

In most developed countries municipal governments are an essential part of representative government (Trounstine, 2009; Kersting and Vetter, 2013). 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 thus 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).

Recent empirical studies of municipal government, however, 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 (Sances, 2017b; Boudreau et al., 2015; Hopkins and Pettingill, 2017). 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., Fiva et al., 2016; Blom-Hansen et al., 2006; de Benedictis-Kessner and Warshaw, 2016).

While these studies provide *indirect* evidence that municipalities are responsive, there are only a few studies that 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 these preferences and city policy (for earlier efforts, see Hajnal and Trounstine, 2010; Palus, 2010). Two other recent studies have directly examined municipal responsiveness. The first of these are Einstein and Kogan (2016). Here, the authors also identify

a strong correlation 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 (2017c) 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 (Sances, 2017c; Einstein and Kogan, 2016) or at a single point in time (Tausanovitch and Warshaw, 2014). Relatedly, 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 we measure policy and preferences at the same time. However, the static analysis which permeates most of the existing literature also limits the theoretical inferences we can make about responsiveness. In particular, it becomes hard to know whether municipal policy responds dynamically to *changes* in preferences, or whether the overlap between policy and preferences are shaped by either forces, such as Tiebout sorting. That is, it becomes hard to know whether municipal policy is dynamically responsive (Stimson et al., 1995). Finally, the existing literature is exclusively US based, which naturally raises concerns about generalisability.

In this study, we address these limitations related to context, design and data 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). A 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. Similar 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 electoral 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 to avoid concerns about reverse causality. 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—i.e., past changes in policy do not predict future changes in preferences—and that the effects of a change in the electorate’s preferences are detectable up to nine years later. Our findings thus suggest that citizens, 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 get 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 where turnout is relatively high.¹ 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 is the high quality data on municipal policy and municipal policy preferences which are available, and the fact that it is a very different setting from the ones previously examined.

¹See Appendix A for more details on the political system in Danish municipalities.

An Annual Measure of Municipal Fiscal Policy Conservatism

To measure fiscal policy conservatism in Danish municipalities 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 (i.e., 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 pr. 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 (Tausanovitch and Warshaw, 2014; Palus, 2010) or with substantial intervals (Sances, 2017c; Einstein and Kogan, 2016; Hajnal and Trounstone, 2010).

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., Sances, 2017b; Einstein and Kogan, 2016), 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 which 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., Hajnal and Trounstone, 2010; Einstein and Kogan, 2016), we are able to look at municipal elections. This is potentially important, as 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 do a validation of our measure in Appendix E, where we show 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 – that is within-municipality. Interestingly, we identify a non-linearity, but this pattern is not robust to alternative specifications (i.e., it disappears in a twoway 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 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 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

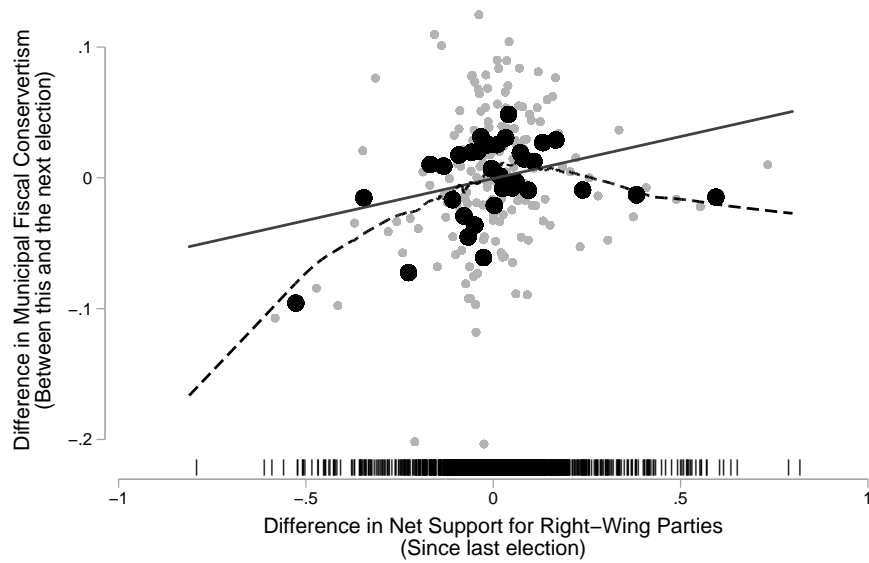


Figure 1: Do Changes in Preferences Correlate with Future Changes in Policy? Both variables are trend adjusted (i.e., the year specific means are subtracted). Grey dots represent bins of ten observations, dark dots represent bins of 100 observations. The solid line is a linear fit ($b = 0.046$, municipality 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.

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 we would expect pre-trends to be different.

