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INTENTION TO VOTE: THE ROLE OF NUDGES

Dissertation to Universidade Católica Portuguesa to obtain
a Master's Degree in Psychology in Business and
Economics

By

Alvise Pan

Faculdade de Ciências Humanas

September 2025



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ABSTRACT

Nowadays the phenomenon of decreasing voter turnout is affecting many modern democracies across the world. It is particularly present in the young population aged between 18 and 39. This trend leads to several problems, from unequal voter turnout to unrepresentative government. For its relevance and consequences, it is important to find new strategies to reverse the direction of this trend. This study was designed to investigate the effectiveness of the nudge strategies towards increasing the voter turnout. The two nudges studied were Social Norms and Loss Aversion. In a survey experiment, 155 participants from some European Union countries were randomly assigned to one of the following conditions: control, social norms, loss aversion or a mixed (combined) condition. The findings show no increase in voting intention from the use of nudge. However, the social norms nudge outperformed the mixed condition, suggesting that the combination of nudges can reduce efficacy. Although nudges seem not to play a critical role, other relevant explanatory variables were identified and interpreted in the light of the Theory of Planned Behaviour. The findings are discussed, and future research directions are offered.

KEYWORDS: Democracy, Voter turnout, Nudge, Social Norms, Loss aversion, Theory of Planned Behaviour.

RESUMO

Atualmente, o fenómeno da diminuição da participação eleitoral afeta muitas democracias modernas em todo o mundo. Está particularmente presente na população jovem entre os 18 e os 39 anos. Esta tendência leva a vários problemas, desde a participação eleitoral desigual ao governo não representativo. Dada a sua relevância e consequências, é importante encontrar novas estratégias para reverter a direção dessa tendência. Este estudo foi projetado para investigar a eficácia das estratégias de *nudging* para aumentar a participação eleitoral. Os dois *nudges* estudados foram as Normas Sociais e Aversão à Perda. Num estudo experimental, 155 participantes de alguns países da União Europeia foram aleatoriamente distribuídos numa de quatro condições: controle, normas sociais, aversão à perda ou condição mista (combinada). Os resultados mostram que a intenção de voto não aumenta com o uso de nudges. No entanto, as normas sociais superaram a condição mista, sugerindo que a combinação de nudges pode reduzir a eficácia. Embora os *nudges* não pareçam desempenhar um papel crítico, outras variáveis explicativas relevantes foram identificadas e interpretadas à luz da Teoria do Comportamento Planeado. Os resultados são discutidos, e são oferecidas sugestões para investigação futura.

Palavras-Chave: Democracia, Participação eleitoral, Nudge, Normas Sociais, Aversão à perda, Teoria do comportamento planeado.

Acknowledgments

To my grandfather Francesco.

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INTRODUCTION

Democracy and voter turnout

Democracy derives from the Greek word "dēmokratia," which was coined from "dēmos" ("people") and "kratos" ("rule"). It is a form of government in which state power is vested in the people or the general population of a state (Schwartzberg, 2014). It is a system of government based on popular sovereignty, where all citizens are granted the right to vote, allowing them to participate in public decision-making. Democracy is based on essential principles such as political equality, majority rule, and protecting individual rights and freedoms. The failure to respect these fundamental pillars makes the concept of democracy fail, because without respect for freedoms and rights, citizens are no longer sovereign. It is possible to sum up the modern concept of democracy with the famous words of Abraham Lincoln "government of the people, by the people, for the people."

Democracy is not a static state but rather a continuous process of evolution and improvements. Its origins can be traced back to ancient Greece, particularly Athens in the 5th century BCE, where a first form of direct democracy was practiced (Tridimas, 2011). However, by modern standards, the democracy of the time was backward. Only a small segment of the population, free, land-owning adult males who were born to Athenian parents, were considered citizens and allowed to participate in political life (Gill, 2025). Women, enslaved people, foreigners, and even male residents without full citizenship rights were excluded from participating in the political life of the city. With the evolution of human history and political thought, the concept of democracy has also evolved to reach the idea we have today, where legal equality, civil liberties and broader participation are key elements.

As reported by Freedom House that is an international non-governmental organization, which conducts research and awareness raising on democracy, political freedoms and human rights, democracy is now the dominant form of government worldwide. Throughout history, various forms of government have alternated, such as monarchies, dictatorships, or oligarchies, but despite this, democracy has proved to be the most effective and fair system, because it best meets a set of desirable criteria for political systems, such protects fundamental rights and freedoms, allows peaceful resolution of conflicts and ensures

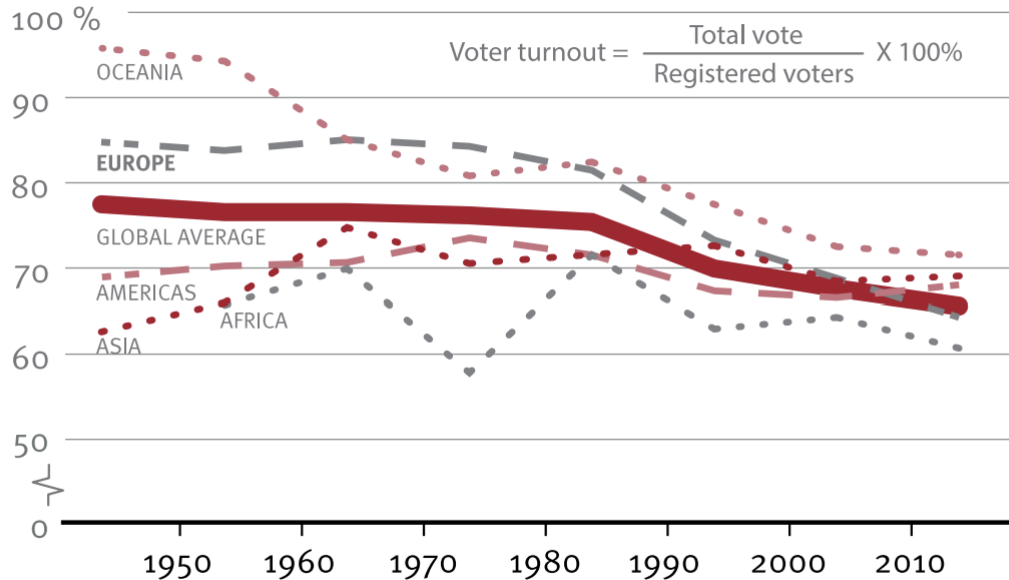
political equality (Dahl, 1998). As argued by Winston Churchill, "It has been said that democracy is the worst form of government except for all those other forms which have been tried from time to time."

Thanks to the evolution of the political thinking nowadays we have a clearer idea of what is a democracy and what is needed to have a healthy democracy. The key factor of the quality and effectiveness of the democracy is the level of civic engagement among its citizens. Robert Putnam (1994) highlighted this correlation by stating, "The correlation between civic engagement and effective government is virtually perfect." Famous philosophers and political thinkers such as Alexis de Tocqueville and John Stuart Mill have also emphasized the relationship between civic participation and the proper functioning of democratic institutions. Already in 1835, Alexis de Tocqueville in his book "Democracy in America" argued that an engaged citizenry reflects a healthy democracy. In support of this thesis and to highlight how this relationship is fundamental, John Stuart Mill in his book "Considerations on Representative Government," asserts that political participation is not merely a right but also a duty. He emphasizes the importance of active engagement to ensure government accountability and responsiveness to the people.

A strong democracy relies on high levels of citizen participation. In modern democracies, the key indicator of this participation is electoral turnout. Nowadays, voting is an essential democratic activity, as it provides citizens with the opportunity to partake in decision-making and make their own voices and interests heard to influence politicians that govern (Sean Kim, 2015). Voter turnout is the extent to which eligible voters use their vote on election day, and it is measured as the percentage of votes cast at an election (IDEA, 2016). As already stated by numerous political thinkers, our democracies perform better when more people vote (Bonica & McFaul, 2018), because a high turnout rate may determine the legitimacy of the political system of a community (Blais & Anduiza, 2013).

Although the importance of a high voter turnout is well known, in recent years, all over the world, we are facing a decline. The following chart (Figure 1) developed by the Institute for Democracy and Electoral Assistance (IDEA, 2016) summarises the trend over time of voter

turnout divided by geographical region. It is possible to observe that in all areas of the world the trend is decreasing.



Source: Voter Turnout Database, www.idea.int/data-tools/data/voter-turnout

Figure 1 Global trend

The situation becomes even more worrying if we focus on the European Union Elections. In the Figure 2, are collected the data on voter turnout for the European elections from its foundation until last year's elections in 2024 (Statista, 2025). It is important to notice two aspects. Since 1979, when the first European election took place, the voter turnout has been declining, even if in the last two elections there has been a slight rise. The second aspect and

the most worrying is that from 1999 to 2014 was recorded a voter turnout of less than 50.00%.

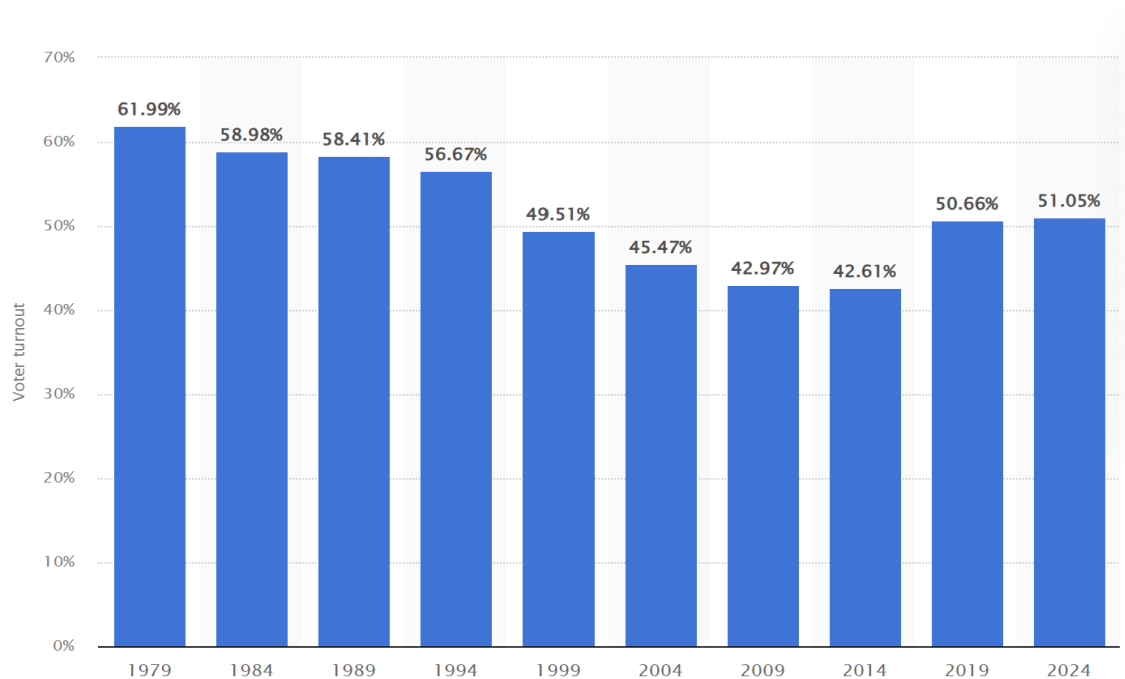


Figure 2 European Union voter turnout

On one hand, having a high voter turnout for a state is important for the representativeness of government and in most cases is a sign of the vitality of democracy. On the other hand, registering a low voter turnout brings issues and challenges. A lower turnout is usually associated with voter apathy and mistrust of the political process (Solijonov, 2016).

