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# Can Citizens Set City Policy?

## Evidence From A Decentralized Welfare State

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*Abstract:* Municipal governments supposedly empower citizens, giving them the ability to shape the political organization of their local community. In spite of this, we know little about whether municipal governments are in fact responsive to the policy views of municipal electorates. In this study, we look at whether the policy implemented by local politicians actually respond to changes in the public mood. To do this, we compile a unique and comprehensive dataset of local fiscal policy, which we use to construct municipal-level estimates of fiscal policy conservatism. This detailed policy data is then linked to an indicator of local ideological sentiment. We find strong evidence for dynamic responsiveness: when preferences in a municipality changes, public policy responds.

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In most developed countries municipal governments are an essential part of representative government (Kersting and Vetter, 2013; Trounstone, 2009). They are responsible for a large part of public spending. They are able to levy taxes on income and property. And while they are subordinate to central governments, oversight is far from complete (OECD, 2016). Municipalities thus play a central part in the quintessential political act of deciding who gets what when and how. From the standpoint of democratic representation, it is therefore important to ask whether citizens are able to set policy or whether it is set for them by extraneous forces, leaving the democratic potential of municipal government unfulfilled.

There are good reasons to be skeptical of municipal governments' democratic potential, as several forces limit municipal governments' capacity to respond to public concerns. Central governments often put constraints on local government decision-making (Peterson, 1981). Similarly, competition with other adjacent municipalities might restrain policy-making (Salmon, 2006; Tiebout, 1956). Furthermore, even if municipalities have the capacity to set policy independently, voters might not be able to effectively influence policy-making (e.g., Gerber and Hopkins, 2011).

Yet recent empirical studies of municipal government suggest that such skepticism might not be warranted. Voters tend to (re-)elect local politicians based on their actions in office (e.g., Boyne et al., 2009), and to vote for conservative (liberal) mayors if they themselves hold conservative (liberal) policy views (Boudreau et al., 2015; Hopkins and Pettingill, 2017; Sances, 2017a). Furthermore, a number of studies have found that it matters for city policy whether a conservative or a liberal party controls the mayoralty and/or the city council (e.g., Blom-Hansen et al., 2006; de Benedictis-Kessner and Warshaw, 2016; Fiva et al., 2016).

While these studies provide *indirect* evidence that municipalities are responsive, only a few studies examine municipal responsiveness more directly. Most notably, Tausanovitch and Warshaw use Multilevel Regression with Poststratification (MRP) to estimate the policy preferences of citizens in a cross section of US cities. They find a strong and robust correlation between voter preferences and city policy (for earlier efforts, see Hajnal and Trounstone, 2010; Palus, 2010). Two other recent studies have directly examined municipal responsiveness. The first of these is Einstein and Kogan (2016). Here, the authors also identify a strong correla-

tion between citizen preferences, measured as support for the Democratic Party at presidential elections, and city policy. Apart from replicating the findings from Tausanovitch and Warshaw, Einstein and Kogan are able to identify the use of intergovernmental grants as a key mechanism underlying responsiveness. They also offer a stronger identification strategy by examining responsiveness in a panel of cities from two US states. Sances (2017b) expands on existing work using a panel of 3,000 US counties spanning 50 years. Linking changes in Democratic vote share to county-level policy, Sances finds that as counties grow more Democratic, they tend to spend more and to collect more own-source revenues.

All in all, research in the area of municipal responsiveness has made impressive progress in the past few years. However, the existing evidence remains limited in important ways. First, city policy is usually measured using either a few indicators (Einstein and Kogan, 2016; Sances, 2017b) or at a single point in time (Tausanovitch and Warshaw, 2014). Related to these empirical limitations, previous analyses are either cross-sectional or look at concurrent changes in policy and preferences. This is in part a methodological problem, as the risk of reverse causation looms large when measuring policy and preferences at the same time. However, the static analyses that permeate most of the existing literature also limit the theoretical inferences we can make about responsiveness. In particular, it becomes hard to know whether municipal policy responds to *changes* in preferences over time. In other words, it becomes hard to know whether municipal policy is dynamically responsive— a more democratically ambitious but equally relevant contention (cf. Stimson et al., 1995). Beyond these theoretical and empirical gaps, it is important to note that the existing literature is exclusively US based, which naturally raises concerns about generalizability.

In this study, we address these limitations related to empirics, research design and context by studying (dynamic) responsiveness in Danish municipalities. In particular, we develop an annual measure of municipal policy conservatism based on 14 fiscal policy indicators (1978-2006). This measure which is much more comprehensive in terms of its granularity, and the time period covered, than the city policy measures used in previous studies. Similarly to previous studies, we use net support for conservative (right-wing) parties as a proxy for policy views (e.g., Einstein and Kogan, 2016), but unlike previous studies, which had to rely on elec-

toral support measured at national or regional elections, we look at electoral support at *local* elections dating back to 1970.

Using this comprehensive dataset, we link past changes in preferences to future changes in policy, including time and municipality fixed effects. We find that changes in the policy preferences of citizens are robustly related to changes in city policy. We also show that there is no evidence of reverse causality—past changes in policy do not predict future changes in preferences, no evidence of different “pre-treatment” trends in policy, and that the effects of a change in the electorate’s preferences are detectable nine years into the future. Our findings therefore suggest that municipal governments are responsive to citizens concerns: citizens do, at least partially, set city policy.

## Empirical Strategy

We examine municipal responsiveness in Denmark. Denmark is a decentralized welfare state where municipalities can affect their local revenue and set a yearly budget. Municipal tasks and services include the core welfare services of the Danish welfare state, and municipal spending amounts to 35 percent of GDP, which is more than half of all public spending. We focus on Denmark, as this allows us to track the relationship between citizen preferences and city policy in a dynamic way. As such, we are able to obtain a detailed measure of city policy for all years between 1978 and 2005 for all 271 Danish municipalities. We can link this to policy preferences as expressed in municipal elections in the same period.

Danish municipalities are different from the US counties and cities which have been the focus of previous studies. They are small (average size 16,000 inhabitants), organized in general rather than special-purpose governments (Berry, 2009), with a multi party, PR system in which turnout is relatively high.<sup>1</sup> It is not clear whether Denmark is an easy or hard case for responsiveness. Some factors—such as the small size of the municipalities—seem to make responsiveness less likely than in the US, whereas others—such as the general purpose organization of local government—seem to make responsiveness more likely. As such, the Danish case cannot be seen as especially typical or atypical. What makes the Danish case interesting

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<sup>1</sup>See Appendix A for more details on the political system in Danish municipalities.

is the high quality data on municipal policy and municipal policy preferences that are available and the fact that it is a very different setting from the ones previously examined.

## An Annual Measure of Municipal Fiscal Policy Conservatism

To measure fiscal policy conservatism, we rely on 14 different indicators relating to either tax policy (3 indicators), spending policy (2), organization of public service delivery (3), co-payment for public services (4) or the extent of public services (2). Variables measured in DKKs are adjusted for inflation. While spending and tax variables are commonly used in the literature, we are the first to include other types of variables in a panel set-up. An overview of the policy indicators are presented in Appendix B.

The policies included in our index had to meet the following criteria: (1) The policy should be directly influenced by the city council; (2) it had to be a policy and not the outcome of a policy (e.g., we did not include unemployment); (3) data on the policy had to be available for at least five years between 1978 and 2006. All policy information was retrieved from Statistics Denmark or the Danish Ministry for Economic Affairs and the Interior.

We combine these 14 indicators into an index of fiscal policy conservatism. Inspired by Caughey and Warshaws' (2016) analysis of US states, we use a Bayesian latent variable technique to estimate municipal fiscal conservatism as an underlying trait driving municipal policies. This method is in many ways similar to frequentist factor analysis. However, a major advantage to using Bayesian techniques when making inferences about the latent trait is that the simulations will impute missing data during the estimation, which allows us to include items with different numbers of observations in the model. Using such a technique is particularly important in our study, because data on most indicators is only available after 1993. However, because we use this measurement method, they still shape our estimates of municipal fiscal policy conservatism across the entire period – the units with missing observations simply supply less information to the estimation. Even so, our measure of fiscal policy conservatism for the period 1978-1992 primarily relies on the measures of income tax, property tax and spending per capita. To make sure that our results are not driven by the inclusion of different items at different points in time, we perform analyses using an index comprised of only these

three indicators (reduced measure) as well as with all indicators (full measure). More details about the measurement model can be found in Appendix C, and in Appendix D, we show how municipal policy conservatism varies across time and place in Denmark.

