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The price of political polarization: Evidence from municipal issuers during the coronavirus pandemic

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ABSTRACT

This study estimates the financial costs imposed by political polarization among citizens on U.S. local governments during the COVID-19 pandemic. We measure local political polarization by using citizens’ voting results in the presidential elections. We find local political polarization leads to higher offering yield of the bonds issued by the U.S. municipalities. The impact on borrowing costs is exaggerated by the number of pandemic cases in the local area, suggesting political polarization hinders the making and enforcement of government measures for the pandemic. This study highlights the mechanisms through which financial markets and local political ideology jointly affect social welfare.

1. Introduction

How does political polarization shape government financing? It is well documented in the extant literature that political polarization distorts labor markets (Gift and Gift, 2015), alters consumer behavior (Panagopoulos et al., 2020), and weakens family ties (Chen and Rohla, 2018). Recently, an emerging line of studies investigating the financial market implications of partisanship, including how politically divided board affects corporate decisions (Hoang et al., 2020), the behavior of partisan analysts (Kempf and Tsoutsoura, 2021), etc. However, few studies have explored how local citizens’ political preferences may influence the financing behavior of the governments. We aim to fill in this gap by using a sample of US governmental issuers in the municipal bond market.

To this end, we compile a sample of municipal bonds issued by US local governments between January 2019 and April 2021.\textsuperscript{1} We measure the county-level political preferences among residents using the voting results in the 2016 presidential election. The county measure is calculated using more granular data at the election precinct level. We treat a county with a higher level of political polarization if the votes for Democrats and the one for Republicans are closer.\textsuperscript{2} We document a robust positive correlation between political polarization and the financing costs for local governments gauged by a higher offering yield required by the bond investors. The effect is sizable as one standard deviation increase in local political polarization leads to a 0.8% increase in the offering yield of the bonds issued by the U.S. municipalities. We posit that political polarization among citizens negatively impacts the operational

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\textsuperscript{1} We use this sample period as it covers the period of pandemic spread, which benefits us in the following analysis to establish identification. Our baseline results are robust if we extend sample period from 2009 to 2021.

\textsuperscript{2} In the US, citizens can vote for other parties besides Democratic Party and Republican Party. But in most US regions, Democrats and Republicans would win the first two places and compete with each other.
flexibility and efficiency of the local government, particularly in the processing of administration and policymaking.

To further probe into the underlying channels, we use the COVID-19 pandemic as an exogenous shock that generates expectations on the operational stress on U.S. local governments. We find a more substantial effect on the increased financing costs when a county experiences a more severe public health challenge measured by pandemic cases. We verify that politically divided counties tend to have more infection cases, a pattern consistent with survey findings on the heterogeneous responses to the pandemic (Allcott et al., 2020; Makridis and Rothwell, 2020). We thus emphasize that through an increased financing cost imposed by the bond markets, political polarization restricts governmental policymaking and enforcement, leading to an exaggerated impact induced by adverse shocks on the larger economy.

This study contributes to the literature in several aspects. First, it is the first study to use county-level political polarization measures to analyze the financial market implications for the local governments. Recent studies mainly focus on partisan behavior among individuals and firms (e.g., Hoang et al., 2020; Kempf and Tsoutsoura, 2021). We use governments as our research subjects and examine the effect of polarization instead of partisanship in general. Second, we add to the literature on the determinants of government financing. Previous studies underscore the factors for governmental borrowing costs, including institutional arrangements (Gao et al., 2019), corruption (Butler et al., 2009), the credit rating (Cornaggia et al., 2018), media exposure (Gao et al., 2020), and opioid crisis (Cormaggia et al., 2021). We provide evidence showing political polarization as a new determinant for the municipal bond markets. Last, we join the emerging literature on the economic impact of the pandemic. Recent studies document that the coronavirus pandemic influences the stock market (Ding et al., 2021), depositor behavior (Levine et al., 2021), consumer behavior (Cox et al., 2020), corporate decisions (Cejnek et al., 2021), etc. We differ from these works by investigating the impact on government financing.

2. Hypothesis development

Municipal bond markets are an essential source for state and local governments to finance the construction and maintenance of infrastructure and other public projects, provide cash flow for government needs and services, and finance private projects (using conduit financing). According to the U.S. Securities and Exchange Commission (SEC), as of December 2011, investors held more than one million municipal bond issues, representing an outstanding (principal) amount of more than $3.7 trillion, or about 25%, of the gross domestic product (GDP) of the United States (Adelino et al., 2017).

