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Fighting low voter turnout – An evaluation of the National Voter Registration Act's Impact

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**Fighting low voter turnout – An
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Content

1   Introduction

The key element of any substantive democracy are free and fair elections. However, the origins and customs differ in nearly every democracy in regard to the respective system. In the United States of America (USA), as one of the oldest still existing democracies in the world, political participation via voting in elections has a long history. Yet in the last years, the US has also become one of the most polarised democracies in the world.[1] In the 2018 Senate election in Florida, the difference between the victorious Republican challenger and the Democratic incumbent was only 0.13 percentage points with a turnout of 61.68% of Floridians. The Republican candidate won by a margin of roughly 10,000 votes. So if only 0.00013% of Floridians who did not vote had turned out and had voted Democratic, the winner would have been the Democrat. What this example demonstrates is that in such a polarised democracy where careers in the House of Representatives, the Senate and in the White House are decided by margins of less than one percentage point, comprehending turnout means comprehending America's future.

While voter turnout has been subject to research for decades, with the emergence of numerous promising theories, empirical results revealed the immense complexity of this topic. Relevant factors explaining the amount of people turning out to vote often strongly differ across countries as well as in the quantity of their influence and none of them do a very good job of explaining the trend in turnout rates over time in its entirety. The most interesting case of turnout probably is the USA due to several unique characteristics. In the US, recent turnout has been relatively low if one compares it with other Western democracies but it is also very low in comparison to former US turnout numbers. Even though regarding turnout the US is likely the most researched-on country in the world, still many factors contributing to turnout are unresolved. The factor that shall be analysed in this paper are registration requirements since in most states of the US, citizens can only vote if they registered themselves in some cases up to 30 days prior to the next election. These registration laws are expected to reduce turnout and therefore be a main reason for the lower US turnout rates. Yet if this were to be true, electoral reforms making registration less complicated and less expensive should increase turnout rates. The following analysis therefore scrutinises the most important registration reform in US

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[1] Polarisation in this context includes, in addition to the divergence of political attitudes to extremes, also the closeness of an election.

history, the National Voter Registration Act which made registering to vote easier, for its effect on voter turnout. The research question is the following: Did the National Voter Registration Act (NVRA) lead to an increase in turnout in the states it was enacted in? The aim of the analysis is to contribute to a controversial debate on the potential successes of registration reforms since it is still not clear whether these reforms in fact do increase turnout at all or not.

Regarding the methodology, a difference-in-difference approach is used. Originally derived from econometrics, in the meantime it is also employed in social science. It is the best possible method for this particular topic since it allows one to estimate the causal effect of the NVRA on voter turnout. This is possible due to its quasi-experimental setup whereby US-states will be divided into a treatment group as well as a control group and their respective turnout will also be compared over five consecutive elections from 1988 to 2004.

In regard to the paper's structure, the second chapter deals with the question of why people vote at all. Hereby, different models of the voting decision are presented. In the third chapter, US turnout rates are being described and explained in the context of the country's history as well as by different factors contributing to turnout. The fourth chapter is devoted to voter registration from a theoretical and empirical perspective as well as the setup of the NVRA. Chapter five constitutes the analysis of the NVRA's impact on turnout rates before the last chapter draws a conclusion on the results.

2 *Why Do People Vote?*

Why do people turn out to vote? As trivial as this question may sound, as complex is its answer. Instead of going to the polls on a rainy day, sometimes with miles to cover between one's home and the polling station, it would obviously be more comfortable to simply stay at home. Still, a majority of Americans turned out to vote in the Presidential elections of 1996 and 2000 (Leip 2019c; Leip 2019d). But for which reason? How can this rather obscure decision be modelled as precisely as possible? In a first step, two approaches which offer explanations on the turnout decision are presented, namely the calculus of voting model and the civic voluntarism model. While the first one addresses the reason why the individual turns out on a cost-benefit basis, the second one brings its societal surroundings into play. A synthesis of both, the funnel model of turnout will be presented in the third subchapter, before all models will be discussed controversially in

the fourth subchapter to compile a combined model that will be the baseline for the subsequent chapters.

2.1 The Calculus of Voting Model

Introduced by Anthony Downs in 1957, the calculus of voting model in its original form describes the individual voter's deliberation on whether to turn out as result of the following mathematical equation:

$$R = (B * P) - C \quad (1)$$

whereby R represents the voter's utility from turning out, B is the benefit from seeing one's preferred candidate win, P is the probability of casting the decisive vote ($0 \leq P \leq 1$) and C represents the costs of the act of voting (Ordeshook/Riker 1968: 25). People attend the polls if R > 0 and choose not to do so if R < 0. Accordingly, it is rational for some citizens to vote while it is equally rational for some not to do so (ibid.).

However, this original concept was contested in the following years by many researchers who came to the conclusion that voting inherently was an irrational act (ibid.). All three of the model's explanatory variables were criticised for different reasons. Regarding P, in an election with more than a hundred million voters like a typical Presidential election in the US, even when votes are cast via districts[2], the likelihood of casting the decisive vote is less than 10^{-8} (Ordeshook/Riker 1968: 25-26). To use a more vivid example, the chance to determine the next President of the United States is of about the same order of magnitude as the chance of being killed while driving to the polls (Meehl 1977: 11). As a consequence, B has got to be a high number while C must be a mere fraction of B to make voting rational because the multiplication of B with the very small figure of P requires B to be a very high figure. But how realistic is it to assume that more than half of the eligible population, in many countries more than two thirds are such fanatics for their preferred candidates that seeing them win brings them a benefit at least a hundred million times higher than the costs? It therefore appears quite obvious that the original calculus of voting model's assumptions needed improvement.

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[2] Maine and Nebraska are the only two states in which electoral votes are awarded separately for each congressional district.

In 1968, Ordeshook and Riker adapted the model in a much-noticed paper "A Theory of the Calculus of Voting". They provided an updated equation that confronted the problems of its predecessorial approach of equation (1):

$$R = (P * B) - C + D \quad (2)$$

while the former part of the equation stayed the same, the latter one was added with a new variable; D. It represents a positive variable that is independent of the election outcome (Ordeshook/Riker 1968: 27). D does not have one particular definition but it can represent many different satisfactions from the act of voting itself (Ordeshook/Riker 1968: 28). Some examples are complying with the ethic of voting, voting as a patriotic act, to affirm a partisan preference or just the joy of deciding between different political offers (ibid.). This additional variable adds a new aspect to the model bringing it closer to reality since people surely do not only and not in the above-described extent vote to see their preferred candidate winning. Also in regard to P, there is the argument that although its value might objectively be minimal, many people drastically overestimate its quantity (Ordeshook/Riker 1968: 38).

With these adaptions, the calculus of voting model has become one of the most influential models to comprehending political participation in the form of voting. Although criticised and amended multiple times over the years, as will be discussed in the subsequent chapters, the idea that voting is a cost-benefit based decision prevailed as the dominant approach. However, a different idea emerged with the civic voluntarism model that regarded political participation as voluntary work within the polity.

2.2 The Civic Voluntarism Model

The civic voluntarism model differs from the calculus of voting model in two aspects. First, it is a sociological approach meaning that socioeconomic aspects like income are included. Secondly it tries to explain political behaviour so it is not only limited to voting but also covers political actions like being part of or supporting a campaign, additionally it also takes inequalities of turnout into consideration. Nonetheless, it is easily transferable to turnout, which is of course a form of political participation, while it also constitutes an interesting counterdraft to the calculus of voting model.

The model's developers ask why people choose not to participate in political life for which they offer three different reasons. First, because they can't, second because they don't

want to and third because nobody asked (Brady et al. 1995a: 271). Consequently, the model relies on three key factors to describe political participation: resources, political engagement and recruitment (Brady et al. 1995b: 510).

The absence of certain resources, in particular time, money and civic skills is the most important component (Brady et al. 1995a: 271-272). Hereby the civic voluntarism model goes beyond one of its predecessors, the socio-economic status model (SES), which was restricted to components of socio-economic status like education or income (ibid.). But what makes the above-mentioned resources noteworthy? On the one hand, time and money are two prime resources for political participation because attending a community meeting or driving to the polls to cast a vote needs an investment of time while money is needed to donate to a political campaign (Brady et al. 1995a: 273). Time and money are connected by the fact that investing time into political participation is costly because in the meantime, no money can be earned, however they also differ since time is constrained and more equally distributed than money (ibid.). Civic skills on the other hand as the third resource of political participation "are organizational and communications skills that facilitate participation in politics" (Brady et al. 1995b: 330) and involve things like speaking or writing well that may foster a political campaign (Brady et al. 1995a: 273). Political engagement means the "variety of psychological predispositions toward politics" (Brady et al. 1995b: 270). According to the model, the interest in politics making individuals wish to take part, the sense of political efficacy, satisfaction from fulfilling a civic duty as well as group consciousness and party affiliation are important aspects of participation (Brady et al. 1995b: 272). Recruitment, although being a lesser influential factor, is also important since often participation requests from individuals, organisations or parties like 'get-out-the-vote' campaigns work as 'triggering factor' of participation (Brady et al. 1995b: 272-273).

Such a resource-based approach also draws attention to the distribution of those resources. Thereby it raises the issue of turnout inequalities. What about those people who can't participate? These considerations will be developed more extensively in the next subchapter. After the discussion of two different approaches to turnout, one cost-benefit based approach and one sociological approach, in a next step, a combination of the two models is presented.