While we cannot test the identifying parallel trends assumption directly, we can see whether trends in the dependent are similar before municipalities "select into" different preferences. To do this, we regress past levels of policy conservatism on current levels of net support for conservative parties using our two-way fixed effect set-up. The resulting effect is negligible and statistically insignificant, suggesting that the trends were parallel (see Figure 3). To bolster this analysis further, we show in Appendix H that past changes in municipal policy is unrelated

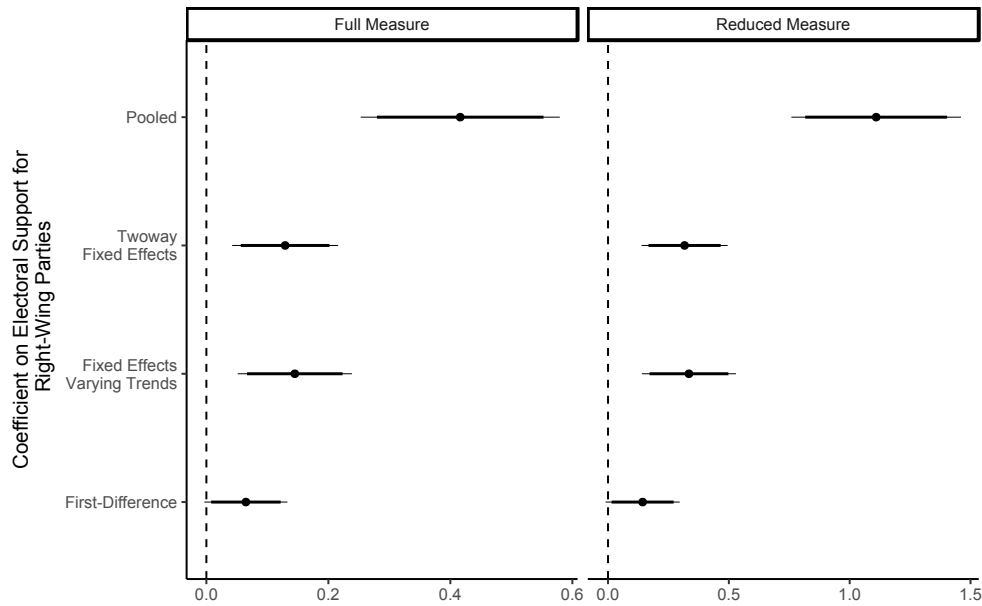


Figure 2: Effect of Electoral Support for Right-wing Parties on Municipal Conservatism 4 years later. Points are unstandardized OLS coefficients. Lines are 95 percent (thin) and 90 percent (thick) confidence intervals (CIs). Beck-Katz standard errors used in first-difference models, Arellano-White standard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

with future changes in electoral support for right-wing parties.

Beyond this indirect test, we interact the time fixed effects with a series of 13 regional dummies² 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 also 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, it is striking how little estimating this more restrictive model changes our results – if anything the point estimate increases.

To make sure that there is no remaining bias due to 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

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

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. 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, and thus that we have a good 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 run 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 revert back (see theories of punctuated equilibria, 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 through 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.

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 re-

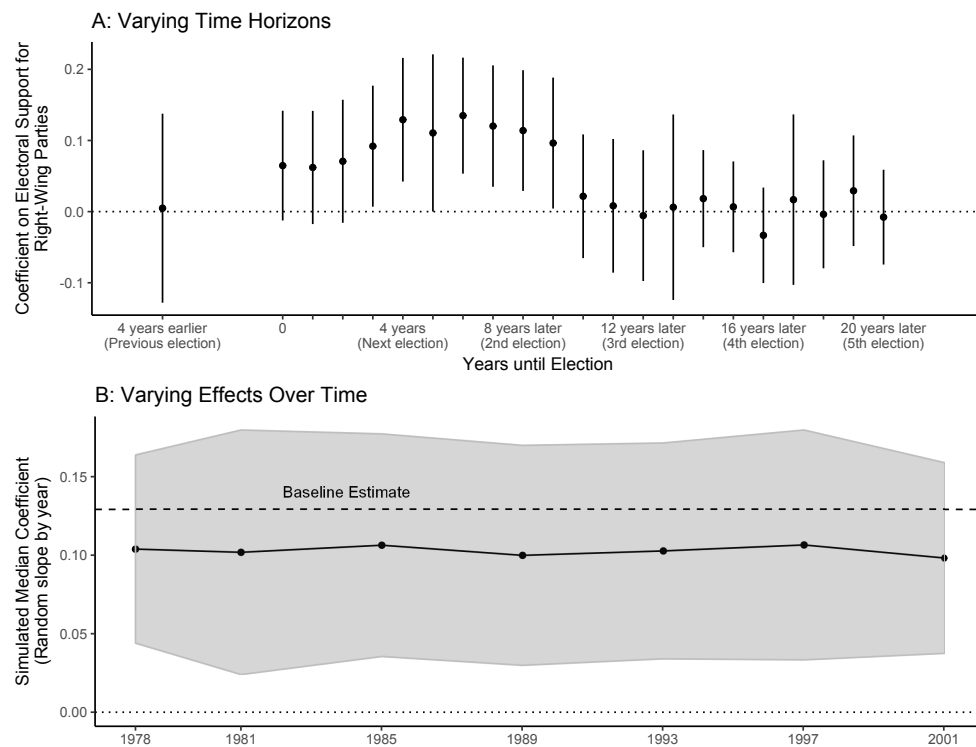


Figure 3: Effects of Local Policy Preferences Over Time. All models are twoway fixed effects with control for population size. Panel A: Black points represent the effect of net electoral support for conservative parties with different leads. Black lines are 95 percent CIs based on Arellano-White robust 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 of 100 resamples.

sponds. 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.

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