Rainy day politics

An instrumental variables approach to the effect of parties on political outcomes *

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Abstract

Scholars have grappled with the question of how parties affect policy. Here I propose and test an instrumental variable approach using rainfall. In Norwegian municipal elections, potential left wing voters are likely to abstain from voting with election day rain, whereas the opposite holds for right-wingers. Then rainfall provides an exogenous source of variation, and hence an instrument, for the party composition of the municipal council. A strengthening of the right wing parties due to rainfall shifts expenditures toward education, but reduces total spending. This also shows that political competition does not drive party platforms to converge.

Keywords: Rain, electoral turnout, instrumental variables, economic policy

JEL codes: C26, D72, H11, H70

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1 Introduction

It seems obvious that political parties affect politics. But politicians also listen to their voters, and may follow their own beliefs and preferences. Knowing whether political parties really matter is important to gain a proper understanding of policy making in democratic societies. A society where voters get their preferred outcome independently of which party is in power is a different society from one where policy is perfectly determined by the party in power. The former corresponds to a more consensual approach to policy making where one can also expect policies to be stable over time.

Theory provides no simple answer to the role of parties. If parties converge to a common platform – as in a median voter or probabilistic voting set up – parties do not matter. If politicians or parties are unable to commit to platforms, however, they implement their own preferred policies once elected resulting in partisan politics. Empirically, it is not trivial to determine the extent to which policies depend on politician characteristics or which party is in power (Erikson et al., 1989, 1993). Simply comparing politics in constituencies run by politicians with different ideological basis is unsatisfactory. The main reason is that although the politicians choose the policy, they take past electoral promises and future popularity into account when doing so. Hence, voter preferences matters for policies, leading to a classical omitted variables problem.

To solve problems of omitted variables, a well known solution is instrumental variables techniques. My suggestion in this paper is to use election day rainfall as an instrument for the political composition of municipal councils, based on the idea that different groups of workers react differently to rainfall.

There is a large literature on the relationship between turnout and electoral outcomes. Some groups of voters are more likely to vote than others (Campbell et al., 1960; Burnham, 1965), so electoral results depend on turnout.¹ One exogenous factor that is believed to

¹The classical explanation is that prospective left wing voters have higher costs of turnout and lower intrinsic pleasure from voting, and hence only vote if stimulated by external conditions. The empirical literature on the relationship between turnout and electoral outcomes finds mixed results, depending on period, type of elections, closeness of elections, and country (Tóka, 2004; Kasara and Suryanarayan, 2015). There is a small literature on the effect of turnout in Norway which mostly find modest effects (Pettersen and Rose, 2007; Saglie et al., 2012). Using a reform to identify the effect of turnout, however, Finseraas and Vernby (2014) find a positive effect of participation on support for the Labor party.

affect turnout is the weather. The conventional argument is that it is more unpleasant to get to the polling station when it is raining, creating a negative relationship between rainfall and turnout. Rainfall may also affect the utility of alternative activities, and hence *increase* turnout by reducing the opportunity cost. As some voters react to the first effect and others to the other, as well as reacting with different magnitudes, election day rainfall affects election outcomes. Hence it is a possible instrument for electoral outcomes.

In this study, I use Norwegian municipal elections in the period 1971 to 2007. As Norway is largely a consensus driven society where political conflict, and hence the differences between parties, are moderate, it is a suitable test bed to study the effect of parties. If we can detect differences in the Norwegian context, they are likely to be present in less consensual societies. I find that rain on election day has a positive impact on turnout, indicating that the opportunity cost effect dominates the unpleasant to vote effect. Electoral day rain increases average turnout by about 0.7 percentage points. Rain on election day changes the composition of voters so the share of left wing voters go down by about one percentage point.

An exogenous boost to the right wing share, due to election day rainfall, shifts expenditures toward education. This is partially at the expense of spending on childcare and kindergartens. Spending on other categories are mostly unaffected by election day weather. There is also evidence that a boost to the share of left wing parties leads to increased expenditures, which is primarily financed by increased user charges.

To verify the validity of the rainfall instrument, I follow two strategies. First, I employ rainfall on days without elections as placebo tests. The findings for election days are much stronger than for almost any other day, indicating that this is not a spurious relationship. Second, I study whether election day rainfall has an impact on early voting. Reassuringly, it does not.

The paper is related to several strands of literature. There are a number of studies where the effect of parties in political outcomes is identified by controlling for voter preferences.²

²Potrafke (2017) provides a detailed survey of the literature on partisan politics. See Erikson et al. (1989) and the references therein for some approaches controlling for voter preferences, Herwartz and Theilen (2017) for cross-country evidence, and Sørensen (1995) and Borge and Sørensen (2002) for studies on Norwegian data.

As voter preferences cannot be observed directly, a causal interpretation of these findings is not always warranted.

The other main approach is to focus on close elections using regression discontinuity designs (RDD). This approach was pioneered by Lee et al. (2004) and Pettersson-Lidbom (2008) and extended to multi party systems by Folke (2014). Fiva et al. (2018) use a similar technique to analyze Norwegian data. They find that a larger left-wing block leads to more property taxation, higher childcare spending and less elderly care spending. Although RDDs have strong internal validity,³ the effects studied are local to the discontinuity point so external validity is less strong (de la Cuesta and Imai, 2016). Particularly, it is not random in which constituencies elections are narrow, so findings from such analyses may not generalize to constituencies without close elections.

The paper is also related to the literature studying whether changes in electoral turnout has an independent effect on politics. Mueller and Stratmann (2003) find that increased participation leads to a more even distribution of income, but at the expense of reduced growth rates. Fumagalli and Narciso (2012) show that higher voter participation tends to increase government expenditure, total revenues, welfare state spending, and budget deficits. Aggeborn (2016) use an electoral reform to study the effect of turnout on expenditures and tax levels, confirming that high turnout expands the size of the public sector. Godefroy and Henry (2016) use the prevalence of seasonal infections to instrument for turnout and find that increased turnout lowers the quality of elected officials. In a related paper, Lo Prete and Revelli (2014) argue that the the share of informed voters declines with turnout, so the quality of elected candidates is lower with high turnout. They find evidence for this in Italian data.

Finally, several recent papers document a relationship between the weather and electoral turnout. The first paper to study the relationship was probably Knack's (1994) study, using

³This approach generally has high validity, but some points remain unresolved. One criticism of RDDs is the true randomness of close elections. When elections are close, more powerful candidates can spend more resources than less powerful candidates, tipping the balance in their favor. Snyder (2005) argues that in very close elections, the incumbent is most likely to win and Caughey and Sekhon (2011) find that the winners of close elections systematically were the predicted winners. Still, it seems that in most cases RDD are warranted. The strongest refutation of the critique above is the work by Eggers et al. (2015). They show that the although incumbency advantage is present in close elections to the US House, the same effect is not found in a vast number of elections to other US bodies and in other countries.

US National Election Surveys. He found no robust significant effects of rain, partially because of a small sample. More recently, Gomez et al. (2007) studied the effect of rain and snow on US electoral turnout. They find that precipitation negatively affects turnout. Similar results are found in many countries, but there are also opposing findings in some countries.⁴ Many of these studies also look at the effect of rainfall on electoral outcomes. Typically, an increase in turnout strengthens the left wing parties at the expense of the right or regional parties. Rainfall has also been used as an instrument to find the causal effect of turnout on intergovernmental transfers (Horiuchi and Saito, 2009) and city performance (Lo Prete and Revelli, 2014). To the best of my knowledge, however, rainfall has not been used as an instrument for political composition.

2 Institutional background, data, and estimation

2.1 Institutional background

To study the causal effect of parties on policies, I use a panel of Norwegian municipalities measured between 1972 and 2010. In 2010, there was a total of 430 municipalities, but due to municipal mergers a total of 478 municipalities occur in the data.⁵ The median municipality had about 4500 inhabitants and the mean population is about 11 000.

Municipal elections take place every fourth year on a Monday in the first half of September. Some municipalities also allow for voting on the preceding Sunday. Elections to the regional council are organized at the same day, but parliamentary elections are not. All Norwegian citizens above age 18, as well as foreign citizens having lived in Norway for sufficiently long, are automatically registered to vote. Except for remote areas, travel distances to polling stations is moderate, and the stations are usually quite efficient. Hence, Norway is probably among countries where the “cost” of voting is low.

With a few exceptions, politics is dominated by the national parties. Although there is

⁴A negative relationship is found in Japanese, Dutch, Spanish, Italian, and German data (Horiuchi and Saito, 2009; Eisinga et al., 2012; Sforza, 2013; Artés, 2014; Lo Prete and Revelli, 2014; Arnold and Freier, 2016; Arnold, 2018). For Sweden, however, Persson et al. (2014) find no robust relationship between turnout and the weather.

⁵Whenever two municipalities merge, I introduce a separate fixed effect for the new entity. As the three entities are potentially correlated, I treat them as one cluster when clustering standard errors.

a degree of pragmatism in smaller municipalities, parties do differ ideologically, and there is a cleavage between the left wing and right wing parties.⁶ There are also a number of local parties in many municipalities. In most municipalities, these are small – the local parties got more than 10 % of the vote in only 27 % of municipality-years studied.

The municipal council, whose number of members range from 11 to 85, is the supreme body of the municipality. The system is not parliamentary, but based on a system of coalitions formed case by case. Hence crossing the 50 % vote share line does not grant control over all issues. Rather, politics are based on negotiations between blocks – where larger blocks have more power. Here, I study the effect of a marginal shift in this balance of power.

The mayor is elected by the municipal council and serves as it's head. As she is often the only employed politician, she has power over day to day decision making. Budgets, however, are determined annually by the council (Kalseth and Rattsø, 1998). Blom-Hansen et al. (2006) find no significant effect of the Mayor's party on municipal policies.

Municipal incomes are largely given: although municipalities in theory have some discretion on tax levels, all municipalities have chosen the highest allowed tax rate. Municipalities have principally two means of increasing their tax incomes, residential property taxation and user charges for infrastructure services (sewage, water supply, and collection and management of garbage).⁷

Municipalities have larger discretion regarding spending pattern, although there are some limitations due to national standards, matching grants for childcare, and central government “action plans”, designed to get councils to prioritize particular services.

2.2 Data

The meteorological data used in this project were created by the Norwegian Meteorological Institute (met.no). The data are constructed from daily observations of precipitation at all 421 measurement stations in Norway. They are then spatial interpolated (Mohr, 2008).

⁶The left wing block is defined as the Labor party (DNA), the Socialist leftist party (SV) and Red (Rødt). The right wing block encompasses the Conservative party (H), the Centre party (Sp), the Christian popular party (Krf), the Liberal party (V) and the Progress party (FrP).

⁷Municipalities are also allowed to take up debt in certain cases, but only to finance investments and refinance old debt.

Average precipitation values on election days are shown in Panel (a) of Figure 1. Panel (b) shows the number of elections with substantial rainfall, defined as above 2.5 mm. Average rainfall is larger along the west coast and in parts of the north, and this also translates into the share of election days experiencing rainfall. I combine these data with GIS data on municipal boundaries to construct data on average precipitation by municipality for each election year.⁸

Throughout the paper I concentrate on a dummy variable for substantial rain, defined as more than 2.5 mm (1/10 inch) of rain over the 24 hour cycle. This is a somewhat arbitrary cut-off, but cuts the sample approximately in half and seems to work well. Also, results are robust to other values. The advantage of working with a binary cut off rather than the continuous measure of rainfall is also that interpretations in a LATE framework (Imbens and Angrist, 1994) is more straightforward.

Data on electoral turnout and outcomes as well as on political outcomes are taken from the collection of Norwegian municipal data made available by Fiva et al. (2012), originating from Statistics Norway and the Norwegian Social Science Data Services. Their voting data include the vote share and seat share of each party as well as the turnout rate. I have supplemented their voting data with data on advance voting from Statistics Norway (2011). Data on political outcomes were collected from the Norwegian Social Science Data Services by Fiva et al. (2012), and comprise annual spending on eight categories taken from municipal budgets. Descriptive statistics on rainfall, turnout, electoral outcomes, and policy outcomes are found in Appendix A. From the box plot in Panel (c) of Figure 1, we see that there is a clear downward trend in turnout over time. Median turnout has declined from close to 75 % to below 65 % over the period. We see from Panel (d) of Figure 1 that there is no clear pattern in average turnout across space.

2.3 Rainfall as an instrument for political composition

My suggestion is to use election day rainfall as an instrument for the political composition of the ensuing municipal council. The rationale for the instrument is based on harnessing a

⁸One challenge is that municipal boundaries have changed over time, mostly due to merging of municipalities. GIS data on past municipal borders are essentially non-existent. To solve this I map municipalities that no longer exist into their current municipality and use weather data from the present day municipality.

Figure 1: Election day rainfall and turnout

Notes: Panel (a) shows the average amount of rainfall on election day in the period 1971-2007, and Panel (b) the number of elections that experienced rainfall above 2.5 mm. Panel (c) shows the distribution of turnout per municipality for each election year. Panel (d) show average turnout over the period 1971-2007 by municipality.

heterogeneous treatment effect – that some groups of voters are more inclined to cast their votes when it is raining on the day of election whereas other groups are less inclined.

Election day weather is clearly exogenous to both political and economic outcomes in the sense that the latter cannot cause the former. For the weather to be a valid instrument to investigate the effect of political composition of the municipal council on political outcomes, however, we also need to make sure that rain has no direct impact on other determinants of political outcomes.

One issue could be that rain might have an impact on voter preferences. There could for instance be cases where flooding shortly ahead of the election could change preferences for infrastructure spending. Also, rain may affect electoral outcomes by changing the voters' deeper preferences, such as their mood and risk preferences (Meier et al., 2019). This is unproblematic, though, as it would only affect voting behavior and not political platform or the behavior of politicians once in office.

A challenge to the validity of the instrument is if politicians implement different policies throughout the electoral period depending on the election day weather conditions. One could imagine that extremely heavy election day rain affects subsequent spending, e.g. to fund rebuilding infrastructure. However, there are very few cases of heavy flooding in September when elections are held, so this is not a plausible explanation. A more plausible channel for such a relationship is that increased turnout caused by weather effects may have an independent effect on politician behavior beyond the composition of the council. It is widely believed that politicians are more responsive to voters who turn out at elections and generally more responsive when turnout is high. However, this challenge could be tested by comparing the impact of rainfall on policy choices in municipalities with high versus low turnout. It turns out that effect of rainfall is similar across municipalities.

Relatedly, election day rainfall does change the composition of the voters casting their votes. If politicians are responsive to the actual composition of the electorate, for instance by the Labor party becoming more right wing if they observe increased support for the right wing block, this could have a direct effect on policies. As rainfall is a random shock, party platforms as well as national party policies are not affected. If the long run composition of the electorate, which is not affected by rainfall, is observed by the parties – a fairly plausible

assumption in a local context – then they would also not react to such a random event. Hence, the effect is present if local politicians are responsive to the current composition of preferences in their local electorate and that the beliefs of this composition is altered based on the election day rainfall. This bias is weaker than the bias that would occur when ignoring unobserved voters preferences, but this is still a potential influence to be kept in mind.