2.3 The Funnel Model of Turnout

A recently developed model to answer the question why some people vote and some do not was created by Blais and Wass 2017 who brought different former approaches – mostly the two presented earlier – together to create a funnel model of turnout. As well as the civic voluntarism model, the funnel model regards turnout as measurement of (in)equality, yet it also seizes on the calculus of voting model (Blais/Wass 2017: 459).

To explain the decision of voting or non-voting, the funnel model of turnout distinguishes between distant, proximate and immediate causes of turnout (Blais/Wass 2017: 460). Distant causes are institutional and contextual characteristics of the respective polity like the number of parties and closeness of an election (Blais/Wass 2017: 463). Proximate causes focus on the voters and their environment, in particular on their resources, their motivation as well as mobilisation, which shows a clear connection to the civic voluntarism model (Blais/Wass 2017: 464). Lastly, immediate causes concern the direct decision to turn out or not. This stage is closely related to the calculus of voting model as it uses three out of the four variables of Ordeshook and Riker's adaption. While this stage of the model mostly follows equation (2), the variables' definitions slightly differ. Also variable P is not included, since the earlier discussed problems led most researchers to the conclusion that P is the least meaningful part of the calculus of voting model (Gallego 2015: 37). C is defined as the physical and intellectual 'convenience of voting', so the question is how easy or difficult it is to vote (Blais/Wass 2017: 464-465). An example would be how much time a voter needs to arrive at the polling station whereby length of time and likeliness to vote act in an inverse relationship. B represents 'expression' which means that people with strong opinions on political matters as well as people with higher political knowledge or with a higher sense of political efficacy are more likely to turn out (Blais/Wass 2017: 465-466). Vice versa, people who are uninformed or who do not have clear preferences are more likely not to vote (ibid.). Yet, some people have to overcome long distances to go to the polls, are not well-informed and do not have strong opinions and still turn out to vote in every single election. An explanation for such behaviour is the D-term representing 'duty'. Duty tries to explain the 'inexplicable' cases of people turning out although C clearly exceeds B (Blais/Wass 2017: 467). It is a normative approach for a group of people for whom the only yet very strong motivation of turning out is the fact that for them, good citizens must vote (ibid.). These definitions result in the following equation:

$$R = B - C + D \quad (3)$$

whereby people vote if R >0 and do not vote if R <0.

Regarding turnout inequalities, in line with Brady et al. 1995 the authors note that groups which could benefit most from turning out often decline to do so (Blais/Wass 2017: 469). These groups can be characterised by their low socioeconomic status, in particular by a low education level as well as by low income and low assets so they do not have many resources available (Blais/Wass 2017: 468). The authors offer three explanations for their non-voting behaviour. The first one is about the resources of voting and attributes their respective lack or excess to pre-adult political socialisation as well as genetic predispositions (Blais/Wass 2017: 468-470). Another reason is poor health which raises the participation costs since voting becomes more inconvenient (Blais/Wass 2017: 471). The last reason relates to foreign-born voters who also appear to have a smaller likelihood of voting (Blais/Wass 2017: 473-474). To reduce those inequalities, they propose voter facilitation reforms like advance or absentee voting (Blais/Wass 2017: 476). However, they also note that these reforms might actually increase socioeconomic inequalities since they only mobilise those groups which always were more active and therefore better represented in turnout numbers (Blais/Wass 2017: 460).

2.4   A Conclusive Model

This paper has presented three different models of voter turnout in chronological order. While the original calculus of voting model by Downs was a completely new one, however still a rather rough draft of a cost-benefit model, Ordeshook/Riker's adaption allowed a basic understanding of how the decision to turn out or not can be equally reasonable for two different individuals. Still, the question of the P-term's relevance as well as the issue of unequal distribution of turnout remained untouched. The civic voluntarism model approached turnout in a completely different way via the issue of political participation. It used a larger scale, where the focus was not only on the individual but also on its capabilities and skills, its interests and its social environment. These amplified directions allowed it to detect social inequalities particularly – and in line with this very thesis – in the United States. Blais and Wass even went one step further in combining and supplementing both approaches to create a funnel model of turnout that subdivides the decision to participate in an election into distant, proximate and immediate causes. Also

three concrete reasons for non-participation were presented. But which model offers the best explanatory value to explain the turnout decision?

Indeed, all three models are in some form beneficial, yet in different ways: A robust model of turnout must be based on a cost-benefit analysis. Surely, it is only an approximation to reality, in particular the original calculus of voting model by Downs, still it is easy to comprehend, and it describes the individual decision on whether to turn out in a convincing fashion. Regarding the different equations modelling turnout, equation (3) is the most logic one. In regard to the traits of variable P, in most people's minds the chance of casting the decisive vote is nearing zero (Gallego 2015: 37-39). However, I do acknowledge that potentially some people imagine that their vote might be the decisive one, yet in line with Ordeshook and Riker I suggest that these people drastically overestimate the likelihood of it since it does in no way reflect the real chance of such an event. Consequently, for the majority P is non-existent and for a small group, it is indeed existent but not measurable, wherefore it should not be included at all. Variable B, in line with the original calculus of voting model reflects the individual voter's benefits from seeing his preferred candidate win, variable D represents the perception of voting as a civic duty and C represents all forms of costs of voting, e.g. costs of time or money. Yet, contrary to Ordeshook and Riker 1968 and in line with more recent research, I do not think it that B, D and C are such high figures because regarding the costs as Brady et al. noted when they examined different forms of political participation, voting is 'the least demanding form of political activity' (Brady et al. 1995a: 283; Highton 2004: 508). Regarding the benefits, elections occur in relatively frequent and regular intervals wherefore they are "are neither rare nor unpredictable" or have high consequences for one's well-being (Highton 2004: 508). Voting should therefore be seen as low-cost, low-benefit activity wherefore even small changes to voting laws are expected to have a sizable effect on turnout rates (Highton 2004: 507-508). This paragraph leads us to the following conjecture: Voting is a low-cost, low-benefit activity. Even minor changes to voting laws should therefore have a significant impact on turnout rates.

In relation to turnout inequalities, the most interesting results derive from the latter two theories. People's voting habits appear to head from their respective amount of resources while also their ethnicity plays a role. Although this thesis focuses on overall turnout, it is

important to acknowledge the literature's findings on turnout inequalities, especially in the American case as will be shown in the next chapter.

After having presented reasons for why people generally turn out, this paper shall now examine why Americans do not.

3 Why Americans don't Vote

It is now clear why for some people it is reasonable to turn out and for some not. In the next step, these results are transferred to the case of the United States. As one of the oldest still existing democracies in the world, the United States of America obtain a long yet inconsistent history of turnout habits and voting rights.

First, I offer a brief description of turnout rates in Presidential elections in US history. Secondly, I present a short history of voting rights in the US. Afterwards, I look at general factors of turnout and transfer them to the US-case, before in a last step, I try to identify reasons for the specific American turnout.

3.1 Voter turnout in the United States

Voter turnout of a certain country can be measured and compared in numerous dimensions. To gain a basic understanding of today's US turnout rates, they will be compared on a time dimension with earlier turnout rates in the US as well as on a country dimension with current turnout rates in other western democracies.

FIGURE 3.1

Turnout in the United States from 1828-2012[3]
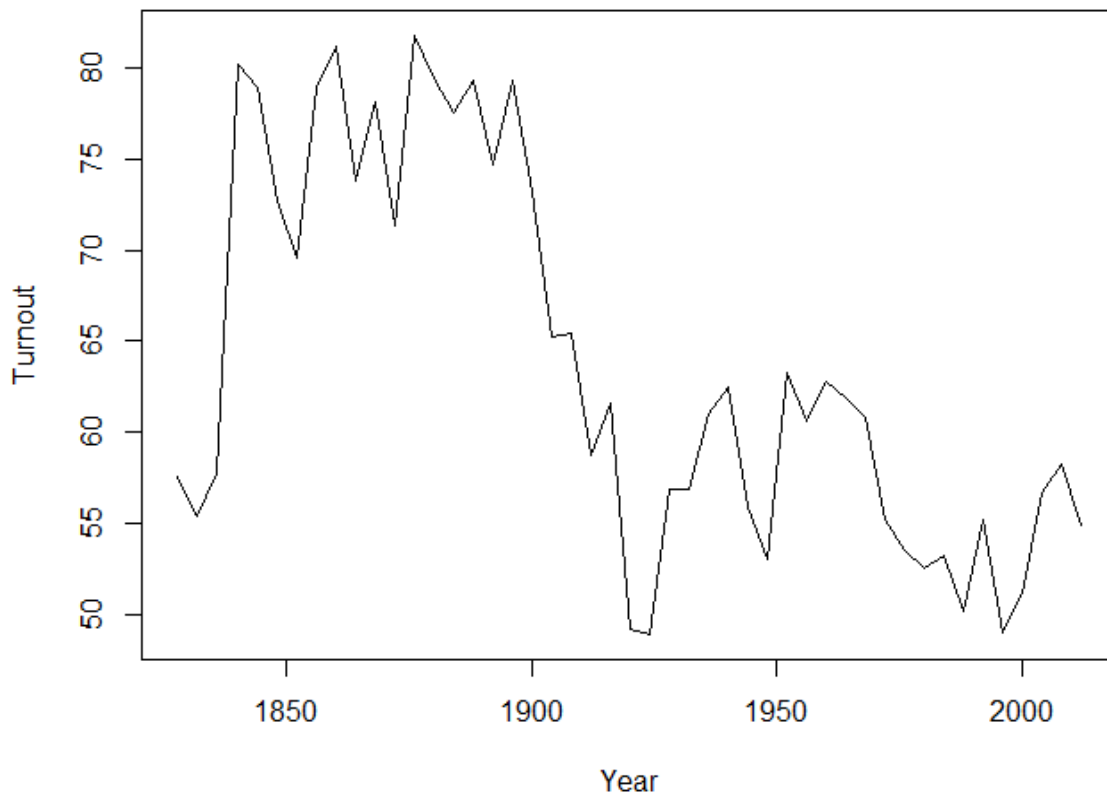
Note: The figure shows turnout rates in every US Presidential election between 1828 and 2012, turnout values are defined as percentage of the voting age population that voted in a particular election.

