, 2009).
Politics is about deciding the best course for each country, and the political ideology of each one reflects not only the personal opinion of economic and social matters, as well as the way we might make decisions in our daily life. Since political ideology reflects part of the human being, its ideologies and its personality (Sidanius, 1985), we can optimistically assume that the way we make decisions in our daily life is at least slightly biased by our political ideologies. It is therefore extremely important to realize which spectrum commits more often the mother of the biases in order to better analyze our own tendencies and become a better decision maker.

## Methodology and Data

Participants were 619 adults and 2 teenagers (less than 18 years old) that still remain totally eligible for this study. The proportion of female representatives was $61 \%$ against $39 \%$ males and all participants engaged in the study by an online Qualtrics survey [Appendix A] that was shared on several different platforms, to make sure that all participants were randomly assigned to this study.

The online survey consisted on 27 multiple choice questions and because of the size of the survey and the fact that the results were solely dependent on the good will of everyone, there were a lot of participants that gave up answering in the middle of the questionnaire. These people were eventually removed from our original sample.

Firstly, we asked the participants to self-classify themselves regarding their political ideologies on a 10 -point scale that was anchored by "extremely left-wing/extremely right wing" in one question and "extremely liberal/extremely conservative" in another. This 10-point scale have been already defended by Castles, Mair \& Pedersen (1997). The self-evaluation was conducted since it is very common for people to identify themselves with a certain political ideology while not behaving very accordingly to it, meaning that people usually are not very good in estimating their own political ideologies (Zell \& Bernstein, 2014).It was asked for members of extreme left/extreme right parties to fill in the survey, as well as share with colleagues from the same party. This was done because it is believed that more extreme results might lead us to a more concrete outcome.

The following 6 questions were taken from Feldman \& Johnston (2014) paper that used the following topics "Government Spending; Guaranteed Jobs; Assistance to the Poor; Abortion; Gay Adoption and Women's Role" as core issue questions to understand the determinants of political ideology. It wasn't included the "Medical Insurance" topic that was also included in this group due to the fact that the Portuguese reality doesn't reflect the same conflict about medical insurance as the population from to United States does (Rosenthal, 2018). These questions were to verify if in fact the ideologies were well identified by the participants, which usually doesn't occur and eventually use this new political ideology information, as the true, real ideology of each individual.

After these set of questions, three opinion questions were asked, where the inquiries were supposed to choose among four options. The opinion questions were about a cleaning product, a car and a trip. These three topics were chosen because one (cleaning product) was a product
with low involvement, the other was a product of high involvement (car) and for that reason had a lot of information available and necessary to make a good decision and the third product was a free trip. This third option was chosen to be a benchmark of the remaining options since it was a free service and would only rely on personal opinion. For that reason, it was expected that the majority of the participants would be very confident while deciding this last option, more confident than the other two options.

After every choice was made it was asked how much confident the participant was that he/she had made the right choice. This set of questions were supposed to calculate the level of overconfidence of every individual on a consumer level, specially the level of over-precision (Hypothesis 1).
In the end, three questions of financial literacy were asked to the participants. The three questions were taken from Lusardi \& Tufano's paper (2015), "testing knowledge of fundamental concepts related to debt and by a measure of self-assessed financial knowledge". In the end of every financial question it was asked how confident the participant was that he/she got the answer right, calculating the subjective and objective knowledge at the same time (relevant for Hypothesis 2 and 3).

With the total of 27 questions it is expected to: be able to see the different political ideologies that people identify themselves too, test overconfidence in simple and complex purchasing behaviors as well as test overconfidence in financial knowledge.

SPSS program is going to be used to study all the relations between the variables.

## Results

Despite our considerable sample, there were 15 people that didn't identify themselves on the Left/Right spectrum and 7 people that didn't identify themselves on the Liberal/Conservative spectrum, probably by mistake, as this was the first question of the survey, and was the only one that wasn't answered. Regardless of the effort to talk with extreme Left /extreme Right parties, and invite them to fulfil the survey, the survey population is still very centrist, being 5 the most common value shown in the survey, in a spectrum composed of values from 0 to 10 . Indeed, the mean in Left/Right spectrum of 5,17, decreasing slightly in the Liberal/Conservative spectrum $(4,59)$ [Table 1]. This means that, on average, people are more willing to consider themselves more right-wing than more conservatives, probably due to the word itself that might have a negative connotation to some. Another reason that might also explain this slight change is the possibility of a participant consider himself/herself as someone with economical
ideologies that resemble the left parties, however having social ideologies that are more conservative, and for that reason vote differently in the different questions that were proposed. The correlation between Left/Right (variable $L_{-} R$ ) and Liberal/Conservative (variable $L_{-} C$ ) is 0,434 , meaning a low positive correlation (Mukaka, 2012), with a significant $p$-value $<0,05$. This means that people who consider themselves to belong to a left party also consider themselves as a more liberal individual, and people that vote more often on right parties identify themselves as more conservative individuals. However, it was expected that this correlation would take a higher value. Again, this might be explained to the fact that people might see LeftRight and Liberal-Conservative spectrum differently even though they have the same values ( $0-10$ ). It could be possible to only use one of these variables for this study, however it wouldn't represent the whole reality and it would be risky as valuable insight could be lost. In order to see if these results were reliable, the Cronbach's Alpha was calculated and was equal to 0,605 [Table 2], which is not very high but still enough to confirm the reliability of the variables L_R and L_C.

As it was explained before, some questions were asked to the participants regarding economic and social issues with the purpose of seeing if in fact people actually are who they believe they are, while discussing political ideologies. There were 3 questions regarding the state intervention and economic issues and 3 questions about social matters. In order to calculate the true economic and social ideology of each participant, two new variables were created: Mean_eco_ideo and Mean_soc_ideo. Their correlation is low $(0,181)$ and the variable is not significant at p-value $=0,05$ [Table 3], meaning that even though some Conservative/Liberal people have the same political ideology for economic and social matters, there's still a lot of participants that weren't as coherent, which is not surprising, but still relevant. The Cronbach's alpha of these new variables and $L_{-} R, L_{-} C$ also decreased $(0,594)$ [Table 4], which means that this might not be the best reliable way to see the results.

When calculated the correlation between the variables $L_{-} R, L_{-} C$, Mean_eco_ideo and Mean_soc_ideo the correlations still present low values even though all of them are positive.