The main problem of registering a low voter turnout is that it means unequal and socio-economically biased turnout (Lijphart, 1998). The results of the elections will be inequality, and it will not represent the citizens. A low voter turnout can skew political decisions and reduce democratic accountability. The government does not reflect the citizens, so the basic concept of democracy “government of the people” is missing. This decline poses a significant challenge to democratic representation and legitimacy, since democracy becomes unequal and unrepresentative (Mcelwee, 2015). A persistently low voter turnout leads to an unbalanced representation in government, creating an "unhealthy democracy" by reducing its accountability. The problem is more evident when a specific social group does not vote, because the interests of that group are underrepresented. If a social group does not vote they cannot express their interests and needs and end up being excluded from government

policies. That is why “Our democratic goal should be not just universal suffrage, but universal, or near-universal turnout” (Lijphart, 1998).

Data shows that the social groups that registered a low voter turnout are younger citizens, ethnic minorities, or lower-income communities (Lijphart, 1998). In the following chart (Figure 3) the voter turnout is presented divided by age range. It is immediately clear that the young adults are the ones less likely to vote. The figure 3 refers to the national election of France, United Kingdom, United States and Germany, providing a global overview of the trend that is affecting the interests of the social group. By voting less they have less strength to make their voice heard, and the policies adopted will take their needs and opinions less into account.

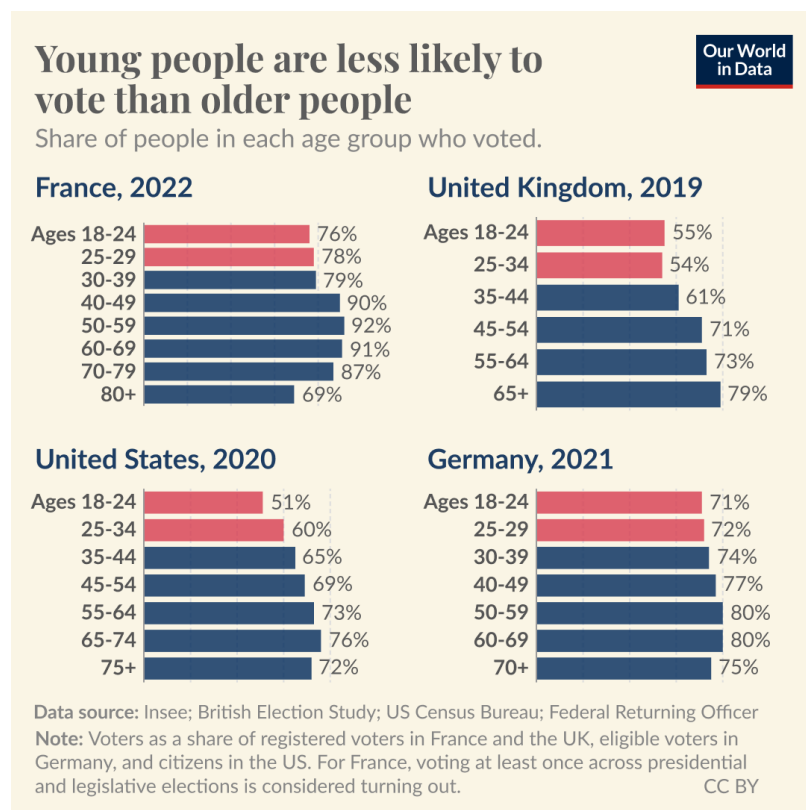


Figure 3 Voter turnout distribution for age group

Shifting the focus to the European Union election, the trend is the same. Table 1 is provided by the 2019 Post-Electoral Survey made by the European Parliament (Zalc et al., 2019). This report analyses the elections in detail, providing a variety of data, including the age of voters. It is clear that the population aged between 18 and 39 is the one that registered the lowest turnout. The chart shows the differences between the 2014 and 2019 elections, highlighting

how in recent years there has been a positive growth, but still not enough to not be considered a problem.

Table 1 European election voter turnout

Age	2014	2019	Diff
16/18-24	28%	42%	14%
25-39	35%	47%	12%
40-54	45%	52%	7%
55+	51%	54%	3%

The role of behavioural economics

Voting is a fundamental decision-making process, and understanding the behaviour behind this decision has long been a relevant and important topic. Researchers have investigated it to understand what drives this behaviour, why people decide to vote or not. The traditional models of voter behaviour attempt to explain it through cost-benefit analysis, based on the concept of "Homo economicus". This term, introduced by John Stuart Mill, argued that man is always rational and makes all the choices in the best possible conditions in terms of information and knowledge, maximizing its usefulness. However, these models fail to capture the complexity of actual voting behaviour, leading to incorrect or partial conclusions. In recent years there has been an increasing interest in alternative frameworks that could explain human behaviour, such as the behavioural economics. This branch, in contrast with traditional models, suggests that humans are not rational (Elahi, 2014). Tversky and Kahneman (1974) demonstrated that human decision-making is often biased, relying on heuristics, as they present bounded rationality (Bolton & Ockenfels, 2011). These heuristics that are mental shortcuts, while useful in many situations, can lead to systematic errors in judgment and decision making (Simon, 1972).

Given this fallacy in the human decision-making process, behavioural science has developed powerful tools to influence people's choices. One method, which has been found to be very useful in orienting people to make some specific choices is nudging. Thaller and Sustain (2008) stated that a nudge "is any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their

economic incentives”, where choice architecture is “the environment in which people make decisions”. These strategies have been very effective in influencing the behaviour of individuals in several areas, especially in public policy. As confirmed by the former United Kingdom Prime Minister, David Cameron. He viewed it as a mechanism to "persuade citizens to choose what is best for themselves and society" (Basham, 2010).

As previously shown, voter turnout is decreasing all over the world. This negative trend highlights the limitations of traditional policies to engage citizens in the electoral process. The data show that what has been done so far is not enough. It is therefore important to try new ways to reverse this trend, and the insights provided by behavioural psychology can have a significant impact on this issue. Research has already shown how the use of nudges can effectively increase voter turnout. Already, different nudges were applied in different contexts and in different countries, all showing great results. Examples of the already applied nudges to increase voter turnout are social pressure, Personalized reminders, Planning of intention, Framing effect and Simplification (Williams et al., 2018; Imai et al., 2007; Kölle et al., 2017)

Problem statement and Research relevance

This thesis explores nudging strategies toward voting behaviour by introducing a new research perspective focused on age and geography. While the impact of nudges on voter turnout is well-documented, there is a notable lack of studies targeting specific age groups and there is a gap in European-focused studies. Therefore, this research intends to answer the question “*Does nudging impact young adults’ voter turnout?*”. By developing an online questionnaire, two of the best-known and most impactful nudges, social pressure and loss aversion, were studied to test their impact on young people.

Structure

In order to provide a comprehensive answer to the research question this thesis will be divided into six different chapters. Following this first Introduction, in which an overview of the problem and the goal of the thesis is given, there will be the Literature Review. In the second chapter, it will be presented the articles and studies that have already deepened the topic of nudging and voter turnout. After a general overview of the behavioural science and nudge, it will focus on the Social Norms and Loss aversion nudges, the ones that will be tested in the survey. This chapter will be helpful to better understand why these nudges have

such a great influence on people's behaviour. The third chapter will be the Methodology, in which it will be presented how the questionnaire has been designed, giving details of the research strategy and all the reasoning that allowed to collect data effectively. After the Methodology, there will be the Results chapter. It will summarize the data analysis and present the results. Strongly related to the Result chapter is the Discussion one. This fifth chapter will discuss the main finds while answering the research question. In addition, it will the main implications as well as recommendations for future research on this topic. Finally, in the last chapter, the Conclusion, a summary of the thesis will be provided.

LITERATURE REVIEW

The Literature Review Chapter aims to provide an empirical and academic background regarding the topics relevant to answer the research questions. The first part, after a brief explanation of the paradox of voting, it will present an extensive overview of the evolution of behavioural economics and the main theories that formed this discipline. The second part will be a complete overview of the literature about nudge with a special focus on the relationship between them and the voting behaviour. It will introduce relevant definitions, concepts, findings and theories from former literature to proceed to hypothesis formulation.

The voting paradox

As previously explained, voting is a fundamental democratic act. Through voting, citizens express their interests, needs, choose their representatives and legitimize the political power exercised by the government. Despite its importance, voting is a decision that is surprisingly difficult to explain through the lens of classical rational choice theory (Engelen, 2006).

When we try to analyse voting behaviour through the lens of traditional rational models we run into the voting paradox. This paradox identified by Downs (1957), highlight how individuals are not rational. According to the Down's Model a rational individual will vote only if the expected benefits (B) of voting outweigh the expected costs (C), and only if their vote has a meaningful chance of affecting the outcome. This is represented by the equation $PB > C$, where P stands for the probability of casting the decisive vote. In large-scale elections, however, P is extremely small, making the expected utility of voting almost zero. This leads the so-called voting paradox, according to which no individual should vote. A conclusion that turns out to be false when we look at the reality, where millions of citizens vote every year. This paradox highlights the failure of the traditional model to account for real-world behaviour.

