Online Appendix
A matter of representation: spatial voting and inconsistent policy preferences

Lukas F Stoetzer*

University of Zurich

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*lukas.stoetzer@uzh.ch

A. Theory

A.1 Expected utility model

The standard way to deal with uncertainty in a spatial voting model is to set up the utility function and form the expectation over the whole utility term, in order to understand how uncertainty enters utility.[1] Generally, a voter's policy beliefs concern the expected utility derived from both candidates. Because the quadratic norm assumes that voters are risk averse, the belief variance negatively affects the evaluation of all candidates to an equal share. This results in the expectation that for voting decisions, in which only the difference in expected utility matter, the effect of belief variance is expected to cancel out. Thus, voting probabilities are systematically influenced by the difference in distance of each candidate's platform (C_1 and C_2) to a voter's mean policy belief (x_i):

$$Pr\left[V_{i1} > V_{i2}\right] = \Phi\left[-\beta\left[(C_1 - x_i)^2 - (C_2 - x_i)^2\right]\right] \tag{1}$$

In this expression, only a voter's mean belief about her ideal policy platform matters. This implies that two citizens who have the same mean belief but different belief variances are expected to have the same voting probabilities. In the expect utility formulation variance in policy beliefs as the theoretical representation of inconsistent policy preferences does not influence voting decisions. Although this homogeneous effect accords with often-applied probit model in spatial voting, the result is derived from a different preference model. Arguably, the expected utility approach comes with two questionable assumptions. It is neither entirely clear where the homogeneous importance of policy distance in this model comes from, nor does the model specify how the information about the candidate enters into the expected utility. The main text presents the learning model as an more accurate description.

In order to arrive at the result presented in the above equation 4, the expectation of the utility model can be simplified by expressing policy beliefs in terms of a mean belief x_i, and an additional random belief variance, centered around zero $\theta_i \sim N(0, \sigma^2_{\Theta_i})$. Following from this, we can substitute Θ_i by $x_i + \theta_i$, and form an expectation over the whole utility term:

[1] See e.g. Enelow and Hinich (1981). For a detailed derivation of the following results please see the online appendix section 4 of this article.

$$
\begin{aligned}
\mathbb{E}\left[U(C_j \mid \Theta_i)\right] &= \mathbb{E}\left[-\beta\left(C_k - \Theta_i\right)^2\right] \\
&= \mathbb{E}\left[-\beta\left(C_k - x_i - \theta_i\right)^2\right] \\
&= \mathbb{E}\left[-\beta\left(C_k^2 - 2C_k x_i - 2C_k\theta_i + x_i^2 + 2x_i\theta_i + \theta_i^2\right)\right] \\
&= \mathbb{E}\left[-\beta\left(C_k^2 - 2C_k x_i + x_i^2 + \theta_i^2\right)\right] \\
&= \mathbb{E}\left[-\beta\left(C_k - x_i\right)^2\right] + \mathbb{E}\left[-\beta\theta_i^2\right]
\end{aligned} \tag{2}
$$

The belief variance $\sigma^2_{\Theta_i}$ enters the expected utility, because $(C_k - \Theta_i)^2$ is a concave function, which implies that voters are risk-averse (expectation of the squared term is $\mathbb{E}\left[\theta_i^2\right] = \sigma^2_{\Theta_i}$). Thus, the expected utility for a candidate's platform can be written as:

$$
\mathbb{E}\left[U_{ik}\right] = -\beta\left(C_k - x_i\right)^2 - \beta\sigma^2_{\Theta_i} \tag{3}
$$

where the penalizing uncertainty term $-\beta\sigma^2_{\Theta_i}$ is constant over different candidates. As voting probabilities are formulated in terms of the difference in utility this term is equal for the evaluation of both candidates, and as a result cancels out when analyzing the probability to vote for one of the candidates. A few further assumptions about the unobserved factors in V_{ik} are necessary to get to a standard probit representation. As discussed, if researchers observe that a voter chooses candidate 1 over candidate 2, the expected utility plus unobserved other factors $V_{ij} = \mathbb{E}[U_{ij}] + \epsilon_{ik}$ has to be higher than for the second candidate $V_{i1} > V_{i2}$. Making the assumption that the additional unobserved factors follow a normal distribution with an arbitrary error variance of .5, thus: $\epsilon_{ik} \sim N(0, 0.5)$, allows us to derive a probit model with difference in policy distance as the systematic component.[2] This then results in:

$$
\begin{aligned}
Pr\left[V_{i1} > V_{i2}\right] &= Pr\left[-\beta\left(C_1 - x_i\right)^2 - \beta\sigma^2_{\Theta_i} + \epsilon_{i1} > -\beta\left(C_2 - x_i\right)^2 - \beta\sigma^2_{\Theta_i} + \epsilon_{i2}\right] \\
&= Pr\left[-\beta\left(C_1 - x_i\right)^2 + \beta\left(C_2 - x_i\right)^2 > \epsilon_{i2} - \epsilon_{i1}\right] \\
&= Pr\left[-\beta\left[\left(C_1 - x_i\right)^2 - \left(C_2 - x_i\right)^2\right] > \epsilon_{i2} - \epsilon_{i1}\right] \\
&= \Phi\left[-\beta\left[\left(C_1 - x_i\right)^2 - \left(C_2 - x_i\right)^2\right]\right]
\end{aligned} \tag{4}
$$

A.2 Learning Model

In order to cover the idea of the learning model formally, a model might suppose that a priori, a voter possesses certain information about the utility difference between candidate 1 and candidate 2 that is normally distributed around zero with some variance τ. In this modeling

[2] The choice of the error variance is arbitrary and made for the purpose of simplicity. Supposing a more general variance σ would affect the importance of policy distance in the probit model, by a deviation of two times σ: $\frac{\beta}{2\sigma}$. This would not change the general implications in any meaningful way.

approach, prior utility difference is depicted by a distribution $P\left(U_{i1} - U_{i2}\right)$.

$$P\left(U_{i1} - U_{i2}\right) \sim \mathcal{N}\left(0, \tau\right) \tag{5}$$

In the next step, candidates signal their policy platform C_1, C_2. The information contained in these signals about the utility difference between the candidates $U_{i1} - U_{i2}$, follows the difference in policy distance. If candidate 1 signals that her policy platform is the same as a voter's mean belief, and candidate 2 signals a more extreme platform, the information for the voter is that candidate 1 will yield considerable higher utility. However, although the candidates' signals are perfect, the information about utility is not, because voters themselves are uncertain about their ideal policy outcome.

The information contained in the candidate signals can more formally be denoted as the likelihood. This function, essentially, depicts how likely the signals are, given varying differences in utility between the candidates. The likelihood of the signals is obtained by incorporating voters' policy beliefs in a utility function that is affected by the difference in quadratic loss between two candidates' platforms. Again, simplifying the expression by dividing policy beliefs in mean belief x_i and random belief variance $\theta_i \sim N(0, \sigma^2_{\Theta_i})$ results in the following:

$$\begin{aligned} P(C_1, C_2 | U_{i1} - U_{i2}) &= -\beta \left[(x_i + \theta_i - C_1)^2 - (x_i + \theta_i - C_2)^2 \right] \\ &\sim N\left(-\beta \left[(C_1 - x_i)^2 - (C_2 - x_i)^2 \right], 4\beta^2 (C_2 - C_1)^2 \sigma^2_{\Theta_i} \right) \end{aligned} \tag{6}$$

The likelihood is normally distributed around the difference in quadratic loss of the candidates signaled positions (C_1 and C_2) to a voter's mean policy belief x_i.[3] Of special concern is the variance term: $4\beta^2 (C_2 - C_1)^2 \sigma^2_{\Theta_i}$. What can be seen from this expression is that the variance depends on a voter's belief variance. For voters with consistent policy preferences, the variance is smaller, which makes the signals more informative. For voters with a wider belief variance, the information in the signal is weaker.