## Correlations


**. Correlation is significant at the 0.01 level (2-tailed).
Figure 1 (source: Survey Data)

For that reason, we tried to calculate the average of the 6 questions, and we named it Mean_both_ideo. Since the set of 6 questions were combined by three questions of social matter and three questions of economical matter it was assumed that the total mean of economic and social ideologies would summarize the real ideology of each individual being 10 someone who is extremely conservative and supportive of right wing parties and being 0 someone who is extremely liberal and supportive of left-wing parties.
The correlation between this new variable and $L_{-} R$ is $=0,369$ and with $L_{-} C_{-}=0,357$, being both valuables significant at $95 \%$ confidence level. The Cronbach's alpha also increased its value when calculating the reliability between the 3 variables increasing to 0,652 [Table5]. Therefore, there are already some reasons to believe that this new variable is going to be quite useful in the research.

It was also created another variable, that is the mean of both variables together $L_{-} R$ and $L_{-} C$, having the name Mean_LR_LC. If we calculate the correlation between this new variable and Mean_both_ideo, it will still give a low positive result $(0,425$, significant at p -value $<0,01$ ) [Table 6]. This new variable helped prove the argument that was already defended by Zell \&

Bernstein (2014): even though people see themselves as having a certain political ideology, sometimes, their beliefs and ideologies don't reflect the same reality.

In the first hypothesis it is defended that "Right-wing/Conservative people show higher amounts of over-precision than left-wing/liberals". For that reason, it is going to be necessary to correlate the ideologies of each individual with the confidence that each one demonstrated in every question. Since the only variable that truly demonstrates the political ideology of each individual is mean_both_ideo, we're going to exclude the variable mean_LR_LC for the following hypothesis, as this last one doesn't reflect the reality. For that reason, the analysis that is going to be important is the correlation between every individual's over-precision with Mean_both_ideo.
We can see the general level of over-precision by calculating the overall level of confidence showed in the questionnaire independently of the type of questions, or by separating the two types of confidence that were tested: the ones regarding basic questions of decision making (mean_conf_dm) and the ones regarding financial literacy. This last one is the general level of overconfidence and because of that will have the name $S_{-}$Fin_Know - Subjective Financial Knowledge, that is going to be useful for the study of our second hypothesis. Since there are three questions of each group, it makes sense that the correlation happens by calculating the mean of the sample of overconfidence for decision making and financial literacy (Mean_total_conf).

As we can see, the hypothesis is not verified: the correlaton between Mean_both_ideo and Mean_total_conf, S_Fin_Know and Mean_conf_fin are respectively 0,054; -0,022 and 0,085, being the last value the only one significant at $95 \%$ confidence level.

## Correlations

|  |  | Mean_total_c <br> onf | S_Fin_Know | $\begin{aligned} & \text { Mean_conf_d } \\ & \text { m } \end{aligned}$ | Mean_both_id eo |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Mean_total_conf | Pearson Correlation | 1 |  |  |  |
|  | Sig. (2-tailed) |  |  |  |  |
|  | N | 616 |  |  |  |
| S_Fin_Know | Pearson Correlation | ,888** | 1 |  |  |
|  | Sig. (2-tailed) | ,000 |  |  |  |
|  | N | 616 | 621 |  |  |
| Mean_conf_dm | Pearson Correlation | ,690** | ,281** | 1 |  |
|  | Sig. (2-tailed) | ,000 | ,000 |  |  |
|  | N | 616 | 616 | 616 |  |
| Mean_both_ideo | Pearson Correlation | ,054 | ,085* | -,022 | 1 |
|  | Sig. (2-tailed) | ,184 | ,034 | ,580 |  |
|  | N | 616 | 616 | 616 | 616 |

**. The correlation is significant at the 0,01 level (2-tailed).
*. The correlation is significant at the 0,05 level ( 2 -tailed).
Figure 2(source: Survey Data)

Consequently, we can conclude that there's no strong positive correlation between political conservatism/right wing and over-precision since all the correlations are close to zero. In fact, if the confidence of every question is evaluated individually [table 7], we can even see some negative low correlations (meaning more over-precision for liberals/left-wing people) such as the choice of the car $(-0,014)$ and the choice of the trip $(-0,039)$, however, these correlations are not significant.
Regarding the questions of financial literacy, the first question is the only one that presents, at a significant level at $\mathrm{p}<0,01$, a low positive correlation of 0,117 . However, the value will decrease in every question, and in the final ( $\left(^{\text {rd }}\right)$ question the correlation between confidence and political ideology actually shows a negative value ( $-0,002$ ). Nevertheless, it's not possible to confirm the first hypothesis given the presented results, since only the first question of financial literacy (conf_FIN1) presents a significant value.

In fact, every part of the ideology spectrum showed somehow some level of over-precision (maximum levels of confidence for every type of question, decision making or financial questions). We can also verify that it's after the level 6,67 of conservatism that the low levels of confidence disappear, giving space to higher, solid levels of over-precision. Nevertheless, since the sample that is after the level 6,67 only represents $1,3 \%$ of the population [Table 8], it didn't have an impact in the overall correlation that was calculated before.

In order to test the second hypothesis, that states that right-wing/conservative people display higher amounts of subjective knowledge than objective knowledge (over-estimation), compared to left-wing/Liberals, the variable S_Fin_Know is going to be used once again, as well as Mean_both_ideo. In this hypothesis, the questions of decision making are left out, since they are simply questioning of opinion, and there's no right or wrong answer. Another two variables were created: $O_{-}$Fin_KnowTotal and SK_bigger_OK. The first one gives the number of how many correct financial answers each individual got right (being max:3 and min:0), whereas SK_bigger_OK works as a dummy variable to see if the individual showed a higher subjective knowledge than the truth, objective knowledge: if Subjective Knowledge > Objective Knowledge, the variable returns the value 1, if the opposite happens, or if Subjective Knowledge=Objective Knowledge, $S K_{-}$bigger_OK=0. If the hypothesis is verified, the correlation between SK_bigger_OK and Mean_both_ideo is going to be high, as it will reflect that the higher the value of conservatism, the higher the chances SK_bigger_OK=1.

However, the correlation value was $-0,022$ and not significant $p<0,05$ [Table 9]. In fact, in 621 samples, only 13 individuals got an objective knowledge equal or superior than the subjective knowledge (SK_bigger_OK=0). And since we have a bigger sample of left-wing individuals, [Table 8] where $83 \%$ of the population are located on the left of the centre(5) of the spectrum, it's normal that it even seems that the higher amounts of subjective knowledge is attributed to more liberal individuals.

Since Subjective Knowledge in this test reflects the level of confidence that each individual demonstrates regarding the financial questions (if they got them right or not), this is a variable that should be studied more in depth. Even thought it was already proved that Mean_both_ideo and SK_bigger_OK are not correlated, it is necessary to verify which variables are in fact responsible for the creation of this big level of overconfidence that was represented in this sample. For that analysis we're going to use a multiple regression model. The model: Subjective Knowledge $=$ Objective Knowledge + Mean_both_ideo had an R2 of 0,118, meaning that 11,8\% of variance in the dependent variable, can be explained by the independent variable Subjective knowledge.

