

# The Embarrassment of Riches? A Meta-Analysis of Individual-Level Research on Voter Turnout

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### **Abstract**

Voter turnout has puzzled political scientists ever since Downs postulated the paradox of voting. Despite decades of research aiming to understand what drives citizens to the polls, the jury is still out on what the micro-level foundations of turnout are. This paper aims to provide a modest, yet important contribution by taking a step back and summarizing where we stand and what we know. To this end, we review 90 empirical studies of individual level voter turnout in national elections published in ten top-journals in the past decade (2000-2010). Through a meta-analysis of the results found in these studies, this paper identifies the factors that are consistently linked to individual level turnout.

# 1 Introduction

Perceived as fundamental for the functioning and legitimacy of representative democracy, the question why citizens participate in elections has received unabated attention in empirical research. Many different hypotheses have been proposed to explain voter turnout at the individual level: from the more conventional rational choice, sociological, and psychological explanations, to more 'exotic' explanations like rainfall or genetic variation (see e.g. Fowler, Baker and Dawes, 2008). As almost every possible explanation seems to have been explored, slowly but surely, it has become difficult to see the wood for the trees.

From a *rational choice perspective*, the decision to vote is conceptualized as the result of a cost-benefit calculation in which the expected benefits of voting should outweigh its costs. However, a rational voter would also consider the probability that her vote affects the overall outcome of the elections (Downs, 1957). In a large electorate, this probability tends to be very small. The fact that in reality many citizens do turn out and vote has given rise to the so-called paradox of voting. The inability of rational choice theory in its pure form to explain turnout lead to several alternative theoretical explanations (Riker and Ordeshook, 1968). These "extended" rational choice models posit that citizens have a sense of civic duty and will vote in elections even if they know their vote has a very small chance of affecting the outcome (Blais, 2000). Alternatively, voting is seen as an act involving the consideration not only of personal benefits but also those of others, rendering altruistic persons more likely to vote (Fowler, 2006).

The *resource model* of turnout hypothesizes that the costs of turnout are lower for those with a higher economic status, more skills and more knowledge. *Theories of mobilization* view voting essentially as social behavior guided by social norms and sanctions, and argue that citizens go to the polls just because their family and peers do so, or even simply because they are asked to vote by campaigners (Arceneaux and Nickerson, 2009; Gerber and Green, 2000). *Sociological explanations* of turnout have regained prominence recently with research demonstrating that turnout is subject to (parental) socialization, learning and habit-formation (Plutzer, 2002; Gerber, Green and Shachar, 2003; Denny and Doyle,

2009). Yet another strand of research are *psychological models* of turnout that stress the role of attitudes and psychological predispositions such as political interest, partisanship, political efficacy in explaining voter turnout. Lastly, the *political institutional model* sees the decision to turn out as a by-product of the political/institutional context in which citizens live. Clearly, the jury is still out on what the micro-level foundations of turnout are (Arceneaux and Nickerson, 2009; Blais, 2006).

The fact that so many different theoretical explanations exist and have found empirical support points to the possibility that multiple causal mechanisms explain turnout and that different causal mechanisms may be prominent for different voters or in different contexts (Gallego, 2010; Arceneaux and Nickerson, 2009). At the same time, the wealth of individual-level explanations is also the consequence of much existing research tending to focus on demonstrating the validity of one particular theory or variable, instead of assessing the relative strength of competing theoretical frameworks in explaining turnout (notwithstanding exceptions like Plutzer (2002) and Fieldhouse, Tranmer and Russell (2007)). There seems to be a lack of consensus within the research community on a “core model” of turnout. Of course, lack of consensus is generally a sign of health for any scientific community, however if it leads to under-specified models the resulting omitted variable bias might lead to spurious and simply wrong findings.

The aim of this paper is to provide a modest yet important contribution to the current situation by taking a step back and summarizing where we stand and what we know. To this end, this paper reviews empirical studies of individual level voter turnout published in ten top-journals in political science and political behavior over the past decade (2000-2010). To illustrate the non-parsimonious nature of research on individual level turnout: the 90 studies reviewed in this paper included over 170 *different* independent variables, none of which (not even age or education) were included in all studies. Through a meta-analysis of the results of these studies we aim to shed a better light on the factors that are consistently linked to individual level turnout and that could be used in a ‘core model’ of individual level voter turnout.

The paper is set-up as follows: in section two we discuss the various ways in which the dependent variable, individual level turnout, has been measured in the studies in-

cluded in our sample. In section three we discuss our sample selection and coding procedure, as well as the methods used to review the studies. In section four we present our empirical results, and section five presents our conclusions.

## 2 Description dependent variable

Crucial in any attempt to review the extensive literature on individual level turnout is to distinguish the different ways in which the dependent variable is measured. At the individual level, turnout is most commonly measured by post-election surveys that ask respondents whether they voted in the past election. Such self-reported turnout is affected by problems as recall bias and social desirability, and hence reported turnout tends to have an upward bias when compared to data on actual turnout. For example, Karp and Brockington (2005, 825) estimate the difference between actual turnout and reported turnout in the American National Election Studies to be around 20 percentage points during the 1990s.

For this reason, scholars generally prefer to use validated turnout data, based on official voter records. However, since such data are often only released after some time and official voter records are not kept in all countries, validated turnout data is more difficult to obtain. A third type of measurement that is used in studies of individual level turnout is based on surveys that are held at some point before elections, such as general social surveys, and that ask respondents about their turnout intention, either in the upcoming election or “if elections were to be held tomorrow”. Turnout intention is likely to be even more prone to social desirability bias and is therefore not used often.

In terms of validity then, validated turnout data is the most robust, but at the same time the most difficult data to obtain, while reported turnout data (and turnout intention data) are more prone to bias, but generally easier to obtain. As Table 1 demonstrates, about 82% of the studies included in this paper measure turnout as reported turnout, 11% of the studies use validated turnout, and 7% use turnout intention.<sup>1</sup>

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<sup>1</sup>Note that while the total number of studies included in our review is 90, five studies use two dependent variables, for example analyzing models with reported turnout and validated turnout. These studies are therefore counted twice.

Table 1: Measurement dependent variable

Dependent variable	Studies	Tests
Reported turnout	78 (82.1%)	324 (80.0%)
Validated turnout	10 (10.5%)	54 (13.3%)
Turnout intention	7 (7.4%)	27 (6.7%)
<i>Total</i>	95	405

### 3 Data and methods

The sheer amount of studies on individual level turnout renders a review of all available research results impossible. Hence, in the context of this research project we have chosen to restrict our analyses in a number of ways. First of all, we have chosen to consider only published research, and within that research only academic articles analyzing individual level turnout, but not books. The argument for doing so is that peer-reviewed work in top-journals builds on existing research, and therefore will reflect work published as books as well as unpublished conference and working papers.

Secondly, we have chosen to focus on national elections only, excluding local elections, as well as European elections in the case of Europe, and primaries and ‘second-order’ elections in the United States (i.e. Senate and Congress elections). This essentially means that we only include studies on turnout in national parliamentary or presidential elections. While this choice may have implications for the representativeness of our sample, pooling studies that analyze turnout in different types of elections might very well lead to mixed findings as certain independent variables might affect turnout differently in first order elections than in second order elections. Hence, we prefer to limit our sample to a sample of comparable elections, knowing that our findings will be restrained to that sub-set of elections, but having more confidence in our findings.

The third restriction of our sample follows the same line of argument and is to exclude studies on turnout in new democracies. The literature on individual level turnout in new democracies has only recently started to emerge. While certainly finding similarities with established democracies, turnout in new democracies seems to be affected by a number of important factors that are not found to affect electoral participation in established democracies (Pérez-Liñán, 2001; Norris, 2002; Blais and Dobrzynska, 1998).

Finally, for more pragmatic reasons we have chosen to focus our review of individual level turnout on work published in ten top-journals in political science and political behavior, both in Europe and the United States. These ten journals are (in alphabetical order): *Acta Politica*; *American Journal of Political Science*; *American Political Science Review*; *British Journal of Political Science*; *Electoral Studies*; *European Journal of Political Research*; *Journal of Elections, Public Opinion, and Parties*; *Journal of Politics*; *Political Analysis*; *Political Behavior*. Moreover, we have limited the time-period to studies published between 2000 and 2010. This results in a total of 90 articles analyzing individual level turnout in national elections in established democracies.<sup>2</sup> Table 2 shows the distribution of articles over journals.

Table 2: Distribution studies among journals

Journal	Studies coded
Journal of Politics	22 (24.4%)
Political Behavior	18 (20.0%)
American Journal of Political Science	14 (15.6%)
British Journal of Political Science	8 (8.9%)
Electoral Studies	8 (8.9%)
Journal of Elections, Public Opinion and Parties	6 (6.7%)
European Journal of Political Science	5 (5.6%)
Political Analysis	5 (5.6%)
American Political Science Review	3 (3.3%)
<i>Acta Politica</i>	1 (1.1%)
<i>Total</i>	90

The selection of journals and especially the time-period covered is important as it might generate sample bias that could result in our review covering certain theoretical approaches more intensively than others. For example, work on the impact of mobilization on turnout has received quite some attention in recent years, leading to more studies on variables associated with that theoretical framework, and more robust findings for those variables.

