



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 Anthony 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 foundations of micro-level 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 during the past decade (2000–2010). Through a meta-analysis of the results reported in these studies, this paper identifies those factors that are consistently linked to individual level turnout.

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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. As almost every possible factor 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 personal cost-benefit calculation in which the expected benefits of voting should outweigh its costs (Downs, 1957). 'Extended' rational choice models posit that in addition to cost-benefit considerations,

a sense of civic duty drives citizens to the polls (Riker and Ordeshook, 1968; Blais, 2000). Alternatively, voting is seen as an act involving the consideration not only of personal benefits but also those of others (Fowler, 2006). The *resource model* of turnout, on the other hand, hypothesizes that turnout is driven by resources and expects turnout to be higher for citizens with a higher economic status, more skills, and more knowledge (Verba and Nie, 1972).

Theories of mobilization view voting essentially as social behavior guided by 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 et al., 2003). Yet another strand of research are *psychological models* of turnout that stress the role of attitudes and psychological predispositions such as political interest, partisanship, and political efficacy in explaining voter turnout. Lastly, the *political institutional model* sees the decision to turn out as a by-product of the political and institutional context in which citizens live.

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Clearly, the jury is still out on what the foundations of micro-level 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 focusing 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 et al., 2007). There seems to be a lack of consensus within the research community on a 'core model' of turnout (Geys, 2006). 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 in national elections, published in ten top-journals in political science and political behavior during 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 were included in all studies.

Through a meta-analysis of the results of these studies we aim to shed light on the factors that are consistently linked to individual level turnout. In doing so, our research seeks to complement the meta-analysis of aggregate level turnout by Geys (2006). Our paper follows a similar set-up: in section two we discuss our sample selection and coding procedure, as well as the methods used to review the studies. Next we consider the ways in which the dependent variable, individual level turnout, has been measured in the studies included in our sample. In section four we present our empirical results, and section five presents our conclusions.

2. Data and methods

The sheer amount of studies on individual level turnout renders a review of all available research results impossible. Hence, in this research project we have restricted our analyses in a number of ways. First of all, we have chosen to consider only peer-reviewed journal articles. We realize that our sample selection suffers from the 'file drawer problem' as research findings that are insignificant are less likely to get published. However, while acknowledging the selection bias this might generate in our sample, we think the problem is less severe in the meta-analyses carried out here. The file drawer problem is likely to affect results for explanatory variables of interest to researchers, not for control variables. The meta-analyses presented here cover a wide variety of theoretical approaches and explanatory

variables, that should mitigate selection bias in favor of certain explanatory variables.²

Secondly, we include only national parliamentary or presidential elections, 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). Pooling studies that analyze turnout in different types of elections might lead to mixed findings as certain independent variables can affect turnout differently in first order elections than in second order elections. Hence, we prefer to limit our study 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 (Blais and Dobrzynska, 1998; Pérez-Liñán, 2001; Norris, 2002).

Finally, for more pragmatic reasons we focus on studies published in 10 top-journals in political science (see Table 1). Our goal was to include both general political science journals as well as journals specializing in political behavior, and to strike a balance between European and American journals. We have limited the time-period to studies published between 2000 and 2010, based on the idea that the near past is of most interest to both scholars and policy makers. This sample selection results in a total of 90 articles analyzing individual level turnout in national elections in established democracies.³ Table 1 shows the distribution of articles over journals.

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 extensively 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.

To check the representativeness of our sample in terms of journal selection, we bench-marked our selection of journals against the journals cited by the Social Science Citation Index as having published most articles on turnout in the period between 2000 and 2010. Almost 70% of articles on turnout were published in political science journals, compared to about 10% for economics journals

² Moreover, robustness checks including only control variables demonstrate that our results remain virtually the same, even if variables of interest are excluded (cf. online Appendix C).

³ Articles that analyzed a composite index of various forms of political participation including turnout were excluded 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. We did, however, include articles using data generated from field experiments.

Table 1
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 Research	5 (5.6%)
Political Analysis	5 (5.6%)
American Political Science Review	3 (3.3%)
Acta Politica	1 (1.1%)
<i>Total</i>	90

and about 5% for sociology journals, justifying our focus on political science journals. Moreover, within the political science journals, we included 8 of the 15 journals that published most articles on turnout, and added 2 additional European journals to have a better spread over articles using American and European data.⁴ Based on these statistics, we feel confident our sample is representative of studies of individual level turnout in national elections of established democracies published between 2000 and 2010.

In addition to journal selection, as a way of gauging the 'representativeness' of our sample in terms of theoretical approaches, we have categorized explanatory factors of turnout in six broad theoretical models that we feel reflect the main theoretical approaches in the literature (see Section 4). Subsequently we coded each study according to the model or models it reflects. As Table 2 demonstrates, resource and mobilization studies are somewhat more common in our sample, while socialization and rational choice studies are less common. This may be a consequence of the time-period assessed in this study. Note that some studies test multiple theoretical models, hence the total number of studies in the table exceeds the original number 90.