## Model Summary

| Model | R | R Square | Adjusted <br> Square | Std. Error of <br> the Estimate |
| :--- | :--- | :--- | :--- | :--- |
| 1 | , $343^{\mathrm{a}}$ | , 118 | , 115 | , 61624 |

a. Predictors: (Constant), Mean_both_ideo,

O_Fin_KnowTotal

Coefficients ${ }^{\text {a }}$

| Model |  | Unstandardized Coefficients |  | Standardized Coefficients Beta | ${ }_{t}$ | Sig. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | Std. Error |  |  |  |
| 1 | (Constant) | 2,695 | ,058 |  | 46,339 | ,000 |
|  | $\begin{aligned} & \text { O_Fin_KnowTo } \\ & \text { tal } \end{aligned}$ | ,256 | ,029 | ,333 | 8,751 | ,000 |
|  | Mean_both_ide o | ,022 | ,015 | ,055 | 1,436 | ,152 |

a. Dependent Variable: S_Fin_Know

Figure 3(source: Survey Data)
With this model we can see that if subjective knowledge increases in one unit, the Mean_both_ideo will increase 0,022 , Ceteris Paribus (c.p.), which means that, the higher the subjective knowledge, the more conservative an individual might be. However, the correlation still presents a value very close to zero and the p -value $=0,152$ which risks the significance of our model.

Variables like age, gender and income were also included in another model, to see if the model would become a better estimate, however the R 2 value hardly increased $(0,165)$ and only age and gender were significant variables, as well as $O_{-}$Fin_KnowTotal.

Model Summary

| Model | R | R Square | Adjusted <br> Square | R | Std. Error of the Estimate |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | ,406 ${ }^{\text {a }}$ | ,165 | ,158 |  | ,60486 |

a. Predictors: (Constant), Mean_both_ideo, Age, O_Fin_KnowTotal, Income, Gender

## Coefficients ${ }^{\text {a }}$

| Model |  | Unstandardized Coefficients |  | Standardize <br> d <br> Coefficient <br> s$\|$Beta | t | Sig. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | Std Error |  |  |  |
| 1 | (Constant) | 2,220 | ,109 |  | 20,286 | ,000 |
|  | Mean_both_ideo | ,004 | ,016 | ,011 | ,273 | ,785 |
|  | O_Fin_KnowTotal | ,229 | ,030 | ,295 | 7,563 | ,000 |
|  | Gender | ,229 | ,053 | ,170 | 4,302 | ,000 |
|  | Age | ,043 | ,018 | ,092 | 2,438 | ,015 |
|  | Income | ,012 | ,012 | ,040 | 1,033 | ,302 |

a. Dependent Variable: S Fin Know

Figure 4(source: Survey Data)
In fact, with this model, Mean_both_ideo become even less significant, and its coefficient became smaller.

The next step would be to create interactions between these variables because it can grow comprehension of the connections among the variables in the model and enables more theories to be tried. It was created interactions between Mean_both_ideo and age, income and gender. However, only one interaction appeared to be relevant, which was the coefficient of the variable ideo_times_age (mean_both_ideo*age) [Table 10] that represented a negative number: when subjective knowledge increases one unit, this new variable decreases 0,024 , meaning that older conservative people actually showed less confidence than the general conservative/older individual. It was relevant therefore to study more in depth this relation between subjective knowledge and political ideology, taking age as a relevant factor. To do this, the variable age was splitted in two ways: individuals whose age was below the median, and individuals whose age was above the median. According to the table of frequencies [Table 11], the group that has the value located in the $50 \%$ of the sample is group number 5 (45-55). However, since group 4 (35-45) represents $49,4 \%$ of the sample, it was determined to consider the median value as group 4 instead of group 5 . The first cluster included the age groups $<18,18-25,25-35$ and 3545 , whereas the second cluster included the age group 45-55 and $>55$.
By looking to the two graphs bellow, it can be verified that younger individuals from the first cluster do show a lower subjective knowledge of financial literacy than older individuals. This goes hand in hand with the true results, since older individuals ( $>=45$ years old) did demonstrate
a higher objective knowledge of financial literacy than younger individuals ( $<45$ years old) [Table 12].

The lower values of subjective knowledge were displayed by centrists' younger individuals (mean_both_ideo close to 5) so, once again, the higher values of subjective knowledge are displayed very frequently all over the spectrum, independently from the age of the individual. In fact, graphically it's even tricky to understand the $-0,024$ coefficient of the variable ideo_times_age (mean_both_ideo*age). This might be explained because the number of individuals presented in every bar is not clear. Because our sample is composed by 621 individuals, and the options of subjective knowledge presented were quite low, all the possible representations lack some accuracy regarding the density of each bar.

Bar chart of individuals $>=45$ years old
Simple Bar of S_Fin_Know by Mean_both_ideo


Filtered by age variable
Figure 5 (Source: Survey Data)


Figure 6 (Source: Survey Data)

Finally, our third and last hypothesis "There won't be a distinctive correlation between political ideology and objective knowledge" was confirmed by calculating the correlation between variables $O_{-}$Fin_KnowTotal and Mean_both_ideo. The correlation value [Table 13] is very close to zero $(0,092)$ with a p -value $<0,05$, which concludes that in this population, there's no evidence that participants that are more sympathetic with liberal/conservative ideas show a higher financial knowledge.


Figure 7(source: Survey Data)

One interesting fact was that both ends of the spectrum got all of the three questions of financial literacy correct (Objective Knowledge=3), something that was accomplished only 4,3\% of the time. Still and once again, those were also some similar episodes in the centrum that didn't allow a direct relation between extremism and objective knowledge. $48,3 \%$ of the total sample didn't have a single correct answer, $33,2 \%$ got 1 correct answer and $14,2 \%$ got 2 right answers.

## [Table 14]

In fact, some recent studies showed that lower general insight in adolescence predicts more greater prejudice in adulthood, and this impact was to a great extent intervened via conservative ideology (Hodson \& Busseri, 2012). Nevertheless, it is still very risky to even hypothesize that some extreme point of the spectrum displays a higher objective knowledge of a certain matter or even higher cognitive abilities due to the lack of available information and small sample size.

