Research Note

Can Citizens Set City Policy? Evidence from a Decentralized Welfare State

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Benjamin Egerod[1] and Martin Larsen[2]

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 ideological mood of the electorate. In particular, we compile a unique and comprehensive data set of local fiscal policy in Denmark, which we use to construct municipal-level estimates of fiscal policy conservatism. These detailed policy data are then linked to an indicator of local ideological sentiment. Based on these data, we find strong evidence for dynamic responsiveness: When local preferences change, local public policy responds.

Keywords

responsiveness, city politics, budgetary politics, partisanship

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

[1]Kobenhavns Universitet, Kobenhavn, Denmark
[2]Aarhus University, Århus C, Denmark

Corresponding Author:
Martin Larsen, Aarhus University, Bartholins Alle 7, 8000 Århus C, Denmark.
Email: mvl@ps.au.dk

governments, oversight is far from complete (Organisation for Economic Co-operation and Development 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 their 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 1987). Furthermore, even if municipalities have the capacity to set policy independently, voters might not be able to effectively influence policy making, due to the power of special interests.

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; Larsen 2019) and to vote for conservative mayors if they themselves hold conservative policy views (Boudreau, Elmendorf, and MacKenzie 2015; Hopkins and Pettingill 2017; Sances 2018). 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, Monkerud and Sørensen 2006; de Benedictis-Kessner and Warshaw 2016; Fiva, Folke, and Sørensen 2018).

This provides *indirect* evidence that municipalities are responsive, yet only a few studies examine municipal responsiveness more directly (Einstein and Kogan 2016; Hajnal and Trounstine 2010; Palus 2010; Tausanovitch and Warshaw 2014). Typically, these studies correlate measures of city policy, such as tax rates and levels of spending, with measures of citizens preferences, as expressed at elections or in public opinion surveys. The result is a strong correlation. While these studies provide unique insight into the overlap between citizen preferences and city policy, they do not provide us with a very strong test of responsiveness.

Just because more conservative citizens live in more conservative places does not mean that politicians have responded to citizen demands. It could just as easily be that citizens have moved to places that are more conservative (Tiebout 1956), or that citizen preferences respond to city policy (Broockman and Butler 2017; Slothuus 2010). In addition to these concerns, a cross-sectional correlation tells us little about how quickly politicians adapt to changes in citizen preferences.

Adaptiveness is important from the point of view of electoral accountability. As such, if adaption takes longer than an election cycle, citizens will not be able to observe whether politicians have responded to their concerns, making it impossible to reward or punish politicians for policy changes. Beyond this, adaptiveness might also speak to the mechanisms underlying local responsiveness. If adaption is instant, then responsiveness is more likely to stem from politicians picking up signals from their voters through engaging with their constituents (Butler and Nickerson et al. 2011). If adaption takes little less than an election cycle, then electoral selection, that is, changes in who gets elected, is a more likely culprit (Mansbridge 2009). Finally, if adaption only occurs after an election cycle, then more structural explanations are a better fit (Erikson, Wright, and McIver 1993, p. 90).[1]

In this article, we study the dynamics of local responsiveness in Danish municipalities. In particular, we develop an annual measure of municipal policy conservatism based on 14 fiscal policy indicators (1978–2006), which we link to a data set of net support for conservative (right-wing) parties at local elections dating back to 1978. This data set allows us to examine how past changes in preferences are related to future changes in policy. In particular, we are able to identify how long it takes a change in citizens preferences to affect city policy, and how long this effect persists.

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, assuaging concerns that citizens are the ones responding to policy. In terms of adaptiveness, we find that the effect of a change in the electorate's preferences are detectable after three years and persist nine years into the future. Our findings therefore suggest that municipal governments are dynamically responsive to citizen concerns and that while the effect is not immediate, it takes less than an election period for citizen preferences to affect city policy.

Dynamic and Adaptive Local Responsiveness

Not long ago, most researchers of local government would probably have agreed that local governments are not responsive to citizen preferences (Peterson 1981). This is no longer the case, as a number of recent studies have found that citizen preferences are strongly and robustly associated with local policy outcomes. Most notably, Tausanovitch and Warshaw use Multilevel Regression with Poststratification (MRP) to estimate the policy preferences of citizens in a cross section of U.S. cities. They find a strong correlation between voter preferences and city policy (for earlier efforts, see

Hajnal and Trounstine 2010; Palus 2010). Two other recent studies have directly examined municipal responsiveness. Einstein and Kogan (2016) 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. However, the key contribution of Einstein and Kogan's study is that they examine responsiveness in a panel of cities from two U.S. states. In these two states, they find that when areas become more liberal, so do policy outcomes. Sances (2019) expands on this work using a panel of 3,000 U.S. counties spanning 50 years. Linking changes in Democratic vote share to county-level policy outcomes, Sances finds that as counties grow more Democratic, they tend to spend more and to collect more own-source revenues.

Research in the area of municipal responsiveness has thus made impressive progress in the past few years. However, the existing evidence remains limited in important ways. Even though some previous studies have used panel data, they have exclusively examined the relationship between concurrent changes in policy and preferences over five year periods. This is in part a result of these studies using the Census of Governments (COG) to get data on policies. The COG is only collected every five years, which means that researchers are forced to interpolate policy preferences from elections held before and after the COG when analyzing the relationship between policy and preferences. This approach leaves panel studies open to some of the same criticisms that can be leveraged against cross-sectional designs. In particular, one cannot rule out that citizen preferences adjust to policy through Tiebout-sorting (i.e., liberal policies attracting liberal voters) or through position taking (i.e., voters adjusting their preference in response to changes in policy). To rule out this type of reverse causation, one would need to look at whether current changes in preferences predict future changes in policy. This is difficult to do when the estimate of preferences measured at time t is partly influenced by preferences at $t+1$ because of interpolation. In addition to this, the fact that data are only available in five-year increments means that studies relying on the COG cannot speak to how long it takes for a change in preferences to influence local government policy.

As a result, existing research has not been able to delineate whether and how fast municipal policy responds to *changes* in preferences over time. That is, whether and to what extent municipal policy is dynamically responsive.

While the importance of dynamic responsiveness has been well-established (Stimson, MacKuen, and Erikson 1995), the importance of adaptive responsiveness might not be so obvious. If policy responds, why does it matter how

fast it responds? For one, slower adaption of city policy to citizen preferences will mean that policy and preferences will be "out of sync" for longer. Adaption that takes longer than an election cycle will also mean that voters will not be able to discern whether elected officials have set policy on a course that is aligned with what the voters want, making it difficult for voters to hold politicians accountable.