FIGURE 3.2

Moving averages of the 5th order of turnout in the United States from 1828-2012

(turnout in percent)

Notes: The figure is a smoothened variant of figure 3.1. As smoothening method, moving averages of the fifth order are used.

The mathematical equation which resulted in the figure above is as follows:

$$Turnout_t^* = \frac{1}{5} * \sum_{j=-2}^{2} Turnout_{t+j} \quad (4),$$

whereby Turnout $_t$ represents the average turnout in a US Presidential election at time point t, j is an indicator over which the sum is running and Turnout $_t$* is the averaged turnout in a US Presidential election at time point t. As a result, the moving averages of

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[3] The data derives from Peters/Woolley 2019.

the 5th order incorporate the two former and latter turnout means. The higher the order, the smoother the graph, however also the more information gets lost. The 5th order allows the recognition of long-term trends easier without distorting the original graph.

Regarding the time dimension, when looking at the progression of voter turnout in US history to describe it best, a subdivision into several phases as shown in figure 3.2 is plausible: The first phase from 1828- 1836 was characterised by a mean turnout of around 57% of the eligible population. In the next phase from 1840-1896, turnout sharply increased and remained on a high level with a mean of around 77%. In the third phase from 1900-1948 there was a significant drop in turnout where the mean fell to around 59%. In the last phase from 1952-2012 there was a slow but steady decline with a subtle recovery after the year 2000 and an overall mean turnout of around 60%.

Regarding the country dimension, I formed the mean of the three last national elections[4] held in every member state of the OECD which serve as an instrument for typical western democracies (Appendix 1). US turnout is relatively small compared to most western democracies with an average turnout of only 56.27% compared to a mean turnout value of 68.71 % making it a difference of 12.44 percentage points.

Remarkably, turnout in the US was very volatile over time and is very low across western democracies. So why do Americans turn out so much less? The next chapter provides a theoretical explanation for the former point via a historical background analysis while the latter one shall be addressed in the chapter afterwards.

3.2   Voting Rights in the US – A Troubled History
The United States were the first nation in the world to distribute the right to vote to a wide range of its citizens (Cloward/Piven 1988: 4). One explanation for this development derives from the fact that the common people who fought during the War of Independence (1775-1783) were still armed afterwards while the elites were not protected by a traditional state apparatus and thus relied on their support (Cloward/Piven 1988: 6). In the following decades, voting rights were gradually expanded to people without property and differing religions, while also new technology made travelling to the polling booth

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[4] If the respective country had a Parliamentary/Presidential system, I chose elections for Parliament/President. If a Presidential election had more than one round, I always took the first one.

easier which explains the turnout increase from phase one to two (ibid.). However, this drastically changed with the dawn of the twentieth century.

i) *Jim Crow's America –Segregation in the South*

From the 1890's on until the 1960's, especially in the South[5], two groups were systematically disenfranchised, paupers and blacks. Why was that the case? One influential explanation proposes, that with the industrialisation of the western world, working class movements gained political momentum as workers started to organise which translated into electoral successes (Cloward/Piven 1988: 6-7). Also, especially in the South due to higher fertility rates, blacks started to become the majority in some counties (ibid.). For the Democratic Party the thence dominant one in the South, both groups poor whites and blacks posed a threat to its political dominance since both groups were leaning politically more in favour of the Republican Party and populist candidates (Highton 2004: 509). As a consequence, new electoral arrangements were adopted to decrease turnout of these respective groups (Cloward/Piven 1988: 6-7). This was mainly achieved via poll taxes and literacy tests (Highton 2004: 508). Between 1890 and 1904, each former confederate state enacted poll taxes and seven implemented literacy tests; however, it is important to note that literacy tests were also used in other parts of the country (Highton 2004: 508, 513). Yet, especially southern governments used these two measures of turnout decrease to even go one step further in turnout depression by not sending poll tax bills to blacks, purging them from voting lists as well as by simply having officers refuse any registration attempts by those respective groups (Keyssar 2000: 258-259).

As a result, turnout especially in the South drastically declined (Highton 2004: 508). These measures can be characterised as a substantial part of the 'Jim-Crow-laws' enforcing racial segregation in the South between 1877 and 1964. Even though these laws were challenged after the end of the second World War, the fight for equal participation had only just begun.

ii) *The fight for equal participation*

Beginning in the 1950s, nearly all formal restrictions on suffrage were gradually lifted (Keyssar 2000: 256). These developments became possible due to southern civil rights

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[5] 'South' means the states that fought on the Confederate side during the American Civil War.

movements like the Southern Christian Leadership Conference founded by Martin Luther King Jr., several Supreme Court decisions and the support of a generation that had fought Nazism and Fascism in the Second World War (Keyssar 2000: 256-257). Since Democratic governments in the Southern states had created an effective system to stay in power, the emerging civil rights movements needed to win the support of the Federal government (Keyssar 2004: 259). The first major reform to fight racial regulations was the Voting Rights Act of 1965, which prohibited literacy tests as poll taxes were, one year earlier (Keyssar 2000: 263). Also other racial and financial restrictions were lifted in the following years by the Supreme Court under Chief Justice Earl Warren (Keyssar 2004: 266-267). With the 'Warren Court'-decisions the focus shifted from the question of the right to vote to the question of the value of the vote (Keyssar 2004: 265). In response, conservative Southerners invented new ways of manipulating election results in the following years, the Warren Court had to cope with (Keyssar 2000: 284-285). The most significant one was racial gerrymandering. Gerrymandering used the measures of 'stacking' which means creating a single 'black district' with a nearing 100% African American population amount to ensure that in the remaining districts blacks had no real influence on the election outcome and 'cracking' which meant dividing blacks into several districts to marginalise their impact on the election result (Keyssar 2000: 288). In this 'second phase' of racial discrimination increasingly these measures were amplified to other racial minorities like Hispanics (ibid.). While gerrymandering by race was declared illegal by the Warren Court, gerrymandering by party is still legal (Keyssar 2000: 287).

To sum up the time dimension, although the United States started off as shining example in allowing people the right to vote in the first place as well as expanding the franchise in the following decades, after the Civil War, especially in the South politicians invented ways to prevent poor whites on the one hand, and in even more severe ways blacks on the other hand from voting. Even though direct methods like poll taxes and literacy tests were prohibited in the 1960s by the Federal government and indirect methods like racial gerrymandering were declared unconstitutional by the Supreme Court, the question remains, how much of an impact on turnout rates these events have had on modern political America.

3.3 General Turnout Factors

When looking at turnout rates in phase four, one recognises that even after direct hurdles to turnout had been eliminated, turnout did not recover to phase two levels, instead even further declined mildly. The comparison of recent US turnout between countries suggests that such low turnout levels are not the norm across western democracies. So why do Americans not vote? To shed light onto this matter, subsequently a brief outline of relevant explanatory variables of turnout as suggested by empirical research results will be presented. The model, therefor used, is a meta-analytical study of turnout studies by Geys 2006 who examined 83 aggregate-level studies on turnout. However, only significant variables are presented.

In line with the particular study, the relevant variables are subdivided into three different categories: socio-economic variables, political variables and institutional variables. The first relevant socio-economic variable is population size, which has a negative relation to turnout meaning the more people inhabit a state the lower turnout is in this state (Geys 2006: 641-646). Another one is population stability whereby a stable population is characterised by large homeownership and minimal mobility of the population which has a positive impact on turnout explicable, e.g. by higher group solidarity (ibid.). The last one is previous turnout since voting is a habit-forming activity so it is more likely that people vote if they voted in the previous election (ibid). Regarding political variables, the first one is closeness meaning the closer an election is expected to be in the polls the higher the turnout (Geys 2006: 646-650). The other relevant variable concerns campaign expenditures which means that the more money a political campaign spends, the higher turnout (ibid.). These two factors are related to the B- and D-term of the cost-benefit model (ibid.). Lastly relevant institutional variables are first a proportional electoral system leading to higher turnout because nearly every vote is represented while in a majority system a large plurality and sometimes even a majority of the votes are wasted (Geys 2006: 650-653). Secondly, compulsory voting increases turnout since the sanctions for non-voting are higher than the voting costs (ibid). Thirdly, concurrent elections increase turnout because they diminish the c-term of the cost-benefit model and therefore increase turnout (ibid.). However, the also very significant institutional variable of registration requirements shall be discussed in the next chapter in greater detail as it is subject of this paper's analysis.

