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Age and Preferences for Public Debt

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Old Age and Preferences for Public Debt and Investments*

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Abstract

With governments worldwide promoting large debt-funded investment plans to build climate-resilient infrastructures, understanding citizens' preferences for investments in ageing societies is timely. To illuminate how age shapes preferences for long-term policies, I study seniors' support for real investment projects using several novel datasets on state and local bond elections in the United States over six decades. Ageing decreases time-horizon, which in turn diminishes support for long-term policies. Contrary to common wisdom, the fact that investments are funded by debt does not make seniors more favorable to them. By affecting goods' utilization rates, age is also a strong predictor of preferences between different categories of investment. These age-based preferences are especially salient when different age groups cohabit. Seniors become more hostile towards investments when the share of children in their community increases, as resource allocation becomes more conflictual. Only intergenerational contact within the same household can alleviate these tensions. These results suggest that age shapes both intertemporal and immediate preferences for investments, and more strongly in communities with higher age heterogeneity.

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1 Introduction

The World Bank estimates that building a sustainable economy will require more than US$90 trillion in investments by 2030. This urgent need for long-term policies occurs as population ageing is well under way, with almost 1 in 10 people in the world aged 65 or more. The interaction between these facts yields unclear predictions. As the electorate gets older, its shorter time horizon (Harrison et al., 2002) might disincentivize governments to promote long-run policies. Since most of these massive investments will need to be funded via borrowing, the inclination of older citizens for debt (Tabellini, 1991) might, on the contrary, facilitate political coalitions over public investments.

There is evidence that the age of voters (Button, 1992; Poterba, 1998) and political elites (Curry and Haydon, 2018; Alesina et al., 2019; McClean, 2020) matters to explain political outcomes. Seniors have been recognized as particularly powerful political actors, given their institutional overrepresentation and comparative high turnout (Kogan et al., 2018). Evidence outside of welfare and education is however surprisingly limited, restricting any general theory of ageing beyond preferences for targeted policies. These works also do not place dynamic redistribution at the center of their inquiry. Even when they study policies that involve intertemporal trade-offs, scholars have constructed theories on how these programs distribute costs and benefits cross-sectionally, rather than over time (Bonoli, 2000; Huber and Stephens, 2001). As such, they have failed to add the politics of "when" to our account of the politics of "who gets what" (Jacobs, 2016). Finally, such studies have not built consistent predictions on how contact between age groups modify policy preferences. When researchers consider intergenerational effects, they do so by using reported attitudes rather than behaviors, overestimating socially-desirable answers (Goerres and Tepe, 2010). They also work with a limited view on intergenerational contact, focusing only on parent and children from the same family (Bengtson and Roberts, 1991).

In this study, I provide the first behavioral measure of seniors' preferences for a wide variety of long-term policies. I examine how seniors vote on real-life public investment projects, and how their preferences are shaped by the length and funding structure of policies. This allows me to adjudicate between preferences for investments and preferences for debt, and isolate the intertemporal determinants of support for investments. I also provide novel behavioral evidence

that the cohabitation of different age groups strongly increases the salience of age-based policy preferences. By looking at both neighborhood and family-level contacts, I am able to determine which intergenerational connection modifies the most preferences for long-run policies.

To address these questions, I draw on several novel datasets on state and local bond elections in the United States, including election results in more than 550,000 precincts in 126 state and local bond elections in California between 2002 and 2020; votes on 21,975 local bond and tax elections in Ohio between 2000 and 2020; and votes on all 975 state bond elections in all American states between 1967 and 2020. These referendums present voters with public investment projects ranging from renewable energy infrastructures to the construction of new roads or the renovation of sewerage systems. They also provide citizens with a rich array of ballot information on the way these projects will be funded, how long they will last, or how much taxes will increase if they are approved. By exploring how citizens vote on these investments, I am thus able to obtain behavioral measures of support for long-term policies and to study how policy characteristics affect these attitudes.

Using this rich data, I first show evidence that seniors dislike investments. Effects are substantive, with a 1% increase in the share of seniors leading to a 1.5% decrease in support for investment projects. Results are consistent across government levels, indicating that whether investments are repaid via income or property tax surprisingly does not matter to older citizens. Findings are also robust across states and over the last six decades, showing no sign of cohort-specific effect. I also establish that, contrary to theoretical expectations, seniors are indifferent as to whether a policy is funded by debt or taxation. Seniors' shorter time horizon rather decreases their support for investments that last longer. With long times to be fully operational and large front costs, investments' cost-benefit balance is indeed getting more favorable the longer they are enjoyed.