The annual measure of fiscal policy conservatism we end up with is more granular and more comprehensive than the indicators of municipal policy used in previous studies. Here, researchers have had to rely on municipal policy measured at one point in time (Palus, 2010; Tausanovitch and Warshaw, 2014) or with substantial intervals (Einstein and Kogan, 2016; Hajnal and Trounstone, 2010; Sances, 2017b).

## Municipal Policy Preferences

In order to find out whether municipal fiscal policy conservatism responds to the preferences of the electorate, we need to develop a measure of local policy preferences. In line with previous work on municipal responsiveness (e.g., Einstein and Kogan, 2016; Sances, 2017a), we measure local policy preferences indirectly by examining the net difference in electoral support for right-wing and left-wing parties in the municipality, inferring that municipal electorates that prefer conservative parties also prefer conservative fiscal policies. In particular, we look at the difference between support for the major center-right parties as well as the right wing populist parties (Venstre, Det Konservative Folkeparti, Fremskridtspartiet and Dansk Folkeparti) and the major center-left parties as well as the socialist parties (Socialdemokratiet, Radikale Venstre, Socialistisk Folkeparti, Venstresocialisterne, and Enhedslisten) at all municipal elections in the period under study. This gives us an estimate of local policy preferences in the years 1978, 1981, 1985, 1989, 1993, 1997 and 2001.

Unlike previous studies, which have had to rely on support for conservative vis-à-vis liberal parties at national or regional elections (e.g., Einstein and Kogan, 2016; Hajnal and Trounstone, 2010), we are able to look at municipal elections. This is potentially important, because citizens might differ in their policy views across domains (Abrams and Fiorina, 2012, for an argument along these lines, see), and because the electorate at municipal elections are differently composed than electorates in national elections (Ansolabehere and Schaffner, 2015). In Appendix E, we show that there is added value in using municipal rather than national election

returns. In particular, we find that in a concurrent municipal and national election, net support for conservative parties is far from perfectly correlated (Pearsons  $R=0.56$ ).

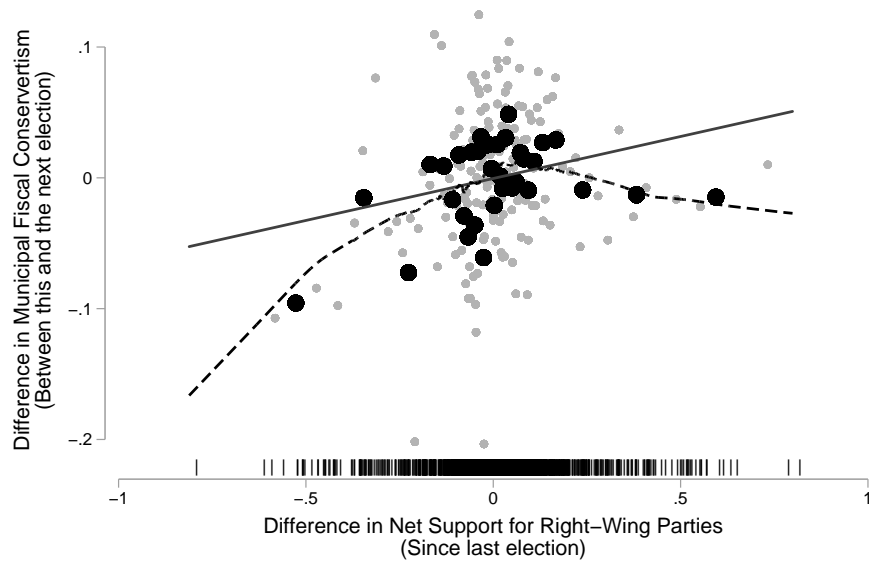
It might have been preferable to have survey based estimates of citizens policy ideal points (similar to the measure used by Tausanovitch and Warshaw, 2014). However, doing so is not feasible, as survey data is too sparse, especially for the earlier part of the period we study. Instead, we carry out a validation of our measure in Appendix E, in which we find that there is a strong correlation between net support for conservative parties at municipal elections and citizens' responses to an ideology question, using some recent survey data.

## Identifying Dynamic Responsiveness in Cities

Figure 1 shows that the past changes in support for right-wing parties are related to future changes in fiscal conservatism (full measure), suggesting that municipal policy adjusts dynamically to changes in the municipal electorate's preferences. This is striking, as we have minimized concerns related to reverse causality by looking at the relationship between past changes in preferences and future changes in policy within each municipality. Interestingly, we identify a non-linearity, but this pattern is not robust to alternative specifications (i.e., it disappears in a two-way fixed effects model), so we do not want to make any firm interpretations of what this implies.

Figure 2 plots the key estimate (i.e., the effect of changes in local policy preferences) from a pooled OLS regression, as well as from two types of difference-in-differences (diff-in-diff) models: a fixed effects and a first-difference model (both with time fixed effects). All models include a control for population size (logged), but the results do not depend on the inclusion of this covariate. The left panel uses the full measure of fiscal conservatism as the dependent variable whereas the right panel uses our reduced measure. Across all models, we find a statistically significant and positive effect.

The estimate from the pooled model is likely to be confounded by the socio-demographic make-up of the municipality. To the extent that this is stable over time and driven by common shocks, the difference between the estimates from the pooled and diff-in-diff models can be interpreted as removing the confounding effect of sticky socio-demographics. In our preferred



**Figure 1:** Do Changes in Preferences Correlate with Future Changes in Policy? Both variables are trend adjusted (i.e., the year specific means are subtracted). Grey dots represent bins of ten observations, dark dots represent bins of 100 observations. The solid line is a linear fit ( $b = 0.046$ , municipality clustered  $se = 0.019$ ) and the dashed line is a LOWESS smoother with a bandwidth of 0.4. The rugplot in the bottom of the graph represents the distribution of differences in the net support for right-wing parties.

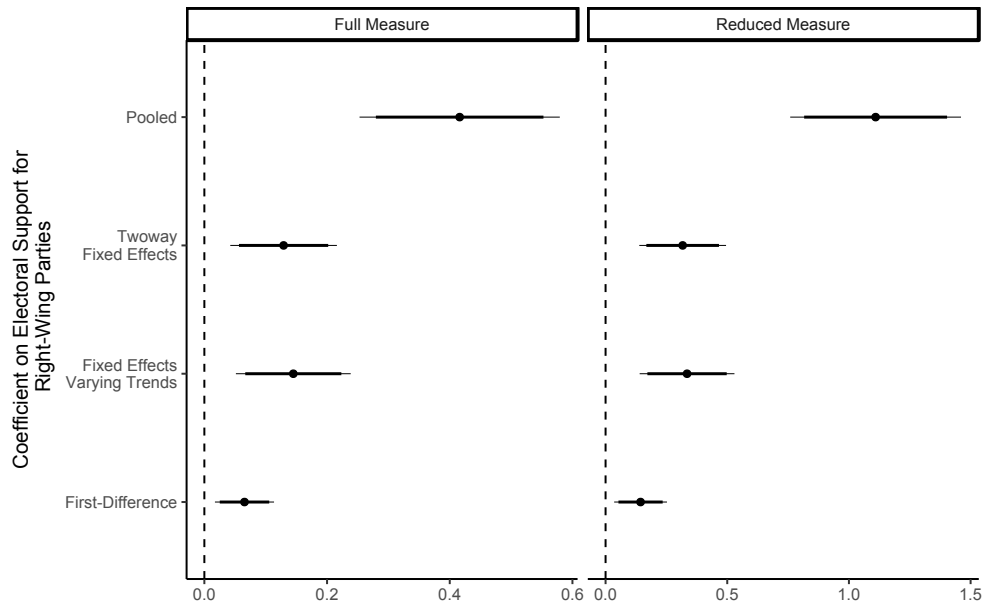
fixed effects model, we estimate the effect to be roughly .12. This corresponds to 25 percent of a within-municipality standard deviation – a substantive association. With an effect of this magnitude, moving the voters from the Social Democratic stronghold Albertslund to the highly conservative Solrød would transform the fiscal policy in Gentofte to roughly that of Stenløse. This would move Gentofte down by more than 20 positions (out of 271 municipalities) in our ranking of fiscal conservatism.

## Exploring the Identifying Assumption

The identifying assumption in our diff-in-diff models is that trends in the dependent variable (policy) are independent of selection into the independent variable (preferences). Importantly, if voters became *more conservative* as a result of changes in policy (cf. Lenz, 2013), then this assumption will be violated.