In the democratic economy, the efficiency of the making and enforcement of any government policies, however, depends on political preferences of the voters. Decisive action is always a challenge for a political system characterized by diffuse power and a multitude of veto points. Pervasive, fierce partisan conflict undoubtedly multiplies those challenges (Lee, 2015). Various empirical studies show that policy stalemate has trended upward along with party polarization (Jones, 2001; Lapinski, 2008). For example, McCarty et al. (2006) and Hacker and Pierson (2010) argue that polarization has a conservative impact on social policy because it freezes existing laws in place and prevents them from being adjusted to cope with rising economic inequality. For another example, during the party-polarized era, the minimum wage has dramatically declined in real value, and its adjustments have been less frequent and more modest. Many established policies have constituencies who exploit veto points to block retrenchment. Programs indexed to inflation, such as Social Security, can maintain themselves on autopilot despite partisan deadlock (Patashnik, 2014). Given such considerations, status quo bias often impedes conservatives’ efforts to restrict the scope of government. We posit that the financial market participants may assess the restricted operating flexibility induced by the political polarization. We thus propose our hypothesis 1:

H1. County political polarization is positively associated with the financing costs of local governments.

We exploit the arguably exogenous pandemic spread to explore the channels for the impact of polarization on the cost of government financing. We conjecture that politically polarized residence would further hinder the efficiency and the difficulty of government measures against COVID-19. Partisan polarization during a pandemic could lead people to engage in varying health behaviors. For instance, tuning in to right-wing news (such as Fox News) might communicate very different information about the risks of the pandemic—and how to prevent its spread—than more left-leaning sources (such as MSNBC). Similarly, political leaders from different parties might communicate different levels of risk or fail to model prudent health behaviors (for example, wearing a mask). These factors could then lead partisans to behave differently during a pandemic, which could in turn have important downstream consequences in terms of infection and mortality (Gollwitzer et al., 2020). Indeed, we in our sample verify that polarized counties experience more pandemic cases. We thus exploit the severity of the public health crisis gauged by pandemic cases and propose hypothesis 2.

H2. The positive association between county political polarization and government financing costs is stronger for counties that have more pandemic cases.

3. Data, variables and empirical design

3.1. Measuring local political polarization

We collect US county presidential election data from MIT Election Lab, which includes information on US county presidential election for every four years from 2000 to 2020. We collected information in 2016 from this panel data set because we assumed that the Covid-19 pandemic started after the 2016 presidential election and may have some unobservable effects on the 2020 presidential
The collected data set contains the county name, state name, county identifier, party name, candidate votes, and total votes. In the US, citizens can vote for other parties besides Democratic Party and Republican Party. But in 2016, Democrats and Republicans won the first two places and competed with each other in all US counties. First, we construct the vote share of the Democratic Party and Republican Party according to a party name, candidate votes, and total votes. Then we measure the degree of political polarization:

\[ \text{Polarization} = 1 - |\text{DemVoteShare} - \text{RepVoteShare}| \]  

where \( \text{DemVoteShare} \) means the vote share of the Democratic Party and \( \text{RepVoteShare} \) means the vote share of the Republican Party. A higher value of this measure indicates a higher degree of political polarization among citizens and a plausibly lower level of operational flexibility for local governments. Fig. 1 presents the distribution of the measure Polarization. And we demonstrate the spatial distribution of Polarization in the Panel A of Fig. 2.

3.2. The cost of governmental borrowings

We construct a sample of municipal bonds from the Mergent Municipal Bond Securities, which contains information on US municipal bonds to identify the attributes of each bond contained in the Municipal Securities Rulemaking Board (MSRB) database. Specifically, for each bond, the Mergent database provides its issue series, state of issuance, issuance date, maturity date, coupon rate, bond size, and sector, as well as bond ratings from Moody’s and Standard & Poor’s (if the bond is rated). It also provides information about whether the bond is a general obligation, insured, callable, and puttable. We collect the county location of municipal issuers from Bloomberg and match bonds to counties based on the names and locations of the issuers. We retrieved the data from January 2019 to April 2021, including 79,657 bonds issued by 4678 distinctive issuers. This period covers a roughly one-year period before the pandemic and the pandemic period.