As a way of gauging the ‘representativeness’ of our sample of studies, we have categorized explanatory factors of turnout in six broad theoretical models that we feel reflect the main theoretical approaches in the literature. Subsequently we coded each study ac-

<sup>2</sup>Articles that analyzed a composite index of various forms of political participation that included turnout were not included as the effects of independent variables on turnout cannot be isolated. Articles based on data from laboratory experiments were also not included in our analyses. Articles using data generated from field experiments were, however, included.

according to the model or models it reflects. Naturally, the categorization of variables is not mutually exclusive in theoretical terms. The classification of studies in these broad theoretical models rather serves the purpose of a heuristic tool to organize our results (see section 4). Also, considering the distribution of studies over theoretical models allows us to assess the degree to which our sample is biased in favor of certain theoretical models. As Table 3 demonstrates, it seems that resource and mobilization studies are somewhat more common, while socialization and rational choice studies are relatively less common, which might indeed be due to the time-period assessed in this study.

Table 3: Distribution of the main theoretical models

Theoretical model	Studies	Tests
Resource model	34 (31.8%)	131 (28.1%)
Mobilization model	28 (26.2%)	137 (29.4%)
Socialization model	5 (4.7%)	29 (6.2%)
Rational choice model	10 (9.4%)	54 (11.6%)
Psychological model	18 (16.8%)	71 (15.2%)
Institutional model	12 (11.2%)	44 (9.4%)
<i>Total</i>	<i>107</i>	<i>466</i>

After a double-blinded selection of studies based on a careful reading of the abstracts of all papers published in the ten journals specified above, the sample was coded following a precise coding procedure. A codebook has been developed that specifies: characteristics of the data, the dependent variable, the independent variables, statistical techniques used, and study results. Inter-coder reliability was enhanced by test-coding a substantial sub-set of the data at the start of the research project and reconciling differences, as well as assessment by both authors when questions in coding arose. Coding decisions were recorded for each study in separate log-files. Finally, all final codings were double checked by one of the authors.<sup>3</sup>

## Meta-analysis

Meta-analysis is often defined as an analysis of analyses (Glass, 1976, 3; Geys, 2006, 640). Instead of reviewing studies on a given topic in a descriptive way, the aim of meta-analysis is to analyze test results from previous studies through quantitative methods and to summarize the findings.

<sup>3</sup>The dataset, codebook and coding instructions are available upon request from the authors.

In this paper we use a combination of the *vote-counting procedure* and the *combined-tests technique* (see Imbeau, Pétry and Lamari, 2001; Geys, 2006). In the vote counting procedure, each test of a hypothesis is considered a ‘success’ when a coefficient is statistically significant and has the hypothesized direction. On the other hand, the hypothesis test is considered a ‘failure’ when it is found not to be significant and an ‘anomaly’ when the coefficient is statistically significant but is in the opposite direction than expected. We have used the two-tailed  $p < .05$  level as the cut-off point for significant effects. Considering all tests together for each independent variable, the modal category gives an estimate of the most common relationship between the independent variable and turnout, and dividing the number of ‘successes’ by the total number of tests provides a measure of the success rate (see equation 1). The higher the success rate, the more confident we are that an independent variable has the hypothesized effect on individual level voter turnout, both in terms of direction and significance.

$$\text{success rate} = \text{successes} / \text{number of tests} \quad (1)$$

Because some studies include more tests than others (e.g. the same hypothesis can be assessed in multiple models within a given study or article) looking at the separate test results may lead to biased results when the distribution of tests over studies is highly skewed. Moreover, various test results from a single study are not independent from one another as they often use the same data (Wolf, 1986, 14). To resolve this problem we calculate the success rate not only per test but also per study, implicitly assigning a weight to each test result that is the inverse of the number of tests performed in the study. A hypothesis is considered a ‘success’, ‘failure’, or ‘anomaly’ based on which of these three categories the majority of tests within the study fall. Like for separate tests, the modal category is considered to give the best approximation of the true direction of the relationship between the dependent and independent variable.

The vote-counting procedure is purely based on direction and statistical significance. It does not allow to take into account the size of effects (Glass, 1976, 5; Lau, Sigelman and Rovner, 2007, 1179). Combined test techniques allow to summarize the test statistics pro-

vided by different studies. However, since the studies in our sample use different tests and therefore provide different test statistics, such a comparison is out of order. Instead we use proxies of effect sizes based on whether the effects were ‘successes’, ‘failures’, or ‘anomalies’.

Combining the vote-count procedure and the combined-tests technique in this way allows us to calculate a proxy measure of the average effect size. To this end, one first calculates the approximate effect size  $r$  for each individual test by assigning successes (significant and in hypothesized direction) a weight of 1, failures (not statistically significant) a weight of 0 and anomalies (significant but not in hypothesized direction) a weight of -1. A proxy of the effect size can then be calculated with the formula in equation 2:

$$r = (\text{successes} - \text{anomalies}) / \text{number of tests} \quad (2)$$

The effect size of a given independent variable across all studies ( $r_{av}$ ) is subsequently given by the average effect size across all studies (see equation 3). This metric, that has a theoretical lower bound of -1 and an upper bound of + 1, behaves like a correlation coefficient and gives the number of standard deviation units with which individual level turnout is affected if the independent variable changes. By calculating a confidence interval around this statistic we can judge whether or not there is a statistically significant effect on the dependent variable (testing the null hypothesis that the mean effect across all studies is zero).

$$r_{av} = \sum r_i / \text{number of studies} \quad (3)$$

As an example, consider the effect of age on turnout. We hypothesize the effect of age on turnout to be positive: the older citizens become, the more likely they are to turn out and vote in elections. Imagine study 1 includes four tests, in two of those the effect for age is positive and significant, in one test the effect is not significant, and in the last test the effect is negative and significant. The first two tests will receive an effect size score of 1, the third test a 0, and the fourth test a -1. At the level of tests, the success

rate is  $(2/4)*100 = 50\%$ , the proxy of the effect size  $r$  is  $(2-1)/4 = 0.25$  and a  $t$ -test of this effect will demonstrate that this effect is not significantly different from 0. The modal effect size of study 1 is 1. Now, hypothetical studies two, three and four also have a modal effect size of 1 (i.e. age is positive and significant), while study five has a modal effect size of 0. At the level of studies then, the success rate is  $(4/5)*100 = 80\%$ , the proxy of the effect size  $r$  is  $(4-0)/4 = 0.80$  and a  $t$ -test of this effect will demonstrate that it is significantly different from 0 (two-tailed  $p < 0.05$ ).

## 4 Analysis and findings

We present our findings dividing all independent variables into six main theoretical models of individual level voter turnout: the resource model, the mobilization model, the socialization model, the rational choice model, the psychological model, and the political-institutional model. Note that our classification of studies in these six broad theoretical models is purely meant as a practical way to organize our results. Different scholars would possibly prefer a different breakdown of variables over theoretical models. Moreover, as will become clear below, the models chosen for the purpose of this paper are not necessarily mutually exclusive as certain variables can be argued to influence voter turnout through multiple theoretical pathways.

Since our aim is to compare effects over different studies, we keep the direction of the hypotheses constant, disregarding the hypotheses proposed in each particular study. For example, in some studies authors hypothesize men to turn out at higher rates than women, while in other studies women are expected to turn out at higher rates. In order to compare results for these different studies, we code results following a single hypothesis for all studies, in this case that men turn out more than women. For each variable, the hypothesized direction of the effect is denoted by the '+' or '-' sign after the variable name, in this case, the '+' after the variable name 'Gender (male)' in Table 4.

We focus exclusively on main effects, disregarding interaction terms. Moreover, we do not report variables that were included in only one or two studies, since this would not allow us to carry out  $t$ -tests. Appendix B presents the results for the variables that

were only included in one or two studies. Variables are reported in descending order based on the frequency with which they were included in the studies. Of the 177 different independent variables included in the 90 studies reviewed, only eight (less than 5%) were included in more than 25% of the studies: age, gender, income, education, race, marital status, political interest and party identification. Even the two most common independent variables – age and education – were included in only 72% and 74% of studies respectively. Generally, the motivation for the inclusion of control variables in the articles reviewed was very brief (i.e. we include the “usual suspects” as control variables) or absent.

#### **4.1 The resource model**

In this first results section we take a closer look at variables that are argued to influence individual level voter turnout because they refer to citizens’ resources and socio-economic status. This cluster is the largest of all comprising 22 explanatory variables. Results for the resource variables are summarized in Table 4.