3.4   Conclusion: Who doesn't Vote?

In the United States, political participation is lively and varied (Brady et al. 1995b: 509). Yet, turnout decreased at the beginning of the 20th century when new hurdles in order to deter minorities from voting were introduced. Since then, even when direct hurdles were abolished in the course of the civil rights movement's achievements, turnout did not recover to earlier numbers making the US' average turnout one of the smallest of western democracies in the 21st century. One reason for it might be the previous turnout variable. Since a whole generation of black voters was not socialised in exerting their right to vote, a habit of non-voting was formed that endured even after their rights were re-established. This behaviour was then conveyed to the next generation and so on, but such an argument would have to be supported by empirical results. In addition, another reason might have been the implementation of registration laws which began in the 1850s and was established in the whole country by the beginning of World War one (Keyssar 2000: 312). These laws were invented to prevent voter fraud, yet they function quite differently among the states (ibid.). So how could they obstruct turnout?

4   The Issue of Voter Registration

In a next step, one independent variable which explains turnout and which is also the main element of this study is presented: voter registration. Many researchers consider it the most relevant variable explaining voter turnout since in the United States – as distinct from nearly all other western democracies where the state assumes this responsibility – in 49 out of 50 states, prospective voters have to register themselves in order to cast their ballot. The first part of this chapter looks at theoretical and empirical considerations of the relationship between turnout and voter registration. In a second step, one particular reform, the National Voter Registration Act as well as previous research on it, is presented.

4.1   Voter Registration in the US and its Consequences on Turnout

While in most democratic countries government is responsible for enrolling all citizens on permanent, nationwide electoral registers, in the US, citizens have to assume this responsibility to establish their eligibility (Rosenstone/Wolfinger 1978: 22). Voting in the US therefore functions as two-step process, in a first step people have to register in order to be allowed to vote in a second step (Hanmer 2009: 13). This is true for every state except North Dakota which has no registration requirements. However, the differences between registration laws across the remaining 49 states are manifold (Hanmer 2009:

13-14). If people not living in North Dakota want to vote in a certain upcoming election they have to register themselves before a deadline – the closing date – expires, whereby this deadline must not end earlier than thirty days prior to an election (ibid.). Some states, however, allow election-day registration where people can register on the same day as the election occurs, in which case naturally closing dates are not relevant (ibid.). In states with election-day registration the costs of registration are logically lower than in states with a 30-days closing date. In fact, since voting without already being registered only takes a few minutes more in time effort, the costs for election-day are nearing zero wherefore those states belong to the same category as North Dakota (Highton 1997: 567-568).

Regarding states which do not have election-day registration, even tough by varying extent, registration laws should have a depressing impact on turnout rates since the costs of voting – the C-term of the cost-benefit model – increase (Highton 1997: 565; 2004: 507-508). There are particularly two aspects that contribute to this negative impact. First, instead of having to vote once on election day, people have to pay attention to their state's respective registration laws, find the next facility where they can register and use extra time and energy to do so (Rosenstone/Wolfinger 1978: 22). Effectively, the costs double:

$$R = B - 2 * C + D \quad (5).$$

Since there is no additional benefit from the registration activity, voting simply becomes costlier, thereby deterring more people from turning out to vote. However, if one includes the following argument as well, the negative impact of registration requirements on turnout becomes even worse.

The relevant question is the following: why should the costs of voting and the costs of registration be identical? Registering oneself to vote and the act of voting itself are two very distinct activities. When registering to vote, especially in the pre-online era that is part of the analysis (see chapter 5), people often had to cover much longer journeys on less convenient hours than when voting (Rosenstone/Wolfinger 1978: 22). Also – until today – the registration procedure itself is more complicated than the voting procedure and therefore requires more time and energy (ibid.). Lastly, especially in states, where the registration period is much earlier than the election, people might not yet be involved in political campaigns enough to be willing to bear these costs. All in all, registration

theoretically should have a negative impact on turnout since it alters equation (3) to the following:

$$R = B - C + D - Z; \; Z > C \quad (6)$$

with Z representing the costs of registration.

Based on these considerations, registration requirements should be a central reason for lower turnout in the US. Additionally, and most interestingly, most states adopted registration laws at the beginning of the 20th century when turnout began to sharply decline (see figures 3.1 and 3.2) (Erikson 1981: 271). But did previous empirical research bolster these arguments?

The key study on turnout stems from Rosenstone and Wolfinger 1978 where they estimated the effects of registration laws on turnout via a probit model. Their results suggested that if all states followed the laws of those states with the most permissive registration laws, turnout would have been by 9 percentage points higher (Rosenstone/Wolfinger 1978: 41). With 'most permissive laws' they meant "eliminating the closing date, opening registration offices during the 40-hour work week, opening registration offices in the evening and/or on Saturday [and] permitting absentee registration for the sick, disabled, and absent" (Rosenstone/Wolfinger 1978: 33). While parts of their analysis relating to the relation of education and registration, although not relevant for this study, were partly rejected in the following years[6], for example the relationship between closing dates and turnout has proven to be a robust one in several other studies (Brians/Grofman 2001; Hansen/Rosenstone 1993; Highton 1997; Highton 2004; Highton/Wolfinger 1998; Timpone 1998). As a response, the US-government proposed timid reforms. Yet, the demand for a comprehensive registration reform grew. James 1987, on the one hand, argued against pre-election day registration on a legal basis whereby she defined registration laws as "restriction on the fundamental right to vote" (James 1987: 1640). The only justification for pre-election day registration would be the protection against voter fraud for which however many states do not use registration data (James 1987: 1638-1640). Cloward and Piven 1988 on the other hand examined the disadvantage of minorities and paupers by registration laws in order to demand profound

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[6] For example, Nagler 1991 refuted their claim that better educated citizens turn out in higher numbers. See: Nagler, Jonathan 1991: The effect of registration laws and education on U.S. voter turnout, in: American Political Science Review 85: 4, 1393–1405.

reforms. Yet, it is important to acknowledge the partisan context of their book since Cloward and Piven are not only researchers, but also leftist political activists with a clear political agenda (Keyssar 2000: 311). While the effect of these voter registration reforms shall be discussed in the next subchapter, subsequently a short summary of the debate on partisan implications of registration laws is presented to get an idea of the connection between turnout research and partisan politics.

Until today, simplified registration laws are widely assumed to increase turnout of voters more to the left supporting the Democratic Party since low-income-group- as well as young turnout – two groups typically leaning Democratic – is expected to increase the most (Rosenstone/Wolfinger 1978: 37). Even though Rosenstone and Wolfinger negated such an effect, reducing registration requirements has become a policy reform only implemented by Democratic Presidents. When President Jimmy Carter proposed a nation-wide election day registration system, conservative commentators wrote heavily against it: "The thinly disguised ulterior motive [for Carter's proposal], freely if privately conceded on Capitol Hill, is to benefit the Democratic party" (Keyssar 2000: 313; Rosenstone/Wolfinger 1978: 37). As an example, in 2009 the North Carolina state legislature abruptly repealed a preregistration bill which allowed voters younger than 18 to register – also a policy with the aim of reducing registration costs – when a newly elected Republican majority came into power (Holbein/Hillygus 2016: 364). This was widely seen as a reaction to the state flipping to the Democratic Party in the 2008 Presidential election for the first time since 1976 (ibid.). Nonetheless, as multiple studies have shown, the partisan preferences of voters and non-voters are relatively similar (Highton 2004: 511). Therefore, contrary to the public's common opinion, empirical results show that the Democratic party does not consistently benefit from higher turnout (Citrin et al. 2003: 88-89).

4.2   *The National Voter Registration Act*

In response to the above-mentioned publications, in the second half of the 1980's, the demand for registration reform rose sharply (Keyssar 2000: 313). In particular, progressive organisations like SERVE – co-founded by Cloward and Piven – started widespread lobbying efforts in states in order to implement new laws to ease voter registration (Keyssar 2000: 312-314). Two main ideas were discussed: while the idea of a postal registration system was quickly scrapped due to its high liability for Postal

Service, 'agency registration' appeared more viable (ibid.). The idea behind agency registration was to combine activities at public facilities like libraries or motor vehicle bureaus with voter registration (ibid.). Especially registration at motor vehicle bureaus was assumed to be effective since 85% of the American people had driver's licenses which had to be renewed periodically (ibid.).

However federal registration bills were strictly opposed by Republican Congressmen and Senators during the whole decade with the ostensible argument of potential voter fraud – an argument that could never be proven – but in reality they feared to incur disadvantages, an argument discussed earlier (Jaeger 2002: 2; Keyssar 2000: 314). Nonetheless in 1993, some congressional Republicans defected from their strong position against any attempts to implement a more permissive federal registration law, Congress passed a compromise motor voter bill that was initially vetoed by President H.W. Bush but implemented one year later by the newly elected Democratic President Bill Clinton under the name 'National Voter Registration Act of 1993' (NVRA) (Keyssar 2000: 314). Until today, the NVRA has been the most significant registration reform in US history (Highton 2004: 511).

> "The Congress finds that—
>
> 1) the right of citizens of the United States to vote is a fundamental right;
>
> 2) it is the duty of the Federal, State and local governments to promote the exercise of that right; and
>
> 3) discriminatory and unfair registration laws and procedures can have a direct and damaging effect on voter participation in elections for Federal office and disproportionately harm voter participation by various groups, including racial minorities.
>
> —The NATIONAL VOTER REGISTRATION ACT OF 1993" (Congress 1993:1).