We collect Covid-19 cases data from Centers for Disease Control and Prevention. This data includes information on US Covid-19 cases data from 2020 to 01–21 to 2021–11–01. For each county each day, the data provides county identifiers, current number of cases and deaths. We calculate the new instances of each month in each county and match them to bond data on county identifiers. The spatial distribution of the cases by county is presented in Panel B of Fig. 2.

The dependent variable \( \text{Yield} \) is the natural logarithm of the offering yield. Bond-level controls include \( \text{Amount}, \text{GO}, \text{Insurance} \) where \( \text{Amount} \) is the natural logarithm of the total offering amount, \( \text{GO} \) is an indicator set to one if the bond is general obligation, and zero otherwise, \( \text{Insurance} \) is an indicator set to one if the bond is insured and zero otherwise. The moderator \( \text{Cases}_{\text{new}} \) is the natural logarithm of the number of new Covid-19 patients in a county in a month (plus 1, to deal with counties and months with zero new patients). All continuous variables are winsored at 1%. We provide the detailed variable construction in Table 1. Table 2 presents the
Fig. 2. Pandemic Cases and Political Polarization of Counties
Panel A shows the degree of political polarization of each county. Darker bars indicate higher degree of political polarization in the county while lighter ones indicate lower degree of political polarization. Panel B shows the number of COVID-19 patients of each county in 2021–04–01. Darker bars indicate more COVID-19 patients in the county, while lighter ones indicate less COVID-19 patients.

Table 1
Variable definitions.

| Variable      | Definition                                                                 |
|---------------|-----------------------------------------------------------------------------|
| **Yield**     | The logarithm of the offering yield on the bond. Source: Mergent.            |
| **Polarization** | The degree of political polarization in the county. Polarization = 1 – | |
|               | [DemVoteShare – RepVoteShare], where DemVoteShare means the vote share of   | |
|               | the Democratic Party and RepVoteShare means the vote share of the Republican| |
|               | Party. Source: the 2016 presidential election data.                          |
| **Cases_new** | The logarithm of the number of new COVID-19 patients in a county in a month  | |
|               | (plus 1, to deal with counties and months with zero new patients). Source:  | |
|               | Centers for Disease Control and Prevention.                                 |
| **Amount**    | The logarithm of offering amount of the bond. Source: Mergent.               |
| **GO**        | An indicator set to one if the bond is general obligation, and zero otherwise. |
| **Insurance** | An indicator set to one if the bond is insured, and zero otherwise. Source:  | |
|               | Mergent.                                                                    |
summary statistics of the key variables used in this study.

3.3. Empirical design

To investigate the relationship between political polarization and government financing, we estimate the following empirical model:

\[
Yield_{i,t} = \alpha + \beta \text{Polarization}_{i,t} + X_{i,t} + \phi_t + \tau_i + \epsilon_{i,t}
\]

(2)

where the dependent variable is the natural logarithm of the offering yield. \(\text{Polarization}_{i,t}\) takes on our measures for political polarization of county \(j\). And \(\beta\) is the coefficient of interest. \(Yield_{i,t}\) denotes the log value of the bond’s yield for issuer \(i\) in month \(t\). \(X_{i,t}\) includes bond-level controls, \(\phi_t\) denotes state fixed effects, \(\tau_i\) denotes year-month fixed effects. \(\epsilon_{i,t}\) is the error term. Standard errors are clustered at the bond level. In the regression, we also consider alternative fixed effects, which will be discussed in the results.

To investigate the moderating effect of new pandemic cases on political polarization and government financing, we estimate the following empirical model:

\[
Yield_{i,t} = \alpha + \beta \text{Polarization}_{i,t} \times \text{Cases}_{new,j,t} + \phi_t + \text{Cases}_{new,j,t}
\]

\[
+ X_{i,t} + \tau_i + \epsilon_{i,t}
\]

(3)

where the dependent variable is the natural logarithm of the offering yield. \(\text{Polarization}_{i,t}\) takes on our measures for political polarization of county \(j\). \(\text{Cases}_{new,j,t}\) is the natural logarithm of the number of new Covid-19 patients in county \(j\) in month \(t\) (plus 1, to deal with counties and months with zero new patient). \(X_{i,t}\) includes bond-level controls, \(\phi_t\) denotes state fixed effects, \(\tau_i\) denotes year-month fixed effects. \(\epsilon_{i,t}\) is the error term. Standard errors are clustered at the bond level. In the regression, we also consider alternative fixed effects, which will be discussed in the results.