##### **4.1.1 Education**

Educational level has been used as an independent variable in 67 out of 90 studies. Education is considered one of the strongest indicators of voter turnout, being a social sorting mechanism and serving as a proxy for social class, resources, skills, and time. Not only do these characteristics facilitate political participation, they also provide higher educated citizens with larger networks and higher stakes in elections, which in turn may act as motivators and lead to targeted mobilization efforts from political parties (see e.g. Hillygus, 2005*b*; Campbell, 2009; Gallego, 2010). Notwithstanding the rise of educational levels in advanced western democracies, turnout levels have not risen over the past decades in these countries. To this day this observation continues to puzzle scholars of political behaviour (Burden, 2009, 540).

Table 4: Resource model - results meta-analysis

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( $r_{av}$ )	<i>p</i> -value
<b>Education (+)</b>							
Tests (237)	171	66	0	Success	72,15	0,72	***
Studies (67)	45	22	0	Success	67,16	0,67	***
<b>Age (+)</b>							
Tests (231)	165	60	6	Success	71,43	0,69	***
Studies (65)	49	15	1	Success	75,38	0,74	***
<b>Age squared (-)</b>							
Tests (78)	44	32	2	Success	56,41	0,54	***
Studies (17)	13	4	0	Success	76,47	0,76	***
<b>Gender (male) (+)</b>							
Tests (224)	11	160	53	Failure	4,91	-0,19	***
Studies (61)	2	45	14	Failure	3,28	-0,20	**
<b>Race (black, latino, non-white) (-)</b>							
Tests (153)	36	108	9	Failure	23,53	0,18	***
Studies (43)	10	30	3	Failure	23,26	0,16	+
<b>Income (+)</b>							
Tests (148)	73	75	0	Failure	49,32	0,49	***
Studies (40)	21	19	0	Success	52,50	0,53	***
<b>Marital status (married) (+)</b>							
Tests (89)	40	47	2	Failure	44,94	0,43	***
Studies (30)	17	12	1	Success	56,67	0,53	***
<b>Occupational status (employed) (+)</b>							
Tests (50)	17	32	0	Failure	34,69	0,35	***
Studies (18)	5	12	0	Failure	29,41	0,29	*
<b>Residential mobility (-)</b>							
Tests (53)	27	23	3	Success	50,94	0,45	***
Studies (18)	10	7	1	Success	55,56	0,50	**
<b>Region (south / periphery) (-)</b>							
Tests (50)	26	24	0	Success	52,00	0,52	***
Studies (18)	10	8	0	Success	55,56	0,56	***
<b>Home ownership (+)</b>							
Tests (58)	30	27	1	Success	51,72	0,50	***
Studies (16)	8	8	0	Failure	50,00	0,50	**
<b>Citizenship (nationalized/born in country) (+)</b>							
Tests (41)	13	22	6	Failure	31,71	0,17	+
Studies (13)	5	6	2	Failure	38,46	0,23	<i>n.s.</i>
<b>Occupational type (white collar) (+)</b>							
Tests (22)	8	12	2	Failure	36,36	0,27	*
Studies (9)	4	5	0	Failure	44,44	0,44	*
<b>Socio-economic status / class (+)</b>							
Tests (21)	14	7	0	Success	66,67	0,67	***
Studies (8)	4	4	0	Failure	50,00	0,50	*
<b>Residential location (rural) (+)</b>							
Tests (18)	0	17	1	Failure	0,00	-0,06	<i>n.s.</i>
Studies (7)	0	7	0	Failure	0,00	0,00	<i>n.s.</i>

*Table continued on next page*

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( $r_{av}$ )	p-value
<b>Children (+)</b>							
Tests (18)	2	11	5	Failure	11,11	-0,17	<i>n.s.</i>
Studies (6)	1	3	2	Failure	16,67	-0,17	<i>n.s.</i>
<b>Occupational type: students (-)</b>							
Tests (15)	0	8	7	Failure	0	-0,47	**
Studies (6)	0	3	3	Failure	0	-0,50	+
<b>Contextual race (-)</b>							
Tests (37)	5	24	8	Failure	13,51	-0,08	<i>n.s.</i>
Studies (5)	1	4	0	Failure	20,00	0,20	<i>n.s.</i>
<b>Contextual education (+)</b>							
Tests (23)	9	13	1	Failure	39,13	0,35	**
Studies (4)	1	3	0	Failure	25,00	0,25	<i>n.s.</i>
<b>Contextual citizenship (-)</b>							
Tests (22)	6	16	0	Failure	27,27	0,27	*
Studies (3)	1	2	0	Failure	33,33	0,33	<i>n.s.</i>
<b>Contextual income (+)</b>							
Tests (9)	2	6	1	Failure	22,22	0,11	<i>n.s.</i>
Studies (3)	1	2	0	Failure	33,33	0,33	<i>n.s.</i>
<b>Generation (60s/70s vs. pre-WW II) (-)</b>							
Tests (14)	12	2	0	Success	85,71	0,86	***
Studies (3)	3	0	0	Success	100	0,33	

Note: T-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Our meta-analysis shows that education is indeed positively related to individual level turnout as most studies fall into the success category (success rate is 67-72%). The average effect size ( $r_{av}$ ) is statistically significant both at the level of tests and studies. A standard deviation change in educational level increases turnout with between .67 and .72 standard deviation units. However, living in an area with relatively higher levels of education does not seem to significantly affect voter turnout (see results for contextual education).

#### 4.1.2 Age and age squared

Age is among the three most often included independent variables in research on individual voter turnout (65 out of 90 studies). Young adults face ‘start-up’ problems that prevent them from participating in politics (Strate et al., 1989, 443; Jankowski and Strate, 1995, 91). With the transition into adulthood, however, participation rates are hypothesized to increase as young people leave the parental home, buy a house, get a full-time job, start a family, and settle down in a community (Strate et al., 1989, 444; Lane, 1959, 218). While this suggests a linear and positive effect of age on turnout, it seems that the participation rates of older age groups are lower. Turnout among elderly people, it is

argued, tends to be depressed by health problems, retirement and declining family income (Cutler and Bengtson, 1974, 163). This suggests the relationship between age and turnout might be rather curvilinear, which is why some studies also include the squared term of the age variable. Our findings show that most tests and studies are successful, indicating that we find support for a positive effect of age and a negative effect of age squared (the success rate being around 75% for the studies). We find the average effect size  $r_{av}$  to be statistically significant and ranging between .69 and .74 for age and between .54 and .76 for age squared. These numbers indicate that a one standard deviation change in age increases (for age) or reduces (for age squared) individual level turnout with approximately .69-.74 and .54-.74 standard deviation units respectively.

#### **4.1.3 Gender**

Another variable that is used in over two-thirds of the studies is gender. Because of their different role in society (e.g. being the breadwinner, having the right to vote) men have long been considered to have more resources and are, therefore, thought to turn out more than women. Recent research suggests that the gender gap in turnout has gradually disappeared as with every new electoral cohort, the gender gap has become smaller (see e.g. Inglehart and Norris, 2003; Childs, 2004).

Our meta-analysis indicates that gender in most instances is no longer a statistically significant predictor of turnout in national elections. The success rate of gender is extremely low (around 3-5%) because of the high number of tests and studies in which the variable does not reach statistical significance (see the number of failures). The average effect size is statistically significant, but in comparison to other variables relatively close to zero. Moreover, its negative sign indicates that when gender is found to be significant it are women that are found to turn out at higher rates, not men.

#### **4.1.4 Race and citizenship**

Race and citizenship are included in models of voter turnout based on the idea that ethnic minorities often have fewer resources and skills. We therefore assess the hypotheses

that turnout among ethnic minorities is lower than among ethnic majorities, and that those nationalized or born in their country of residence participate more.

Race is included in half of the studies, while citizenship is considered in 13 out of 90 studies. In the majority of the cases both hypotheses are not confirmed. The modal category for both variables is 'failure' which implies that a non-significant effect was found in most of the tests and studies. The success rate of the race variable lies around 23%, while citizenship does a little better at 32-38%. The average effect size for citizenship does not reach statistical significance at the  $p < .05$  level though and the same is true for race at the level of studies. Living in an area with relatively high proportions of inhabitants from ethnic minorities or naturalized citizens does not significantly affect turnout in most cases, as the variables contextual race and contextual citizenship show.

#### **4.1.5 Income, occupational status, occupational type and social status**

To understand the influence of income, occupation and social status on electoral participation, we have to go back to the resource model of political participation as originally developed by Verba and Nie (1972). The basic idea behind this model is that political participation is an act driven by resources, particularly time, money and skills. Money, of course, being of lesser importance with regard to the act of voting than with regard to, for example, buying or boycotting products for political reasons or making a campaign donation. Simply put, those with jobs, a high income, and a high socio-economic status are more likely to have a wider range of resources and are, thus, more likely to turn out to vote (Brady, Verba and Schlozman, 1995, 273). We therefore expect income to have a positive impact on turnout, middle-class citizens to turn out at higher levels than lower class citizens, those with white collar jobs to participate more than citizens with blue collar jobs, and students to vote less.

