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### CAN YOUNG POLITICIANS INFLUENCE POLICY IN A GERONTOCRACY?

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# CAN YOUNG POLITICIANS INFLUENCE POLICY IN A GERONTOCRACY?

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## Abstract

Can young politicians make a difference in political bodies dominated by old politicians? To study this question, we use hand-collected candidate-level data on four municipal elections between 1996 and 2014 in the German state of Bavaria which we combine with detailed administrative data on municipal spending. Implementing an IV design based on close races between young and old candidates for the last party-specific seat, we find that local councils with relatively more young councilors prioritize expenditures on social security, specifically child care and schooling. Thus, the entry of young politicians into a local council pushes local government's public spending priorities towards items valued by the young. We further show that this effect is conditional on the age structure of constituencies, suggesting that electoral incentives remain important even in contexts where political selection has strong effects on policy choices.

**Keywords**: Young and old politicians, political selection, municipal spending, local councils
**JEL codes**: D72, D78, H70, H72, J13, J14

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# 1  Introduction

At least three recent crises have brought simmering intergenerational divisions to the forefront. Young people are, by all accounts, more concerned about climate change and more willing to change policies accordingly than seniors (BBC, 2021). During the Covid-19 pandemic, the young were forced by policymakers to make painful sacrifices to protect the elderly (Financial Times, 2020). In the Brexit vote of 2016, young British voters who were considerably more in favor of remaining in the EU were outvoted by senior voters (Norris, 2018).

In ageing Western societies it is not surprising that the interests of the young receive an ever diminishing weight in the political arena. Yet, the young's interests would be likely undervalued even in the absence of shifting demographics. One reason is that policymakers are typically much older than their constituents. For example, only 17.5% of members of national parliaments across the globe are below 40 years as of 2021 (Inter-Parliamentary Union, 2021). Can we expect an overwhelmingly old political class to take the preferences of young constituents adequately into account?

The theoretical literature on political selection argues that in a world with imperfect electoral accountability, politicians have, to a meaningful degree, the ability to steer policies according to their own preferences (Besley, 2005). Given their typical old age, politicians may hence consistently take decisions that favor the old and implicitly neglect or even go against the interests of the young.

In this paper, we study whether this is the case by exploring whether local councils with a higher share of young councilors allocate a larger share of their budgets to policy areas that are arguably more important to the young. If the age composition of the council indeed influences fiscal policy, it stands to reason that the overrepresentation of older cohorts in political leadership is detrimental to the interests of the young.[1]

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[1]Of course, to make definite normative claims, one would need to rule out that younger cohorts make suboptimal choices and that, therefore, older politicians act paternalistically.

We combine unique hand-collected individual-level data on candidates for local council elections with administrative data on local fiscal policy from the German state of Bavaria.[2] The hand-collected individual-level data includes information on list, name, birth year, occupation, votes, initial list rank, and final list rank for the universe of candidates running in elections for the period 1996-2014. This detailed data allows us to implement a credible identification strategy and to disentangle the effect of age on fiscal policy from other characteristics of councilors. The administrative fiscal data was obtained by the Bavarian Statistical Office, which – besides aggregate data on local spending and revenues – also provides local spending data on various fine-grained subcategories. This data allows us to examine fiscal priorities across different policy domains.

One obvious concern with an empirical design aiming to explore the effect a local council's age composition on fiscal choices is endogeneity. For example, councils with a high number of young members may be located in municipalities with younger populations. Any effect of the council's age composition on policy choices found in municipalities with younger councils may be due to councils pandering to their younger electorate rather than due to the age of the councilors. To address this concern, we implement an IV design based on candidate-level races for council seats within parties. This design allows us to isolate the effect of young politicians from possible confounders.

In particular, we use the fact that the Bavarian local electoral system combines elements of party-level proportionality and candidate-level preferential voting. Parties are assigned council seats roughly according to their vote share. Which candidates are selected to fill the respective party seats, however, depends on how many preferential votes each candidate on the party list receives. As a result, in each party there is a candidate who barely wins a council seat and another candidate who barely misses a seat. If these two candidates have a different age, a natural experiment takes place whereby the age composition is influenced quasi-randomly. If the younger candidate wins, i.e. has more preferential votes, she enters the council and increases the young councilor share. Thus, we use the share of victories by "young" candidates

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[2]We hand-collect municipal election data as there is no official source that collects this data centrally.

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in these young-vs.-old candidate party-level races for the last seat as an instrument for the young councilor share.[3]

We find that the instrument has a statistically significant and economically meaningful first-stage relationship with the overall share of young councilors. The instrument is also plausibly exogenous. Whether the younger or the older candidate wins the last seat that accrues to a party is arguably unrelated to the underlying preferences of the electorate or other confounders. The reason for this is the unpredictability of the exact number of seats a particular party will win and the relative unimportance of marginal list ranks and the candidates who obtain them to voters. Indeed, we find that the instrument is unrelated to observable municipality characteristics or lagged outcome variables.[4]

Our results show that an exogenous increase of 10 ppts in the young councilor share (with an average of 22.5% in our sample) results in a sizable increase in the share of spending on social security by 9%.[5] Further results indicate that this effect is mainly driven by spending on child care, which accounts for about half of all spending on social security in Bavarian local budgets. We also find a significantly positive relationship between the share of young councilors and the share of spending on schools, even though this effect is not as robust. Furthermore, our results indicate that the increase in spending on child care and schools is financed by a (diffuse) reshuffling of the budget, as aggregate expenditures do not increase and no other item share decreases significantly with the young councilor share.

Overall, our results indicate that the overrepresentation of the old in the political class harms the young. Given that young politicians affect fiscal policy choices and spend more on local public goods that are arguably valued by younger citizens, the underrepresentation of the young in politics implies that, in general, too little will be spent in the interest of the young.

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[3]We use the share of victories since municipalities can have more than one race for the last seat a list obtains.

[4]We additionally refine our identification strategy in a robustness test by limiting the sample to increasingly close races for the last seat.

[5]Given an average social security spending share of 8.1%, this represents an increase by 0.7 ppts.

This paper contributes to various strands of the literature. First, it links up with the literature on political selection which examines the relationship between candidate characteristics and policy outcomes along various dimensions (Besley, 2005).[6] However, the effect of politicans' age has received relatively little attention.[7] Curry and Haydon (2018) find that old representatives introduce more bills in the U.S. House of Representatives dealing with issues relevant for the elderly. Alesina, Cassidy, and Troiano (2018) find that young mayors in Italy participate more in political budget cycles for aggregate spending (not distinguishing spending in different policy areas) than older mayors.

Arguably the closest related study is McClean (2021) which finds that barely elected young mayors in Japan are associated with more local spending on welfare for young families. Furthermore, young mayors spend more on investments and less on subsidies, which indicates that young politicians have a longer-run perspective. Our paper focuses on local councils. Unlike mayors, who typically enjoy relatively wide autonomy, councilors are members of a deliberative body where they have to convince fellow councilors. It is unclear whether young councilors can be as effective in shaping policy as young mayors. Second, we make use of fine-grained classifications of spending rather than relying only on relatively broad spending categories. Finally, we explore in detail under which circumstances the association between the young councilor share and fiscal policy choices in the interests of the young vary.

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[6]These dimensions include gender (Hessami and Lopes da Fonseca, 2020), occupation (Hyytinen, Meriläinen, Saarimaa, Toivanen, and Tukiainen, 2018), ethnicity (Franck and Rainer, 2012), caste (Pande, 2003), or regional origin (Hodler and Raschky, 2014). Using a similar identification strategy, Kuliomina (2021) examines the impact of gender, education, and entrepreneurship on local finances in the Czech Republic.

[7]There is also a literature on the reasons for the underrepresentation of young people in politics. Stockemer and Sundström (2018) find that proportional representation and a lower entry age are associated with more young members of parliament. Quotas seem not to have a similar effect.

Our work is also related to and relies on findings in the literature on age-specific differences in policy preferences.[8] Sørensen (2013) uses spending on education, health care and pensions for the elderly to show how preferences differ according to the age of voters, albeit only to a limited extent. Andor, Schmidt, and Sommer (2018) find that the old are less concerned about climate change and allocate fewer resources to environmental policies. Focusing on direct democracy in Switzerland, Ahlfeldt, Maennig, and Mueller (2021) find that younger are voters more likely support initiatives related to environmental issues and other initiatives that benefit their generation. When confronting elderly respondents in a survey with pension cuts, Busemeyer and Lober (2019) find that the elderly are less likely to support spending on education. Similarly, Cattaneo and Wolter (2009) find that senior citizens are less willing to allocate spending to education using Swiss survey data. This literature thus emphasizes that intergenerational differences in spending priorities indeed exist and therefore may result in young policymakers choosing different policies.[9]

# 2 Background

## 2.1 Local governments in Bavaria

### 2.1.1 Tasks and responsibilities

There are 2,056 municipalities in Bavaria that vary in size from small hamlets, mostly villages and small towns and a handful large cities. Their self-governance is a fundamental trait of state organization in Germany. A key task of municipalities is the provision of local public goods, which they can determine independently within ranges set by federal and state legislation. They

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[8]Alongside empirical investigations, this strand of the literature is also examined using theoretical models, e.g. by Konrad (1995), Sinn and Uebelmesser (2003), Poutvaara (2004), Monten and Thum (2010), and Andersen (2019).

[9]Fiva, Nedregård, and Øien (2021) also show that young politicians in the Norwegian parliament raise other issues in legislative speeches (childcare, schools) than old politicians (health care) within the same party. It thus appears that politicians' policy priorities may be shaped by their personal circumstances and preferences.

also decide upon regulations, e.g. speed limits or closing hours. Municipalities have their own budget and decide how to allocate spending and generate revenues (mostly by setting tax multipliers on property and businesses and collecting fees on public services). The state government provides grants and dissipates a proportion of income and sales tax to municipalities (Hopp-Wiel and Dülk, 2016).

For every fiscal year municipalities compile a budget draft which includes all spending and revenues, as well as business and property tax multipliers. The process is typically initiated by the mayor and prepared by the finance department of the municipality (*Kämmerei*). The balance of revenues and spending as well as the decision on the extent of spending on different items is achieved after several rounds of discussions in either the municipal council as a whole or a sub-committee. The final decision on the budget is taken by the council in a public meeting (Hopp-Wiel and Dülk, 2016). Thus, councilors take both a deliberative and a decretory role when assembling the budget.

### 2.1.2 Local political institutions

The local council is the main political body (*Hauptorgan*) of a municipality and sets the broad objectives for the local administration. Local councils in Bavaria are elected every six years. The size of a council is a function of the population of a municipality. Most Bavarian councils are small. As Table A.1 shows, councils range from 8 seats in small hamlets to 80 seats in Munich. The majority of municipalities has at most 14 seats (53.1%).

Both large national parties – such as the CSU, SPD, and Greens – as well as local voter initiatives participate in local elections. Table A.2 of the online appendix shows that among the national-level parties, the largest share of candidates run for the CSU.[10] While the Social Democrats (SPD) are, in general, relatively small in Bavaria, they were able to govern some of the larger cities for extended periods of time. Voter initiatives have typically highly local

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[10]The conservative CSU is unique to Bavaria but comparable to the CDU in its position in the political spectrum. On the federal level, both parties form a united fraction in the German *Bundestag*.

agendas. These lists often refer to single neighborhoods within a given municipality or to specific candidate characteristics.[11]

Besides the council, the other important local office is the mayorship. Typically, mayors run in a personalized campaign but are supported by one or more lists.[12] The position of the mayor in Bavaria is relatively strong, compared to other states, such as Hesse (Hessami, 2018): a Bavarian mayor is the head of the administration, initiates the compilation of the annual budget, and has a veto on council decisions.[13]

### 2.1.3 Open-list elections of councils

Municipal councils are elected via an open-list system, sometimes referred to as preferential voting. Before the election, parties decide on a list of candidates. Each candidate receives an initial rank on the list. Voters have as many votes as there are seats in council. It is possible to split the votes across several lists (*Panaschieren*) and to cast as much as three votes on one single candidate (*Kumulieren*).

Parties are assigned seats in the council roughly proportional to their overall share of votes. Candidates are then ranked according to their votes and candidates with a rank smaller than the number of seats the list received enter the council (Baskaran and Hessami, 2019).[14] This election rule provides the base for our identification strategy, since it results in races between candidates for the last seat that is obtained by a party. In races where the marginal candidates are of different age, the age composition of the council will be determined quasi-randomly. We exploit this in our IV approach described in detail in Section 4.

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[11]Frequent examples of this are *Junge Liste* (List of the youth) or *Frauenliste* (Female list).

[12]Candidates can run for large supra-regional parties or local lists. We use the terms party and list interchangeably in the following.

[13]Due to the importance of the mayor for local decision making we examine the interaction of young councilors and young mayors explicitly in Section 7.

[14]The initial list rank of a candidate thus has no direct impact on whether she receives a seat in the council. Naturally, there are indirect effects of greater visibility at the top of the list. In addition, the initial rank might signal candidate quality and motivation for office.