In Norwegian municipal elections, voters are allowed to cast votes for individual candidates and hence have a direct impact of elected politicians. Hence, it could be that rainfall affects the candidate preferences of the electorate, so rainfall influences both the party composition and the candidate composition of the municipal council. Parties, however, are also allowed to give additional weight to some candidates to counteract this. In their study of the 2003 election, Christensen et al. (2004) find that the total effect of candidate votes on elected candidates is modest. Notice also that even if there is an effect of rainfall on elected candidates, under full policy convergence we should not see any effect of rainfall on political outcomes.

Finally, one may question whether the effect of rainfall on electoral composition is homogeneous across municipalities. If the composition is more strongly affected in some areas than in others, we may be in a setting where estimates should be treated as LATE estimates. One justification for an heterogeneous effect is that rain is more common in some areas than others. In the case of Norway, there is more rain in the western part of the country than the eastern part. If individuals living in dryer areas are more sensitive to election day rainfall, this would make the dryer areas react more strongly to election day rain. There is little evidence of such heterogeneity, though.

As shown below, there is an empirical relationship between rainfall and electoral turnout and electoral outcomes. If rainfall does not have a direct impact on political platforms or politician behavior, as I have argued above, rainfall is a valid instrument for the political composition of the municipal council.

2.4 Estimation

There are obvious differences between municipalities. This is handled by adding municipality fixed effects in all analyses. Then measures of rain should be interpreted as deviations from municipality specific averages.⁹ Moreover, all regressions include year dummies to capture changing national conditions and a five year moving average of the fraction of rainy days to control for the likelihood of rain in September when elections take place.

In Lind (2019), I show that rainfall on almost any day is correlated with electoral outcomes, albeit with varying signs, in a model with only municipality and year fixed effects. The explanation for this puzzling finding is that there are spatially varying trends in turnout – turnout has been declining more in the eastern parts of Norway than the West. Rainfall also exhibits spatial correlation. When a dependent variable exhibiting a spatio-temporal trend is regressed on a spatially dependent variable, OLS estimates become inconsistent, also when controlling for municipality and year fixed effects. Hence an ordinary fixed effects model is not sufficient to estimate the effect of rainfall or turnout and policy outcomes.

One way to handle the problem is to include region or municipality specific trends. But there is no reason to believe that trends are common within regions and have discontinuities at regional boundaries. Instead, I control for a spatio-temporal trend modeled as a polynomial trend surface.¹⁰

The estimated model is then of the form

$$Outcome_{it} = \beta VoteShareLeft_{it} + \xi SeptemberRain_{it} + \alpha_i + \tau_t + \delta_i t + \epsilon_{it}, \quad (1)$$

where α_i and τ_t are municipality and year fixed effects and $\delta_i t$ the spatio-temporal trend. In the baseline specifications, I allow the residuals ϵ_{it} to be correlated over time within municipality and within counties for each election year using Cameron et al.’s (2011) two-way clustering to assure a reasonable number of clusters along both directions.¹¹

⁹This also implies that municipalities that experience an equal share of rainy and dry election days (shown in yellow colors in Panel (b) of Figure 1), hence more variation in the rainfall measure, are most important for identification of the effects of rainfall.

¹⁰This is a technique dating at least back to Krumbein (1959) and Tobler (1969) and advocated in a similar context by Fujiwara et al. (2016). The choice of complexity of this polynomial is a tradeoff between validity and over fitting. A linear time trend on a trend surface approximated by a polynomial of order 1×6 seems to be a reasonable compromise and is the one adopted here.

¹¹Clustering on the county level would only give 19 clusters, which is typically too low to provide reliable

Figure 2: Turnout, the left vote share, and precipitation

(a) Turnout and rain

(b) Distribution of turnout with and without rain

(c) Vote share left and rain

(d) Distribution of the left vote share with and without rain

Notes: Panel (a) shows a binned scatter plot of residuals of turnout and rainfall regressed on year and municipality dummies and spatio-temporal trends with 50 bins (each bin containing about 90 election $\times$ municipalities). The figure also include linear, quadratic, and non-parametric LOWESS fit of the data.

Panel (b) shows the distribution of turnout and normalized turnout, i.e. regressed on municipality and year fixed effects, spatio-temporal trends and average September rainfall.

Panels (c) and (d) show the same relationships for the left vote share versus rainfall.

3 Weather and political outcomes

Panels (a) and (b) of Figure 2 show the relationship between precipitation and turnout. Panel (a) is a binned scatter plot of municipality-year turnout versus amount of rain where municipality and year effects and spatio-temporal trends have been partialled out. There is a clear positive relationship and no signs of non-linearities in the data. Panel (b) of Figure 2

estimates. Ignoring this problem does indeed reduce the precision of most estimates substantially. Another approach is to use Conley's (1999) approach to correcting standard errors. This yields results very comparable to those presented below.

shows the distribution of turnout for municipality-years above and below the threshold, with and without controlling for municipality and year fixed effects and spatio-temporal trends. In both cases, we see that turnout is clearly on average higher for municipality-years above the 2.5 mm threshold.

This pattern is confirmed in Table 1. The first line shows the linear relationship between amount of precipitation and turnout and left wing seat share, and next two using dummies for any rain and substantial rain. Election day rainfall increases aggregate turnout by between .5 and .75 percentage point. The relationship is robust over time and there are no signs of non-linearities.¹²

To see how the change in the composition of the electorate induced by rainfall affects electoral outcomes, Panels (c) and (d) of Figure 2 show the relationship between rainfall and the share of seats in the municipal council obtained by the left wing parties. Rainfall on election day decreases the seat share of the left wing parties. Panel (c) reveals a clear negative relationship between rainfall and the left seat share with few signs of nonlinearities. Panel (d) shows the distribution of the left wing seat share for elections with and without substantial rain on election day. Rain on the day of election shifts the whole distribution of seat shares to the left, keeping the shape essentially unchanged.

The right hand part of Table 1 shows more formally the effect of precipitation on the left wing seat share. There is a statistically significant negative effect of rainfall on the left seat share both using a continuous measure of rain and dummies for any rain or substantial rain. A substantial amount of rain on the day of election reduces the seat share of the left wing parties by about .9 percentage point or 12 % of a within municipality standard deviation.

Table 1: Turnout and precipitation

	Turnout		Vote share left	
	(1)	(2)	(3)	(4)
Rain (in cm)	0.00346*** (4.51)	0.00339*** (4.49)	-0.00390*** (-3.06)	-0.00388*** (-3.09)
Rain positive	0.00770*** (3.78)	0.00762*** (3.73)	-0.00637* (-1.82)	-0.00595* (-1.75)
Rain above 2.5 mm	0.00570*** (4.02)	0.00524*** (3.63)	-0.00887*** (-2.82)	-0.00828*** (-2.79)
All controls	No	Yes	No	Yes
Mean dep. var	0.681	0.681	0.405	0.405
Obs	4411	4411	4411	4411

*Notes: Each cell in the Table is from a regression of the relevant measure of rainfall on proportion of turnout (left column) and the seat share of the left wing parties (right column). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Specifications with all controls also control for the population share of children, young, elderly, women and unemployed. Standard errors are two-way clustered at the present day municipality level and the county×year. t-values in parentheses, and *, **, and *** denotes significant at the 10%, 5%, and 1% levels.*

4 The effect of political parties

4.1 Expenditure shares

Tax levels are mostly given at the national level, so there is more scope for politicians to affect the composition of spending policies than the levels. In Table 2, I study the effect of political parties on annual municipal expenditures as shares of total expenditures, divided by eight sectors.^{13,14}

Panel A of Table 2 shows results from a standard OLS estimation with municipality

¹²It may appear surprising that there is a positive effect of rainfall on turnout in Norwegian municipal elections, whereas Persson et al. (2014) find no significant effect of rainfall in Sweden, an otherwise comparable country. There may be several reasons. First, Persson et al. (2014) study national elections. Arnold and Freier (2016) find that turnout reacts more strongly to rainfall in municipal elections than in state elections, and the same pattern may be present in the Scandinavian context. A second explanation may be that Persson et al. (2014) use a different estimation strategy than I do, particularly not considering the possibility of spatially varying time trends.

¹³These are the categories reported in municipal accounting. Assembling consistent data for other categories is non-trivial.

¹⁴It may be that the budget in the first year of an electoral period depends partially on decisions made by the previous municipal council, but for the remaining three years this problem is limited. The autocorrelation induced by this should be corrected by clustering standard errors at the municipality level, and if anything give a downward bias to estimates.

Table 2: Political composition and expenditure patterns: Shares
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00680* (1.89)	-0.0274** (-2.11)	0.0288** (2.25)	-0.00786 (-0.76)	-0.00221 (-0.45)	-0.00465 (-0.88)	0.00123 (0.21)	0.00525 (0.35)
R ²	0.825	0.556	0.787	0.392	0.316	0.425	0.456	0.765
<i>With controls</i>								
Seat share left	0.00126 (0.39)	-0.0390*** (-3.36)	0.0257** (2.02)	-0.00556 (-0.53)	0.000556 (0.11)	-0.00522 (-0.99)	0.00307 (0.53)	0.0192 (1.31)
R ²	0.846	0.593	0.790	0.395	0.321	0.427	0.460	0.773
B: Reduced form estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	-0.000931* (-1.94)	0.00316** (2.53)	-0.00140 (-0.99)	-0.00191 (-1.22)	0.000116 (0.18)	0.000335 (0.54)	-0.000101 (-0.16)	0.000722 (0.34)
R ²	0.825	0.556	0.787	0.392	0.316	0.425	0.456	0.765
<i>With controls</i>								
Rain	-0.000533 (-1.22)	0.00260** (2.29)	-0.000931 (-0.66)	-0.00177 (-1.14)	-0.0000905 (-0.14)	0.000388 (0.63)	-0.000125 (-0.20)	0.000462 (0.22)
R ²	0.846	0.592	0.790	0.395	0.321	0.427	0.460	0.773
C: IV estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.0970* (1.80)	-0.330** (-2.09)	0.146 (0.97)	0.199 (1.20)	-0.0121 (-0.18)	-0.0349 (-0.54)	0.0106 (0.16)	-0.0753 (-0.34)
R ²	0.803	0.488	0.788	0.345	0.337	0.438	0.473	0.770
Cragg-Donald F	67.42	67.42	67.42	67.42	67.42	67.42	67.42	67.42
<i>With controls</i>								
Seat share left	0.0584 (1.17)	-0.285** (-1.98)	0.102 (0.65)	0.194 (1.13)	0.00990 (0.14)	-0.0424 (-0.62)	0.0137 (0.20)	-0.0506 (-0.22)
R ²	0.840	0.552	0.794	0.353	0.342	0.438	0.477	0.779
Cragg-Donald F	61.47	61.47	61.47	61.47	61.47	61.47	61.47	61.47
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Estimates with controls also control for the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. t-values in parentheses, and * significant at 10%; ** at 5%; *** at 1% level.*

and year fixed effects, with and without a set of demographic controls. From Column (1), we see that the vote share of left wing parties is correlated with a higher expenditure share on childcare, a category which mostly encompass expenses on kindergartens. But the correlation is weak and not robust to the inclusion of controls. From the reduced form regressions reported in Panel B, however, we see that rain on election day, measured as rain above 2.5 mm, decreases the expenditure share on kindergartens in the following electoral term by 0.1 percentage points. As the seat share of the left wing parties is negatively affected by rainfall, this indicates that a rain-induced positive boost to the left seat share increases the share spent on childcare. This number is robust across specifications. The estimate may appear small, but as the average expenditure share on childcare was 9.7 % in 2010, it is still noticeable. For a municipality with median total expenditures¹⁵ Still, as could be expected from the negative relationship between rainfall and the left wing seat share uncovered in Table 1, the estimated coefficient is negative.

Column (2) shows the effect on the expenditure share on education, which is mostly primary and lower secondary schooling. The OLS regressions reported in Panel A reveal that expenditures on schooling are negatively correlated with the left wing seat share. From Panel B, we see that election day rain increases the education budget share by 0.35 percentage points. Again, the effect is substantial: Rain on election day makes the median municipality spend NOK 1 064 000 more on education. The IV estimates indicate that a 10 percentage point increase in the left seat share increases the budget share by about 3 percentage point or about 13 % of the average 2010 education budget (which was 23 % of the total budget).

Expenditures on elderly care, reported in Column (3), are positively correlated with the left seat share, but from Panels B and C there are few indications of this relationship being causal. Finally, Columns (4) to (8), reporting the expenditure shares on health and social, culture, transportation, administration, and other expenditures, do not seem to be related to the political composition of the municipal council at all when we control for municipality and year fixed effects and spatio-temporal trends.

The clearest results from these estimations is that a rainfall-induced increase in the left wing vote share increases reduces spending on education. There is also evidence of an

¹⁵The median total expenditure was NOK 337 million in 2010.

increase in the spending on childcare. On a deeper level, there is also clear evidence that an exogenous change in the political composition has an impact on municipal spending.

It may appear surprising that a positive shock to the right wing vote share is good for schooling. In Norway, however, schooling has been an important issue mainly for the Conservative and the Liberal parties, whereas childcare has been an important issue for the left block. To show this general tendency, I compared the manifestos for parliamentary elections for the parties at hand, drawing on the Manifesto Project (Volgens et al., 2017). Over the period 1973-2009, the Labor party devoted on average 5.6% of their manifesto to school policies compared to 11.1% on welfare policies including childcare. The Conservative party, in comparison, devoted 9.2% on school policies and 8.2% on welfare policies.

Below I show that the size of the budget also depends on election day rainfall and hence on the political composition of the municipal council. Hence the effect we have seen in Table 2 could stem from a mix of reallocation and expansion of the budget. However, controlling for the size of the budget has only minor effects on estimated parameters.

4.2 Other outcomes

Table 3 reports similar estimation results studying a number of other outcomes. The data for some of the outcomes are only available for certain years. In Column (1), I study total expenditures. They are mainly financed by municipal income taxation whose rate is determined at the national level, but municipalities can affect it through smaller taxes and fees as well as loan funding for investments. In the OLS regressions, there does not seem to be any correlation between the seat share of the left parties and total expenditures and estimates seem to depend on the inclusion of control variables. However, the reduced form gives significant negative effects of rain on election day on total expenditure, indicating that a higher share of left wing representatives leads to increased total municipal expenditures. This is also reflected in the 2SLS estimates, where I find that there is a positive causal effect on total expenditures from a positive shock to the share of left wing representatives. A 10 % increase in the share of left wing representatives is estimated to lead to an increase in 9.27 million NOK, or 11 % of the current budget.