While we cannot test the identifying parallel trends assumption directly, we can see whether trends in the dependent variable are similar before municipalities “select into” different preferences. To do this, we regress past levels of policy conservatism on current levels of net support





**Figure 2:** Effect of Electoral Support for Right-wing Parties on Municipal Conservatism 4 years later. Points are unstandardized OLS coefficients. Lines are 95 percent (thin) and 90 percent (thick) confidence intervals (CIs). Beck-Katz standard errors used in first-difference models, Arellano-White standard errors with clustering on municipality level used in the remaining models to correct for temporal autocorrelation. Differences in the coefficients between panels are driven by a larger standard deviation in the reduced measure. See Appendix J for results using the individual policy indicators.

for conservative parties using our two-way fixed effect set-up. The resulting effect is negligible and statistically insignificant, suggesting that trends in policy are parallel across municipalities that become more and municipalities that become less conservative (see Figure 3). To bolster this analysis further, we show in Appendix H that past changes in municipal policy is unrelated with future changes in electoral support for right-wing parties.

Beyond this test, we estimate a more restrictive model, where we interact the time fixed effects with a series of 13 regional dummies<sup>2</sup> as well as population size. This allows municipalities to be on separate time trends depending on both region (semi-parametrically) and population size (log-linearly). Importantly, this strategy should deal with the confounding effect of the socio-demographic make-up of the municipalities: If there were certain time-specific regional shocks to, for instance, unemployment, which might affect both preferences and policy, then these will be removed in this model. As can be seen from Figure 2, estimating this more restrictive model does not change our results. If anything, the point estimate increases.

<sup>2</sup>These correspond to 13 regional governments (*amter*) which were responsible for, among other things, health care in the period we study.

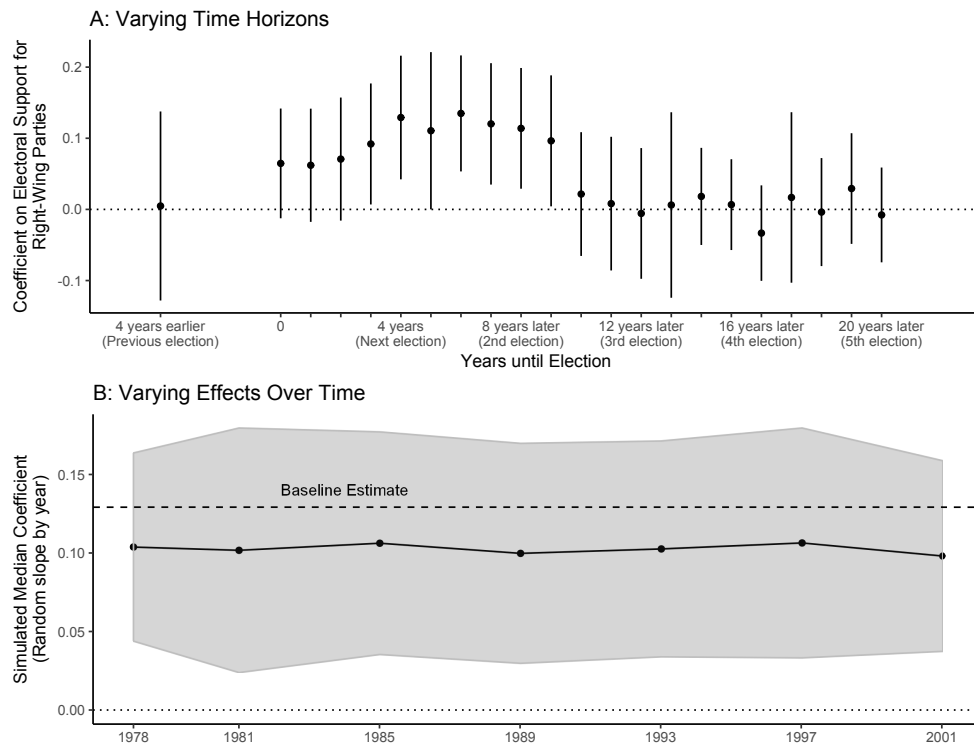
To make sure that there is no remaining bias because of socio-demographic factors, we include data on education, unemployment rate and the number of non-western immigrants in the municipality. Since these variables are only available after 1993, and there is a substantial trend in municipal policy (cf. Appendix D), simply including them in our model would bias our results by censoring the dependent variable. Instead, we follow (Pei et al., 2018) and regress electoral support for right-wing parties on our three socio-demographic predictors. As we show in Appendix G, the correlations between within-municipality changes in socio-demographic factors and support for right-wing parties are very small and statistically insignificant. This suggests that these important socio-demographic factors are not driving our results, as right-wing and left-wing municipalities are balanced on these socio-demographic factors once we include fixed effects for time and year. The absence of a partial correlation with unemployment is especially noteworthy, as it is a strong indicator of whether a municipality is hit particularly hard by a temporary economic shock, which could feasibly drive both preferences and policy.

Taken together, these auxiliary analyses suggest that our identifying assumption is met, implying that we have a plausibly unbiased estimate of the effect of municipal policy preferences on municipal policy.

## How Dynamic is Dynamic Responsiveness?

To examine the temporal dynamics of responsiveness, figure 3 reports the estimated effect of changes in net support for conservative parties on municipal fiscal policy conservatism over time. In panel A, we look at the short- and long-term effects of changes in municipal policy preferences on the policy adopted by the municipality. This analysis reveals that it takes some time for policy to respond. There is only a small effect one year after local policy preferences change and the largest effect is after four years. The effect is detectable up to eight years later. One reason for this long-term effect is probably that once policy shifts, it typically does not naturally revert back to its starting point, but needs to be actively changed back (e.g., Baumgartner et al., 2009). In Panel B we allow the effect of voter preferences on policy four years into the future to vary across time by including random slopes by year. The results show that municipal policy responsiveness is relatively stable across our period of study. Preferences

do not seem to matter more or less as time goes by.



**Figure 3:** Effects of Local Policy Preferences Over Time. All models include two-way fixed effects with control for population size. Panel A: Black points represent the effect of net electoral support for conservative parties with different leads. Black lines are 95 percent CIs based on Arellano-White robust standard errors clustered on municipalities. Panel B: Points are estimates of random slopes by year with a lagged dependent variable to deal with autocorrelation. Shaded area is a 95 percent CI from the relevant percentiles of a bootstrapped distribution.

## Conclusion

In this study, we have shown that municipal government is dynamically responsive to demands from citizens – when more citizens express that they want more right-wing policy, policy responds; a result that was robust to a number of demanding specifications. Importantly, by using a more detailed and comprehensive measure of municipal policy, we were able to link past changes in preferences to future changes in policy, sidestepping potential concerns related to reverse causality.

Even so, there are several outstanding questions. For one, we know little about why municipalities respond to citizen preferences. In Appendix I, we present some evidence to suggest that the effect is *not* mediated by which party controls the municipal administration. However,

this evidence is far from conclusive. Further, while we identify some dynamic responsiveness, it is hard to say whether this is adequate (or perhaps too much) from a normative democratic perspective.

Our study contributes directly to the literature on responsiveness (Tausanovitch and Warshaw, 2014), and more broadly the empirical study of whether voters are able constrain the decision-making of political elites (Berry, 2009). In particular, our study suggests that if you give voters an opportunity to express their preferences at municipal elections, they are able to use it to direct policy, substantially constraining local policy-makers.

## References

- Abrams, S. and Fiorina, M. (2012). “the big sort” that wasn’t: A skeptical reexamination. *PS: Political Science & Politics*, 45(2):203–210.
- Ansolabehere, S. and Schaffner, B. (2015). Beyond the core and periphery: A new look at voter participation across elections.
- Baumgartner, F., Breunig, C., Green-Pedersen, C., Jones, B., Mortensen, P., Nuytemans, M., and Walgrave, S. (2009). Punctuated equilibrium in comparative perspective. *American Journal of Political Science*, 53(3):603–620.
- Berry, C. (2009). *Imperfect Union: Representation and taxation in multilevel governments*. Cambridge University Press.
- Blom-Hansen, J., Monkerud, L. C., and Sørensen, R. (2006). Do parties matter for local revenue policies? a comparison of denmark and norway. *European Journal of Political Research*, 45(3):445–465.
- Boudreau, C., Elmendorf, C., and MacKenzie, S. (2015). Lost in space? information short-cuts, spatial voting, and local government representation. *Political Research Quarterly*, 68(4):843–855.
- Boyne, G., James, O., John, P., and Petrovsky, N. (2009). Democracy and government performance: Holding incumbents accountable in english local governments. *Journal of Politics*, 71(4):1273–1284.
- Caughey, D. and Warshaw, C. (2016). The dynamics of state policy liberalism, 1936–2014. *American Journal of Political Science*, 60(4):899–913.
- de Benedictis-Kessner, J. and Warshaw, C. (2016). Mayoral partisanship and municipal fiscal policy. *Journal of Politics*, 78(4):1124–1138.