Considering occupational status, as indicated by the modal category, having a job per se is found not to have a statistically significant impact on turnout in most of the cases. The picture is less clear for income where the number of successes and failures are almost even. The average success rate for income therefore lies around 50% with an average effect size of .49 and .53 taking into account tests and studies respectively. At

both levels  $r_{av}$  is highly significant. Living in more affluent areas is most often found not to have a significant impact on individual level voter turnout in national elections (see contextual income). Considering the effect of social class, those from higher social classes were indeed systematically found to turn out at higher rates, even though at the study level the modal category is a tie between success and failure. The average effect size is significant both for tests and studies, and varies between .50 and .67.

Lastly, occupational type did not appear to have a statistically significant influence on turnout in most studies. White collar workers were not found to systematically turn out more, nor were students found to systematically turn out less. In fact, judging by the zero successes and the negative sign of the average effect size for students ( $r_{av}$  roughly equals -.50) students were rather found to turn out at higher rates. While students may not have high paid jobs, they do often come from higher socio-economic backgrounds and moreover are potentially socialized into voting because they find themselves in a politically more stimulating environment than their non school-going peers (see e.g. Highton and Wolfinger, 2001; Tenn, 2007).

#### **4.1.6 Marital status and children**

Stoker and Jennings (1995, 422) consider two ways in which marital transitions are considered to affect participation. Firstly, marriage has practical consequences often leading to more stable places of residence and perhaps even employment and occupation. The second perspective focuses on the mediating function of a spouse. Married citizens may benefit from the potential motivation by a politically active spouse. Denver (2008) adds a third explanation by arguing that married citizens adhere to more traditional values. Married couples are more likely to conform to the idea of 'good citizenship and consider voting and political engagement a civic duty. In a similar vein Lane (1959, 218) points out that having children increases the awareness of social needs, such as education, health, playgrounds, and even the responsibility to perform as a good role model. Childbearing can also be interpreted as a signal of stability, and therefore, stronger links to the community. Solt (2008) on the other hand argues that while married people may be more likely to remind each other to vote, they are nonetheless less likely to have free time and spend

this scarce time to engage in politics. The arrival of children likewise distracts parents from participating in politics.

While marital status is included in one-third of the studies, the impact of having children is much less frequently researched. At the level of studies the positive effect of marital status on turnout is confirmed, though at the level of tests the modal effect is insignificant. The average effect size for marriage is nonetheless statistically significant at both levels with  $r_{av}$  between .43 and .53 meaning that turnout increases by between .43 and .53 standard deviation units per standard deviation change in the independent variable. The effect of having children appears to be insignificant in most studies.

#### **4.1.7 Home ownership and residential mobility**

Home ownership and residential mobility (vs. stability) are linked to individual voter turnout in largely the same way as they are both considered to strengthen community ties (Lane, 1959; Highton and Wolfinger, 2001). Citizens that own a property are usually more grounded in a community than those that rent. People that have been living in their community for a while are, moreover, better informed about political affairs.

Our meta-analysis shows that home ownership and residential mobility largely influence voter turnout as expected. Residential mobility leads to lower levels of turnout in most tests and studies, while the modal category for home ownership is success at the test level and a tie between failure and success at the study level. The average effect size lies around .50 for both variables and the two-tailed  $t$ -test is statistically significant at the  $p < 0.01$  level in all instances.

#### **4.1.8 Urbanization and region**

The reason for including the distinction between residential locations in rural or urban areas finds its origin in the fact that citizens in rural areas historically turn out at higher levels most likely because they were well-organized and therefore mobilized to turn out to vote. The results of the meta-analysis in Table 4 show that this hypothesis may in fact be outdated as almost all tests and studies find insignificant effects. Not surprisingly the success rate for this variable is low. Its average effect size, moreover, is small and

does not reach statistical significance. Region is often included as a control variable in countries where there are stark differences in turnout levels for different parts of the country, such as lower turnout rates in the South in the United States. These variables are indeed often found to pick up on regional differences.

## **4.2 The mobilization model**

Turning to the next group of variables, the mobilization model of voter turnout centers around the idea that citizens are mobilized to participate in politics by parties, candidates, interest groups and new social movements (Rosenstone and Hansen, 1993). This section covers a total of 11 mobilization variables. The results of the meta-analysis are shown in Table 5.

### **4.2.1 Union membership and union density**

Unions mobilize their members to participate in politics as well as reduce class bias by enhancing participation of those with fewer resources through the provision of information cues (see e.g. Leighley and Nagler 2007). A strong presence of unions at the aggregate level (i.e. union density), moreover, may lead political parties to adopt policy positions that represent union members in an effort to win their votes (Leighley and Nagler, 2007, 432).

Union membership was more often included than union density in the studies on which our meta-analysis is based. The results do not seem to confirm the hypotheses formulated above. As indicated by the modal category individual level union membership and union density in most cases do not to have a statistically significant effect on individual level turnout. Needless to say the success rate of the variables is not very high. The average effect size for union membership ranges between .29 and .43 and is statistically different from zero. The latter is not the case for union density.

Table 5: Mobilization model - results meta-analysis

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( $r_{av}$ )	<i>p</i> -value
<b>Union membership (+)</b>							
Tests (49)	14	35	0	Failure	28,57	0,29	***
Studies (14)	6	8	0	Failure	42,86	0,43	**
<b>Attendance of religious services (+)</b>							
Tests (40)	20	20	0	Failure	50,00	0,50	***
Studies (14)	8	6	0	Success	57,14	0,57	**
<b>Mobilization (partisan) (+)</b>							
Tests (27)	19	8	0	Success	70,37	0,70	***
Studies (10)	7	3	0	Success	70,00	0,70	**
<b>Media exposure (+)</b>							
Tests (20)	14	6	0	Success	70,00	0,70	***
Studies (10)	6	4	0	Success	60,00	0,60	**
<b>Mobilization (non-partisan GOTV) (+)</b>							
Tests (30)	16	14	0	Success	53,33	0,53	***
Studies (9)	5	4	0	Success	55,56	0,56	*
<b>Political advertising exposure (+)</b>							
Tests (19)	4	14	1	Failure	21,05	0,16	<i>n.s.</i>
Studies (7)	1	6	0	Failure	14,29	0,14	<i>n.s.</i>
<b>Religious denomination (+)</b>							
Tests (17)	4	12	1	Failure	23,53	0,18	<i>n.s.</i>
Studies (6)	1	5	0	Failure	16,67	0,17	<i>n.s.</i>
<b>Organizational membership (+)</b>							
Tests (8)	7	1	0	Success	87,50	0,88	***
Studies (5)	4	1	0	Success	80,00	0,80	*
<b>Total advertisements (+)</b>							
Tests (6)	0	6	0	Failure	0,00	0,00	
Studies (4)	0	4	0	Failure	0,00	0,00	
<b>Union density (+)</b>							
Tests (3)	1	2	0	Failure	33,33	0,33	<i>n.s.</i>
Studies (3)	1	2	0	Failure	33,33	0,33	<i>n.s.</i>
<b>Social capital (+)</b>							
Tests (8)	4	4	0	Failure	50,00	0,50	*
Studies (3)	1	2	0	Failure	33,33	0,33	<i>n.s.</i>

Note: *T*-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

#### 4.2.2 Attendance of religious services, religion, organizational membership and social capital

Mobilization usually takes place through social networks and is mainly focused on reducing the costs of political participation by providing cues to process political information, arranging transportation to the polling booth, etc. Associational life, moreover, is a place where emphasis is put on values that are thought to mobilize citizens. Attendance of religious services is a measure of the mobilization characteristics of religion (see Solt 2008 and also Claassen and Povtak 2010). People can however also be members of other organizations such as e.g. political parties, social associations, sports clubs, etc. In all of these cases turnout is expected to increase with higher involvement in as-

sociational life. The impact of associational membership on voter turnout is not solely linked to the mobilization model but also to the socialization and resource model as organizational membership is also thought to promote civic commitment, skills, etc. that stimulate political participation.

The results of the meta-analysis indicate that while organizational membership is positively related to turnout, having a religious denomination (as opposed to not being religious) in most instances does not significantly affect turnout. Religious attendance is found to affect individual turnout roughly half of the time, which is reflected in the success rate that lies between 50 and 57%. The average effect size  $r_{av}$  indicates that for every standard deviation change in attendance of religious services, turnout will go up with .50 to .57 standard deviations. The average effect size is higher for organizational membership ( $r_{av} = .80-.88$ ), however this result is based on a smaller sample size. General measures of social capital were included in only three studies and were most often found not to have a significant effect on turnout.

#### **4.2.3 Partisan and non-partisan mobilization**

It is generally thought that voter mobilization efforts such as Get Out The Vote (GOTV) phone calls, canvassing and personal contacts boost turnout as these efforts reduce information costs for voters. The impact of partisan and non-partisan mobilization is, however, considered to be mediated through a more general propensity to vote and is therefore not expected to affect all voters in a similar way (see e.g. Karp, Banducci and Bowler 2008; Arceneaux, Gerber and Green 2006; Dale and Strauss 2009).