It is sometimes believed that left wing parties have a larger focus on public consumption

Table 3: Political composition and various political outcomes

A: OLS estimates							
	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-2.449 (-0.53)	-0.0141 (-0.80)	2.247 (1.27)	-0.00328 (-0.05)	0.0314 (0.37)	-0.0579 (-0.18)	0.103 (0.74)
R ²	0.852	0.334	0.0740	0.322	0.788	0.681	0.00717
<i>With controls</i>							
Seat share left	-0.0488 (-0.01)	-0.0162 (-0.91)	2.116 (1.22)	-0.00848 (-0.12)	0.0231 (0.27)	0.422 (1.46)	0.110 (0.78)
R ²	0.856	0.337	0.0737	0.323	0.789	0.719	0.0137
B: Reduced form estimates							
	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	-0.893** (-2.35)	-0.00171 (-0.91)	-0.372 (-1.55)	-0.0106* (-1.70)	0.00655 (0.60)	-0.0718** (-2.33)	-0.00474 (-0.34)
R ²	0.852	0.334	0.0741	0.322	0.788	0.682	0.00693
<i>With controls</i>							
Rain	-0.963*** (-2.59)	-0.00205 (-1.08)	-0.371 (-1.57)	-0.0108* (-1.73)	0.00658 (0.61)	-0.0508* (-1.74)	0.000525 (0.03)
R ²	0.856	0.337	0.0738	0.323	0.789	0.719	0.0134
C: IV estimates							
	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	92.73* (1.92)	0.275 (0.82)	60.31 (1.36)	1.718 (1.42)	-0.777 (-0.60)	35.48 (0.66)	0.286 (0.34)
R ²	0.831	0.324	0.0120	0.269	0.791	-1.753	0.0955
Cragg-Donald F	67.84	24.83	24.57	24.57	24.27	2.126	40.78
<i>With controls</i>							
Seat share left	105.0** (2.09)	0.344 (0.94)	62.52 (1.34)	1.826 (1.43)	-0.826 (-0.61)	20.91 (0.79)	-0.0310 (-0.04)
R ²	0.829	0.308	0.00473	0.261	0.792	-0.0672	0.103
Cragg-Donald F	61.91	22.92	22.77	22.77	21.89	3.112	42.48
Obs	17071	12779	12828	12828	8650	11821	5161
Mean dep. var	83.41	0.143	2.604	0.870	0.543	2.753	0.00597

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). Total expenditures, total sales, and user charges are deflated to 2011 prices using the CPI. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Estimates with controls also control for the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. t-values in parentheses, and * significant at 10%; ** at 5%; *** at 1% level.*

but invest less than right wing parties. In Column (2), I investigate this claim by studying the share of municipal expenditures going to investments. The hypothesis is not supported by the estimates – if anything it goes the other way. Another claim that is sometimes made is that right wing parties sell off public property to finance tax cuts. This is investigated in Columns (3) and (4) where I look at total income from sales as well as a dummy for any sales in the current period. Again, the hypothesis is not confirmed. Both the reduced form and the 2SLS estimates indicate that it is more likely to sell off municipal property when the left wing is stronger. Although the total sales also seem to increase, this effect is not precisely estimated.

Municipalities have principally two means of increasing their tax incomes, residential property taxation and user charges. From Column (5), we see that a stronger left wing representation reduces the probability of having property taxation, but the coefficient is not significant. From Column (6) we see that there is a quite clear effect of political composition on the size of user charges. However, the effect is not sufficiently large to make rainfall on election day affect a surplus measure defined as $\text{Total sales} + \text{User charges} - \text{Total expenditure}$ on any conventional level of significance.

Finally, it could be interesting to have an overall measure of the business climate in the municipality. In Column (7), I look at annual growth in industrial employment. There is a slight tendency for this to be higher when the share of left wing politicians is higher, but the effect is far from significant at conventional levels. Hence, it seems that there are no major differences in business friendliness as the share of left wing politicians varies.

4.3 Heterogeneity

To see whether rain has a uniform impact on political outcomes throughout the country, I estimated separate regression coefficients for each of the five regions of the country. Particularly, effects are very similar between the eastern and western parts of Norway, the two regions with the lowest and highest average amounts of rain, although the coefficient is less precisely estimated in the West. Also, it seems that it is in the South and the North that rainfall has the strongest effect on expenditure shares, but most estimated coefficients do not vary a lot across regions.

Another potential source of heterogeneity could be that voters behave differently in municipalities with a higher likelihood rain. We could for instance imagine that they react less to rainfall. To test this, I first split the sample between the municipalities with the highest and lowest average amounts of rain, second interacted the effect of election day rainfall with the average rainfall. There are few signs of heterogeneity between municipalities with different averages.

In an idealized two party systems, a party matters if and only if it has at least 50 % of the vote. Even in real world two party systems, this conclusion has to be moderated in many cases, and in multi party systems like Norway the 50 % threshold is at best a soft threshold. Still, we might expect that the effect of an increase in a block's vote share to be largest around the point where it acquires a majority. To study this, I split the sample in three groups: a clear right wing majority, a clear left wing majority, and close to even block sizes. There is some tendency for effects to be stronger in the elections close to ties, but the effect is far from clear. This indicated that an increase in the vote share has an effect even if the party is far from flipping between being in and out of majority, probably through an increased bargaining power in the municipal council.

5 Robustness

5.1 A placebo study

As discussed above, rainfall is spatially correlated. Although it has no direct impact on most potential confounding variables, spatio-temporal patterns may create correlation between rainfall and other variables exhibiting spatio-temporal trends (Lind, 2019). To check the validity of the instrument, I replicate the analysis from Table 1 using rainfall on all days from 600 days before election day to 600 days after election day. The distributions of the resulting estimates are shown in Figure 3. Panel (a) shows results from regressing electoral turnout on the dummy for substantial rain whereas Panel (b) shows the results on the seat share obtained by the the left wing parties.

Although extreme estimates occur on some days, the effect observed on election day is unusually strong. Only 1 % of the placebo estimates are above the effect of rainfall on

Figure 3: Distribution of parameter estimates

Notes: The graph shows the distribution of estimated coefficients regressing electoral turnout and the left seat share on rainfall on 600 days before and after the election. Specifications control for municipal and year fixed effects, spatio-temporal trends, and average September rainfall. β denotes the coefficient on the day of election.

turnout observed on the actual election day, whereas 3 % are below the coefficient observed on the election day in the regressions on the vote share of the left wing parties. Hence, the estimates of rain on election day are much stronger than the results of rain on a random day. This indicates that the effect studied is a true effect of rain on turnout and not simply a random coincidence.

I have undertaken the same simulations on the expenditure share variables studied in Table 2. There is little mass in the tails for the estimates on education, but results are less strong than the ones for turnout and the left vote share.

5.2 Advance voting

Another placebo can be obtained by looking at advance voting. Early voting is possible from August 10 (July 1 for individuals living abroad) until the last Friday before election day, which is a Monday. As rain on election day does not affect turnout ahead of the election,¹⁶ we should not see any relationship between the two and this works as a placebo to verify the validity of rain on election day.

¹⁶There could be a minor effect: If extreme weather is predicted for the election day several days ahead, this could affect early voting on the last allowed days. Still, this effect should be weak.

Table 4: Advance voting in elections 1975-2007

	(1) Rain (in cm)	(2) Rain positive	(3) Rain above 2.5mm
Rainfall	0.000203 (0.55)	-0.000799 (-0.77)	-0.000869 (-0.88)
Mean dep. var	0.0651	0.0651	0.0651
Obs	3962	3962	3962
R ²	0.737	0.737	0.737

*Notes: The outcome variable is the proportion of turnout and the explanatory variables measures of rainfall. All specifications include municipal and year fixed effects, spatio-temporal trends, and average September rainfall. Standard errors are two-way clustered at the present day municipality level and the county×year. t-values in parentheses, and *, **, and *** denotes significant at the 10%, 5%, and 1% levels.*

Digitized data on advance voting is only available from 1975. Table 4 shows results of rain on election day on the share of the eligible population voting before election day using the same specifications as Table 1. As we would expect, rain has very little effect on early voting both regarding magnitudes and statistical significance.¹⁷ This strengthens the belief that the findings reported above actually stem from rain affecting the turnout decision.

6 Conclusion

Parties are selected non-randomly into power. As voter preferences affect electoral outcomes, political platforms, and politician behavior, it is unsatisfactory to study the effect of political composition of assemblies by simply comparing composition and political outcomes. To identify the effect of political composition, I instrument the political composition of the assembly using election day precipitation. The dominant causal chain is that precipitation affects different voters' turn out decisions differently, leading to an effect of rain on electoral outcomes.

In Norwegian data on municipal elections, the effect of precipitation on electoral turnout is on average found to be positive: When the weather is nice on election day, the opportunity

¹⁷It could also be argued that rainfall in the period of advance voting should affect advance voting. It seems that this is not the case, indicating that the increased flexibility in the choice of voting day removes the impact of rainfall on turnout.

cost of voting is higher and voters abstain. Rain seems to harm parties on the left the most: On rainy election days, the left wing block gets its support reduced on average by one percentage point.

There is a statistically significant association between election day precipitation and political outcomes over the electoral period. This demonstrates clearly that there is an effect of the composition of parties in the municipal council beyond what is given by the preferences of the voters. The effect is mainly that a random boost to the share of left wing representatives increases spending on kindergartens at the expense of primary school spending.

The first finding of the paper that can be generalized beyond Norwegian municipal policies is hence that parties matter for politics, that is, voter preferences are not the sole drivers of policies. As Norway is largely a consensus-based society, where we should expect such effects to be weak, these effects could be expected to be stronger in less consensus prone societies. This implies that models of political processes that imply converging political platforms are not supported by the Norwegian data.

A question that remains for future research is why parties matter. It can simply be a question of different ideologies, but it can also be a consequence of representatives from different parties being different. The Conservative and the Progress parties have a high share of male representatives in the age group 40-49. The left wing parties have more women and a more even age spread. This could explain a part of the difference – there is no evidence of election day rainfall affecting the gender composition of the municipal council, however. Also, public employees are more likely to belong to the left wing parties, and may have different political behavior than private sector employees (Hyytinen et al., 2018).

Finally, the effects of party composition I find are moderate. This is in line with Ferreira and Gyourko's (2009) finding from US cities. This may also indicate that in consensus-based political systems, most parties go to great lengths to accommodate the preferences of a large fraction of the electorate, making voters matter as well as political parties.

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A Descriptive statistics

Table A-1: Descriptive statistics: Rainfall

	N	Mean	Std. dev.	Max value
Rainfall (mm)	4458	7.14	12.53	106.68
Rain positive	4458	0.86	0.35	1
Rain above 2.5 mm	4458	0.42	0.49	1

Table A-2: Descriptive statistics: Electoral behavior

	Overall	No rain	Rain	Difference
Turnout	0.681 (0.071)	0.676 (0.074)	0.688 (0.067)	-0.012*** [0.000]
Vote share left	0.396 (0.154)	0.418 (0.149)	0.366 (0.155)	0.052*** [0.000]
Vote share DNA	0.338 (0.134)	0.353 (0.131)	0.317 (0.135)	0.036*** [0.000]
Vote share SV	0.050 (0.053)	0.055 (0.053)	0.043 (0.052)	0.012*** [0.000]
Vote share Rødt	0.004 (0.012)	0.004 (0.012)	0.003 (0.011)	0.001*** [0.004]
Vote share right	0.528 (0.171)	0.518 (0.163)	0.542 (0.180)	-0.024*** [0.000]
Vote share Sp	0.162 (0.124)	0.159 (0.125)	0.167 (0.123)	-0.008** [0.026]
Vote share H	0.151 (0.099)	0.153 (0.099)	0.147 (0.099)	0.006** [0.036]
Vote share KrF	0.093 (0.076)	0.085 (0.073)	0.105 (0.078)	-0.020*** [0.000]
Vote share V	0.050 (0.054)	0.046 (0.053)	0.055 (0.056)	-0.009*** [0.000]
Vote share FrP	0.045 (0.070)	0.048 (0.072)	0.041 (0.068)	0.007*** [0.001]
Vote share other	0.076 (0.148)	0.064 (0.127)	0.092 (0.173)	-0.028*** [0.000]
Observations	4417	2569	1848	

Notes: The table shows means for electoral turnout and voter shares of parties and party groups. The sample is also split between municipality-years with and without substantial rain (above 2.5 mm), and a *t*-test on the difference between the two.

Standard deviations are provided in parentheses and *p*-values for the *t*-test in square brackets. *, **, and *** denotes significant at the 10%, 5%, and 1% levels.

Table A-3: Descriptive statistics: Outcomes

	Overall	No rain	Rain	Difference
Expenditure shares				
Child care	0.045 (0.034)	0.049 (0.034)	0.039 (0.033)	0.010*** [0.000]
Education	0.258 (0.067)	0.253 (0.062)	0.265 (0.072)	-0.013*** [0.000]
Elderly care	0.189 (0.100)	0.198 (0.099)	0.176 (0.101)	0.022*** [0.000]
Health and social	0.111 (0.051)	0.112 (0.049)	0.109 (0.053)	0.003*** [0.000]
Culture	0.050 (0.028)	0.051 (0.028)	0.049 (0.027)	0.002*** [0.000]
Transport	0.037 (0.028)	0.034 (0.026)	0.041 (0.030)	-0.008*** [0.000]
Central adm	0.076 (0.034)	0.078 (0.033)	0.073 (0.034)	0.005*** [0.000]
Other	0.235 (0.116)	0.226 (0.116)	0.248 (0.114)	-0.022*** [0.000]
Other outcomes				
Expenditures	83.406 (37.292)	81.632 (35.674)	85.831 (39.270)	-4.198*** [0.000]
Investment share	0.143 (0.083)	0.138 (0.082)	0.149 (0.084)	-0.011*** [0.000]
Total sales	2.604 (10.158)	3.068 (12.630)	2.035 (5.791)	1.033*** [0.000]
Has sales	0.634 (0.482)	0.598 (0.490)	0.683 (0.465)	-0.085*** [0.000]
Has property tax	0.543 (0.498)	0.533 (0.499)	0.561 (0.496)	-0.028** [0.013]
User charges	2.753 (1.325)	2.859 (1.365)	2.584 (1.240)	0.275*** [0.000]
Growth in industrial empl.	0.006 (0.347)	0.005 (0.383)	0.007 (0.253)	-0.002 [0.809]

Notes: The table shows means for the outcomes. The sample is also split between municipality-years with and without substantial rain (above 2.5 mm), and a t-test on the difference between the two.

Standard deviations are provided in parentheses and p-values for the t-test in square brackets.

, **, and * denotes significant at the 10%, 5%, and 1% levels.*

Table A-4: Descriptive statistics: Control variables

	Overall	No rain	Rain	Difference
Log population	8.466 (1.045)	8.516 (1.065)	8.397 (1.012)	0.119*** [0.000]
Share women	0.495 (0.012)	0.495 (0.012)	0.494 (0.012)	0.002*** [0.000]
Unemployment share	0.021 (0.014)	0.021 (0.014)	0.021 (0.013)	0.001*** [0.000]
Share children aged 0-6	0.089 (0.020)	0.086 (0.019)	0.092 (0.021)	-0.006*** [0.000]
Share children aged 7-15	0.137 (0.020)	0.135 (0.019)	0.140 (0.020)	-0.005*** [0.000]
Share aged 66 and higher	0.157 (0.039)	0.156 (0.040)	0.158 (0.038)	-0.002*** [0.006]
Observations	17676	10275	7401	

Notes: The table shows means for the control variables. The sample is also split between municipality-years with and without substantial rain (above 2.5 mm), and a t-test on the difference between the two.

Standard deviations are provided in parentheses and p-values for the t-test in square brackets.