Voters can use the information contained in the signals to update their prior utility difference, addressing the question of what the utility difference is given the platform signals $P\left(U_{i1} - U_{i2} | C_1, C_2\right)$. Supposing that voters form this expression employing Bayesian updating implies that the posterior beliefs are proportional to the prior and the likelihood

[3] Here are the intermediate steps to get to this expression.

$$\begin{aligned} P(C_1, C_2 | U_{i1} - U_{i2}) &= -\beta \left[(x_i + \theta_i - C_1)^2 - (x_i + \theta_i - C_2)^2 \right] \\ &= -\beta \left[(C_1^2 - 2C_1 x_i - 2C_1 \theta_i + x_i^2 + 2x_i \theta_i + \theta_i^2) - (C_2^2 - 2C_2 x_i - 2C_2 \theta_i + x_i^2 + 2x_i \theta_i + \theta_i^2) \right] \\ &= -\beta \left[(C_1^2 - C_1 x_i + x_i^2) - (C_2^2 - 2C_2 x_i + x_i^2) - 2C_1 \theta_i + 2x_i \theta_i + \theta_i^2 + 2C_2 \theta_i - 2x_i \theta_i - \theta_i^2 \right] \\ &= -\beta \left[(C_1 - x_i)^2 - (C_2 - x_i)^2 \right] - \beta \left[-2C_1 \theta_i + 2C_2 \theta_i \right] \\ &= -\beta \left[(C_1 - x_i)^2 - (C_2 - x_i)^2 \right] - 2\beta \left[C_2 - C_1 \right] \theta_i \end{aligned}$$

Because θ_i is a random variable the whole expression is a random variable as well. The expectation of this expression is equal to the first part $-\beta \left[(C_1 - x_i)^2 - (C_2 - x_i)^2 \right]$, because the expectation of θ_i is zero. The variance of the expression is constructed from the second part which is normal (because θ_i is normal) with standard deviation of $4\beta^2 (C_2 - C_1)^2 \sigma^2_{\Theta_i}$

$P\left(U_{i1} - U_{i2}|C_1, C_2\right) \propto P(U_{i1} - U_{i2})P(C_1, C_2|U_{i1} - U_{i2})$. As left-hand side terms are normal, the posteriori is then the mixture between two normal distributions. What matters for vote choice (because voters employ expected utility) is the expectation of this posterior. As a mixture, the expectation will lie between the expectation of the prior and the expectation of the likelihood. Because I suppose that the prior is centered around zero, the posterior expectation will lie between zero and expectation of the likelihood. Depending on degree of information in the signals, which is affected by the variance term, this will be closer to zero, or closer to the expectation from the likelihood. The complete posterior distribution can be derived to be normal, according to:

$$P\left(U_{i1} - U_{i2}|C_1, C_2\right) \sim \tag{7}$$
$$N\left(-\beta\frac{\tau}{\tau + 4\beta^2(C_2 - C_1)^2\sigma^2_{\Theta_i}}\left[(x_i - C_1)^2 - (x_i - C_2)^2\right], \frac{\tau 4\beta^2(C_2 - C_1)^2\sigma^2_{\Theta_i}}{\tau + 4\beta^2(C_2 - C_1)^2\sigma^2_{\Theta_i}}\right)$$

For which the expectation of the posterior can be formulated in the following way:

$$\mathbb{E}\left[P\left(U_{i1} - U_{i2}|C_1, C_2\right)\right] = -w_i\beta\left[(x_i - C_1)^2 - (x_i - C_2)^2\right] \tag{8}$$

Please note that the weights $w_i = \frac{\tau}{4\beta^2(C_1 - C_2)^2\sigma^2_{\Theta_i} + \tau}$ depend on a voter's variance in policy beliefs $\sigma^2_{\Theta_i}$. Voting probabilities are then formulated given the expected difference in utility plus unobserved factors, resulting in a similar probit representation as in equation 4.

B. Measurement of policy platforms

The factor loadings for respondents and candidates are extracted based on 8 policy issues included in the ANES of 2008 in wave 10. All of the policy questions first ask respondents if they are in favor of, or opposed to, a specific proposition, afterwards asking them about the strength of their attitudes. In total, this creates a seven-point scale. The exact wording of the propositions are:

- Favor or oppose constant amendment to ban gay marriages
- Favor or oppose raising taxes on incomes over 200k/yr
- Favor or oppose government should pay drugs for low income seniors
- Favor or oppose government payment for all health care
- Favor or oppose suspend habeas for terror suspects
- Favor or oppose court order to wiretap terror suspect
- Favor or oppose 3 year work for illegal immigrants

- Favor or oppose that illegal immigrants become citizens

B.1 Respondents' mean policy beliefs

The eight issues give a reasonable mix between cultural (like amendment to ban gay marriages) and economic issues (such as raising taxes on incomes over 200k/yr), Table 1 shows the descriptive statistics for the different policy questions. Most answering patterns are distributed around the mid-point.

Table 1: Descriptive statistics for policy issues

Statistic	N	Mean	St. Dev.	Min	Max
gay marriage	1,348	0.321	2.343	−3	3
taxes high income	1,350	0.875	2.130	−3	3
drugs low income seniors	1,348	1.487	1.830	−3	3
health care	1,348	−0.033	2.349	−3	3
terrorism suspend	1,347	1.030	2.090	−3	3
terrorism wiretap	1,347	0.781	2.247	−3	3
illegal immigrants work	1,347	−0.843	2.146	−3	3
illegal immigrants citizenship	1,349	−0.011	2.232	−3	3

The explanatory factor is calculated model using psych library in **R** maximum likelihood procure to estimate the factor loadings. All answers are recoded such that positive values indicate liberal attitudes. The factor loadings are reported in Table 2. The loadings are strongest for high-income taxation and health care, clear-cut liberal issues have a lower loading (e.g. illegal immigration and gay marriage). The one-factor solution still seems to be sufficient, with a small root mean square error (0.09) and a reasonable eigen value of 1.83, that explains 23 % of the variance.

	Factor Loadings
gay marriage	0.33
taxes high income	0.61
drugs low income seniors	0.61
health care	0.68
terrorism suspend	0.35
terrorism wiretap	0.46
illegal immigrants work	0.25
illegal immigrants citizenship	0.35

Table 2: Results of a explanatory factor analysis

Based on the factor loadings, respondents' factor scores are extracted using regression based methods. Higher values generally indicate more liberal attitudes. As figure 1 shows the resulting distribution has longer tails to the left. The factor scores are employed to measure each respondent's mean policy belief. As such, they highly correlate with respondents self-placement on the liberal-conservative scale (-0.62) and a respondent's party identification (0.6).

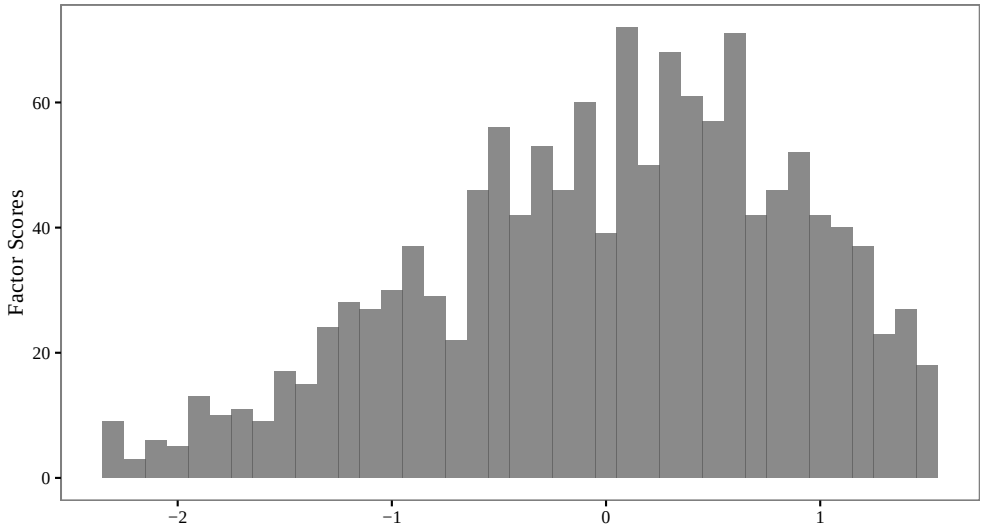

Figure 1: Distribution of factor-scores

B.2 Obama's and McCain's platforms

Table 3: Descriptive statistics for candidate positions

Statistic	N	Mean	St. Dev.	Min	Max
Obama gay marriage	1,321	0.741	1.876	−3	3
Obama taxes high income	1,334	2.061	1.553	−3	3
Obama drugs low income seniors	1,335	1.780	1.514	−3	3
Obama health care	1,333	1.221	1.850	−3	3
Obama terrorism suspend	1,312	1.540	1.617	−3	3
Obama terrorism wiretap	1,330	1.190	1.834	−3	3
Obama illegal immigrants work	1,328	0.723	1.722	−3	3
Obama illegal immigrants citizenship	1,328	1.275	1.569	−3	3
McCain gay marriage	1,315	−0.239	2.381	−3	3
McCain taxes high income	1,312	−1.643	1.871	−3	3
McCain drugs low income seniors	1,316	−0.707	1.937	−3	3
McCain health care	1,316	−1.578	1.648	−3	3
McCain terrorism suspend	1,308	−0.443	2.083	−3	3
McCain terrorism wiretap	1,307	−0.257	2.067	−3	3
McCain illegal immigrants work	1,313	−0.091	1.957	−3	3
McCain illegal immigrants citizenship	1,315	0.124	1.894	−3	3