Next, I examine whether the cohabitation of different generations influences policy preferences. Age is a strong predictor of preferences *between* different categories of investments, as it shapes policy utilization rates, and in turn policy support. This result holds even after controlling for ideological determinants, often conflated with age. Given these diverging age-based preferences, contact between different age groups creates tension over resource allocation. As the share of children increases in their community, seniors demonstrate stronger opposition towards investment. These negative effects are particularly strong, even when seniors and children live in the same

block. The only case where intergenerational contact reverts seniors' hostility toward investment is when it occurs within families. Seniors living with their grand-children indeed display higher support for state-level investments, hinting for the fact that they internalize the benefits of their young relatives. The absence of effect for local investments however indicates that seniors evaluate whether their grandchildren will benefit from these investments, or miss out on them by moving out of their hometown.

My first finding that age shapes both intertemporal and immediate preferences for investments makes several contributions. First, I provide unique evidence in a real-life setting that seniors' support for policy is a decreasing function of policy length, confirming findings from surveys on economic behaviors (Harrison et al., 2002). While measures of time-preference have displayed high instability (Frederick et al., 2002), collective age-based behaviors illustrate that intertemporal preferences can have real-world implications once aggregated. By unpacking seniors' hostility for investments, I also empirically demonstrate that shorter-time horizon does not increase support for borrowing, contrary to predictions from workhorse political economy models of public debt (Tabellini, 1991; Persson and Tabellini, 2000). This result points to the necessity to refine theoretical predictions on debt accumulation by differentiating between deficits aimed at immediate consumption, and long-term borrowing directed toward investments. Finally, I confirm age-based self-interest theories (Button, 1992; Poterba, 1998) by showing that seniors dislike public investments they do not benefit from. I advance this literature by studying a more extensive family of goods than targeted welfare programs, allowing to generalize seniors' attitudes to a wide array of policies. This result is important for policy-making, as it indicates that population ageing will complicate the construction of popular coalitions around long-term investment plans.

My second finding that age-based preferences are more salient in communities with higher age heterogeneity makes additional contributions. First, my result that seniors become more hostile to investments when the share of children increases in their community contrasts with survey results highlighting intergenerational solidarity (Goerres and Tepe, 2010). It demonstrates the limits of self-reported answers to assess socially-desirable behaviors and the necessity to turn to behavioral measures to move this line of research forward. My findings also chime with and expand the important literature in urban politics in the United States showing that the cohabitation of groups with different policy preferences shapes political behaviors (Dollard, 1957; Blumer, 1958; Alesina

et al., 1997; Welch, 2001). By establishing that seniors' hostility towards investments can be alleviated in intergenerational households, I further refine the idea that the scale of contact between groups matters to explain the contradictory findings of this literature (Oliver, 2010). These works indeed find that contact breeds intolerance at levels where resources are administered (city, county, etc.) while promoting tolerance at scales less relevant politically (neighborhood). My inquiry rather indicates that conflict is not mitigated by the scale of contact, but rather by how overlapping the social networks of these groups are.

More generally, this study confirms that age is an important determinant of policy preferences for all age groups beyond seniors. It highlights the necessity to understand the conditions under which political alliances between different age groups are possible; and points to policy design and social network structure as fruitful venues for new research. It also lays the foundations for studies on age-based Tiebout sorting (Tiebout, 1956), where citizens are incentivized to join communities with people of their age so that they can obtain their most preferred policy mix. It finally emphasizes the need to more consistently evaluate how age shapes elite's behaviors, a domain where there has been surprisingly little research (Krcmaric et al., 2020). Age is certainly a bundled treatment and is notoriously hard to distinguish from experience or cohort effects. This should however not discourage research in this area: most social science treatments are intrinsically multidimensional, and simply require theories acknowledging and delineating these multiple components. A new generation of works using modern causal inference techniques (Alesina et al., 2019; McClean, 2020) is further showing us the promises of research taking age seriously.

The paper proceeds as follows. First, I discuss my theoretical expectations, and then describe my data and research design. Next, I establish and unpack seniors' hostility towards investments, and then study how contact between age groups shapes policy preferences. Finally, I conclude and discuss the implications of my findings for the implementation of investment plans.