# 3 Data

## 3.1 Candidate-level data

To estimate the effect of young councilors on municipal spending we use a large, hand-collected dataset on results of local elections in the German state of Bavaria for 1996, 2002, 2008, 2014, and 2020. Information on candidates is not available from a central source and thus collected from the homepages of municipalities. Coverage varies across election years and generally is sparser for elections further in the past (see Figure 1).

[Figure 1 goes here]

Our data includes the name and list of candidates, their initial list rank, their final list rank, and the number of votes they received. In addition, for a subset we have information on their occupation. We infer gender from the name and education from the occupation stated by the candidates. In total, the dataset includes information on 402,956 candidates for the years 1996 – 2020. Birth year information is available for a subset of candidates and is used to proxy candidate age (election year - birth year). The exact day and month of birth is unknown.[15]

While we do not use information on the election of 2020 itself in the analysis (as our data on outcome variables ends in 2019), its nearly complete coverage (2,046 out of 2,056 municipalities) helps us obtain a better coverage on the candidate age variable. Candidates who typically run more than once are matched within municipalities across years to fill up birth year information. The matching is based on first name, second name, and list. In order to deal with misspellings and small deviations in names or lists, a fuzzy match approach is used.[16]

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[15]Since information on exact birthdays is not available, this results in measurement error for small age differences of competing candidates. A candidate born in December is of basically the same age as a candidate born in January of the following year. In our calculation the age difference would be one year, however.

[16]For details on the matching procedure see Section A.5 of the online appendix.

After candidates are matched across years, birth year and occupation are completed for the years where information on these candidates is not available.[17]

Figure 1 also shows the availability of age before and after the fuzzy match. Especially for 2008 and 2014 there is information on age for substantially more candidates after the fuzzy match. In the end, we have data on age for 104,207 candidates, or 40.9% of the total sample. The number of municipalities with full age coverage increases slightly from 891 to 894 across all election years.

## 3.2 Age structure of Bavarian councils

Figure 2 illustrates the age structure of Bavarian councils based on our hand-collected sample (see subfigure (a)) compared to the age structure of the Bavarian population (see subfigure (b)). From 1996 to 2014, the average age of councilors in our sample has increased from 47 years to 50 years. We can confirm that councilors are considerably older than the Bavarian population which was on average 42 years old in 2014.

[Figure 2 goes here]

## 3.3 Municipality variables

We obtain information on municipal finances from the Bavarian Statistical Office in various levels of aggregation.[18] This includes total spending, total revenue, total tax revenue, and total debt of municipalities in a given year. In addition, data on detailed spending categories are available, such as spending on schools, spending on construction and traffic, or spending on culture. These categories are subdivided further, such that we are able to zoom in on e.g.

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[17]Note that other than birth year, occupation is not necessarily constant over time. Candidates might change their job, be no longer a student, or retire. While we can not account for these errors, occupation is not the main focus of this analysis, and thus this is of secondary importance.

[18]In addition to spending variables, we obtain information on municipality demographics, such as population, population below 14, population between 15 and 65 and population above 65. Also data on the area in square km of municipalities is available.

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spending on different school types (primary, secondary school, etc.). Variables are typically available from 1996 until 2019, and thus cover all years of all legislative periods we consider.

Our main outcome variables are the share of local spending for major expenditure categories relative to total local spending. These outcome variables allow us to capture the priority-setting of councilors within a given budget. More specifically, we examine the share of spending on social security, infrastructure, schools, culture, and health care.[19]

Figure 3 shows the average spending share of the five categories as of 2019. Quantitatively the most important category is social security, accounting for 18.6% of total spending. Schooling and infrastructure each account for about 9.5%. Spending on culture and health care constitute each about 3% of the budget.

[Figure 3 goes here]

Summary statistics on all variables are provided in Table A.3 in the online appendix. Table 1 below describes all outcome variables used in the analysis.

[Table 1 goes here]

# 4   Empirical model

## 4.1   Structural relationship

Using a sample of municipality-year pairs, the structural relationship we want to estimate is:

$$y_{i,t} = \alpha + \beta \, Young \ councilor \ share_{i,t} + \lambda_i + \gamma_t + \varepsilon_{i,t}. \tag{1}$$

$y_{i,t}$ is the logarithm of the share of different spending categories in municipality $i$ in year $t$, *Young councilor share* is the share of young councilors. We use 40 years as the threshold to

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[19]*Spending on social security* refers to child care, elderly care, and youth facilities. Infrastructure captures spending on municipal roads, public housing, or street cleaning. *Spending on schools* includes spending on all three tiers of the Bavarian school system, as well as on vocational schools. *Spending on culture* refers to spending on theaters, museums, or zoos. *Health care spending* includes hospitals and recreational facilities (see Table 1).

define young councilors. Young councilor share is hence the share of councilors below or equal to 40 years. However, we explore the robustness of our results to other thresholds.[20]

In order to account for time-invariant municipality characteristics and for year-specific effects we include municipality fixed effects $\lambda_i$ and year fixed effects $\gamma_t$. Standard errors are clustered at the municipality level. While we have annual information on outcomes, the share of young councilors is constant over the legislative period. We combine these two dimensions and obtain a dataset in which outcomes vary annually and treatment varies every six years.

## 4.2   IV design

### 4.2.1   Endogeneity concerns

One key concern with equation (1) is that unobserved municipality characteristics influence both the share of young councilors and spending shares, biasing the estimated coefficients. Councils with many young councilors might be more prevalent in smaller or more rural municipalities, where barriers to entry into local politics are lower. At the same time, those councils might exhibit differential spending patterns due to differences in demand for public goods. Conversely, councils with many young councilors could be located in more urban areas where the electorate is more open towards younger politicians. While one can control for some of these covariates, there may still be unobservable confounders threatening the identification of the structural relationship.

### 4.2.2   Instrument and first stage

To address the potential endogeneity of the share of young councilors, we develop an IV approach. We use the share of young victories, i. e. victories of candidates who are below or equal to 40 years against candidates who are above 40, in races for the last seat a list obtains to instrument the share of young councilors. These races are a consequence of the open-list

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[20]Figure A.4 shows the share of councilors below different age thresholds. 21.8% of councilors are below or equal to 40 years.

system in Bavarian local elections.[21] In those races candidates of different age compete for a council seat. The victory of the younger candidate in a race for the last seat increases the share of young councilors quasi-randomly. Since typically there is more than one race per municipality, we take the share of young victories out of all races in the municipality as the instrument. Intuitively speaking, we compare municipalities where more young councilors barely entered the council to municipalities with relatively fewer barely elected young councilors.[22]

We thus propose the following first stage for our IV specification:

$$Young\ councilor\ share_{i,t} = \alpha + \beta\ Young\ victory\ share_{i,t} + \lambda_i + \gamma_t + \upsilon_{i,t} \tag{2}$$

where *Young councilor share*$_{i,t}$ is the share of young councilors in municipality $i$ in year $t$. *Young victory share*$_{i,t}$ is the share of young victories in races for the last seat a list obtains in a given municipality. $\lambda_i$ and $\gamma_t$ are again municipality and year fixed effects. For mechanical reasons, more young victories in races for the last seat must result in a higher share of younger councilors. We show in Section 5.1, when discussing our main results, that the instrument is indeed strongly related to the share of young councilors.

### 4.2.3 IV sample

Our IV design is based on races for parties' last seats where candidates below or equal to 40 years (young) contest against candidates above 40 years (old). Such races take place only in a subset of elections. In total, we use data from 697 council elections in 346 municipalities

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[21]Note that in principle there are as many races per municipality-year pair as there are lists in the council. In practice the availability of age and the focus on races of young versus old candidates reduces the number of races in each municipality available for our analysis.

[22]This approach is similar to a fuzzy regression discontinuity design in the spirit of Angrist and Lavy (1999). We follow e.g. Bhalotra, Clots-Figueras, Cassan, and Iyer (2014), Bhalotra and Clots-Figueras (2014), and Priyanka (2020) who use the outcome of close elections to instrument the share of legislators with specific characteristics at a different level of aggregation.

where such races take place at least once (recall that we do not have data on candidates' age for all municipalities and elections).

The local councils in our IV sample are typically small, even though for instance Regensburg with 50 council seats is also included.[23] Figure A.3 in the online appendix shows that municipalities in our IV sample are located all over Bavaria and not geographically clustered.

### 4.2.4 Instrument validity

The second core assumption regarding the instrument is that it must affect the outcome only through the share of young councilors, i.e. it must be unrelated to the error term of the second stage. Young victories in races for the last seat a list obtains are indeed plausibly quasi-random. This is plausible since in open-list elections, the number of seats obtained and the identity of the winner of the last seat are unknown when the list is assembled. In line with this, we show in Appendix A.3, that the instrument is neither systematically related to lagged values of the outcome variables nor to municipality characteristics in the IV sample.

# 5 Results

## 5.1 Share of young councilors and local spending

The upper part of Table 4 collects the results for the first stage of the IV estimations. There is a strong and statistically significant relationship between the instrument and the share of young councilors in all models. An increase of the share of young victories by 10 percentage points increases the share of young councilors by 9.7 percentage points. Given an average share of young councilors of 22.5% this is a substantial effect.

[Table 4 goes here]

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[23]Munich, Nuremberg, and Augsburg, the three largest cities in Bavaria, are not in the IV sample. The main reason is the unavailability of information on councilors' age in these cities.

The lower part of the table collects the second-stage results. There is a significantly positive effect of the share of young councilors on the share of social spending. An increase of 10 percentage points in the share of young councilors – corresponding to roughly one standard deviation – is related to an increase in the share of spending on social security by almost 9%. At the mean share of spending on social security (8.1%), an increase in the share of young councilors by 10 percentage points would result in an increase in social spending by 0.7 percentage points. This is an economically meaningful effect.

In addition, we find a positive effect of young councilors on school spending (significant at the 10% level). An increase of 10 percentage points in the share of young councilors results in an increase of spending on schools by 7.34%, which corresponds to an increase of 0.4 ppt (given an average share of school spending of 5.8%).

To assess the extent to which our IV design addresses endogeneity, we also estimate Equation 1 with OLS. Table A.4 in the online appendix collects the results for the OLS estimations. For social spending, we find that the IV and OLS results are qualitatively similar. However, the IV estimate is considerably larger than the OLS estimate. Similarly, in contrast to the positive and significant IV estimate for school spending, the OLS coefficient is small and insignificant. Hence, OLS appears to underestimate the effect of young councilors on social and school spending.[24] The OLS estimate for spending on culture is significantly positive and on health significantly negative, respectively. As in the case of social spending and spending on schools, the IV estimates are larger in magnitude. However, the IV estimates are insignificant.

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[24]One reason why the OLS coefficient estimates might be biased downward is unobserved demographic trends: younger voters moving into municipalities that provide more social (in particular on child care) or school spending. These younger voters might be more likely to vote for young candidates. In addition, measurement error might attenuate the OLS coefficients. Since we match candidates across years to increase the availability of information on birth year, some degree of (random) measurement error is unavoidable.

## 5.2 Share of young councilors and spending on subcategories

The spending categories examined so far are broad categories on the first level of classification in the structure of municipal spending. In order to learn more about fine-grained spending items that young councilors may influence, we examine relevant subcategories of spending on social security and schools. Results are collected in Table 5. Among the numerous subcategories of spending on social security, the quantitatively most important category is the spending on child care. It accounts for about half of all spending on social security (see Figure 3).

Model (1) relates the logarithm of the share of spending on child care to the instrumented share of young councilors. The coefficient is significant on the 5%-level and slightly smaller than the coefficient of spending on social security. In Model (2) we relate the residual spending within the total spending on social security to the instrumented share of young councilors. The coefficient is insignificant, but substantial in size. Taken together this is suggestive of the effect of young councilors on spending on social security being driven mainly by their preference for a higher share of spending on child care.

[Table 5 goes here]

We also examine subcategories for spending on schools. The main subcategories of this spending items follow the distinction of the three-tiered Bavarian school system. In Model (3) we show the relationship between the share of young councilors and the share of spending on primary (*Grundschule*) and secondary modern school (*Hauptschule*).[25] We examine them jointly, since these tiers are typically available in relatively small municipalities, while other school types are located only in larger municipalities.

Also, data treating those tiers separately is not available for all years in the sample. Primary and secondary modern school spending accounts for 37% of total school spending (see Figure 3). Again, we examine the residual category in Model (4). The coefficient for spending

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[25]Primary school includes classes one to four and thus children between six and ten years. Secondary modern school covers the classes five to nine and provides students with the necessary qualification to enter an apprenticeship. Both school types are typically located within the same compound.

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on primary and secondary modern schools is virtually identical in size and significance to the coefficient on schools in our baseline estimates. The coefficient for the residual category in turn is a precisely estimated zero. Thus, the effect on the share of spending on schools is driven by spending for primary and secondary modern schools.

## 5.3   Robustness

We conduct four robustness checks to test whether young councilors have a significant effect on the share of spending on social security, the share of spending on child care, and the share of spending on schools.

### 5.3.1   Alternative age thresholds

In the baseline we use only races where a candidate below or equal to 40 and a candidate above 40 compete for the last seat. We rerun our baseline estimations while iterating over all ages between 30 and 50. We collect the results in the coefficient plots in Figure 4.