After a double-blinded selection of studies based on 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 used, the independent variables modeled, statistical techniques used, as well as the 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 an assessment by both authors when questions in coding arose. Coding decisions were recorded for each study in

⁴ Note that the fact that the majority of studies were carried out in the United States might also affect the 'representativeness' of our sample. To be precise, 68% of the studies in our sample were based on data from the US, the remaining 32% are based mostly on cross-national survey data from West European democracies. Space does not permit thorough analysis of the potential differences in findings between the US and Europe in this paper, however, this is a topic that will be taken up in future research.

Table 2
Distribution of the main theoretical models.

Theoretical model	Studies	Tests
Resource model	35 (31.5%)	133 (28.4%)
Mobilization model	29 (26.1%)	137 (29.3%)
Socialization model	5 (4.5%)	29 (6.2%)
Rational choice model	11 (9.9%)	54 (11.5%)
Psychological model	19 (17.1%)	71 (15.2%)
Institutional model	12 (10.8%)	44 (9.4%)
<i>Total</i>	111	468

separate log-files. Finally, all final codings were double checked by one of the authors.⁵

2.1. Meta-analysis

Meta-analysis is often defined as an analysis of analyses (Glass, 1976, 3). 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.

In this paper we use a combination of the *vote-counting procedure* and the *combined-tests technique* (see Imbeau et al., 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 $p < 0.05$ 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.

$$\text{success rate} = (\text{successes}/\text{number of tests}) \times 100 \quad (1)$$

Because some studies include more tests than others (e.g. the same hypothesis can be assessed in multiple models within a given study/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

⁵ The dataset, codebook, and coding instructions are available upon request from the authors.

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 et al., 2007, 1179). Combined test techniques allow to summarize the test statistics provided by different studies. However, since the studies in our sample use different statistical techniques 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 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 at the level of tests can then be calculated with the formula in Equation (2):

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

The average effect size of a given independent variable across all studies (r_{av}) is subsequently given by the mean effect size (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 one standard deviation. 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, which we hypothesize to be positive. Imagine study one includes four tests of this hypothesis. 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 modal category of this study is 'success'. 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 $(2/4) \cdot 100 = 50\%$, the proxy of the effect size r is $(2-1)/4 = 0.25$ and a t -test will demonstrate that this effect is not significantly different from 0. Now, say in hypothetical studies two, three and four the modal category is also 'success' and the effect size r equals 0.75, while in study five the modal category is 'failure' and the effect size r is 0. At the level of studies then, the success rate is $(4/5) \cdot 100 = 80\%$. The average effect size r_{av} is the sum of r divided by the number of studies $((0.25 + 0.75 + 0.75 + 0.75 + 0)/5 = 0.5)$ and a t -test of this

effect will demonstrate that it is significantly different from 0 ($p < 0.05$, two-tailed).⁶

3. 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 such 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 3 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.⁷

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. There are multiple ways to group variables into theoretical models and different scholars are likely to have different preferences. Also, as will become clear below, the models chosen for the purpose of this

⁶ Note that in case of a tie, the modal study effect is always coded conservatively. For example, if a study includes 4 tests, 2 of which are a success and 2 are a failure, the modal effect of the study is coded as failure.

⁷ 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.

Table 3

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%)
Total	95	405

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 the results tables.

We focus exclusively on main effects, disregarding interaction terms.⁸ 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. Online Appendix A 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. Overall, we found that of the 176 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

The basic idea behind the resource model is that political participation is an act driven by resources, particularly time, money, and skills (Verba and Nie, 1972; Verba et al., 1995). 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 vote (Brady et al., 1995, 273). Education also contributes to resources, acting as a social

sorting mechanism and serving as a proxy for social class and skills. Higher resource citizens also have larger networks and higher stakes in elections, characteristics that may in turn act as motivators and lead to targeted mobilization efforts from political parties. The cluster of resource variables is the largest of all discussed in this paper, comprising 22 explanatory variables, many of which are demographic indicators. Results are summarized in Table 4.

4.1.1. Education

Education is considered one of the strongest predictors of voter turnout and has been used as an independent variable in 67 out of 90 studies (see e.g. Hillygus, 2005b; Campbell, 2009; Gallego, 2010). Notwithstanding the rise of educational levels in advanced western democracies, turnout levels have not risen: a fact that continues to puzzle scholars of political behavior (Burden, 2009, 540).

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 roughly 0.72 standard deviation units. However, living in an area with relatively higher levels of education does not seem to significantly affect turnout (see results for contextual education).

4.1.2. Age and age squared

Age is among the three most common independent variables in research on individual voter turnout (65 out of 90 studies). Young adults are notorious abstainers. Turnout is, however, hypothesized to rise with the transition into adulthood (Lane, 1959, 218, Strate et al., 1989, 444, Jankowski and Strate, 1995, 91) and decline again when citizens at an older age start to withdraw from social life (Cutler and Bengtson, 1974, 163).