In the ANES, respondents were further asked to place both Obama and McCain on the same eight policy issues. The results can be used to obtain platform estimates for the two candidates on the same dimension as the respondents. Table 3 reports the statistics for the two candidates regarding the different policy issues. On most issues Obama was perceived to have a more liberal position. The most drastic difference between the two candidates is observed on the high-income question. While Obama's mean position is located at 2, average placement for

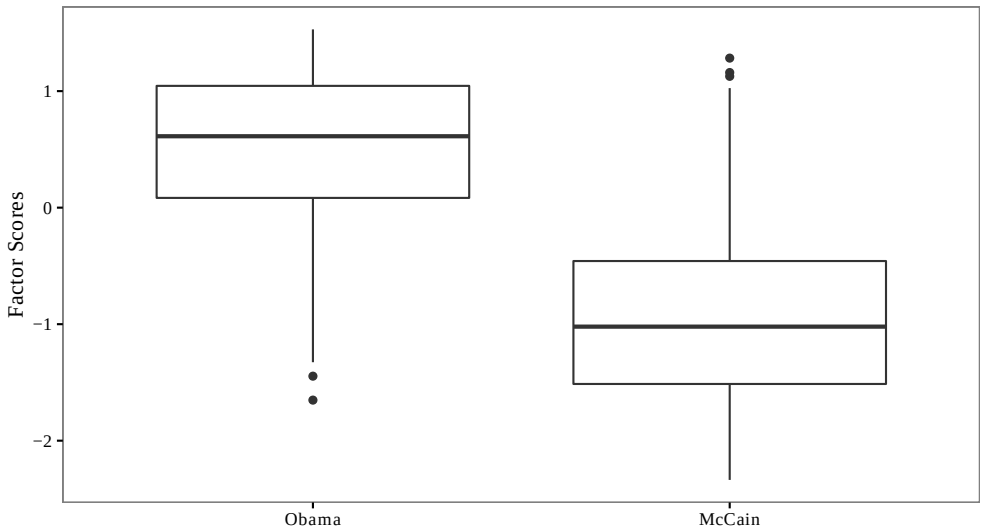

Figure 2: Distribution of perceived platforms of Obama and McCain

McCain is at -1.6. For some issues the perceived positions are closer together (e.g. 3 year work for illegal immigrants).

The factor loadings permit us to project the perceived positions on the same dimension as the respondent's scores. This results in a perceived platform for Obama and McCain. The resulting distribution shows a clear divid between the candidates' platforms (see Figure 2). Obama's mean platform is located at 0.54 while McCain's platform is at -0.92.

C. Measurement of inconsistency

C.1 Estimation of inconsistency

In this section, I describe the measurement of inconsistency and policy belief variance in more detail. Increased belief variance should result in more randomness when relating answering patterns to policy platforms. This varying randomness can be approximated by the amount of predictive error when relating respondents' preferences for multiple policy issues to their ideological platforms. Following this line of thought, respondents' attitudes towards specific proposals p_{ij} can be expressed as a linear function of their beliefs Θ_i over policy platforms.

$$p_{ij} = a_j + b_j\Theta_i + \epsilon_{ij} \tag{9}$$

where b_j and a_j are issue specific parameters, and ϵ_{ij} is random measurement error, distributed normally with item specific variance of σ_j^2. [4] The policy beliefs are normally distributed according to the theoretical specification (see equation 1 in the main text). Given that respondents answer attitude questions according to standard survey response models (Zaller, 1992; Schuman and Presser, 1996), in which respondents sample from their beliefs when answering survey questions, the specification naturally results in an additional source of randomness in answering policy issues used above are estimated. In order to integrate this source of randomness into the model, we can rewrite the beliefs Θ_i as $x_i + \theta_i$ (, where $\theta_i \sim N(0, \sigma_{\Theta_i})$). This expression can be substituted in the above $p_{ij} = a_j + b_j x_i + b_j\theta_i + \epsilon_{ij}$, which shows that answering patterns are expressed as a function of a respondent's mean policy belief and two sources of randomness: measurement error (ϵ_{ij}) and belief variance (θ_i). From this it follows that policy views can be expressed in terms of independent normal distributions with different variance terms:

$$p_{ij} \sim N\left(a_j + b_j x_i, b_j^2\sigma_{\Theta_i}^2 + \sigma_j^2\right) \tag{10}$$

The aim of this enterprise is to obtain estimates of $\sigma_{\Theta_i}^2$ - or at least an estimate that orders respondents according to their inconsistency. As the latter is simpler, I substitute $b_j^2\sigma_{\Theta_i}^2 + \sigma_j^2$ with σ_i^*. Whenever $\sigma_i^* > \sigma_k^*$ it holds that $\sigma_{\Theta_i}^2 > \sigma_{\Theta_k}^2$. Thus, I can estimate σ_i^* instead, to get a representation of $\sigma_{\Theta_i}^2$. Suppose a_j, b_j and x_i are given, a simple estimate of σ_i^* is constructed based on maximum likelihood framework. The log-likelihood function of a respondent's answering patterns over J policy-questions is $lnL\left(\sigma_i^*|p_{ij}, x_i, a_j, b_j\right) = -\sum_{j=1}^{J}\frac{1}{2} - \sum_{j=1}^{J} log(\sigma_i^*) - \sum_{j=1}^{J}\frac{(p_{ij}-a_j-b_j x_i)^2}{2\sigma_i^*}$. The maximum of likelihood function can be obtained by setting the first derivative to zero. Which yields (similar to the error-variance in linear model) the average sum of squared errors as the maximum likelihood estimate for σ_i^*:

[4] This specification closely follows item response models that are often applied to estimate policy platform positions from a set of policy attitudes (see e.g. Jessee, 2009). The focus here is not on estimating the latent policy platform of a respondents, but uses the set-up to motivate the measurement of inconsistency.

$$\hat{\sigma_i^*}_{MLE} = \frac{1}{J}\sum_{j=1}^{J}(p_{ij} - a_j - b_j x_i)^2 \tag{11}$$

This term can be calculated based on estimates of b_j, a_j and a measurement of x_i. As stressed in the main text, for respondents' mean policy belief x_i the self-placements on a liberal-conservative scale are employed.[5] The item parameters are obtained by running simultaneous linear regressions of self-placements on policy attitudes. Based on each respondents residuals from these regressions, I calculate the mean sum of squared errors as the main measurement of inconsistency.

C.2 Results measurement of inconsistency

	(Intercept)	S.E.	Mean Self-Placement	S.E.
gay marriage	2.60	0.15	-0.53	0.03
taxes high income	3.28	0.14	-0.56	0.03
drugs low income seniors	2.91	0.12	-0.33	0.03
health care	2.62	0.15	-0.62	0.03
terrorism suspend	2.79	0.14	-0.41	0.03
terrorism wiretap	2.70	0.15	-0.45	0.03
illegal immigrants work	0.27	0.15	-0.26	0.03
illegal immigrants citizenship	1.61	0.15	-0.38	0.03

Table 4: Results of auxiliary regressions to construct the measurement of inconsistency

The measurement of inconsistency relies on auxiliary regressions that capture the randomness when relating respondents liberal-conservative self-placement to their policy attitudes. The results of the auxiliary regressions are reported in table 4. Again, all issues are coded in a way that higher values indicate more liberal positions, which is confirmed by the coefficients of the regression. Only for the issue whether the government should pay for drugs for low income seniors' do we find no statistically significant effect. Based on the residuals from the regressions, the estimate of σ_i^* as the average sum of squared errors is calculated. Figure 3 shows the resulting distribution of inconsistency.

[5] I actually use the average over the maximum number of a respondent's self-placements up to panel wave 10, instead of the self placement in wave 10, to decrease measurement error in self-placements.