[Figure 4 goes here]

All three sub-figures show a similar pattern. The sign of the coefficient is the same as in the baseline in almost all cases. There is no significant effect (and quite large confidence intervals) when using subsamples defined by low age thresholds. There are, however, significant effects close to the baseline threshold of 40. Especially for spending on social security and child care the coefficient estimates are significant between 35 and approximately 45. For spending on schools the age thresholds that are far away from baseline threshold of 40 yield less significant results. The thresholds close to the baseline threshold are still significantly positive, however. Taken together, our results are not an artifact of our choice of the age threshold.

### 5.3.2   Closeness of mixed-age races

The validity of the instrument we use depends on the quasi-randomness of races for the last seat a list obtains. We show that the effects are similar to the baseline when limiting the sample

to close races, where the outcome of the race is even more random and unpredictable. Table 3 shows that the victory rate converges towards 50% when increasing the closeness of races. This supports the assumption that a victory of a young candidate is quasi-random.

[Table 3 goes here]

Figure 5 shows coefficient plots for regressions where we relate the instrumented share of young councilors to spending shares of social security, schools, and child care while limiting the sample to municipalities with increasingly close races. We start with a margin of victory of 20 ppt and gradually move to races with a margin of victory as small as 2 ppt.

[Figure 5 goes here]

For the share of spending on social security, the effect is significant for all levels of closeness. Similarly, the estimates for the share of spending on child care are also mostly significant.[26] We find that the results for schooling are also in line with the baseline estimates, even if they turn (barely) insignificant in the narrower samples. Overall, these findings are reassuring and lend credibility to the causal interpretation of our results.

### 5.3.3 Alternative scaling of outcomes

Our results might be sensitive to the scaling of the dependent variable. In our baseline estimations we use the logarithm of spending shares. In Table 6 we relate the instrumented share of young councilors to the plain share and to the inverse hyperbolic sine transformation of the share of spending on social security, child care, and schooling.

[Table 6 goes here]

The results for spending on social security and child care are robust in both alternative specifications. The coefficient on spending on schools is insignificant, but remains positive.

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[26]Note that the closeness of races results in increasingly smaller samples. Thus, the confidence intervals for the estimates using 4 and 2 ppt as condition are substantially larger than for the other estimates.

# 6   Extensions

In the baseline we use municipal spending shares as our main outcomes. However, budget allocation is not the only way how councilors can shape local policy choices. They can support the extension of child care by facilitating the allocation of construction plots, or influence hiring decisions of the municipality. We thus examine non-fiscal outcomes for one core result of our analysis: the expansion of child care induced by young councilors.[27]

## 6.1   Child care staff and available spots

Results for non-fiscal outcomes are collected in Table 7.[28] We relate the instrumented share of young councilors to the logarithm of the number of child care employees in care in Model (1). More staff is typically associated with a higher quality of care. We find a slightly significant positive relationship between the share of young councilors and the number of employees.

[Table 7 goes here]

Second, we examine the relationship between the share of young councilors and the logarithm of the number of potential child care places in Model (2). There is no significant effect of the share of young councilors. Also, Model (3) shows that child care is not expanded at the extensive margin, i.e. there is no significant effect on the number of child care facilities. Overall, there is some evidence that the increase in spending on child care is due to a higher number of child care employees, rather than an increase in child care spots or additional facilities. This suggests that young councilors promote the quality rather than the quantity of child care. This

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[27]We do not dig deeper regarding our results on schooling since many decisions, e.g. related to the staff, are made by the state government and are thus not in the hands of municipalities.

[28]While information on spending outcomes is available for all years in our sample, data on detailed aspects of child care are available from 2006 to 2019.

might be the more relevant dimension for young councilors if their own children which already have a spot in a local childcare facility.[29]

We also examine the number of children of different age groups in care per 1,000 inhabitants. Results are collected in models 4–6 of Table 7. An increase in the share of young councilors is related to a significantly larger number of children between 0 and 3 being in care. The effect for children between 3 and 6 is small and insignificant. This is conceivable, since this is the age group during which children traditionally have been in care (*Kindergarten*). Child care for younger children in turn received attention in public debates only recently.[30]

## 6.2 Municipal finances in general

The previous chapters show that young councilors prioritize spending on social security, specifically child care, and spending on schooling. They are able to allocate a larger share of the municipal budget to these spending categories. Naturally, the question is whether those changes in spending shares are reflected in overall municipal finances. We thus examine the effect of the share of young councilors on total spending, total revenues, tax revenues, and debt of municipalities. All variables are in logarithms and per capita terms.

[Table 8 goes here]

Table 8 collects the estimation results. The coefficients on all four variables are insignificant. If anything, all coefficients are small and consistently negative. A higher share of spending on child care and schools induced by young councilors does not go hand in hand with more spending in general. Also, municipalities with younger councils do not levy more tax revenue, nor increase their debt. Rather, the changes in municipal budget allocation seem to be due to the redeployment of existing resources. Further analysis in Table A.5 in the online appendix

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[29]Municipalities can also allocate spending on improving existing facilities qualitatively or on purchasing new equipment for child care facilities. We do not have data on this to test this empirically, however.

[30]See Baskaran and Hessami (2019) for details.

shows that expenditures are cut diffusely in other categories to finance the increase in child care and school spending.

# 7 Mechanisms and effect heterogeneity

In our baseline results we find that a higher share of young councilors increases the share of spending on social security, specifically child care, and schools. In the following, we examine the role of candidate, council, and electorate characteristics in the relationship between young councilors and spending shares.

## 7.1 Further candidate characteristics as competing mechanisms

Personal characteristics of policy makers matter for policy in general and in Bavarian councils (Besley, 2005; Baskaran and Hessami, 2019). From the hand-collected data we do have information on various councilor characteristics, such as gender, education, or list affiliation. Since our data is on municipality-year rather than on candidate level we aggregate individual characteristics to this level by calculating the share of the respective characteristic among younger councilors. By examining the effect heterogeneity along these dimensions we also ensure that it is in fact the effect of the age of councilors, not other personal or municipal characteristics.

### 7.1.1 Gender

First, we examine the role of gender. Descriptive findings indicate that the share of female councilors below or equal to 40 is similar to the share of female councilors in total. The share of female candidates below or equal to 40 in races for the last seat is somewhat higher (Subfigure (a) of Figure A.5). Bavarian councils are dominated by male councilors. Only about 18% of all councilors in our IV-sample are female. To examine this channel, we include the share of female councilors, below or equal to 40 and in total (see Table A.6).

The coefficient of the share of young councilors is similar to our baseline when controlling for the share of female councilors below or equal to 40. This holds when controlling for

the share of females in council overall. The effect on the share of spending on schools turns insignificant in this specification, however. In addition, the total share of females in council is positively correlated with spending on social security and child care, in line with previous findings from Bavarian councils (Baskaran and Hessami, 2019).[31] While female councilors do matter for policy outcomes at the local level, there is still a separate effect of young councilors. The effect we observe is not driven by a higher chance that young councilors are more often woman.

### 7.1.2 Education

We turn to the impact of councilor qualification next. For higher education the descriptive distribution is balanced. Young candidates in close races do not differ from councilors below or equal to 40 or councilors in terms of having a university degree or PhD. Overall about 26% of councilors do have university education. We control both for the share of young councilors with higher education and for the share of councilors with higher education in general. Results are collected in Table A.7. The results closely resemble the baseline findings, with the exemption of an insignificant effect on the share of spending on schools when controlling for the share of young councilors with higher education. Thus, the education of councilors does not explain the relationship we find in the baseline.

### 7.1.3 Ideology

In addition, the political orientation of young councilors might matter for their spending preferences.[32] Young councilors running for left parties might be more in favor of a higher share

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[31]The share of females in council is likely endogenous itself. Results are virtually unchanged when instrumenting the share of young females with the share of female young victories in races for the last seat. This is also the case for the results on education and list affiliation.

[32]While their affiliation with a party is a conceivable proxy, true political orientation and its interaction with spending preferences is unobserved. It is not unrealistic to assume that young councilors might have different preferences than other councilors on their list, but are on the list for other reasons.

of spending on social security than their colleagues in conservative parties. The most dominant political party in Bavaria is the conservative CSU, followed by the center-left SPD. Party affiliation does not differ between candidates for close races, councilors below or equal to 40, and councilors overall for most parties. An exemption is the CSU, that is substantially less prevalent among young candidates in close races (Sub-figure (c) of Figure A.5).

To examine this channel empirically, we calculate the share of young councilors that run for right, that is more conservative, or left parties.[33] We then control for the respective share. Results in Table A.8 indicate that results are very similar to the baseline when controlling for the share of right councilors. When including the share of left young councilors, the coefficient for the effect on the share of spending on schools turns insignificant. At the same time, the coefficient of the share of left young councilors turns significant. While this indicates that the list affiliation might matter in this case, the overall results for the share of spending on schooling are not always robust to different specifications. For the case of spending on social security and child care, we conclude that the list affiliation does not explain our findings. This is in line with the perception that Bavarian councils take decisions in consensus, rather than driven by ideological turf battles (Baskaran and Hessami, 2019).

Overall, controlling for young councilor characteristics or the overall prevalence of personal characteristics in councils does not substantially change our baseline findings. While this does not suggest a plausible mechanism, the similarity of the direct effects to the baseline in many of the specifications underlies that personal characteristics do not drive the estimated relationship.

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[33]We code CSU, Freie Waehler, BP, and AfD as right. SPD, Gruene, Linke, and OEDP are coded as left. Often councilors run for local lists rather than supra-regional parties. For those lists the political orientation is unclear.

## 7.2 Effect heterogeneity

### 7.2.1 Council characteristics

**Council size** Council characteristics may also influence the priority-setting of young councilors. One key dimension is the size of the council.[34] In small councils, individual preferences of councilors might matter more than preferences of their list. Also, smaller councils might encourage younger, and thus typically less experienced, councilors to speak up and voice their opinion. Conversely, larger councils might provide a larger pool of councilors sharing similar policy preferences. It is easier for young councilors to form strong strategic alliances with fellow councilors to reach common goals.

In line with these arguments, we interact the instrumented share of young councilors with the number of seats in council.[35] Models 1–3 of Table A.9 collect the results. We find no additional effect of the share of young councilors depending on the council size. Apparently the size does either not influences councilor behavior, or the competing directions of the effect explained above cancel each other out.

**Mayor age** The mayor of a municipality is the key player in local policy decisions. She is crucial in assembling the municipal budget and can veto decisions of the council. If policy preferences are indeed related to personal characteristics, such as age, younger mayors should prioritize spending categories similar to younger councilors. Thus, an increase of the share of young councilors should have a larger effect in municipalities governed by a young mayor, who could be the natural ally of young councilors.

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[34]Recall that councils are typically small, but larger municipalities can have up to 80 councilors. Details are collected in Table A.1.

[35]For the sake of exposition we describe the interaction effects as if they would take place within a basic OLS framework. In the IV context we instrument the interaction of interest and the endogenous variable on the second stage by the interaction of our instrument (share of young victories) and the council size and the instrument itself on the first stage.

We examine this by interacting the instrumented share of young councilors with an indicator that is one if the mayor is below or equal to 40 at the point of election. In general, mayors tend to be older: Only about 6.5% of mayors in the IV sample are below or equal to 40. Models 4–6 of Table A.9 show the results of this exercise. There is no additional effect of young mayors in interaction with young councilors. Young councilors do not promote the extension of social security, schools, and child care by amplifying the effect of a young mayor. It is conceivable that young mayors promote these areas, but do so irrespective of how many young councilors are at the table. That is, in municipalities that are governed by younger mayors these topics are on the agenda already, and young councilors face fewer incentives to engage in these topics.

**Other young councilors**    Not only the mayor is a natural ally of young councilors. Also, the effect of a single young councilor might depend on the availability of other young councilors to form strategic alliances. That is, the effect of young councilors might vary with the share of young councilors. We thus include the squared share of young councilors to assess the potentially non-linear effect of young councilors.

Results are collected in columns 1–3 of Table A.10. The coefficient of the squared term is insignificant for the share of spending on social security, schools, and child care. Thus, there is no indication of a non-linear effect of young councilors on spending patterns. In addition, we limit the sample to municipalities with more than the median share of young councilors. With this we assess the relationship of interest within a setting where a relatively high share of young councilors has a seat at the table. Columns 4–6 of Table A.10 show that there is still a significantly positive relationship between the share of young councilors and spending on social security. The coefficient for spending on child care is positive and large, but falls just short of the 10% significance level. Similar to other specifications, the finding is less robust for schooling. Coefficients are considerably larger compared to the baseline, such that we take these results with a grain of salt.

### 7.2.2 Municipality characteristics

**Number of children in municipalities**  In this section we examine the role of municipality characteristics and their impact on the relationship between young councilors and municipal spending. In the baseline we find that young councilors increase spending on child care and schools significantly. We thus examine the share of children living in the municipality, separately for the age groups below 6 and from 6 to 14 years. This proxies the demand for child care as well as schools in a municipality. We interact the share of young councilors with the share of children in the respective age groups relative to total population. Results are collected in Table A.11. The coefficients of the interaction terms are insignificant for all three outcomes and both age groups.[36] Thus, the effect of young councilors on social security, child care, and schooling is not a result of demography-related higher demand for those public goods in municipalities.