## Supplementary Analysis: Extremism, the new variable

Because there has been some difficulty in making the political ideology variable a significant variable in some cases, a new experience was conducted and a new variable created, where it was considered that the relation between political ideologies and subjective knowledge might not be linear, but instead be a parabola. With this comes the idea that it's not only the participants from extreme right that display higher values of overconfidence, but also participants from extreme left. This idea was already defended and proved by Ortoleva \&

Snowberg (2015), stating that overconfidence and extremism are correlated, being the study statistically significant. This paper also mentioned that "the covariance between extremism and overconfidence is greater for those right-of-center than left-of-center" (page 21). This study wasn't mentioned before, as it reflects the American reality and not the Portuguese one, and that reality has been avoided through this study. Nevertheless, since their results are significant and cohese throughout the study, it was decided to test this new option and adapt it to the Portuguese reality, in order to see the results. For that reason, a new variable was created, Extremism, that reflects the distance to the center, being 5 the participants that voted in an extreme number ( 0 or 10 ) and 0 the participants that voted in the center. The value extremism was constructed from the variable Mean_both_ideo to express the veracity of one's political ideology.
When trying to test again H 1 to see the new correlation between this new variable and Mean_Total_conf,Mean_total_conf and even S_Fin_Know [table 15], the result is, again, not very promising: the results are still not significant at $p$-value $=0,05$ and even though the value continues quite low, close to zero, the variable of total financial knowledge presents a negative value $(-0,033)$, meaning that when the level of extremism increases, the level over- precision actually decreases. The lack of significance is constant in the study of the correlation of this new variable, however, while studying every question in detail the only significant correlation is once again the one between Extremism and the first question of financial literacy, having a negative result of 0,102 : when the level of extremism increases, the level of financial confidence actually decreased on that question.

Again, it was necessary to test the Regression Model using interactions, in order to verify that the variable extremism could be significant [Table 16-to see Regression Model of extremism without interactions].

## Model Summary

| Model | R | R Square | Adjusted <br> Square | R | Std. Error of the Estimate |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | ,422 ${ }^{\text {a }}$ | ,178 | ,165 |  | ,60209 |

a. Predictors: (Constant), income extr_times_age, Gender,

O_Fin_KnowTotal, age, extr_times_ok, extr_times_income, extr_times_gender, Extremism

## Coefficients ${ }^{\text {a }}$


a. Dependent Variable: S_Fin_Know

Figure 8(source: Survey Data)
Again, the variables that are significant and should be taken into consideration are extr_times_age (extremism*age), extr_times_gender (extr*gender). However, by looking into the representation bellow, it's easy to realize that extremists show constantly higher values of confidence, which is not showed as consistently in the least extremism individuals. Once again, we can justify this negative result to the much bigger proportion of left /liberal individuals than right/conservative ones.


[^0]
## Main Conclusions

The correlation between over-precision (mean_total_conf) and political ideologies (mean_both_ideo) shows a very weak, not significant correlation $(0,054)$.

In fact, the level of confidence only becomes significant if we analyze the level of confidence regarding financial literacy, even though it still gives a value very close to zero $(0,085)$. Despite the lack of correlation, it was clear with figure 3 that the sample that represented Rightwing/conservative individuals showed itself more cohesive, higher values of over-precision. Nevertheless, since the sample of Right-wing individuals is very small, and the Left-wing individuals' result showed a big variance, it compromised the results and therefore the hypothesis that was being tested.
The second hypothesis that tested the effect of over-estimation in political ideology also gave a correlation that wasn't significant. Once again, the results that were expected to happen only in the Right-wing/conservative side, did happen in all the spectrum: it was possible to verify situations where the Subjective Knowledge was higher than the Objective Knowledge in every part of the spectrum. In fact, only $2 \%$ of the total population didn't show this behavior. Despite the efforts to have numerous participants of extreme Right/extreme Left parties, our sample was specially centrists, which in fact reflects the Portuguese reality.
When calculating our reliable political ideology variable (mean_both_ideo), we soon realize that it's minimum value is 0,00 (extreme-left/Liberal), however it's maximum is only 8,67 [table 8].The proportion of liberals was also much larger than conservatives, as $83 \%$ of the variable mean_both_ideo was a value bellow 5 (center).


10(source: Survey Data)

In reality, as we can see with the graph above that is part of the study of our second hypothesis, the maximum level of subjective knowledge (individuals were sure that they got every financial question right) is displayed only by individuals who are between $0,83-8,67$ in our ideology spectrum, which shows a higher level of confidence displayed by extreme-left/centrum individuals than extreme-right/centrum individuals. However, it is still quite surprising the level of over-estimation and over-precision showed in this study by all members of the entire political ideology spectrum, given the number of correct answers. It was common to see high levels of overconfidence in centrists (values around the number 5), and because that population was much larger than the extremes, it eventually obfuscated the overconfidence of conservative individuals. However, if we had found more extreme-Right/conservative people, perhaps the correlation values could still have changed.

When trying to estimate how Subjective Knowledge behaves, one could verify that as the individual gets older and more conservative, the subjective knowledge actually decreases. Older individuals (>=45) also display higher amounts of subjective and objective knowledge than younger ( $<45$ ) individuals. In fact, only 13 individuals, out of 621, were modest enough to have an objective knowledge higher or equal to their subjective knowledge.

It was also possible to verify that the level of extremism is not correlated with the level of overconfidence, as it was verified in previous papers. In reality, every time the subjective knowledge increases one unit, the level of extremism reduces 0,176 ( p -value $<0,05$ ), showing
that the proportion of individuals that identify themselves as centrists, showed more overestimation than extremists.

Only the third hypothesis formulated in this study was confirmed immediately, with $95 \%$ confidence interval, proving that it's not possible to correlate objective financial knowledge with political ideology. In fact, different groups of the spectrum showed different levels of knowledge, an only $4 \%$ of the total sample got the three questions right.

Despite the rejection of our first two hypothesis, the results are still quite interesting.
It was also interesting to realize that, despite our small sample, our population reflected the Portuguese reality: Portugal is a country that is mainly centrist when it comes to have a certain political ideology - PS: Partido Socialista and PSD: Partido Social Democrata are still the two biggest political forces in the country, being both centrists, one center-left and the other centerright. ) Our sample was mainly centrist and that revealed that centrists are in fact even more overconfident than extremists (left and right).