The pace of responsiveness might also give an indication of *why* policy is responsive (Tausanovitch 2019). In particular, if policy instantly responds to changes in preferences, then it suggests that politicians have observed the changing mood of the electorate—perhaps as a result of constituent interaction—and already tried to push policy in the direction that the voters want. If policy responds a few years after the preferences of the voters' have changed, then it suggests that voters need to express their wishes in the electoral process to change the re-election incentives of the politicians in office (e.g., Boyne et al. 2009). Finally, if policy adapts more slowly, over a decade or so, then it suggests that a more slow-moving force is at work. Erikson, Wright, and McIver (1993, p. 90) describe one such slow-moving force, namely that " . . . recruitment of candidates from the same constituencies as the voters they hope to represent means that the values of the legislators should reflect state ideology to some extent."

Of course, adaptiveness cannot be used as definitive proof that one or another mechanism explains the link between preferences and policy, but it should furnish us with a clue about the mechanism that other scholars can use in developing theories about local responsiveness (Tausanovitch 2019).

Empirical Strategy

Below, we describe a novel data set connecting an *annual* measure of municipal fiscal conservatism to an electoral measure of local policy preferences. With this new data set, we are able to explore exactly how adaptively and dynamically responsive local governments are to changes in constituent demands.

Empirical Context

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% 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 U.S. 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 multiparty PR system in which turnout is relatively high.[2]

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 United States, whereas others—such as the general purpose organization of local government—seem to make responsiveness more likely. In that sense, the Danish case cannot be seen as especially typical or atypical. However, in relation to the normative implications of local responsiveness, it bears repeating that municipalities in Denmark are entrusted with spending one third of the GDP and are responsible for running large parts of the vast Danish welfare state. If local citizens are not able to steer local policy in Denmark, where policy is so consequential and plays such an integral part in the life of most voters, it is especially democratically problematic.

In terms of generalizability, some features of the Danish municipalities, such as general purpose organization and (some) autonomy to tax and spend, are common features of municipalities in many Western democracies. Other features, such as relatively high turnout and competitiveness of the elections, are more unique to the Danish municipalities.

An Annual Measure of Municipal Fiscal Policy Conservatism

To measure fiscal policy conservatism, we rely on 14 different indicators relating to either tax policy, spending policy, organization of public service delivery, the extent of public services, and co-payment for public services.[3] An overview and discussion of the policy indicators are presented in Supplemental 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 U.S. 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, these indicators still shape our estimates of municipal fiscal policy conservatism across the entire period—The units simply supply less information to the estimation in the period where they have missing observations. 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 conduct all analyses using an index comprising only these three indicators (reduced measure) as well as with all indicators (full measure). More details about the measurement model can be found in Supplemental Appendix C.

The annual measure of fiscal policy conservatism we end up with is more granular and more reliable than the indicators of municipal policy used in previous studies relying on the COG or similar data sources (Einstein and Kogan 2016; Hajnal and Trounstine 2010; Palus 2010; Sances 2019; Tausanovitch and Warshaw 2014). As such, all municipalities in Denmark are required by law to report on their fiscal policy to the central government each year using common accounting standards. Arguably, this makes the policy information more reliable than the information reported in the COG, which is (at best) based on records given to state governments that might have different accounting standards. Furthermore, as noted above the COG is only conducting every five years, whereas our measure cover all years from 1978 to 2005.

Figure 1 presents some descriptive features of the annual measure of fiscal policy conservatism. In particular, it looks 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.

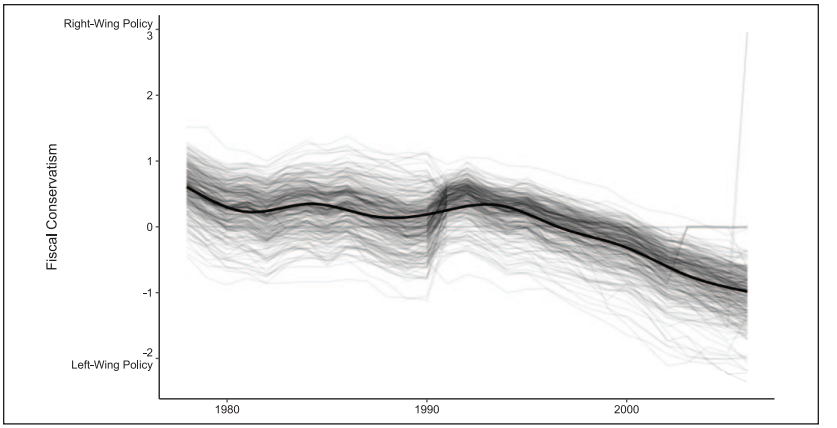

Figure 1. Average municipal fiscal policy conservatism (dark line) and municipal fiscal policy conservatism for individual municipalities (gray lines) from 1978 to 2006.

Municipal Policy Preferences

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 2018), 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, Fremskridstpartiet, 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.

It might have been preferable to have survey-based estimates of citizens' policy ideal points instead of election returns (similar to the measure used by Tausanovitch and Warshaw 2014). However, doing so is not feasible, as survey data are too sparse, especially for the earlier part of the period we study. Instead, we carry out a validation of our measure in Supplemental Appendix D. Here we find that there is a strong correlation between net support for conservative parties at municipal elections and citizens' ideological self-placement.

Table 1. Descriptive Statistics.

Statistic	*N*	*M*	*SD*	Minimum	Maximum
Full fiscal scale	1,908	0.153	0.455	−1.803	1.509
Full fiscal scale (within)	1,908	0.000	0.347	−1.591	0.930
Reduced fiscal scale	1,908	0.215	0.986	−3.380	3.045
Reduced fiscal scale (within)	1,908	−0.000	0.708	−2.809	2.211
Support for right-wing parties	1,908	0.061	0.213	−0.613	0.655
Support for right-wing parties (within)	1,908	−0.000	0.113	−0.527	0.777
Population size (logged)	1,908	9.367	0.744	7.726	12.566
College graduates (percent)	819	14.536	5.464	6.800	44.100
Non-western Immigrants (per 10,000)	818	143.265	160.195	3	1,344
Unemployment (percent)	1,092	8.526	3.459	2.200	23.000

Unlike previous studies, which have relied on support for conservative vis-à-vis liberal parties at national or regional elections (e.g., Einstein and Kogan 2016; Hajnal and Trounstine 2010), we look at municipal elections. There are several advantages to using local rather than national election returns. For one, citizens might differ in their policy views across domains, preferring more right-wing policy at the local level than at the national level (for an argument along these lines, see Abrams and Fiorina 2012). The electorate at local elections could also be differently composed than electorates in national elections (Bhatti et al. 2019), and therefore one might not capture the local electorates' ideological profile by using national election returns.

Using local rather than national election returns also has a potential drawback: Local parties might adjust their ideological profile to appeal to local voters (Erikson, Wright, and McIver 1993). As such, in more conservative municipalities, left-wing parties might become more conservative to attract the more conservative electorate and vice versa, attenuating the correlation between conservative preferences and support for right-wing parties. However, this is less of a concern in our case, because we look at how *changes* in net support for right-wing parties come to affect changes in policy. Even if the level of support for conservative relative to liberal policy is obscured by local convergence in party platforms, increased support for right-wing parties relative to left-wing parties should still reflect a shift away toward conservative preferences in the electorate.