This piece of legislation contained four central measures to be implemented in every state: Public agency registration, mail-in registration, abolition of purging registrants for non-voting and most importantly the motor voter provision (Highton 2004: 511; Knack 1995: 796). Actually, the central aspect of this reform was the motor voter provision since US-citizens appeared to be most affected by the combination of renewing their driver's

license and registering (Highton 2004: 511; Keyssar 2000: 314; Knack 1995: 796-797). However, it is important to note that the NVRA required states to provide active motor voter laws, which means that either a single form for both activities or, if two forms are required, "the voter application form must be automatically provided with the driver's license application, and may require only a minimal amount of information from the applicant" (Knack 1995: 797). Contrary to passive motor voter registration, this approach has led to significant increases in registration in the past (Knack 1995: 800-801). The only way for states to be exempt from the NVRA-requirements was, if they allowed election-day registration or no registration at all (Highton 2004: 511). These states were North Dakota – the only state without registration requirements – Idaho, Minnesota, Maine until 2011, New Hampshire, Wisconsin and Wyoming (Jaeger 2002: 1). While active motor voter provisions raised turnout in states where it had been implemented, public agency registration, mail-in registration and the abolition of purging registrants for non-voting only showed little or no effects (Knack 1995: 797; 803-804). The expectations derived from this reform were immense, as Keyssar wrote:

> "The registration measure [the NVRA, author's note] was the final act of the drama that had begun in the 1960s: it completed a lurching yet immensely important forty-year process of nationalizing the voting laws and removing obstacles to the ballot box. As such, the Motor Voter bill was also a critical step in dismantling the multiple impediments to voting that had been erected between the 1850s and World War I. By the end of the twentieth century, what had been a long historical swing toward contraction of the franchise had been decisively reversed" (Keyssar 2000: 315).

However, in the first election after the NVRA's implementation[7], turnout dropped by six percentage points to the lowest value since the Presidential election of 1924 (Highton 2004: 511; Keyssar 2000: 315). The first impression might now be that the NVRA simply failed miserably, however the 1996 turnout decrease and the NVRA might not have concerned each other much. As described earlier, turnout is determined by a multitude of factors, registration requirements are only one of them. For example, in 1996, opinion polls overstated Clinton's margin by up to 10 percentage points which might have deterred some Republican and Democratic voters from turning out. Also motor voter laws

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[7] Incumbent President Bill Clinton stood against Republican Bob Dole and Reform Party candidate Ross Perot.

take time to have an effect on turnout since driver's licenses must only be renewed not shorter than every five years. Another important aspect is the so-called selection problem of voter registration (Highton 2004: 508). Starting with Erikson 1981, researchers noted that those who register turn out in extremely large numbers even if they are unlikely to turn out (Erikson 1981: 271; 274). Essentially people turn out because they are registered (ibid.). Registered and non-registered citizens differ insofar that registered ones are better educated, older and more interested in politics than non-registered (Highton 2004: 508). These features are connected to a higher turnout probability, which means that if all registration barriers were to be removed, the non-registered would not turn out in evenly large numbers as the registered (ibid.). This aspect is important since it suggests that the effect of reducing registration hurdles might easily be overestimated.

This thesis is of course not the first to examine the effect of the NVRA, yet previous results were not distinct and different methods were applied. Some researchers identified significant turnout increases while others did not. Hill and Martinez 1999 compared states whose laws were closest to the NVRA requirements with those which had to change their laws most (Hill/Martinez 1999: 306). In a next step they compared those states after the NVRA was enacted. Yet, they did not find any results indicating that the NVRA led to a significant turnout increase (Hill/Martinez: 307). As a possible reason they proposed the short time frame since, regarding the post-NVRA era, they only had data from the 1996 Presidential election but, as mentioned earlier, not everyone had to renew his or her driver's licence immediately after the NVRA was enacted (ibid.). Brown and Wedeking 2006 also did not find significant turnout increases by the NVRA, yet they did find an increase of registrants (Brown/Wedeking 2006: 497). These new registrants however were not interested in voting, which is explicable via the selection problem. Therefore, they advocate to combine the removal of registration barriers with methods engaging more citizens to participate in the polity (Brown/Wedeking 2006: 498-499). Franklin and Grier 1997 also examined the effect of motor voter laws on turnout. They compared the effect of an increase of motor voter laws in the respective states for the 1988 and 1992 Presidential elections (Franklin/Grier 1997: 109-113). Contrary to the results mentioned earlier, they found a small turnout increase of 2% through those laws (Franklin/Grier 1997: 110). In direct opposition to Erikson's results, they also suggested that those who became registered because of motor voter laws turned out in the same numbers as other registered voters (Franklin/Grier 1997: 114). Lastly, Knack 1995 also found a significant

turnout increase in states adopting motor voter laws. Yet these results never exceed 2.5 percentage points (Knack 1995: 806). However, all those studies mentioned, even though they use control variables, do not provide a methodological setting which allows for the estimation of causal relationships. The only study using the same methodology as this paper is by Hanmer 2009 who tested the impact of election-day registration on the one hand, and the one of motor voter laws on the other hand via a difference-in-difference method, which shall be explained in greater detail in the next chapter. Its main strength is that its quasi-experimental design allows to detect causal relationships between the dependent variable and the explanatory variables. However, Hanmer's work differs from this thesis relating to the choice of cases as well as phenomena, since I do not examine election-day registration, while I also use more elections in my motor voter examination. Regarding election-day registration, Hanmer found a significant increase in turnout in states with election-day registration of around four percentage points which is much smaller as previous research had suggested (Hanmer 2009: 104). Regarding motor voter laws, Hanmer used a difference in difference estimation with state and year fixed effects just as this thesis, however only with the 1992, 1996 and 2000 Presidential election (Hanmer 2009: 123). The results for different groups of states were in some parts insignificant and in other parts significant, yet very small by not exceeding 3.5 percentage points as highest value (Hanmer 2009: 124-125). To summarise previous studies, if the NVRA led to significant turnout increases remains unclear, however even if, the results should be small.

Therefore, in order to find the real respectively the causal effect of the NVRA on voter turnout, an amplified and more detailed statistical analysis is required.

5   *Methodological Analysis*

After having discussed several aspects of voter turnout, in this chapter I will empirically evaluate the quantitative impact of the NVRA on turnout rates in the United States. More precisely, I will estimate the mean difference between the mean turnout rates of five elections before and after the NVRA was implemented. To estimate a causal effect, I build a treatment group out of states in which the NVRA was adopted as well as a control group in which it was not. Then I compare the results between the two groups, whereby the NVRA's impact shall become visible. This method is called a difference-in-difference approach.

5.1 Aim of the Analysis

The analysis aims at answering one main question:

Did the NVRA lead to an increase in turnout in the states it was enacted in?

To do so, the following hypotheses shall be tested:

H_0: The effect of the NVRA on turnout in the United States was equal to zero.

H_1: The effect of the NVRA on turnout in the United States was unequal to zero.

According to the previous theoretical and empirical content developed throughout the former chapters, some studies find the alternative H_1 to be true, however with small effects, while some studies cannot reject the null hypothesis H_0. This very analysis aims at resolving the opposing results by providing a methodological approach that is able to detect causal effects and uses a broader range of Presidential elections. To falsify H_0, it must be rejected in a test with a probability of at least 95%.

5.2 Choice of Data, Cases and Variables

The dataset used for the analysis contains six variables, five explanatory variables and one dependent variable, which shall be defined subsequently. Regarding explanatory variables, the first one is '*State*' including the 50 states of the US as well as the District of Columbia which therefore has a nominal scale of measurement. The next one is '*Year*' representing the year of a distinct Presidential election and can have five different values 1988, 1992, 1996, 2000, and 2004 for five different Presidential elections that are being examined. It therefore constitutes an interval scale of measurement. The third variable is a binary respectively a dummy variable named '*Treatment_state*' which is 1 for all states part of the treatment group and 0 for all states part of the control group. Since it is a result of the '*State*' variable, it has the same scale of measurement. The fourth variable named '*Post*' is also a dummy variable made of the '*Year*' variable that is 1 for the elections of 1996, 2000 and 2004, which occurred after the NVRA's implementation while it is 0 for the elections of 1988 and 1992 which occurred before. The fifth variable '*Interaction*' is an interactional variable of '*Treatment_state*' and '*Post*'. The setup of variables 3 to 5 has methodological reasons and shall be explained in greater detail in the next subchapter. The last variable is the dependent variable of the analysis namely 'Turnout', which is defined as the mean aggregate turnout in a certain state and Presidential election and has a ratio scale of measurement.