The inadequacy of rational choice theory points out that humans are not purely rational and the need to identify alternative frameworks, that consider all the possible factors that influence people's decision to vote. A possible explanation is the concept of expressive rationality. According to this concept, people vote to affirm their identity, values, beliefs, or sense of civic duty. Even when a single vote is unlikely to influence results, the act of voting carries intrinsic value (Engelen, 2006). This perspective aligns perfectly with the principles from behavioural economics, which challenges human rationality and emphasizes the

psychological and social factors that shape human decisions. The shift, from rational to behavioural models, is crucial for addressing the persistent problem of low voter turnout. Once we recognize that voting is not strictly a cost-benefit calculation, we can design more effective strategies to engage citizens and strengthen democratic participation.

Behavioural economics foundations

As with all the other thousands of decisions we make throughout the day, from the more important as during an exam, to the less as brushing our teeth, also voting is influenced by how we process information and make choices. For many years, until the end of the last century, we believed that human beings were rational and act as a *Homo economicus*. The concept of *Homo Economicus* was introduced for the first time by John Stuart Mill in the 19th century. According to this, humans are perfectly rational with unlimited cognitive capacity and access to all relevant information, always taking the best decision that will maximise the outcome. With the development of the humans' disciplines, as behavioural economics and psychology, this belief was broken, and a more realistic one was introduced, the *Homo Psychologicus*. Thanks to the contributions of Herbert Simon, Daniel Kahneman and Amos Tversky, now we believe that human beings have a bounded rationality. This means that individuals will not make the optimal decision but the most satisfactory one, given their cognitive limitations. People's rationality is constrained by limited information, time, and mental resources (Tierney, 2011). Under these limitations in order to avoid the decision fatigue, the concept that suggests that people have a restricted amount of mental energy to dedicate to making choices (Tierney, 2011), individuals often rely to cognitive shortcuts. These include heuristics, emotions and the influence of social behaviour, leading to biased judgments (Bolton & Ockenfels, 2011).

Relevant theories

From the concept of *Homo psychologicus*, many theories have been developed. One of the most renowned, for its future implications and impact on the behavioural economic discipline is the Dual process theory developed by Daniel Kahneman in his famous book "Thinking, Fast and Slow" (2011). This theory describes how the human brain works to make decisions. Kahneman, claims that our brain acts using two distinct cognitive systems: System 1 and System 2. These systems work in different ways but simultaneously, significantly influencing people's behaviour. System 1 is fast, automatic and intuitive, allowing people to make quick judgments based on patterns, instincts and past experiences.

This type of thinking requires minimal effort, which makes it ideal for everyday activities such as reading advertisements, tying shoes or recognizing the faces of friends. System 2, on the other hand, is slow, deliberate and analytical. It requires a conscious effort and logical reasoning, which makes it essential to make complex decisions, such as comparing product characteristics, evaluating financial investments or choosing which car to buy.

From the Dual Process Theory, many other cognitive theories and areas of research have emerged, further exploring decision-making and reasoning processes. Since System 2 requires significant cognitive effort, attention, and energy, humans predominantly rely on System 1 for everyday decisions. System 1 functions through heuristics, which are mental shortcuts that rapidly produces a generally adequate, though not ideal or optimal, decision or solution (Tversky & Kahneman, 1974). Although heuristics are generally useful and efficient, they often lead to systematic errors or cognitive biases in thinking that occur when System 1's intuitive responses conflict with System 2's logical analysis (Kahneman, 2011).

Another important and famous theory that has contributed to the evolution of behavioural economics and the concept of Homo psychologicus is the Prospect theory. This theory developed by Daniel Kahneman and Amos Tversky in 1979 has added a more human dimension to the decision-making process by including psychological realism to human behaviour. The Prospect theory explains how people make decisions under risk and uncertainty. It describes how individuals value their gains and losses differently, in an asymmetric manner. Losses are perceived as more painful than an equivalent win. The introduction of this bias helps to better explain people's decision-making process, and to better predict choices compared with the classical economic approach (Barberis, 2013). This theory is very relevant for the purpose of the thesis, since the loss aversion bias that it will be tested is based on this theory.

Nudge theory

As just explained human behaviour is not rational, it has many weaknesses that leads to a decision-making process full of biases, heuristics and fallacy. These tendencies suggest that the decision-making process is far from optimal and is often shaped by limited attention, emotions, habits, and social context (Ariely, 2008). Due to these elements, it is possible to influence people's behaviour, with specific techniques and strategies. According to Thaller and Sustain (2009) a nudge is "is any aspect of the choice architecture that alters people's

behaviour in a predictable way without forbidding any options or significantly changing their economic incentives”, where choice architecture is “the environment in which people make decisions” (Thaller et al., 2012). In other words, the nudges are those interventions that influence people's behaviour without modifying the payoff of their choice. These interventions can vary greatly, by making desired behaviours more attractive, intuitive or enjoyable. One great example is the creative case of the “musical stairs” experiment conducted in Stockholm. In this experiment a group of researchers modified a set of subway stairs to look and sound like piano keys, each step playing a musical note when stepped on. This playful intervention aimed to encourage people to choose the stairs over the escalator, promoting physical activity. This nudge worked by adding an element of fun and immediate reward, exploiting the behavioural tendency to favour immediate gratification, even in small ways. As result, 66% more people opted for the stairs compared to when the piano feature was not present (Melwin, 2022). Another famous example is related to healthy eating. Researchers have shown that simply placing fruits and vegetables at eye level in school or workplace canteen can significantly increase their selection. This technique leverages the people tendency to choose what they see first or most easily. Wansink et al. (2013) found that when healthy options are more visible and convenient, they become the default without needing to restrict access to less healthy foods. Nudges are most often cheap and easily implementable. They are designed to affect the appeal of different proposed options (Dayan & Barh-Hilled, 2011). By altering the presentation of choices to individuals, they influence human's decision-making process by leveraging its bounded rationality (Wilson et al., 2016).

If on one side nudges are recognized as a useful technique to help people to make better decisions, on the other side there is a main critique related to ethical considerations. In the literature, nudges are often described in terms such as “shaping”, “influencing” or “designing” a choice architecture. The question that is raised by critics of the theme, is how does nudge differ from manipulation? Under which conditions are nudges manipulating rather than shaping? The core of the critique is the perception of nudge as a form of manipulation, influencing citizens' choices in a sneaky way, undermining their freedom and autonomy of decision (Hansen & Jespersen, 2013). The ethical concerns are that they might manipulate people in a way that is not transparent to them, by taking advantage of human flaws in judgment and decision-making (Bovens, 2009). Thaler and Sunstein argue that an

anti-nudge position is not contributing with any value to the debate since people are always influenced in decision making contexts anyway. It can be some advice from a friend, or an advertise on the tv with marketing techniques. The main argument of Thaler and Sunstein consists in the fact that any situations someone will be under some kind of influence since no decisions are made in an objective setting (Thaler & Sunstein, 2003).

Thaler and Sunstein (2003) have introduced the concept of Libertarian Paternalism, a fundamental concept to make clear when it comes to influencing people's behaviour and defending nudges from criticism. According to them, Libertarian Paternalism is an approach that maintains actors' freedom of choice while trying to guide them towards the choice that will be most beneficial to their welfare. Due to their irrationality, affecting the architecture of how people make choices is sometimes necessary to put them in a better position.

This term may sound contradictory, but the balance between the two words is crucial. On one hand there is Paternalism that means that someone limits the autonomy of another by making a decision in their own interest, a decision that is better than what others would have done (Dworkin, 2020). Since people have limited cognitive abilities, they stated that it is important to help them making better decisions. On the other hand, there is Libertarian. It is important that paternalistic choices are not coercive. This means that paternalism neither forces anyone in making one choice rather than another nor that it reduces the initial number of choices. Every person that is subject to paternalism should have the freedom of choice (Thaler & Sunstein, 2003). For example, automatically enrolling employees into retirement savings plans, while giving them the freedom to opt out, results in dramatically higher participation rate, without limiting anyone's freedom (Thaler & Benartzi, 2004).

Nudging voter behaviour

According to the literature there are many nudges that could be used to influence citizen's voting behaviour, from the simple reminder to the implementation of intention passing by precommitment (Gerber & Green, 2001; Imai et al., 2007; Nickerson & Rogers, 2010). This study will focus on two nudges, social norm and loss aversion. These two nudges were chosen for two important factors. The first one is their proven impact on influencing people's voting behaviour. The second one, that will be deepen in the Methodology chapter, is the possibility to test them in a one shoot online survey.

The next two sections, “Social norms and pressure” and “Loss aversion” will delve into the nudges providing the psychological theories that explain why they work and presenting field experiments that have already proven their impact on shaping voting behaviour.

Social norms and pressure

Social norms play a crucial role in shaping both individual and collective actions, influencing decisions from daily routine to major life events, passing by voting. In the literature, social norm is defined as a shared standard of acceptable behaviour by a group (Lapinski, 2005). One possible way to guide people’s behaviour is through leveraging these people’s expectations, behaviour and belief (Johann, 2024).

There are two categories of norms; descriptive and injunctive social norms (Cialdini et al., 1991). Descriptive norms reflect what is normally done in a certain situation, they give information on what most people do, in a specific situation, the prevailing behaviour. On the other hand, injunctive norms reflect what most people consider the right thing to do, they give information about which behaviour is appropriate, approved by others.

Research has demonstrated that individuals are more likely to engage in behaviour that they perceive as common or socially approved. As stated by Bouman and Steg (2019) individuals who perceive strong injunctive norms are more likely to engage in that behaviour. An example that can better explain the social norms is the experiment made by Van Teunenbroek et al. (2021), on donation behaviour. In this article, the authors modified the message donors receive by adding information about other participants’ donations. It was found that injunctive social information, mentioning the amount that other participants thought was appropriate to donate, increased the amounts donated by 10%.

The impact and influence that social pressure can have depends on how individuals become aware of social norms and feel morally compelled to follow them. Its process is based on three main aspects, awareness, internalization and enforcement (Gerber et al., 2008). The first, is related to the recognition of the norm, there are rules widely known such as holding the door for an elderly person, or unknown such as removing one’s glove before shaking hands. Internalization is the acceptance of particular norms as proper and applicable, even when they impose costs, for example honouring the dead. Finally, enforcement of norms varies from disdain to ostracism to outright violence.