Table 1 presents descriptive statistics on our measure of local preferences and other central variabels. For the key variables in our analysis, we show descriptives on the levels as well as their within-municipality changes. It is

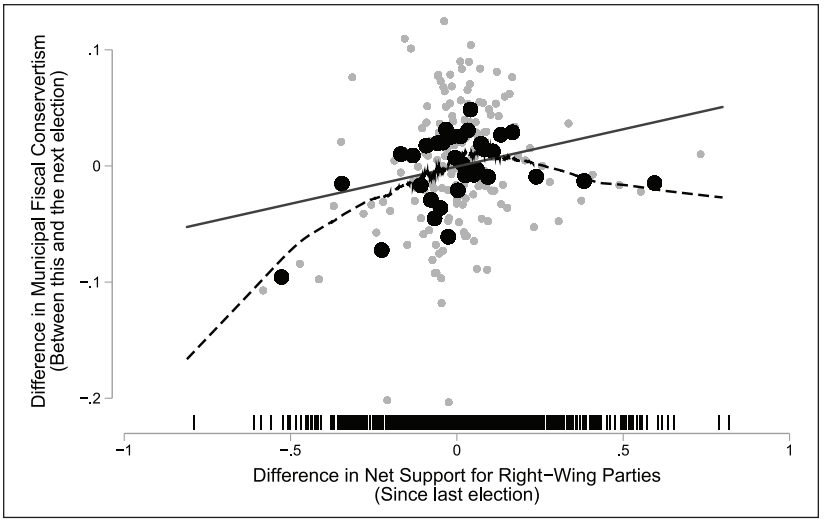

Figure 2. Do changes in preferences correlate with future changes in policy? Both variables are trend adjusted (i.e., the year specific means are subtracted).
Note. Gray dots represent bins of 10 observations, dark dots represent bins of 100 observations. The solid line is a linear fit (b =0.046, municipality clustured *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.

noteworthy that while within-municipality evolution in fiscal policy conservatism as well as electoral support for right-wing parties is smaller than the differences across municipalities, there is still a considerable amount of within-municipality variation.

Identifying Dynamic Responsiveness in Cities

Figure 2 shows that 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 nonlinearity, 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.

Table 2 presents the key estimate (i.e., the effect of changes in local policy preferences) from a pooled ordinary least squares (OLS) regression, as well

Table 2. Effect of Electoral Support for Right-Wing Parties on Municipal Conservatism Four Years Later.

	Dependent Variable							
	Full Fiscal Policy Scale$_{t+4}$				Reduced Fiscal Policy Scale$_{t+4}$			
	Pooled	Fixed Effects	Diff Trend	First-Difference	Pooled	Fixed Effects	Diff Trend	First-Difference
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Right-wing vote share (Municipal elections)	0.416** (0.083)	0.129** (0.044)	0.145** (0.048)	0.065** (0.025)	1.110** (0.179)	0.317** (0.091)	0.335** (0.099)	0.144** (0.055)
Population size (logged)	−0.097** (0.022)	−0.711** (0.202)		−0.596** (0.178)	−0.180** (0.051)	−1.197** (0.407)		−0.977* (0.387)
Constant	0.802** (0.213)			−0.010 (0.009)	1.454** (0.488)			−0.070** (0.021)
Municipality FE?	No	Yes	Yes	No	No	Yes	Yes	No
Year FE?	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Year × Region FE?	No	No	Yes	No	No	No	Yes	No
Year FE × Population Size?	No	No	Yes	No	No	No	Yes	No
Four-year differenced?	No	No	No	Yes	No	No	No	Yes
Observations	1,908	1,908	1,908	1,633	1,908	1,908	1,908	1,633

Note. Estimates are unstandardized OLS coefficients. Beck-Katz standard errors in parentheses in first-difference models, Arellano-White standard errors with clustering on municipality level used in the remaining models to correct for temporal autocorrelation. * and ** indicate statistical significance at the 5% and 1% levels, respectively. See Supplemental Appendix H for results using the individual policy indicators. OLS = ordinary least squares.

as from three types of difference-in-differences (diff-in-diff) models: one estimated using municipality and time fixed effects, one allowing municipalities to follow differential trends in a highly flexible manner, and a first-difference model 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 first four columns use the full measure of fiscal conservatism as the dependent variable. There could be concerns that the results were affected by missing observations in the items, which are imputed in the Bayesian model we use to estimate fiscal policy conservatism. To alleviate these concerns, the final four columns use our reduced measure, where there are no missing observations on the items. Across all models, we find a statistically significant and positive effect. The larger coefficients in the final four models are driven by a larger standard deviation in the reduced measure.

The estimate from the pooled model is likely to be confounded by the sociodemographic makeup 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 sociodemographics. In our preferred fixed effects model, we estimate the effect to be roughly .13. This corresponds to a little more than a quarter of the within-municipality standard deviation—a substantive association.

While the notion of fiscal policy conservatism can seem highly abstract, changes in our measure arise from fluctuations in municipal spending on particular public services and how this spending is financed. All of which has real consequences for the citizens of a given municipality. An increase in overall conservatism of 0.13 is expected to be made up of reductions amounting to 13% and 10% of a standard deviation in income and property taxes, respectively, 16% of a standard deviation in spending per pupils in public schools, 9% of a standard deviation in the prevalence of public housing, 10% of a standard deviation in the number of public employees, and 21% of a standard deviation in overall spending per capita.[4] These results indicate that when citizens change their preferences, it is likely to have notable real-world consequences for municipal fiscal policy and—by extension—the provision of specific local public services.

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, then this assumption will be violated.

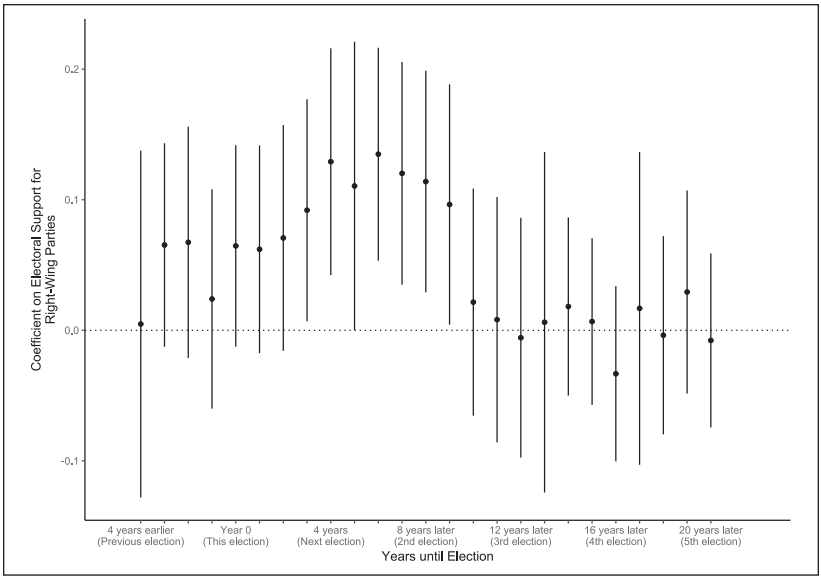

Figure 3. Effects of local policy preferences over time.
Note. All models include two-way fixed effects with control for population size. Black points represent the effect of net electoral support for conservative parties with different leads. Black lines are 95% CIs based on Arellano-White robust standard errors clustered on municipalities.