2 Theoretical expectations

As discussed above, age is a bundled treatment encompassing changes in time-horizon, experience, ideology, way of life, etc. In this section, I delineate the dimensions of age I will focus on: time horizon and public good utilization. I also discuss why and how I abstract from other aspects of

ageing. I formulate four hypotheses that will guide my empirical study of seniors' voting behaviors in investment projects.

Age shapes both intertemporal and immediate preferences for investments. Predictions of seniors' behaviors based on intertemporal considerations are ambiguous. On the one hand, their shorter time horizon (Frederick et al., 2002; Harrison et al., 2002) might make longer policies less attractive to seniors. Investment goods (such as transportation, water or recreational infrastructures etc.) indeed do not bring immediate benefits as they take time to build. Their cost, by contrast, often start much earlier as taxes are raised as soon as construction starts, whether or not the good is finalized. More generally, investment goods' cost-benefit balance is getting more favorable the longer they are enjoyed, as they provide streams of small benefits rather than a large unique payment. With less time to enjoy them, seniors should thus be unwilling to promote investments with large front costs and delayed benefits. The fact that most of these goods are funded by debt repaid over several decades could however reverse this prediction. Positing that older voters can enjoy the increase in consumption brought by debt while shifting most of the repayment burden on their younger counterparts, the political economy scholarship predicts a positive relationship between age and preferences for public debt issuance (Tabellini, 1991). These theoretical forecasts nonetheless apply most readily to yearly *deficits* financing immediate consumption. Investment debt, on the contrary, distributes cost and benefits more equally between generations, and does not provide a clear advantage to older citizens. Note that I will empirically prove this latter claim. Putting these conclusions together, I hypothesize that:

H1. *Seniors' policy support will decrease as the length of a policy increases, even when it is funded by debt.*

Age should not only influence seniors' general support for investments, but also their preferences *between* different investment categories. Two variables associated with age could be important here: public good utilization rates and ideology. On the first dimension, the literature on age-based self-interest relies on a simple idea. Holding other factors constant, age shapes the goods you utilize and the policies you benefit from, and consequently the goods and policies you support (Poterba, 1998). As such, seniors' support for investments should vary depending on much benefit

they get from them. This statement is certainly simplistic, and ignores the multiple factors making people vote against what seems to be in their best interest (Benabou and Ok, 2001; Huber, 2017). Folk wisdom notably argues that people get more conservative when they age (Glenn, 1974). This could lead seniors to express preferences based on ideological cues rather than on utilization rates - by opposing social housing projects even though they might benefit from it for instance. Academic consensus is however that political opinions are particularly stable over time - even though attitude shifts, when they rarely occur, are more common from the left to the right (Peterson et al., 2020). This finding seems to hold for fiscal conservatism, as existing surveys on austerity show that voters favor debt reduction and repayment independently of age (Curtis et al., 2014; Bansak et al., 2021). Given the weak empirical findings on age and ideological/fiscal conservatism, the utilization rate theory seems to be the most promising venue to study the cross-sectional dimension of seniors' preferences for investments:

H2. *Seniors' hostility toward investments will be stronger for goods with lower utilization rates among the elderly.*

If age indeed shapes preferences for resource allocation, the cohabitation between different age groups should not be trivial. Works on racial relationships in the United States have indeed showed that communities do react to the presence of groups with different demographics and policy preferences (Dollard, 1957; Alesina et al., 1997). In the case of investments, focusing on how the presence of children impacts seniors' behaviors is fruitful for several reasons. First, goods and policies consumed by seniors and children have little overlap, creating a zero-sum game over resource allocation. As such, the presence of children is the closest approximation to a threat to seniors' preferred good mix, as they incentivize investments in goods that seniors do not benefit from. Second, societal debates on investments and debt are usually framed around its impact on the future of children and issues about the legacy of older generations. Finally, the fact that children do not vote on investment referendums provides a clear causal path for any detected change on seniors' votes in the presence of children. Inference will be less clear with young adults for instance, as they can also change their vote in the presence of older citizens.