Another important aspect to take into account when dealing with the social norms is the relationship between the individual and the social group. Social norm is most effective when it comes from close social groups, such as family and friends. Since humans strive to establish and maintain social bonds, it motivates them to conform to the norms of groups they identify with (Baumeister & Leary, 1995). When individuals believe that people they care about expect certain behaviours, they are more likely to act accordingly. Descriptive and injunctive norms have greater influence when tied to meaningful relationships (Glynn et al., 2009).

According to literature, social pressure can be used as powerful nudge to influence people's behaviour in a non-coercive manner. Making small changes in the architecture choice can significantly impact behaviour (Johann, 2024). This pressure can be applied effectively also to voter turnout, where research shows that social pressure can significantly boost political participation.

In the article written by Gerber et al. (2008), the great potential of social norm nudge applied to voting behaviour is demonstrated. During the 2006 Michigan election, the authors tested over 80,000 families. A control group and 4 experimental group were made. Three experimental group in particular received an email 11 days before the election with a message leveraging on social pressure. The group "neighbours" was the one that registered the most increased turnout of +8,1%. This group received the email showing both the voting history of the family and the one of their neighbours, with the implication that an updated table would be sent after the election. This group has seen the greatest increase due to the social pressure applied. Not only they were aware of the behaviour of their neighbours, but they had been threatened to make public who voted and who did not vote (Gerber et al., 2008).

Another relevant article proves the influence of social norms on the intention to vote of college students. In this experiment, conducted by Glynn et al. (2009), students had to complete an online survey on different areas related to voting and social perceptions. The topics ranged from perceptions of the importance of voting, level of personal political interest to intention to vote in the upcoming elections. The control group complete the survey without additional tasks. On the other hand, the two experimental group, "norm salience" and "lowered norm", before completing the survey had to read an article with some

information. For both groups the article provided statistics on the voting behaviour of university students, such as the 47% of young people aged 18-24 voted in the 2004 elections, or 74% of university students said they voted in those elections. The two groups received the same information but for the norm salience group the statistics were higher, instead for the lowered norm group were halved. The researchers noticed that the norm salience group registered a small increase in the voting turnout compared with the control group and the lowered norm group. Although, the direct impact on the voting intention was limited, Glynn et al. (2009) highlight an important indirect effect. This manipulation of the information and the leverage on the social pressure, increased the crystallization of the norm. As stated by Jackson (1960) crystallization quantifies the level of agreement within a given social group regarding what actions should be taken or what opinions should be expressed. With a high crystallization, students better know the right behaviour to adopt in the election environment, indirectly increasing the turnout.

Therefore, it is hypothesized that:

H1) Social norm nudge will lead to an increase in the intention to vote compared to control group

Loss aversion

According to this theory wrote by Daniel Kahneman and Amos Tversky in 1979, people weigh potential wins and losses differently. Losses are typically weighted more heavily than equivalent gains. Therefore, a loss is perceived as more painful than an equivalent win. This phenomenon is known as loss aversion.

The loss aversion concept can be used as powerful nudge when matched with another important element of the Prospect theory, the framing effect. This effect proposes that individuals make decisions based on how an issues is presented, or “framed”. By presenting information in different way, it is possible to influence people’s decisions making (Shan et al., 2020). Loss aversion can be used as a nudge by framing the choice as a potential loss, highlighting what someone could lose if they don't act.

A great example of how the loss aversion can influence people’s behaviour is the field experiment made by Ghesla et al. (2019). In this experiment they were testing the impact of loss aversion toward electricity saving behaviour. Two groups were created, the “loss group“

and the “gain group”. On one hand, the participants in the “loss group” were informed that a tree would be planted in recognition of their participation in the study. However, it was specified that this tree would not be planted if they did not achieve the energy saving target of 5% during the intervention period. On the other hand, the participants in the “gain group” were told that a tree would be planted in their name if they achieved the 5% energy saving target. At the end of the experiment, the authors, registered that the “loss group” had a higher decrease of electricity consumption. The better result of the “loss group” is due to the message framed as a potential loss. In their group, it was implicitly suggested that the benefit (the tree planted) was already "obtained" with participation but could be "lost" if the goal was not reached. Instead in the “gain group” the benefit was presented as something to "earn" by achieving the objective. This experiment supports the prospect theory by demonstrating how fear or pain, due to a potential loss, is weighed higher than happiness brought by the same potential gain (Ghesla et al., 2019).

An interesting article that explores the impact of loss aversion on voting behaviour is the one wrote by Kölle et al. (2017). The authors used the loss aversion to incentivize voter registration in the U.K. The intervention, called “Monetary Loss,” consisted of sending a postcard to unregistered students that included a specific message, “If you don't register you could be fined £80.” The message emphasized the fact, stipulated in British law, that failure to register is technically mandatory and can result in a fine of £80. The goal was to exploit the potentially greater psychological impact of the threat of monetary loss than the promise of a profit. The results showed how subjects exposed to the “monetary loss” message were about 1.7 times more likely to register than those who received a basic postcard (Kölle et al., 2017).

In contrast with the just mentioned article, that demonstrate a positive result of the loss aversion nudge, the article wrote by Bhatti et al. (2018) argues differently. In this article the authors are committed to understanding the real impact of loss aversion on voter turnout. In their field experiment, the authors sent letters to 60,000 Danish first-time voters. The voters were randomly divided into eight different groups, with each group receiving a different version of the letter. Each letter focused on a particular topic: benefits, duty, or pivotality, with each of these topics framed as potential gain or a potential loss. Additionally, there was one letter aimed at reducing the perceived costs of voting, and one final letter that combined all the arguments.

For example, the "benefits" letters were framed as follows:

- Gain frame: “Take part in deciding your everyday life – vote! If you vote in the municipal and regional elections, you take part in deciding how the money will be spent in your municipality and region. Make your influence count – vote!”
- Loss frame: “Do not let others decide your everyday life – vote! If you do not vote in the municipal and regional elections, you do not take part in deciding how the money will be spent in your municipality and region. Don't lose your influence – vote!”

After analysing the turnout across the different groups, the authors found no significant difference between the effects of letters framed as gains and those framed as losses.

As highlighted by these two articles, that support opposing theses, there is no clear and unequivocal idea on the effect that loss aversion has on the voting behaviour. That is why further research is needed to fully understand the impact of loss aversion in the context of voting.

Therefore, it is hypothesized that:

H2) Loss aversion nudge will lead to an increase in the intention to vote compared to control group.

According to the literature, combining different nudges can lead to an amplification of single-nudging expected effects (Camilleri, 2019). As highlighted in the article wrote by Zimmermann et al. (2023), the combination of two nudges, had a statistically significant effect on the participants choice. In the article, the authors applied two digital nudges (decoy and default) together in a simulated web interface, presenting travel options so that the desirable public transportation option was made more attractive by the addition of a lower option (decoy) and was pre-selected and highlighted (default). The nudges were tested both individually and combined. The results were clear in highlighting that the two nudges combined had a greater effect.

Therefore, it is hypothesized that:

H3) The combined nudges, social norm and loss aversion, will lead to an increase in the intention to vote compared to control group.

H4) The combined nudges, social norm and loss aversion, will lead to an increase in the intention to vote compared to single nudge groups.

METHODOLOGY

The following chapter aims to present the methodology adopted to test the hypotheses mentioned previously. Firstly, the study design will be presented as well as the sample and the data collection method. Secondly, it will be explained the procedure including the measurement of each variables. Finally, the data analysis strategy will be described.

Study design

In order to study if social norm and loss aversion nudge will lead to an increase in voting intention, an experimental study was designed, which is the most common way to examine cause effect relationships (Saunders et al., 2023). For this purpose, a scenario-based online survey was conducted with Qualtrics, through which the data was collected. The study followed a between-subjects design, as different participants were randomly assigned, through block randomization function, to four different conditions: control group, social norm nudge, loss aversion nudge, mix nudge.

Since it was not possible to analyse real election data, a scenario-based experiment was developed. As already mentioned, the sample consisted of eligible voters aged from 18 to 39 who are citizens of the European Union. This demographic was chosen due to its underrepresentation in similar studies. Although the focus of this study is the effect of nudge in increasing voter turnout, the European Union has been studied, beyond the reasons just mentioned, because of its electoral system shared by all member states. The EU electoral system is standardized across all member states, and this uniformity gave respondents a shared understanding of the voting process, making it easier for them to relate to the questionnaire. In addition, this element makes it easier for me to design a coherent scenario-based survey, without having to take into account country-specific electoral system. It is possible to check the survey in the appendix.

After the consensus page, to all the four different conditions an introduction page was presented. In this page it was asked to imagine a hypothetical situation in which in May 2025 there will be a new European Election, and all the participants are called to express their vote. After this first information page the participants were randomly assigned to one of the four experimental groups and each group had its manipulation, except the control group. The nudges, independent variable, were presented to the three experimental groups. Thanks to the block randomization function of Qualtrics, the participants were randomly assigned to

four different conditions, control group, social norm, loss aversion and mixed. Each group had an image and a question. The nudge, expect for the control group, was written in the image. The design of the image was based on the real European Union Electoral Campaign (figure 4). For all the conditions a similar image with inside the nudge was designed.



Figure 4 European Union Electoral Campaign

The control group didn't have any manipulation. Its image had just the stars and the date of the election, Sunday 25 May (Figure 5). Even if there was no manipulation with a special text, it was inserted to avoid any bias between the groups.



Figure 5 Control Group image

The social norm group had the same image and design but with a specific text developed according to the social norm nudge principles (Figure 6). The text was “*MORE PEOPLE ARE VOTING, BE PART OF THE PROCESS! According to the data of the European Parliament, since 2014, the overall turnout in the election has been increasing. In 2019, we saw over +13 million voters compared to the previous election.*” Analysing the data provided by the report of the European Parliament (Zalc et al., 2019) this text was developed

to show participants how always more and more people vote. The report highlighted that in 2019 there was an increase of +8% compared to 2014. In order to make this number seem bigger, the percentage was transformed to a number equivalent to +13 million.