Both partisan and non-partisan mobilization efforts are indeed found to positively affect individual turnout in national elections in most instances (see modal category and the significant  $t$ -tests). The success rate is higher for partisan (70%) than for non-partisan mobilization (54%). The average effect size likewise is higher for mobilization efforts by parties.

#### 4.2.4 (Targeted) campaign advertisements and media exposure

Exposure to (political) news in the media arguably leads to higher levels of political information among citizens. Prior (2005, 577) warns, however, that increasing media choice does not *per se* lead to higher levels of turnout. As the number of media outlets increases the likelihood that a person will encounter political news by chance diminishes significantly. Because most people lack the inclination and resources to follow politics attentively, many will only follow issues that involve their own personal interests. Targeted campaign advertisements are way to get potential voters to focus on issues of interest to them (Solt, 2008). Nonetheless, although political campaigns are intended to get out votes, they can in some cases have a demobilizing effect, as the literature about the impact of negative campaigning contends (Goldstein and Freedman, 2002; Anduiza-Perea, 2005; Stevens, 2008, 2009).

The results of our meta-analysis show that reading news papers, watching the news, listening to the radio, etc. indeed has a positive effect on turnout in most studies in which media exposure was included (success rate 60-70%). The average effect size  $r_{av}$  reaches statistical significance both at the level of tests and studies, meaning that for every one standard deviation increase in media exposure individual level turnout goes up by .60 to .70 standard deviations. Campaign advertisements were generally not found to have a statistically significant effect.

### 4.3 The socialization model

The impressionable or formative years between childhood and adulthood are generally considered a key period during which citizens form the basis of political attitudes and behaviors. The political learning curve is mediated through various socializing agents such as family, peers, school, mass media, and even the political context. In this third result section we discuss three variables related to the socialization model. The results of the meta-analysis for these socialization variables are summarized in Table 6.

Table 6: Socialization model - results meta-analysis

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( $r_{av}$ )	p-value
<b>Political discussion (+)</b>							
Tests (10)	5	5	0	Failure	50,00	0,5	*
Studies (4)	2	2	0	Failure	50,00	0,5	<i>n.s.</i>
<b>Parental social class / income (+)</b>							
Tests (22)	16	6	0	Success	72,73	0,73	***
Studies (4)	2	2	0	Failure	50,00	0,50	<i>n.s.</i>
<b>Parental educational level (+)</b>							
Tests (16)	7	9	0	Failure	43,75	0,44	**
Studies (3)	1	2	0	Failure	33,33	0,33	<i>n.s.</i>

Note: T-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

#### 4.3.1 Political discussion

Conversion theories of political participation emphasize how talking to friends, family members or neighbours may persuade people to participate in politics (see Cutts and Fieldhouse, 2009). Not only does political discussion potentially lead to higher levels of interest and political knowledge, emphasizing social norms (such as turning out in elections) also induces norm-conforming behaviour (Gerber and Rogers, 2009).

The results of the meta-analysis of the impact of political discussion on individual level voter turnout in national elections are inconclusive. In half of the test and studies the positive impact of discussing politics is confirmed, while the other half did not establish the existence of a significant relationship with voter turnout.

#### 4.3.2 Parental influences during adolescence

The process of political learning from parents and other family members is tapped by many different indicators, however, only two measures were included in three or more studies (see appendix B for variables that are included in less than 3 studies). Both parental educational levels and parental socio-economic status are expected to have a positive impact on children's turnout levels in later life (Sandell and Plutzer, 2005; Sandell Pacheco, 2008).

Parental income and social class seem more successful in explaining voter turnout than parental educational level for which the modal category is failure. Average effect

sizes are only significant at the test level and are higher for income and class than for education ( $r_{av} = .73$  vs.  $.44$ ).

#### 4.4 The rational choice model

The rational choice emphasizes that there is a decisive cost-benefit calculus of voting where-by benefits should outweigh costs in order for a person to turn out to vote. In this section we consider ten variables related to the rational choice model. The results of the meta-analysis are summarized in Table 7.

Table 7: Rational choice model - results meta-analysis

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( $r_{av}$ )	p-value
<b>Vote in previous election (+)</b>							
Tests (77)	75	2	0	Success	97,40	0,97	***
Studies (12)	12	0	0	Success	100,00	1,00	
<b>Cares who wins (+)</b>							
Tests (16)	14	2	0	Success	87,50	0,88	***
Studies (8)	6	2	0	Success	75,00	0,75	**
<b>Evaluation national economic situation (-)</b>							
Tests (15)	4	11	0	Failure	26,67	0,27	*
Studies (7)	2	5	0	Failure	28,57	0,29	n.s.
<b>Civic duty (+)</b>							
Tests (17)	16	1	0	Success	94,12	0,94	***
Studies (6)	6	0	0	Success	100,00	1,00	
<b>Evaluation candidates / parties (+)</b>							
Tests (20)	16	3	1	Success	80,00	0,75	***
Studies (6)	4	1	1	Success	66,67	0,50	n.s.
<b>Costs of voting (-)</b>							
Tests (9)	6	3	0	Success	66,67	0,67	**
Studies (4)	2	2	0	Success	50,00	0,50	n.s.
<b>Personal benefits of voting (+)</b>							
Tests (13)	10	3	0	Success	76,92	0,77	***
Studies (4)	2	2	0	Failure	50,00	0,50	n.s.
<b>New voter (-)</b>							
Tests (12)	1	7	4	Failure	8,33	-0,25	n.s.
Studies (3)	0	2	1	Failure	0,00	-0,33	n.s.
<b>Propensity to vote (+)</b>							
Tests (6)	6	0	0	Success	100,00	1,00	
Studies (3)	3	0	0	Success	100,00	1,00	
<b>Evaluation own economic situation (-)</b>							
Tests (5)	1	1	3	Anomaly	20,00	-0,40	n.s.
Studies (3)	1	1	1	Failure	33,33	0,00	n.s.

Note: T-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

#### **4.4.1 Past turnout, new voter, propensity to vote, and costs of voting**

The large impact of past turnout on current turnout decisions as observed in the literature is thought to work through various mechanisms (see e.g. Cutts, Fieldhouse and John, 2009 for an overview). First, turnout is caused by a set of factors such as political interest or partisanship that are relatively stable over the life span. Moreover, the act of voting might be self-reinforcing as it increases positive attitudes towards voting and alters one's self-image to the extent that voting contributes to that image. Third, once voters have been to the polls they face lower information barriers and can make use of their hands-on experience and knowledge of the political system during subsequent elections. Because they are inexperienced, new voters are thought to turn out less.

Past turnout and general propensity to vote are both consistently linked with higher turnout levels. The success rate is close to 100% and the effect size close to 1. The results for new voters seem to indicate that new voters are not significantly less likely to turn out, as in most studies this variable does not reach statistical significance. Lastly, higher costs of voting are found to decrease the likelihood of turnout, as hypothesized, even if the effect size is only significant at the test level.

#### **4.4.2 Evaluation economy, parties and candidates**

Part of a government's job is to manage the nation's economy. Experiencing economic strain, therefore, may lead citizens to blame the government for their situation and mobilize them to the polling booth to vote the government out of office (Schlozman and Verba, 1979, 12-19; Lipset, 1969, 187). The benefits of voting in this case outweigh the costs and citizens will turn out to vote. The alternative hypothesis stipulates that economic suffering withholds people from participating in politics. Someone who has just lost his job is more likely to be pre-occupied with personal economic well-being than with remote concerns like politics. Economic strain in this sense is argued to reduce a person's capacity to participate in politics (Rosenstone, 1982). In this instance, the costs outweigh the benefits and a rational citizen will choose not to turn out and vote. Similar dual mechanisms are at work when considering the evaluation of parties and candidates.

High approval rates foster a positive atmosphere that may encourage and stimulate citizens to turn out to vote. Unpopular parties and candidates, on the other hand, may also foster turnout levels as citizens seek change.

Evaluation of the national economic situation fails to predict turnout in most of the studies and tests for which this variable was included. The evaluation of one's own economic situation proves more ambivalent. However, as the variable is included in very few tests and studies and the average effect size does not reach statistical significance not too much should be made of this finding. Positive evaluations of parties and candidates do seem to boost turnout, though the results are not conclusive. The success rate is high (67-80%), as is the average effect size, however the average effect size at the level of studies is insignificant.

#### **4.4.3 Cares who wins, personal benefits and civic duty**

The higher the stakes in the elections, the more prone citizens will be to turn out to vote. Caring about the outcome of the election and perceived personal benefits may both increase turnout. In fact, both variables in most instances fall into the modal 'success' category. The success rate for both variables is high between 77 and 88%. With the exception of personal benefits at the study level, the average effect size is found significantly different from zero and ranges between .77 and .88.

Finally, while the chances that a single person will single-handedly influence the outcome of the election are infinitely small, a sense of duty may convince citizens to cast a vote nonetheless. This hypothesis is confirmed in the vast majority of studies, and the success rate and average effect size are accordingly very high.