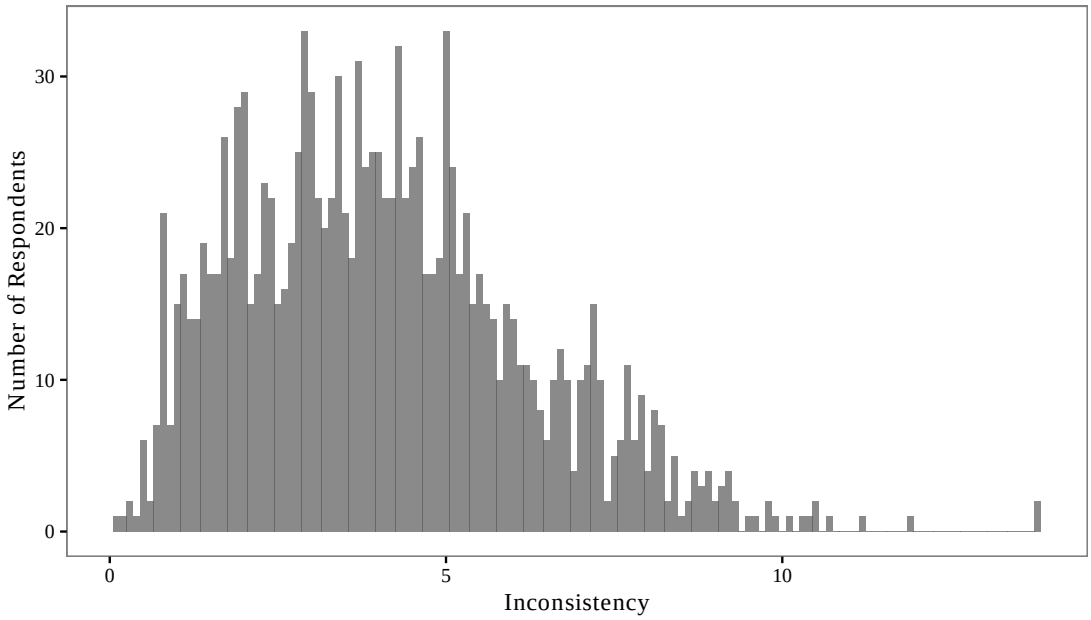

Figure 3: Distribution of inconsistency in the sample. Inconsistency is measured using the average squared residuals from regressing attitudes about 8 policy issues on liberal-conservative self-placements.

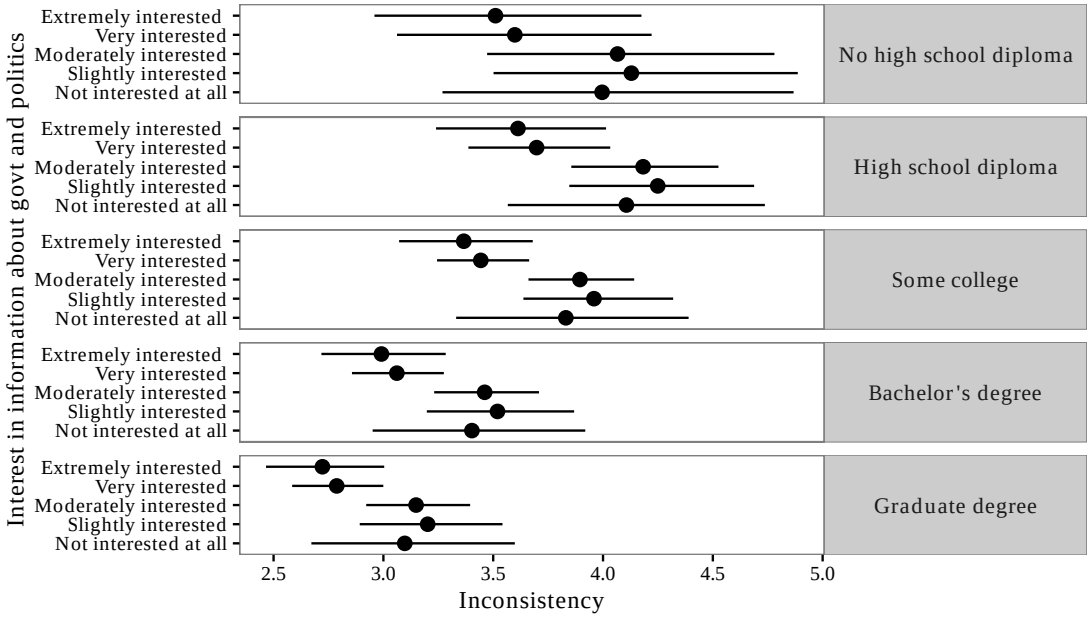

Figure 4: Expected inconsistency levels over education and interest in politics. The values are simulated from a model that further controls for the level of intensity in policy views.

C.3 External validity of inconsistency measurement

This section highlights that the measurement of inconsistency is related to education and political interest. The conceptualization of inconsistency is based on the behavioral models of mass belief systems. In those theories, the varying degree of ideological constraint is influenced by the exposure to public debate and thereby strongly related to measurements of political sophistication. One way to validate the measurement is than to see in how-far political sophisticated voters also posses higher levels of inconsistencies. The American National Election Study contains two questions that are frequently used as a measurement of political sophistication: Education level and how interested a respondent is in politics.

Figure 4 shows the expected level of inconsistency for the different categories. The expected levels are simulated from a linear model that includes categorical dummies of education and interest and further controls for the average attitude intensity. The expect level is smallest among respondents with a graduate degree and who report to be extremely interested in politics. It is largest among respondents who are not interested at all in politics and who hold no high school degree.

D. Supplementary material main analysis

D.1 Control Variables

Controls and other covariates are described in table 5.

Table 5: Descriptives for control variables

Statistic	N	Mean	St. Dev.	Min	Max
Vote Obama	2,212	0.535	0.499	0	1
Liberal-Conservative Self-Placement	2,212	4.312	1.829	1.000	7.000
Liberal-Conservative Obama	2,212	2.239	1.608	1	7
Liberal-Conservative McCain	2,212	5.693	1.588	1	7
Income	2,212	12.718	3.830	1	19
Age	2,212	52.394	14.440	18	90
Gender (Male)	2,212	0.577	0.494	0	1
Race (African-American)	2,212	0.094	0.293	0	1
Education	2,212	3.492	1.050	1	5
Home Owner	2,212	1.198	0.490	1	3
Party Identification	2,212	0.175	2.275	-3	3

D.2 Complete parameter estimates for policy-weighted probit model

Table 6 shows the complete parameter estimates obtained from the policy-weighted model, using perceived candidate positions and mean candidate platforms. Model 1 & Model 2 report the estimates for perceived positions and Model 3 & Model 4 for the mean platform positions. Some additional results: Party-identification as well as race have a strong effect on the expected utility. More liberal party-identification positively affects the voting probability to vote for Obama. African-Americans show a higher chance to vote for Obama. Income, also, has a substantial effect on the voting decisions. With increasing income, a respondent becomes more likely to vote for Obama. Inconsistency has no direct effect on voting decisions.

	Model 1	Model 2	Model 3	Model 4
Intercept	-1.60^{**}	-1.56^{**}	-1.20^{**}	-1.22^{**}
	(0.50)	(0.50)	(0.44)	(0.45)
Policy distance	0.38^{***}	0.60^{***}	0.29^{***}	0.50^{***}
	(0.04)	(0.09)	(0.03)	(0.07)
Inconsistency	-0.03	-0.02	-0.05	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)
PID	0.40^{***}	0.40^{***}	0.45^{***}	0.44^{***}
	(0.03)	(0.03)	(0.03)	(0.03)
Age	0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
African-American	1.00^{***}	0.99^{***}	1.04^{***}	1.01^{***}
	(0.27)	(0.27)	(0.26)	(0.25)
Education	0.15^{*}	0.13^{*}	0.14^{*}	0.12^{*}
	(0.07)	(0.07)	(0.06)	(0.06)
Home Owner	0.28^{*}	0.27	0.19	0.19
	(0.14)	(0.14)	(0.13)	(0.13)
Income	0.06^{**}	0.05^{**}	0.04^{*}	0.04^{*}
	(0.02)	(0.02)	(0.02)	(0.02)
Policy distance X Inconsistency		-0.04^{**}		-0.04^{***}
		(0.01)		(0.01)
AIC	529.06	522.23	656.48	647.29
BIC	573.91	572.06	701.57	697.39
Log Likelihood	-255.53	-251.12	-319.24	-313.64
Deviance	511.06	502.23	638.48	627.29
Num. obs.	1078	1078	1108	1108

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 6: Parameter estimates for policy-weighted probit model with positions from factor model as a measurement of policy distance

Figure 5 and figure 6 show the marginal interaction effect at different predicted probabilities to vote for Obama. The marginal interaction effect is strongest amongst respondents with medium probability to vote for Obama.