Figure 6 Social Pressure image

The loss aversion group, as the social norm, presented the same image and design with the text framed as a potential loss (Figure 7). The text was “*If you don’t vote on May 24-25, 2025, others will decide your future. Don’t let your voice go unheard!*”. According to the loss aversion principles this text was developed. It highlights the negative outcome, others will decide your future, if the participants don’t take action, so if they don’t vote.



Figure 7 Loss Aversion image

The last group was the mixed one (Figure 8), and presented the two nudges, both the social norm and the loss aversion. Also, this group had the same design, and the nudges were the same of the social pressure and loss aversion group.



Figure 8 Mixed group image

In addition to the image just described, in order to measure the dependent variable, each group had the same question with which it was measured the intention to vote. This question just below the image was "How likely are you to vote in this upcoming European Election?" where 0 is "I will not vote for sure" and 100 "I will vote for sure". This question was presented as a slider to facilitate the answering. Once this first section was completed the control variables, political trust and internal efficacy, were measured with specific scale that will be presented in the measure section. Finally, supplementary questions and demographic questions were conducted.

Procedure

Ahead of delving into the survey structure, it is important to highlight that before launching the final survey, I conducted a pilot test among 8 people to understand if the survey was ready to be published or it needed some adjustments and improvements. From the feedback I got, the text of the nudges was too small when completing the survey on the smartphone. Therefore, before publishing the final version, I edited the images by enlarging the text to make it easier to read. Everything else has remained the same as following.

The data was collected through Qualtrics and was distributed through an anonymous link. The distribution started with a convenience sampling, by sharing the link with my community through social media platforms as Instagram, LinkedIn, and WhatsApp. Followed by snowball sampling, where initial participants were encouraged to invite others to participate, maximizing data collection.

The survey was live from the 29th of March until 23rd of May 2025.

Participants

The sample originally was formed by 205 participants. However, after cleaning the sample of those who had not completed 100% of the survey or those who did not meet the other requirements, the final sample consisted of 155 participants. For an experimental study, the minimum sample size is recommended to be 30 participants per each experimental group (Voorhis & Morgan, 2007), the participants were divided into: control group 37, social norm group 40, loss aversion group 41, mixed group 37.

Considering the validated sample of 155 participants, 57.4% were male, 39.4% were female, and 3.2% preferred not to say or non-binary. The mean age of participants is 25.51 (SD = 3.35), with the youngest participants aged 19 and the oldest participants aged 38. Regarding the nationality 77.4% were Italians, 4.5% were French. Both Germans and Finnish were 3.9% and 3.2% were Portuguese. In total the participants came from 13 different countries (Table 2). Most respondents held a bachelor's degree (40.0%), followed by having a master's degree (36.1%), and a High school diploma (31.2%). Professionally, the sample were almost split in two, with 45.2% of full-time employees and 43.9% of students.

Table 2 Participant's countries

County	Number of participants
Austria	2
Belgium	2
Republic of Cyprus	1
Czech Republic	1
Denmark	1
Finland	6
France	7
Germany	6
Italy	119
Poland	2
Portugal	5
Slovenia	1
Spain	2

Measures

Intention to vote

In order to assess the intention to vote a question, based on the Perry Gallup index, was developed. The index, developed in the '60 by Paul Perry, aims to measure with 7 questions the intention to vote (Keeter & Igielnik, 2016). Since the index considered factors that were not relevant or measurable in this survey, a single item question was developed. After looking at the image, with the nudges, participants were asked to answer to the following questions, " How likely are you to vote in this upcoming European Election? where 0 is "I will not vote for sure" and 100 "I will vote for sure". This question was presented as a slider to facilitate the answering.

Control Variables

Political trust

In order to better isolate the true effect of nudges on voting intention, few control variables were added. Political trust was included since it could have an impact on the effectiveness of the nudges. According to Nauvalia (2023), there is a positive correlation between political belief and voting intentions. The higher the political trust that novice voters have, the higher the intention to vote. In support of this finding also the article written by Grönlund and Setälä (2007) highlights the positive impact of trust in the parliament on the voter turnout. By including it in the survey, it is possible to isolate the true effect of the independent variable on the dependent variable.

Political trust was measured with a scale adapted from Hamm et al. (2019) research. Their work is based on Mayer, Davis, and Schoorman (MDS) model (1995). According to this model trust is the willingness of the trustor (the citizen) to accept vulnerability to the actions of the trustee (the government) (Hamm et al., 2019). This model proposes a distinction between trust and trustworthiness. The trust is measured as willingness to accept vulnerability (W2AV) that the other's actions may bring. Instead, the trustworthiness, formed by three different dimensions of the trustee (the government), Ability, Benevolence, and Integrity, can affect the feeling the citizen. Ability addresses the perceived technical competence of the government within the domain of interest. Benevolence addresses government concern for the welfare of citizens. Integrity addresses perception that the government follows a set of internalized values the trustor finds acceptable. So, following

Hamm et al. (2019), the three questions about W2AV were used to measure the political trust of the participants (e.g., W2AV “I am open to letting the European Union make more decisions about issues that are important to me.”). The possible answers were in a five-point scale, ranged between “never” and “all of the time”. The scale showed an excellent reliability ($\alpha = 0.817$).

Internal efficacy

The second control variable was the internal efficacy. It was included in the survey to be able to better analyse the true effect of nudges, since as stated by Craig and Maggiotto (1982), low internal efficacy leads to low participation in political activities such as conventional campaign and community-oriented activities, including voting. According to the authors the efficacy indicates individuals' self-perceptions that they are capable of understanding politics and competent enough to participate in political acts such as voting. By including this variable it is possible to understand if people do not vote because they do not feel capable of making informed decisions about politics. By using the same scale and questions used by Craig and Maggiotto (1982), 5 questions in a 7 points agree-disagree scale were added (1-strongly disagree; 7-strongly agree; e.g., Sometimes politics and government seem so complicated that a person like me can't really understand what's going on). The scale showed an acceptable reliability ($\alpha = 0.673$). Although the α is below 0.7, as stated by Stephen et al. (1995) the minimum reliability level of Cronbach's Alpha is 0.60.

Subjective norms

The next block was composed of one question that aimed to measure the subjective norms of the respondent. As it will be deeply explained in the analysis and result section, a theory that plays a key role in this thesis is the Theory of Planned Behaviour developed by Ajzen in 1991. This theory states that the intention of a person to perform a given behaviour depends on three independent factors. The first one is the Attitude that refers to an individual's positive or negative evaluation of the behaviour. In the survey is measured through the political trust. The second one is the Perceived behavioural control, that refers to a person's belief in their ability to perform the behaviour, measured with the internal efficacy. Finally, the Subjective norms that refer to the perceived social pressure to perform or not perform a particular behaviour. This concept is influenced by the individual's beliefs about whether important people to him approve his behaviour (Ajzen, 1991). Hansen and

Jensen (2008) examined the application of the Theory of Planned Behaviour to understand voters' voting intentions. Based on this article, one question to measure the subjective norms was added. The question covered the perceived expectations from others. Also, for this question the answers ranged in a 7 point agree-disagree scale (e.g., “Most people who are important to me think it is fundamental to vote”).

Past behaviour

The before the last block contained important questions to track a trend in the respondent behaviour. With two questions it was asked whether participant voted in the last European elections, in both 2024 and 2019. This question will help identifying a pattern in the participants' decisions. By knowing its past behaviour, I can put it in relationship with the answers of the survey and understand if nudges played a role in shaping its decision.

Demographic

The last block of the survey was the demographic one. When participants begin a survey, their focus is at their highest. By presenting the key experimental questions first, I aimed to capture responses while concentration levels were high. In contrast, demographic questions, being relatively simple and personal in nature, could be placed at the end when the focus of the participants is lower (The Editorial Team, 2024).

The questions were about gender, age, nationality, education and employment situation. The last two questions are important to better understand the characteristics of the participants especially knowing their relevance in the topic. In fact, the education level and the employment situation will help analysing if the participants already have a high basic motivation, elements that can undermine nudge influence (Romaniuc et al., 2024).

Data Analysis strategy

Moving on to the data analysis strategy, two steps were followed using the statistical software SPSS. The first step aimed to gain a detailed overview of the data set. In this step the descriptive and bivariate statistic were analysed. The descriptive statistic summarized each variable's basic characteristics, such as mean, standard deviation, and distribution. On the other hand, the bivariate statistic examined the relationships between these variables. The second step and the main one to test the hypothesis was an ANCOVA analysis. This analysis allows to isolate the effect of an independent variable, Nudges, while statistically

controlling for the effects of the control variables, such as political trust, internal efficacy and subjective norms.

RESULTS

This chapter will provide an overview of the results gained from the analysis of the data set done with the statistical software SPSS. As already mentioned, the analysis has been developed in two steps, the descriptives and bivariate statistics first and secondly the ANCOVA analysis, for this reason also the results section will be divided into two sections. In the first one, four tables will be presented, one for each condition, illustrating the results regarding the descriptives and bivariate statistics. The major insights will be presented, providing a deep knowledge of the distribution and composition of the sample and correlation per conditions. These elements will lead to a better understanding of the second section, the ANCOVA. The true effect of the nudges on voting intention will be revealed for each group, considering all control variables.

Descriptive and bivariate statistics

The Table 3 present the descriptive and bivariate statistics for the Control Group. For what concern the descriptive statistics it is important to notice that the mean of the Intention to Vote is 81.9 (SD = 29.6). Another aspect is the sample composition, with 72.5% of male. According to Schober et al. (2018) the coefficient 0.40–0.69 has a moderate correlation, 0.70-0.89 has strong correlation and 0.90-1.00 has very strong correlation. The strong positive correlation that immediately stands out is between European election 2024 and intention to vote ($r = .715, p = .001$). These results indicated that individuals who voted in the 2024 election tend to have a higher intention to vote in future elections. Another important data are the ones related to subjective norms with intention to vote and trust respectively ($r = .426, p = .006$; $r = .415, p = .008$). This positive correlation, although is it not strong, indicates that what people, who are important to the individual, think influences the intention to vote and trust among European Union. Lastly, it is however notable with a weak correlation ($r = .377, p = .016$) the positive relationship between trust and intention to vote, suggesting that who has more trust is also more likely to vote.