**Pre-existing spending patterns**  Next, the share of different spending categories at the beginning of the legislative period might matter for how urgent young councilors perceive the need to increase the shares according to their preferences. We thus interact the share of young councilors with the share of spending for a given category in the year of election.[37] The effect of the share of young councilors does not depend on these pre-election spending patterns, as coefficients of the interaction terms are insignificant in all specifications (Models 1–3 of Table A.12).

**Female labor force participation rates**  Finally, we examine the role of female labor force participation in a municipality. A higher share of women working increases the demand for child care, since women are often the main caregivers and have a strong preference for appropriate child care (Wippermann, 2016; Gathmann and Sass, 2018). Thus, we calculate the share

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[36]There is also no additional effect when pooling the two age groups together.

[37]This is equivalent to the budget prepared in the last year of the previous legislative period. The election of the new councilors takes place in March of the election year.

of woman employed relative to all woman living in a given municipality and interact this share with the share of young councilors. Results are presented in models 4–6 of Table A.12.

There is no significant additional effect of a higher share of working woman for social security and child care. There is a significantly positive effect of the interaction term on the share of spending on schooling, however. The effect of young councilors on spending on schools thus changes with the share of woman at work in the municipality. One can only speculate why this effect heterogeneity is observed for schooling, but not for child care, while the latter is arguably facilitates a higher labor force participation. Councilors do not seem to take labor force participation into consideration when deciding upon child care, probably because they underestimate or undervalue the importance of appropriate child care as pre-condition for female employment.

### 7.2.3 Age structure of the electorate

We next examine the age structure of the electorate and its impact on policy choices of young councilors. Since candidates are elected by preferential voting and can thus be held accountable directly, they arguably face constraints by the preferences of the electorate. Referring to Downs (1957), it is conceivable that young councilors align their policy choices with the median voter of their municipality – who might be older or younger depending on their municipality. Thus, many young councilors face an incentive to adjust their priority-setting in council to electorate preferences, even at the expense of their own priorities.

We examine the impact of a young electorate on the baseline relationship by interacting the share of young councilors with the logarithm of the share of inhabitants between 18 and 39 years of age.[38] This corresponds to the population above voting age but below the age threshold. If young councilors respond to the size of this portion of the electorate we should expect the interaction term to be significant an positive. Indeed, model 3 of Table A.13 shows that there is a significantly positive partial effect of young councilors on spending on social

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[38]We center the variable at its mean to provide meaningful interpretation of the effect of young councilors within the interaction framework. Note that results are not robust to choosing different age groups.

security, when evaluating at the mean value of the share of young electorate. The coefficient of the interaction is insignificant, however. For spending on schools and child care the partial effect of young councilors evaluate at the mean value of the share of young electorate is insignificant. For child care the coefficient of the interaction is significantly positive, indicating that councilors respond to a younger electorate – at least to some extent.

In models 4–6 in Table A.13 we repeat this exercise using the share of senior citizens in the electorate. That is, we use the – mean centered – share of inhabitants above 60 and interact it with the share of young councilors. As expected, we do find results that point in the opposite direction, compared to the results above, for spending on social security and child care. There is an additional significantly negative effect of the interaction term. Evaluated at the mean of senior citizens in the electorate, this results in a positive – but insignificant – effect of young councilors on the spending on social security and child care. For the spending on schooling the effect of young councilors evaluated at the mean of the share of senior citizens in the electorate is significant and positive. The coefficient of the interaction term is insignificant, however.

In summary, there is some evidence that young councilors respond to the age of their electorate. They increase the share of spending on child care even more if the electorate is younger. Conversely, their effect on spending on social security and on child care is smaller in municipalities with an older electorate.

# 8   Conclusion

We use data from local elections in Bavaria to examine the impact of young councilors on municipal budget allocation and spending priorities. We instrument the share of young councilors with the share of quasi-random victories in races for the last seat a list obtains. We find evidence that an increase in the share of councilors below or equal to 40 causes an increase in the share of spending on social security and schooling. In addition, we find that the increase in social security is driven by an increase in the share of spending on child care – the largest subcategory of social security.

27

We examine effect heterogeneity along various dimensions, including personal, council, and municipality characteristics. There is some indication that young councilors additionally increase the share of spending on social security depending on the age structure of the electorate in their municipality. Facing an older electorate, young councilors have a smaller impact on social security and child care.

While the existing literature on political selection has emphasized gender, ethnicity or social class as important determinants of policy choices, our results show that age is an important dimension of political selection as well. Many countries have adopted measures to ensure a balanced representation of women or ethnic and social minorities in political bodies, notably quotas. The imbalance in age has received far less attention.

This is problematic in an era where key policy choices must be made that will have disproportional and sometimes irreversible effects across generations. Given that younger politicians, too, appear to pander to voters, increasing the share of young politicians itself may not be enough to tilt policies decisively in the favor of the younger sections of society in view of current demographic trends. However, it may mitigate some of the inherent imbalance in policy choices induced by the overrepresentation of the elderly in the political class.

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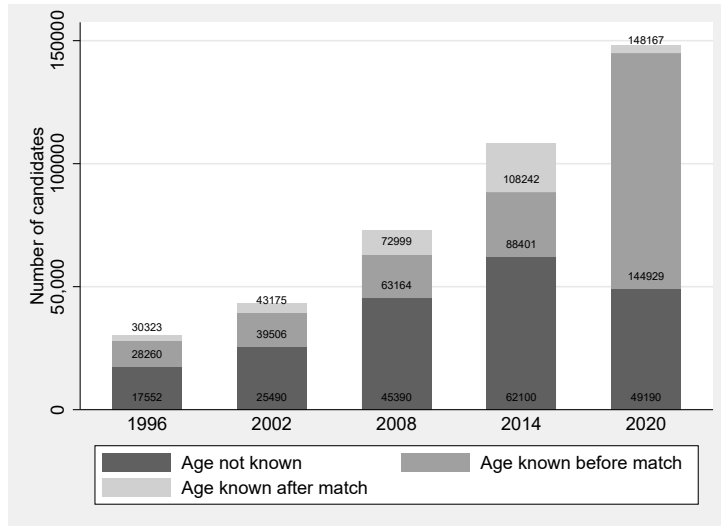
**(a)** Candidates
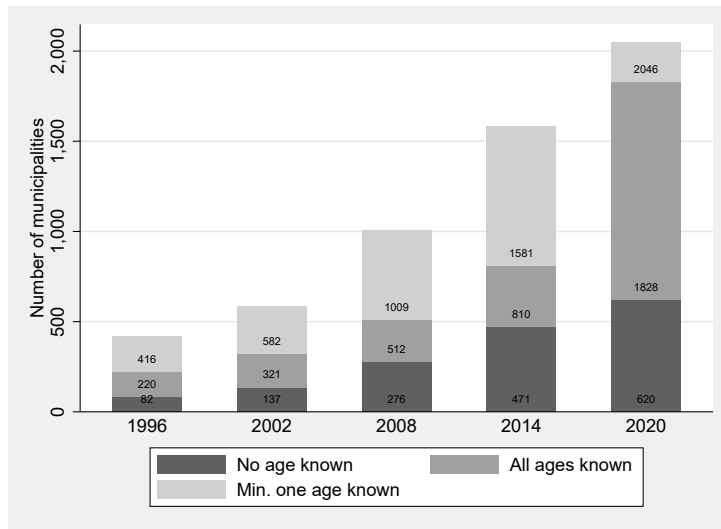


**(b)** Municipalities

**Figure 1:** Availability of data on council elections and candidate age. The bar charts show the availability of age of candidates before and after the fuzzy match across years. Subfigure (a) shows age availability for candidates and subfigure (b) shows the extent of age information in the councils. Numbers indicated are cumulative, i.e. the top-most number is the total number of candidates and municipalities.
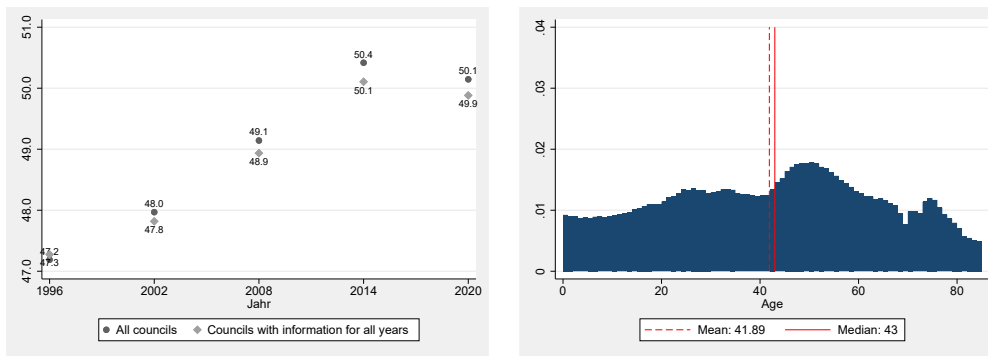
**(a)** Average age of councilors across years

**(b)** Age structure of the Bavarian Population

**Figure 2:** Descriptive statistics on councilor age and age structure of the population. Subfigure (a) shows the development of the average age in local councils across election years. The blue dots indicate the average age for all municipalities where we know the age of all councilors in a given year. The red dots indicate the average age in local councils for the 74 municipalities for which we have full coverage on councilor age in all election years. Subfigure (b) shows the age distribution of the population across all Bavarian municipalities as of 2014. Graph truncated at age 85. Note that due to limited age availability the underlying municipality samples of the two graphs are not identical.
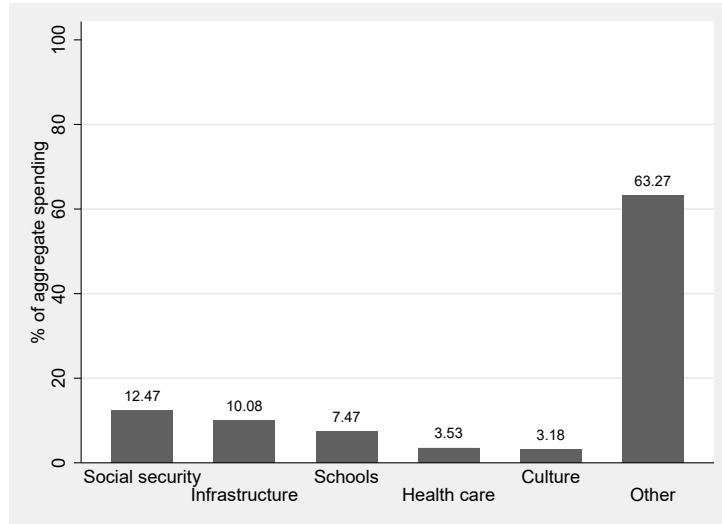
(a) Share of aggregate spending categories
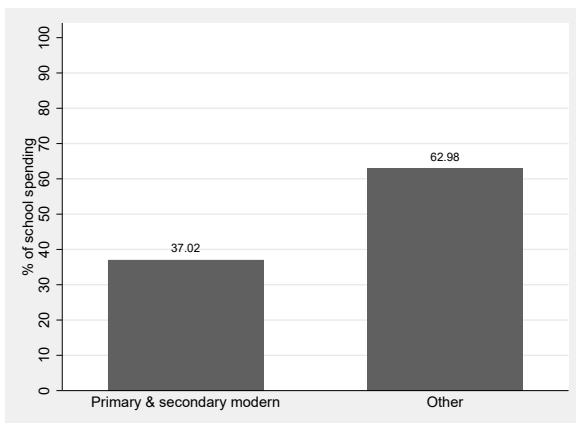


(b) Share of subcategories of school spending
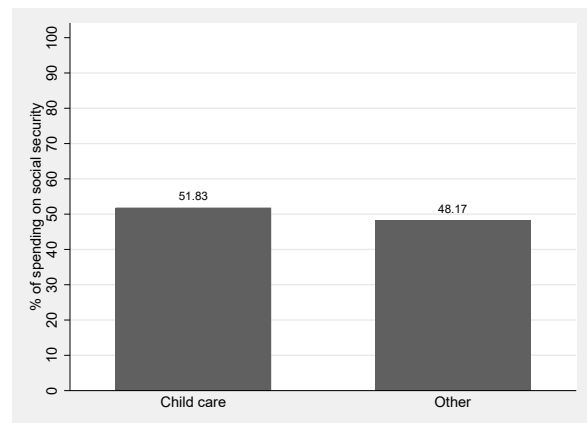


(c) Share of subcategories of spending on social security

**Figure 3:** Share of spending on various spending categories. This figure shows the average composition of spending for the municipalities in our sample as of 2019. In the first row, the share of various spending items relative to total local spending is shown (in %). The most important categories are social security, infrastructure, and schools. In the second row, we show important subcategories of two broad categories: social security and schools. For spending on social security, we show the share of the largest subcategory – child care – relative to total spending on social security. In addition, we show the share of spending on primary and secondary schools relative to spending on all school types. Primary and secondary schools are common also in smaller municipalities, thus we focus on these two types. We examine the five broad categories, as well as the two important subcategories in our empirical analysis.