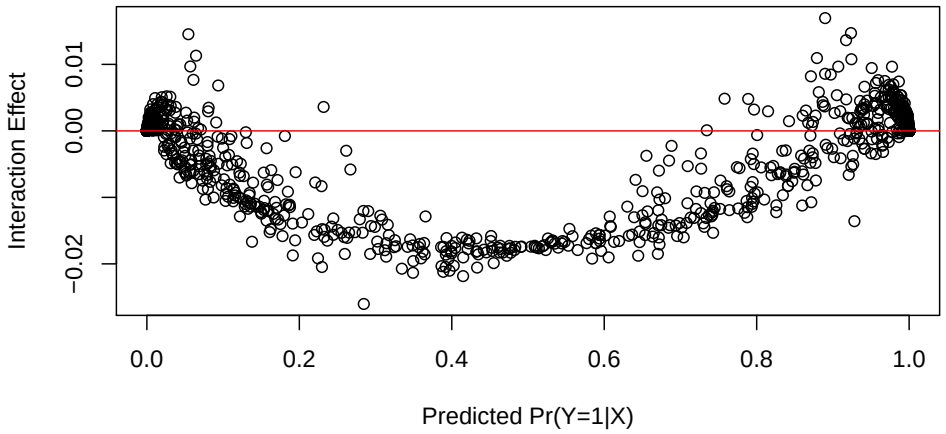

Figure 5: Marginal interaction effect model 2

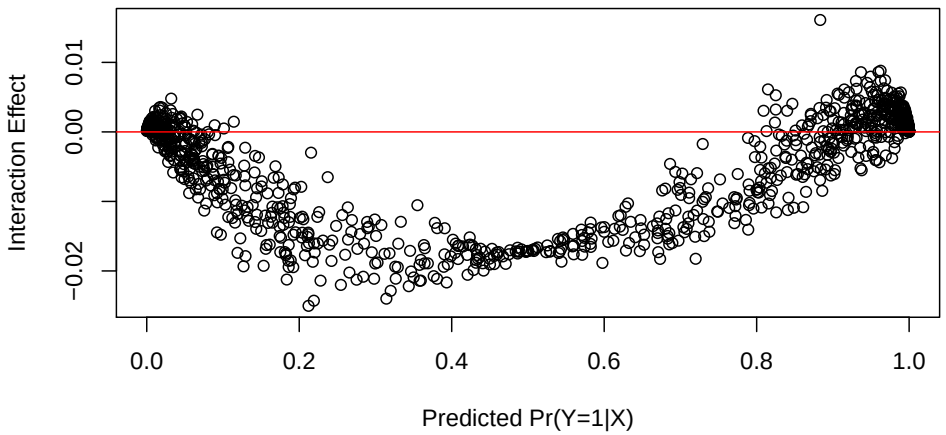

Figure 6: Marginal interaction effect for model 4

E. Robustness checks

This section describes the results of several robustness checks. The results are robust when employing different measurements of measurement of policy platforms, using an alternative measurement of inconsistency and further concerns regarding the inconsistency measurement. The following gives a brief summary of the robustness checks, with more detailed descriptions, tables and results in the following sections.

- To check if these results are robust to the measurement strategy employed in the proceeding analysis, I estimate the models using different measurement of policy platforms. As a second measurement of policy platforms, the analysis relies on self-placements on a seven-point liberal-conservative scale. The model is again estimated f the quadratic distance of a respondent's self-placement to the perceived candidates' platforms on the same scale, as well as the distance to the average placement of the two candidates. The results are confirmed for the distance using average candidates' platforms: Inconsistency moderates the effect of policy distance. In the model specification with perceived platforms, the interaction effect is negative but not statistically significant. This does not directly conclude that policy distance in this case is not moderated by varying degrees of consistency, as the marginal interaction effect can still be significant for a certain share of respondents. But it clearly hints in the direction that employing mean platforms reveals a different pattern than the one found when using perceived positions. One apparent reason for this is perception biases which can be expected to be especially strong when employing single item measurements. Respondents who are classified as holding inconsistent policy preferences, still place the candidate they intend to vote for closer to their self-placement. The results are reported and discussed more closely in section E.1

- Moreover, as an alternative measurement of inconsistency, the standard deviation of self-placements in different panel waves is used. An additional implication of the policy belief model (in combination with randomness of survey responses) is that respondents with wider policy beliefs have a higher variation in self-placements on a liberal conservative scale over different panel waves. This measurement closer accords to the original strategy employed by Converse to detect weak belief constraints.[6] Employing this measurement and estimating the model for the different outlined measurements of platforms, I find that all estimated interaction effects are negative, indicating decreasing marginal effects. However, only when employing measurements on the liberal-conservative scale, are the interaction effects statistically significant. The size of the interaction effect is about equal to the main results, in this the insignificance might be only due to the decreased number of observations when relying on factor sores (around 430 instead of 1010). Section E.2 reports the estimation results in more detail.

[6] Converse (1964)

- Additional concerns with the analysis might be related to the measurement of inconsistency. First, the developed measurement of inconsistency as the sum of squared errors is an estimate itself which could result in considerable biases in estimating the model. To take the estimation uncertainty of inconsistency into account, both the estimation of inconsistency and the estimation of the policy-weighted model are conducted on 1000 bootstrapped samples. The resulting distribution of parameters is similar to the one obtained from the standard model which shows that the results are robust to the uncertainty that originates from the measurement. For a closer description of the method as well as the results please see the section E.3. Second, there a two types of respondents for which the moderation might work very different. One part, maybe labeled as political unsophisticated, might be generally uncertain about their political attitudes and ideology, and as a result show deviating patterns from the average. Another part, on the other hand, might possess a crystallized mix of liberal and conservative positions, perhaps due to unique combinations of social pressures on separate issues, but still be very certain about those issues. Section E.4 reports that the moderating effect is particularly strong among the respondents with rather weak policy views. For voters with a strong attitudes, the moderation is similar to the on the full sample, showing that the mechanism works for both groups. In addition, the inconsistency measurment might be influenced by specific issues that do not map on the liberal conservative self-placment. Section E.5 describes that leaving out single issues from the measurment of policy distance and inconsistency results in the similiar conclusions. Finally, some readers might suspect that the conceptualization of inconsistency simply equates to voters with moderate platforms. Section E.6 argues that while those are empirically linked, moderate platforms do not offer an alternative explanation for the moderating effect of inconsistencies on spatial voting.

Additional to the set of robustenss check the results are further found in the 2012 presidential elections, as section F outlines.

E.1 Results using liberal-conservative scale

This section reports estimates for the policy-weighted model relying on a liberal-conservative scale.Respondents' self-placements and candidate positions are used to create a measurement of policy distance to the mean candidate platform and the perceived platform. The results are reported in table 11. Models 5 and 6 report the estimates for the perceived distance measurement. Models 7 and 8 use the distance to the mean platform. In all specifications, negative quadratic distance has a positive effect on the probability to vote for Obama.

The effect of policy distance is moderated when employing distance to the mean platform, shown by the negative interaction effect in Model 8 and the increasing Likelihood in comparison to Model 7. Increasing inconsistency decreases the effect policy distance has on expected utility. In the case of perceived positions, the interaction effect is not significantly different from zero.