This suggests the relationship between age and turnout is curvilinear rather than linear, which is why some studies also include age squared. Our findings show that most tests and studies are successful, indicating support for a positive effect of age and a negative effect of age squared on turnout (the success rate being around 75% for the studies).

4.1.3. Gender

Because of their different role in society (e.g. being the breadwinner, historically 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, however, suggests that the gender gap in turnout has gradually disappeared (see 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 very low (around 3–5%), as in most tests and studies the variable does not reach statistical significance. 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 is usually women that turn out at higher rates, not men.

⁸ As an anonymous reviewer pointed out, main effects of interaction terms are affected by the inclusion of the interaction effect and could hence distort our results. However, secondary analysis of our results excluding all variables that were main effects of interaction terms gave near-identical results to the ones reported here. As additional robustness checks we also tested whether our results hold when including only control variables and when weighting the effect by the number of variables included in each test. The results did not change substantively, as reported in online Appendix C.

Table 4

Resource model – results meta-analysis.

Variable	Success (1)	Failure (0)	Anomaly (−1)	Modal category	Success rate	Effect size (r_{av})	p-Value
Education (+)							
Tests (239)	173	66	0	Success	72.38	0.72	***
Studies (67)	45	22	0	Success	67.16	0.71	***
Age (+)							
Tests (233)	167	60	6	Success	71.67	0.69	***
Studies (65)	49	15	1	Success	75.38	0.74	***
Age squared (−)							
Tests (78)	44	32	2	Success	56.41	0.54	***
Studies (17)	13	4	0	Success	76.47	0.78	***
Gender (male) (+)							
Tests (225)	11	160	54	Failure	4.89	−0.19	***
Studies (61)	2	45	14	Failure	3.28	−0.20	**
Race (black, Latino, non-white) (−)							
Tests (156)	38	109	9	Failure	24.36	0.19	***
Studies (43)	10	30	3	Failure	23.26	0.21	*
Income (+)							
Tests (151)	76	75	0	Success	50.33	0.50	***
Studies (40)	21	19	0	Success	52.50	0.57	***
Marital status (married) (+)							
Tests (90)	41	47	2	Failure	45.56	0.43	***
Studies (30)	17	12	1	Success	56.67	0.53	***
Residential mobility (−)							
Tests (54)	28	23	3	Success	51.85	0.46	***
Studies (18)	10	7	1	Success	55.56	0.46	**
Region (south/periphery) (−)							
Tests (52)	28	24	0	Success	53.85	0.54	***
Studies (18)	10	8	0	Success	55.56	0.55	***
Occupational status (employed) (+)							
Tests (50)	17	33	0	Failure	34.00	0.34	***
Studies (18)	5	13	0	Failure	27.78	0.32	**
Home ownership (+)							
Tests (58)	30	27	1	Success	51.72	0.50	***
Studies (16)	8	8	0	Failure	50.00	0.55	***
Citizenship (nationalized/born in country) (+)							
Tests (41)	13	22	6	Failure	31.71	0.17	+
Studies (13)	5	6	2	Failure	38.46	0.26	n.s.
Occupational type (white collar) (+)							
Tests (22)	8	12	2	Failure	36.36	0.27	*
Studies (9)	4	5	0	Failure	44.44	0.35	+
Socio-economic status/class (+)							
Tests (21)	14	7	0	Success	66.67	0.67	***
Studies (8)	4	4	0	Failure	50.00	0.50	*
Residential location (rural) (+)							
Tests (18)	0	17	1	Failure	0.00	−0.06	n.s.
Studies (7)	0	7	0	Failure	0.00	−0.02	n.s.
Children (+)							
Tests (18)	2	11	5	Failure	11.11	−0.17	n.s.
Studies (6)	1	3	2	Failure	16.67	−0.10	n.s.
Occupational type: students (−)							
Tests (15)	0	8	7	Failure	0.00	−0.47	**
Studies (6)	0	3	3	Failure	0.00	−0.43	+
Contextual race (−)							
Tests (37)	5	24	8	Failure	13.51	−0.08	n.s.
Studies (5)	1	4	0	Failure	20.00	0.05	n.s.
Contextual education (+)							
Tests (23)	9	13	1	Failure	39.13	0.35	**
Studies (4)	1	3	0	Failure	25.00	0.33	n.s.
Contextual citizenship (−)							
Tests (22)	6	16	0	Failure	27.27	0.27	*
Studies (3)	1	2	0	Failure	33.33	0.43	n.s.
Generation (60s/70s vs. pre-WW II) (−)							
Tests (14)	12	2	0	Success	85.71	0.86	***
Studies (3)	3	0	0	Success	100.00	0.88	**
Contextual income (+)							
Tests (9)	2	6	1	Failure	22.22	0.11	n.s.
Studies (3)	1	2	0	Failure	33.33	0.28	n.s.

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

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 naturalized or born in their country of residence participate more.