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 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 Supplemental Appendix F that past changes in municipal policy is unrelated to future changes in electoral support for right-wing parties.

Beyond this test, in columns three and seven of Table 2 we estimate a more restrictive model, where we interact the time fixed effects with a series of 13 regional dummies[5] as well as population size. This allows municipalities to be on separate time trends depending on their geographic location and population size. Importantly, this strategy should deal with the confounding effect of the sociodemographic makeup 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 Table 2, estimating this more restrictive model does not change our results. If anything, the point estimate increases.

To make sure that there is no remaining bias because of sociodemographic 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 (see Figure 1), simply including them in our model would bias our results by censoring the dependent variable. Instead, we follow (Pei, Pischke, and Schwandt 2019) and regress electoral support for right-wing parties on our three sociodemographic predictors. As we show in Supplemental Appendix E, the correlations between within-municipality changes in sociodemographic factors and support for right-wing parties are very small and statistically insignificant. This suggests that these important sociodemographic 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, implying that we have a plausibly unbiased estimate of the effect of municipal policy preferences on municipal policy.

How Adaptive 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 across different time horizons. The analysis reveals that it takes some time for policy to respond to preferences. There is only a small effect one year after local policy preferences change and the largest effect is after four years. The effect is detactable 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).[6] In addition, it is reassuring that the effect is stable between four and eight years into the future, because this indicates that our results are unlikely to be a result of electoral budget cycles.

Discussion

In this study, we have found that changes in the policy preferences of citizens are robustly related to changes in city policy. Using a detailed and comprehensive

measure of municipal policy, we were able to link past changes in preferences to future changes in policy, sidestepping concerns related to reverse causality, and we were able to see how fast municipal policy adapted to changing preferences. Our results suggest that the effect is not immediate, but it does materialize within an election cycle (four years).

As discussed earlier in the article, the pace of change in policy may give clues as to the mechanism by which responsiveness works. As such, the fact that the effect of changes in policy takes some time to materialize, could suggest that politicians are not continuously attuned to the changing mood of the electorate. At the same time, responsiveness does not take a very long time to materialize, suggesting that it is not slow-moving structural forces that aligns policy with preferences. Instead, the timing can be explained by politicians learning from election results how the mood of the electorate has changed and correcting the course of municipal policy making accordingly.

From the standpoint of electoral accountability it is also reassuring that policy responds within the four year election cycle. In this way, citizens will be able to recognize and act on whether politicians have changed policy, based on the change in preference voters expressed at the last election.

As mentioned above, it is difficult to say whether or how far these findings generalize. Even so, these results should be broadly interesting and encouraging to those who study the prospects for local democracy. Denmark has decided to delegate a lot of (fiscal) power to local governments, and it seems like this democratic experiment has worked—at least to some extent. As such, 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.

Authors' Note

Benjamin Egerod is now affiliated with Copenhagen Business School, Kobenhavn, Denmark.

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ORCID iD

Martin Larsen https://orcid.org/0000-0002-5246-2755

Supplemental Material

Supplemental material for this article is available online.

Notes

1. Previous studies have tried to address some of these questions using panel data on policy or preferences (see Einstein and Kogan 2016; Sances 2019). However, as we lay out below, even these studies are not able to adequately capture how local policy responds to changes in citizen preferences.
2. An important feature of the system is that the pool of candidates is very large. In the latest election in 2017, more than 1/400 of citizens eligible to run for local office did so. The combination of high turnout, a proportional electoral system and large candidate pool means that seats are contested, and voters always have a choice between many different candidates. When investigating the link between voting behavior and fiscal policy in other settings, this might have been a problem (see Suzuki and Han 2019). See Supplemental Appendix A for more details on the political system in Danish municipalities.
3. The local governments are responsible for providing a number of public services, such as nursing homes and daycare centers. The majority of the cost for these public services are paid by the municipalities, but they are allowed to set a co-payment that the citizen has to pay. More conservative local governments are thus able to reduce public spending by increasing these co-pays.
4. We arrive at these estimates by using the correlation between each item and the overall measure of fiscal policy conservatism. The full list of correlations is presented in Supplemental Appendix C.
5. These correspond to 13 regional governments (amter) which were responsible for, among other things, health care in the period we study.
6. In Supplemental Appendix I, we also 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 highly stable throughout our period of study. Preferences do not seem to matter more or less across the period we study.

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Author Biographies

Benjamin Egerod is an assistant professor in the Department of International Economics, Government and Business at Copenhagen Business School. His research focuses on representation, interest groups, and money in politics.

Martin Larsen is an associate professor in the Department of Politics at Aarhus University. His research focuses on representation, electoral accountability, and the politics of housing. His work has appeared or is forthcoming in *American Political Science Review, Journal of Politics*, and the *British Journal of Political Science*.

Appendix: For Online Publication

Contents

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 (Ingvartsen, 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, Elklit and Kjær, 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 calender 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, Skjæveland and Blom-Hansen, 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 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

In Table B1, we present the fiscal policies that we use to construct our overall measure of fiscal conservatism. For each item, we indicate how many years of data availability there are, and whether we expect higher or lower values to imply a more conservative policy stance.

When it comes to variables capturing tax policy, spending policy, and the organization and extent of public services it is relatively self-explanatory, which direction implies more fiscal conservatism. However, when it comes to co-payment for public services in the Danish welfare state, it requires a few more comments to explain which direction implies conservatism. All Danish municipalities pay a significant part of the expenses faced by private citizens, when it comes to day care for their children, relief stays, food delivery for the elderly and stays in nursing homes. Thus, when citizens are faced with higher prices for these services, it is typically, because the municipality chooses to spend less on subsidizing them. Therefore, higher prices will be an indication of the municipality pursuing a more conservative fiscal policy. While these features are relatively unique to the Scandinavian welfare states, it is important to note that the inclusion of these items are not essential for obtaining our results – we obtain similar estimates by using the smallest index, including only items relating to taxes and spending.