Table 3 Control Group Descriptive and Bivariate statistics

	Mean (SD)	Range	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. IntVote	81.9 (29.6)	0-100	1									
2. TrustEU	3.3 (0.8)	1-5	.377*	1								
3.IntEff	5.53 (1.3)	1-7	.363*	.081	1							
4.SubNorm	5.5 (1.2)	1-7	.426**	.415**	-.025	1						
5.Elect'19			.232	.204	.258	-.325*	1					
6.Elect'24			.715**	.383*	.146	.200	.249	1				
7.Age	25.6 (2.9)		-.119	-.154	-.272	-.288	.338*	.073	1			
8.Edu	50.0% Bachelor		.047	.209	-.055	.121	.278	.237	.563**	-.053	1	
9.Emp	60.0% Emp. Full-time		.166	.171	.166	.294	-.109	-.061	-.558**	.067	-.395*	1
10.Gender	72.5% Male		.200	-.237	-.208	.350*	-.102	-.063	-.073	-.304	-.094	.197

Note: Sample size: 40. IntVote= Intention to vote; TrustEU= Trust European Union; IntEff= Internal efficacy; SubNorm= Subjective norms; Elect'19= European Election 2019; Elect'24= European Election 2024; Gender= Gender; Age= Age; Edu= Education; Emp= Employment status.

p< .05, **p< .01, *p< .001*

The following table (Table 4) illustrates the statistics for the social norms group. Also, for this experimental group it is important to point out the descriptive statistic of the intention to vote, mean 89.5 (SD = 17.8) that is the highest of all the conditions. As for the control group, also in this group there is a positive correlation between the European election 2024 and intention to vote ($r = .494$, $p = .001$). It highlights how the past behaviour is a predictor of the future election behaviour, with those who had voted in the past more likely to vote in the upcoming election.

Table 4 Social Norms group Descriptive and Bivariate statistics

	Mean (SD)	Range	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. IntVote	89.5 (17.8)	0-100	1									
2. TrustEU	3.5 (0.8)	1-5	.210	1								
3.IntEff	4.3 (1.1)	1-5	.214	.048	1							
4.SubNorm	5.8 (1.3)	1-7	-.006	.206	-.121	1						
5.Elect'19			.232	-.050	.255	-.202	1					
6.Elect'24			.494**	.235	.089	.088	.087	1				
7.Age	24.8 (2.8)	18-39	-.036	.143	.019	-.051	.320*	.123	1			
8.Edu	40.0% Bachelor		.230	.230	.069	.216	.304	.279	.663**	.212	1	
9.Emp	47.5% Student		.043	.043	-.030	-.052	-.087	.110	-.641**	.032	-	1
10.Gender	50% Male		-.216	-.216	-.205	-.157	-.043	-.133	.002	-.097	-.154	-
												.150

Note: Sample size: 40. IntVote= Intention to vote; TrustEU= Trust European Union; IntEff= Internal efficacy; SubNorm= Subjective norms; Elect'19= European Election 2019; Elect'24= European Election 2024; Gender= Gender; Age= Age; Edu= Education; Emp= Employment status.

p< .05, **p< .01, *p< .001*

The Table 5 reveals the statistics of the loss aversion group. The mean of the intention to vote is 86.1 (SD = 18.1). Moving to the bivariate statistic there is a coefficient that has almost a moderate correlation, therefore notable, is between trust and intention to vote ($r = .371$, $p = .017$). Demonstrating, as for the control group, that who has more trust is also more likely to vote.

Table 5 Loss Aversion group Descriptive and Bivariate statistics

	Mean (SD)	Range	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. IntVote	86.1 (18.1)	0-100	1									
2. TrustEU	3.3 (0.9)	1-5	.371*	1								
3.IntEff	3.8 (0.9)	1-5	.318*	.013	1							
4.SubNorm	5.7 (1.4)	1-7	.320*	.197	.224	1						
5.Elect'19			.354*	.169	-.077	.402**	1					
6.Elect'24			.274	-.022	.061	.398*	.226	1				
7.Age	25.9 (3.7)	18-39	.209	-.077	-.053	-.079	.062	.151	1			
8.Edu	39.0% Bachelor		.265	.299	.152	.286	.280	0.00	.300	-.126	1	
9.Emp	48.8% Student		-.173	-.166	.190	.045	-.040	-.078	-.504**	.019	-	1
10.Gender	48.8% Male		-.001	.157	-.281	.292	.185	0.78	.079	.012	.075	-
												.201

Note: Sample size: 41. IntVote= Intention to vote; TrustEU= Trust European Union; IntEff= Internal efficacy; SubNorm= Subjective norms; Elect'19= European Election 2019; Elect'24= European Election 2024; Gender= Gender; Age= Age; Edu= Education; Emp= Employment status.

p< .05, **p< .01, *p< .001*

This last table, that shows the statistics of the mixed group (Table 6), has recorded the lowest mean for the intention to vote, 75.9 (SD = 29.0). The most significant result is aligned with the previous groups since there is a positive correlation between European election 2024 and intention to vote ($r = .392$, $p = .022$).

Table 6 Mixed group Descriptive and Bivariate statistics

	Mean (SD)	Range	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. IntVote	75.9 (29.0)	0-100	1									
2. TrustEU	3.3 (0.8)	1-5	.162	1								
3.IntEff	4.1 (0.9)	1-5	.294	-.152	1							
4.SubNorm	5.5 (1.2)	1-7	-.070	-.093	-.029	1						
5.Elect'19			.171	-.043	.107	-.061	1					
6.Elect'24			.392*	.054	.280	.038	.064	1				
7.Age	25.5 (3.9)	18-39	.114	.257	.121	-.105	.326	-.152	1			
8.Edu	38.2%		-.183	-.038	.307	.264	.091	-.211	.375*	-.169	1	
9.Emp	44.1% Master Student		.078	-.204	-.026	.207	-.411*	.151	-.599**	.203	- .458**	1
10.Gender	58.8% Male		.232	.071	-.076	.059	.156	.186	-.043	.153	-.044	.117

Note: Sample size: 34. IntVote= Intention to vote; TrustEU= Trust European Union; IntEff= Internal efficacy; SubNorm= Subjective norms; Elect'19= European Election 2019; Elect'24= European Election 2024; Gender= Gender; Age= Age; Edu= Education; Emp= Employment status.

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

Hypotheses testing

In this second section, the results related to the hypotheses testing will be presented. As mentioned, an ANCOVA was conducted to compare the intention to vote across different groups while controlling for control variables, allowing for a clearer understanding of the true effects of the manipulation.

The first step in the analysis is the Levene's test. This test assesses the homogeneity of variances, that is whether different groups have equal variances in the dependent variable, that is a key assumption to run an ANCOVA. Levene's test for homogeneity of variances was not significant, $F(85, 68) = 0.85$, $p = .761$, indicating that the assumption of equal variances was met. In the following table are presented the mean for the difference groups.

Table 7 Intention to vote

Condition	Intention to vote (mean)
Control Group	81.9
Social Norms Group	89.5
Loss aversion Group	86.1
Mixed Group	75.9

Note: range 0-100.

Once the homogeneity test was executed it was possible to move on to the ANCOVA. As shows in the table below (Table 8), the analysis reported that there are six variables that have impact on the Intention to Vote. The most important one, to the purpose of this thesis, is the significant effect of the conditions (social norms, loss aversion, mixed) on the intention to vote ($p = .014$). These results reveal that among the 3 different group conditions there is a difference that will be further analysed with the Pairwise Comparison. In addition, both internal efficacy ($p < .001$) and European election 2024 ($p < .001$) registered a very strong effect on the dependent variable. Another variable that plays a role is the trust EU ($p = .014$). Lastly, also two demographic variables have an influence on the intention to vote, nationality ($p = .014$) and employment status ($p = .039$). The ANCOVA model accounted for approximately 56% of the variance in intention to vote, with an adjusted R^2 of .45.

Table 8 Tests of Between-Subjects Effects

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	47763.550	31	1540.760	5.051	<.001
Intercept	188.632	1	188.632	.618	.433
Cond	3364.668	3	1121.556	3.677	.014
TrustEU	2080.920	1	2080.920	6.822	.010
IntEff	4646.203	1	4646.203	15.231	<.001
SubNorm	745.699	1	745.699	2.445	.121
Elect'19	568.483	1	568.483	1.864	.175
Elect'24	5521.192	1	5521.192	18.100	<.001
Age	510.412	1	510.412	1.673	.198
Nation	7701.396	11	700.127	2.295	.014
Education	543.923	4	135.981	.446	.775
Emp	2631.229	3	877.076	2.875	.039
Gender	2200.905	3	733.635	2.405	.071
Error	37215.209	122	305.043		
Total	1176817.000	154			
Corrected Total	84978.760	153			

Note: Dependent variable= Intention to vote; a R Squared = ,562 (Adjusted R Squared = ,451); Cond= Conditions; TrustEU= Trust European Union; IntEff= Internal efficacy; SubNorm= Subjective norms;

Elect'19= European Election 2019; Elect'24= European Election 2024; Gender= Gender; Age= Age; Edu= Education; Emp= Employment status.

To further examine the effect of the different experimental conditions on the intention to vote, a Pairwise Comparison was conducted. This analysis identifies where significant differences exist among the conditions. As indicated in the following table (Table 9), a statistically significant difference emerged between social norm group and mixed group. The participants of the social norm group reported a significant higher intention to vote than those in the mixed group ($p = .027$; [95% CI: 0.93, 24.68]; M difference = 12.805). This result indicates that the mixed nudges, combining social norms and loss aversion, appears less effective than social norms nudge alone.

No other statistically differences were observed. Specifically, comparisons between control group and both the social norms ($p = .237$; [95% CI: -21.167, 2.668]; M difference = -9.249) and loss aversion ($p = .916$; [95% CI: -18.539, 5.590]; M difference = -6.474) groups were not significant, indicating that both Hypotheses 1 and 2 were not supported. Similarly, there was no significant difference between the control and mixed groups ($p = 1.00$; [95% CI: -8.975, 16.088]; M difference = 3.556), providing no support for Hypothesis 3.