4. Results

We first demonstrate a robust positive correlation between political polarization and bond yield without considering control variables and fixed effects as shown in Fig. 3. Specifically, we divide the sample into ten groups by sorted \(\text{Polarization}\). Each dot indicates the average yield of the group, and each interval line indicates the 95% confidence interval. We then report the regression model results in Eq. (2) in Table 3. In columns (1)-(4), we analyze the effect between political polarization and government financing without controls, while columns (5)-(8) are with controls. According to the regressions in column (4) of Table 3, we find that one standard deviation increase in local political polarization increases the average municipal bond offering yield for bonds issued in that county by 0.8%. Thus, a greater political polarization in the local government leads to a significant increase in risk for municipal bonds issued in that county. Columns (5)-(8) report the results with controls. As shown in column (8) of Table 3, we find that one standard deviation increase in local political polarization increases the average municipal bond offering yield for bonds issued in that county by 0.55%. All results are robust if we consider alternative fixed effects. Overall, our results indicate that municipal borrowing costs are higher due to a greater political polarization in the local government. Hypothesis 1 has been confirmed.

To explore the channels, we first investigate the correlation between polarization and the number of cases in a given county during

| VARIABLES  | N     | mean  | sd    | median |
|------------|-------|-------|-------|--------|
| Yield      | 79,657| 0.641 | 0.364 | 0.668  |
| Polarization| 79,657| 0.734 | 0.179 | 0.771  |
| Cases_new  | 79,657| 0.360 | 1.363 | 0      |
| Amount     | 79,657| 16.20 | 1.450 | 16.05  |
| GO         | 79,657| 0.655 | 0.475 | 1      |
| Insurance  | 79,657| 0.780 | 0.414 | 1      |

Table 2 Descriptive Statistics and Correlation Matrix

Panel A presents the summary statistics of the baseline sample used in this study. The sample consists of 79,657 bonds between 2019 and 01–01 and 2021–04–01, issued by 4678 distinctive issuers. All variables are defined in Table 1 and all continuous variables are winsored at 1%. N, mean, standard deviation, median are based on bond observations. Panel B presents the correlation matrix of the variables defined in Table 1.

| VARIABLES  | Yield | Polarization | Cases_new | Amount | GO | Insurance |
|------------|-------|--------------|-----------|--------|----|-----------|
| Yield      | 1.000 | 0.033        | 1.000     |        |    |           |
| Polarization| 0.033 | 1.000        | 1.000     | 0.017  |    |           |
| Cases_new  | −0.013| −0.007       | −0.033    | 1.000  |    |           |
| Amount     | −0.004| −0.007       | −0.055    | −0.055 | 1.000|           |
| GO         | −0.042| 0.044        | 0.004     | 0.166  | −0.080| 1.000     |
| Insurance  | −0.142| −0.042       | 0.004     | 0.166  | −0.080| 1.000     |
the pandemic period. In Fig. 4, we divide the sample into ten groups by sorted Polarization. Each dot indicates the average new COVID-19 patients of the group, and each interval line indicates the 95% confidence interval. The fitting line indicates the linear relation between Yield and Polarization.

We next in Table 4 present the results of the regression model in Eq. (3). In columns (1)-(4), we analyze the moderating effect of new pandemic cases on political polarization and government financing without controls, while columns (5)-(8) are with controls. According to the regressions in column (4), we find that one standard deviation increase in new pandemic cases increases the positive association between local political polarization and government financing without controls, while columns (5)-(8) are with controls. According to the regressions in column (4), we find that one standard deviation increase in new pandemic cases increases the positive association between local political polarization and average municipal bond offering yield for bonds issued in that county by 4.2%. Thus, more new pandemic cases lead to a significant increase in the positive association between local political polarization and average municipal bond offering yield for bonds issued in that county by 4.1%. All results are robust if we consider
alternative fixed effects. Overall, our results indicate that the positive association between political polarization in the local government and municipal borrowing costs is higher due to more new pandemic cases in the county. Hypothesis 2 has been confirmed.