, **, and * denotes significant at the 10%, 5%, and 1% levels.*

B Further results – not intended for final publication

In this Appendix, I include the following additional estimation results and robustness checks which are not intended for final publication:

1. Detailed estimates of the effects of rainfall on turnout and the left wing vote share (Tables B-1 to B-3)
2. Estimates using total expenditures as the outcome variable (Tables B-4 and B-5)
3. Estimates with a continuous measure of rain (Tables B-6 and B-7)
4. Estimates of expenditure shares controlling for the total budget size (B-8)
5. Tests for heterogeneous regional effects (Tables B-9 and B-10)
6. Tests for heterogeneity by the likelihood of rain (Tables B-11 to B-17)
7. Decomposition of results by closeness of elections (Tables B-18 and B-19)
8. Estimates controlling for incumbency effects (Table B-20)
9. Estimates with regional time trends instead of spatio-temporal trends (Tables B-21 to B-24).
10. Estimates with municipal time trends instead of spatio-temporal trends (Tables B-25 and B-26).
11. Estimates with quadratic spatio-temporal trends (Tables B-27 and B-28)
12. Estimates with Conley standard errors (Tables B-29 and B-30)
13. Estimates clustering standard errors on regions (Tables B-31 and B-32)
14. Placebo tests for the expenditure shares (Table B-33)
15. Regressions of confounding variables on rainfall (Table B-34)
16. Details on advance voting (Tables B-35 and B-36)
17. Geographic trends in turnout (Figure B-1)
18. Densities for placebo studies of expenditure shares (Figure B-2)
19. Importance of schooling and welfare policies in political manifestos (Figure B-3)

Table B-1: Turnout and precipitation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rain (in cm)	0.00346*** (4.51)			0.00286*** (3.19)	0.00333*** (4.90)	0.00321*** (3.14)	0.00497*** (3.39)	0.0101*** (2.88)
Rain positive		0.00770*** (3.78)						
Rain above 2.5 mm			0.00570*** (4.02)	0.00243 (1.50)				
Rain $\times$ Year					-0.000215 (-0.03)			
Rain $\times$ After 1990						0.000744*** (5.20)		
Rain ²							-0.000285 (-0.05)	-0.00410*** (-9.71)
Rain ³								0.000783* (1.72)
Rain ⁴								-0.0000463* (-1.80)
Mean dep. var	0.681	0.681	0.681	0.681	0.681	0.681	0.681	0.681
Obs	4411	4411	4411	4411	4411	4411	4411	4411
R ²	0.827	0.826	0.826	0.827	0.827	0.827	0.827	0.827

Notes: Outcome variable is the proportion of turnout. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Standard errors are two-way clustered at the present day municipality level and the county $\times$ year. t -values in parentheses, and *, **, and *** denotes significant at the 10%, 5%, and 1% levels.

Table B-2: Precipitation and the left seat share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rain (in cm)	-0.00390*** (-3.06)			-0.00236* (-1.81)	-0.00376*** (-2.67)	-0.00379*** (-2.66)	-0.00511* (-1.83)	-0.0126* (-1.87)
Rain positive		-0.00637* (-1.82)						
Rain above 2.5 mm			-0.00887*** (-2.82)	-0.00616 (-0.27)				
Rain×Year					0.000217 (0.01)			
Rain×After 1990						-0.000340 (-0.02)		
Rain ²							0.000229 (0.01)	0.00520 (0.27)
Rain ³								-0.000917 (-1.12)
Rain ⁴								0.0000491 (0.96)
Mean dep. var	0.405	0.405	0.405	0.405	0.405	0.405	0.405	0.405
Obs	4411	4411	4411	4411	4411	4411	4411	4411
R ²	0.846	0.846	0.846	0.846	0.846	0.846	0.846	0.846

Notes: Outcome variable is the seat share of the left wing parties. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Standard errors are two-way clustered at the present day municipality level and the county×year.

t-values in parentheses, and *, **, and *** denotes significant at the 10%, 5%, and 1% levels.

Table B-3: Effect of rainfall on individual parties

	Vote share		Seat share	
Left	-0.00893***	(-3.07)	-0.00887***	(-2.82)
RV	-0.000399	(-1.42)	-0.000233	(-1.08)
SV	-0.00466***	(-3.55)	-0.00469***	(-3.38)
DNA	-0.00317	(-1.23)	-0.00332	(-1.15)
Right	-0.00975***	(-2.77)	-0.00935**	(-2.56)
V	-0.00333*	(-1.96)	-0.00251	(-1.42)
SP	-0.000221	(-0.11)	-0.000250	(-0.11)
KRF	-0.00421***	(-3.13)	-0.00521***	(-3.69)
H	-0.00199	(-0.97)	-0.00136	(-0.65)
FRP	0.00498***	(2.60)	0.00526***	(2.72)
Other	0.0187***	(4.68)	0.0182***	(4.51)

Notes: The table shows the effect of election day rainfall on the vote and seat shares of each party and the party groups. “Left” include RV, SV, and DNA, “Right” includes V, SP, KRF, H, and FRP. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Standard errors are two-way clustered at the present day municipality level and the county×year.

*t-values in parentheses, and *, **, and *** denotes significant at the 10%, 5%, and 1% levels.*

Table B-4: Political composition and expenditure patterns: Totals
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other	(9) Total
<i>Without controls</i>									
Seat share left	0.611** (2.40)	0.207 (0.22)	0.651 (0.72)	-0.227 (-0.38)	-0.0503 (-0.13)	-0.363 (-1.18)	0.0809 (0.14)	-0.0845 (-0.09)	0.837 (0.31)
R ²	0.845	0.679	0.846	0.603	0.453	0.344	0.717	0.579	0.860
<i>With controls</i>									
Seat share left	0.510** (2.01)	0.429 (0.46)	1.839** (2.31)	0.237 (0.41)	0.239 (0.64)	-0.306 (-0.99)	0.650 (1.26)	0.658 (0.63)	4.291* (1.71)
R ²	0.852	0.688	0.866	0.614	0.463	0.346	0.742	0.594	0.878

B: Reduced form estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other	(9) Total
<i>Without controls</i>									
Rain	-0.0615** (-2.29)	-0.0320 (-0.56)	0.0680 (0.87)	-0.162** (-2.16)	-0.0899* (-1.76)	-0.00472 (-0.13)	-0.0260 (-0.77)	-0.262** (-2.21)	-0.601** (-2.57)
R ²	0.845	0.679	0.846	0.603	0.453	0.343	0.717	0.580	0.860
<i>With controls</i>									
Rain	-0.0557** (-2.07)	-0.0939 (-1.62)	-0.00686 (-0.09)	-0.178** (-2.40)	-0.114** (-2.15)	-0.0115 (-0.33)	-0.0628** (-2.02)	-0.286** (-2.50)	-0.840*** (-3.77)
R ²	0.852	0.688	0.865	0.614	0.464	0.346	0.741	0.595	0.878

C: IV estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other	(9) Total
<i>Without controls</i>									
Seat share left	6.416** (1.99)	3.330 (0.55)	-7.060 (-0.88)	16.75* (1.90)	9.347 (1.56)	0.489 (0.13)	2.699 (0.75)	27.19* (1.81)	62.47** (1.97)
R ²	0.825	0.687	0.847	0.502	0.408	0.363	0.723	0.501	0.831
Cragg-Donald F	67.84	68.27	68.27	68.55	68.17	68.99	68.17	68.35	67.84
<i>With controls</i>									
Seat share left	6.086* (1.80)	10.22 (1.46)	0.746 (0.09)	19.29** (2.10)	12.42* (1.85)	1.244 (0.32)	6.848* (1.79)	31.10** (2.00)	91.56** (2.55)
R ²	0.834	0.680	0.870	0.485	0.378	0.363	0.734	0.494	0.815
Cragg-Donald F	62.05	62.52	62.62	62.71	62.37	63.16	62.28	62.57	61.91
Obs	17148	17154	17145	17144	17148	17154	17145	17145	17071
Mean dep. var	2.332	10.80	9.332	4.873	2.309	1.577	3.641	9.391	44.28

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Estimates with controls also control for the population share of children, young, elderly, women and unemployed.

Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.

Table B-5: Political composition and expenditure patterns: Totals per capita
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other	(9) Total
<i>Without controls</i>									
Seat share left	0.000751 (0.97)	-0.0000152 (-0.01)	0.00110 (0.43)	0.000410 (0.44)	0.000570 (0.56)	-0.000347 (-1.16)	0.000924 (0.55)	-0.000235 (-0.18)	0.00270 (0.40)
R ²	0.513	0.543	0.691	0.603	0.447	0.292	0.678	0.690	0.832
<i>With controls</i>									
Seat share left	0.00117 (1.64)	0.00132 (0.64)	0.00309 (1.36)	0.00102 (1.27)	0.000866 (0.95)	-0.000250 (-0.84)	0.00177 (1.08)	-0.000383 (-0.19)	0.00821 (1.39)
R ²	0.546	0.557	0.735	0.623	0.457	0.295	0.704	0.695	0.850

B: Reduced form estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other	(9) Total
<i>Without controls</i>									
Rain	-0.0000172 (-0.67)	-0.0000117 (-0.16)	0.0000811 (0.85)	-0.000107* (-1.75)	-0.0000815 (-1.52)	-0.00000676 (-0.25)	0.0000655 (1.34)	-0.000261 (-1.41)	-0.000395** (-2.14)
R ²	0.512	0.543	0.691	0.603	0.447	0.292	0.678	0.690	0.832
<i>With controls</i>									
Rain	-0.0000430** (-1.99)	-0.000104 (-0.93)	-0.0000309 (-0.44)	-0.000134** (-2.15)	-0.000103* (-1.86)	-0.0000253 (-0.78)	0.0000143 (0.39)	-0.000221 (-1.08)	-0.000703*** (-3.38)
R ²	0.545	0.557	0.734	0.623	0.457	0.295	0.704	0.695	0.850

C: IV estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other	(9) Total
<i>Without controls</i>									
Seat share left	0.00179 (0.76)	0.00121 (0.16)	-0.00842 (-1.13)	0.0111 (1.55)	0.00847 (1.42)	0.000699 (0.25)	-0.00681** (-2.30)	0.0271*** (2.95)	0.0410* (1.73)
R ²	0.527	0.557	0.695	0.589	0.449	0.314	0.680	0.677	0.834
Cragg-Donald F	67.84	68.27	68.27	68.55	68.17	68.99	68.17	68.35	67.84
<i>With controls</i>									
Seat share left	0.00470* (1.72)	0.0114 (1.00)	0.00336 (0.43)	0.0145* (1.86)	0.0113* (1.67)	0.00274 (0.80)	-0.00156 (-0.55)	0.0241** (2.10)	0.0767** (2.39)
R ²	0.552	0.566	0.743	0.592	0.449	0.314	0.712	0.686	0.842
Cragg-Donald F	62.05	62.52	62.62	62.71	62.37	63.16	62.28	62.57	61.91
Obs	17148	17154	17145	17144	17148	17154	17145	17145	17071
Mean dep. var	0.000905	0.00426	0.00398	0.00191	0.00104	0.000726	0.00186	0.00400	0.0187

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Estimates with controls also control for the population share of children, young, elderly, women and unemployed.

Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.

Table B-6: Expenditure shares: Continuous measures of rain
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00680* (1.89)	-0.0274** (-2.11)	0.0288** (2.25)	-0.00786 (-0.76)	-0.00221 (-0.45)	-0.00465 (-0.88)	0.00123 (0.21)	0.00525 (0.35)
R ²	0.825	0.556	0.787	0.392	0.316	0.425	0.456	0.765
<i>With controls</i>								
Seat share left	0.00126 (0.39)	-0.0390*** (-3.36)	0.0257** (2.02)	-0.00556 (-0.53)	0.000556 (0.11)	-0.00522 (-0.99)	0.00307 (0.53)	0.0192 (1.31)
R ²	0.846	0.593	0.790	0.395	0.321	0.427	0.460	0.773

B: Reduced form estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	-0.0407** (-1.99)	0.129** (2.17)	-0.0935 (-1.41)	-0.00695 (-0.09)	0.0415* (1.66)	-0.0273 (-0.87)	0.0486 (1.45)	-0.0501 (-0.53)
R ²	0.825	0.556	0.787	0.392	0.316	0.425	0.456	0.765
<i>With controls</i>								
Rain	-0.0355* (-1.84)	0.112** (2.12)	-0.0886 (-1.34)	0.00274 (0.04)	0.0381 (1.52)	-0.0271 (-0.87)	0.0507 (1.55)	-0.0520 (-0.58)
R ²	0.846	0.592	0.790	0.395	0.321	0.427	0.460	0.773

C: IV estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.0958* (1.92)	-0.302* (-1.93)	0.220 (1.31)	0.0163 (0.09)	-0.0977 (-1.53)	0.0643 (0.82)	-0.114 (-1.37)	0.118 (0.53)
R ²	0.803	0.502	0.779	0.410	0.290	0.418	0.426	0.768
Cragg-Donald F	62.75	62.75	62.75	62.75	62.75	62.75	62.75	62.75
<i>With controls</i>								
Seat share left	0.0842* (1.79)	-0.265* (-1.89)	0.210 (1.23)	-0.00650 (-0.04)	-0.0903 (-1.41)	0.0642 (0.83)	-0.120 (-1.47)	0.123 (0.58)
R ²	0.828	0.560	0.783	0.414	0.300	0.420	0.424	0.777
Cragg-Donald F	62.21	62.21	62.21	62.21	62.21	62.21	62.21	62.21
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measure is amount of rain (in m) All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-7: Other political outcomes: Continuous measures of rain
A: OLS estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-2.449 (-0.53)	-0.0141 (-0.80)	2.247 (1.27)	-0.00328 (-0.05)	0.0314 (0.37)	-0.0579 (-0.18)	0.103 (0.74)
R ²	0.852	0.334	0.0740	0.322	0.788	0.681	0.00717
<i>With controls</i>							
Seat share left	-0.0488 (-0.01)	-0.0162 (-0.91)	2.116 (1.22)	-0.00848 (-0.12)	0.0231 (0.27)	0.422 (1.46)	0.110 (0.78)
R ²	0.856	0.337	0.0737	0.323	0.789	0.719	0.0137

B: Reduced form estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	14.62 (0.60)	-0.0443 (-0.43)	-22.64** (-2.08)	-0.0917 (-0.36)	-0.803* (-1.80)	-3.436** (-2.15)	0.0632 (0.12)
R ²	0.852	0.334	0.0742	0.322	0.788	0.682	0.00691
<i>With controls</i>							
Rain	13.53 (0.57)	-0.0649 (-0.63)	-23.07** (-2.17)	-0.117 (-0.47)	-0.779* (-1.75)	-2.365* (-1.65)	0.228 (0.43)
R ²	0.856	0.337	0.0740	0.323	0.790	0.719	0.0134

C: IV estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-34.23 (-0.61)	0.179 (0.40)	91.60 (1.57)	0.371 (0.36)	1.578 (1.59)	16.21 (1.30)	-0.150 (-0.11)
R ²	0.854	0.345	-0.124	0.345	0.768	0.182	0.0948
Cragg-Donald F	63.35	20.51	20.35	20.35	34.04	9.384	13.92
<i>With controls</i>							
Seat share left	-31.91 (-0.58)	0.255 (0.58)	90.79 (1.62)	0.462 (0.46)	1.565 (1.55)	9.462 (1.33)	-0.530 (-0.40)
R ²	0.858	0.332	-0.118	0.344	0.770	0.576	0.0943
Cragg-Donald F	62.85	21.48	21.52	21.52	32.96	13.23	14.50
Obs	17071	12779	12828	12828	8650	11821	5161
Mean dep. var	83.41	0.143	2.604	0.870	0.543	2.753	0.00597

Notes: Rain measure is amount of rain (in m) All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-8: Political composition and expenditure patterns: Shares – Controlling for budget size