The situation is bit different for Hypothesis 4. While for the hypotheses 1, 2, 3 no differences were detected for the 4 was found. Hypothesis 4, which predicted that the mixed condition would perform better than the single nudges strategies, the results showed the opposite pattern. While there was no significant difference between loss aversion and mixed groups ($p = .128$; [95% CI: -1.502, 21.563]; M difference = 10.031), the social norms condition, as already mentioned, significantly outperformed the mixed condition ($p = .027$; [95% CI: 0.93, 24.68]; M difference = 12.805). This finding directly contrasts Hypothesis 4 and suggests that the individual use of the social norm nudge is more effective in increasing the intention to vote than when combined with loss aversion nudge.

Table 9 Pairwise Comparisons

(I) Cond	(J) Cond	Mean Difference (I-J)	Std. Error	Sig.c	95% Confidence Interval for Differencec	
					Lower Bound	Upper Bound
Control	Social Norms	-9.249	4.444	.237	-21.167	2.668
	Loss aversion	-6.474	4.498	.916	-18.539	5.590
	Mixed	3.556	4.673	1.000	-8.975	16.088
Social Norms	Control	9.249	4.444	.237	-2.668	21.167
	Loss aversion	2.775	4.349	1.000	-8.889	14.439
	Mixed	12.805	4.427	.027	.931	24.679
Loss aversion	Control	6.474	4.498	.916	-5.590	18.539
	Social Norms	-2.775	4.349	1.000	-14.439	8.889
	Mixed	10.031	4.300	.128	-1.502	21.563
Mixed	Control	-3.556	4.673	1.000	-16.088	8.975
	Social Norms	-12.805	4.427	.027	-24.679	-.931
	Loss aversion	-10.031	4.300	.128	-21.563	1.502

Note: Dependent variable= Intention to vote

These findings suggest that while behavioural nudges play a role in influencing the intention to vote, there are also other variables that have an impact on it. This provides a strong foundation to proceed to the discussion section, where it will be explored how these elements, nudges and the other factors, contribute to increase the intention to vote.

DISCUSSION

This thesis aims to identify the effects of nudges on the intention to vote among young adults, aged from 18 to 39, in Europe. The following chapter discusses the main findings and relates them with the research question. Theoretical and practical implications are considered, followed by a discussion of the study's limitations and suggestions for future research in this topic.

Research Findings

Nowadays, the use of nudges has become increasingly common and valued by different entities, such as government, NGOs and electoral bodies. Nudges have been applied in various contexts to influence people's behaviour. As already mentioned, numerous studies have already demonstrated their potential to boost voter turnout (Williams et al., 2018; Imai et al., 2007; Kölle et al., 2017). However, little attention has been given to the difference that the effectiveness of nudges may have depending on age range of the population. Therefore, this thesis aims to determine whether nudges can increase the intention to vote among a specific age range, the young adults.

Firstly, the research's results did not provide support for the first three proposed hypotheses. Hypotheses 1 and 2 predicted, respectively, that the social norm and loss aversion groups would have led to an increase in voter intention compared to the control group. Instead, the hypothesis 3 predicted that the mixed group would have led to an increase compared to the control group. Although, according to the literature review among the experimental groups there should be a difference, the results of the study did not provide any statistically relevance difference between control group and experimental groups' intention to vote. However, it is possible to notice that there is a tendency, as the social norms and loss aversion groups have registered a mean intention to vote higher than the control group. While this pattern cannot be interpreted due to its non-significant effect, it may suggest a potential influence of nudges on voting intention. These results could be due to the limited sample size and the greatest impact of the standard deviation on them. Therefore, even if an average difference between the groups was found, it is not statistically significant enough to support the hypotheses 1, 2 and 3, as the standard deviation acquires greater impact as the sample size decreases. In addition, while conducting the ANCOVA analysis, other variables were found to have a greater impact on voting intention. Political trust, internal efficacy and past

electoral behaviour were found as the most influential variables and will be the focus of the next section.

Moving to the Hypothesis 4, the results do not support it. The results show an opposite path. While the hypothesis stated that the use of both nudging strategies, mixed group, would have led to an increase in the intention to vote, the data shows that social norm has led the highest intention to vote. The social norm condition significantly outperformed the mixed conditions ($p = .027$; [95% CI: 0.93, 24.68]; M difference = 12.805). This unexpected result could be explained by cognitive overload. This term refers to “the situation in which the demands placed on a person by mental work (the cognitive load) are greater than the person’s mental abilities can cope with” (American Psychological Association, n.d.). As stated by Daniel Kahneman in his famous book "Thinking, Fast and Slow" (2011), human brain works based on two systems, 1 and 2. Leveraging this knowledge also the nudge theory has developed system 1 and 2 nudge. Hansen and Jespersen (2013) argue that, while both types of nudges affect automatic modes of thinking, only Type 1 nudges are aimed at influencing behaviour without involving reflective thinking. In contrast, Type 2 nudges require conscious consideration, engaging System 2 processes to influence behaviour through deliberation, judgement, and reflective thinking. The two nudges developed for this study, when read singularly, are Type 1 since are leveraging human brain System 1 with fast and automatic decisions. The situation changes when the nudges are taken together. The two sentences become longer, with more information and require more attention to understand. Considering the two nudges as one, it becomes Type 2 as it requires more attention to be well interpreted. By increasing the complexity of the nudge, the cognitive load of people exposed to it also increases. As stated by Weijers et al. (2020) the effectiveness of Type 2 nudges decreases in contexts with a high cognitive load. Individuals may lack the mental resources to process information or undertake the reflective thinking that Type 2 nudges seek to trigger, and this phenomenon could explain the greatest influence of the social norm nudge compared with the mixed group.

Although not the focus of this study, as identified while running the ANCOVA analysis, there are three variables that have a strong impact on the dependent variable, political trust, internal efficacy and past electoral behaviour. While the past behaviour is a variable that stand alone the others two require a deepen analysis. As already highlighted by the literature

review past behaviour is a good predictor of voting intention (Romaniuc et al., 2024). When an individual voted in the past is more likely to vote also in the next election.

On the other hand, following the approach of Hansen and Jensen (2008), the political trust and internal efficacy can be analysed under the lens of the Theory of Planned Behaviour that can provide a useful framework to interpret the findings. The theory developed by Ajzen (1991) states that the best predictor of people's behaviour is their intention to perform that behaviour. The intention, as shown in the following image (Figure 9), is shaped by three core determinants: attitudes toward the behaviour, perceived behavioural control, and subjective norms.

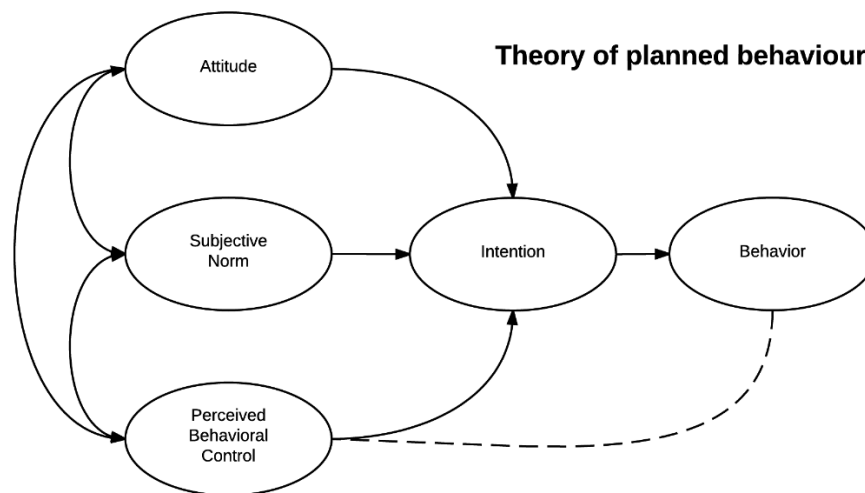


Figure 9 Theory of Planned Behaviour

These three dimensions can be mapped into the variables measured in the survey. The attitude is the positive or negative evaluation of the behaviour in question (Miller, 2017). This element is related to political trust measured in the survey. Individuals with a higher trust towards political institution are more likely to view political participation as positive. In contrast, individuals with a lower trust will have a lower attitude, diminishing the likelihood to engage in the behaviour. The perceived behavioural control refers to the extent to which individuals feel able to engage in the behaviour (Miller, 2017). This dimension is linked to the internal efficacy. This variable reflects individuals' self-perceptions of being capable of understanding and engaging with politics. A higher internal efficacy can be read as a stronger perception of control, as people feel confident in their ability to make informed political decisions, such as voting. On the other hand, low efficacy reflects limited perceived

behavioural control, which may reduce behavioural intentions, since they feel they don't have the quality for understanding politics and participate. The last dimension is the subjective norm, that refers to the perceived opinion of other people in relation to the behaviour in question, or more in general the social pressure (Hansen & Jensen, 2008). In the questionnaire this element was investigated directly, but it was not statistically relevant. Although this result, it is still possible to map the three dimensions of the theory with the survey. As shown in the results section, the most influential nudge has been the social norm one. This allows to use the nudge as an indicator of the effectiveness and importance of subjective norm dimension.

The Theory of Planned behaviour, supported by the questionnaire data, explains that people's behaviour depends on these three dimensions. Nudges independent factors such as political trust, internal efficacy and social norm, are strong predictors of behaviour. In comparison, the effect of nudges is weaker and becomes almost negligible when considered alongside these elements. This suggests that nudges play only a secondary role, in increasing voting intention, while the three dimensions are more relevant.

Theoretical and Practical implications

The findings of this dissertation offer both theoretical and practical valuable implications. Firstly, nudges are a relatively recent topic, which requires further research, especially on their effectiveness towards increasing the voter turnout. This thesis addresses the research gap, identified in the introduction, by deepening the effect of social norm and loss aversion nudges among the young European population, aged between 18 and 39. Moreover this study, through hypothesis 4, highlighted the importance of recognizing the difference between nudge of type 1 and 2. Most studies argue that combining two or more nudges can lead to greater influence (Zimmermann et al., 2023). However, according to the data presented, it is not sufficient to combine two nudges, it is important to identify the two correct ones. It must be checked that they have no friction with each other and that their effect is enhanced by their combination and not diminished as happened in the present study.