Studies on the impact of racial diversity on political behaviors have produced contradictory

results. Tenants of the social contact hypothesis have argued that demographic diversity alleviates antagonism, as groups get to understand each other via coexistence (Welch, 2001). Surveys on intergenerational solidarity have similarly showed that when seniors have more contact with their adult children, they express more support for childcare policies (Goerres and Tepe, 2010). Other works have, on the contrary, found that dominant communities oppose goods targeted towards minorities as they feel threatened in their monopoly of resources (Blumer, 1958; Alesina et al., 1997). A natural way to accommodate these variations in the case of age is to set different predictions for relatives and non-relatives. While the arrival of non-relative children in their community might make resource allocation more conflictual to seniors, living in close contact with young relative might increase their altruism:

H3. *Seniors' hostility toward investments will be stronger in communities with more children.*

H4. *Seniors' hostility toward investments will be lower in communities where seniors and children are relatives.*

3 Data and empirical strategy

3.1 Bond and property tax referendums in the United States

A limit of survey data is that expressed opinions might be different from actual electoral behaviors on real and costly policies. This is especially true when considering socially-desirable behaviors like intergenerational solidarity. The United States provide a unique institutional feature which allows to behaviorally test willingness to invest in public goods: bond and property tax referendums (Rugh and Trounstine, 2011). These referendums are popular elections held by state and local governments to authorize the issuance of debt and/or an increase in property tax in order to fund a specific project. These investment projects are usually proposed to the city council by local actors, which then decides which projects will be placed on the ballot. They are relatively frequent - around 950 from 1968 to 2020 at the state level and 160 from 1995 to 2020 at the local level in California. They vary significantly in the amounts put to vote (from $400,000 to more than $1 billion) and the policy they aim to finance (see Figure 2). They are however all united under

their common definition as investments, requiring large, stable, and earmarked sources of funding beyond the general budget. Bonds elections are most often bundled with other electoral races during general elections, and consequently placed at the end of relatively long ballots. Appendix Figures A.1 and A.2 show no evidence of self-selection of voters/voters' fatigue on bond issues, comparatively to other concurrent ballot issues.

Even though not all states possess referendum obligations, representativeness is high, with a wide variety of states (32) concerned by these regulations (see Appendix Figure A.3). Most importantly, their institutional origin alleviates risk of correlation between current city characteristics and presence of referendum requirements. The vast majority of these laws were implemented after a succession of state debt crises between 1830 and 1880, to protect taxpayers against reckless public spending. State-level obligations then trickled down at the local level. These regulations were notably put in place several decades before the Populist and Progressive movements, which instituted the initiative and legislative referendums. They also do not deal with balanced budget rules, which were adopted on an ad-hoc basis – as late as 2004 for California and which does not regulate bonded debt (Kiewiet and Szakaly, 1996; Matsusaka, 2018).

Issuing bonds is a technical and costly process, involving multiple actors from legal counsels to investment banks. While municipal bonds are sought after for their low-risk and tax-exemption on capital gains, it is also not unusual to see cities struggling to find buyers for their debt (O'Hara, 2011). For cities without the capacity to directly access financial markets, several alternatives are possible. Amesville, a small township in Athens county (Ohio) for instance combined subsidized loans from the Ohio Environmental Protection Agencies and several private and public grants to replace its water treatment plant at a cost of $1M.[2] Even in this case, funding those investments still requires additional public monies, almost always obtained at the local level via property tax increases. As such, property tax referendums are substitutes of bond elections in small communities. It also happens that bonds issued by local governments are ultimately repaid by property tax – with ballots often indicating the property tax increase needed to repay the bond issues – making property tax and bond referendums even more comparable. State bond elections do not explicitly mention such costs, but are usually repaid via income tax. Figure 1 below presents a sample ballot

[2]Interview with the mayor of Amesville, Ohio (4/1/2022).

bond measure, and highlights the most important dimensions of the information given to voters. Ballots for property tax increases are very similar to those for bond measures, offering voters with a clear project and an earmarked property tax increase to fund it.