Race is included in about half of the studies, while citizenship is considered in 13 out of 90 studies. 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 $p < 0.05$ level though. Breaking down results by various ethnic and racial groups does not change the overall picture (see online Appendix B). Living in an area with relatively high proportions of inhabitants from ethnic minorities or naturalized citizens also does not significantly affect turnout, as the variables contextual race and contextual citizenship show.

4.1.5. Income, occupational status, occupational type and social status

Following the resource model, we 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.

As indicated by the modal category, income appears to have a positive effect on turnout, even though the number of successes and failures are almost even. The average success rate for income lies around 50% with an average effect size of 0.50 and 0.57 for tests and studies respectively. At both levels r_{av} is highly significant. Living in more affluent areas however does not seem to have a significant impact on turnout (see contextual income). Those from higher social classes indeed systematically 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 though, and varies between 0.50 and 0.67.

Lastly, occupational status and type did not appear to have statistically significant effects on turnout in most studies. White collar workers were not found to turn out at higher rates, nor were students found to turn out less. In fact, judging by the zero successes and the negative sign of the average effect size for students ($r_{av} = -0.43$), 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 by 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

Marriage not only has practical consequences such as increased residential stability, married citizens may also be motivated by a politically active spouse (Stoker and Jennings, 1995, 422). Married couples are, moreover,

thought to be more likely to conform to the idea of 'good citizenship' and consider political engagement a civic duty (Denver, 2008). In a similar vein Lane (1959, 218) points out that having children increases the awareness of social needs and the responsibility to perform as a good role model. Solt (2008), however, argues that while married couples 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 for both tests and studies. The effect of having children appears to be insignificant in most studies.

4.1.7. Home ownership and residential mobility

Citizens that own a property are usually more grounded in a community than those that rent, thus strengthening community ties (Lane, 1959; Highton and Wolfinger, 2001). People that have been living in their community for a longer time are moreover better informed about (local) 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 0.50 and is highly significant for both variables.

4.1.8. Urbanization and region

Citizens in rural areas historically turn out at higher levels as rural societies tend to have higher levels of associational life. The results of the meta-analysis in Table 4 show that this hypothesis may be outdated as almost all tests and studies find insignificant effects. 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 of 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). Such social networks reduce the costs of political participation by providing information about parties, candidates and the electoral process. Associational life, moreover, emphasizes values that are thought to mobilize citizens. This section covers a total of 11 mobilization variables. The results of the meta-analysis are shown in Table 5.

Table 5

Mobilization model – results meta-analysis.

Variable	Success (1)	Failure (0)	Anomaly (–1)	Modal category	Success rate	Effect size (r_{av})	p-Value
Attendance of religious services (+)							
Tests (40)	20	20	0	Failure	50.00	0.50	***
Studies (14)	8	6	0	Success	57.14	0.59	***
Union membership (+)							
Tests (48)	14	34	0	Failure	29.17	0.29	***
Studies (13)	6	7	0	Failure	46.15	0.48	**
Mobilization (partisan) (+)							
Tests (27)	19	8	0	Success	70.37	0.70	***
Studies (10)	7	3	0	Success	70.00	0.83	***
Media exposure (+)							
Tests (20)	14	6	0	Success	70.00	0.70	***
Studies (10)	6	4	0	Success	60.00	0.57	**
Mobilization (non-partisan GOTV) (+)							
Tests (32)	18	14	0	Success	56.25	0.56	***
Studies (9)	5	4	0	Success	55.56	0.67	***
Political advertising exposure (+)							
Tests (19)	4	14	1	Failure	21.05	0.16	n.s.
Studies (7)	1	6	0	Failure	14.29	0.05	n.s.
Religious denomination (+)							
Tests (17)	4	12	1	Failure	23.53	0.18	n.s.
Studies (6)	1	5	0	Failure	16.67	0.14	n.s.
Organizational membership (+)							
Tests (8)	7	1	0	Success	87.50	0.88	***
Studies (5)	4	1	0	Success	80.00	0.80	*
Total political advertisements (+)							
Tests (6)	0	6	0	Failure	0.00	0.00	
Studies (4)	0	4	0	Failure	0.00	0.00	
Social capital (+)							
Tests (8)	4	4	0	Failure	50.00	0.50	*
Studies (3)	1	2	0	Failure	33.33	0.22	n.s.
Union density (+)							
Tests (3)	1	2	0	Failure	33.33	0.33	n.s.
Studies (3)	1	2	0	Failure	33.33	0.33	n.s.

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

4.2.1. Attendance of religious services, religion, organizational membership and social capital

Attendance of religious services is a measure of the mobilization characteristics of religion (see Solt 2008 and Claassen and Povtak 2010). People can however also be members of other organizations such as political parties, social associations, sports clubs, etc. In all of these cases turnout is expected to increase with higher involvement in associational 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 and skills that stimulate political participation (Verba et al., 1995).

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. Attendance of religious services is found to affect individual turnout roughly half of the time, which is reflected in the success rate that lies between 50 and 57%. General measures of social capital were included in only three studies and were most often found not to have a significant effect on turnout.