This study was important to verify that political ideologies might not be the best estimator to test overconfidence, and that itself, is already a very valuable insight. It was already stated several times before how overconfidence is one of the biggest and pervasive bias, amongst the other, numerous biases to which human judgment is vulnerable. And according to this paper, this pervasiveness can't be controlled by only looking at each one's political ideologies.
In fact, one can consider that this paper suffered from overconfidence from the author itself: in order to facilitate this work, a lot of focus was put into the small number of papers available in this topic, often ignoring other possibilities. Sometimes, individuals depend too intensely on that experiential information without seeing completely how their encounters fit into different patterns. Individuals regularly neglect to represent the way that they streamline their points of view and misrepresent their reactions.
Some good alternatives to avoid falling in the trap of overconfidence is to continuously attempt to produce different alternatives (Haran, Moore \& Morewedge, 2010), as well as request criticism from trusted sources. Sometimes doubting about yourself might be the best decision that you can make.

## Future implications and Recommendations

Overconfidence and conservatism have been already linked in Ortoleva \& Snowberg's work, although, we weren't able to confirm that in our study. It might be because the American reality is very different than the Portuguese but, in the future, one suggestion would be to control the sample size of each ideology more rigorously. Even though extreme-Right/Left ideology parties were contacted for this survey, the proportion of Left party individuals was much higher than Right party ones, which could be one of the main factors that decreased the significance of several tests done in this study. As it was mentioned before, $83 \%$ of the total sample had an ideology value bellow 5 (spectrum from $0-10$, being 0 extreme left/liberal, and 10 extreme right/conservative).

Another suggestion for future research would be to find better, more valuable estimators. In Regression models made in this study, the biggest R2, meaning the extent of the variance for a dependent variable that's clarified by an independent variable or variables, in a regression model was only 0,178 , which is considered a quite good, reliable value in social sciences. However, apart from political ideology, only age, income and gender worked as estimators that would change the overconfidence of one's individual. Variables such as years of education, location (if lives in a suburban or rural area) and even if participants belong actively or not to a political party, are just some suggestions to be taken into consideration as well in future research.
Another option for the inexistence of correlation was the lack of incentive to respond correctly and honestly of every question. The Survey was composed by 27 questions and the fact that the survey's answers were merely dependent on the individual's good will to finish it without supervision could compromise the quality of our study. It is impossible to conclude if the survey was done with full attention and honesty. In fact, some feedback regarding our questionnaire was that "it was too long and dense", and even though the financial questions were used to test basic financial knowledge, almost half of the entire population didn't get a single answer correctly. Questions regarding decision making were also too simple. Even though it was tried to overwhelm the participant with information, especially in the car question, in order to increase the seriousness of the decision, there were still a lot of individuals that were very confident in every single question.

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## List of Tables

- [Table 1 - Descriptive Statistics of variables $L_{-} R$ and $L_{-} C$ ]

|  |  | Statistics |  |
| :---: | :---: | :---: | :---: |
|  |  | Ext Left=0; Ext <br> Right=10 | $\begin{gathered} \text { Ext Lib=0; Ext } \\ \text { Cons }=10 \end{gathered}$ |
| N | Valid | 606 | 614 |
|  | Missing | 15 | 7 |
| Mean |  | 5,17 | 4,59 |
| Median |  | 5,00 | 5,00 |
| Mode |  | 5 | 5 |
| Percentiles | 25 | 4,00 | 3,75 |
|  | 50 | 5,00 | 5,00 |
|  | 75 | 6,00 | 5,00 |


| Ext Left=0; Ext Right=10 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | 0 = extremely left-wing | 4 | ,6 | ,7 | ,7 |
|  | 1 | 7 | 1,1 | 1,2 | 1,8 |
|  | 2 | 17 | 2,7 | 2,8 | 4,6 |
|  | 3 | 58 | 9,3 | 9,6 | 14,2 |
|  | 4 | 113 | 18,2 | 18,6 | 32,8 |
|  | 5 | 178 | 28,7 | 29,4 | 62,2 |
|  | 6 | 94 | 15,1 | 15,5 | 77,7 |
|  | 7 | 88 | 14,2 | 14,5 | 92,2 |
|  | 8 | 35 | 5,6 | 5,8 | 98,0 |
|  | 9 | 7 | 1,1 | 1,2 | 99,2 |
|  | $10=$ extremely right-wing | 5 | ,8 | ,8 | 100,0 |
|  | Total | 606 | 97,6 | 100,0 |  |
| Missing | System | 15 | 2,4 |  |  |
| Total |  | 621 | 100,0 |  |  |


| Ext Lib=0; Ext Cons=10 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | $0=$ extremely liberal | 9 | 1,4 | 1,5 | 1,5 |
|  | 1 | 7 | 1,1 | 1,1 | 2,6 |
|  | 2 | 33 | 5,3 | 5,4 | 8,0 |
|  | 3 | 104 | 16,7 | 16,9 | 24,9 |
|  | 4 | 114 | 18,4 | 18,6 | 43,5 |
|  | 5 | 210 | 33,8 | 34,2 | 77,7 |
|  | 6 | 69 | 11,1 | 11,2 | 88,9 |
|  | 7 | 47 | 7,6 | 7,7 | 96,6 |
|  | 8 | 11 | 1,8 | 1,8 | 98,4 |
|  | 9 | 5 | ,8 | ,8 | 99,2 |
|  | 10 = extremely conservative | 5 | ,8 | ,8 | 100,0 |
|  | Total | 614 | 98,9 | 100,0 |  |
| Missing | System | 7 | 1,1 |  |  |
| Total |  | 621 | 100,0 |  |  |

- [Table 2 - Cronbach's alfa of variables $L_{-} R$ and $L_{-} C$ ]


## Reliability Statistics

|  | Cronbach's <br> Cronbach's <br> Alpha Based on <br> Standardized <br> Items | N of Items |
| ---: | ---: | ---: |
| , 605 | , 605 | 2 |

- [Table 3 - Correlation between variables Mean_soc_ideo and Mean_eco_ideo]


## Correlations

|  | Mean_soc_ideo | Mean_eco_ideo |
| :--- | ---: | ---: |
| Mean_soc_ideo | 1,000 |  |
| Mean_eco_ideo | , 181 | 1,000 |

- [Table 4 - Cronbach's alpha of variables Mean_soc_ideo ; Mean_eco_ideo; $L_{-} R$ and L_C ]

Reliability Statistics

|  | Cronbach's <br> Cronbach's <br> Alpha Based on <br> Standardized <br> Items | N of Items |
| ---: | ---: | ---: |
| , 594 | , 615 | 4 |

- [Table 5 - correlation and Cronbach's alpha between variables Mean_both_ideo, L_R and L_C/