#### **4.5 The psychological model**

The psychological model of voter turnout focuses on psychological determinants of voter turnout. Here, explanations range from more cognitive characteristics such as political interest, political knowledge, or cognitive ability; to personal preferences associated rather with expressive voting such as party identification and ideology; to personality characteristics expected to explain the degree to which people engage in altru-

istic behavior –such as voting– or perceive voting as a civic duty; to the ways in which people perceive the political system and the influence they have on it (i.e. trust in institutions, perceptions of external and internal efficacy, etc.). As such, the psychological model represents a wide variety of approaches to explaining voter turnout. We consider 14 variables related to the psychological model. The results from our meta-analysis are summarized in Table 8.

#### **4.5.1 Party identification, political interest, and political knowledge**

As discussed above, political involvement is considered to be positively related to voter turnout. Political interest, party identification, and political knowledge are three commonly used indicators of political involvement (party identification is even included in almost half of the studies we coded). Our meta-analysis shows that on the whole these variables are indeed positively related to turnout. The success rate lies between 72 and 85% for party identification and political interest. The average effect size  $r_{av}$  lies between .72 and .75 and is statistically significant in all instances for these variables. The results for political knowledge also seem to indicate a significant and positive effect on turnout, though these results are based on relatively fewer studies.

#### **4.5.2 Efficacy, cognitive ability**

Internal efficacy usually refers to the level to which people think they can influence the government or policy outcomes. External efficacy, on the other hand, generally indicates to what extent citizens feel a government is responsive to their interests.

On the whole, most tests and studies including measures of efficacy and political knowledge find non-significant relationships with turnout. Only at the study-level our meta-analysis confirms the hypothesis that higher levels of efficacy lead to higher levels of turnout. The success rate in this instance is 60% and the average effect size  $r_{av}$  equals .58.

Table 8: Psychological model - results meta-analysis

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( $r_{av}$ )	<i>p</i> -value
<b>Party identification (+)</b>							
Tests (145)	107	36	2	Success	73,79	0,72	***
Studies (43)	31	12	0	Success	72,09	0,72	***
<b>Political interest (+)</b>							
Tests (89)	71	18	0	Success	79,78	0,80	***
Studies (27)	23	4	0	Success	85,19	0,85	***
<b>Political efficacy (+)</b>							
Tests (48)	29	18	1	Success	60,42	0,58	***
Studies (15)	7	8	0	Failure	46,67	0,47	**
<b>Political knowledge (+)</b>							
Tests (21)	20	1	0	Success	95,24	0,95	***
Studies (10)	10	0	0	Success	100,00	1,00	
<b>Trust in institutions (+)</b>							
Tests (20)	6	14	0	Failure	30,00	0,30	*
Studies (9)	3	6	0	Failure	33,33	0,33	+
<b>Cognitive ability (+)</b>							
Tests (20)	8	12	0	Failure	40,00	0,40	**
Studies (7)	2	5	0	Failure	28,57	0,29	<i>n.s.</i>
<b>Ideological self-placement (right / conservative) (+)</b>							
Tests (10)	3	7	0	Failure	30,00	0,30	+
Studies (5)	1	4	0	Failure	20,00	0,20	<i>n.s.</i>
<b>Satisfaction with democracy (+)</b>							
Tests (9)	3	6	0	Failure	33,33	0,33	+
Studies (5)	2	3	0	Failure	40,00	0,40	<i>n.s.</i>
<b>Trust in others (+)</b>							
Tests (9)	0	9	0	Failure	0,00	0,00	
Studies (4)	0	4	0	Failure	0,00	0,00	
<b>Ethnic identification (-)</b>							
Tests (5)	0	5	0	Failure	0,00	0,00	
Studies (4)	0	4	0	Failure	0,00	0,00	
<b>Alienation / political cynicism (-)</b>							
Tests (18)	4	12	2	Failure	22,22	0,11	<i>n.s.</i>
Studies (4)	1	3	0	Failure	25,00	0,25	<i>n.s.</i>
<b>Ambivalence (-)</b>							
Tests (9)	9	0	0	Success	100,00	1,00	
Studies (4)	4	0	0	Success	100,00	1,00	
<b>Personality (hardworking) (+)</b>							
Tests (9)	8	1	0	Success	88,89	0,89	***
Studies (3)	2	1	0	Success	66,67	0,67	<i>n.s.</i>
<b>Mental health (+)</b>							
Tests (9)	2	7	0	Failure	22,22	0,22	<i>n.s.</i>
Studies (3)	0	3	0	Failure	0,00	0,00	

Note: T-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

#### 4.5.3 Trust in institutions and others, satisfaction with democracy

Trust in politicians and in political institutions, as well as trust in others is considered to lead to higher turnout. People that have more confidence in the political system and in others will more likely have a positive outlook on the workings of the electoral process. Likewise satisfaction with democracy is hypothesized to increase turnout. However, the

results of the meta-analysis seem to disconfirm these hypotheses as most studies find these variables to be insignificant. Not surprisingly, the success rates and average effect sizes for these variables are rather low and not or barely statistically significant.

#### **4.5.4 Ideological self-placement**

With respect to ideological self-placement a common hypothesis is that right-wing or conservative voters tend to perceive voting as a civic duty more often than left-wing or liberal voters. Testing the latter hypothesis though, the results of the meta-analysis show that ideological self-placement in most instances does not have a statistically significant effect on voter turnout.

#### **4.5.5 Alienation/ambivalence**

Alienation from the political system and ambivalence towards parties and candidates are usually not seen as signs of democratic health. While alienation is most often found not to have an effect on turnout, ambivalence indeed has a negative effect on individual level turnout in national elections. All tests ( $n=9$ ) and studies ( $n=4$ ) confirm this hypothesis leading to a success rate of 100%.

#### **4.5.6 Personality, mental health**

Citizens that are hard working and mentally fit will either want to be more involved in politics or are more capable to become involved. While mental health is not found to affect turnout significantly, having a hardworking personality appears to boost turnout. The success rate ranges between 67 and 89%, however the average effect size is only significant at the level of tests ( $r_{av} = .89$ ).

### **4.6 The political-institutional model**

While voting and abstention are individual acts, they are also influenced by aggregate level factors. The idea that the decision (not) to participate in politics is a by-product of the political system in which people live, is one that is prevalent in the study of

Table 9: Political-institutional model - results meta-analysis

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( $r_{av}$ )	<i>p</i> -value
<b>Closeness of election national level (+)</b>							
Tests (51)	15	36	0	Failure	29,41	0,29	***
Studies (20)	7	13	0	Failure	35,00	0,35	**
<b>Voter facilitation rules (+)</b>							
Tests (21)	11	10	0	Success	52,38	0,52	***
Studies (5)	2	3	0	Failure	40,00	0,40	<i>n.s.</i>
<b>Concurrent second order election (-)</b>							
Tests (22)	1	19	2	Failure	4,55	-0,05	<i>n.s.</i>
Studies (5)	1	3	1	Failure	20,00	0,00	<i>n.s.</i>
<b>Compulsory voting (+)</b>							
Tests (12)	12	0	0	Success	100,00	1,00	
Studies (5)	5	0	0	Success	100,00	1,00	
<b>Effective number of electoral parties (-)</b>							
Tests (5)	2	1	2	Failure	40,00	0,00	
Studies (4)	2	1	1	Success	50,00	0,25	<i>n.s.</i>
<b>Electoral system (FPTP/plurality) (-)</b>							
Tests (10)	1	9	0	Failure	10,00	0,10	<i>n.s.</i>
Studies (4)	1	3	0	Failure	25,00	0,25	<i>n.s.</i>
<b>Closeness of election district level (+)</b>							
Tests (13)	0	13	0	Failure	0,00	0,00	
Studies (3)	0	3	0	Failure	0,00	0,00	

Note: *T*-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

voter turnout. Especially in cross-national research of voting behavior, the political-institutional context has proven a strong indicator of explaining differences in levels of voter turnout. In this last result section we review the influence of six such variables: competitiveness of elections, the effective number of parties, targeted campaign advertisements, campaign advertisements in general, compulsory voting and voter facilitation rules. Results of the meta-analysis are presented in Table 9.

#### 4.6.1 Closeness of elections, second-order elections

High stake elections tend to attract more voters than elections where the outcome is a foregone conclusion. Measures of electoral competitiveness such as closeness of the race, margin of victory, and party polarization are therefore hypothesized to boost turnout, as the chances of influencing the outcome of the elections increase in closer elections (Franklin, 2004, 112-114). Included in 20 out of 90 studies, we find that in most of these competitiveness of elections at the national level does not have a statistically significant

impact on turnout. Because of this the success rate is fairly low (29-35%). Margin of the victory at the district level also does not seem to significantly influence turnout.

Second order elections are normally considered less interesting for voters because the elected offices have fewer competences than the national parliament or president. The results of our meta-analysis can neither confirm or disconfirm this hypothesis as most tests and studies find that holding second order elections simultaneously with parliamentary or presidential elections does not influence turnout levels in the latter.