4.2.2. Union membership and union density

Unions mobilize their members to participate in politics and reduce class bias by enhancing participation of those

with fewer resources. Moreover, a strong presence of unions at the aggregate level (i.e. union density), may lead political parties to adopt policy positions that represent union members in an effort to win their votes (Leighley and Nagler, 2007, 432).

As indicated by the modal category both union membership and union density do not have a statistically significant effect on individual level turnout in most tests and studies. The average effect size for union membership ranges between 0.29 and 0.48 and is statistically different from zero. The effect size for union density is insignificant.

4.2.3. Partisan and non-partisan mobilization

Voter mobilization efforts such as Get Out The Vote (GOTV) phone calls, canvassing and personal contacts boost turnout as they reduce information costs. However, the impact of partisan and non-partisan mobilization is thought to be mediated by a more general propensity to vote and is therefore not expected to affect all voters in a similar way (see e.g. Karp et al., 2008; Arceneaux et al., 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 (56%). The average effect size is likewise higher for mobilization efforts by parties.

4.2.4. Media exposure and campaign advertisements

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. Campaign advertisements are a 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, negative campaigns can also have a demobilizing effect (see Goldstein and Freedman, 2002; Anduiza, 2005; Stevens, 2008, 2009).

The results of our meta-analysis show that reading newspapers, watching the news, listening to the radio, etc. indeed has a positive effect on turnout (success rate 60–70%). The average effect size r_{av} reaches statistical significance both at the level of tests and studies. Campaign advertisements were generally not found to have a statistically significant effect.⁹

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 (Plutzer, 2002). 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 3 variables related to the socialization model. The results are summarized in Table 6.

4.3.1. Parental influences during adolescence

The process of political learning from parents and other family members is tapped by various indicators. Only two measures were included in three or more studies (see online Appendix A 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 turnout than parental educational level, for which the modal category is failure. The positive effect of parental income and social class is confirmed at the level of tests and at a tie between success and failure at the level of studies. Average effect sizes are however highly significant at both the test and study level ($r_{av} = 0.73$).

4.3.2. Political discussion

Social exchange theories of political participation emphasize how talking to friends, family members or neighbors 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) may also induce norm-conforming behavior (Gerber and Rogers, 2009). The results of the meta-analysis for political discussion are however inconclusive. In only half of the tests and studies the positive impact of discussing politics is confirmed, while in the other half no significant effect was found.

4.4. The rational choice model

The rational choice model emphasizes that there is a cost-benefit calculus of voting whereby benefits should outweigh costs in order for a person to turn out to vote (Downs, 1957; Riker and Ordeshook, 1968). In this section we consider 10 variables related to the rational choice model. The results of the meta-analysis are summarized in Table 7.

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

The large impact of past turnout on current turnout decisions observed in the literature is thought to be mediated through various mechanisms (see Cutts et al., 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, voting might be self-reinforcing as it increases positive attitudes toward 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. 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 those entering the electorate 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 even if the effect size is only significant at the test level.

4.4.2. Cares who wins, personal benefits and civic duty

The higher the stakes in the elections, the more inclined 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 category success. The success rate for caring about the outcome of the election is high between 75 and 89%. The average effect size is found to be significantly different from zero and ranges between 0.81 and 0.89. While the chances that a single person will influence the outcome of the election are infinitely small, a sense of civic 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.

⁹ Note that in some cases, as for example 'total political advertisements' an effect size of 0.00 (or 1.00) is reported without a p-value, this means that there was no variation in the effect sizes for that variable and hence no p-value could be calculated. This often happens when a variable was included in only a few tests, and those results should hence generally be taken with a grain of salt.

Table 6

Socialization model – results meta-analysis.

Variable	Success (1)	Failure (0)	Anomaly (–1)	Modal category	Success rate	Effect size (r_{av})	p-Value
Parental social class/income (+)							
Tests (22)	16	6	0	Success	72.73	0.73	***
Studies (4)	2	2	0	Failure	50.00	0.73	*
Political discussion (+)							
Tests (10)	5	5	0	Failure	50.00	0.50	*
Studies (4)	2	2	0	Failure	50.00	0.58	n.s.
Parental educational level (+)							
Tests (16)	7	9	0	Failure	43.75	0.44	**
Studies (3)	1	2	0	Failure	33.33	0.37	n.s.

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

4.4.3. Evaluation economy, parties and candidates

Citizens may consider managing the national economy as part of the government's responsibilities. Experiencing economic strain may therefore lead citizens to blame the government for their situation and mobilize them to the polling booth to vote the government out of office (Lipset, 1969, 187; Schlozman and Verba, 1979, 12–19). 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 (Rosenstone, 1982). In this instance, the costs of voting outweigh the benefits. 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 stimulate turnout levels as citizens seek change.

Evaluation of the national economic situation as well as the evaluation of one's own economic situation fail to predict turnout in most of the studies and tests for which these variables were included. Positive evaluations of parties and candidates do seem to boost turnout, though the results are not conclusive. The success rate is high (67–82%), however the average effect size is insignificant at the study level.