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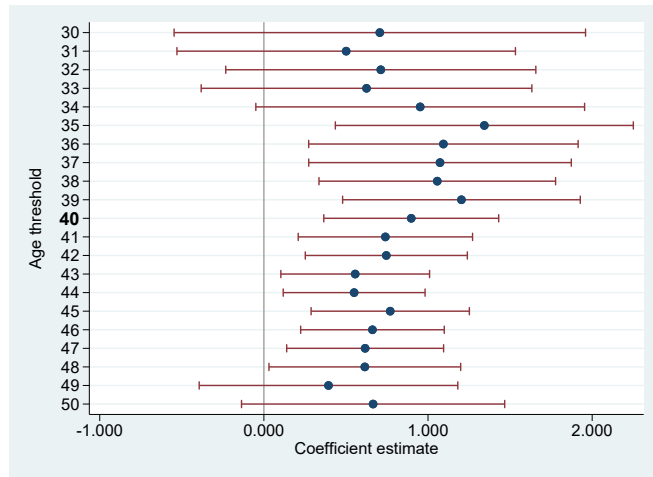
**(a)** Social security
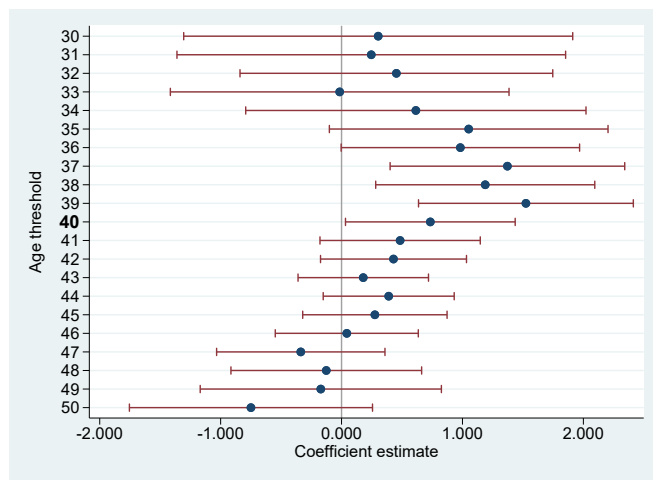


**(b)** Schools
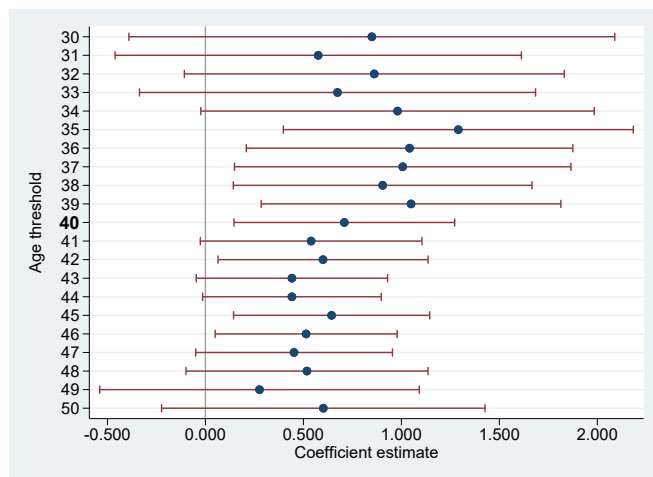


**(c)** Child care

**Figure 4:** Robustness test – alternative age thresholds. This figure shows coefficient estimates for IV models that relate the share of young councilors to the indicates spending shares (following the specification in Equations 1 and 2). To explore whether the baseline results are an artifact of choosing 40 years as the threshold for a young councilor, we vary the threshold for young councilors in one year steps between 30 and 50 years. 90% confidence intervals are indicated in the graph.
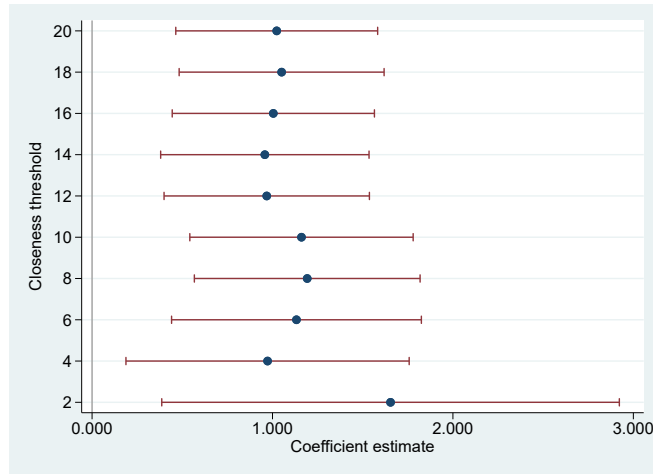
**(a)** Social security
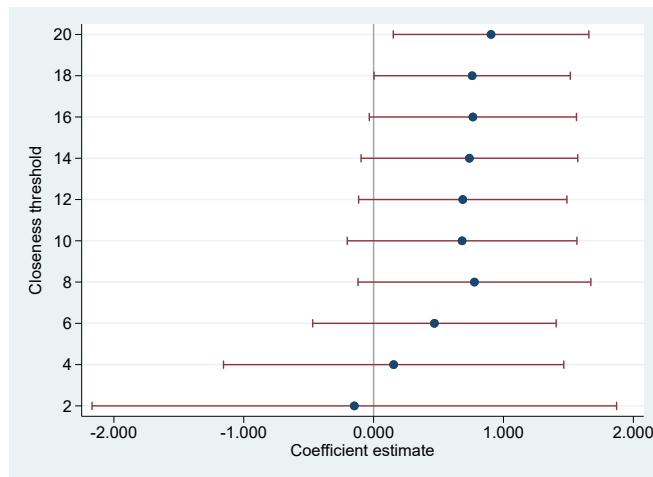


**(b)** Schools
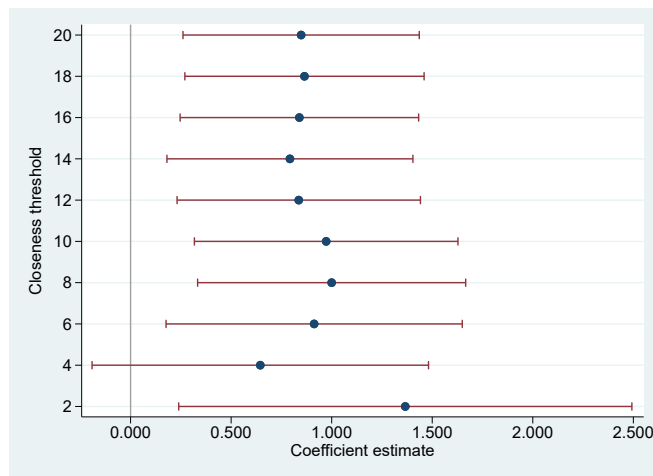


**(c)** Child care

**Figure 5:** Robustness test – varying degrees of closeness in races for the last seat This figure shows coefficient estimates for IV models that relate the share of young councilors to social spending (following the specification in Equations 1 and 2). To explore whether the baseline results are biased due to non-randomness in the outcome of the race for the last seat between a young and an old candidate, we restrict the sample to councils with âĂIJcloseâĂİ races between the young and the old candidate. We report separate results for councils where the margin of victory was between 20 and 2 ppt. 90% confidence intervals are indicated in the graph.

**Table 1:** DESCRIPTION OF VARIABLES AND SOURCES

| Variable | Scale | Description | Availability | Source |
|---|---|---|---|---|
| Total expenditures | log/pc | Sum of all expenditures of a municipality | 1996-2019 | Bavarian Statistical Office |
| Total revenues | log/pc | Sum of all revenues of a municipality | 1996-2019 | Bavarian Statistical Office |
| Total tax revenues | log/pc | Sum of all tax revenues from business and property taxes | 1996-2019 | Bavarian Statistical Office |
| Debt | log/pc | Total debt accumulated by a municipality | 1996-2019 | Bavarian Statistical Office |
| Expenditures on social security | log of share | Social security administration, social security BSGH, asylum funding, social facilities, support for the youth youth facilities, child care, maternal care, and family support | 1996-2019 | Bavarian Statistical Office |
| Expenditures on child care | log of share | Child care includes day care for children before and after school entry | 1996-2019 | Bavarian Statistical Office |
| Expenditures on infrastructure | log of share | Construction administration, city planning, municipal roads, street cleaning, street lighting, parks, and rivers | 1996-2019 | Bavarian Statistical Office |
| Expenditures on schools | log of share | This category includes spending on all school types. This includes local primary schools as well as secondary schooling and vocational schools | 1996-2019 | Bavarian Statistical Office |
| Expenditures on culture | log of share | Culture administration, science, museums, exhibitions, zoos, theaters, community collages, environmental protection, historical sites, church related expenditure | 1996-2019 | Bavarian Statistical Office |
| Expenditures on health care | log of share | Health administration, hospitals, sport funding, sport facilities, swimming pools, and parks. | 1996-2019 | Bavarian Statistical Office |

**Table 2:** VALIDITY – YOUNG VICTORIES, MUNICIPALITY CHARACTERISTICS, LAGGED OUTCOMES

Panel A: Share of young victories and municipality characteristics

| | (1) Population | (2) Pop. $< 6$ | (3) Pop. $6-14$ | (4) Pop. $15-65$ | (5) Pop. $\geq 65$ | (6) Area |
|---|---|---|---|---|---|---|
| Share young victories | 0.002 | 0.002 | 0.016 | 0.001 | -0.001 | -0.003 |
| | (0.005) | (0.014) | (0.012) | (0.005) | (0.008) | (0.004) |
| Mean (SD) | 8.32 (1.01) | 5.41 (1.03) | 5.95 (0.99) | 7.90 (1.01) | 6.63 (1.07) | 3.36 (0.74) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| N | 5880 | 5880 | 5880 | 5880 | 5880 | 5880 |
| Councils | 980 | 980 | 980 | 980 | 980 | 980 |
| Municipalities | 556 | 556 | 556 | 556 | 556 | 556 |

Panel B: Share of young victories and lagged outcomes

| | (1) Social | (2) Infrastructure | (3) Schools | (4) Culture | (5) Health | (6) Other |
|---|---|---|---|---|---|---|
| Share young victories | -0.028 | 0.023 | -0.017 | 0.080 | -0.098 | 0.006 |
| | (0.039) | (0.045) | (0.050) | (0.067) | (0.071) | (0.010) |
| Mean (SD) | -2.89 (0.64) | -2.38 (0.58) | -2.93 (0.52) | -4.95 (1.15) | -4.35 (1.38) | -0.33 (0.14) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| N | 3072 | 3072 | 3072 | 3071 | 3049 | 3071 |
| Councils | 512 | 512 | 512 | 512 | 511 | 512 |
| Municipalities | 297 | 297 | 297 | 297 | 297 | 297 |

Notes: This table collects results from regressions that relate municipality characteristics and the (log of) the spending of different categories relative to total spending (i. e. spending shares) to the share of young victories (i. e. the instrument we propose to use). In Panel A we estimate separate regressions for the (log of) population (model 1), (log of) population below 6 years (model 2), (log of) population between 6 and 14 (model 3), (log of) population between 15 and 65 (model 4), (log of) population above or equal 65 (model 5), and (log of) area (model 6). In Panel B we estimate separate regressions for spending on social security (model 1), spending on infrastructure (model 2), spending on schools (model 3), spending culture (model 4), and spending on health care (model 5). We also study the residual spending (total local spending minus spending on the first five categories, model 6). Outcomes are lagged by six years. The outcomes in Regressions include municipality and year fixed effects. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate

**Table 3:** SUMMARY STATISTICS – VICTORY RATE OF YOUNG CANDIDATE IN LAST-SEAT RACES, BY RACE CLOSENESS

| Variable | Mean | SD | N |
|---|---|---|---|
| All races | 0.43 | 0.49 | 9606 |
| Races below 20 ppt victory margin | 0.46 | 0.50 | 8274 |
| Races below 18 ppt victory margin | 0.46 | 0.50 | 8022 |
| Races below 16 ppt victory margin | 0.46 | 0.50 | 7740 |
| Races below 14 ppt victory margin | 0.46 | 0.50 | 7422 |
| Races below 12 ppt victory margin | 0.47 | 0.50 | 7050 |
| Races below 10 ppt victory margin | 0.47 | 0.50 | 6480 |
| Races below 8 ppt victory margin | 0.47 | 0.50 | 5874 |
| Races below 6 ppt victory margin | 0.48 | 0.50 | 4914 |
| Races below 4 ppt victory margin | 0.49 | 0.50 | 3762 |
| Races below 2 ppt victory margin | 0.51 | 0.50 | 2280 |

Notes: This table reports summary statistics on the share of races for the last seat between candidates above and below or equal 40 years won by the younger candidate. We report victory rates for all races and races where the margin of victory was below 20 to 2 percentage points.