#### **4.6.2 Voter facilitation rules and compulsory voting**

Legal characteristics of elections are considered to influence turnout (see Blais and Dobrynska, 1998 and Geys, 2006 for useful overviews). Compulsory voting, for example, is expected to boost turnout as abstention leads to punishment which consequently increases the costs of non-voting. Vote facilitating rules, on the other hand, can also be seen as institutional measures to motivate and mobilize people. Examples are holiday or weekend voting; postal, proxy, advance, or e-voting; the placement of special polling booths (for example in and around shopping centres); and spreading elections over a couple of days. All these provisions are aimed at lowering the costs of voting and increasing turnout.

All tests and studies for which the variable is included confirm the mobilizing effect of compulsory voting. The results are rather inconclusive regarding the voter facilitation rules with half of the tests and studies falling into the model category 'success' and the other half in the category 'failure'. This is mirrored by the success rate (40-50%).

#### **4.6.3 Electoral system and effective number of parties**

The single most used variable in cross-national research of voter turnout is the electoral system. The idea is that the more proportional electoral systems are, the higher feelings of efficacy and motivation among voters will be. In proportional systems, as the term suggests, the relation between the number of votes a party receives and the allocated number of seats in parliament is much more proportional than in majority or plurality systems (Geys, 2006, 650-651). Since the translation of votes into seats is so much

less precise in these latter two electoral systems, the number of wasted votes is higher (Franklin, 2004, 15). This, in turn, decreases the probability of a voter influencing the outcome of elections. Counterarguments are that majority electoral systems are easier to understand for voters. Also, PR systems often lead to coalition governments, which decrease the chance of a voter influencing the outcome of the elections. It is widely known that proportional systems produce more parties than majority or plurality systems (Blais, 2006, 118). The more parties there are, the higher the number of options a voter will have, the more likely it is that a voter will find a party he or she can identify with, and the more parties will mobilise people to turn out and vote. On the other hand, fractionalisation leads to complexity and increased information costs. Also, the formation of a coalition government is more likely, which decreases the chances that the party of one's choice will be in government or will be able to implement its policies (Blais, 2006, 118; Geys, 2006, 649-650).

The results for the effective number of parties reflect these competing hypotheses as studies have both confirmed and disconfirmed the hypothesis that more parties lead to lower turnout levels. The four studies that took into account the electoral system did not find significant effects of this variable on individual level voter turnout.

## **5 Conclusion and discussion**

In an environment where almost every possible indicator of voter turnout has been explored it has become difficult to get a good grip on which factors matter most for electoral participation. In this paper we have taken a step back to assess where we stand, reviewing 90 articles on individual level turnout published in 10 top-journals of political science between 2000 and 2010. While initially we felt the title of our paper to have been a bit of an exaggeration, by the end of the project we have come to consider 'the embarrassment of riches' a rather accurate depiction of the current state of voter turnout research. Clearly, it has become difficult to see the wood for the trees.

In 90 articles we found over 170 independent variables used to explain voter turnout, none of which were included in all studies. Only 8 of these independent variables (less

than 5%) were included in more than 25% of the studies we reviewed: education, age, gender, race, party identification, income, marital status, and political interest. Even the two most common independent variables – age and education – were included in only 72% and 74% of studies respectively.

Not only does this imply that there is no consensus on a core model of voter turnout, it also implies that authors rarely include the same control variables in their models – even though often referring to these as ‘the usual suspects’. This possibly leads to underspecified models and spurious inferences. With all the caveats of the sample of studies reviewed in this paper, such as the limited time-period, the exclusive focus on national elections, etc., we think the present review at least sheds a better light on those factors that are consistently linked to individual level turnout.

The variables that we found to have a consistent effect on turnout (i.e. both at the level of tests and studies the modal category is ‘success’ and the average effect size is significantly different from zero) in 10% or more of studies are: age and age squared, education, residential mobility, region, media exposure, mobilization (partisan and non-partisan), vote in previous election, party identification, political interest, and political knowledge. We would propose that future research on turnout at least includes these explanatory factors as control variables.

Variables for which effects are slightly less clear-cut, but that one might still want to include as control variables because at the level of studies the modal category is success and average effect sizes are significant, are: income, marital status, and religious attendance.

Variables that we consistently found to have *no* effect on turnout (i.e. both at the level of tests and studies the modal category is ‘failure’ and/or the effect size is insignificant) in 10% or more of studies are: gender, race, occupational status and type, citizenship, union membership, trust in institutions, and the closeness of elections. Of course the choice of independent variables always depends on research objectives and in certain research settings it may make perfect sense to include these variables, however as standard control variables they seem less relevant.

Concluding, in this paper we have made an attempt to clarify which variables are and are not consistently linked to individual level turnout, aiming to contribute to future research by specifying 'the usual suspects' that should be included in models of voter turnout. However, as a way of strengthening and corroborating our present findings, an important step for future research would be to review turnout studies on second-order elections, elections in new democracies, and elections in earlier time-periods.

## A Studies included in meta-analysis

Aarts and Semetko (2003); Adams and Merrill III (2003); Adams, Dow and Merrill III (2006); Alex-Assensoh and Assensoh (2001); Alvarez, Hopkins and Sinclair (2010); Anduiza Perea (2002); Anduiza-Perea (2005); Arceneaux, Gerber and Green (2006); Arceneaux and Nickerson (2009); Bass and Casper (2001); Banducci, Donovan and Karp (2004); Éric Bélanger and Nadeau (2005); Blais et al. (2004); Bromley and Curtice (2003); Burden (2009); Busch and Reinhardt (2000, 2005); Campbell (2009); Cho, Gimpel and Dyck (2006); Chong and Rogers (2005); Claassen and Povtak (2010); Clarke et al. (2002, 2005); Clinton and Lapinski (2004); Collins, Kumar and Bendor (2009); Cutts and Fieldhouse (2009); DeFrancesco Soto and Merolla (2006); Denny and Doyle (2008, 2009); Fieldhouse, Tranmer and Russell (2007); Fischer et al. (2008); Fowler and Dawes (2008); Freedman, Franz and Goldstein (2004); Gallego (2010); Gastil, Deess and Weiser (2002); Gastil et al. (2008); Gerber and Rogers (2009); Gimpel, Dyck and Shaw (2004); Goldstein and Ridout (2002); Goldstein and Freedman (2002); Green and Shachar (2000); Green and Vavreck (2009); Griffin and Keane (2006); Hanmer (2007); Heath (2000, 2004, 2007); Highton (2000); Highton and Wolfinger (2001); Hillygus (2005*a,b*); Holbrook et al. (2001); Huber and Arceneaux (2007); Huddy and Khatib (2007); Jackson (2003); Jang (2009); Johnston et al. (2001); Johnston, Matthews and Bittner (2007); Karp, Banducci and Bowler (2008); Karp and Banducci (2008); Killian, Schoen and Dusso (2008); Leighley and Nagler (2007); Lyons and Alexander (2000); Malhotra and Krosnick (2007); McDonald (2008); Mc Kenzie (2008); Mondak and Halperin (2008); Mughan and Lacy (2002); Mutz (2002); Pattie and Johnston (2009); Pierce (2003, 2004); Plutzer (2002); Prior (2005); Rubenson et al. (2004); Sandell and Plutzer (2005); Sandell Pacheco (2008); Sanders et al. (2007); Schildkraut (2005); Sides and Karch (2008); Shaw, de la Garza and Lee (2000); Solt (2008); Sondheimer and Green (2010); Staton, Jackson and Canache (2007); Stein and Vonnahme (2008); Stevens et al. (2008); Stevens (2009); Tenn (2005, 2007); Vowles (2010); Wass (2007); Wielhouwer (2000); Yoo (2010)

## B Variables excluded (no. studies <3)

Table 10: Resource model - results meta-analysis (no. studies <3)

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( <i>r<sub>av</sub></i> )	<i>p</i> -value
<b>Representatives of ethnic group (+)</b>							
Tests (11)	1	10	0	Failure	9,09	0,09	<i>n.s.</i>
Studies (2)	0	2	0	Failure	0,00	0,00	
<b>Population density (-)</b>							
Tests (3)	3	0	0	Success	100,00		
Studies (2)	2	0	0	Success	100,00		
<b>Language (+)</b>							
Tests (7)	2	5	0	Failure	28,57	0,29	<i>n.s.</i>
Studies (2)	1	1	0	Failure	50,00	0,50	<i>n.s.</i>
<b>Spanish newspapers (+)</b>							
Tests (6)	4	2	0	Success	66,67	0,67	*
Studies (1)	1	0	0	Success	100,00		
<b>Racial heterogeneity (-)</b>							
Tests (6)	0	4	2	Failure	0,00	-0,33	<i>n.s.</i>
Studies (1)	0	1	0	Failure	0,00		
<b>Continent of origin (+)</b>							
Tests (3)	0	3	0	Failure	0,00		
Studies (1)	0	1	0	Failure	0,00		
<b>Contextual home ownership (+)</b>							
Tests (12)	12	0	0	Success	100		
Studies (1)	1	0	0	Success	100		