4.5. The psychological model

The fifth model of voter turnout discussed in this paper focuses on psychological determinants of voter turnout.

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
Vote in previous election (+)							
Tests (77)	75	2	0	Success	97.40	0.97	***
Studies (12)	12	0	0	Success	100.00	0.98	***
Cares who wins (+)							
Tests (18)	16	2	0	Success	88.89	0.89	***
Studies (8)	6	2	0	Success	75.00	0.81	***
Evaluation national economic situation (–)							
Tests (15)	4	11	0	Failure	26.67	0.27	*
Studies (7)	2	5	0	Failure	28.57	0.25	n.s.
Evaluation candidates/parties (+)							
Tests (22)	18	3	1	Success	81.82	0.77	***
Studies (6)	4	1	1	Success	66.67	0.48	n.s.
Civic duty (+)							
Tests (17)	16	1	0	Success	94.12	0.94	***
Studies (6)	6	0	0	Success	100.00	0.94	***
Personal benefits of voting (+)							
Tests (13)	10	3	0	Success	76.92	0.77	***
Studies (4)	2	2	0	Failure	50.00	0.58	n.s.
Costs of voting (–)							
Tests (9)	6	3	0	Success	66.67	0.67	**
Studies (4)	2	2	0	Failure	50.00	0.58	n.s.
New voter (–)							
Tests (12)	1	7	4	Failure	8.33	–0.25	n.s.
Studies (3)	0	2	1	Failure	0.00	–0.14	n.s.
Propensity to vote (+)							
Tests (6)	6	0	0	Success	100.00	1.00	
Studies (3)	3	0	0	Success	100.00	1.00	
Evaluation own economic situation (–)							
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. + $p < 0.01$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Here explanatory factors range from more cognitive characteristics such as political interest, political knowledge, or cognitive ability to personal preferences associated with expressive voting such as party identification and ideology. Cognitive characteristics are expected to function as resources, lowering the costs of voting and increasing turnout, while ideological preferences are expected to increase the intrinsic benefits from the act of voting. Moreover, citizens that are politically interested and involved are expected to have higher levels of confidence in the influence they have on the political system (i.e. trust in institutions, perceptions of external and internal efficacy). Personality characteristics are also expected to explain the degree to which people engage in altruistic behavior – such as voting – or perceive voting as a civic duty. Clearly, the psychological model represents a wide variety of approaches to explaining voter turnout. We consider 14 variables related to the psychological model. The results of our meta-analysis are summarized in Table 8.

4.5.1. Party identification, political interest, political knowledge and cognitive ability

While it is seemingly evident that levels of political involvement are positively related to voter turnout, the proximity of the concepts of political involvement and political participation is often considered problematic as the decision to vote is very similar to the decision to acquire political information and knowledge (Rubenson et al., 2004; Denny and Doyle, 2008). Cognitive abilities are correlated with educational levels and it has been suggested that the large impact of education on turnout found in many studies may be overestimated due to a lack of control for measures of cognitive ability (see Denny and Doyle, 2008 for an overview).

Our meta-analysis shows that on the whole party identification, political interest and political knowledge 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 .85 and is statistically significant in all instances for these

Table 8

Psychological model – results meta-analysis.

Variable	Success (1)	Failure (0)	Anomaly (–1)	Modal category	Success rate	Effect size (r_{av})	p-Value
Party identification (+)							
Tests (147)	109	36	2	Success	74.15	0.73	***
Studies (43)	31	12	0	Success	72.09	0.72	***
Political interest (+)							
Tests (91)	73	18	0	Success	80.22	0.80	***
Studies (27)	23	4	0	Success	85.19	0.85	***
Political efficacy (+)							
Tests (48)	29	18	1	Success	60.42	0.58	***
Studies (15)	7	8	0	Failure	46.67	0.47	**
Political knowledge (+)							
Tests (21)	20	1	0	Success	95.24	0.95	***
Studies (10)	10	0	0	Success	100.00	0.98	***
Trust in institutions (+)							
Tests (20)	6	14	0	Failure	30.00	0.30	*
Studies (9)	3	6	0	Failure	33.33	0.37	*
Cognitive ability (+)							
Tests (20)	8	12	0	Failure	40.00	0.40	**
Studies (7)	2	5	0	Failure	28.57	0.33	n.s.
Ideological self-placement (right/conservative) (+)							
Tests (10)	3	7	0	Failure	30.00	0.30	+
Studies (5)	1	4	0	Failure	20.00	0.12	n.s.
Satisfaction with democracy (+)							
Tests (9)	3	6	0	Failure	33.33	0.33	+
Studies (5)	2	3	0	Failure	40.00	0.40	n.s.
Alienation/political cynicism (–)							
Tests (18)	4	12	2	Failure	22.22	0.11	n.s.
Studies (4)	1	3	0	Failure	25.00	0.13	n.s.
Trust in others (+)							
Tests (9)	0	9	0	Failure	0.00	0.00	
Studies (4)	0	4	0	Failure	0.00	0.00	
Ambivalence (–)							
Tests (9)	9	0	0	Success	100.00	1.00	
Studies (4)	4	0	0	Success	100.00	1.00	
Ethnic identification (–)							
Tests (5)	0	5	0	Failure	0.00	0.00	
Studies (4)	0	4	0	Failure	0.00	0.00	
Mental health (+)							
Tests (9)	2	7	0	Failure	22.22	0.22	n.s.
Studies (3)	0	3	0	Failure	0.00	0.13	n.s.
Personality (hardworking) (+)							
Tests (9)	8	1	0	Success	88.89	0.89	***
Studies (3)	2	1	0	Success	66.67	0.67	n.s.