FIGURE 5.1

Setup of the variables used in the analysis
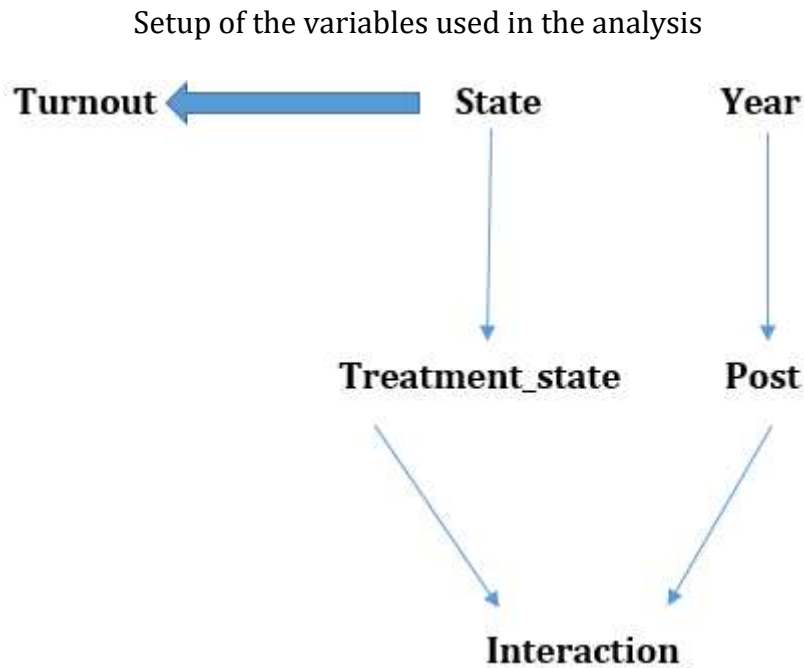
Regarding the data's source, it derives from a website that collected turnout results via official publications from state election agencies (Leip 2019a; 2019b; 2019c; 2019d; 2019e). Even though it would have been optimal to use the direct sources, namely the official publications from the states themselves, in most cases these publications were no longer accessible since the elections occurred up to 31 years ago. To test its accuracy, I drew a random sample of five states from the more recent 2008 Presidential election, where direct sources still were available and compared deviations between the website results and the official state publications (Florida Department of State 2019; Indiana Secretary of State 2016; Maine Department of the Secretary of State 2015; New York State Board of Elections 2009; South Carolina State Election Commission 2009; Leip 2019f). The mean deviation of the sample was less than 0.2 percentage points. Even though it is not ideal to have any sort of deviation between those two sources, the differences were so slight that the data from Leip 2019 is an acceptable approximation to the real turnout values.

However, there also is the issue of the definition of turnout as well as its measurement since there are different options to do so. Some studies define turnout as the number of people who voted divided by the number of registered voters (Geys 2006: 639). Yet this approach only is reasonable if turnout of registered in contrast to overall turnout is the

relevant dependent variable. For example, if one examines the selection problem of registration, turnout of registered is highly relevant. Nonetheless, in this respective analysis' case, overall turnout is the only suitable approach because the number of non-registered is as important as the number of registered. The most common approach, also used in this paper, defines turnout as the number of people who voted divided by the voting age population (VAP), that contains every person having reached the age at which one is legally allowed to vote (ibid.). On the contrary, seldom used, yet a more accurate definition of turnout is the number of people who voted divided by the total of the eligible population, which also excludes people that lost their right to vote for example by committing a felony (ibid.).

While the first approach clearly shines out as unfit for this analysis, which is very much focussed on turnout of registered, the second and third approach vary in their information content. Over time, the eligible population might change differently than the VAP since we can only capture variation in the VAP but not in the truly eligible population. If one compares the change of the share of disenfranchised voters within the VAP from 1988 to 2004, it rose by 1,1 % (Leip 2019a; 2019e; ProCon 2017). Unfortunately, the data available for this analysis only provides VAP numbers. Although the overall share of voters disenfranchised within the VAP is rather small, I acknowledge that this aspect is not observed in the model.

This dataset provides 255 sampling units, one aggregated turnout value for each state from five Presidential elections with 50 states plus the District of Columbia. Therefore, the dataset contains observations of multiple variables over multiple time-periods, thus making it a state-year-panel-dataset. Methods for panel data are more complicated than for cross-sectional studies yet the information content increases.

5.3   Difference in Difference Approach

In the next step, the optimal methodological approach is depicted. To find out whether there is a significant causal relationship between the NVRA and turnout rates in US Presidential elections, a randomised experimental setting in field via randomised control trials (RCTs) would be optimal. Hereby, a dependent variable (e.g. turnout) is defined in the alteration of which one is interested in. RCTs are characterised by dividing a random sample of observation units randomly into a control and a treatment group, so that they are on average equal in all factors, since the two groups must not systematically differ in

either observed or unobserved factors (e.g. population size) (Angrist/Pischke 2015: 9-12; 17-21). One group gets the respective treatment and one does not, so the average treatment effect is the difference in means of the dependent variable between treatment and control group (ibid.). Such an environment can either be achieved via lab- or optimally via field experiments. In this US-turnout case however, neither can be provided since I do not have the resources to gain control over the classification of treatment and control groups. Nonetheless, even though a RTC cannot be realised, the configuration of the NVRA allows the creation of a quasi-experimental setting.

The main difference lies in the fact that our sample is no longer random, neither is the division into treatment and control group. It follows the natural settings of the NVRA since the NVRA was only implemented in 43 states and the District of Columbia while the seven states which had election-day registration or no registration at all were exempt as described earlier. The former group forms the treatment group while the latter one is the control group. Nonetheless, a comparison between both groups is possible, if the trend behaviour is the same which shall be examined later. This weaker assumption is possible because contrary to the RCT, the model is expanded by the dimension of time (Angrist/Pischke 2015: 196-201). The idea of which states to use as treatment states and which to use as control states derives from Highton 1997 (Highton 1997: 567).

Since there is no random assignment, treatment and control group might not have equal turnout rates for many reasons. However, although the mean turnout in both groups might differ, in the absence of a treatment, they might move parallel and therefore have the same pre-trend behaviour. If the post treatment trends however differ from the pre-treatment ones, this would signal a treatment effect. As treatment, I define the NVRA which constitutes a concrete policy reform. Regarding the time-dimension, the pre-treatment group contains all mean state turnout rates from Presidential elections before the NRVA was adopted in 1995, in this case the elections of 1988 and 1992, while the post-treatment group contains all mean state turnout rates from Presidential elections after the NVRA was adopted, namely the elections from 1996, 2000 and 2004. To find the causal effect on turnout rates it is not sufficient to compare the differences between turnout after the reform, since the states should be similar, yet they are most likely not identical. Therefore, the following shall be measured:

$$\delta_{DD} = \left[\bar{y}_{Treat,Post} - \bar{y}_{Treat,Pre}\right] - \left[\bar{y}_{Control,Post} - \bar{y}_{Control,Pre}\right] \quad (7)$$

δ_{DD}	Difference-in-Difference estimator
$\bar{y}_{Treat,Post}$	Average turnout of the treatment group after the NVRA
$\bar{y}_{Treat,Pre}$	Average turnout of the treatment group before the NVRA
$\bar{y}_{Control,Post}$	Average turnout of the control group after the NVRA
$\bar{y}_{Control,Pre}$	Average turnout of the control group before the NVRA

The difference-in-difference estimator (DD) adjusts for the differences between the treatment and the control group in the pre-treatment period. The main strength of this method is that it is possible to deal with endogeneity meaning the correlation of the explanatory variable and the error term which is likely true in this scenario[8] (Hanmer 2009: 103). The formation of differences within treatment and control groups by the time aspect subtracts all omitted variables out[9].

The DiD will be tested via a regression model of two stages. The first stage is represented by the following regression equation:

$$y = \beta_0 + \beta_1 x + \beta_2 a + \beta_3 (x * a) + u \quad (8)$$

This general equation represents the DiD-model with the following variables:

y	Dependent variable
x	Dummy =1, if the respective state is in the treatment group; =0 otherwise
a	Dummy=1, if the election was after the policy reform, =0 otherwise
x*a	Interaction term of X and A (DiD estimate)
u	Error term

Dummy 'x' allows the distinction of treatment- and control states. Dummy 'a' divides the states' turnout values on a time-dimension into two phases, the pre-phase before the NVRA was enacted and the post-phase afterwards. Lastly, the interaction term 'x*a'

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[8] An example could be state size which might correlate with turnout as well as with *Treatment_State*.
[9] Yet this only applies to the interaction term, as will be discussed later.

constitutes the treatment group after the reform was enacted. This term is the DiD-estimator and the central component of the model.

Yet such a model might not provide enough power to estimate the DiD as accurate as the data allows. The reason is that states within the treatment group or the control group are constantly heterogeneous over time, for example Alabama and California are both part of the treatment group, yet the states' characteristics like population size strongly differ[10]. Also elections within the pre- and in the post period might have some differences like the presence of a strong third-party candidate in 1992[11] contrary to the 2004 election. The second stage model therefore applies state-fixed effects instead of the sole division of states into a treatment and a control group as well as year-fixed-effects instead of the sole division of Presidential elections into a pre-1995- and a post 1995 group which likely explains more variation. The idea for this second equation derives from Sabet and Winter 2019, but in the context of turnout was also applied by Hanmer 2009 (Sabet/Winter 2019: 15; Hanmer 2009: 123). It is represented by the subsequent equation:

$$y_{S,Y} = \beta_0 + \beta_1 x + \beta_2 a + \beta_3 * (x * a) + \alpha_Y + \delta_S + u_{S,Y} \quad (9)$$

α_y	Year fixed effects
δ_S	State fixed effecs
$u_{S,Y}$	Error term.

When applying a DiD-regression the use of clustered standard errors might be appropriate. Since a DiD-regression uses panel data, US-states are repeatedly observed over five subsequent elections. Through this repetitive structure, the problem of serial correlation arises which means that the data is persistent[12] (Angrist/Pischke 2015: 205). If a dependent variable of a regression model is serially correlated, the model's residuals are likely to be serially correlated too (ibid.). In such a case it is important to use clustered standard errors since by the use of ordinary standard errors, the explanatory precision of the regression model's estimates would be exaggerated (Angrist/Pischke 2015: 205-207). Since in this analysis serial correlation at least is not implausible, the regression analysis will be conducted with clustered standard errors.