**Table 4:** IV RESULTS – YOUNG COUNCILORS AND MUNICIPAL SPENDING

First Stage: Young victories in the race for the last seat and share of young councilors

Dep. Var.: Share of young councilors

| | (1) Social | (2) Infrastructure | (3) Schools | (4) Culture | (5) Health | (6) Other |
|---|---|---|---|---|---|---|
| Share young victories | 0.097*** | 0.097*** | 0.097*** | 0.097*** | 0.099*** | 0.097*** |
| | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) | (0.012) |
| N | 4182 | 4182 | 4182 | 4180 | 4139 | 4181 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Second Stage: Instrumented share of young councilors and spending shares

| | (1) Social | (2) Infrastructure | (3) Schools | (4) Culture | (5) Health | (6) Other |
|---|---|---|---|---|---|---|
| Share young councilors | 0.898*** | -0.270 | 0.734* | 0.791 | -0.506 | -0.027 |
| | (0.324) | (0.385) | (0.427) | (0.570) | (0.801) | (0.092) |
| Mean (SD) | -2.71 (0.65) | -2.42 (0.59) | -3.00 (0.55) | -5.02 (1.16) | -4.45 (1.44) | -0.34 (0.14) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 62.13 | 62.13 | 62.13 | 62.06 | 63.91 | 62.20 |
| N | 4182 | 4182 | 4182 | 4180 | 4139 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 695 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relate the (log of) spending on different categories relative to total spending (i. e. spending shares) to the share of young councilors (i. e. councilors below or equal to 40 years). We estimate separate regressions for spending on social security (model 1), spending on infrastructure (model 2), spending on schools (model 3), spending culture (model 4), and spending on health care (model 5). We also study the residual spending (total local spending minus spending on the first five categories, model 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate

**Table 5:** IV RESULTS – YOUNG COUNCILORS AND SOCIAL/SCHOOL SPENDING

| | (1) Child care | (2) Other social spending | (3) Prim./Second. modern | (4) Other school spending |
|---|---|---|---|---|
| Share young councilors | 0.709** | 0.938 | 0.741* | -0.004 |
| | (0.342) | (0.768) | (0.442) | (0.436) |
| Mean (SD) | -2.82 (0.65) | -6.06 (1.55) | -3.20 (0.59) | -5.33 (1.02) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 62.18 | 62.12 | 62.03 | 62.13 |
| N | 4181 | 4165 | 4178 | 4182 |
| Councils | 697 | 697 | 697 | 697 |
| Municipalities | 346 | 345 | 346 | 346 |

<sup>Notes:</sup> This table collects results from IV regressions that relate (i) the share of components of social spending and (ii) the components of school spending (relative to total spending) to the share of young councilors (councilors below or equal to 40 years). We estimate separate regressions for the (log of) spending share devoted to child care (model 1), the (log of) spending share devoted to other social spending, (model 2), the (log of) spending share devoted to primary and secondary modern school (model 3), and the spending share devoted to the (log of) other school spending (model 4). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table 6:** ROBUSTNESS – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ALTERNATIVE SCALING OF OUTCOMES

| | Share (without log) | | | Inverse Hyperbolic Sine | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 0.074*** | 0.047 | 0.070*** | 0.071*** | 0.046 | 0.709** |
| | (0.027) | (0.034) | (0.027) | (0.025) | (0.034) | (0.342) |
| Mean (SD) | 0.08 (0.06) | 0.06 (0.04) | 0.07 (0.05) | 0.08 (0.05) | 0.06 (0.04) | -2.82 (0.65) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 62.13 | 62.13 | 62.13 | 62.13 | 62.13 | 62.18 |
| N | 4182 | 4182 | 4182 | 4182 | 4182 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 697 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

<sup>Notes:</sup> This table collects results from IV regressions that relates spending categories to the share of young councilors (councilors below or equal to 40 years). We estimate separate regressions for the plain share of spending on social security (model 1), the plain spending share devoted to schools (model 2), and the plain spending share devoted to child care (model 3). In models (4) to (6) we repeat this exercise using the inverse hyperbolic sine transformation for the share of each sepnding item. Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table 7:** EXTENSION – YOUNG COUNCILORS AND NON-FISCAL OUTCOMES ON CHILD CARE

| | (1) Employees | (2) Spots | (3) Facilities | (4) Children 0-3 | (5) Children 3-6 | (6) Children 6-11 |
|---|---|---|---|---|---|---|
| Share young councilors | 0.454* | -0.016 | -0.348 | 5.139* | 0.521 | 5.658 |
| | (0.270) | (0.189) | (0.278) | (2.693) | (4.236) | (4.154) |
| Mean (SD) | 3.10 (1.30) | 7.03 (0.15) | 2.88 (0.40) | 5.47 (3.34) | 24.25 (5.92) | 7.90 (5.57) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 44.00 | 46.02 | 46.02 | 43.91 | 44.00 | 43.99 |
| N | 2887 | 2419 | 2419 | 2884 | 2887 | 2886 |
| Councils | 584 | 571 | 571 | 584 | 584 | 584 |
| Municipalities | 343 | 337 | 337 | 343 | 343 | 343 |

Notes: This table collects results from IV regressions that relate non-fiscal aspects of child care provision to the share of young councilors (councilors below or equal to 40 years). We estimate separate regressions for the (log of) the number of child care employees (model 1), the (log of) child spaces theoretically available, (model 2), the (log of) the number of facilities (model 3), and the number of children in care by indicated age group per 1,000 inhabitants (models 4-6). Data are available from 2006-2019. Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table 8:** EXTENSION – YOUNG COUNCILORS AND MUNICIPAL FINANCES

| | (1) Total Expenditures | (2) Total Revenues | (3) Tax revenues | (4) Debt |
|---|---|---|---|---|
| Share young councilors | -0.267 | -0.085 | -0.041 | -0.075 |
| | (0.177) | (0.157) | (0.150) | (0.824) |
| Mean (SD) | 7.73 (0.39) | 7.69 (0.39) | 6.54 (0.47) | 6.18 (1.08) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 62.13 | 62.13 | 62.13 | 58.11 |
| N | 4182 | 4182 | 4182 | 3938 |
| Councils | 697 | 697 | 697 | 676 |
| Municipalities | 346 | 346 | 346 | 334 |

Notes: This table collects results from IV regressions that relate local expenditures, (tax) revenues and debt to the share of young councilors (councilors below or equal to 40 years). We estimate separate regressions for (log of) total local expenditures per capita (model 1), (log of) total local revenues per capita (model 2), (log of) total local tax revenues per capita (model 3), and (log of) public debt per capita (model 4). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.
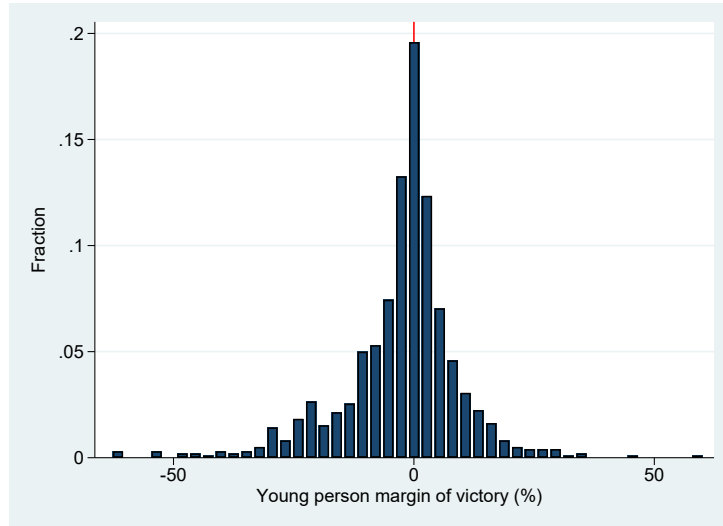
# Online appendix

## A.1 Additional figures



**Figure A.1:** Margin of victory This histogram shows the margin of victory, i.e. the difference in votes between the two candidates relative to the sum of votes they received. It captures the closeness of the races for the last seat. Young candidates are not substantially more likely to win the last seat of a list in the council.
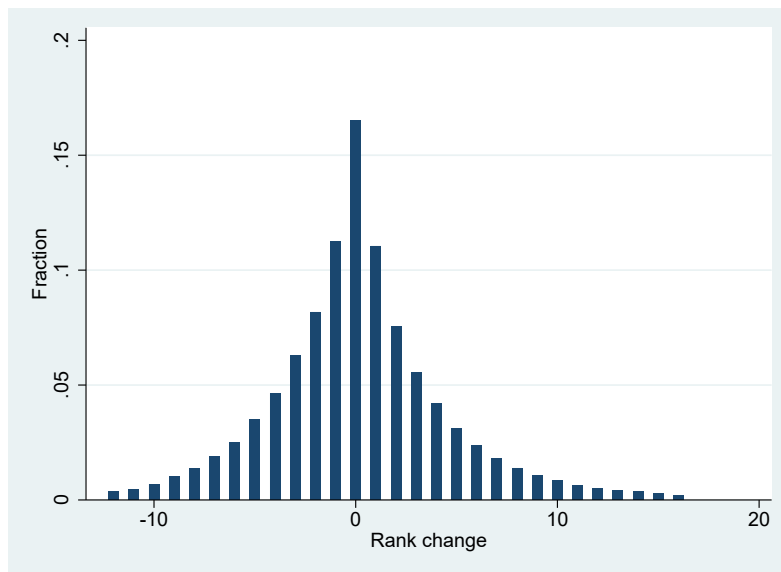


**Figure A.2:** Rank change of candidates The histogram shows the distribution of the difference between initial and final rank of a candidate. For the sake of exposition only changes within the 1st and 99th percentile are included.
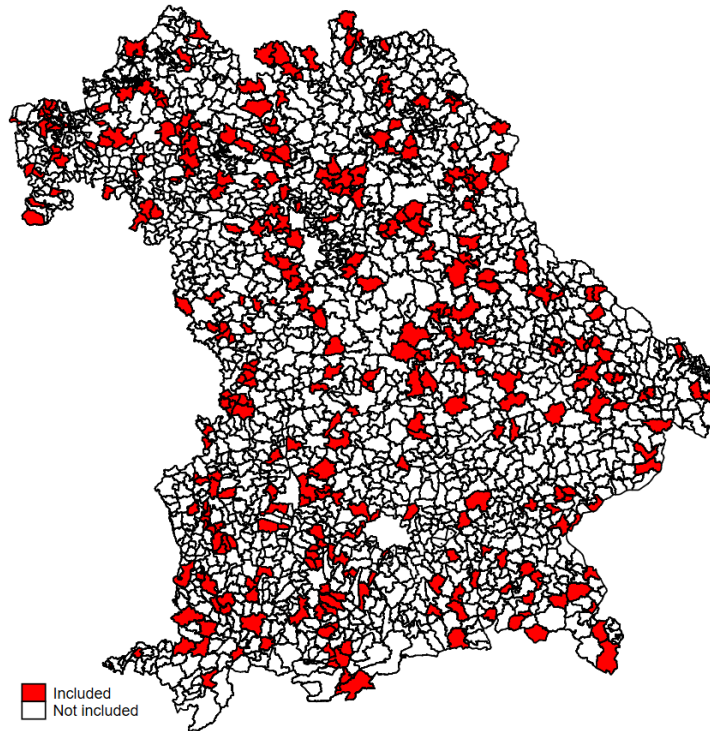
**Figure A.3:** Bavarian municipalities included in the IV sample The map shows the municipalities included in the sample in red.
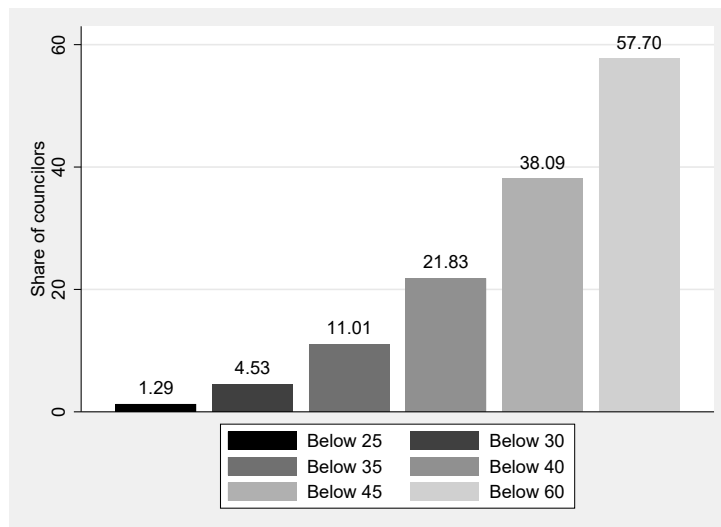