Table B1: Indicators of Fiscal Policy Conservatism

Policy	**Availabiliy (number of years)**	**Do Higher or Lower Values Imply Conservatism?**
Tax policy		
Income tax (pct.)	29	Lower
Property tax (per mille)	29	Lower
Commercial real estate tax (per mille)	14	Lower
Spending policy		
Spending pr. capita (DKK)	29	Lower
Spending pr. pupil in school (DKK)	7	Lower
Organization of public service delivery		
Public Employees (pr. 1,000 citizens)	9	Lower
Privately operated services (pct.)	14	Higher
Purchases with a private supplier (pct.)	14	Higher
Co-payment for public services		
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
Extent of Public Services		
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.

Table B2 presents descriptive statistics on the indicators forming the index. It should be noted, that they are all mean-centered and variance standardized before the fiscal conservatism score is estimated. Their non-standardized distributions, however, provide an interesting description of public services in Danish municipalities.

Some patterns stand out. First, the average municipal income tax at just over 18% is comparatively high, and there is little variation in it – the typical municipality only deviates about 1.5% from the mean. Property taxes, on the other hand, deviates a lot between municipalities. The price of day care and nursing homes as well as spending per capita also exhibit surprisingly low variation between municipalities. The opposite is true for the extent of public housing – the typical municipalities vary between having no more than a couple of percent of it, to having more than one-fifth of their entire housing pool being public.

Table B2: Summary Statistics on Fiscal Policy Indicators

Statistic	N	Mean	St. Dev.	Min	Max
Income Tax	7,895	18.380	1.570	10.400	23.300
Property Tax	7,900	9.294	5.360	0.000	55.000
Public Employees	2,437	70.316	7.444	13.000	144.600
Day Care	1,236	2,548.014	388.988	1,242.738	3,541.622
Food Delivery	1,868	44.661	4.648	31.000	86.800
Nursing Home	1,725	2,583.972	356.181	31.950	4,602.000
Relief Stay	1,665	95.343	18.434	6.810	188.000
Private Services	3,805	11.235	2.439	4.500	43.500
Private Supplier	3,805	17.650	3.392	7.800	53.400
Public Housing	3,799	12.150	10.608	0.100	68.000
Class Size	3,802	18.677	1.710	11.200	24.800
Spending per Pupil	1,894	49,643.730	5,609.046	37,735.070	101,711.800
Commercial Real Estate Tax	1,084	7.052	2.887	0.327	10.000
Spending per Capita	7,772	43.253	5.937	11.935	68.838

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 ϕ. C is the quantity of most interest – the latent fiscal conservatism in that municipality. β is the discrimination parameter, which captures how strongly each observed policy variable loads onto the latent dimension. Finally, α 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 β'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.

Reliability of the Index and What It Measures

Figure C1 shows the correlations between each item and the overall measure of fiscal policy conservatism. The estimated correlation between the overall measure and each single item are printed in the top right corner of each plot. These estimates are obtained from a series of linear regressions. Note that we plot the versions of the variables that were used as input in the IRT model, so to reflect our expectations about conservative policies income tax, property tax, commercial real estate, spending per capita, spending per pupil, number of public employees, public housing and class size are all reversed. Therefore, higher values of all variables are designed to indicate more conservative policy. With the exception of class size, privately operated services and food delevery – all of which exhibit negative correlations with fiscal conservatism – our expectations generally align well with the measure. Finally, the prices of nursing homes, relief stays, and day care as well as purchases with private suppliers ('competition') have limited relationship with this measure of fiscal conservatism.

It is clear that the index is most closely aligned with spending per capita. This is intuitive, since any good measure of fiscal conservatism should have this trait. Other items, however, still deliver information to the index, and the measure is not only one of spending.

Table C1 shows the Chronbach's alpha value, and the alpha if each item were removed. This gives an indication of the stability and reliability of the fiscal conservatism index. Overall, we obtain a decent reliability of .64, which would be significantly reduced – but not completely decimated – if spending per capita were not included.

Table C1: Reliability of the Conservatism Measure

	Chronbach's Alpha (if item is dropped)	Standard Error
Income Tax	0.646	0.006
Property Tax	0.613	0.006
Public Employees	0.626	0.006
Day Care	0.665	0.005
Food Delivery	0.664	0.006
Nursing Home	0.649	0.006
Relief Stay	0.648	0.006
Competition	0.603	0.006
Privately Operated Services	0.602	0.006
Public Housing	0.596	0.007
Class Size	0.600	0.007
Spending pr. Pupil	0.613	0.006
Commercial Real Estate Tax	0.620	0.006
Spending/capita	0.558	0.007
Overall Alpha	0.64	
95 % Confidence interval	(0.63; 0.65)	