	Model 5	Model 6	Model 7	Model 8
Intercept	-0.55	-0.51	-0.26	-0.16
	(0.45)	(0.45)	(0.44)	(0.44)
Policy-Distance	0.05^{***}	0.06^{***}	0.06^{***}	0.08^{***}
	(0.00)	(0.01)	(0.01)	(0.01)
Inconsistency	0.03	0.03	0.01	0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Policy-Distance X Inconsistency		-0.00		-0.01^{*}
		(0.00)		(0.00)
PID	-0.07^{*}	-0.07^{*}	-0.04	-0.06^{*}
	(0.03)	(0.03)	(0.03)	(0.03)
Age	0.40^{***}	0.40^{***}	0.42^{***}	0.41^{***}
	(0.03)	(0.03)	(0.03)	(0.03)
African-American	-0.00	-0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Education	1.01^{***}	1.03^{***}	1.13^{***}	1.15^{***}
	(0.25)	(0.25)	(0.25)	(0.25)
Home Owner	0.09	0.09	0.07	0.07
	(0.06)	(0.06)	(0.06)	(0.06)
Income	0.22	0.22	0.16	0.16
	(0.13)	(0.13)	(0.13)	(0.13)
AIC	614.60	615.57	641.91	637.88
BIC	659.51	665.47	686.82	687.78
Log Likelihood	-298.30	-297.79	-311.96	-308.94
Deviance	596.60	595.57	623.91	617.88
Num. obs.	1086	1086	1086	1086

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 7: Parameter estimates for policy-weighted probit model with liberal scale as a measurement of policy distance

E.2 Results using variation over self-placements

This section reports the results when employing a different measurement of inconsistency, the standard deviation of self-placements in different panel waves. Results are found in table 11. All interaction effects are negative - indicating that with increasing variation of self-placements the marginal effect of policy-distance decreases. However, only for Model 9 and Model 10, which uses a liberal-conservative scale to calculate policy distance, are the interaction effects significant. The estimates for the control variables are not reported in the table.

	Model 9	Model 10	Model 11	Model 12
Intercept	0.09	0.23	-1.70^{*}	-1.24
	(0.48)	(0.48)	(0.75)	(0.64)
P.-D. perceived (lib-con)	0.07^{***}			
	(0.01)			
Inconsistency	-0.22	-0.22	-0.28	-0.15
	(0.13)	(0.13)	(0.20)	(0.18)
P.D. perceived (lib-con) X Inconsistency	-0.02^{**}			
	(0.01)			
P.D. mean (lib-con)		0.09^{***}		
		(0.01)		
P.D. mean (lib-con) X Inconsistency		-0.03^{*}		
		(0.01)		
P.D. perceived (Factor)			0.45^{***}	
			(0.10)	
P.D. perceived (Factor) X Inconsistency			-0.05	
			(0.11)	
P.D. mean (Factor)				0.34^{***}
				(0.07)
P.D. mean (Factor) X Inconsistency				-0.07
				(0.09)
AIC	503.15	533.82	256.25	329.46
BIC	551.68	582.40	297.84	371.34
Log Likelihood	-241.58	-256.91	-118.12	-154.73
Deviance	483.15	513.82	236.25	309.46
Num. obs.	947	951	473	487

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 8: Parameter estimates for policy-weighted probit model with variation over self-placements as a measurement of inconsistency

E.3 Bootstrap

The measurement of the belief variance and inconsistency are estimated, based on a battery of eight policy issues. The described procedure creates two sources of estimation uncertainty regarding the measurement: The parameter estimates for the linear regressions, as well as the average squared residuals obtained from the regression residuals. A bootstrap procedure tests if this affects the main results .

On 1000 bootstrapped samples the linear regressions are estimated together with the policy-weighted model, further bootstrapping the residuals for each individual in each sample. The distribution for all parameters of the resulting 1000 estimates approximates the sampling distribution when considering the estimation uncertainty contained in the measurement of inconsistency.

	Model 13	sd	Model 14	sd
Intercept	-1.53	0.48	-1.65	0.48
Policy distance	0.45	0.06	0.54	0.08
Inconsistency	-0.02	0.02	-0.02	0.02
PID	0.46	0.03	0.41	0.04
Age	-0.00	0.00	-0.00	0.00
African-American	1.07	0.35	1.04	0.32
Education	0.14	0.06	0.15	0.07
Home Owner	0.26	0.12	0.29	0.13
Income	0.05	0.02	0.06	0.02
Policy distance X Inconsistency	-0.03	0.01	-0.03	0.01

Table 9: Bootstrapped parameter estimates for policy-weighted probit model

Table E.3 reports the mean of the bootstrapped distribution, as well as standard deviation for all parameter estimates. Model 13 employs the mean distance (thus it replicates Model 4) and Model 14 the perceived distance (which replicates Model 2). The effect of policy distance as well as the interaction effect with inconsistency, is slightly smaller compared to original model specifications. Nonetheless, the main results do not change. The interaction effect in both models is still statistically distinguishable from zero, with a mean three times as high as the standard deviation. The effect of policy distance is, thus, moderated by inconsistency even when considering the uncertainty that arises from the measurement.

E.4 Heterogeneity between different types of inconsistency

There are two types of respondents that the measurement picks up as having inconsistent policy preferences: Respondents who posses weak attitudes towards the policy proposals and respondents who have a crystallized mix of strong liberal and strong conservative attitudes. One might argue that for two groups, the mechanism works quite differently. In order to test this set of supposition, the following analysis splits the sample in two, and re-estimates the models from the main text. The average absolute values are used to approximate the strength of attitudes towards policy proposal. One part of the respondents are characterized as having weak-attitudes, if the average absolute value of their attitude is below 2. The other part is supposed to have strong attitudes if the average is above 2.

	Model 15	Model 16	Model 17	Model 18
Intercept	-1.01	-2.62^{***}	-0.70	-2.46^{***}
	(0.71)	(0.79)	(0.67)	(0.71)
Policy distance	0.85^{***}	0.72^{***}		
	(0.19)	(0.15)		
Inconsistency	-0.06	0.04	-0.05	0.05
	(0.06)	(0.05)	(0.06)	(0.05)
PID	0.43^{***}	0.37^{***}	0.45^{***}	0.42^{***}
	(0.05)	(0.05)	(0.05)	(0.04)
Age	-0.00	0.00	-0.01	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Education	0.86^{*}	1.07^{**}	0.72	1.26^{***}
	(0.41)	(0.35)	(0.40)	(0.34)
Catholic	0.14	0.12	0.10	0.15
	(0.10)	(0.10)	(0.09)	(0.09)
African-American	0.30	0.34	0.25	0.21
	(0.22)	(0.20)	(0.21)	(0.17)
Income	0.03	0.09^{**}	0.03	0.06^{*}
	(0.03)	(0.03)	(0.03)	(0.03)
Policy distance X Inconsistency	-0.13^{**}	-0.05^{*}		
	(0.05)	(0.02)		
Policy distance (Mean)			0.65^{***}	0.66^{***}
			(0.15)	(0.12)
Policy distance (Mean) X Inconsistency			-0.11^{**}	-0.06^{**}
			(0.04)	(0.02)
AIC	263.36	268.50	312.06	342.71
BIC	303.72	313.42	352.65	387.93
Log Likelihood	-121.68	-124.25	-146.03	-161.35
Deviance	243.36	248.50	292.06	322.71
Num. obs.	418	660	428	680

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 10: Parameter estimates for policy-weighted probit model, for respondents with on average weak attitudes and strong attitudes

For both groups of respondents the results show a negative moderating effect of inconsis-

tency. The moderation appears stronger among the respondents with rather weak attitudes, but is still persistent among respondents with strong attitudes. The results are documented in Table 10. Model 15 and Model 17 report the estimates for the weak-attitude part of the sample. For both perceived policy-distance as well as the average policy distance the estimated interaction effect is stronger negative, compared to the main text result. For Model 16 and Model 18 the interaction effect are closer to the main result. The fact that interaction appears stronger for respondents with weak opinions, further addresses concerns that the results are only due to a misspecification of ideology as one-dimensional. For respondents who hold almost no strong opinions on the issues, the reduction to one-dimension is unlikely to invalidate the spatial representation.