Note: T-test with two-tailed significance levels. +*p*<0.01, \**p*<0.05, \*\**p*<0.01, \*\*\**p*<0.001

Table 11: Mobilization model - results meta-analysis (no. studies <3)

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( <i>r<sub>av</sub></i> )	<i>p</i> -value
<b>Campaign spending (+)</b>							
Tests (17)	0	15	2	Failure	0,00	-0,12	<i>n.s.</i>
Studies (2)	0	2	0	Failure	0,00		
<b>Political activism (+)</b>							
Tests (11)	8	3	0	Success	72,73	0,73	***
Studies (2)	2	0	0	Success	100,00		
<b>Neighborhood (+)</b>							
Tests (5)	3	2	0	Success	60,00	0,60	+
Studies (1)	1	0	0	Success	100,00		
<b>Size of social network (+)</b>							
Tests (6)	4	2	0	Success	66,67	0,67	*
Studies (1)	1	0	0	Success	100,00		
<b>Household (+)</b>							
Tests (4)	4	0	0	Success	100,00		
Studies (1)	1	0	0	Success	100,00		
<b>Candidate spending ratio (-)</b>							
Tests (5)	5	0	0	Success	100,00		
Studies (1)	1	0	0	Success	100,00		

Note: T-test with two-tailed significance levels. +*p*<0.01, \**p*<0.05, \*\**p*<0.01, \*\*\**p*<0.001

Table 12: Socialization model - results meta-analysis (no. studies &lt;3)

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( <i>r<sub>av</sub></i> )	<i>p</i> -value
<b>Political discussion in adolescence (+)</b>							
Tests (12)	9	3	0	Success	75,00	0,75	***
Studies (2)	2	0	0	Success	100,00		
<b>Residential mobility in adolescence (-)</b>							
Tests (8)	7	1	0	Success	87,50	0,88	***
Studies (2)	2	0	0	Success	100,00		
<b>Parental voter turnout (+)</b>							
Tests (8)	7	1	0	Success	87,50	0,88	***
Studies (2)	2	0	0	Success	100,00		
<b>Church attendance in adolescence (+)</b>							
Tests (6)	5	1	0	Success	83,33	0,83	**
Studies (1)	1	0	0	Success	100,00		
<b>Local political competition in adolescence (+)</b>							
Tests (6)	4	2	0	Success	66,67	0,67	*
Studies (1)	1	0	0	Success	100,00		
<b>State political competition in adolescence (+)</b>							
Tests (6)	0	6	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00	0,00	
<b>Parental divorce (-)</b>							
Tests (7)	2	5	0	Failure	28,57	0,29	<i>n.s.</i>
Studies (1)	0	1	0	Failure	0,00	0,00	
<b>Number of political discussants (+)</b>							
Tests (8)	4	4	0	Failure	50,00	0,50	*
Studies (1)	0	1	0	Failure	0,00		
<b>Percentage of discussants disagreeing (-)</b>							
Tests (8)	2	6	0	Failure	25,00	0,25	<i>n.s.</i>
Studies (1)	0	1	0	Failure	0,00		
<b>Parental occupation (+)</b>							
Tests (6)	0	6	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00		
<b>Parental political interest (+)</b>							
Tests (6)	0	6	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00		
<b>Parental political knowledge (+)</b>							
Tests (6)	0	6	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00		
<b>Parental political trust (+)</b>							
Tests (6)	0	6	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00		
<b>Parental party identification (+)</b>							
Tests (10)	0	10	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00		
<b>High school activities (+)</b>							
Tests (5)	0	5	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure			
<b>College attendance before first elections (+)</b>							
Tests (4)	3	1	0	Success	75,00	0,75	+
Studies (1)	1	0	0	Success	100,00		
<b>Marital status before first election (+)</b>							
Tests (4)	0	4	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00		
<b>Children before first election (+)</b>							
Tests (4)	0	4	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00		

Note: T-test with two-tailed significance levels. +*p*<0.01, \**p*<0.05, \*\**p*<0.01, \*\*\**p*<0.001

Table 13: Rational choice model - results meta-analysis (no. studies <3)

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( <i>r<sub>av</sub></i> )	<i>p</i> -value
<b>Perception about voting (+)</b>							
Tests (4)	3	1	0	Success	75,00	0,75	*
Studies (2)	2	0	0	Success	100,00	1,00	
<b>Keeping up economically (-)</b>							
Tests (6)	1	5	0	Failure	16,67	0,17	<i>n.s.</i>
Studies (1)	0	1	0	Failure	0,00		

Note: T-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Table 14: Psychological model - results meta-analysis (no. studies <3)

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( <i>r<sub>av</sub></i> )	<i>p</i> -value
<b>Attitudes negative towards both candidates (-)</b>							
Tests (5)	2	3	0	Failure	40,00	0,40	<i>n.s.</i>
Studies (2)	1	1	0	Failure	50,00	0,50	
<b>Relative deprivation (+)</b>							
Tests (4)	1	3	0	Failure	25,00	0,25	<i>n.s.</i>
Studies (2)	1	1	0	Failure	50,00	0,50	
<b>Impedance (preferred candidate not selected at primaries) (-)</b>							
Tests (14)	0	13	1	Failure	0,00	-0,07	<i>n.s.</i>
Studies (2)	0	2	0	Failure	0,00	0,00	
<b>Extroversion (+)</b>							
Tests (4)	0	4	0	Failure	0,00	0,00	
Studies (2)	0	2	0	Failure	0,00	0,00	
<b>Relative entertainment preference (-)</b>							
Tests (3)	0	3	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00	0,00	
<b>Proportion Republicans in neighborhood (-)</b>							
Tests (16)	1	5	10	Anomaly	6,25	-0,56	**
Studies (1)	0	0	1	Anomaly	0,00	-1,00	
<b>Proportion Democrats in neighborhood (-)</b>							
Tests (16)	12	4	0	Success	75,00	0,75	***
Studies (1)	1	0	0	Success	100,00	1,00	

Note: T-test with two-tailed significance levels. + $p < 0.01$ , \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$

Table 15: Political/institutional/exotic model - results meta-analysis (no. studies &lt;3)

Variable	Success (1)	Failure (0)	Anomaly (-1)	Modal category	Success rate	Effect size ( <i>r<sub>av</sub></i> )	<i>p</i> -value
<b>Targeted ads (+)</b>							
Tests (8)	0	7	1	Failure	0,00	-0,13	<i>n.s.</i>
Studies (2)	0	2	0	Failure	0,00	0,00	
<b>Electoral system - open ballot/preferential voting (+)</b>							
Tests (3)	1	0	2	Anomaly	33,33	-0,33	<i>n.s.</i>
Studies (2)	0	1	1	Failure	0,00	-0,50	
<b>Closing date registration (-)</b>							
Tests (4)	3	1	0	Success	75,00	0,75	*
Studies (2)	1	1	0	Failure	50,00	0,50	
<b>Registered to vote (+)</b>							
Tests (9)	8	1	0	Success	88,89	0,89	***
Studies (2)	1	1	0	Failure	50,00	0,50	
<b>District margin of victory in previous elections (+)</b>							
Tests (5)	2	3	0	Failure	40,00	0,40	<i>n.s.</i>
Studies (2)	1	1	0	Failure	50,00	0,50	
<b>Period (-)</b>							
Tests (11)	5	6	0	Failure	45,45	0,45	*
Studies (2)	1	1	0	Failure	50,00	0,50	
<b>Electoral district (+)</b>							
Tests (4)	4	0	0	Success	100,00	1,00	
Studies (1)	1	0	0	Success	100,00	1,00	
<b>Open congressional seat (+)</b>							
Tests (9)	3	6	0	Failure	33,33	0,33	+
Studies (1)	0	1	0	Failure	0,00	0,00	
<b>Concurrent election (+)</b>							
Tests (9)	0	9	0	Failure	0,00	0,00	
Studies (1)	0	1	0	Failure	0,00	0,00	
<b>Season elections organized (summer) (-)</b>							
Tests (4)	4	0	0	Success	100,00	1,00	
Studies (1)	1	0	0	Success	100,00	1,00	
<b>Electoral franchise change (-)</b>							
Tests (4)	4	0	0	Success	100,00	1,00	
Studies (1)	1	0	0	Success	100,00	1,00	
<b>Aggregate turnout at first eligible elections (+)</b>							
Tests (3)	3	0	0	Success	100,00	1,00	
Studies (1)	1	0	0	Success	100,00	1,00	
<b>Data collected via internet survey (+)</b>							
Tests (24)	24	0	0	Success	100,00	1,00	
Studies (1)	1	0	0	Success	100,00	1,00	
<b>Genes (2 types: 5HTT &amp; MAOA) (+)</b>							
Tests (6)	2	4	0	Failure	33,33	0,33	<i>n.s.</i>
Studies (1)	0	1	0	Failure	0,00	0,00	

Note: T-test with two-tailed significance levels. +*p*<0.01, \**p*<0.05, \*\**p*<0.01, \*\*\**p*<0.001

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