A: OLS estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00618* (1.69)	-0.0285** (-2.19)	0.0294** (2.28)	-0.00881 (-0.86)	-0.00269 (-0.58)	-0.00408 (-0.77)	0.0000697 (0.01)	0.00848 (0.62)
R ²	0.825	0.557	0.787	0.392	0.317	0.425	0.458	0.766
<i>With controls</i>								
Seat share left	0.000887 (0.27)	-0.0395*** (-3.40)	0.0256** (1.99)	-0.00635 (-0.61)	0.000118 (0.03)	-0.00478 (-0.91)	0.00183 (0.34)	0.0221* (1.68)
R ²	0.847	0.593	0.790	0.395	0.321	0.427	0.463	0.774
B: Reduced form estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	-0.000911* (-1.90)	0.00320** (2.56)	-0.00142 (-1.01)	-0.00188 (-1.20)	0.000130 (0.20)	0.000318 (0.51)	-0.0000661 (-0.11)	0.000625 (0.29)
R ²	0.825	0.557	0.787	0.392	0.317	0.425	0.458	0.766
<i>With controls</i>								
Rain	-0.000518 (-1.19)	0.00262** (2.30)	-0.000927 (-0.66)	-0.00174 (-1.12)	-0.0000726 (-0.11)	0.000370 (0.60)	-0.0000745 (-0.12)	0.000346 (0.17)
R ²	0.847	0.592	0.790	0.395	0.321	0.427	0.463	0.774
C: IV estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.0956* (1.77)	-0.336** (-2.10)	0.149 (0.98)	0.197 (1.18)	-0.0136 (-0.20)	-0.0333 (-0.51)	0.00693 (0.11)	-0.0656 (-0.29)
R ²	0.804	0.487	0.788	0.346	0.337	0.439	0.475	0.772
Cragg-Donald F	66.66	66.66	66.66	66.66	66.66	66.66	66.66	66.66
<i>With controls</i>								
Seat share left	0.0572 (1.14)	-0.289** (-1.98)	0.102 (0.65)	0.192 (1.11)	0.00801 (0.11)	-0.0408 (-0.59)	0.00822 (0.12)	-0.0382 (-0.17)
R ²	0.841	0.551	0.794	0.354	0.342	0.439	0.480	0.780
Cragg-Donald F	60.47	60.47	60.47	60.47	60.47	60.47	60.47	60.47
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, average September rainfall, and municipal expenditures per capita. Estimates with controls also control for log population and the population share of children, young, elderly, women and unemployed. Standard errors are two-way clustered at the present day municipality level and the county×year. *t*-values in parentheses, and * significant at 10%; ** at 5%; *** at 1% level.

Table B-9: Decomposition of the effect of rain by region – basic controls

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
Rain×East	0.00600*** (2.62)	-0.0147*** (-2.95)	-0.000466 (-0.56)	0.00227 (0.99)	-0.00176 (-0.67)	-0.00819*** (-2.89)	-0.000420 (-0.41)	0.000234 (0.25)	0.000148 (0.14)	0.00818** (2.20)
Rain×South	0.00124 (0.00)	0.00477 (0.00)	-0.00228*** (-10.32)	0.0121*** (27.97)	0.0102*** (15.38)	-0.000157 (-0.31)	-0.00150** (-2.06)	0.00202*** (16.12)	0.00308 (0.01)	-0.0235*** (-32.60)
Rain×West	0.00855 (0.01)	-0.00708 (-0.01)	0.000624 (0.64)	0.0000842 (0.04)	-0.00671*** (-2.77)	0.00477** (2.02)	0.00100 (0.72)	0.000524 (0.41)	-0.00153 (-1.38)	0.00123 (0.36)
Rain×Center	0.00498 (0.01)	-0.000374 (-0.00)	-0.000578 (-0.43)	0.00123 (0.33)	-0.00416 (-1.11)	0.00460 (1.08)	0.00147 (0.95)	0.00121 (0.73)	-0.000331 (-0.16)	-0.00344 (-0.54)
Rain×North	0.00362 (0.01)	-0.0134 (-0.02)	-0.00410*** (-2.90)	0.00545* (1.76)	0.00368 (1.36)	-0.00594* (-1.65)	-0.000388 (-0.21)	-0.00138 (-0.79)	0.000126 (0.07)	0.00256 (0.67)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.826	0.556	0.786	0.394	0.316	0.425	0.455	0.765
F	1.37	1.81	22.52***	160.43***	51.52***	3.27***	0.97	53.52***	0.39	216.61***
	[0.236]	[0.113]	[0.000]	[0.000]	[0.000]	[0.007]	[0.436]	[0.000]	[0.855]	[0.000]

Notes: Columns (3) to (10) are expenditure shares. All coefficients are from regression on rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Standard errors are two-way clustered at the present day municipality level and the county×year. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%.

Table B-10: Decomposition of the effect of rain by region – all controls

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
Rain×East	0.00600*** (2.62)	-0.0147*** (-2.95)	-0.000466 (-0.56)	0.00227 (0.99)	-0.00176 (-0.67)	-0.00819*** (-2.89)	-0.000420 (-0.41)	0.000234 (0.25)	0.000148 (0.14)	0.00818*** (2.20)
Rain×South	0.00124 (0.00)	0.00477 (0.00)	-0.00228*** (-10.32)	0.0121*** (27.97)	0.0102*** (15.38)	-0.000157 (-0.31)	-0.00150*** (-2.06)	0.00202*** (16.12)	0.00308 (0.01)	-0.0235*** (-32.60)
Rain×West	0.00855 (0.01)	-0.00708 (-0.01)	0.000624 (0.64)	0.0000842 (0.04)	-0.00671*** (-2.77)	0.00477** (2.02)	0.00100 (0.72)	0.000524 (0.41)	-0.00153 (-1.38)	0.00123 (0.36)
Rain×Center	0.00498 (0.01)	-0.000374 (-0.00)	-0.000578 (-0.43)	0.00123 (0.33)	-0.00416 (-1.11)	0.00460 (1.08)	0.00147 (0.95)	0.00121 (0.73)	-0.000331 (-0.16)	-0.00344 (-0.54)
Rain×North	0.00362 (0.01)	-0.0134 (-0.02)	-0.00410*** (-2.90)	0.00545* (1.76)	0.00368 (1.36)	-0.00594* (-1.65)	-0.000388 (-0.21)	-0.00138 (-0.79)	0.000126 (0.07)	0.00256 (0.67)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.826	0.556	0.786	0.394	0.316	0.425	0.455	0.765
F	1.37	1.81	22.52***	160.43***	51.52***	3.27***	0.97	53.52***	0.39	216.61***
	[0.236]	[0.113]	[0.000]	[0.000]	[0.000]	[0.007]	[0.436]	[0.000]	[0.855]	[0.000]

Notes: Columns (3) to (10) are expenditure shares. All coefficients are from regression on rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall as well as population share of children, young, elderly, women and unemployed.

Standard errors are two-way clustered at the present day municipality level and the county×year. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%.

Table B-11: Decomposition of the effect of rain by average number of rainy days – basic controls

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain×Below median rain	0.00548*** (3.26)	-0.0104*** (-2.80)	-0.00174** (-2.49)	0.000893 (0.50)	-0.000379 (-0.18)	-0.00399* (-1.81)	-0.000227 (-0.26)	0.000397 (0.52)	-0.000519 (-0.53)	0.00557* (1.93)
Rain×Above median rain	0.00595 (0.01)	-0.00722 (-0.01)	-0.000136 (-0.00)	0.00532*** (20.65)	-0.00230*** (-13.66)	0.0000886 (0.15)	0.000422 (0.00)	0.000262 (0.00)	0.000382 (1.22)	-0.00404*** (-11.25)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.393	0.316	0.425	0.455	0.764
F	5.31*** [0.006]	3.92** [0.021]	3.09** [0.046]	213.90*** [0.000]	95.01*** [0.000]	1.65 [0.194]	0.03 [0.967]	0.14 [0.874]	0.84 [0.434]	68.23*** [0.000]
<i>Panel B</i>										
Rain	0.00168 (0.28)	-0.0215* (-1.79)	-0.00564** (-2.58)	-0.00656 (-1.15)	0.00204 (0.33)	-0.0147** (-2.15)	-0.00352 (-1.13)	-0.0000214 (-0.01)	-0.000720 (-0.24)	0.0291*** (3.31)
Rain×Share rainy days	0.0110 (0.07)	0.0344 (0.03)	0.0127 (0.04)	0.0260 (0.05)	-0.00908*** (-7.81)	0.0343*** (15.34)	0.00976 (0.03)	0.000956 (0.60)	0.00173** (2.45)	-0.0763 (-0.12)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.393	0.316	0.425	0.455	0.764

Notes: The dependent variables in Columns (3) to (10) are expenditure shares. Rain denotes a dummy for substantial rain (above 2.5 mm). In Panel A the variable is interacted with dummies for a municipality having above or below median number of days with substantial rain, in Panel B with the share of days with substantial rain. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Standard errors are two-way clustered at the present day municipality level and the county×year. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%.

Table B-12: Decomposition of the effect of rain by average number of rainy days – all controls

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain×Below median rain	0.00443*** (2.62)	-0.00932*** (-2.67)	-0.000962 (-1.47)	0.00103 (0.64)	0.000170 (0.08)	-0.00395* (-1.82)	-0.000575 (-0.67)	0.000488 (0.63)	-0.000707 (-0.73)	0.00450 (1.61)
Rain×Above median rain	0.00615 (0.01)	-0.00742 (-0.01)	-0.000139 (-0.57)	0.00405*** (13.37)	-0.00196 (-1.00)	0.000288 (0.39)	0.000384*** (6.15)	0.000273 (0.82)	0.000509*** (3.90)	-0.00341 (-0.00)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.809	0.833	0.847	0.591	0.789	0.396	0.321	0.427	0.459	0.772
F	3.44*** [0.034]	3.57*** [0.030]	1.52 [0.219]	91.13*** [0.000]	0.50*** [0.608]	1.72 [0.180]	18.94*** [0.000]	0.52 [0.595]	7.77*** [0.000]	1.29 [0.276]
<i>Panel B</i>										
Rain	-0.00222 (-0.36)	-0.0180 (-1.55)	-0.00272 (-1.34)	-0.00453 (-0.88)	0.00335 (0.55)	-0.0145** (-2.16)	-0.00469 (-1.54)	0.0000692 (0.03)	-0.00153 (-0.52)	0.0246*** (2.85)
Rain×Share rainy days	0.0204 (0.01)	0.0261 (0.02)	0.00585*** (5.24)	0.0190*** (6.91)	-0.0114*** (-8.54)	0.0342*** (16.12)	0.0124 (0.08)	0.000851 (0.52)	0.00383 (0.01)	-0.0647*** (-18.97)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.809	0.833	0.847	0.591	0.789	0.396	0.321	0.427	0.459	0.772

Notes: The dependent variables in Columns (3) to (10) are expenditure shares. Rain denotes a dummy for substantial rain (above 2.5 mm). In Panel A the variable is interacted with dummies for a municipality having above or below median number of days with substantial rain, in Panel B with the share of days with substantial rain. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall as well as population share of children, young, elderly, women and unemployed. Standard errors are two-way clustered at the present day municipality level and the county×year. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%.

Table B-13: Decomposition by average rain: Positive rain annually

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain × Below median rain	0.00549*** (3.30)	-0.0133*** (-3.32)	-0.000974 (-1.55)	0.00204 (1.16)	-0.00191 (-0.98)	-0.00142 (-0.66)	0.000472 (0.56)	-0.000760 (-0.88)	-0.00106 (-1.13)	0.00360 (1.27)
Rain × Above median rain	0.00594 (0.00)	-0.00381 (-0.00)	-0.000954 (-0.00)	0.00416*** (10.09)	-0.000647* (-1.80)	-0.00268*** (-5.46)	-0.000343*** (-6.73)	0.00156*** (12.04)	0.00101*** (3.55)	-0.00211*** (-16.35)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.392	0.316	0.425	0.455	0.764
F	5.46*** [0.005]	5.52*** [0.005]	1.20 [0.301]	51.52*** [0.000]	1.96 [0.142]	15.00*** [0.000]	22.74*** [0.000]	73.47*** [0.000]	6.56*** [0.002]	133.66*** [0.000]
<i>Panel B</i>										
Rain	0.0160 (1.12)	-0.100*** (-3.34)	-0.00740 (-1.35)	-0.0138 (-0.95)	-0.0127 (-0.86)	-0.0190 (-1.17)	0.00730 (0.94)	-0.00642 (-0.90)	-0.00561 (-0.69)	0.0577*** (2.50)
Rain × Share rainy days	-0.0136 (-0.01)	0.121 (0.14)	0.00848 (0.03)	0.0222 (1.16)	0.0150*** (10.37)	0.0224*** (7.79)	-0.00950*** (-11.56)	0.00890*** (13.85)	0.00728 (0.02)	-0.0748 (-0.08)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.832	0.825	0.556	0.786	0.392	0.316	0.425	0.455	0.764

Notes: The dependent variables in Columns (3) to (10) are expenditure shares. Rain denotes a dummy for substantial rain (above 2.5 mm). In Panel A the variable is interacted with dummies for a municipality having above or below median number of days with positive rain annually, in Panel B with the share of days with positive rain annually. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the present day municipality level.

Table B-14: Decomposition by average rain: Substantial rain annually

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain×Below median rain	0.00462** (2.60)	-0.00861** (-2.15)	-0.00178** (-2.55)	0.00213 (1.17)	-0.000159 (-0.08)	-0.00253 (-1.11)	-0.000771 (-0.88)	-0.000431 (-0.44)	0.0000141 (0.01)	0.00352 (1.22)
Rain×Above median rain	0.00691 (0.01)	-0.00928 (-0.01)	-0.000113 (-0.15)	0.00399 (0.01)	-0.00252*** (-27.59)	-0.00147*** (-3.10)	0.000989*** (5.11)	0.00113*** (5.94)	-0.000182 (-1.14)	-0.00183 (-0.63)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.392	0.316	0.425	0.455	0.764
F	3.38**	2.31	3.38***	0.68	382.32***	5.92***	13.22***	17.66***	0.65	1.03***
	[0.036]	[0.102]	[0.035]	[0.507]	[0.000]	[0.003]	[0.000]	[0.000]	[0.523]	[0.357]
<i>Panel B</i>										
Rain	0.00313 (0.60)	-0.0194* (-1.74)	-0.00474** (-2.36)	-0.00272 (-0.53)	0.00250 (0.45)	-0.0139** (-2.24)	-0.00359 (-1.33)	-0.000207 (-0.09)	0.000568 (0.21)	0.0221*** (2.79)
Rain×Share rainy days	0.00621 (0.01)	0.0255 (0.02)	0.00904*** (10.10)	0.0138*** (14.63)	-0.00912 (-0.01)	0.0285*** (15.94)	0.00880*** (14.55)	0.00129 (1.18)	-0.00156*** (-3.19)	-0.0507 (-0.06)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.393	0.317	0.425	0.455	0.764

Notes: The dependent variables in Columns (3) to (10) are expenditure shares. Rain denotes a dummy for substantial rain (above 2.5 mm). In Panel A the variable is interacted with dummies for a municipality having above or below median number of days with substantial rain annually, in Panel B with the share of days with substantial rain annually. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the present day municipality level.