- Einstein, K. and Kogan, V. (2016). Pushing the city limits: Policy responsiveness in municipal government. *Urban Affairs Review*, 52(1):3–32.
- Fiva, J., Folke, O., and Sørensen, R. (2016). The power of parties: Evidence from close municipal elections in Norway. *Scandinavian Journal of Economics*.
- Gerber, E. and Hopkins, D. (2011). When mayors matter: estimating the impact of mayoral partisanship on city policy. *American Journal of Political Science*, 55(2):326–339.
- Hajnal, Z. and Trounstein, J. (2010). Who or what governs?: The effects of economics, politics, institutions, and needs on local spending. *American Politics Research*, 38(6):1130–1163.
- Hopkins, D. and Pettingill, L. (2017). Retrospective voting in big-city US mayoral elections. *Political Science Research and Methods*, pages 1–18.
- Kersting, N. and Vetter, A. (2013). *Reforming local government in Europe: Closing the gap between democracy and efficiency*, volume 4. Springer Science & Business Media.
- Lenz, G. (2013). *Follow the leader?: how voters respond to politicians' policies and performance*. University of Chicago Press.
- OECD (2016). Subnational governments around the world.
- Palus, C. (2010). Responsiveness in American local governments. *State and Local Government Review*, 42(2):133–150.
- Pei, Z., Pischke, J.-S., and Schwandt, H. (2018). Poorly measured confounders are more useful on the left than on the right. *Journal of Business & Economic Statistics*, (just-accepted):1–34.
- Peterson, P. (1981). *City limits*. University of Chicago Press.
- Salmon, P. (2006). Horizontal competition among governments. *Handbook of fiscal federalism*, pages 61–85.
- Sances, M. (2017a). Ideology and vote choice in US mayoral elections: Evidence from Facebook surveys. *Political Behavior*, pages 1–26.
- Sances, M. (2017b). When voters matter: The growth and limits of local government responsiveness.
- Stimson, J., MacKuen, M., and Erikson, R. (1995). Dynamic representation. *American Political Science Review*, 89(3):543–565.
- Tausanovitch, C. and Warshaw, C. (2014). Representation in municipal government. *American Political Science Review*, 108(3):605–641.

- Tiebout, C. (1956). A pure theory of local expenditures. *Journal of Political Economy*, 64(5):416–424.
- Trounstein, J. (2009). All politics is local: The reemergence of the study of city politics. *Perspectives on Politics*, 7(3):611–618.

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## Appendix: For Online Publication

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## A Some More Context on Danish Municipalities

There have been two large reforms of local politics in the last 50 years in Denmark. The first was conducted in 1970 as the Danish welfare state began to expand. Here, the number of municipalities were reduced from more than 1000 to 275 (Ingvarsen, 1991). (Although it was 277 the first two years.) The second reform was conducted in 2007 and further reduced the number of municipalities from 275 to 98. Once again, the increasing complexity of public service provision was a key argument for the reform (Christiansen and Klitgaard, 2008). Since both of these reforms were comprehensive in terms of amalgamations and changes to the relative power of national contra local government, we let them be the bookends of our analysis, examining the relationship between citizens policy views and the ideological flavor of municipal policy between the two reforms. Because of data availability we further limit our study period, so that it goes from 1978 and 2008.

In the period we study, Danish municipalities are governed by small city councils (between 9 and 29 members) that are elected at proportional elections and with a multi-party system that, to a large extent, mirrors the party system at the national level (Blom-Hansen et al., 2009). Elections are fixed to take place every four years and do not usually coincide with elections at the national or EU level. Before 1981, elections always took place in the spring, but this was changed to November, so that there would be a match between calendar years and election terms. To make this change there was only three and a half years between the spring 1978 and fall 1981 election. Turnout at municipal elections is high with an average of around 70 percent since 1970.

Following each municipal election, a majority in the city council elects a mayor, and the chairmen of the various committees (Serritzlew et al., 2008). Mayors are the only full time professional politicians in the city councils and have a number of formal obligations (Kjaer, 2015). Mayors are also responsible for the day-to-day business of the administration and chairs the important economic committee that sets taxes and the budget. The work in the city council is structured by a number of committees. The number and size of the committees are determined by the council. Committee membership is allocated proportionally between the political parties which means that there is broad political representation in all committees. The committees can decide on matters in their area, and the administrative responsibility across areas is therefore essentially divided.



## B Overview of Policies Included in Our Measure

**Table B1:** Indicators of Fiscal Policy Conservatism

| Policy   | Availability<br>(number of years) | Do Higher or Lower Values<br>Imply Conservatism? |
|--|-----------------------------------|--|
| <i>Tax policy</i>                              |                                   |  |
| Income tax (pct.)                              | 29                                | Lower  |
| Property tax (per mille)                       | 29                                | Lower  |
| Commercial real estate tax (per mille)         | 14                                | Lower  |
| <i>Spending policy</i>                         |                                   |  |
| Spending pr. capita (DKK)                      | 29                                | Lower  |
| Spending pr. pupil in school (DKK)             | 7                                 | Lower  |
| <i>Organization of public service delivery</i> |                                   |  |
| Public Employees (pr. 1,000 citizens)          | 9                                 | Lower  |
| Privately operated services (pct.)             | 14                                | Higher   |
| Purchases with a private supplier (pct.)       | 14                                | Higher   |
| <i>Co-payment for public services</i>          |                                   |  |
| Average cost of day care (DKK)                 | 16                                | Higher   |
| Price of relief stay (DKK)                     | 7                                 | Higher   |
| Food delivery for the elderly (DKK)            | 7                                 | Higher   |
| Stay in nursing home (DKK)                     | 7                                 | Higher   |
| <i>Extent of Public Services</i>               |                                   |  |
| Public housing (pct.)                          | 14                                | Lower  |
| Class size in public schools                   | 14                                | Lower  |

Notes: There was a change in how certain parts of social spending was measured in 1994. We adjust for this in our analysis, subtracting the average difference between '78-'93 and '94-'05 from the spending variable after '94.

## C Details about Estimation of Municipal Fiscal Policy

We parameterize fiscal conservatism using the following measurement model, which allows us to estimate it across time and space:

$$F_{itk} \sim N(F_{itk}^*, \phi)$$

$$F_{itk}^* = \beta_k C_{it} - \alpha_k$$

where  $F$  is the level of the observed fiscal policy variable  $k$  in municipality  $i$  at time  $t$ . The distribution of each of these observed variables is drawn from a normally distributed latent variable  $F^*$ , which has variance  $\phi$ .  $C$  is the quantity of most interest – the latent fiscal conservatism in that municipality.  $\beta$  is the discrimination parameter, which captures how strongly each observed policy variable loads onto the latent dimension. Finally,  $\alpha$  represents each item’s difficulty parameter, which measures how fiscally conservative a municipality is if it scores 0 on the policy variable  $k$ .

This parameterization is in many ways similar to frequentist factor analysis. However, a major advantage to using Bayesian techniques when making inferences about the latent trait is that the simulations will impute missing data during the estimation, which allows us to include items with different numbers of observations in the model. The variables with missing observations will simply supply less information to the estimation. Additionally, the estimation is simulation based, which allows us to directly estimate uncertainty around all model parameters.

We include the 14 policy variables listed in Table B1 in the model. Before we do so, all variables are rescaled to have mean zero and variance one. Furthermore, all variables where higher values imply a more left-wing fiscal policy are reversed. This implies that when estimating policy conservatism, higher values on all variables indicate a more conservative policy. This is strictly speaking not necessary, but it makes interpretation of the model parameters simpler.

To identify the direction of the policy space, we constrain the  $\beta$ ’s to be positive, so that municipalities scoring higher on our observed policy variables will be estimated to be more conservative. Location and scale are identified by placing standard normal priors on the distributions of all model parameters. All precision parameters are estimated using uninformative gamma priors.