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[10] California is about 709.29 % more populated than Alabama.

[11] In 1992, Ross Perot won 18.9% of the popular vote, however zero electoral votes.

[12] "Values of variables for nearby periods are likely to be similar" (Angrist/Pischke 2015: 205).

Though, as mentioned earlier, the DD requires one strong assumption: common trends (Angrist/Pischke 2015: 184-186). The common trends-assumption states the following: If there had not been a policy reform, in our case the NVRA, both groups' trends would have gone in a parallel line. Unfortunately, one cannot test the treatment groups' behaviour if it had not been treated, yet one can compare the pre-trends to analyse whether trends went similar before the NVRA was implemented. In addition, there must not have been any registration policy changes that were correlated to the NVRA and that happened simultaneously. Regarding the latter point, there were no other acts in 1995 which dealt with voter registration. The former point's accuracy shall be examined in this figure:

FIGURE 5.2

Trends in turnout in the treatment - and in the control group
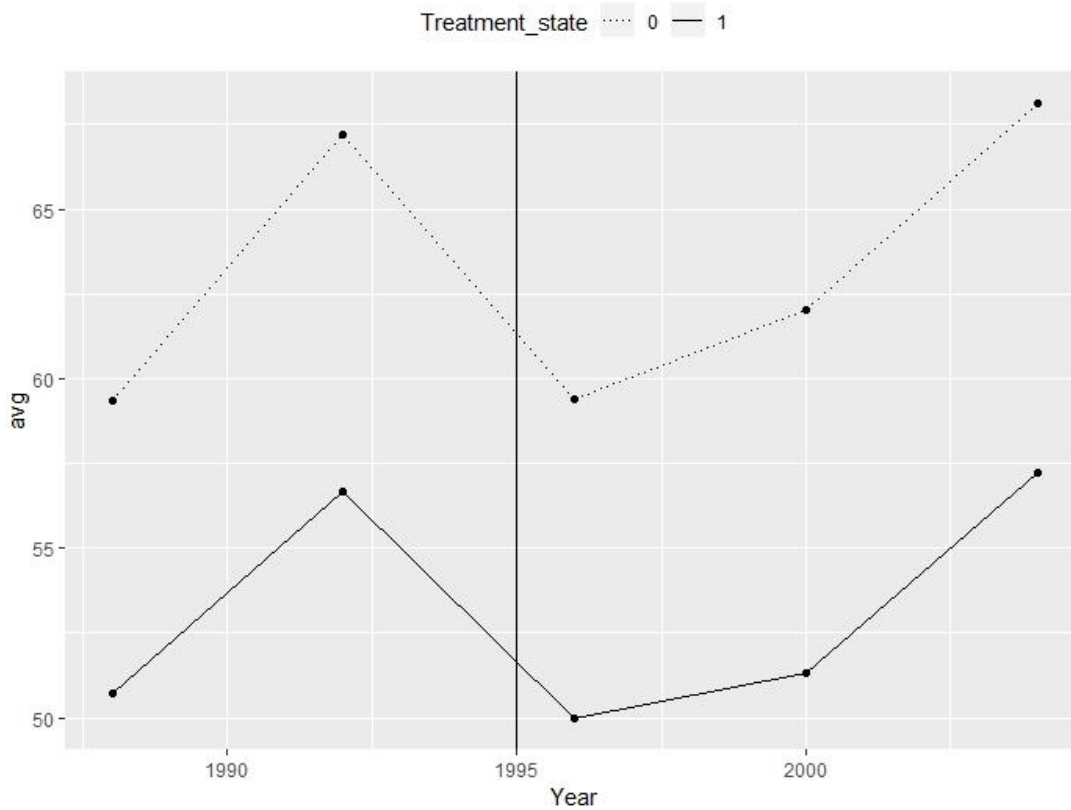
Notes: The figure shows the mean turnout in US Presidential elections from 1988-2004. The vertical black line represents the implementation of the NVRA in 1995. The black-lined graph shows the mean turnout of all states, part of the treatment group in the respective Presidential election. The dotted-lined graph shows the same for the control group.

This figure confirms two important conjectures. First, treatment- and control group were not identical, yet especially in the pre-phase – the post phase will be discussed along with other results in chapter 5.5 – turnout trends equally for both groups. Consequently, the common trends assumption is met. Therefore, a difference-in-difference approach is able to identify the causal effect of the NVRA.

5.4   Concrete Analysis

To test the hypotheses named in chapter 5.1, the two following regression equations are employed:

$$Turnout = \beta_0 + \beta_1 * Treatment\_State + \beta_2 * Post + \beta_3 * Interaction + u \quad (10)$$

$$Turnout_{S,Y} = \beta_1 * Treatment\_State + \beta_2 * Post + \beta_3 * Interaction + \alpha_Y + \delta_S + u_{S,Y} \quad (11)$$

The results are as following:

	Treat/Control+Pre/Post model	Fixed effects model
(Intercept)	63.27***	
	(1.63)	
	[59.76; 66.78]	
Treatment_state	−9.57***	
	(1.81)	
	[−13.38; −5.76]	
Post	−0.09	
	(2.09)	
	[−4.38; 4.21]	
Interaction	−0.78	−0.78
	(2.28)	(0.96)
	[−5.41; 3.86]	[−2.74; 1.18]
R^2	0.21	0.93
Adj. R^2	0.20	0.91
Num. obs.	255	255
RMSE	6.74	2.31

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

Table 1: DiD-Regression of equations (10) an (11)

Notes: The values in the curved brackets below the actual values are the standard errors. The values in the square brackets are the low and high value of the confidence interval.

Regarding the Treat/Control and Pre/Post model, the intercept states significantly that the average turnout in the control states before the NVRA's implementation was 63.27%. *Treatment_state* describes the significant difference in turnout between the treatment and the control group over all five election periods with a 9.57 percentage points higher turnout on average in the control group. *Post* is the difference between the two elections prior and the three elections after the NVRA's implementation but although showing a midget negative development, it is not significant. *Interaction*, the DiD-estimate also

shows a minor negative value, but it is not significant. Standard errors are clustered as explained in the previous chapter due to potential serial correlation.

Regarding the fixed effects model, the *Treatment_state* and *Post* variables drop out of the term since they are perfectly collinear to *State* and *Year*. However, the DiD-estimate, is still not significant and the same effect as in the first model is estimated, yet the confidence interval is smaller while also the coefficient of determination R^2 is much higher.

In a next step, the results for every single election are examined by interacting the treatment effects with year dummies. If the NVRA were to be effective, the values should be insignificant before the reform and significant afterwards. To do so, the following regression equation[13] is used:

$$Turnout_{S,Y} = \alpha_Y + \delta_S + \sum_{j=1988}^{2004} \beta_j \big[Treatment\_state \times Treat_Y^j \big] + u_{S,Y} \quad (12),$$
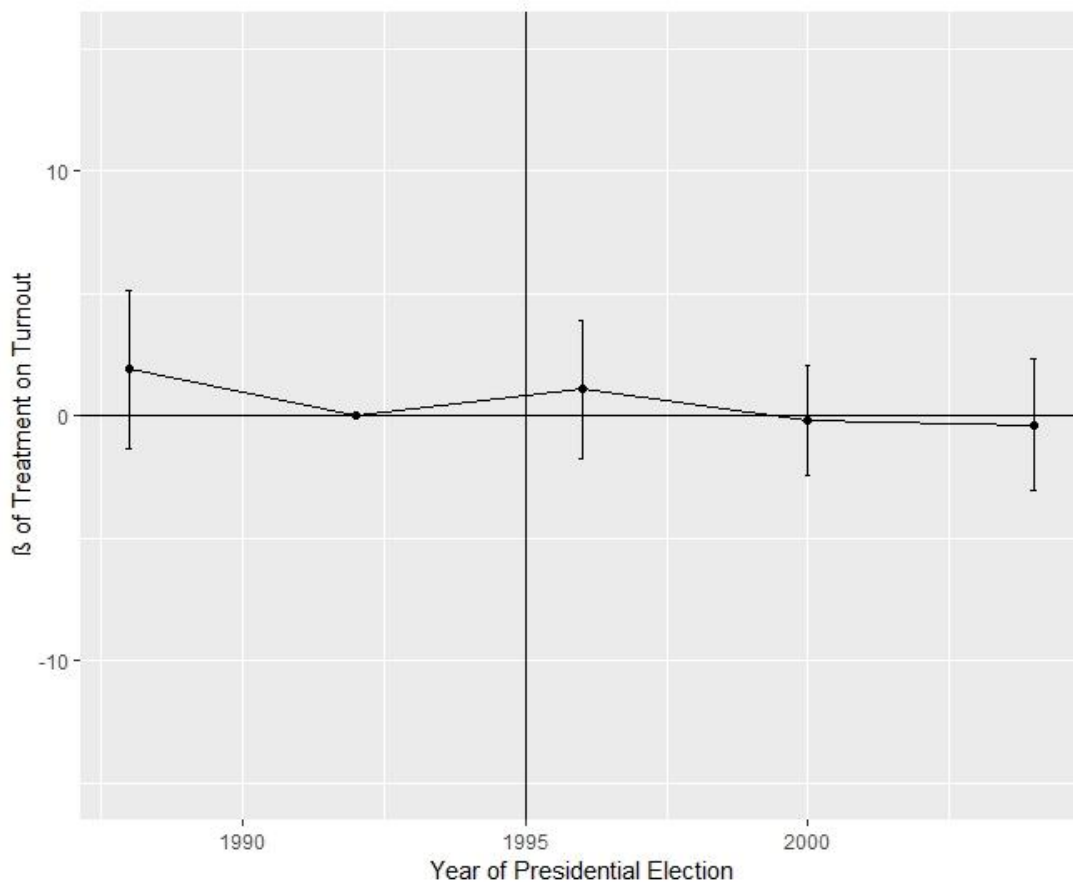
where *Treatment_state* is a dummy variable set to one if a state is part of the treatment group, $Treat_Y^j$ is a dummy set to one when $Y = j$ ($\forall j \neq 1992$) (Sabet/Winter 2019: 15). Year and state fixed effects are captured by α_Y and δ_S.