Table B-15: Decomposition by average rain: Positive rain in September

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain×Below median rain	0.00492*** (2.90)	-0.0121*** (-2.88)	-0.00113* (-1.81)	0.00295* (1.74)	-0.000871 (-0.44)	-0.00249 (-1.24)	0.0000372 (0.04)	-0.000278 (-0.31)	-0.0000959 (-0.11)	0.00187 (0.67)
Rain×Above median rain	0.00660 (0.02)	-0.00526 (-0.01)	-0.000779 (-0.00)	0.00314*** (25.98)	-0.00181*** (-10.41)	-0.00148*** (-3.15)	0.000145** (1.98)	0.00101 (0.00)	-0.0000661 (-0.26)	-0.000165 (-0.55)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.392	0.316	0.425	0.455	0.764
F	4.19**	4.16***	1.64	337.65***	54.26***	5.45***	1.99	0.05	0.04	0.54
	[0.017]	[0.017]	[0.196]	[0.000]	[0.000]	[0.005]	[0.138]	[0.952]	[0.959]	[0.584]
<i>Panel B</i>										
Rain	0.00806 (0.61)	-0.0908*** (-3.39)	-0.00860* (-1.79)	-0.00900 (-0.68)	-0.0116 (-0.86)	-0.0255* (-1.69)	0.00439 (0.65)	-0.00533 (-0.72)	0.0000711 (0.01)	0.0556*** (2.60)
Rain×Share rainy days	-0.00281 (-0.01)	0.0976 (0.08)	0.00907*** (12.17)	0.0143*** (18.17)	0.0122*** (7.78)	0.0280 (0.03)	-0.00511*** (-5.30)	0.00672 (0.21)	-0.000182 (-0.15)	-0.0650 (-0.07)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.832	0.825	0.556	0.786	0.393	0.316	0.425	0.455	0.764

Notes: The dependent variables in Columns (3) to (10) are expenditure shares. Rain denotes a dummy for substantial rain (above 2.5 mm). In Panel A the variable is interacted with dummies for a municipality having above or below median number of days with positive rain in September, in Panel B with the share of days with positive rain in September. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the present day municipality level.

Table B-16: Decomposition by average rain: Amount of rain annually

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain × Below median rain	0.00439** (2.57)	-0.0113*** (-3.14)	-0.00133** (-2.07)	0.00185 (1.04)	0.000142 (0.07)	-0.00514** (-2.35)	-0.000457 (-0.53)	-0.00121 (-1.27)	-0.000881 (-0.94)	0.00702** (2.44)
Rain × Above median rain	0.00708 (0.01)	-0.00647 (-0.00)	-0.000604*** (-9.44)	0.00422*** (16.27)	-0.00276*** (-4.12)	0.00109*** (9.69)	0.000628 (0.00)	0.00186 (0.01)	0.000711*** (4.89)	-0.00515 (-0.01)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.393	0.316	0.425	0.455	0.764
F	3.31*** [0.039]	4.92*** [0.008]	48.86*** [0.000]	133.91*** [0.000]	8.49*** [0.000]	49.08*** [0.000]	0.14 [0.868]	0.81 [0.447]	12.30*** [0.000]	2.99* [0.051]
<i>Panel B</i>										
Rain	0.00326 (0.93)	-0.0139** (-2.39)	-0.00281** (-2.56)	-0.00124 (-0.42)	0.00179 (0.60)	-0.00769** (-2.22)	-0.00126 (-0.89)	0.000572 (0.35)	-0.00136 (-0.87)	0.0120** (2.58)
Rain × Share rainy days	0.0000518 (0.00)	0.000105 (0.00)	0.0000388 (0.00)	0.0000896* (1.91)	-0.0000649 (-1.18)	0.000119** (2.15)	0.0000281*** (4.76)	-0.00000503 (-0.16)	0.0000268 (0.90)	-0.000232*** (-24.54)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.393	0.316	0.425	0.455	0.764

Notes: The dependent variables in Columns (3) to (10) are expenditure shares. Rain denotes a dummy for substantial rain (above 2.5 mm). In Panel A the variable is interacted with dummies for a municipality having above or below median number of days with amount of rain annually, in Panel B with the share of days with amount of rain annually. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the present day municipality level.

Table B-17: Decomposition by average rain: Amount of rain annually

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain × Below median rain	0.00472*** (2.74)	-0.0112*** (-3.10)	-0.00103 (-1.55)	0.00185 (1.01)	0.000336 (0.17)	-0.00524** (-2.39)	-0.000980 (-1.20)	-0.000758 (-0.80)	-0.000608 (-0.65)	0.00643** (2.25)
Rain × Above median rain	0.00673 (0.00)	-0.00649 (-0.00)	-0.000896*** (-4.63)	0.00422** (2.36)	-0.00294*** (-28.76)	0.00118*** (14.23)	0.00115 (0.00)	0.00141*** (6.36)	0.000439* (1.67)	-0.00456 (-0.00)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.393	0.317	0.425	0.455	0.764
F	3.75*** [0.025]	4.80*** [0.009]	13.01*** [0.000]	3.44*** [0.033]	414.33*** [0.000]	102.90*** [0.000]	0.72 [0.485]	20.25*** [0.000]	1.54 [0.216]	2.53* [0.081]
<i>Panel B</i>										
Rain	0.00220 (0.70)	-0.0123** (-2.17)	-0.00260** (-2.51)	0.000590 (0.22)	0.00296 (1.05)	-0.00817** (-2.55)	-0.00179 (-1.42)	0.000822 (0.52)	-0.000926 (-0.63)	0.00911** (2.13)
Rain × Share rainy days	0.0000598 (0.00)	0.0000571 (0.00)	0.0000275** (2.05)	0.0000412*** (7.72)	-0.0000719 (-0.00)	0.000104 (0.00)	0.0000316* (1.80)	-0.00000826 (-0.33)	0.0000142 (0.65)	-0.000138*** (-17.53)
Mean dep. var	0.6809	0.3962	0.0445	0.2582	0.1885	0.1104	0.0503	0.0369	0.0756	0.2356
Obs	4411	4411	17126	17126	17126	17126	17126	17126	17126	17126
R ²	0.804	0.831	0.825	0.556	0.786	0.393	0.317	0.425	0.455	0.764

Notes: The dependent variables in Columns (3) to (10) are expenditure shares. Rain denotes a dummy for substantial rain (above 2.5 mm). In Panel A the variable is interacted with dummies for a municipality having above or below median number of days with amount of rain annually, in Panel B with the share of days with amount of rain annually. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. The F-test is a test for no regional heterogeneity with p-values in square brackets. * significant at 10%; ** at 5%; *** at 1%. Standard errors are clustered at the present day municipality level.

Table B-18: Results by closeness of elections – basic controls

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>A: Left vote share below 45%</i>								
Rain above 2.5 mm	-0.000821 (-1.31)	0.00306** (2.02)	-0.00321* (-1.86)	-0.000444 (-0.23)	0.00107 (1.21)	0.000960 (1.34)	0.000481 (0.58)	-0.00110 (-0.42)
Mean dep. var	0.0466	0.263	0.196	0.107	0.0492	0.0366	0.0770	0.224
Obs	10721	10721	10721	10721	10721	10721	10721	10721
R ²	0.834	0.596	0.800	0.422	0.328	0.430	0.478	0.776
<i>B: Left vote share between 45% and 55%</i>								
Rain above 2.5 mm	-0.0000556 (-0.06)	0.00206 (0.69)	0.00170 (0.50)	-0.00604** (-2.16)	-0.000954 (-0.72)	0.00104 (0.84)	0.000565 (0.35)	0.00168 (0.33)
Mean dep. var	0.0446	0.253	0.187	0.116	0.0503	0.0351	0.0738	0.240
Obs	3531	3531	3531	3531	3531	3531	3531	3531
R ²	0.896	0.633	0.850	0.551	0.451	0.591	0.521	0.817
<i>C: Left vote share above 55%</i>								
Rain above 2.5 mm	0.000547 (0.51)	-0.00320 (-0.95)	-0.00440 (-1.19)	-0.00278 (-0.70)	0.000622 (0.45)	-0.00178 (-1.03)	-0.00168 (-1.14)	0.0127** (2.15)
Mean dep. var	0.0373	0.244	0.163	0.117	0.0546	0.0400	0.0726	0.272
Obs	2816	2816	2816	2816	2816	2816	2816	2816
R ²	0.850	0.643	0.816	0.507	0.468	0.546	0.590	0.795

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.

Table B-19: Results by closeness of elections – all controls

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>A: Left vote share below 45%</i>								
Rain above 2.5 mm	-0.000629 (-1.12)	0.00264* (1.86)	-0.00281 (-1.64)	-0.000369 (-0.19)	0.000927 (1.05)	0.000995 (1.39)	0.000510 (0.62)	-0.00126 (-0.50)
Mean dep. var	0.0466	0.263	0.196	0.107	0.0492	0.0366	0.0770	0.224
Obs	10721	10721	10721	10721	10721	10721	10721	10721
R ²	0.854	0.625	0.802	0.426	0.333	0.432	0.483	0.784
<i>B: Left vote share between 45% and 55%</i>								
Rain above 2.5 mm	0.000279 (0.34)	0.00123 (0.44)	0.00267 (0.80)	-0.00561* (-1.94)	-0.000860 (-0.63)	0.000886 (0.74)	0.000513 (0.31)	0.000898 (0.18)
Mean dep. var	0.0446	0.253	0.187	0.116	0.0503	0.0351	0.0738	0.240
Obs	3531	3531	3531	3531	3531	3531	3531	3531
R ²	0.908	0.652	0.852	0.555	0.455	0.592	0.525	0.824
<i>C: Left vote share above 55%</i>								
Rain above 2.5 mm	0.000766 (0.80)	-0.00283 (-0.91)	-0.00288 (-0.78)	-0.00252 (-0.64)	0.0000925 (0.07)	-0.00191 (-1.13)	-0.00198 (-1.34)	0.0113* (1.84)
Mean dep. var	0.0373	0.244	0.163	0.117	0.0546	0.0400	0.0726	0.272
Obs	2816	2816	2816	2816	2816	2816	2816	2816
R ²	0.857	0.671	0.823	0.513	0.474	0.554	0.595	0.805

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall as well as log population, the population share of children, young, elderly, women and unemployed.

Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.

Table B-20: Incumbency effects

	(1) Turnout	(2) Left share	(3) Child care	(4) Education	(5) Elderly care	(6) Health, social	(7) Culture	(8) Transport	(9) Central adm	(10) Other
<i>Panel A</i>										
Rain	0.00561 (1.24)	-0.00243 (-0.29)	0.000480 (0.39)	0.00343 (1.06)	-0.00484 (-1.29)	0.00195 (0.51)	0.00187 (1.05)	-0.00130 (-0.79)	0.00156 (0.85)	-0.00315 (-0.65)
Lagged Vote Share Left	0.00628 (0.33)	0.391*** (13.10)	0.0131*** (9.33)	-0.0265*** (-2.85)	0.0212 (1.28)	-0.0272** (-1.97)	0.00694*** (7.64)	0.000110 (0.02)	0.00622 (0.42)	0.00606 (0.23)
Rain×Lagged VSL	0.000878 (0.09)	-0.00822 (-0.42)	-0.00256 (-0.88)	-0.00337 (-0.46)	0.00945 (1.10)	-0.00624 (-0.73)	-0.00573 (-1.44)	0.00313 (0.84)	-0.00401 (-0.95)	0.00934 (0.83)
Mean dep. var	0.6747	0.3931	0.0496	0.2533	0.2028	0.1086	0.0520	0.0352	0.0787	0.2199
Obs	3933	3933	15163	15163	15163	15163	15163	15163	15163	15163
R ²	0.81	0.86	0.80	0.57	0.77	0.40	0.31	0.42	0.45	0.75
<i>Panel B</i>										
Rain	0.00567*** (3.56)	-0.00644** (-2.02)	-0.000334 (-0.61)	0.00179 (1.28)	-0.00105 (-0.67)	-0.000271 (-0.16)	-0.0000377 (-0.05)	-0.000110 (-0.16)	0.0000628 (0.09)	-0.0000434 (-0.02)
Lagged Left majority	-0.00178*** (-4.11)	0.0450*** (2.62)	0.00238*** (10.73)	-0.00580*** (-10.69)	0.000940 (0.07)	-0.000909** (-2.55)	0.00316*** (12.77)	-0.0000160 (-0.04)	0.000874 (1.60)	-0.000637 (-0.19)
Rain×Lagged Left maj.	0.000963 (0.37)	-0.00215 (-0.34)	-0.000937 (-0.95)	0.00151 (0.61)	-0.000616 (-0.20)	-0.000448 (-0.15)	-0.00140 (-1.10)	0.000154 (0.13)	-0.000440 (-0.32)	0.00217 (0.55)
Mean dep. var	0.6747	0.3931	0.0496	0.2533	0.2028	0.1086	0.0520	0.0352	0.0787	0.2199
Obs	3933	3933	15163	15163	15163	15163	15163	15163	15163	15163
R ²	0.81	0.84	0.80	0.57	0.77	0.40	0.31	0.42	0.45	0.75

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). Lagged means measured in the previous electoral period. Outcome variables in Columns (3) to (10) are expenditure shares. All estimations control for municipality and year fixed effects, spatio-temporal trends, and average September rainfall.

Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.