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

variables. The results for political knowledge also seem to indicate a significant and positive effect on turnout, though these results are based on fewer studies. The results for cognitive ability are less conclusive: the majority of tests and studies found this variable to be insignificant.

4.5.2. *Efficacy, trust in institutions and others, satisfaction with democracy*

Internal efficacy usually refers to the degree to which people think they can influence the government or policy outcomes, while external efficacy indicates the extent to which citizens perceive a government to be responsive to their interests. Both forms of efficacy are expected to increase turnout. The empirical findings are mixed however: while the majority of tests appears to confirm a positive and significant effect of efficacy, at the level of studies the modal category is failure. The average effect size is positive and significant however.

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 (Bélanger and Nadeau, 2005). 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 not to be statistically significant.

4.5.3. *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 this hypothesis the results of the meta-analysis show, however, that ideological self-placement in most instances does not have a statistically significant effect on voter turnout.

4.5.4. *Alienation and ambivalence*

Alienation from the political system and ambivalence toward parties and candidates are usually not seen as signs of democratic health (see Adams et al., 2006). 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.

4.5.5. *Personality, mental health*

Citizens that are hardworking and mentally fit will either want to be more involved in politics or are more capable to become involved (Denny and Doyle, 2008). 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 significant only at the study level.

4.6. *The political-institutional model*

The notion that the decision to participate in politics is a by-product of the political system in which people live, is one that is prevalent in research on voter turnout. Especially in cross-national research of voting behavior, the political-institutional context has proven important to explain differences in levels of voter turnout. In this last result section we review the influence of 7 political-

institutional variables on turnout. Results of the meta-analysis are presented in Table 9.

4.6.1. *Closeness of elections, concurrent elections*

High stake elections tend to attract more voters than elections where the outcome is a foregone conclusion as the chances of influencing the outcome increases in close elections. However, Franklin (2004) points out that measures of competitiveness such as closeness of the race, margin of victory, and party polarization affect younger voters disproportionately as they are still developing turnout habits.¹⁰ Included in 20 out of 90 studies, we find that competitiveness of elections at the national level does not have a statistically significant impact on turnout in most tests and studies. As a consequence the success rate is fairly low (29–35%). Margin of the victory at the district level also does not seem to significantly influence turnout.

Concurrent elections have been proposed to increase voter turnout (due to increased party mobilization, campaigning, and heightened media attention) as well as to lower voter turnout (due to voter fatigue). In the meta-analyses we followed the latter hypothesis, however the results do not seem to confirm it. Most tests and studies find that holding concurrent elections in the same year as parliamentary or presidential elections does not influence turnout.

4.6.2. *Voter facilitation rules and compulsory voting*

Legal characteristics of elections are considered to influence turnout in various ways (see Blais and Dobrzynska, 1998 and Geys, 2006 for 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 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 centers); and spreading elections over a couple of days. All these provisions are aimed at lowering the costs of voting.

All tests and studies for which the variable is included confirm the mobilizing effect of compulsory voting. The results are less conclusive regarding the voter facilitation rules with about half of the tests and studies falling into the category 'success' and the other half in the category 'failure'. However, the average effect size is positive and significant, ranging between 0.52 and 0.60.

4.6.3. *Electoral system and effective number of parties*

Since the translation of votes into seats is much less precise in majority electoral systems, the number of wasted votes is higher than in proportional systems (Geys, 2006). This decreases the probability of a voter influencing the outcome of elections. Majority electoral systems, on the

¹⁰ Note that, as mentioned in the introduction, different causal mechanisms might affect voter turnout for different groups of voters or in different contexts. For example, closeness might have an effect on turnout only among young voters, and hence its effect in studies including voters of all ages, as most studies reviewed here, might appear to be weaker.

Table 9
Political–institutional model – results meta-analysis.