## Correlations

|  |  | $\begin{gathered} \text { Ext Left=0; Ext } \\ \text { Right }=10 \end{gathered}$ | $\begin{gathered} \text { Ext Lib=0; Ext } \\ \text { Cons }=10 \end{gathered}$ | Mean_both_ideo |
| :---: | :---: | :---: | :---: | :---: |
| Ext Left=0; Ext Right=10 | Pearson Correlation | 1 |  |  |
|  | Sig. (2-tailed) |  |  |  |
|  | N | 606 |  |  |
| Ext Lib=0; Ext Cons=10 | Pearson Correlation | ,434** | 1 |  |
|  | Sig. (2-tailed) | ,000 |  |  |
|  | N | 604 | 614 |  |
| Mean_both_ideo | Pearson Correlation | , 369** | , $357{ }^{\text {** }}$ | 1 |
|  | Sig. (2-tailed) | ,000 | ,000 |  |
|  | N | 604 | 612 | 616 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Reliability Statistics

| Cronbach's <br> Alpha | N de itens |
| ---: | ---: |
| , 652 | 3 |

- [Table 6 - Correlation and Cronbach's alpha between Mean_both_ideo and Mean_LR_LC]


## Reliability Statistics

| Cronbach's <br> Alpha | Cronbach's <br> Alpha Based on <br> Standardized <br> Items | N of items |
| ---: | ---: | ---: |
| , 591 | , 597 | 2 |

## Correlations

|  |  | Mean_LR_LC | Mean_both_ideo |
| :--- | :--- | ---: | ---: |
| Mean_LR_LC | Pearson Correlation | 1 |  |
|  | Sig. (2-tailed) |  |  |
|  | N | 604 |  |
| Mean_both_ideo | Pearson Correlation | , $425^{* *}$ | 1 |
|  | Sig. (2-tailed) | , 000 |  |
|  | N | 602 | 616 |

**. Correlation is significant at the 0.01 level (2-tailed).

- [Table 7 - Correlations between Mean_both_ideo and CONF_FIN1, CONF_FIN2, CONF_FIN3; Mean_both_ideo and CONF_DET, CONF_CAR, CONF_TRIP]

| Correlations |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | CONF_FIN1 | CONF_FIN2 | CONF_FIN3 | $\begin{gathered} \text { Mean_both_i } \\ \text { deo } \end{gathered}$ |
| CONF_FIN1 | Pearson Correlation | 1 |  |  |  |
|  | Sig. (2-tailed) |  |  |  |  |
|  | N | 621 |  |  |  |
| CONF_FIN2 | Pearson Correlation | ,604** | 1 |  |  |
|  | Sig. (2-tailed) | ,000 |  |  |  |
|  | N | 621 | 621 |  |  |
| CONF_FIN3 | Pearson Correlation | ,401** | ,433** | 1 |  |
|  | Sig. (2-tailed) | ,000 | ,000 |  |  |
|  | N | 621 | 621 | 621 |  |
| Mean_both_ideo | Pearson Correlation | , 117** | ,076 | -,002 | 1 |
|  | Sig. (2-tailed) | ,004 | ,059 | ,957 |  |
|  | N | 616 | 616 | 616 | 616 |

**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

|  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- |

**. Correlation is significant at the 0.01 level (2-tailed).

- [Table 8 - Table of frequencies of variable Mean_both_ideo]

|  |  | Mean_both_ideo |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
| Valid | ,00 | 7 | 1,1 | 1,1 | 1,1 |
|  | ,33 | 8 | 1,3 | 1,3 | 2,4 |
|  | ,50 | 9 | 1,4 | 1,5 | 3,9 |
|  | ,67 | 8 | 1,3 | 1,3 | 5,2 |
|  | ,83 | 17 | 2,7 | 2,8 | 8,0 |
|  | 1,00 | 5 | ,8 | ,8 | 8,8 |
|  | 1,17 | 13 | 2,1 | 2,1 | 10,9 |
|  | 1,33 | 13 | 2,1 | 2,1 | 13,0 |
|  | 1,50 | 17 | 2,7 | 2,8 | 15,7 |
|  | 1,67 | 25 | 4,0 | 4,1 | 19,8 |
|  | 1,83 | 20 | 3,2 | 3,2 | 23,1 |
|  | 2,00 | 19 | 3,1 | 3,1 | 26,1 |
|  | 2,17 | 19 | 3,1 | 3,1 | 29,2 |
|  | 2,33 | 19 | 3,1 | 3,1 | 32,3 |
|  | 2,50 | 25 | 4,0 | 4,1 | 36,4 |
|  | 2,67 | 16 | 2,6 | 2,6 | 39,0 |
|  | 2,83 | 21 | 3,4 | 3,4 | 42,4 |


|  | 3,00 | 19 | 3,1 | 3,1 | 45,5 |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 3,17 | 18 | 2,9 | 2,9 | 48,4 |
|  | 3,33 | 30 | 4,8 | 4,9 | 53,2 |
|  | 3,50 | 20 | 3,2 | 3,2 | 56,5 |
|  | 3,67 | 23 | 3,7 | 3,7 | 60,2 |
|  | 3,83 | 20 | 3,2 | 3,2 | 63,5 |
|  | 4,00 | 23 | 3,7 | 3,7 | 67,2 |
|  | 4,17 | 27 | 4,3 | 4,4 | 71,6 |
|  | 4,20 | 1 | ,2 | ,2 | 71,8 |
|  | 4,33 | 16 | 2,6 | 2,6 | 74,4 |
|  | 4,50 | 18 | 2,9 | 2,9 | 77,3 |
|  | 4,67 | 24 | 3,9 | 3,9 | 81,2 |
|  | 4,83 | 11 | 1,8 | 1,8 | 83,0 |
|  | 5,00 | 11 | 1,8 | 1,8 | 84,7 |
|  | 5,17 | 8 | 1,3 | 1,3 | 86,0 |
|  | 5,33 | 13 | 2,1 | 2,1 | 88,1 |
|  | 5,50 | 13 | 2,1 | 2,1 | 90,3 |
|  | 5,67 | 12 | 1,9 | 1,9 | 92,2 |
|  | 5,83 | 12 | 1,9 | 1,9 | 94,2 |
|  | 6,00 | 2 | ,3 | ,3 | 94,5 |
|  | 6,17 | 5 | ,8 | ,8 | 95,3 |
|  | 6,33 | 6 | 1,0 | 1,0 | 96,3 |
|  | 6,50 | 7 | 1,1 | 1,1 | 97,4 |
|  | 6,67 | 7 | 1,1 | 1,1 | 98,5 |
|  | 6,83 | 1 | ,2 | ,2 | 98,7 |
|  | 7,00 | 1 | ,2 | ,2 | 98,9 |
|  | 7,17 | 1 | ,2 | ,2 | 99,0 |
|  | 7,50 | 1 | ,2 | ,2 | 99,2 |
|  | 7,67 | 1 | ,2 | ,2 | 99,4 |
|  | 8,00 | 3 | ,5 | ,5 | 99,8 |
|  | 8,67 | 1 | ,2 | ,2 | 100,0 |
|  | Total | 616 | 99,2 | 100,0 |  |
| Missing | System | 5 | , 8 |  |  |
| Total |  | 621 | 100,0 |  |  |