To confirm the consequence of polarization ex-post, we regression the number of pandemic cases on county-level polarization. As shown in Column (5) of Table 5, a 10% increase in political polarization leads to 158 more new pandemic cases in a given county. All results are robust if we consider alternative fixed effects. Overall, a greater political polarization in the local government leads to significantly more severe public health issues in that county. We conduct several tests to show the robustness of the findings. We first

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Fig. 4. Political Polarization and Pandemic Cases
This figure shows the relationship between political polarization and pandemic cases. \( \text{Cases}_{\text{new}} \) is the logarithm of the number of new COVID-19 patients in a county in a month (plus 1, to deal with counties and months with zero new patients). \( \text{Polarization} \) is the degree of political polarization in the county. \( \text{Polarization} = 1 - |\text{DemVoteShare} - \text{RepVoteShare}| \), where \( \text{DemVoteShare} \) means the vote share of the Democratic Party and \( \text{RepVoteShare} \) means the vote share of the Republican Party. The sample is divided into ten groups by sorted \( \text{Polarization} \). Each dot indicates the average new COVID-19 patients of the group and each interval line indicates the 95% confidence interval. The fitting line indicates the linear relation between \( \text{Cases}_{\text{new}} \) and \( \text{Polarization} \).

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Table 4
The Effect of Pandemic Shocks
This table shows the effect of pandemic shocks. \( \text{Yield} \) is the logarithm of the offering yield on the bond. \( \text{Polarization} \) is the degree of political polarization in the county. \( \text{Polarization} = 1 - |\text{DemVoteShare} - \text{RepVoteShare}| \), where \( \text{DemVoteShare} \) means the vote share of the Democratic Party and \( \text{RepVoteShare} \) means the vote share of the Republican Party. \( \text{Cases}_{\text{new}} \) is the logarithm of the number of new COVID-19 patients in a county in a month (plus 1, to deal with counties and months with zero new patients). We chose three control variables, \( \text{Amount} \), \( \text{GO} \) and \( \text{Insurance} \). \( \text{Amount} \) is the logarithm of offering amount of the bond. \( \text{GO} \) is an indicator set to one if the bond is general obligation, and zero otherwise. \( \text{Insurance} \) is an indicator set to one if the bond is insured, and zero otherwise. Standard errors are clustered by bond and t-statistics are reported below the regression coefficients. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

| VARIABLES | Yield |
|-----------|-------|
|           | (1)   | (2)   | (3)   | (4)   | (5)   | (6)   | (7)   | (8)   |
| \( \text{Polarization} \times \text{Cases}_{\text{new}} \) | 0.025*** | 0.022*** | 0.031*** | 0.031*** | 0.023*** | 0.021*** | 0.027*** | 0.030*** |
|           | (4.57) | (4.08) | (5.41) | (4.94) | (4.16) | (3.86) | (4.87) | (4.76) |
| \( \text{Polarization} \) | 0.030*** | 0.038*** | 0.030*** | 0.035*** | 0.018*** | 0.024*** | 0.018*** | 0.020*** |
|           | (4.41) | (5.85) | (4.37) | (5.19) | (2.70) | (3.78) | (2.68) | (2.97) |
| \( \text{Cases}_{\text{new}} \) | −0.001 | −0.008* | −0.004 | −0.018*** | 0.001 | −0.008* | −0.002 | −0.017*** |
|           | (−0.14) | (−1.88) | (−0.97) | (−3.39) | (0.35) | (−1.69) | (−0.36) | (−3.19) |
| Observations | 79,657 | 79,657 | 79,657 | 79,657 | 79,657 | 79,657 | 79,657 | 79,657 |
| R-squared | 0.140 | 0.250 | 0.144 | 0.280 | 0.155 | 0.268 | 0.160 | 0.296 |
| Controls | NO | NO | NO | NO | YES | YES | YES | YES |
| State FE | YES | YES | YES | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES | YES | YES | YES |
| Month FE | YES | YES | YES | YES | YES | YES | YES | YES |
| State by Year FE | YES | YES | YES | YES | YES | YES | YES | YES |
| State by Month FE | YES | YES | YES | YES | YES | YES | YES | YES |

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alternative fixed effects. Overall, our results indicate that the positive association between political polarization in the local government and municipal borrowing costs is higher due to more new pandemic cases in the county. Hypothesis 2 has been confirmed.