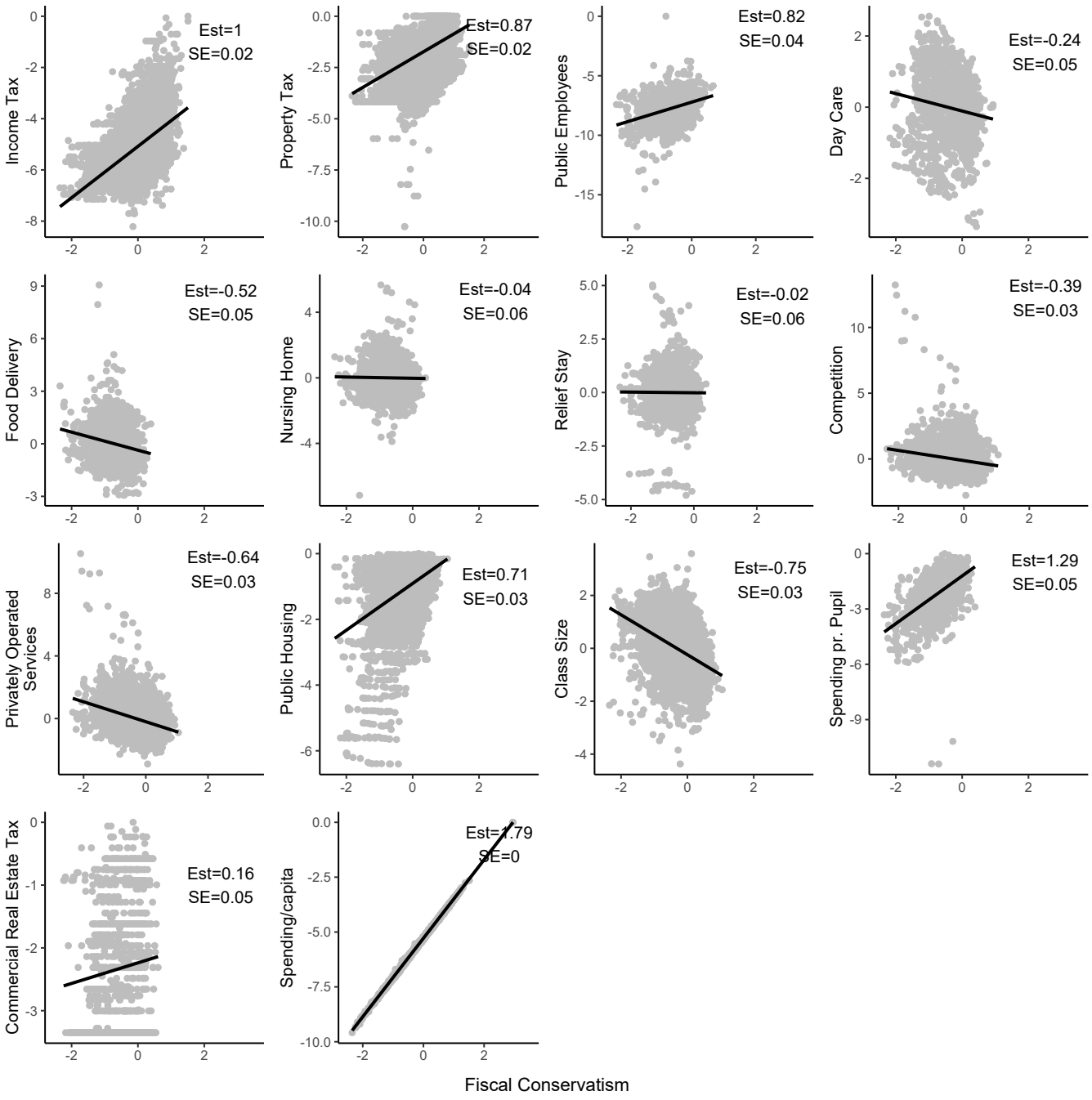


Figure C1: Correlation Between Fiscal Policy Conservatism and Each Included Item

Figure C2 presents an overview of the 50 most and the 50 least conservative municipalities across the entire period. This gives us a good idea about what the index captires. First, it is worth noting that the 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 (Aaalborg, Aarhus, Odense). However, among the most conservative municipalities, there are many rural ones. This indicates that there is some element of socio-demographics in the measure as well. Because of this, we include a control for population size (logged) in all models. The results obtained by leaving the control out are very similar in terms of both effect sizes and statistical significance, indicating that our results are not driven by this feature of the index.

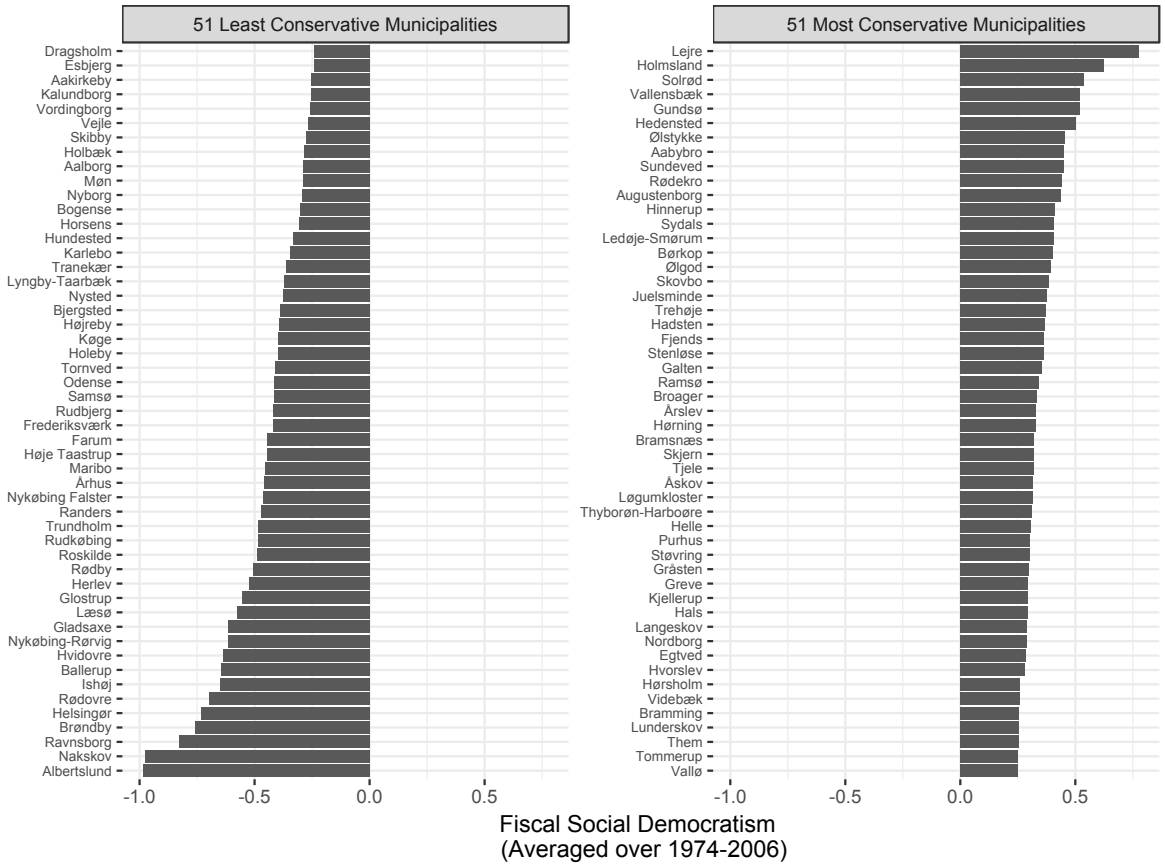


Figure C2: The Most and Least Conservative Municipalities

D Validating Our Measure of Citizens' Policy Preferences

To have an indication of how well our electoral measure capture voters underlying preferences, we look at the 2013 Danish Municipal Election Survey Elklit, Elmelund-Præstekær and Kjær (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 D1, 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.