Table B-21: Expenditure shares: Regional time trends
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00236 (0.68)	-0.0422*** (-3.37)	0.0169 (1.34)	0.00246 (0.24)	0.000820 (0.16)	-0.00482 (-0.86)	0.00169 (0.28)	0.0227 (1.58)
R ²	0.828	0.558	0.788	0.401	0.316	0.425	0.455	0.769
<i>With controls</i>								
Seat share left	-0.000411 (-0.13)	-0.0478*** (-4.13)	0.0137 (1.09)	0.00337 (0.33)	0.00290 (0.59)	-0.00534 (-0.96)	0.00280 (0.49)	0.0308** (2.17)
R ²	0.847	0.592	0.791	0.404	0.321	0.428	0.460	0.778

B: Reduced form estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	-0.000791* (-1.74)	0.00392*** (3.28)	-0.00174 (-1.28)	-0.00197 (-1.29)	0.0000995 (0.15)	0.000210 (0.34)	-0.000140 (-0.22)	0.000409 (0.20)
R ²	0.828	0.557	0.788	0.401	0.316	0.425	0.455	0.769
<i>With controls</i>								
Rain	-0.000508 (-1.19)	0.00312*** (2.80)	-0.00125 (-0.92)	-0.00183 (-1.20)	-0.0000881 (-0.14)	0.000274 (0.45)	-0.000137 (-0.22)	0.000416 (0.21)
R ²	0.847	0.590	0.791	0.405	0.321	0.427	0.460	0.777

C: IV estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.0777 (1.62)	-0.385** (-2.54)	0.171 (1.22)	0.194 (1.29)	-0.00978 (-0.15)	-0.0206 (-0.34)	0.0138 (0.22)	-0.0402 (-0.20)
R ²	0.814	0.466	0.786	0.364	0.337	0.442	0.471	0.775
Cragg-Donald F	76.04	76.04	76.04	76.04	76.04	76.04	76.04	76.04
<i>With controls</i>								
Seat share left	0.0516 (1.14)	-0.316** (-2.30)	0.127 (0.89)	0.185 (1.21)	0.00893 (0.14)	-0.0278 (-0.45)	0.0139 (0.22)	-0.0422 (-0.21)
R ²	0.843	0.540	0.793	0.373	0.342	0.443	0.477	0.783
Cragg-Donald F	71.42	71.42	71.42	71.42	71.42	71.42	71.42	71.42
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-22: Other political outcomes: Regional time trends
A: OLS estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	2.332 (0.52)	-0.0160 (-0.89)	2.460 (1.31)	-0.0320 (-0.44)	0.0278 (0.33)	0.358 (1.09)	0.120 (0.78)
R ²	0.860	0.335	0.0747	0.317	0.794	0.692	0.00711
<i>With controls</i>							
Seat share left	3.248 (0.70)	-0.0169 (-0.94)	2.366 (1.29)	-0.0376 (-0.51)	0.0282 (0.34)	0.588** (2.04)	0.122 (0.79)
R ²	0.862	0.338	0.0745	0.318	0.795	0.727	0.0146

B: Reduced form estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	-1.105*** (-3.00)	-0.000742 (-0.39)	-0.385 (-1.64)	-0.0102* (-1.65)	0.00634 (0.60)	-0.00968 (-0.39)	-0.00462 (-0.33)
R ²	0.860	0.335	0.0747	0.317	0.794	0.692	0.00678
<i>With controls</i>							
Rain	-1.108*** (-3.02)	-0.000956 (-0.50)	-0.386* (-1.66)	-0.0102 (-1.64)	0.00629 (0.60)	-0.00859 (-0.35)	0.00250 (0.19)
R ²	0.862	0.338	0.0746	0.318	0.795	0.727	0.0143

C: IV estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	108.3** (2.32)	0.142 (0.38)	74.91 (1.32)	1.985 (1.29)	-0.627 (-0.60)	2.604 (0.38)	0.312 (0.33)
R ²	0.832	0.351	-0.0426	0.235	0.800	0.696	0.0964
Cragg-Donald F	76.43	17.14	16.61	16.61	35.83	7.144	32.08
<i>With controls</i>							
Seat share left	111.9** (2.35)	0.186 (0.48)	76.46 (1.31)	2.016 (1.27)	-0.653 (-0.60)	2.501 (0.35)	-0.172 (-0.19)
R ²	0.833	0.347	-0.0487	0.233	0.800	0.732	0.103
Cragg-Donald F	71.86	16.50	16.03	16.03	32.87	6.133	30.65
Obs	17071	12779	12828	12828	8650	11821	5161
Mean dep. var	83.41	0.143	2.604	0.870	0.543	2.753	0.00597

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-23: Expenditure shares: Quadratic regional time trends
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	-0.00264 (-0.79)	-0.0322*** (-2.67)	0.0119 (0.93)	-0.000217 (-0.02)	0.00196 (0.38)	-0.00519 (-0.94)	0.00222 (0.37)	0.0242* (1.73)
R ²	0.838	0.568	0.791	0.408	0.320	0.427	0.459	0.772
<i>With controls</i>								
Seat share left	-0.00470 (-1.56)	-0.0381*** (-3.43)	0.00980 (0.78)	0.000872 (0.09)	0.00349 (0.68)	-0.00565 (-1.03)	0.00325 (0.58)	0.0310** (2.24)
R ²	0.856	0.600	0.793	0.411	0.325	0.429	0.465	0.780

B: Reduced form estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	0.000983** (2.31)	-0.00111 (-0.98)	-0.000696 (-0.53)	-0.00115 (-0.82)	-0.000624 (-0.96)	-0.000250 (-0.45)	-0.000802 (-1.30)	0.00365* (1.89)
R ²	0.838	0.567	0.790	0.408	0.320	0.427	0.459	0.772
<i>With controls</i>								
Rain	0.000980** (2.53)	-0.00115 (-1.03)	-0.000499 (-0.39)	-0.00122 (-0.87)	-0.000680 (-1.06)	-0.000258 (-0.46)	-0.000749 (-1.24)	0.00357* (1.87)
R ²	0.856	0.599	0.793	0.411	0.325	0.429	0.465	0.779

C: IV estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	-0.169* (-1.65)	0.191 (0.95)	0.120 (0.52)	0.199 (0.80)	0.108 (0.88)	0.0431 (0.44)	0.138 (1.13)	-0.629 (-1.53)
R ²	0.751	0.538	0.793	0.368	0.285	0.434	0.413	0.655
Cragg-Donald F	21.40	21.40	21.40	21.40	21.40	21.40	21.40	21.40
<i>With controls</i>								
Seat share left	-0.175* (-1.71)	0.206 (1.00)	0.0892 (0.38)	0.218 (0.84)	0.122 (0.95)	0.0461 (0.45)	0.134 (1.08)	-0.639 (-1.51)
R ²	0.764	0.561	0.798	0.360	0.276	0.435	0.423	0.657
Cragg-Donald F	19.89	19.89	19.89	19.89	19.89	19.89	19.89	19.89
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific quadratic time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-24: Other political outcomes: Quadratic regional time trends
A: OLS estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-0.519 (-0.12)	-0.0160 (-0.87)	2.188 (1.13)	-0.0562 (-0.77)	0.0342 (0.41)	0.307 (0.96)	0.115 (0.76)
R ²	0.863	0.338	0.0756	0.320	0.794	0.696	0.0122
<i>With controls</i>							
Seat share left	0.311 (0.07)	-0.0171 (-0.93)	2.071 (1.08)	-0.0653 (-0.89)	0.0343 (0.41)	0.550* (1.95)	0.116 (0.75)
R ²	0.865	0.340	0.0755	0.321	0.795	0.731	0.0193

B: Reduced form estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	0.0518 (0.14)	-0.00134 (-0.70)	-0.321 (-1.29)	-0.00206 (-0.32)	0.00765 (0.77)	-0.0275 (-0.98)	0.00823 (0.52)
R ²	0.863	0.338	0.0756	0.320	0.794	0.696	0.0119
<i>With controls</i>							
Rain	0.0554 (0.15)	-0.00150 (-0.78)	-0.313 (-1.27)	-0.00124 (-0.19)	0.00669 (0.68)	-0.0304 (-1.14)	0.0131 (0.80)
R ²	0.865	0.340	0.0755	0.321	0.795	0.730	0.0191

C: IV estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-8.872 (-0.14)	1.737 (0.28)	456.4 (0.29)	2.931 (0.22)	-0.637 (-0.76)	4.825 (0.91)	-0.553 (-0.50)
R ²	0.867	-0.943	-5.783	0.115	0.800	0.671	0.0957
Cragg-Donald F	21.61	0.347	0.288	0.288	46.96	15.01	29.56
<i>With controls</i>							
Seat share left	-9.850 (-0.15)	2.373 (0.24)	555.2 (0.24)	2.207 (0.15)	-0.577 (-0.68)	5.701 (1.00)	-0.899 (-0.74)
R ²	0.869	-2.056	-8.597	0.216	0.802	0.693	0.0908
Cragg-Donald F	20.11	0.233	0.186	0.186	44.31	13.17	28.16
Obs	17071	12779	12828	12828	8650	11821	5161
Mean dep. var	83.41	0.143	2.604	0.870	0.543	2.753	0.00597

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific quadratic time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-25: Expenditure shares: Municipal time trends
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00195 (0.48)	-0.0304*** (-2.72)	0.0192* (1.73)	0.00293 (0.27)	0.00270 (0.45)	0.000871 (0.14)	-0.000670 (-0.12)	0.00347 (0.28)
R ²	0.857	0.658	0.832	0.492	0.369	0.507	0.502	0.824
<i>With controls</i>								
Seat share left	-0.000490 (-0.12)	-0.0265** (-2.53)	0.0185* (1.69)	0.000436 (0.04)	0.00360 (0.60)	0.000566 (0.09)	0.000222 (0.04)	0.00365 (0.30)
R ²	0.862	0.674	0.833	0.495	0.370	0.509	0.503	0.826

B: Reduced form estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	-0.00113** (-2.53)	0.00318*** (2.60)	-0.00200 (-1.46)	-0.00217 (-1.34)	0.000193 (0.31)	0.0000802 (0.13)	0.000296 (0.45)	0.00154 (0.74)
R ²	0.857	0.658	0.832	0.492	0.369	0.507	0.502	0.824
<i>With controls</i>								
Rain	-0.000735* (-1.69)	0.00194* (1.71)	-0.00208 (-1.54)	-0.00149 (-0.93)	0.000162 (0.26)	0.0000886 (0.14)	0.000238 (0.36)	0.00188 (0.91)
R ²	0.863	0.674	0.833	0.495	0.370	0.509	0.503	0.826

C: IV estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.133** (2.09)	-0.376** (-2.08)	0.236 (1.34)	0.257 (1.30)	-0.0228 (-0.31)	-0.00949 (-0.13)	-0.0350 (-0.45)	-0.183 (-0.74)
R ²	0.827	0.608	0.830	0.457	0.404	0.535	0.529	0.828
Cragg-Donald F	73.88	73.88	73.88	73.88	73.88	73.88	73.88	73.88
<i>With controls</i>								
Seat share left	0.102 (1.48)	-0.268 (-1.49)	0.288 (1.37)	0.205 (0.92)	-0.0223 (-0.26)	-0.0122 (-0.15)	-0.0330 (-0.36)	-0.260 (-0.90)
R ²	0.848	0.659	0.824	0.483	0.404	0.537	0.530	0.823
Cragg-Donald F	54.02	54.02	54.02	54.02	54.02	54.02	54.02	54.02
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, municipality specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-26: Other political outcomes: Municipal time trends
A: OLS estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	4.161 (0.99)	-0.0115 (-0.55)	3.003 (1.20)	-0.0870 (-0.99)	-0.0466 (-0.69)	0.447** (2.14)	0.272 (0.93)
R ²	0.886	0.354	0.0985	0.356	0.881	0.853	-0.00664
<i>With controls</i>							
Seat share left	3.245 (0.75)	-0.00880 (-0.41)	3.203 (1.27)	-0.102 (-1.19)	-0.0358 (-0.53)	0.392* (1.83)	0.278 (0.99)
R ²	0.887	0.359	0.0983	0.357	0.881	0.854	0.00225

B: Reduced form estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	-0.923** (-2.50)	-0.000891 (-0.46)	-0.443* (-1.76)	-0.00725 (-1.08)	-0.00639 (-0.67)	-0.00312 (-0.15)	-0.00951 (-0.45)
R ²	0.886	0.354	0.0987	0.355	0.881	0.852	-0.00744
<i>With controls</i>							
Rain	-0.833** (-2.25)	-0.00160 (-0.80)	-0.456* (-1.87)	-0.00591 (-0.89)	-0.00534 (-0.57)	0.00186 (0.09)	-0.00617 (-0.31)
R ²	0.887	0.359	0.0984	0.356	0.881	0.854	0.00139

C: IV estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	108.7* (1.95)	0.171 (0.44)	88.27 (1.38)	1.444 (0.97)	1.305 (0.60)	0.832 (0.15)	1.059 (0.44)
R ²	0.872	0.394	0.0318	0.365	0.878	0.864	0.161
Cragg-Donald F	74.77	24.33	22.75	22.75	11.28	10.21	15.36
<i>With controls</i>							
Seat share left	114.3* (1.77)	0.383 (0.72)	113.2 (1.32)	1.466 (0.80)	1.019 (0.54)	-0.547 (-0.09)	0.716 (0.30)
R ²	0.871	0.366	-0.0548	0.364	0.885	0.865	0.173
Cragg-Donald F	54.77	15.73	14.66	14.66	12.95	8.331	14.19
Obs	17071	12779	12828	12828	8650	11821	5161
Mean dep. var	83.41	0.143	2.604	0.870	0.543	2.753	0.00597

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, municipality specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the present day municipality level and the county×year. * significant at 10%; ** at 5%; *** at 1%.*

Table B-27: Expenditure shares: Quadratic spatio-temporal trends
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00343 (0.97)	-0.0169 (-1.35)	0.0261** (2.03)	-0.0107 (-1.05)	-0.000821 (-0.16)	-0.00401 (-0.77)	0.00197 (0.33)	0.000928 (0.06)
R ²	0.832	0.565	0.787	0.394	0.318	0.425	0.457	0.765
<i>With controls</i>								
Seat share left	-0.00184 (-0.59)	-0.0296*** (-2.65)	0.0240* (1.88)	-0.00824 (-0.80)	0.00149 (0.30)	-0.00463 (-0.89)	0.00394 (0.69)	0.0149 (1.02)
R ²	0.853	0.599	0.790	0.396	0.322	0.427	0.461	0.774

B: Reduced form estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	0.00105** (2.23)	-0.00249** (-2.13)	-0.000307 (-0.22)	-0.000684 (-0.47)	-0.000501 (-0.77)	0.000133 (0.24)	-0.000580 (-0.90)	0.00338 (1.63)
R ²	0.832	0.565	0.787	0.393	0.318	0.425	0.457	0.765
<i>With controls</i>								
Rain	0.00115*** (2.80)	-0.00233** (-2.05)	-0.000123 (-0.09)	-0.000746 (-0.51)	-0.000583 (-0.90)	0.000153 (0.27)	-0.000590 (-0.94)	0.00307 (1.52)
R ²	0.853	0.599	0.790	0.396	0.322	0.427	0.461	0.774

C: IV estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	-0.241 (-0.70)	-0.228 (-0.37)	0.120 (0.17)	-0.179 (-0.36)	-0.164 (-0.57)	0.0160 (0.07)	0.224 (0.65)	0.452 (0.49)
R ²	0.635	0.536	0.790	0.369	0.203	0.441	0.301	0.710
Cragg-Donald F	10.64	10.64	10.64	10.64	10.64	10.64	10.64	10.64
<i>With controls</i>								
Seat share left	-0.205 (-0.41)	0.436 (0.32)	0.114 (0.08)	0.217 (0.22)	0.111 (0.24)	-0.0577 (-0.14)	0.102 (0.20)	-0.717 (-0.35)
R ²	0.719	0.421	0.794	0.339	0.282	0.431	0.444	0.625
Cragg-Donald F	9.320	9.320	9.320	9.320	9.320	9.320	9.320	9.320
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, quadratic spatio-temporal trends with a 1×1 order polynomial for the squared trend, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

Standard errors are two-way clustered at the present day municipality level and the county $\times$ year. * significant at 10%; ** at 5%; *** at 1%.