Estimation is done by initiating a random walk over the parameter space defined by the model using the Gibbs sampler. We run 25,000 iterations of the model, where the first 2,500 are burn in. We run three parallel chains. To reduce autocorrelation within the chains of sampled values and improve convergence, we set a thinning interval of five, meaning that we only retain every fifth sampled value. This specification ensures convergence of the model and provides well-behaved, normal posterior distributions.

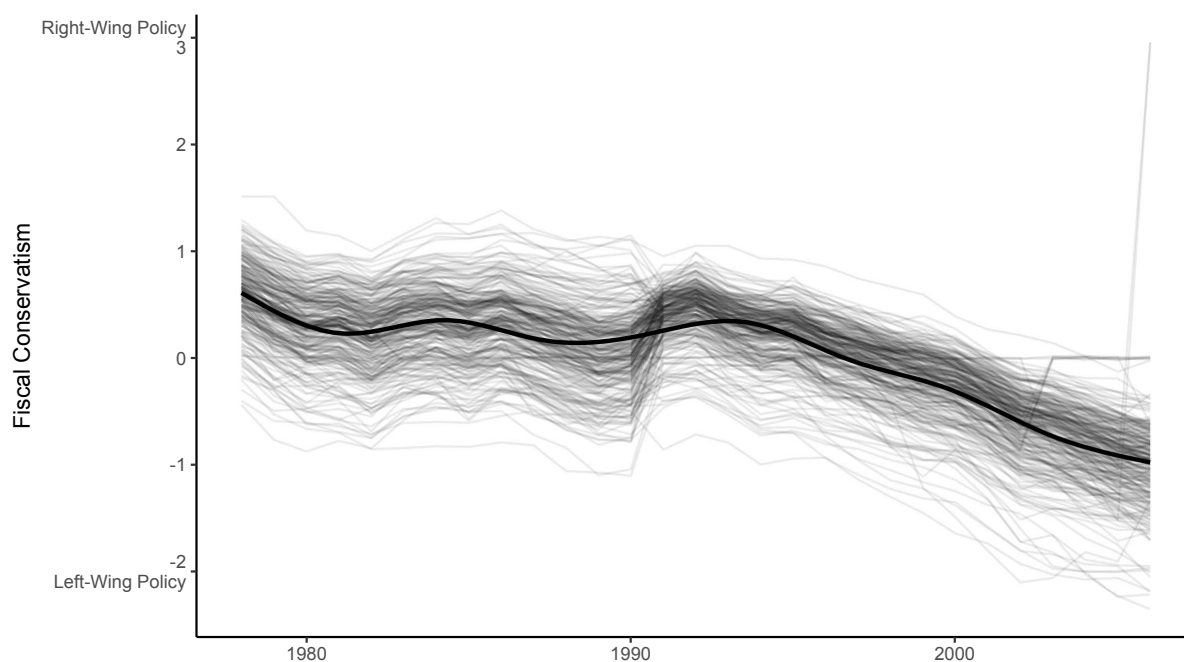
## D Some Descriptive Features of Municipal Fiscal Policy

Figures D1 and D2 present some descriptive features of the annual measure of fiscal policy conservatism. In particular, they look at how the measure is distributed across time and space, revealing some interesting patterns in municipal fiscal policy.

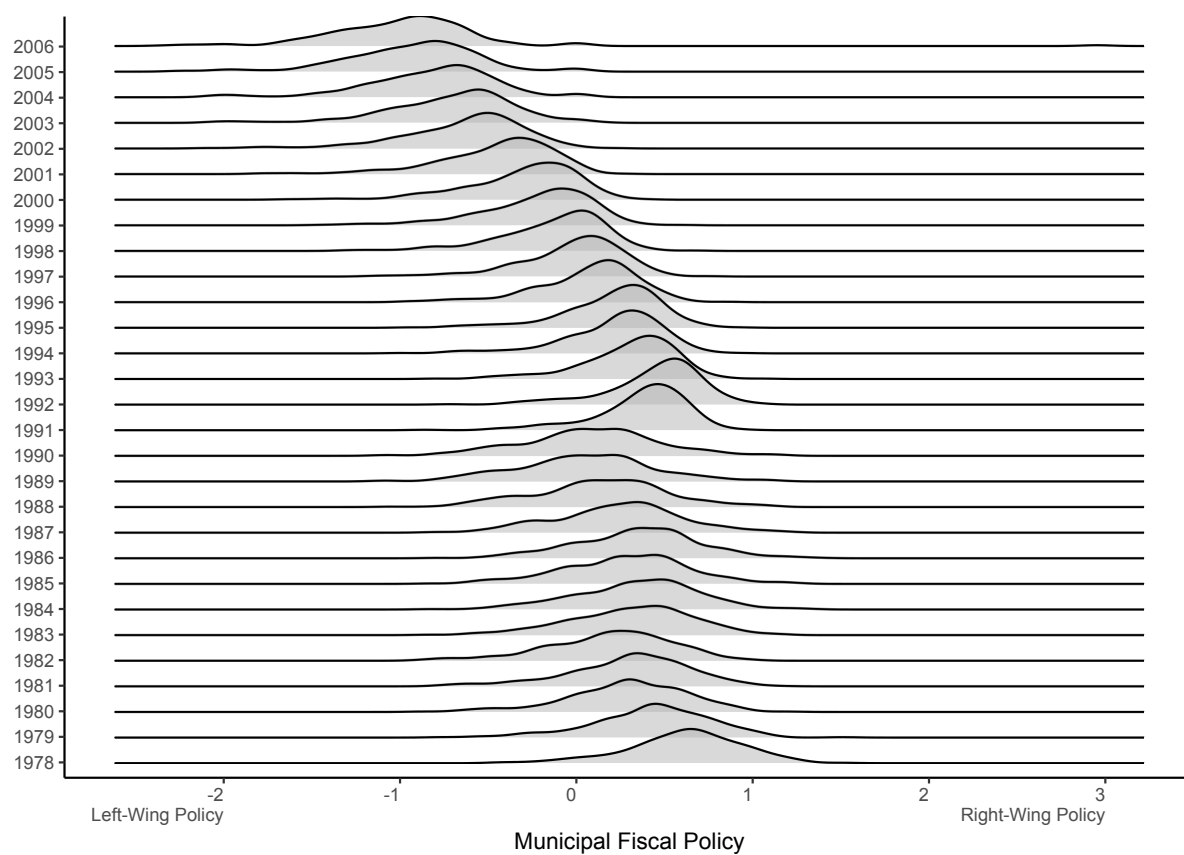
Fiscal policy conservatism dropped slightly in the period. The drops are located in 1978 to 1981 and from 1993 to 2000: periods when the Social Democratic Party was in power nationally. This makes sense, as liberal national fiscal policies are likely to spill over into local politics through intergovernmental grants, and so on.

However, aside from the national trends, the most notable feature of the time series seems to be the large variation we identify in fiscal policy. Apparently, some municipalities are very fiscally conservative while others are not. Although the within-differences are less dramatic, we also see some municipalities start out more conservatively and then become more liberal and vice versa.