- [Table 9 - Study regarding SK_bigger_OK: Correlations between Mean_both_ideo; table of frequencies and graph]


## Correlations

|  |  | Mean_both_ideo | SK_bigger_OK |
| :--- | :--- | ---: | ---: |
| Mean_both_ideo | Pearson Correlation | 1 |  |
|  | Sig. (2-tailed) |  |  |
|  | N | 616 |  |
| SK_bigger_OK | Pearson Correlation | ,- 022 | 1 |
|  | Sig. (2-tailed) | , 593 |  |
|  | N | 616 | 621 |


|  |  | SK_bigger_OK |  |  | Cumulative Percent |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Frequency | Percent | Valid Percent |  |
| Valid | 0 | 13 | 2,1 | 2,1 | 2,1 |
|  | 1 | 608 | 97,9 | 97,9 | 100,0 |
|  | Total | 621 | 100,0 | 100,0 |  |



- [Table 10 - Regression model of variables ideo_times_age, O_Fin_KnowTotal, Income, Gender, Age, ideo_times_income, ideo_times_gender, Mean_both_ideo]

Model Summary

| Model | R | R Square | Adjusted <br> Square |  | Std. Error of the Estimate |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | ,421 ${ }^{\text {a }}$ | ,178 | ,167 |  | , 60163 |

a. Predictors: (Constant), ideo_times_age, O_Fin_KnowTotal, Income,

Gender, Age, ideo_times_income, ideo_times_gender, Mean_both_ideo

## Coefficients ${ }^{\text {a }}$

| Model |  | Unstandardized Coefficients |  | Standardized Coefficients | t | Sig. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | B | Std Error | Beta |  |  |
| 1 | (Constant) | 1,778 | ,233 |  | 7,645 | ,000 |
|  | Mean_both_ideo | ,137 | ,063 | ,343 | 2,165 | ,031 |
|  | O_Fin_KnowTotal | ,213 | ,070 | ,273 | 3,053 | ,002 |
|  | ideo_times_OK | ,004 | ,018 | ,021 | ,213 | ,832 |
|  | ideo_times_income | ,008 | ,007 | ,146 | 1,192 | ,234 |
|  | ideo_times_age | -,024 | ,011 | -,326 | -2,248 | ,025 |
|  | ideo_times_gender | -,051 | ,032 | -,249 | -1,574 | ,116 |
|  | Age | ,123 | ,040 | ,261 | 3,107 | ,002 |
|  | Gender | ,402 | ,123 | ,297 | 3,260 | ,001 |
|  | Income | -,015 | ,026 | -,048 | -,564 | ,573 |

a. Dependent Variable: S_Fin_Know

- [Table 11 - Frequency Statistics of variable age]

Statistics

| Age |  |  |
| :--- | :--- | ---: |
| N | Valid | 621 |
|  | Missing | 0 |
| Mean |  | 4,23 |
| Median |  | 5,00 |
| Mode |  | 5 |
| Percentiles | 25 | 3,00 |
|  | 50 | 5,00 |
|  | 75 | 5,00 |


| Age |  |  |  |  |  |  |
| :--- | ---: | ---: | ---: | ---: | :---: | :---: |
|  |  |  |  | Cumulative <br> Percent |  |  |
|  | $<18$ | Frequency | Percent | Valid Percent |  |  |

 Simple Bar of O_Fin_KnowTotal by Mean_both_ideo


Mean_both_ideo
Filtered by age variable
Younger Individuals ( $<45$ years old)

Simple Bar of O_Fin_KnowTotal by Mean_both_ideo


Filtered by age variable
Older
Individuals ( $>=45$ years old)

## - [Table 13-Correlations between Mean_both_ideo and O_Fin_KnowTotal]

## Correlations

|  |  |  |  |
| :--- | :--- | ---: | ---: |
| Mean_both_ideo | Mean_both_ideo | O_Fin_KnowTotal |  |
|  | Pearson Correlation | 1 |  |
| Sig. (2-tailed) |  |  |  |
| N | 616 |  |  |
|  | Pearson Correlation | , $092^{*}$ | 1 |
| Sig. (2-tailed) | , 023 |  |  |
| N | 616 | 621 |  |

[^1]- [Table 14 - Table of frequencies of variable O_Fin_KnowTotal]

|  |  | O_Fin_KnowTotal |  |  | Cumulative Percent |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Frequency | Percent | Valid Percent |  |
| Valid | 0 | 300 | 48,3 | 48,3 | 48,3 |
|  | 1 | 206 | 33,2 | 33,2 | 81,5 |
|  | 2 | 88 | 14,2 | 14,2 | 95,7 |
|  | 3 | 27 | 4,3 | 4,3 | 100,0 |
|  | Total | 621 | 100,0 | 100,0 |  |

- [Table 15-analysis extremism- correlation with Mean_Total_conf, S_Fin_Know, Mean_conf_dm, CONF_FIN1, CONF_FIN2, CONF_FIN3, CONF_DET, CONF_CAR, CONF_TRIP]


## Correlations

|  | Extremism | CONF_DET | CONF_CAR | CONF_TRIP |  |
| :--- | :--- | ---: | ---: | ---: | ---: |
| Extremism | Pearson Correlation | 1 |  |  |  |
| Sig. (2-tailed) |  |  |  |  |  |
| N | 616 |  |  |  |  |

## Correlations

|  |  | Extremism | CONF_FIN1 | CONF_FIN2 | CONF_FIN3 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Extremism | Pearson Correlation | 1 |  |  |  |
|  | Sig. (2-tailed) |  |  |  |  |
|  | N | 616 |  |  |  |
| CONF_FIN1 | Pearson Correlation | -,102* | 1 |  |  |
|  | Sig. (2-tailed) | ,012 |  |  |  |
|  | N | 616 | 621 |  |  |
| CONF_FIN2 | Pearson Correlation | -,070 | ,604** | 1 |  |
|  | Sig. (2-tailed) | ,083 | ,000 |  |  |
|  | N | 616 | 621 | 621 |  |
| CONF_FIN3 | Pearson Correlation | -,003 | ,401** | ,433*** | 1 |
|  | Sig. (2-tailed) | ,942 | ,000 | ,000 |  |
|  | N | 616 | 621 | 621 | 621 |