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[13] The idea of the regression equation as well as figure 5.3 is taken from Sabet/Winter 2019: 15-17.

FIGURE 5.3

Treatment effect interacted with year dummies

Notes: The figure shows the treatment effect interacted with year dummies. Therefore, it shows the respective treatment effect for every single election except for the 1992 election since the 1992-year dummy serves as reference category. The regression includes state and year fixed effects and standard errors are clustered at the state-level (Sabet/Winter 2019: 17).

I chose 1992 as reference category since it is the election, closest to the implementation of the NVRA before it was enacted. While there was an initial increase in the treatment effect in the 1996 Presidential election, in the 2000 election it already receded to an even minimally negative effect, a trend that continued in the 2004 election. However, regardless of the respective election's time point, the treatment indicators' confidence intervals always include zero wherefore they are insignificant for every single Presidential election.

Therefore, regarding the hypotheses the results are as follows:

Since hypothesis H_0 cannot be rejected, because the test could not find a clear causal relationship of the DiD-estimate in either direction, hypothesis H_1 is not sufficiently supported. So how should these results be classified?

5.5   Result Discussion

One noticeable aspect of the regression output in the Treatment/Control + Pre/Post model is its large confidence intervals for each result. For example, even the significant variable *Treatment_state*, predicting the mean turnout difference between the treatment- and the control group, could only be limited to a value between -13.38 and -5.76. Although the model could detect a clear significant effect, between the CI-low and the CI-high lie 7.62 percentage points. For the DiD-estimate, the effect could be between -5.41 and 3.86 percentage points. The largeness of the CIs is partly down to the use of clustered standard errors but mostly due to this model's lack of power. There are two reasons for this particular lack; first, it ignores constant differences of states or elections within the two groups and, secondly, the absence of more detailed data. While there is no solution to the second problem, the first one is improved via the fixed effects model.

There are two different aspects which the fixed effects model captures. First, it internalises the constant heterogeneities within the pre- and post-NVRA Presidential election groups via year fixed effects. Secondly, it also acknowledges constant heterogeneities within the treatment and control groups among the states. As a result, only the DiD's effect could be estimated. However, this is no problem since the effect of *Treatment_state*, namely the difference between treatment and control group was so distinct that the first model was able to identify a significant effect; also the effect of *Post* was nearing zero and additionally theoretically irrelevant wherefore there was no need to limit its confidence intervals. Most importantly, the fixed effects model estimated the same value of the DiD-term as the Treat/Control+Pre/Post model, though it was able to limit the large confidence interval of the DiD estimate to a much smaller range. It is therefore the model with a higher explanatory power. As shown in figure 5.3, the non-significance of the DiD estimate also remained constant over time for every single election. This is insofar remarkable, as one could have made the argument that, even though the regression model did not detect a significant effect on an average of the three post elections, there might have been a certain trend of increasing turnout in the treatment group. As described earlier, the NVRA did not affect all citizens on day one of

its implementation but its core element, the motor voter registration provision, only gradually reached potential voters. Nonetheless, the results do not propose that such a development occurred at all. Therefore, the results of both models strongly suggest that the NVRA had no effect on turnout rates. Even if the real effect of the NVRA on turnout had been significant, its impact on turnout would have only been minimal since the DiD-estimate only showed a vanishingly low value of less than one percentage point.

By and large, these results are in line with the literature on registration reforms presented earlier. While some researchers did find a significant effect, it always was a relatively small one. In line with this thesis, some studies did not even find these small results. Another point providing a generally more pessimistic view on the potential success of registration reforms is the selection problem of voter registration. People might have been persuaded to register themselves but, nonetheless, they chose not to turn out to vote. That is because via the former registration hurdles people selected themselves into a likely-voter-group for whose members the registration effort was worthwhile – they were into politics from the beginning – while the unlikely-voter-group originally decided not to register because even voting by itself was not worthwhile for them. This second explanation suggests that any registration reform, even if it were to abolish registration as a whole, would have a minor or no effect. However, to confirm such a thesis, we will have to wait for a new comprehensive registration reform.

Regarding the variable *Treatment_state*, the difference between treatment- and control group, the first model detected a clear significant effect. But what does it signify? Unfortunately, although turnout in the control group – in states with election day-registration or no registration provisions at all – over time was on average 9.57 percentage points higher than in the treatment group, this did not prove the existence of a causal relationship between turnout and registration requirements. The reason being that there are plenty of unobserved variables differing in treatment and control group that also correlate with turnout. Subsequently, I propose three such variables: One example could be race, since, as described in chapter 3.4, whites turn out much more than other ethnicities. The argument here is that the share of whites in the control group on average is 89,67%, while the share of whites in the treatment group is only 74% (World Population Review 2019). Also income could be such a variable since it affects turnout because more wealthy people tend to turn out more, and richer east coast states are

overrepresented in the control group. Lastly, state size is a possibility because in the electoral college smaller states are overrepresented wherefore citizens in such states may recognise the higher value of their vote and turn out in higher numbers. Therefore, the effect of *Treatment_state* should not be treated as any kind of proof for the existence of a relationship between turnout and registration laws.

6   Conclusion

The United States provides one of the most interesting cases of turnout composition. It has a unique institutional setup combined with enigmatically low turnout rates. The ominous impact of voter registration on turnout could not be sufficiently clarified by the research done until now. This paper contributes to this particular branch of turnout literature since it analysed the effect of the NVRA, the most important registration reform in US-history on turnout rates. Theoretically, on the one hand as presented via an adaption of the calculus of voting model, registration hurdles should lead to a turnout decrease. On the other hand, due to the selection problem, citizens willing to vote might register themselves while citizens who would not turn out either way do not even register. In a first step, this analysis compared the pre-trends of the two groups which went in equal directions. This allowed the use of the difference-in-difference approach which is able to detect causal relationships. Two regression equations were tested, one with the application of state- and year fixed effects and one without. The variable showed significant results, while *Post* and *Interaction* – the DiD estimate – were insignificant. Regarding the differences between the two models, the values for the DiD-estimate were the same, however the fixed effects model was able to provide considerably smaller confidence intervals. It was therefore the model with a higher explanatory power. Lastly, the treatment effects were interacted with year dummies to look for distinct Presidential elections after the NVRA which might have shown significant results, however that was not the case. The results are therefore clear: the NVRA did not lead to an increase in turnout in the states it was enacted in. These results are in line with previous research on the NVRA and registration reforms which, in case they produced significant outcomes, only showed small increases. In general, registration reforms appear not to have large effects on voter turnout.

Regarding the results' quality, contrary to most studies, I decided to look at five Presidential elections in order to better comprehend the long-term repercussions of the

NVRA. This was only possible because the NVRA's implementation occurred 24 years ago. That is the reason why I chose not to work with a more recently implemented policy reform. In addition, no other comprehensive registration reform occurred after it to date. Since every state of the US was included in the analysis, the data chosen was highly representative. However, it would have been better to use data deriving directly from official state publications, which was not possible, yet the differences were probably minimal. Also a more detailed definition of turnout than the dataset provided could only have minimally increased the accuracy of the results. Nonetheless, the results were in line with previous research while also clearly insignificant wherefore the results quality should not be underestimated.

This thesis' aim was to contribute to the controversial debate of the effects of registration reforms on turnout. It did find a clear result, however future research should test the question of whether registration reforms might only lead to an increase in turnout if they are combined with other mobilising programs to enhance political participation since there might be a need to overcome a non-voting habit triggered by previous and stricter registration requirements. Only then the question of registration reform's impact on turnout rates can be answered for good.

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8   Appendix

Appendix 1: Average turnout in OECD countries' last three elections

Country	Turnout
AU	92.02
BE	91.19
LU	90.57
SE	85.88
DK	85.73
TR	85.11
IS	80.61
FR	80.35
AT	77.9
NO	77.63
NL	77.3
NZ	77.3
IT	76.2
DE	72.83
KR	72.01
FI	70.97
IL	69.4
ES	69.33
MEAN	68.71
IE	67.4
UK	66.77
EE	63.8
CA	63
HU	62.32
MX	61.69
CZ	60.97
EL	60.9
PT	57.85
LV	57.65
SI	56.41
US	56.27
CL	55.22
JP	55.22
PL	51.24
LT	50.8
CH	48.6
SK	45.25

Notes: The data derives from official publications for each country. The abbreviations of the country names derive from the official country and territory codes from the European interinstitutional style guide (in: http://publications.europa.eu/code/en/en-5000600.htm; 20.06.2019)