To confirm the consequence of polarization ex-post, we regression the number of pandemic cases on county-level polarization. As shown in Column (5) of Table 5, a 10% increase in political polarization leads to 158 more new pandemic cases in a given county. All results are robust if we consider alternative fixed effects. Overall, a greater political polarization in the local government leads to significantly more severe public health issues in that county. We conduct several tests to show the robustness of the findings. We first
rule out the possibility that our results are driven by some bonds in counties with extreme political polarization. We re-estimate our results by dropping all observations with polarization measure more than 95% quantile or less than 5% quantile. As shown in Columns (1) and (2) of Table 6, the result remain unchanged. We also aware of the endogenity issue in our study. Any county trends may confound our results. To alleviate the concern, we provide a result based on the generalized method of moments (GMM) estimation. Column (3) of Table 6 shows that the results are robust to this alteration.

5. Conclusion

This study is among the first in the literature to link political polarization to the government’s financing conditions. Using the county-level polarization measure aggregated from the election precincts in the United States, we find a higher political polarization is associated with a higher borrowing cost of the local government. We utilize the COVID-19 spread as an exogenous shock and find the pandemic cases exaggerate the adverse impact of the political polarization. As governments rely heavily on the bond market in financing health care measures and other public policies, the costs imposed by political polarization have larger implications for the welfare of the residents.

We highlight that our findings explain the mechanism that political polarization among local voters with heterogeneous beliefs would trigger more conflicts in the making and enforcement of public policies, especially in the crisis period. Residents are also more likely to disobey the strict rules imposed by the local governments, leading to a deteriorating situation. We confirm this conjecture by showing that a politically divided county is more likely to experience more pandemic cases. Taken together, our findings unravel the financing channels that political ideology shapes the real economy and social welfare in a county where policymaking is based on a domestic process.

Table 5
Political Polarization and Pandemic Cases
This table shows the regression results of political polarization and pandemic cases. Cases_new is the logarithm of the number of new COVID-19 patients in a county in a month (plus 1, to deal with counties and months with zero new patient). Polarization is the degree of political polarization in the county. Polarization = 1 − |DemVoteShare − RepVoteShare|, where DemVoteShare means the vote share of the Democratic Party and RepVoteShare means the vote share of the Republican Party. Standard errors are clustered by county and t-statistics are reported below the regression coefficients. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

| VARIABLES  | Cases_new |         |         |         |         |
|------------|-----------|---------|---------|---------|---------|
|            | (1)       | (2)     | (3)     | (4)     | (5)     |
| Polarization | 1706.465*** | 1580.998*** | 1580.998*** | 1580.998*** | 1580.998*** |
| Observations | (9.79)    | (5.77)  | (5.77)  | (5.77)  | (5.72)  |
| R-squared   | 0.012     | 0.047   | 0.076   | 0.050   | 0.137   |
| State FE    | YES       | YES     | YES     |         |         |
| Year FE     | YES       |         |         |         |         |
| Month FE    | YES       |         |         |         |         |
| State by Year FE | YES |         |         |         |         |
| State by Month FE |         |         |         |         |         |

Table 6
Robustness Test
This table shows the regression results of political polarization and municipal bond yield. Yield is the logarithm of the offering yield on the bond. Polarization is the degree of political polarization in the county. Polarization = 1 − |DemVoteShare − RepVoteShare|, where DemVoteShare means the vote share of the Democratic Party and RepVoteShare means the vote share of the Republican Party. We chose three control variables, Amount, GO and Insurance. Amount is the logarithm of the offering amount of the bond. GO is an indicator set to one if the bond is general obligation, and zero otherwise. Insurance is an indicator set to one if the bond is insured, and zero otherwise. Model (1) and (2) drop the observations that polarization is more than 95% quantile and less than 5% quantile. Model (3) uses GMM to estimate the coefficients. Standard errors are clustered by bond and t-statistics are reported below the regression coefficients. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

| VARIABLES    | yield |         |         |
|--------------|-------|---------|---------|
|              | (1)   | (2)     | (3)     |
| polarization | 0.036*** | 0.036*** | 0.034*** |
|              | (6.00) | (6.00)  | (5.88)  |
| Observations | 71.859 | 71.859  | 79.657  |
| R-squared    | 0.187 | 0.187   | 0.018   |
| Controls     | NO    | YES     | YES     |
| State by Month FE | YES | YES     | YES     |
Declaration of Competing Interest

The authors have nothing to disclose.

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