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

## Correlations

|  |  | $\begin{gathered} \text { Mean_conf_d } \\ \mathrm{m} \\ \hline \end{gathered}$ | Mean_total_co nf | S_Fin_Know | Extremism |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Mean_conf_dm | Pearson Correlation | 1 |  |  |  |
|  | Sig. (2-tailed) |  |  |  |  |
|  | N | 616 |  |  |  |
| Mean_total_conf | Pearson Correlation | ,690** | 1 |  |  |
|  | Sig. (2-tailed) | ,000 |  |  |  |
|  | N | 616 | 616 |  |  |
| S_Fin_Know | Pearson Correlation | ,281** | ,888** | 1 |  |
|  | Sig. (2-tailed) | ,000 | ,000 |  |  |
|  | N | 616 | 616 | 621 |  |
| Extremism | Pearson Correlation | ,053 | -,033 | -,077 | 1 |
|  | Sig. (2-tailed) | ,192 | ,412 | ,055 |  |
|  | N | 616 | 616 | 616 | 616 |

**. Correlation is significant at the 0.01 level ( 2 -tailed).

- [Table 16-Extremism Multiple Regression Model without interactions ]

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| :--- | ---: | ---: | ---: | ---: |
| 1 | , $406^{\mathrm{a}}$ | , 165 | , 158 | , 60488 |

a. Predictors: (Constant), Income, Age, Extremism, O_Fin_KnowTotal, Gender

Coefficients ${ }^{\text {a }}$

|  |  |  |  |  |  |
| :--- | :--- | ---: | ---: | ---: | ---: | ---: |

a. Dependent Variable: S_Fin_Know

## Appendix

## - [Appendix A - Qualtrics' Survey]

Este questionário tem como objetivo a colecta de dados para a realização de uma Tese de Mestrado da Católica Lisbon School of Business and Economics. O questionário demora cerca de 10 minutos e contém perguntas de opinião pessoal e de conhecimento financeiro (o questionário destina-se a todas as pessoas, mesmo aquelas sem cursos com teor financeiro). Agradecemos desde já o tempo despendido neste inquérito que será de extrema importância para a aluna em questāo!

Por favor indique, relativamente a ideologias politicas, onde localiza a sua preferència:

| $0=$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | $10=$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |


| extremamente <br> de esquerda | extremamente <br> de direita |
| :---: | :---: |

Por favor indique se se considera mais:

| $0=$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | $10=$ <br> extremamente <br> conservador |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| extremamente <br> liberal |  |  |  |  |  |  |  |  |  |  |

Na próxima parte iremos abordar questōes socias e económicas, às quais gostariamos de saber a sua opiniāo. Por favor responda o mais honestamente possível.

Intervenção do Estado: Algumas pessoas acreditam que o Estado devia dedicar apenas uma pequena parte do seu orçamento em áreas como a saúde ou educação, de forma a reduzir a despesa pública.

| $0=$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | $10=$ <br> Discordo <br> totalmente |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

Está num hipermercado e necessita de comprar um produto limpa vidros. Qual escolhe?


Quão confiante está que fez a escolha certa para a sua casa relativamente a preço-qualidade-quantidade?

Nada confiante
Pouco Confiante
Confiante
Muito confiante

Assumindo que tem um salário líquido de 2500 euros e que tem estado a poupar há algum tempo para comprar um novo carro a prestaçōes, qual será a sua opção? Por favor decida com base nas suas ambições de vida e prospecções realistas.

Mercedes Class E desde 56,800€ // Entrada inicial 10,000€ //Pagamento mensal de $688,36 €$ durante 60 meses. Valor Residual

Toyota Yaris desde desde 17,645€ // Entrada inicial 8,765€ // Pagamento mensal de 89,42€

08/222018


Renault Captur desde 15,750€ // Entrada inicial 5,850€ // Pagamento mensal de 1696


Ourtica Sarvey Soltwire
durante 48 meses. Valor Residual 6,3526


BMW X3 desde 59,150є // Entrada inicial 10,055€// Pagamento mensal de $723,46 €$ a 60 meses. Valor Residual 11,8306


Quão confiante está que fez a escolha certa relativamente a preço-qualidade-gosto pessoal?

Nada confiante
Pouco Conflante
Confiante
Muito confiante

Parabéns acabou de ganhar uma viagem com tudo incluido! Pode escolher um dos 4 destinos abaixo:



Quão confiante está que fez a escolha certa?
Nada confiante
Pouco Confiante
Conflante
Muito Confiante

Por fim, iremos fazer trės perguntas de forma a calcular o seu conhecimento financeiro. Por favor tente responder a cada uma delas.

Suponha que tem 1,000€ no seu cartão de crédito, em que é cobrada uma taxa de 20\% por ano. Se ainda não pagou nada, a esta taxa de juro, quantos anos demorará para que a quantia que deve aumente o seu valor para o dobro?

2 anos
menos de 5 anos
5 a 10 anos
mais de 10 anos
Nâo sei

Quão confiante está que fez a escolha certa?
Nada confiante
Pouco Confiante
Confiante
Muito Confiante

Tem uma divida no seu cartảo de crédito de $3,000 €$. Atualmente efetua o pagamento mínimo de $30 €$ por mês. A uma taxa anual de $12 \%$ (ou 1\% por més), quantos anos demorará a eliminar a sua divida de cartão de crédito, se não aumentou mais a sua divida?

Menos de 5 anos
Entre 5 a 10 anos
Entre 10 a 15 anos
Nunca conseguirá pagar a sua divida
Năo sel

Quão confiante está que fez a escolha certa?
Nada confiante
Pouco Conflante
Confiante
Muito Confiante

Compra um utensilio que custa $1,000 €$. Para pagar o mesmo utensilio, é confrontado com duas opçōes:
a) Pagar prestaçōes mensais de $100 €$ durante 12 meses;
b) Pedir o dinheiro emprestado a $20 \%$ a taxa de juro anual e pagar $1,200 €$ daqui a um ano.
Qual é a opção mais vantajosa?
Opçăo a)
Opçao b)
As duas opções são iguais
Nào sel

Quão confiante está que fez a escolha certa?
Nade confiante
Pouco Confiante
Confiante
Muito Confiante

Género
Feminino
Masculino

Idade
$<18$
18-25
25-35
35-45
45-55
$>55$

Qual o rendimento liquido do seu agregado familiar?
Menos de 1000
1001-1500
1501-2000
2001-2500
2501-3000
3001-3500
3500-4000
Mais de 4000

Powered by Qualtrics


[^0]:    Figure 9 (source: Survey Data)

[^1]:    *. Correlation is significant at the 0.05 level (2-tailed).