**(a)** Share of councilors below X years

**Figure A.4:** Share of councilors below different age thresholds This figure shows the average share of councilors below 25, 30, 35, 40, 45, and 50 years.
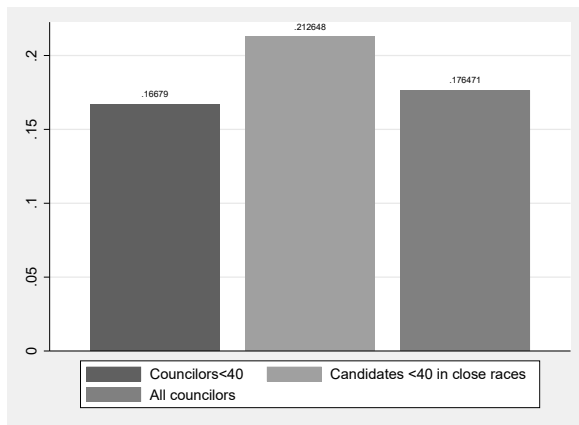
**(a)** Share female
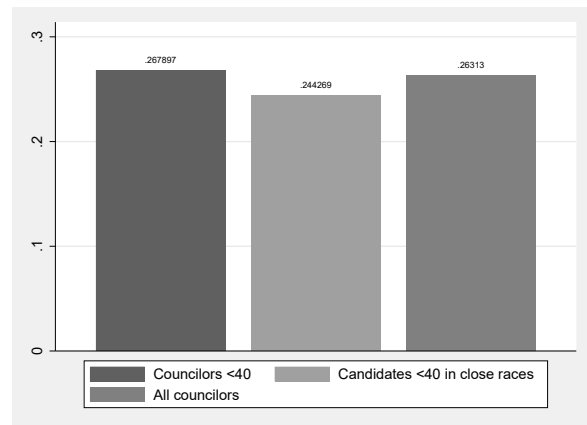


**(b)** Share higher education
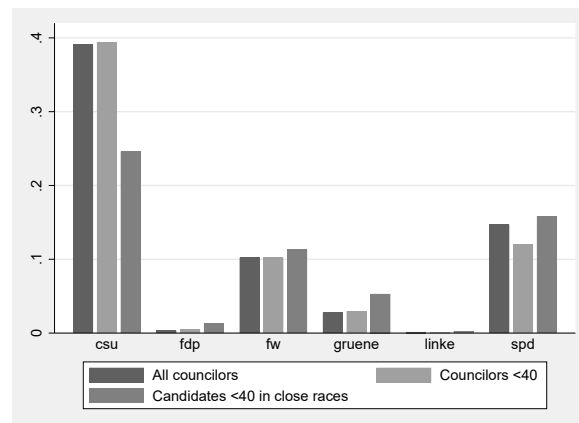


**(c)** Share party

**Figure A.5:** Candidate characteristics Subfigure (a) shows the share of female councilors below or equal to 40, the share of female candidates below or equal to 40 in races for the last seat, and the share of females across all councilors irrespective of age. The subfigures (b) and (c) show the same for higher education and parties. The sample used is the same as used for the regressions.

## A.2 Additional tables

**Table A.1:** DISTRIBUTION OF COUNCIL SIZES ACROSS BAVARIAN MUNICIPALITIES IN 2014

| Council size | Municipalities | Cumulative share |
| --- | --- | --- |
| 8 | 129 | 6.27 |
| 12 | 593 | 35.12 |
| 14 | 370 | 53.11 |
| 16 | 405 | 72.81 |
| 20 | 333 | 89.01 |
| 24 | 159 | 96.74 |
| 30 | 33 | 98.35 |
| 40 | 17 | 99.17 |
| 44 | 9 | 99.61 |
| 50 | 5 | 99.85 |
| 60 | 1 | 99.90 |
| 70 | 1 | 99.95 |
| 80 | 1 | 100.00 |
| Total | 2056 | |

Notes: This table reports the distribution of the number of seats in local councils across Bavarian municipalities as of 2014. The first column states the number of seats per council. The second column indicates how many of the 2,056 Bavarian municipalities has that many council seats, respectively. The third column reports cumulative shares for council size.

**Table A.2:** SUMMARY STATISTICS ON CANDIDATE CHARACTERISTICS

| Variable | Count | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| Age | 104207 | 45.76 | 11.82 | 18 | 93 |
| Female | 254739 | 0.25 | 0.44 | 0 | 1 |
| CSU | 254739 | 0.21 | 0.40 | 0 | 1 |
| SPD | 254739 | 0.16 | 0.36 | 0 | 1 |
| FW | 254739 | 0.07 | 0.26 | 0 | 1 |
| Greens | 254739 | 0.05 | 0.22 | 0 | 1 |
| Higher Degree | 254739 | 0.13 | 0.34 | 0 | 1 |
| Employed | 167808 | 0.83 | 0.37 | 0 | 1 |
| Selfemployed | 167808 | 0.07 | 0.26 | 0 | 1 |
| Student | 167808 | 0.03 | 0.16 | 0 | 1 |
| Retired | 167808 | 0.04 | 0.20 | 0 | 1 |
| Housewife-/husband | 167808 | 0.03 | 0.16 | 0 | 1 |

Notes: This table reports summary statistics on the characteristics of council candidates between 1996 and 2014. Higher degree is coded as 1 if a candidate has a university degree. The full candidate sample is used.

**Table A.3:** SUMMARY STATISTICS ON MUNICIPAL SPENDING VARIABLES

| Variable | Count | Mean | SD | Min | Max |
|---|---|---|---|---|---|
| (Log of) total expenditure p.c. | 5880 | 7.77 | 0.39 | 6 | 10 |
| (Log of) debt p.c. | 5464 | 6.21 | 1.10 | -2 | 9 |
| (Log of) total revenue p.c. | 5880 | 7.73 | 0.38 | 6 | 10 |
| (Log of) tax revenue p.c. | 5880 | 6.60 | 0.47 | 4 | 9 |
| (Log) share of exp. on social security | 5880 | -2.65 | 0.64 | -5 | 0 |
| (Log) share of exp. on infrastructure | 5878 | -2.43 | 0.59 | -5 | -1 |
| (Log) share of exp. on schools | 5877 | -3.02 | 0.55 | -8 | -1 |
| (Log) share of exp. on culture | 5874 | -4.97 | 1.17 | -10 | -1 |
| (Log) share of exp. on health care | 5825 | -4.42 | 1.40 | -12 | -1 |
| (Log) share of other exp. | 5879 | -0.34 | 0.14 | -1 | -0 |
| (Log) share of exp. on child care | 5877 | -2.76 | 0.65 | -8 | 0 |
| (Log) share of exp. on primary/secondary schools | 5872 | -3.23 | 0.60 | -9 | -1 |

Notes: This table reports summary statistics on the different spending variables.

**Table A.4:** OLS RESULTS – YOUNG COUNCILORS AND MUNICIPAL SPENDING

| | (1) Social | (2) Infrastructure | (3) Schools | (4) Culture | (5) Health | (6) Other |
|---|---|---|---|---|---|---|
| Share young councilors | 0.289** | -0.376** | 0.010 | 0.383* | 0.028 | 0.048 |
| | (0.135) | (0.154) | (0.161) | (0.225) | (0.320) | (0.033) |
| Mean (SD) | -2.71 (0.65) | -2.42 (0.59) | -3.00 (0.55) | -5.02 (1.16) | -4.45 (1.44) | -0.34 (0.14) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| N | 4182 | 4182 | 4182 | 4180 | 4139 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 695 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Notes: This table collects results from OLS regressions that relate the (log of) spending on different categories relative to total spending (i. e. spending shares) to the share of young councilors (i. e. councilors below or equal to 40 years). We estimate separate regressions for spending on social security (model 1), spending on infrastructure (model 2), spending on schools (model 3), spending culture (model 4), and spending on health care (model 5). Regressions include municipality and year fixed effects. We also include the residual spending (total local spending minus spending on the first five categories, model 6). The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.5:** EXTENSION – YOUNG COUNCILORS AND MUNICIPAL SPENDING (LOGS AND IN PER CAPITA TERMS)

| | (1) Social | (2) Infrastructure | (3) Schools | (4) Culture | (5) Health | (6) Other |
|---|---|---|---|---|---|---|
| Share young councilors | 0.631** | -0.537 | 0.468 | 0.526 | -0.816 | -0.269 |
| | (0.314) | (0.437) | (0.396) | (0.563) | (0.819) | (0.207) |
| Mean (SD) | 5.01 (0.80) | 5.31 (0.65) | 4.72 (0.56) | 2.70 (1.23) | 3.28 (1.48) | 7.39 (0.41) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 62.13 | 62.13 | 62.13 | 62.06 | 63.91 | 62.20 |
| N | 4182 | 4182 | 4182 | 4180 | 4139 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 695 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relate the (log of) spending per capita on different categories to the share of young councilors (i. e. councilors below or equal to 40 years). We estimate separate regressions for spending on social security (model 1), spending on infrastructure (model 2), spending on schools (model 3), spending culture (model 4), and spending on health care (model 5). We also study the residual spending (total local spending minus spending on the first five categories, model 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.6:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ROLE OF GENDER

| | Share females among $\leq 40$ | | | Share females in council | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 0.888** | 0.777* | 0.660* | 0.955*** | 0.696 | 0.767** |
| | (0.353) | (0.471) | (0.373) | (0.329) | (0.430) | (0.345) |
| Share female | 0.045 | -0.022 | 0.049 | 0.005** | -0.003 | 0.005** |
| | (0.066) | (0.087) | (0.067) | (0.002) | (0.003) | (0.002) |
| Mean (SD) | -2.71 (0.65) | -3.00 (0.55) | -2.83 (0.66) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 55.18 | 55.18 | 55.22 | 62.59 | 62.59 | 62.64 |
| N | 4092 | 4092 | 4091 | 4182 | 4182 | 4181 |
| Councils | 682 | 682 | 682 | 697 | 697 | 697 |
| Municipalities | 343 | 343 | 343 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relate spending categories to the share of young councilors (councilors below or equal to 40 years). In addition, we control for the share of females below or equal to 40 years (models 1–3) and the share of females in the council overall (models 4–6). We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.7:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ROLE OF EDUCATION

| | Share higher education for councilors $\leq$ 40y | | | Share higher education for all councilors | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 0.978*** | 0.747 | 0.747* | 0.963*** | 0.803* | 0.775** |
| | (0.371) | (0.504) | (0.391) | (0.334) | (0.443) | (0.352) |
| Share higher education | -0.082 | 0.028 | -0.081 | -0.002 | -0.002 | -0.002 |
| | (0.061) | (0.096) | (0.062) | (0.002) | (0.002) | (0.002) |
| Mean (SD) | -2.72 (0.65) | -3.01 (0.55) | -2.83 (0.66) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 50.01 | 50.01 | 50.08 | 60.92 | 60.92 | 61.01 |
| N | 4050 | 4050 | 4049 | 4182 | 4182 | 4181 |
| Councils | 675 | 675 | 675 | 697 | 697 | 697 |
| Municipalities | 342 | 342 | 342 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relate spending categories to the share of young councilors (councilors below or equal to 40 years). In addition, we control for the share of young councilors with higher education (models 1–3) and the share of all councilors with higher education (models 4–6). Councilors with higher education need to have a university/FH degree or a PhD. We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.8:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ROLE OF IDEOLOGY

| | Share right | | | Share left | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 0.872*** | 0.677 | 0.682** | 0.873*** | 0.555 | 0.656* |
| | (0.315) | (0.416) | (0.335) | (0.319) | (0.405) | (0.337) |
| Share right | -0.037 | -0.080 | -0.037 | | | |
| | (0.050) | (0.074) | (0.051) | | | |
| Share left | | | | 0.031 | 0.226* | 0.067 |
| | | | | (0.075) | (0.123) | (0.076) |
| Mean (SD) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 64.16 | 64.16 | 64.18 | 65.05 | 65.05 | 65.09 |
| N | 4182 | 4182 | 4181 | 4182 | 4182 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 697 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relate spending categories to the share of young councilors (councilors below or equal to 40 years). In addition, we control for the share of young councilors on a right (models 1–3) and left list (models 4–6). Right lists include CSU, Freie Waehler, AfD, and BP. Left lists include SPD, Gruene, Linke, OEDP, and FDP. We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.9:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ROLE OF COUNCIL SIZE AND MAYOR'S AGE

| | Council size | | | Mayor $\leq$ 40y | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 0.545 | 0.890 | 1.364 | 0.681* | 0.718* | 0.464 |
| | (0.972) | (1.083) | (0.989) | (0.350) | (0.428) | (0.379) |
| Council size | -0.029 | 0.052 | -0.007 | | | |
| | (0.028) | (0.036) | (0.027) | | | |
| Share young councilors $\times$ Council size | 0.022 | -0.011 | -0.039 | | | |
| | (0.051) | (0.063) | (0.048) | | | |
| Young mayor | | | | -0.814 | -0.061 | -0.920 |
| | | | | (0.827) | (0.622) | (0.865) |
| Share young councilors $\times$ Young mayor | | | | 3.248 | -0.117 | 3.651 |
| | | | | (3.437) | (2.621) | (3.587) |
| Mean (SD) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 19.07 | 19.07 | 19.12 | 0.67 | 0.67 | 0.67 |
| N | 4182 | 4182 | 4181 | 4182 | 4182 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 697 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relate spending categories to the share of young councilors (councilors below or equal to 40 years). In addition, we interact the treatment with the share of young councilors with the number of seats in council (models 1–3) and an indicator that is one of the mayor of the municipality is below or equal to 40 years (models 4–6). We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.10:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, NON-LINEAR RELATIONSHIP

| | Non-linear model | | | Above median share of young councilors | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | -2.327 | -5.942 | -1.839 | 2.667* | 2.121 | 2.145 |
| | (2.710) | (4.124) | (2.598) | (1.463) | (2.097) | (1.346) |
| Share young councilors$^2$ | 6.732 | 13.936 | 5.317 | | | |
| | (5.782) | (8.867) | (5.581) | | | |
| Mean (SD) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) | -2.76 (0.65) | -3.02 (0.55) | -2.85 (0.67) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 3.63 | 3.63 | 3.63 | 4.99 | 4.99 | 4.99 |
| N | 4182 | 4182 | 4181 | 1926 | 1926 | 1925 |
| Councils | 697 | 697 | 697 | 321 | 321 | 321 |
| Municipalities | 346 | 346 | 346 | 205 | 205 | 205 |