Variable	Success (1)	Failure (0)	Anomaly (–1)	Modal category	Success rate	Effect size (r_{av})	p-Value
Closeness of election at national level (+)							
Tests (51)	15	36	0	Failure	29.41	0.29	***
Studies (20)	7	13	0	Failure	35.00	0.36	**
Concurrent second order election (–)							
Tests (31)	1	28	2	Failure	3.23	–0.03	n.s.
Studies (6)	1	4	1	Failure	16.67	–0.02	n.s.
Voter facilitation rules (+)							
Tests (21)	11	10	0	Success	52.38	0.52	***
Studies (5)	2	3	0	Failure	40.00	0.60	**
Compulsory voting (+)							
Tests (12)	12	0	0	Success	100.00	1.00	
Studies (5)	5	0	0	Success	100.00	1.00	
Electoral system (FPTP/plurality) (–)							
Tests (10)	1	9	0	Failure	10.00	0.10	n.s.
Studies (4)	1	3	0	Failure	25.00	0.25	n.s.
Effective number of electoral parties (–)							
Tests (5)	2	1	2	Failure	40.00	0.00	n.s.
Studies (4)	2	1	1	Success	50.00	0.25	n.s.
Closeness of election district level (+)							
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. + $p < 0.01$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

other hand, are easier to understand for voters. Also, proportional systems often lead to coalition governments, which decreases the chance of a voter influencing the outcome of the elections (Blais, 2006, 118; Geys, 2006, 649–650). Hence the effect of electoral systems on turnout could run in both ways. However, the four studies that took into account the electoral system did not find significant effects of this variable on individual level voter turnout.

Proportional systems produce more parties than majority systems. The more parties there are, the higher the number of options a voter will have, and the more likely it is that a voter will find a party he or she can identify with, increasing turnout. Also, if more parties compete in elections more parties will seek to mobilize citizens to turn out and vote. On the other hand, fractionalization leads to complexity and increased information costs. The results reflect these competing hypotheses as studies have both confirmed and disconfirmed the hypothesis that more parties lead to lower turnout levels.

5. Conclusion and discussion

In a research context where almost every possible indicator of voter turnout has been explored it has become difficult to get a good grip on those factors that 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 be a slight 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.

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 were included in more than 25% of the studies we reviewed:

education, age, gender, race, income, marital status, party identification 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 – despite often referring to these as ‘the usual suspects’. This possibly leads to underspecified models and spurious inferences.

In this review we aimed to shed 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. 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.

Based on the results presented in this paper, we would like to make two concluding arguments. First of all, the current state of turnout research seems to be one where models are often underspecified theoretically and empirically. While the theoretical argumentation for the variable of interest is mostly well developed, often too little attention is paid to other factors that evidently influence turnout and that may confound the impact of the variable of interest on turnout.

Secondly, when including “usual suspects” as controls, our meta-analysis suggests that scholars should at least control for the variables listed above, unless of course there

are good theoretical reasons not to include those variables (for example because variables are path-dependent and the variable of interest is causally prior to the control variable, as could be the case when investigating the impact of such variables as parental education or income on turnout c.f. Verba et al., 1995).

Note that we do not claim that the variables found to be relevant in this review constitute the *only* factors to be included in an eventual core model of turnout. This is because there are a number of important caveats with respect to the results found in this paper, apart from the obvious limitations such as the restricted time period and exclusive focus on national elections. First of all, while we believe our sample is representative of research conducted in the past decade, our results should be considered truly robust only for those variables that were included in a substantial number of studies. We found several other factors that appeared to have a strong relation to turnout, however since these variables were only included in a limited number of studies our meta-analysis results are less robust. Further testing of the impact of these factors on turnout to corroborate their importance would be extremely useful. Secondly, since different studies use widely varying model specifications, the present meta-analysis cannot be used to draw definite conclusions about the relative strength of variables.

Thirdly, it is important to note that we analyze effects for models that are usually based on a random sample of the entire population, and this means that variables that have a clear and significant effect on only a particular group or part of the population might not turn up as important variables in these analyses. For example, the results of closeness of the elections are mixed, whereas aggregate level studies find quite consistent evidence that closeness explains turnout (Geys, 2006). This might be because, as Franklin (2004) has found, closeness affects mainly young voters. Likewise, language proficiency or citizenship status may be important explanatory factors in studies of turnout among immigrants or ethnic minorities. Hence, this review does not provide insight in possible conditional effects of independent variables on turnout.

Fourthly, many variables explaining turnout are interconnected, be it because of path-dependency or because they measure closely related concepts (as is the case with for example education, political knowledge and political interest), and hence our findings for each independent variable are highly dependent on whether its covariates or more proximal causal factors are included in the model as controls or not. We explored this issue more in-depth in the robustness checks reported in online Appendix C.

Concluding, while we hope our review of the literature is useful to the research community, we want to warn against taking the easy route of discarding all variables for which we did not find significant results. Rather, we hope that our meta-analysis will encourage future research to a.) further develop a 'core model' of turnout, b.) improve our understanding of conditional effects on turnout, and c.) carry out more extensive meta-analysis reviews to get a clearer view of the effects of less often studied variables.

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Appendices. Supplementary data

Supplementary data related to this article can be found at <http://dx.doi.org/10.1016/j.electstud.2012.12.006>.

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