Furthermore, this study has practical implications on the relationship between nudging strategies and the dimensions that guide human behaviour. As highlighted by the study results, there are factors, such as political trust and internal efficacy, that seem more relevant than nudges designed to increase voting intention. Therefore, for policymaker, government,

and all entities seeking to increase voter turnout, it is crucial to address these primary factors before focusing on communication campaigns just leveraging nudging strategies. However, it is important to remember that nudges are techniques for influencing the individual's behaviour, therefore they can be used to address these factors that arrived prior to the mere communication campaign. Nudges combined with deeper institutional campaigns can bring benefits and help take action regarding the factors identified in this study. As already mentioned previously, these use of these techniques must be included in the broader concept of Libertarian Paternalism, which underlines how actors maintain their freedom of choice while guided towards a choice that will be most beneficial for their welfare, and not as a mere manipulation or a way to undermining their freedom of choice.

Limitations and futures research

This study suffers from several limitations that should be considered. Firstly, there are three limitations related to the sample. The first one is the sample size. The questionnaire has been completed by 155 participants. Although the size was enough to run the analysis and the study, a bigger sample size could have dampened the impact of the standard deviation, making possible greater precision in the analysis of the effect. As presented in the Discussion section, the small sample size has probably led to a high standard deviation that has influenced the analysis. Secondly, due to the survey distribution, the sample was not fully representative of the target population. The vast majority of the participants were high educated, with a bachelor's or master's degree. This factor may have weakened the impact of nudges as that individuals with higher education levels have a basic higher intention to vote (Saccardo et al., 2024; Romaniuc et al., 2024). This trend is confirmed by the high means for the intention to vote, that have registered the lowest score at 75.9. This composition of the sample can also be explained by self-selection bias, happened due to the sampling technique used in the study. This bias arises in any situation in which individuals select themselves into a group, causing a biased sample with nonprobability sampling (Ziliak & McCloskey, 2008). Future studies should focus on a more representative sample in order to mitigate the high education effect. The last limitation related to the sample is the geographical representation. The study aimed to investigate the nudge effect in the European Union, for the reasons specified in the Introduction and Methodology. Due to the small sample size, the European countries are not well represented. There are countries as Italy with over 100 participants and other countries with no participants. Future studies should

consider that even if European Union is small, within it there is a huge variety of cultures, that could play a role in nudge effectiveness. The sample should be bigger in order to have a good representation of every country, or they could consider the possibility to focus on just one country.

Related to this last sample limitation there is also the language barrier. The survey was designed in English. Although, the language is spoken by many there might be two main problems. The first one is that not everyone speaks English and not all fluently. It is possible that some individuals did not complete the questionnaire because they did not feel confident in doing so in not their native language. This first problem brings back to the problem of the representativeness of the sample. The second problem is that, since the nudges were written in English, they could have lost some of their power. With nudges written in the respective languages of the European countries they can have a greater effect as each language has its own facets and peculiarities.

The last limitation is related to the combination of nudges used to test the hypothesis 4. As already mentioned, not all nudges work together. It is important to choose the right combination. The mix used in the survey, social norm and loss aversion, did not produce the expected result as they might have produced a cognitive overload. Later studies should focus on finding a combination of two or more nudges that together produce a better result rather than alone.

The most significant recommendation for future research in this field concerns the use of the social norm nudge. As highlighted in the result and discussion sections, this type of nudge outperformed the other. The literature identifies several levels and variations of this nudge, each capable of producing different and sometimes more intense effects. Among these, the most promising variation appears to be the Hawthorne Effect identified by Henry Landsberger (Noland, 1959). This effect refers to changes in behaviour that occur simply because individuals are aware of being observed. Gerber et al. (2008) applied this principle in an electoral context by making voter turnout information public to household or their neighbours. Their findings showed that when people felt observed and feared social judgment, their turnout rates increased significantly. Although it was not possible to apply this variation in this study due to its specific requirements, future research should pay

particular attention to the Hawthorne Effect. Its potential to boost voter turnout makes it a promising one for further investigation.

CONCLUSION

This thesis started with highlighting an increasing problem of modern democracies, less and less citizens go to cast their vote (IDEA, 2016). The decreasing electoral participation leads to several problems, from the unequal turnout to the unrepresentative government (McElwee, 2015). This phenomenon is present in many countries of the world, but it is particularly effective in the European Union, that is facing a constant decreasing since the 1979. This problem is affecting specially the young adults ranged between 18 and 39. Due to the importance and repercussions that this phenomenon has, it is fundamental to find new ways and new methods to reverse course and increase participation in elections. The discipline of the Behavioural Economics provides new approaches to analyse and study the human behaviour. The nudge theory suggests multiple strategies to influence people's behaviour. This thesis delves into two nudges, social norm and loss aversion. By developing an online survey, data were gained in order to understand if these two nudges were effective on increasing the voting intention. By controlling other variables such as political trust, internal efficacy, and past electoral behaviour, it was possible to have a more complete overview and isolate the real nudge effect. Although the literature states that these nudges should have had good results, the study showed another direction. In conclusion, the nudges examined in this thesis did not lead to an increase in the intention to vote. This can be explained by the underlying dimensions emphasized in the Theory of Planned Behaviour, mapped into political trust, internal efficacy, and subjective norms, which play a primary role in guiding individual actions.

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APPENDIX

Appendix 1: Research Survey

“I invite you to participate in an online questionnaire, focused on voting behavior. This research project is carried out within the framework of the requirements of the Master in Psychology in Business and Economics at the Universidade Católica Portuguesa, Lisbon, Portugal.

In this study, can participate only voters aged between 18 and 39 and citizens of the European Union.

It is completely voluntary and may withdraw from the questionnaire at any time without any consequences. It will take approximately 5 minutes. All responses will be anonymous and will remain confidential and used for research purposes only.

For any questions about this study or its procedures, please contact me at s-alpan@ucp.pt I appreciate your participation. Click "Continue" if you meet the requirements and agree to participate.

Alvise Pan”

Block 1: Introduction

Imagine the following hypothetical situation. In May 2025 there will be a new European Election. It will take place on Sunday 25. You are called to express your vote.



Block 2: Nudge Manipulation

(For control group)

Q1a – “Please consider the following information”



How likely are you to vote in this upcoming European Election? where 0 is "I will not vote for sure" and 100 "I will vote for sure"

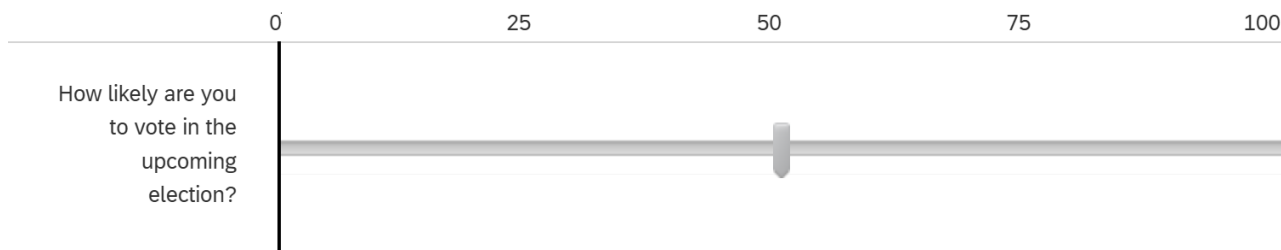


(For Social Pressure group)

Q1b – “Please consider the following information”



How likely are you to vote in this upcoming European Election? where 0 is "I will not vote for sure" and 100 "I will vote for sure"



(For Loss aversion group)

Q1c – Please consider the following information



How likely are you to vote in this upcoming European Election? where 0 is "I will not vote for sure" and 100 "I will vote for sure"



(For Mixed group)

Q1d - Please consider the following information



How likely are you to vote in this upcoming European Election? where 0 is "I will not vote for sure" and 100 "I will vote for sure"



Block 3: Political Trust

Please read each statement carefully, about European Union and rate them in a scale ranging from "1.Never" to "5.All of the Time".

Q2 - I am open to letting the European Union make more decisions about issues that are important to me.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ All of the time

Q3 - I am comfortable with the European Union's control over my future.

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ All of the time

Q4 - I am willing to let the European Union resolve problems that are critical to me, even though I cannot monitor all of its actions

- ☐ Never
- ☐ Rarely
- ☐ Sometimes
- ☐ Often
- ☐ All of the time

Block 4: Internal Efficacy

Please read each statement carefully and rate them based on your level of agreement. The scale ranges from "1. Strongly Disagree" to "7. Strongly Agree,".

Q5 - Sometimes politics and government seem so complicated that a person like me can't really understand what's going on.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neutral
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q6 - People like me are generally well qualified to participate in the political activity and decision-making in our country.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neutral
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q7 - I feel like I have a pretty good understanding of the important political issues which confront our society.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neutral
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q8 - Today's problems are so difficult I feel I could not know enough to come up with any ideas that might solve them.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neutral
- ☐ Somewhat Agree
- ☐ Agree
- ☐ Strongly Agree

Q9 - I feel like I could do as good a job in public office as most of the politicians we elect.

- ☐ Strongly Disagree
- ☐ Disagree
- ☐ Somewhat Disagree
- ☐ Neutral
- ☐ Somewhat Agree

- Agree
- Strongly Agree

Block 5: Subjective Norms

Please read each statement carefully and rate them based on your level of agreement. The scale ranges from "1. Strongly Disagree" to "7. Strongly Agree,".

Q10 - Most people who are important to me think it is fundamental to vote.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Neutral
- Somewhat Agree
- Agree
- Strongly Agree

Block 6: Past Behaviour

Q11 - Did you vote in the 2019 European Election?

- No
- I do not remember
- Yes
- I prefer not to say

Q12 - Did you vote in the 2024 European Election?

- No
- I do not remember
- Yes
- I prefer not to say

Block 7: Demographic

Q13 - What is your gender?

- Male
- Female
- Non-binary/third gender
- Prefer not to say

Q14 – What is your age?

Q15 – What is your nationality?

Q16 – What is your highest level of education you have completed?

- ☐ High school graduate or diploma
- ☐ Trade/technical/vocational training
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Professional degree
- ☐ Doctorate degree

Q17 – What best describes your current employment situation

- ☐ Employed full-time
- ☐ Employed part-time
- ☐ Unemployed, looking for work
- ☐ Unemployed, not looking for work
- ☐ Student
- ☐ Homemaker
- ☐ Unable to work

Q18 – If you have any comments or feedback on this survey, please write it here.