Notes: This table collects results from IV regressions that relate spending categories to the share of young councilors (councilors below or equal to 40 years). In addition, we control for the squared share of young councilors (models 1–3) and limit the sample to municipality with more than the median share of young councilors, i.e. municipalities with many young councilors (models 4–6). We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**) and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.11:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ROLE OF CHILDREN'S SHARE IN MUNICIPALITY

| | Share of children < 6 | | | Share of children 6−14 | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 3.973 | -1.806 | 4.811 | -0.943 | -6.781 | 2.195 |
| | (4.678) | (6.515) | (4.968) | (4.821) | (5.248) | (4.927) |
| Children < 6 | 0.142 | 0.317 | 0.146 | | | |
| | (0.440) | (0.600) | (0.465) | | | |
| Share young councilors × Children < 6 | 1.065 | -0.894 | 1.422 | | | |
| | (1.607) | (2.282) | (1.711) | | | |
| Children 6−14 | | | | 0.258 | 1.275** | 0.018 |
| | | | | (0.504) | (0.535) | (0.522) |
| Share young councilors × Children 6−14 | | | | -0.790 | -3.213 | 0.653 |
| | | | | (2.059) | (2.291) | (2.103) |
| Mean (SD) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 10.43 | 10.43 | 10.42 | 23.30 | 23.30 | 22.71 |
| N | 4182 | 4182 | 4181 | 4182 | 4182 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 697 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relates spending categories to the share of young councilors (councilors below or equal to 40 years). In addition we interact the treatment with the share of children below 6 years (models 1–3) and between 6 and 14 years (models 4–6) relative to total population. We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.12:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ROLE OF OTHER MUNICIPALITY CHARACTERISTICS

| | Start of legislative period | | | Share of female employment | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 0.915 | 2.729 | -0.033 | 0.824** | 0.036 | 0.771* |
| | (1.691) | (2.229) | (1.800) | (0.390) | (0.517) | (0.416) |
| First year | 0.315** | 0.182 | 0.400*** | | | |
| | (0.147) | (0.181) | (0.154) | | | |
| Share young councilors × First year | 0.142 | 0.692 | -0.113 | | | |
| | (0.566) | (0.755) | (0.580) | | | |
| Female Employment | | | | -0.227 | -1.182 | 0.139 |
| | | | | (0.435) | (0.725) | (0.510) |
| Share young councilors × Female Employment | | | | 0.664 | 7.075* | -0.603 |
| | | | | (2.269) | (4.262) | (2.600) |
| Mean (SD) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) | -2.71 (0.65) | -3.00 (0.55) | -2.82 (0.65) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 8.35 | 7.20 | 7.06 | 28.09 | 28.09 | 27.97 |
| N | 4182 | 4182 | 4181 | 4182 | 4182 | 4181 |
| Councils | 697 | 697 | 697 | 697 | 697 | 697 |
| Municipalities | 346 | 346 | 346 | 346 | 346 | 346 |

Notes: This table collects results from IV regressions that relate spending categories to the share of young councilors (councilors below or equal to 40 years). In addition, we interact the treatment with the share of the respective spending category in the first year of the legislative period (models 1–3) and the share of employed woman in a given municipality (models 4–6). We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.13:** EFFECT HETEROGENEITY – YOUNG COUNCILORS AND MUNICIPAL SPENDING, ROLE OF ELECTORATE'S AGE STRUCTURE

| | Young electorate | | | Old electorate | | |
|---|---|---|---|---|---|---|
| | (1) Social | (2) Schools | (3) Child care | (4) Social | (5) Schools | (6) Child care |
| Share young councilors | 0.690* | 0.974 | 0.448 | 0.576 | 1.021* | 0.313 |
| | (0.379) | (0.598) | (0.422) | (0.390) | (0.615) | (0.437) |
| Share young electorate | 0.273 | 0.812* | 0.389 | | | |
| | (0.323) | (0.415) | (0.316) | | | |
| Share young councilors × Share young electorate | 5.877 | -3.934 | 7.253* | | | |
| | (3.940) | (4.741) | (4.323) | | | |
| Share old electorate | | | | 0.088 | -1.177*** | -0.081 |
| | | | | (0.295) | (0.378) | (0.307) |
| Share young councilors × Share old electorate | | | | -4.757* | 2.329 | -6.004** |
| | | | | (2.461) | (3.438) | (2.638) |
| Mean (SD) | -2.60 (0.59) | -3.02 (0.54) | -2.71 (0.60) | -2.60 (0.59) | -3.02 (0.54) | -2.71 (0.60) |
| Municipality FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Year FE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Kleibergen-Paap Wald F | 12.42 | 12.42 | 12.42 | 13.35 | 13.35 | 13.35 |
| N | 3504 | 3504 | 3504 | 3504 | 3504 | 3504 |
| Councils | 584 | 584 | 584 | 584 | 584 | 584 |
| Municipalities | 343 | 343 | 343 | 343 | 343 | 343 |

Notes: This table collects results from IV regressions that relate spending categories to the share of young councilors (councilors below or equal to 40 years). In addition, we interact the treatment with the share of people between 18 and 39 in the electorate (models 1–3) and people above 60 in the electorate. The shares are centered at their mean to provide meaningful interpretation of the base effect. We estimate separate regressions for the share of spending on social security (models 1 and 4), the share of spending devoted to schools, (models 2 and 5), and the share of spending devoted to child care (models 3 and 6). Regressions include municipality and year fixed effects. To account for the endogeneity of the age composition of the council, we instrument the share of young councilors with the share of young candidates who win in races for the last seat between a young and old candidate within a party. The row entitled Mean (SD) reports the mean and standard deviation of the dependent variable for each regression. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***). Heteroscedasticity and cluster-robust standard errors in parentheses. The unit of clustering is the municipality of the candidate.

**Table A.14:** EXTERNAL VALIDITY

| Variable | Not in sample | In sample | Difference | Std. Errors | Obs. |
|---|---|---|---|---|---|
| Population | 7039.27 | 5884.26 | -1155.003 | 1929.285 | 2056 |
| Pop $< 6$ | 394.42 | 336.88 | -57.545 | 108.689 | 2056 |
| Pop $6-14$ | 645.91 | 534.05 | -111.861 | 138.705 | 2056 |
| Pop $15-65$ | 4678.37 | 3937.20 | -741.170 | 1342.399 | 2056 |
| Pop $\geq 65$ | 1320.56 | 1076.14 | -244.427 | 340.840 | 2056 |
| Area | 36.27 | 32.44 | -3.828** | 1.501 | 2056 |
| Total exp. | 7.71 | 7.71 | 0.006 | 0.015 | 2056 |
| Total rev. | 7.70 | 7.71 | 0.008 | 0.014 | 2056 |
| Transfers | 5.47 | 5.51 | 0.040 | 0.027 | 2056 |
| Debt | 6.24 | 6.11 | -0.131** | 0.067 | 2056 |
| Culture | -4.81 | -4.95 | -0.140*** | 0.051 | 2056 |
| Health | -4.20 | -4.44 | -0.243*** | 0.069 | 2056 |
| Infrastructure | -2.30 | -2.31 | -0.007 | 0.020 | 2056 |
| Schools | -2.95 | -2.97 | -0.021 | 0.022 | 2056 |
| Social | -2.62 | -2.63 | -0.010 | 0.023 | 2056 |
| Other | -0.33 | -0.32 | 0.010** | 0.005 | 2056 |

Notes: In this table, characterstics of the municipalities in the IV sample are compared with the municipalities, which are not included. Characteristics are averaged between 1996 and the last year available. Age is not included, since the availability of age in part determines whether candidates of the municipality are included in the sample. Stars indicate significance levels at 10%(*), 5%(**), and 1%(***).

## A.3 Validity of the instrument

As stated above, the instrument must not affect the outcome via channels other than the instrumented variable. Specifically, the share of young victories must not be related to observed municipality characteristics. Most importantly, it should not be related to demographic characteristics. Panel A of Table 2 shows that the instrument is associated neither with total population, nor with the population in any of the specified age groups or the area of municipalities.

[Table 2 goes here]

In addition, the instrument should not be correlated with pretreatment outcomes. That is, before the share of young victories in a given legislative period leads to an increase in the share of young councilors, outcomes should not be related to this variable. Would we nevertheless observe a correlation, this would be indicative of unobserved factors driving the results. Thus, we relate the share of young victories to outcomes lagged by six years, i.e. one legislative period.[39] Panel B of Table 2 collects the results of this falsification exercise. There is no significant association of the instrument with the shares of different spending categories.

Our argument in favor of the instrument relies on the randomness of the victory of young candidates in races for the last seat. Young candidates must not be more or less likely to win close elections. Figure A.1 illustrates that while young candidates are somewhat more likely to lose races by a larger margin, near the threshold the distribution is more balanced.

[Figure A.1 goes here]

Focusing on close races, young winners are not substantially more or less likely to win races. This is supported by a young candidate victory rate of 43% for all races. Thus, the victories of young and old candidates are roughly balanced.

A further concern is that during the process of assembling the list, party leaders might influence initial list ranks of young candidates, such that they are less likely to enter the council. If younger candidates are placed on the list in a way that they less likely win races for the

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[39]That is, the share of young victories in the election of 2014 is related to the different outcomes in 2008.

last seat in municipalities that, for instance, differ in their spending patterns, our estimates would be no longer causal. While the initial list rank is deterministic in closed-list elections, in Bavaria an open-list system is used. Thus, the preferential vote of the electorate determines the final rank of a candidate, not strategic decisions of party leaders. Still, leaders might use their experience to assess the potential performance of candidates and place them on the list accordingly. Reassuringly, Figure A.2 in the online appendix shows that there is a substantial spread in the difference between initial and final ranks of all candidates for which we have information on ranks. 45.5% of candidates see a change in their list rank of at least three ranks. The preferential vote does matter and assures the quasi-randomness of close elections.[40]

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[40]Our IV sample is limited to a subset of municipalities due to the availability of councilor age and the existence of mixed-age races for the last party-specific seat. A natural concern that arises is the external validity of our results. Table A.14 compares the 346 municipalities of our baseline regression with the 1,710 municipalities that are not included. We examine whether municipalities differ in their population – total and by age group – and different municipal spending outcomes. Municipalities included in the IV sample are significantly smaller in terms of their area in square km. Most fiscal characteristics do not differ between the two groups. Three notable exceptions are lower debt, a lower share of spending on culture, and a lower share of spending on health care. By and large we argue that the sample we use for our analysis is comparable in observed municipality characteristics.

## A.4 Details on collection of council election data

The process of data collection is described in Baskaran and Hessami (2019). Following this setup the most recent election of March 2020 was added to the dataset in the same manner as the years before. Our research assistants downloaded information on election results from the homepages of municipalities, typically in pdf format. Then, data was transferred into standardized Excel-sheets by hand. In some instances information was obtained by leaflets provided by the lists. For previous elections also the mayors office was contacted to obtain information unavailable on the website. For the 2020 election this was not done, due to higher workload of municipalities as part of the Covid-19 pandemic. The Excel files were then merged into one dataset using municipal code and year. Since collecting the data by hand is error-prone, a number of plausibility checks were conducted to ensure data quality. Whenever mistakes were found they were corrected or set to missing.

## A.5 Details on fuzzy matching of councilors

Data availability varies across election years and is most complete for the election in March 2020. To obtain additional information on birth year and occupation for previous years, candidates are identified using a fuzzy match approach.[41] In order to identify similar persons, but at the same time avoid identifying different persons, which have the same name, both the full name and the list of a person is used as input for the match. First and surname are combined together with list in one string and the string is stripped off all special characters.

To ensure that the same persons are matched, the names of lists and parties need to be harmonized, such that different abbreviations in different years do result in matches. For the known large parties this can be done automatically. For lists that exist only at the local level, this task has to be done manually: two research assistants went through all municipalities and compared list names. If two similar sounding list names appear in distinct years only, then the name is unified. Consider the example of Pliening, where in one year there is a list called "nf"

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[41]In Stata the command *strgroup* by Julian Reif (University of Chicago) is used.

and in another year there is a list called "Neues Forum". While this to some extent relies on eyeballing, we believe that errors are scarce, since also the name needs to be similar and the list alone typically does not suffice for a (wrong) match.

Matches occur within municipalities only. The tolerance of the fuzzy match ensures that spelling mistakes and minor deviations are not in the way of identifying persons. This approach has limitations, however. It can not identify persons that moved to other municipalities and persons that changed lists between years. In addition, changes of names in case of marriages are also undetectable. Also, one can not fully exclude the possibility of persons in the same municipality and on the same list having the exact same name. Nevertheless, we believe that these errors are unrelated to outcomes or the treatment and thus no source of concern.