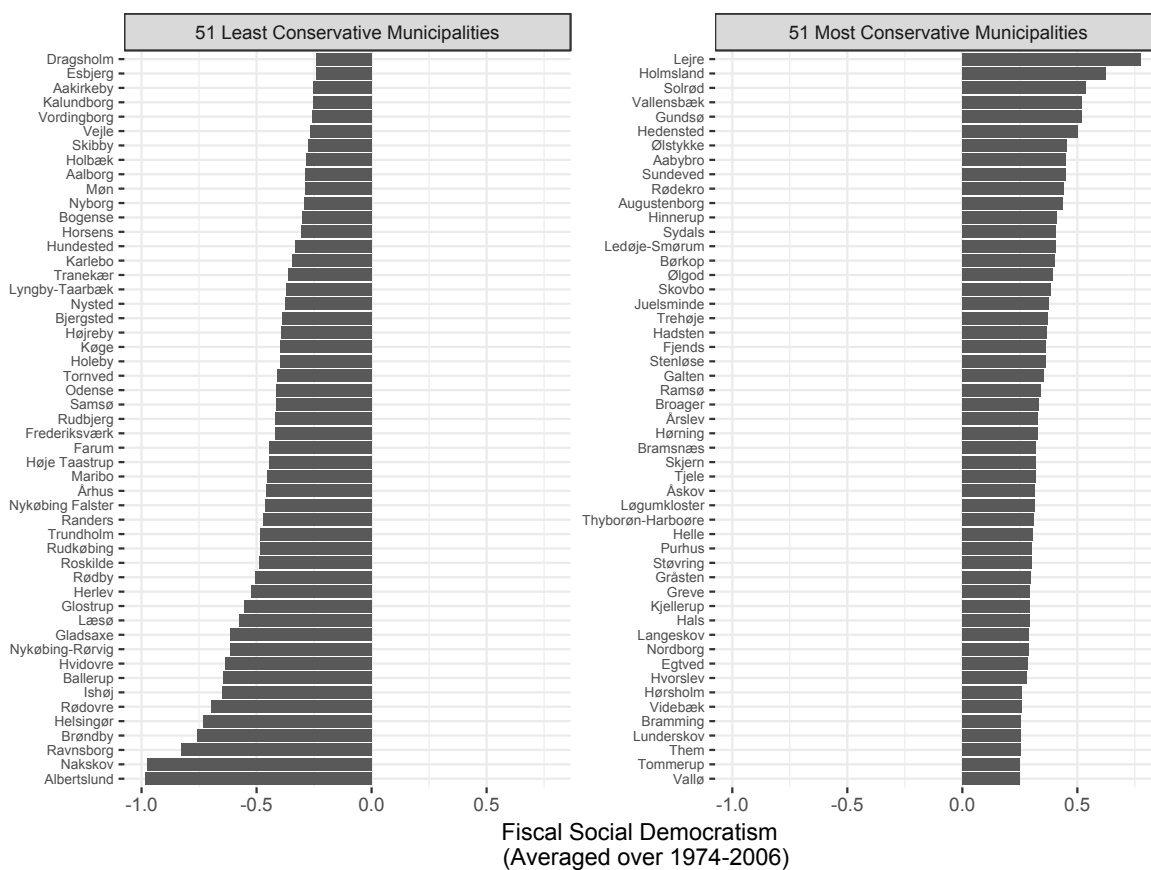
Figure D3 presents an overview of the 50 most and the 50 least conservative municipalities across the entire period. This list conforms to what most observers of Danish politics would expect. The most conservative municipalities are located in Western Jutland and North of Copenhagen whereas the least Conservative (i.e., Socialist) municipalities are located west of Copenhagen and in an around the other large cities (Aalborg, Aarhus, Odense).



**Figure D1:** Average Municipal Fiscal Policy Conservatism (dark line) and Municipal Fiscal Policy Conservatism for Individual Municipalities (grey lines) from 1978 to 2006.



**Figure D2:** Distribution of Municipal Fiscal Policy Conservatism from 1978 to 2006 (densities).

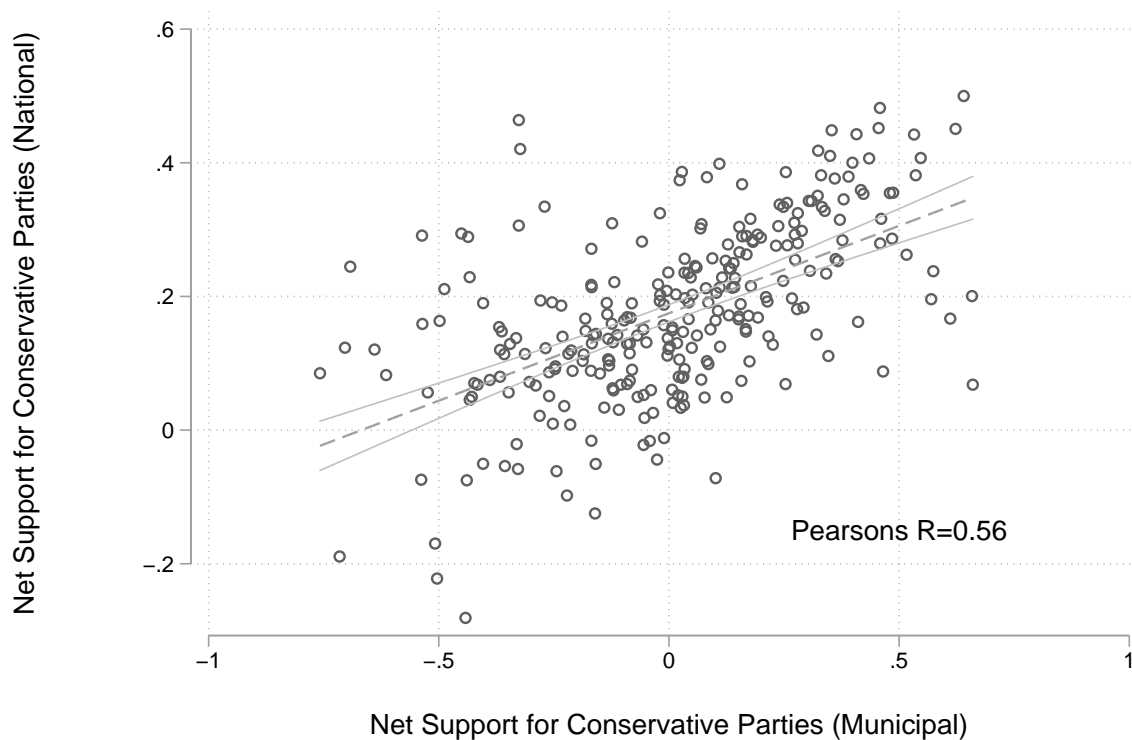


**Figure D3: The Most and Least Conservative Municipalities**

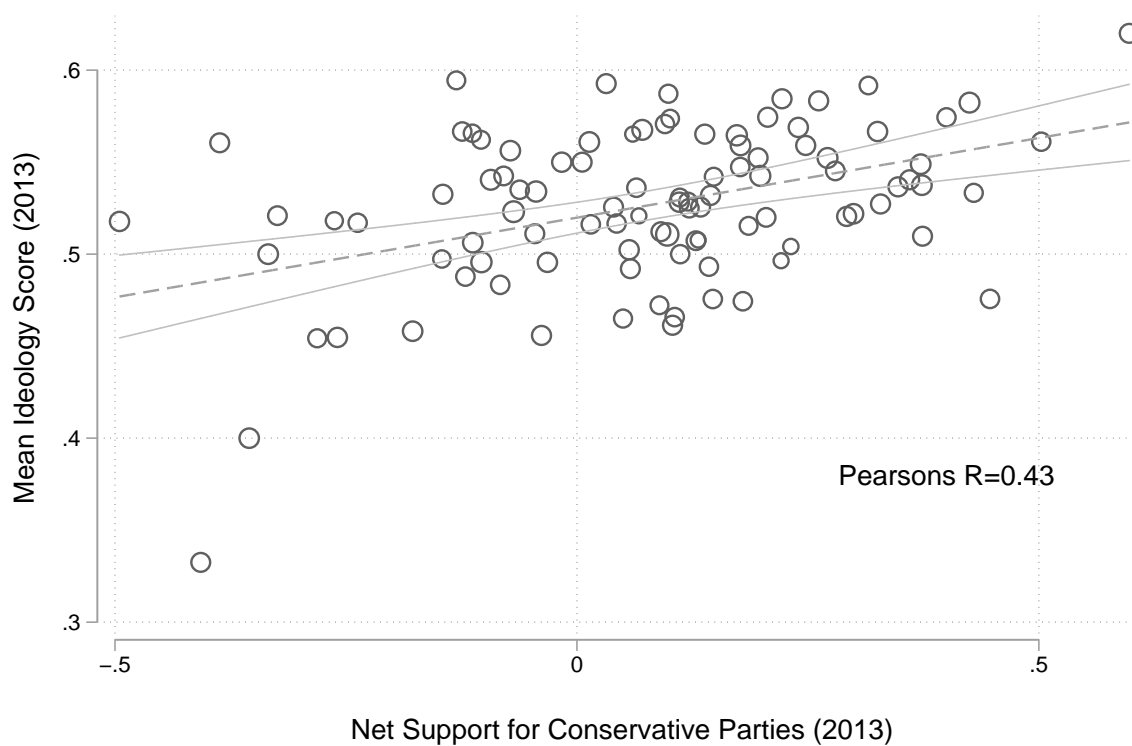
## E Validating Our Measure of Citizens' Policy Preferences

In figure E1, we gauge the extent to which it matters that our measure relies on data from municipal rather than national elections. To do this, we correlate municipal-level net support for conservative parties at the 2005 municipal election with municipal-level net support for the same conservative parties at a national election held six months earlier. This analysis reveals a strong, but in no way deterministic, correlation of 0.56. Accordingly, we might miss meaningful variation, if we had used election returns from national, rather than local, elections to estimate local policy preferences.