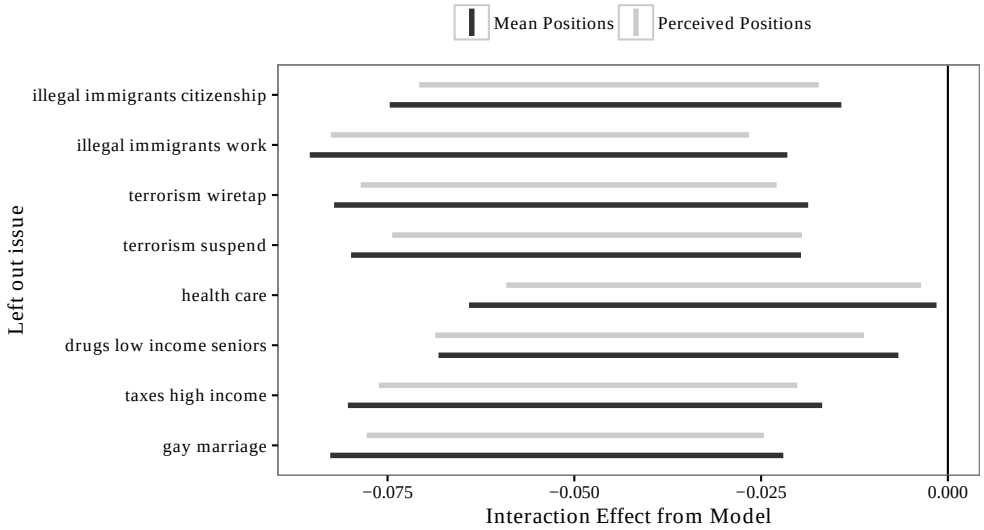

Figure 7: Estimated Interaction effects when leaving out one issues from the analysis. Intervals show 95% confidence intervals of the the interaction effect in the mean and perceived position model

E.5 Leaving out issues from the analysis

I further check if the main results hold when leaving out specific issues from the analysis. This is especially important as it might be that some of the issues (e.g. tax reductions) are not perfectly linked to the same liberal conservative dimension. I recalculate voters' positions, candidates' positions and the distance measurements when leaving out one issue at the time and estimate the mean and perceived distance model from the main text. Figure 7 depicts the 95% confidence intervals for the 8 different specification. None of the confidence intervals include zero, hinting at signifcant moderations for all models. This implies that the results are robust when leaving out specific issues from the analysis.

E.6 Are moderate platforms an alternative explanation?

Adams et al. argue that moderate voters weigh candidates' ideological platforms less than non-moderate voters.[7] Although their expectation does not directly result from spatial decision theory, their empirical results are very insightful. As such, it potentially offers an alternative explanation to the one derived here. Instead of inconsistency, it is simply moderate voters who differ. The following shows that while the concepts of moderate platforms, and inconsistency are empirically related, in my data-set moderate ideal-positions do not down-weight the effect of policy-distance, as one would expect under Adams et al.'s argumentation. I discuss one potential reason for the discrepancy and argue that the theoretical discussion in this paper reveals inconsistency as a potential confounder in their analysis.

Empirically, the measurement of inconsistency is linked to moderate positions. There is no relationship when looking at the averages, comparing 25% percent of the respondents with positions in the middle (4.06) to the rest (4.14). But when controlling for the fact the voters in the middle presumably hold less strong attitudes (using the average intensity of the issue attitudes), moderate voters seem to exhibit more inconsistency in their preferences. As the figure 8 shows the expected inconsistency is larger for voters who hold moderate platforms. However, this does not change the main findings. When controlling for moderate platforms in the main analysis (Model 19 and Model 21), inconsistency still moderates spatial voting. More striking, moderate positions do not influence the effect of policy distance in the right direction (Model 20 and 21). The interaction effect of policy-distance with moderate positions is not signifcant when using mean distance, and further has the wrong sign. When using perceived positions the interaction effect is even signifcant in the wrong direction. Thus, one would conclude that for moderate voters, policy distance is actually more important.

There are theoretical reasons why Adam et al. results might simply pick-up inconsistencies as mediating spatial voting. One part of their analysis is based on roll-call vote data of the cooperative congressional election study. With binary preferences (being in favor or opposed of a proposition), inconsistencies are not distinguishable from moderate platforms. Either voters hold a mix of liberal and conservative considerations because they are very uncertain, or they hold very strong but mixed opinions on the issues. In their analysis both type of voters are treated the same. In the analysis here (with ordered outcomes) it is possible to distinguish the two type of voters to a certain degree (see section E.4). Further light could be shaded on this differentiation when using repeated measurements of respondents' opinions. Moderate voters with strong preferences should hold more stable opinions on the issues, compared to their inconsistent counterparts.

[7] Adams et al. (2016)

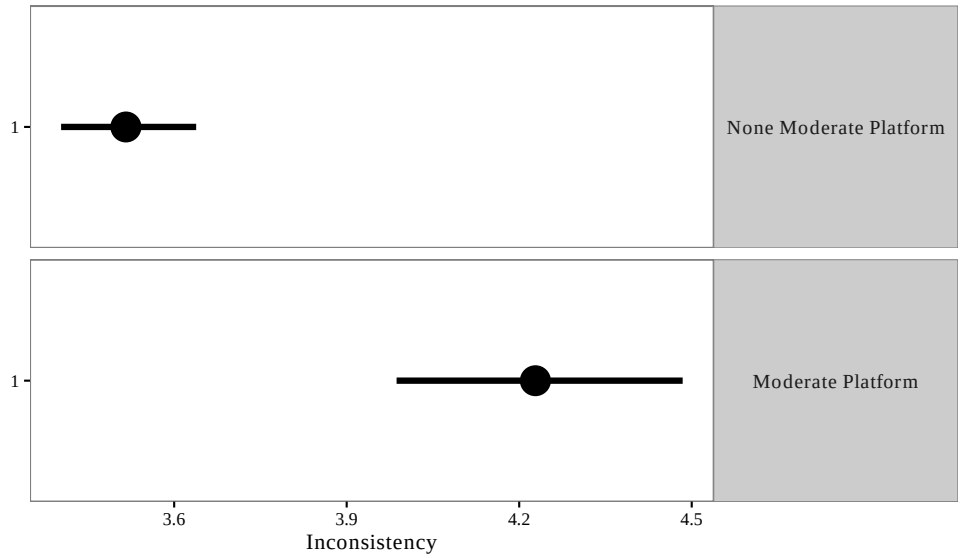

Figure 8: Relationship between moderate platforms and inconsistency measurement. The figure shows predicted levels of inconsistency for respondents that hold moderate platforms (25% in the middle) and those who hold extremer platforms. The predicted levels are simulated from a model that controls for the intensity of issue attitudes, as the absolute average issue placement. This is set to its median value.

	Model 19	Model 20	Model 21	Model 22
Intercept	-1.19^{**}	-1.41^{**}	-1.53^{**}	-1.63^{***}
	(0.45)	(0.44)	(0.50)	(0.49)
P.-D. mean (Factor)	0.50^{***}	0.29^{***}		
	(0.07)	(0.03)		
Inconsistency	-0.03		-0.02	
	(0.03)		(0.03)	
Moderate position	-0.11	-0.35	-0.17	-0.30^{*}
	(0.12)	(0.21)	(0.13)	(0.15)
P.D. mean (Factor) X Inconsistency	-0.04^{***}			
	(0.01)			
P.D. mean (Factor) X Moderate position		0.28		
		(0.19)		
P.D. perceived (Factor)			0.61^{***}	0.34^{***}
			(0.09)	(0.04)
P.D. perceived (Factor) X Inconsistency			-0.04^{**}	
			(0.01)	
P.D. perceived (Factor) X Moderate position				0.29^{**}
				(0.11)
AIC	648.50	660.64	522.62	524.44
BIC	703.61	710.75	577.43	574.28
Log Likelihood	-313.25	-320.32	-250.31	-252.22
Deviance	626.50	640.64	500.62	504.44
Num. obs.	1108	1109	1078	1079

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 11: Parameter estimates for policy-weighted probit model with variation over self-placements as a measurement of inconsistency

F. Presidential Elections 2012

Do the main results hold when tested on a different set of issues? The pre-election survey of the ANES 2012 time series study includes a set of classic issue scales,[8] regarding the services and spending trade-off (*spsrvpr*), defense spending level (*defsppr*), government or private health insurance (*inspre*), guaranteed jobs and living standard (*guarpr*), aid to blacks (*aidblack*), abortion (*abortpre*) and environment-jobs trade-off (*envjob*). The issues are seven point scales, except for abortion which has four points. On these issues, respondents place themselves and both candidates - Obama and Romney. Table 12 shows the summary statistics for the candidate and self-placements. The results for the one dimensional factor model are reported in table 12 . The auxiliary regressions to estimate the level of inconsistency as the sum of average squared errors are reported in table 14. The resulting distribution of inconsistency in the sample is depicted in figure 12. The voting decisions are taken from the post election survey wave to estimate the policy-weighted model. "For whom did R vote for President in 2012?" (presvote2012 x). Standard controls (party identification, age, education, Catholic, African-American and income) are further included. Table 15 contains the regression results. Model 15 and Model 16 rely on perceived candidate distance and Models 17 and 18 on distance to the mean platform. In all cases the interaction effect model fits the data considerably better and the interaction effect is negative, indicating decreasing marginal effects. These results can also be seen in figure 10 which plots the marginal effect of policy distance for different levels of consistency. There is clear decreasing marginal effect: Those with inconsistent policy preferences put less weight on policy.