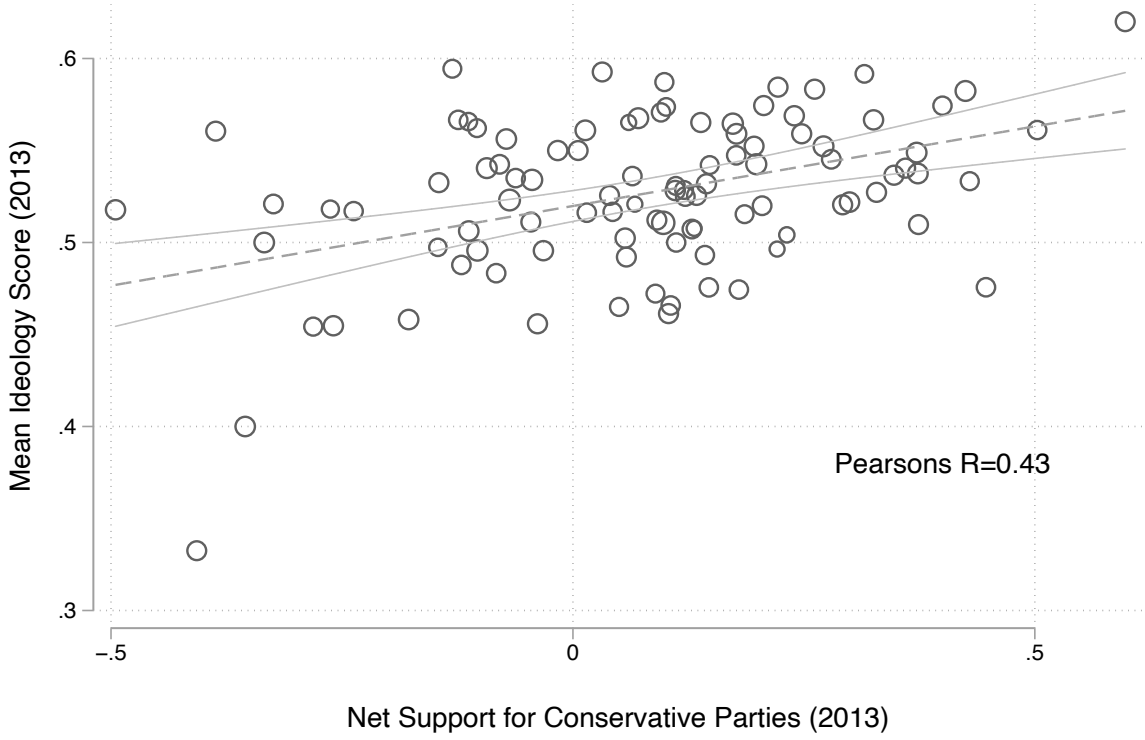


Figure D1: Does the electorates preference over parties reflect preferences over policy? Data from the 2013 municipal election.

E Are Changing Socio-demographics Driving Our Results?

In Table E1, 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 E1: Support for Right-Wing Parties and Socio Demographics.

	Dependent variable:
	Electoral Support for Right-Wing Parties
Education	−0.007
	(0.005)
Immigrants	−0.0001
	(0.0001)
Unemployed	−0.003
	(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.

F 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 F1. 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.

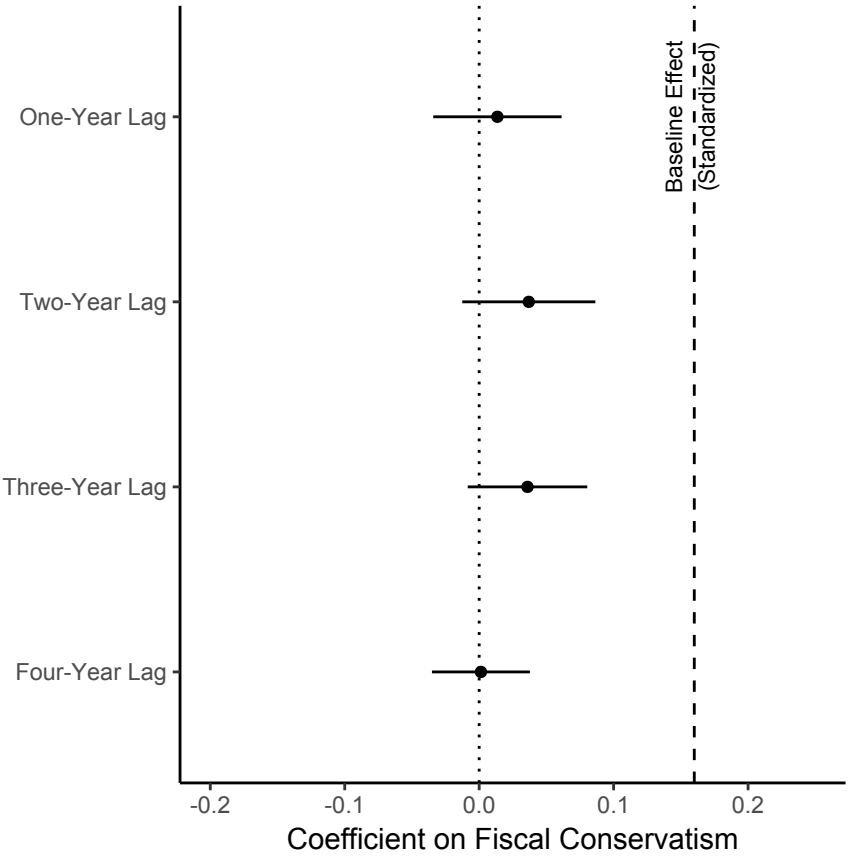
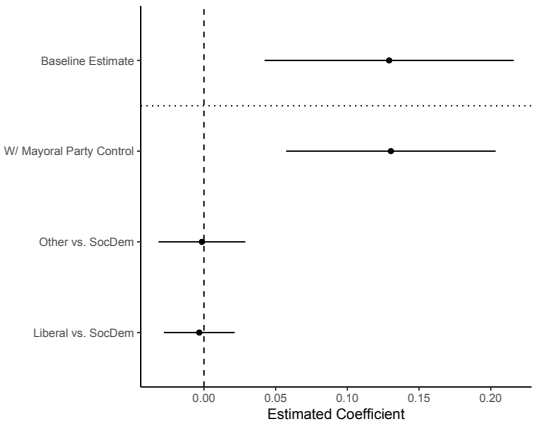


Figure F1: Reverse Causality? Fiscal Conservatism does not predict future support for Right-Wing parties. Confidence intervals are 95 percent, computed using robust standard errors clustered at the municipality level.

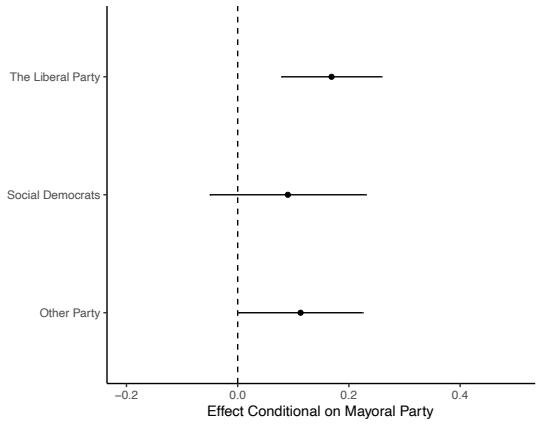
G Is It Just the Mayoralty?

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 G2.

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 G2: 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.

H 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 H1 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.