To have an indication of how well our electoral measure captures voters' underlying preferences, we look at the 2013 Danish Municipal Election Survey Elklit et al. (2017). In this survey, more than 30 respondents (avg. 46) from each municipality were asked to place themselves on an 11-point ideology scale going from left to right. We calculate the municipality-specific mean of these responses and correlate these with the municipality-specific net support for conservative parties in the 2013 municipal election. As can be seen from Figure E2, the two are strongly correlated, which suggests that we are in fact tapping into relevant variation in policy views, when we measure citizens' preferences over parties. Further, it is important to note that the correlation is biased downwards, because we have random measurement error in our sample-based measure of policy views. The reader should also note that because of the municipal reform of 2006 (see section A) we only have 98 observations corresponding to the 98 (amalgamated) municipalities.



**Figure E1:** How strongly correlated are the electorate's preferences at municipal and national elections? Data from the 2005 municipal and national elections.



**Figure E2:** Does the electorate's preference over parties reflect preferences over policy? Data from the 2013 municipal election.

## F Regression Table for Main Results

In Table F1 we report a regression table numerically summarizing the information that Figure 2 presents graphically. Columns 1 through 4 use the full measure of fiscal conservatism as the dependent variable, while the remaining four columns use the reduced measure, which only includes spending per capita, the income tax and the property tax. All models include population size (logged) as a control. Column 1 shows the result from the pooled model, while column 2 includes two-way fixed effects. In the third column, we interact the time fixed effects with dummies for region and the log of population size. Finally, column four uses the first difference of all variables in the model instead of municipality fixed effects. Columns 5 through 8 replicates these models with the reduced measure of fiscal policy conservatism.

**Table F1**

|                         | <i>Dependent variable:</i>  |                     |                     |                   |                              |                     |                     |                   |
|-------------------------|-----------------------------|---------------------|---------------------|-------------------|------------------------------|---------------------|---------------------|-------------------|
|                         | Full Measure <sub>t+4</sub> |                     |                     |                   | Spending Only <sub>t+4</sub> |                     |                     |                   |
|                         | (1)                         | (2)                 | (3)                 | (4)               | (5)                          | (6)                 | (7)                 | (8)               |
| Right Vote              | 0.416***<br>(0.059)         | 0.129***<br>(0.037) | 0.145***<br>(0.048) |                   | 1.110***<br>(0.122)          | 0.317***<br>(0.081) | 0.335***<br>(0.099) |                   |
| FD Right Vote           |                             |                     |                     | 0.065*<br>(0.038) |                              |                     |                     | 0.143*<br>(0.085) |
| Municipality FE?        | No                          | Yes                 | Yes                 | No                | No                           | Yes                 | Yes                 | No                |
| Municipality FD?        | No                          | No                  | No                  | Yes               | No                           | No                  | No                  | Yes               |
| Time FE?                | No                          | Yes                 | Yes                 | Yes               | No                           | Yes                 | Yes                 | Yes               |
| Time X covariates?      | No                          | No                  | Yes                 | No                | No                           | No                  | Yes                 | No                |
| Observations            | 1,908                       | 1,908               | 1,908               | 1,363             | 1,908                        | 1,908               | 1,908               | 1,363             |
| R <sup>2</sup>          | 0.057                       | 0.874               | 0.924               | 0.672             | 0.071                        | 0.843               | 0.914               | 0.869             |
| Adjusted R <sup>2</sup> | 0.056                       | 0.853               | 0.906               | 0.670             | 0.070                        | 0.816               | 0.893               | 0.869             |

*Note: Robust standard errors with clustering at the municipality level are in parentheses. First-difference models uses Beck-Katz panel corrected standard errors. Population size (logged) included in all models.*



## G Are Changing Socio-demographics Driving Our Results?

In Table G1, we show how the electoral support for right-wing parties relates to changes in municipal socio-demographics. None of the correlations are strong. Unsurprisingly, given these low correlations, the coefficients are statistically indistinguishable from zero. Besides this, it should be noted that the model's overall explanatory power is very low, as indicated by the negative adjusted  $R^2$ .

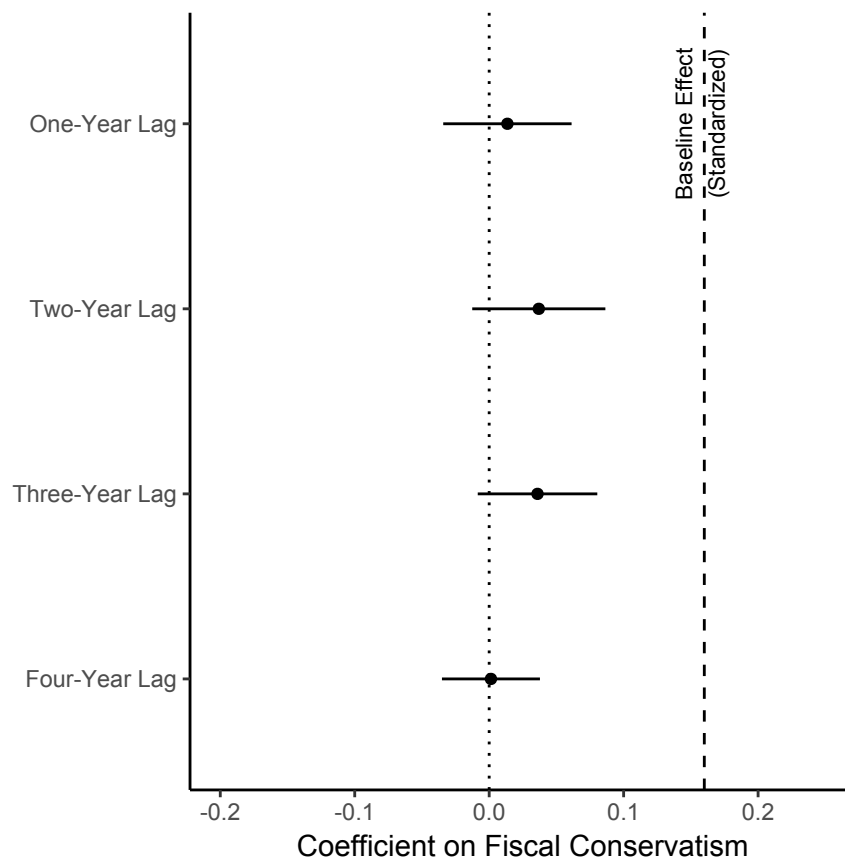
**Table G1:** Support for Right-Wing Parties and Socio Demographics.

| <i>Dependent variable:</i>               |                     |
|--|---------------------|
| Electoral Support for Right-Wing Parties |                     |
| Education                                | −0.007<br>(0.005)   |
| Immigrants                               | −0.0001<br>(0.0001) |
| Unemployed                               | −0.003<br>(0.002)   |
| Wald Stat                                | 2.22                |
| Municipality?                            | Yes                 |
| Year FE?                                 | Yes                 |
| Observations                             | 818                 |
| Adjusted $R^2$                           | −0.500              |

*Note: Robust standard errors clustered on municipality are in parentheses. P value for the wald statistic is 0.53.*

## H Does Fiscal Policy Affect Voter Preferences?

As an additional test of reverse causality, we use the lag of municipal policy as the explanatory variable in a series of fixed effects models predicting electoral support for right-wing parties. We use one- through four-year lags and report the result of each of these models in H1. All coefficients are small and statistically insignificant. This strengthens our claim that changes in voter preferences leads to changes in policy and not the other way around.