Table B-28: Other political outcomes: Quadratic spatio-temporal trends
A: OLS estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-5.015 (-1.09)	-0.0128 (-0.71)	2.058 (1.10)	-0.0269 (-0.39)	0.0255 (0.30)	-0.0794 (-0.24)	0.112 (0.81)
R ²	0.854	0.334	0.0738	0.323	0.788	0.682	0.00796
<i>With controls</i>							
Seat share left	-2.732 (-0.58)	-0.0151 (-0.84)	1.894 (1.04)	-0.0356 (-0.52)	0.0174 (0.20)	0.409 (1.41)	0.114 (0.82)
R ²	0.858	0.337	0.0735	0.324	0.790	0.720	0.0134

B: Reduced form estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	0.335 (0.87)	-0.00267 (-1.44)	-0.343 (-1.22)	-0.00325 (-0.51)	0.00429 (0.41)	-0.0797** (-2.50)	0.00272 (0.16)
R ²	0.854	0.335	0.0738	0.323	0.788	0.683	0.00767
<i>With controls</i>							
Rain	0.296 (0.77)	-0.00294 (-1.57)	-0.334 (-1.20)	-0.00274 (-0.43)	0.00407 (0.39)	-0.0595** (-2.00)	0.00559 (0.29)
R ²	0.858	0.337	0.0736	0.324	0.790	0.719	0.0131

C: IV estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-19.47 (-0.10)	1.837 (0.51)	241.9 (0.53)	2.294 (0.39)	-0.499 (-0.22)	20.06 (1.17)	-0.173 (-0.15)
R ²	0.857	-1.112	-1.552	0.208	0.795	-0.0878	0.0960
Cragg-Donald F	10.74	1.279	1.215	1.215	30.94	7.375	34.70
<i>With controls</i>							
Seat share left	-48.58 (-0.13)	2.710 (0.41)	315.7 (0.41)	2.584 (0.31)	-0.548 (-0.29)	13.78 (1.21)	-0.351 (-0.31)
R ²	0.856	-2.811	-2.715	0.172	0.796	0.392	0.0992
Cragg-Donald F	9.428	0.714	0.681	0.681	27.43	8.836	35.44
Obs	17071	12779	12828	12828	8650	11821	5161
Mean dep. var	83.41	0.143	2.604	0.870	0.543	2.753	0.00597

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, quadratic spatio-temporal trends with a 1×1 order polynomial for the squared trend, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

Standard errors are two-way clustered at the present day municipality level and the county $\times$ year. * significant at 10%; ** at 5%; *** at 1%.

Table B-29: Expenditure shares: Conley standard errors
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00680*** (3.59)	-0.0274*** (-4.01)	0.0288*** (5.62)	-0.00786* (-1.69)	-0.00221 (-0.76)	-0.00465 (-1.56)	0.00123 (0.40)	0.00525 (0.76)
R ²	0.0463	0.112	0.0319	0.0228	0.00610	0.0302	0.00919	0.0718
<i>With controls</i>								
Seat share left	0.00126 (0.70)	-0.0390*** (-6.06)	0.0257*** (4.97)	-0.00556 (-1.19)	0.000556 (0.19)	-0.00522* (-1.73)	0.00307 (1.01)	0.0192*** (2.89)
R ²	0.164	0.185	0.0459	0.0276	0.0126	0.0340	0.0168	0.106
B: Reduced form estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	-0.000931*** (-2.77)	0.00316*** (3.48)	-0.00140 (-1.49)	-0.00191* (-1.93)	0.000116 (0.28)	0.000335 (0.83)	-0.000101 (-0.24)	0.000722 (0.44)
R ²	0.0462	0.111	0.0305	0.0230	0.00607	0.0300	0.00918	0.0718
<i>With controls</i>								
Rain	-0.000533* (-1.80)	0.00260*** (3.09)	-0.000931 (-1.01)	-0.00177* (-1.82)	-0.0000905 (-0.22)	0.000388 (0.97)	-0.000125 (-0.30)	0.000462 (0.31)
R ²	0.164	0.182	0.0447	0.0279	0.0126	0.0338	0.0168	0.105

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are corrected using Conley's (1999) procedure with a linear Bartlett window and a 100 km cutoff used for the spatial correlation kernel 2 periods used for the serial correlation kernel. t-values in parenthesis, * significant at 10%; ** at 5%; *** at 1%.*

Table B-30: Other political outcomes: Conley standard errors
A: OLS estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-2.449 (-1.05)	-0.0141 (-1.12)	2.247 (1.49)	-0.00328 (-0.06)	0.0314 (0.92)	-0.0579 (-0.46)	0.103 (0.74)
R ²	0.0343	0.00866	0.00461	0.0205	0.0209	0.0289	0.00453
<i>With controls</i>							
Seat share left	-0.0488 (-0.02)	-0.0162 (-1.28)	2.116 (1.43)	-0.00848 (-0.15)	0.0231 (0.67)	0.422*** (3.82)	0.110 (0.77)
R ²	0.0596	0.0127	0.00434	0.0223	0.0260	0.143	0.0112
B: Reduced form estimates							
	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	-0.893*** (-3.27)	-0.00171 (-1.18)	-0.372* (-1.79)	-0.0106* (-1.85)	0.00655 (1.03)	-0.0718*** (-3.18)	-0.00474 (-0.35)
R ²	0.0348	0.00862	0.00468	0.0208	0.0210	0.0303	0.00429
<i>With controls</i>							
Rain	-0.963*** (-3.55)	-0.00205 (-1.42)	-0.371* (-1.80)	-0.0108* (-1.90)	0.00658 (1.04)	-0.0508*** (-2.62)	0.000525 (0.04)
R ²	0.0604	0.0126	0.00443	0.0225	0.0261	0.143	0.0109

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are corrected using Conley's (1999) procedure with a linear Bartlett window and a 100 km cutoff used for the spatial correlation kernel 2 periods used for the serial correlation kernel. t-values in parenthesis, * significant at 10%; ** at 5%; *** at 1%.*

Table B-31: Expenditure shares: Regional clustering
A: OLS estimates

	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.00680* (1.98)	-0.0274* (-1.76)	0.0288** (2.86)	-0.00786 (-0.99)	-0.00221 (-0.40)	-0.00465 (-1.00)	0.00123 (0.18)	0.00525 (0.37)
R ²	0.825	0.556	0.787	0.392	0.316	0.425	0.456	0.765
<i>With controls</i>								
Seat share left	0.00126 (0.37)	-0.0390*** (-3.09)	0.0257** (2.65)	-0.00556 (-0.69)	0.000556 (0.11)	-0.00522 (-1.09)	0.00307 (0.45)	0.0192* (1.79)
R ²	0.846	0.593	0.790	0.395	0.321	0.427	0.460	0.773
B: Reduced form estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Rain	-0.000931 (-1.66)	0.00316* (1.89)	-0.00140 (-0.93)	-0.00191 (-0.99)	0.000116 (0.17)	0.000335 (0.64)	-0.000101 (-0.23)	0.000722 (0.23)
R ²	0.825	0.556	0.787	0.392	0.316	0.425	0.456	0.765
<i>With controls</i>								
Rain	-0.000533 (-1.12)	0.00260* (1.74)	-0.000931 (-0.61)	-0.00177 (-0.94)	-0.0000905 (-0.14)	0.000388 (0.76)	-0.000125 (-0.27)	0.000462 (0.15)
R ²	0.846	0.592	0.790	0.395	0.321	0.427	0.460	0.773
C: IV estimates								
	(1) Child care	(2) Education	(3) Elderly care	(4) Health, social	(5) Culture	(6) Transport	(7) Central adm	(8) Other
<i>Without controls</i>								
Seat share left	0.0970* (2.04)	-0.330 (-1.45)	0.146 (0.89)	0.199 (0.99)	-0.0121 (-0.17)	-0.0349 (-0.65)	0.0106 (0.23)	-0.0753 (-0.23)
R ²	0.803	0.488	0.788	0.345	0.337	0.438	0.473	0.770
Cragg-Donald F	65.53	65.53	65.53	65.53	65.53	65.53	65.53	65.53
<i>With controls</i>								
Seat share left	0.0584 (1.24)	-0.285 (-1.46)	0.102 (0.59)	0.194 (0.93)	0.00990 (0.14)	-0.0424 (-0.75)	0.0137 (0.28)	-0.0506 (-0.15)
R ²	0.840	0.552	0.794	0.353	0.342	0.438	0.477	0.779
Cragg-Donald F	59.75	59.75	59.75	59.75	59.75	59.75	59.75	59.75
Obs	17069	17069	17069	17069	17069	17069	17069	17069
Mean dep. var	0.0446	0.258	0.189	0.111	0.0503	0.0368	0.0756	0.235

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are clustered at the region level. * significant at 10%; ** at 5%; *** at 1%.*

Table B-32: Other political outcomes: Regional clustering
A: OLS estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	-2.449 (-0.48)	-0.0141 (-0.97)	2.247 (1.13)	-0.00328 (-0.04)	0.0314 (0.53)	-0.0579 (-0.16)	0.103 (0.76)
R ²	0.852	0.334	0.0740	0.322	0.788	0.681	0.00717
<i>With controls</i>							
Seat share left	-0.0488 (-0.01)	-0.0162 (-1.00)	2.116 (1.13)	-0.00848 (-0.10)	0.0231 (0.39)	0.422 (1.56)	0.110 (0.78)
R ²	0.856	0.337	0.0737	0.323	0.789	0.719	0.0137

B: Reduced form estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Rain	-0.893** (-2.85)	-0.00171 (-0.77)	-0.372 (-1.23)	-0.0106 (-1.56)	0.00655 (0.65)	-0.0718* (-1.93)	-0.00474 (-0.36)
R ²	0.852	0.334	0.0741	0.322	0.788	0.682	0.00693
<i>With controls</i>							
Rain	-0.963*** (-2.93)	-0.00205 (-0.87)	-0.371 (-1.24)	-0.0108 (-1.63)	0.00658 (0.68)	-0.0508 (-1.40)	0.000525 (0.05)
R ²	0.856	0.337	0.0738	0.323	0.789	0.719	0.0134

C: IV estimates

	(1) Expenditures	(2) Invest. share	(3) Total sales	(4) Has sales	(5) Has prop. tax	(6) User charges	(7) Growth ind. empl.
<i>Without controls</i>							
Seat share left	92.73* (1.85)	0.275 (0.63)	60.31 (1.00)	1.718 (1.43)	-0.777 (-0.73)	35.48 (0.59)	0.286 (0.36)
R ²	0.831	0.324	0.0120	0.269	0.791	-1.753	0.0955
Cragg-Donald F	65.94	24.83	24.57	24.57	23.03	2.042	37.30
<i>With controls</i>							
Seat share left	105.0* (2.09)	0.344 (0.69)	62.52 (0.96)	1.826 (1.47)	-0.826 (-0.75)	20.91 (0.69)	-0.0310 (-0.05)
R ²	0.829	0.308	0.00473	0.261	0.792	-0.0672	0.103
Cragg-Donald F	60.18	22.92	22.77	22.77	20.77	2.989	38.85
Obs	17071	12779	12828	12828	8650	11821	5161
Mean dep. var	83.41	0.143	2.604	0.870	0.543	2.753	0.00597

Notes: Rain measured as a dummy for substantial rain (above 2.5 mm). All estimations control for municipality and year fixed effects, region specific time trends, and average September rainfall. Estimates with controls also control for log population, the population share of children, young, elderly, women and unemployed.

*Standard errors are two-way clustered at the region level * significant at 10%; ** at 5%; *** at 1%.*

Table B-33: Tails of the placebos

	1 sided	2 sided
Turnout	0.01	0.014
Vote share left	0.029	0.074
Child care	0.225	0.496
Education	0.134	0.291
Elderly care	0.298	0.534
Health, social	0.319	0.568
Culture	0.488	0.931
Transport	0.34	0.675
Central adm	0.483	0.914
Other	0.484	0.845

Notes: The table shows results from estimating outcomes on placebo rainfall measures, measured ± 600 days and excluding ± 10 days from election day. The 1 sided column shows the fraction of days with more extreme observations in the same tail as the observed parameter, the 2 tailed the fraction with more extreme absolute values.

Table B-34: Confounders and rainfall

	(1) Log population	(2) Women	(3) Children	(4) Young	(5) Elderly	(6) Unemployment
No trends	0.00895*** (4.95)	-0.0232** (-2.27)	0.0247 (1.59)	0.136*** (7.66)	-0.142*** (-5.50)	-0.0444*** (-3.71)
Linear trend	-0.00204 (-1.35)	-0.0156 (-1.52)	-0.00208 (-0.14)	0.119*** (6.90)	-0.0953*** (-4.08)	-0.0751*** (-6.31)
Quadratic trend	-0.000603 (-0.38)	-0.00781 (-0.72)	0.00384 (0.24)	0.0232 (1.28)	-0.0680*** (-2.75)	-0.0105 (-0.84)
Obs	17619	17619	17619	17619	17619	17619
Mean dep. var	8.467	49.46	8.851	13.70	15.72	2.102

Notes: The table shows regressions of a set of potential confounding variables (log population and population percentage of children, young, elderly, women and unemployed) on election day rainfall. The first line is without any spatio-temporal trends, the second line with linear trends and the last line with quadratic trends. All estimations control for municipality and year fixed effects

Standard errors are two-way clustered at the region level * significant at 10%; ** at 5%; *** at 1%.

Table B-35: Advance voting in elections 1975-2007 – detailed estimations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rain (in cm)	0.000203 (0.55)			0.000616 (1.29)	0.000213 (0.58)	0.000384 (0.71)	0.000300 (0.28)	-0.00403 (-1.55)
Rain positive		-0.000799 (-0.77)						
Rain above 2.5 mm			-0.000869 (-0.88)	-0.00161 (-0.08)				
Rain $\times$ Year					0.0000197 (0.38)			
Rain $\times$ After 1990						-0.000500*** (-2.94)		
Rain squared							-0.0000183 (-0.00)	0.00221*** (9.19)
Rain cubed								-0.000287 (-1.11)
Rain quart								0.00000887 (0.59)
Mean dep. var	0.0651	0.0651	0.0651	0.0651	0.0651	0.0651	0.0651	0.0651
Obs	3962	3962	3962	3962	3962	3962	3962	3962
R ²	0.737	0.737	0.737	0.737	0.737	0.737	0.737	0.738

Notes: Outcome variable is the proportion of turnout. All specifications include municipal and year fixed effects. Standard errors are clustered at the municipality level (using 2010 structure).
t-values in parentheses, and *, **, and *** denotes significant at the 10%, 5%, and 1% levels.

Table B-36: Advance voting and rainfall in the pre-period

	(1)	(2)	(3)
	Rain (in cm)	Rain positive	Rain above 2.5mm
Rainfall	0.00000464 (0.22)	0.00698 (1.52)	0.00472 (1.18)
Mean dep. var	0.0651	0.0651	0.0651
Obs	3962	3962	3962
R ²	0.737	0.738	0.737

*Notes: The outcome variable is the proportion of turnout in advance voting. The explanatory variables are average daily measures of rainfall during the period of advance voting, i.e. August 10 to Friday before election day. All specifications include municipal and year fixed effects, spatio-temporal trends, and average September rainfall. Standard errors are two-way clustered at the present day municipality level and the county×year. t-values in parentheses, and *, **, and *** denotes significant at the 10%, 5%, and 1% levels.*

Figure B-1: Geographical trends in turnout

Notes: The map shows the municipality specific trends in turnout in a mode with municipality and year fixed effects, i.e. the parameter δ_i in a regression of the type

$$Turnout_{it} = \alpha_i + \tau_t + \delta_i t + \epsilon_{it}.$$

Testing formally for a spatial pattern in the trends, Moran's I statistic yields $I = 0.456$ and the Moran test for no spatial dependency rejects with a p -value of 2.2×10^{-16} .

Figure B-2: Placebo estimates for expenditure shares

Notes: The figure shows the density of estimates from estimating outcomes on placebo rainfall measures, measured ± 600 days from election day.

Figure B-3: Welfare policies and schooling in Norwegian party manifestos
A. Sentences devoted to welfare and schooling

B. Ratio of sentences devoted to welfare and schooling

Notes: Panel A shows the percentage of the party manifesto of the Labor and the Conservative party devoted to welfare policies (including childcare) and schooling. Panel B shows the ratio of the share devoted to welfare policies divided by the share devoted to schooling by party and election. Data drawn from the Manifesto Project (Volkens et al., 2017).