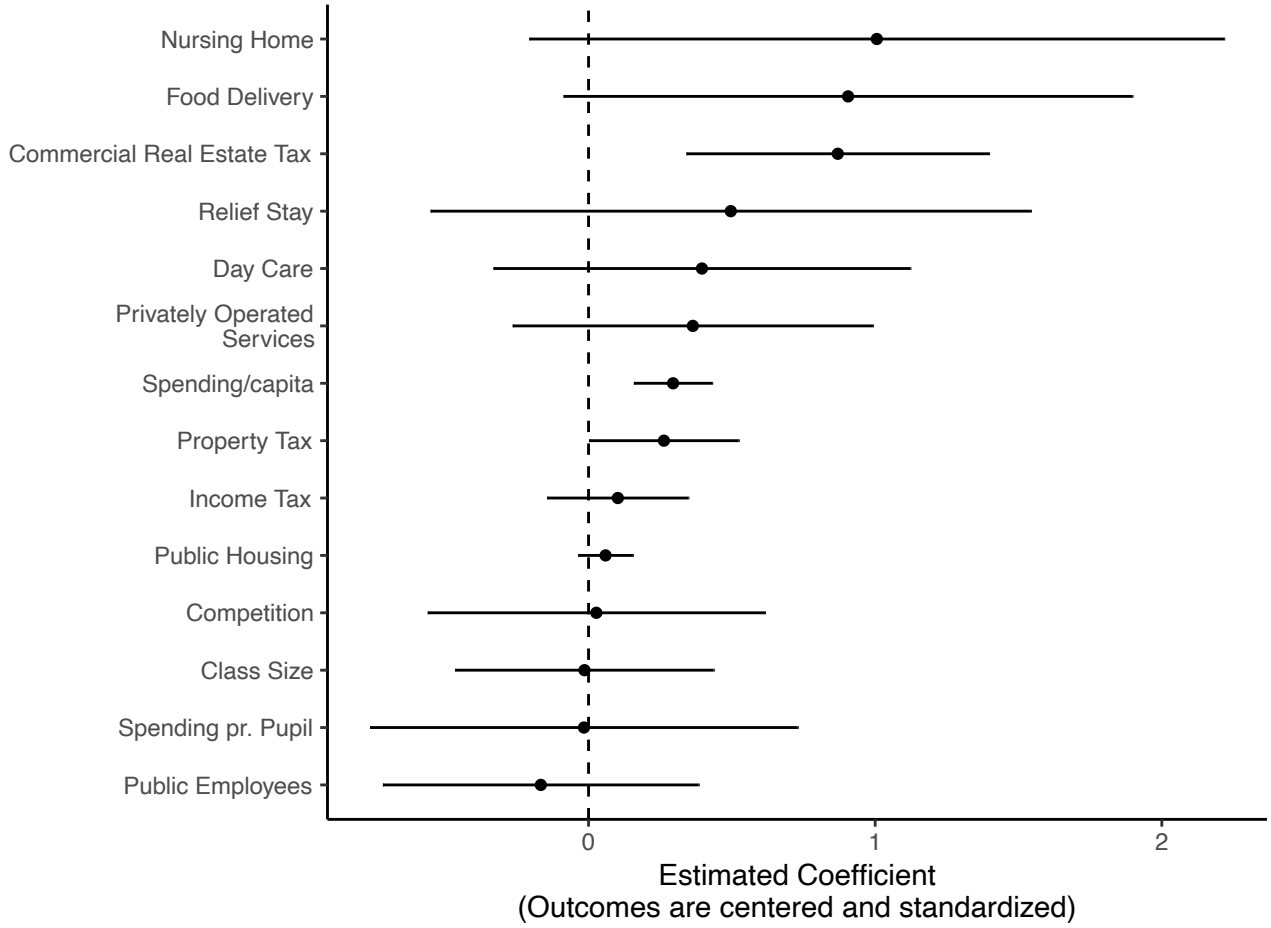


Figure H1: Effect of Right-Wing Electoral Support Across Components of our Measure. Note that all measures of taxes and spending are reversed to capture that higher values equal more conservative policy. Confidence intervals are 95 percent, computed using robust standard errors clustered at the municipality level.

I Stability of Effects Across Time

Figure I2 investigates how stable our estimates are over time. We do so by including random slopes by year in our baseline models. We find that the correlation between electoral support for right-wing parties and fiscal policy four years later is highly stable throughout the period we study.

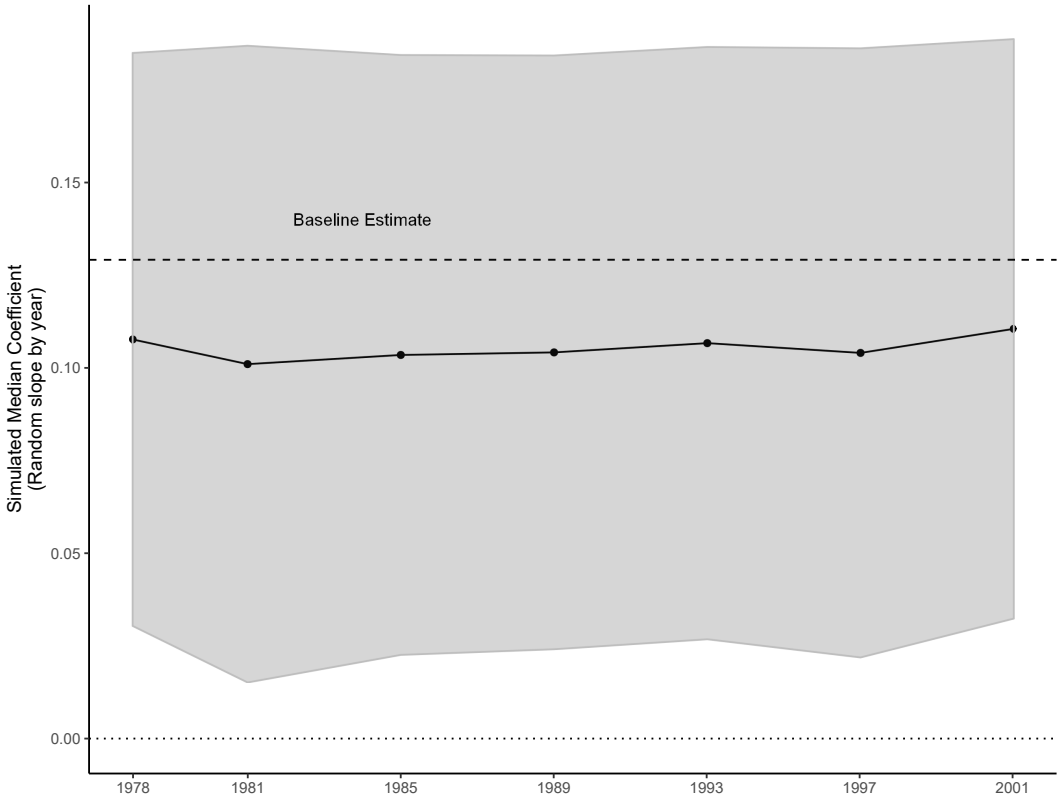


Figure I2: How Stablea Feature is Dynamic Responsiveness? Points are estimates of random slopes by year with a lagged dependent variable to deal with autocorrelation. Shaded area is a 95 percent CI from the relevant percentiles of a bootstrapped distribution from 100 resamples.

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