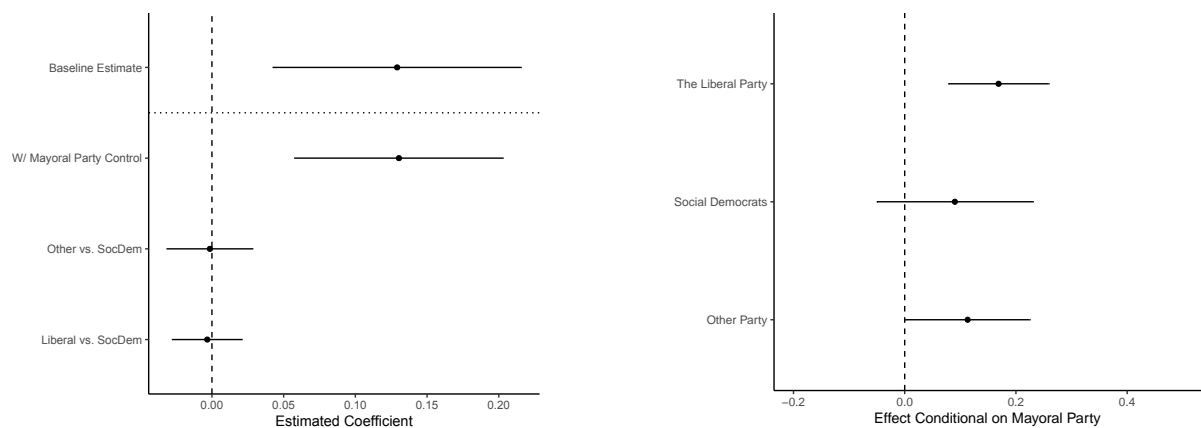


**Figure H1:** Reverse Causality? Fiscal Conservatism does not predict future support for Right-Wing parties. Confidence intervals are 95 percent, computed using robust standard errors clustered at the municipality level.

## I Is It Just the Mayoralty?

There are two important reasons why we would expect municipal policy to be responsive to voter preferences. First, when the electorate chooses to elect more right-wing candidates, we would expect them to enact more fiscally conservative policies. Second, we might observe that parties are differentially responsive to voter preferences. We investigate these mechanisms in Figure I2.

In panel A, we include a categorical control for whether the mayoral party is the Liberal Party, the Social Democrats, or some third party. In doing so, we condition the effect of electoral support for right-wing parties on whether those parties control the most important municipal policy-making position. This gives us the effect of support for right-wing parties among the voters after taking into account, which politicians they elect. Identifying the direct effect of electoral support net of selection by including a post-treatment control in this way requires very strong assumptions that are unlikely to be met. Still, it is striking how little the coefficient on policy preferences change, when we control for which party controls the mayoralty.



**(a) Are Results Driven by Selection?** The figure shows results after including control for the mayoral party. Baseline estimates are included for comparison.

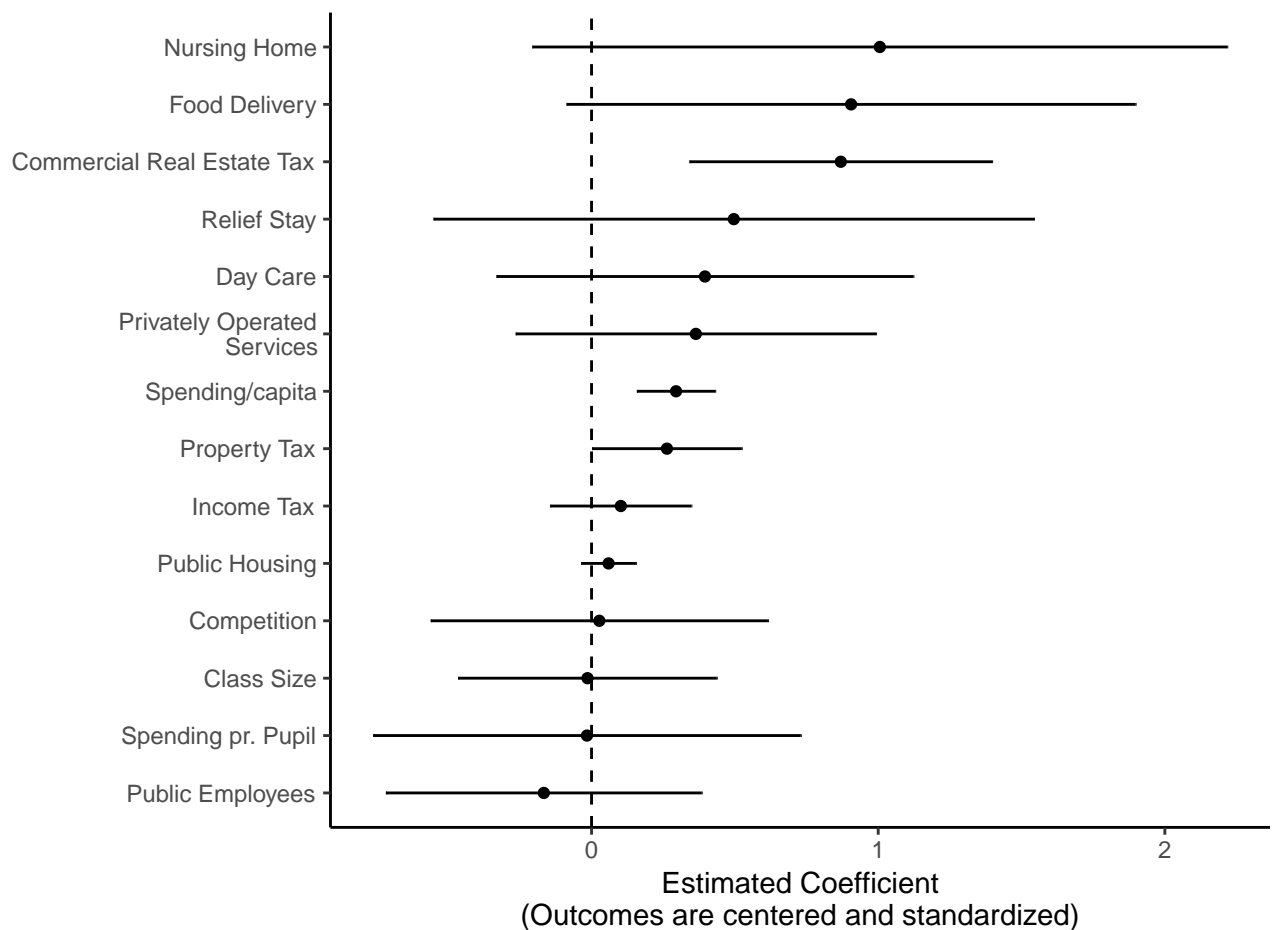
**(b) Are All Parties Equally Responsive?** The figure shows the marginal effects from a model including an interaction between mayoral party and electoral support for right-wing parties.

**Figure I2:** Responsiveness or Selection? Twoway fixed effects and population size (logged) included in both models. Confidence intervals are 95 pct., computed from robust standard errors with clustering at the municipal level.

In panel B, we allow the effect to vary across our three different categories of mayoral party. The differences in the estimates are very small, suggesting that all mayors are equally responsive.

## J Effects on Individual Policy Indicators

As our measure of municipal policy is made up of many different fiscal policies it is interesting to investigate, which factor(s) drive the effect. To do so, we regress a four-year lead of all policy items presented in Table B1 individually on the electoral support of right-wing parties including time and year fixed effects. Figure J1 presents the results. While some variables are uncorrelated with voter preferences, a majority are quite strongly correlated with preferences, but the individual correlation is estimated with a great deal of uncertainty. This suggests that combining the items has added value over only using one, as we reduce statistical noise in the estimation process.



**Figure J1:** Effect of Right-Wing Electoral Support Across Components of our Measure. Note that all measures of taxes and spending are reversed to capture that higher values equal more conservative policy. Confidence intervals are 95 percent, computed using robust standard errors clustered at the municipality level.

## References

- Blom-Hansen, J., Elklit, J., and Kjær, U. (2009). Ét eller 98 kommunale valg i 2009? In Kjær, U., Elklit, J., and Elmelund-Præstekær, C., editors, *KV09. Analyser Af Kommunalvalget 2009*. Syddansk Universitetsforlag.
- Christiansen, P. M. and Klitgaard, M. B. (2008). *Den utænkelige reform. Strukturreformens tilblivelse 2002-2005*. Syddansk Universitetsforlag.
- Elklit, J., Elmelund-Præstekær, C., and Kjær, U. (2017). Kv13–analyser af kommunalvalget 2013.
- Ingvartsen, O. (1991). *Kommunalreformen i Danmark: Nye kommunale opgaver, planlægning og styring efter 1970*. Forl. Kommuneinformation.
- Kjaer, U. (2015). Urban political leadership and political representation: the multifaceted representational role of danish mayors. *Urban Affairs Review*, 51(4):563–577.
- Serritzlew, S., Skjæveland, A., and Blom-Hansen, J. (2008). Explaining oversized coalitions: empirical evidence from local governments. *Journal of Legislative Studies*, 14(4):421–450.