[8](The American National Election Studies, 2012)

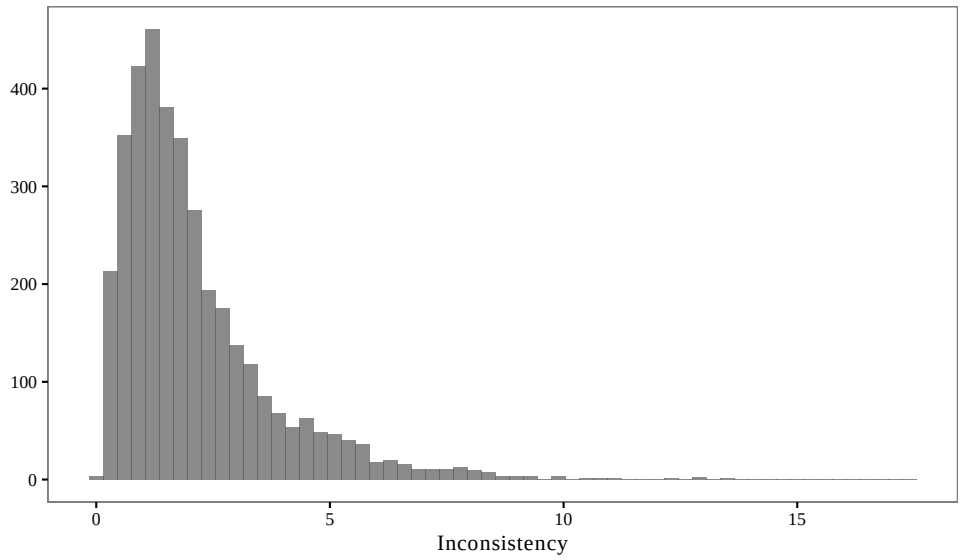

Figure 9: Measurement of inconsistency: respondent squared residuals from regressing policy positions on liberal-conservative self-placements in the ANES 2012

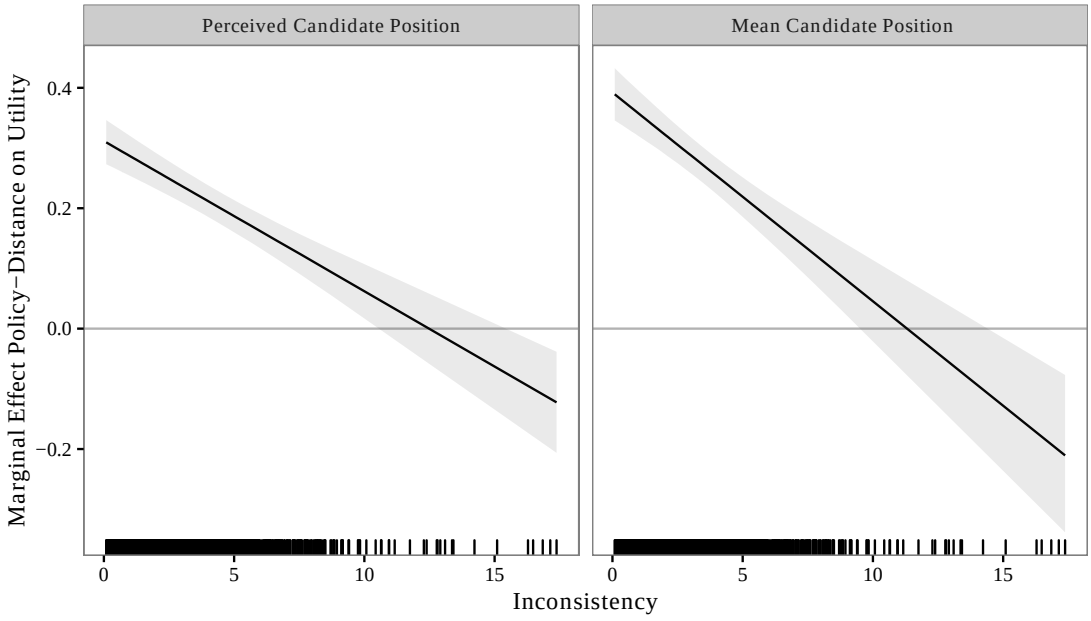

Figure 10: Probability to vote for Obama by varying policy distance, for a respondent with consistent and inconsistent policy preference ANES 2012

Table 12: Descriptive statistics for candidate positions

Statistic	N	Mean	St. Dev.	Min	Max
Respondents spending	5,241	3.883	1.640	1	7
Respondents defense	5,187	4.091	1.534	1	7
Respondents health	5,471	3.998	1.974	1	7
Respondents jobs	5,476	4.177	1.839	1	7
Respondents blacks	5,188	4.784	1.808	1	7
Respondents abortion	5,855	2.953	1.090	1	4
Respondents jobsvsenvir	5,005	3.161	1.778	1	7
Obama spending	5,809	5.354	1.471	1	7
Obama defense	5,730	3.578	1.596	1	7
Obama health	5,806	2.457	1.703	1	7
Obama jobs	5,758	2.838	1.571	1	7
Obama blacks	5,671	2.965	1.648	1	7
Obama abortion	5,324	3.408	0.910	1	4
Obama jobsvsenvir	5,641	2.604	1.447	1	7
Romny spending	5,717	2.691	1.516	1	7
Romny defense	5,601	4.862	1.639	1	7
Romny health	5,699	5.472	1.593	1	7
Romny jobs	5,701	5.498	1.566	1	7
Romny blacks	5,533	5.472	1.465	1	7
Romny abortion	5,262	1.893	0.889	1	4
Romny jobsvsenvir	5,535	5.050	1.623	1	7

	Factor Loadings
spending	-0.69
defense	0.36
health	0.73
jobs	0.72
blacks	0.64
abortion	-0.25
jobsvsenvir	0.66

Table 13: Results of a explanatory factor analysis anes 2012

	(Intercept)	S.E.	Mean Self-Placement	S.E.
spending	6.06	0.07	-0.55	0.02
defense	2.48	0.07	0.38	0.02
health	1.17	0.08	0.70	0.02
jobs	2.11	0.08	0.54	0.02
blacks	2.83	0.08	0.48	0.02
abortion	4.15	0.05	-0.28	0.01
jobsvsenvir	0.81	0.07	0.59	0.02

Table 14: Results of auxiliary regressions to construct measurement of inconsistency in ANES 2012

	Model 23	Model 24	Model 25	Model 26
Intercept	2.31***	2.06***	2.38***	2.20***
	(0.28)	(0.28)	(0.25)	(0.25)
Policy distance	0.22***	0.31***	0.28***	0.39***
	(0.02)	(0.02)	(0.02)	(0.03)
Inconsistency	−0.11***	−0.04	−0.09**	−0.05*
	(0.03)	(0.03)	(0.03)	(0.03)
PID	−0.48***	−0.45***	−0.51***	−0.48***
	(0.03)	(0.03)	(0.03)	(0.03)
Age	−0.01*	−0.01	−0.01*	−0.00
	(0.00)	(0.00)	(0.00)	(0.00)
Education	0.02	0.01	0.05	0.04
	(0.05)	(0.05)	(0.04)	(0.04)
Catholic	0.19	0.18	0.11	0.09
	(0.11)	(0.11)	(0.10)	(0.10)
African-American	1.02***	1.19***	1.17***	1.29***
	(0.20)	(0.22)	(0.19)	(0.20)
Income	0.01	0.01	0.00	0.00
	(0.01)	(0.01)	(0.01)	(0.01)
Policy distance X Inconsistency		−0.03***		−0.03***
		(0.00)		(0.01)
AIC	842.95	804.00	1075.21	1043.23
BIC	895.36	862.24	1128.16	1102.07
Log Likelihood	−412.47	−392.00	−528.60	−511.61
Deviance	824.95	784.00	1057.21	1023.23
Num. obs.	2500	2500	2654	2654

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$

Table 15: Parameter estimates for policy-weighted probit model with positions from factor model as a measurement of policy distance

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