3.2 Datasets

My general approach will rely on correlations between a unit's age distribution and how it voted in a given election, controlling for potential confounders. For this, I rely on four novel datasets on state and local referendums in the United States:

1. Precinct-level results for all 90 *county* and *city* bond elections in California between 2002 and 2020;

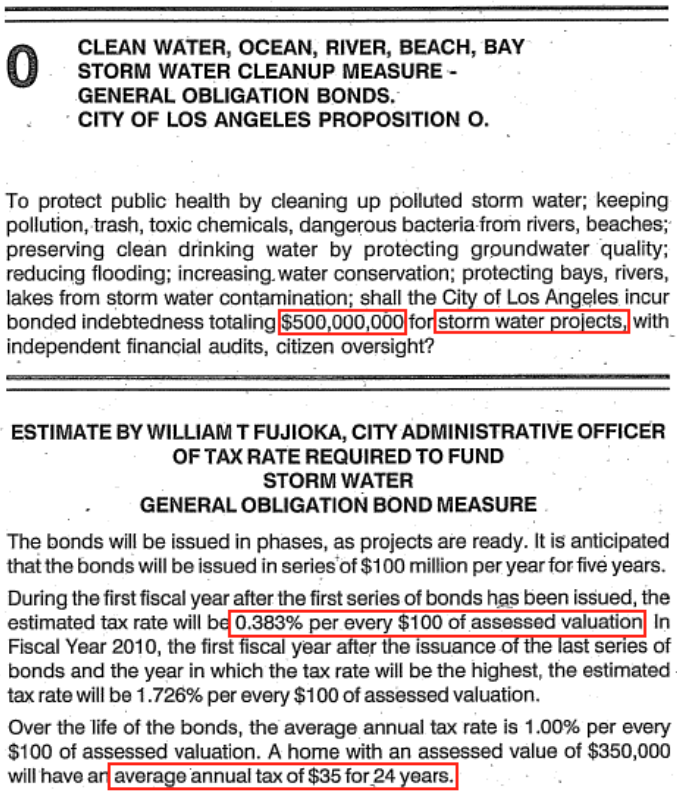
2. Precinct-level results for all 26 *state* bond elections in California between 2002 and 2020;

3. City-level results for all 21,975 *county* and *city* property tax and bond elections in Ohio between 2000 and 2020;

4. County-level results for all 975 *state* bond elections in all American states between 1967 and 2020.

Dataset 1 was constructed by obtaining physical copies of election results by county officials, using the California Secretary of State to reference elections. Results for dataset 2 were obtained on the Statewide Database. Given that precincts do not have a Census unit equivalent, I constructed a crosswalk to estimate demographic information for each precinct in each election, using precinct and Census block shapefiles. I describe the procedure used in A.1. Precinct shapefiles are only available after 2002 in California - also on the Statewide Database - which explains why I start at this year. Dataset 3 was collected via data made available by the Ohio Secretary of State. Dataset 4 was compiled by extending the state referendum database of ICPSR using various sources of data including Secretary of State websites, state yearbooks and Ballotpedia.

Combining these four datasets has several advantages. While they cover a limited number of referendums, datasets 1 and 2 provide vote shares at the most fine-grained electoral unit reported in the United States (from several hundred to several thousands), allowing for great precision



O **CLEAN WATER, OCEAN, RIVER, BEACH, BAY STORM WATER CLEANUP MEASURE - GENERAL OBLIGATION BONDS. CITY OF LOS ANGELES PROPOSITION O.**

To protect public health by cleaning up polluted storm water; keeping pollution, trash, toxic chemicals, dangerous bacteria from rivers, beaches; preserving clean drinking water by protecting groundwater quality; reducing flooding; increasing water conservation; protecting bays, rivers, lakes from storm water contamination; shall the City of Los Angeles incur bonded indebtedness totaling $500,000,000 for storm water projects, with independent financial audits, citizen oversight?

ESTIMATE BY WILLIAM T FUJIOKA, CITY ADMINISTRATIVE OFFICER OF TAX RATE REQUIRED TO FUND STORM WATER GENERAL OBLIGATION BOND MEASURE

The bonds will be issued in phases, as projects are ready. It is anticipated that the bonds will be issued in series of $100 million per year for five years.

During the first fiscal year after the first series of bonds has been issued, the estimated tax rate will be 0.383% per every $100 of assessed valuation. In Fiscal Year 2010, the first fiscal year after the issuance of the last series of bonds and the year in which the tax rate will be the highest, the estimated tax rate will be 1.726% per every $100 of assessed valuation.

Over the life of the bonds, the average annual tax rate is 1.00% per every $100 of assessed valuation. A home with an assessed value of $350,000 will have an average annual tax of $35 for 24 years.

Figure 1: Sample ballot for a 2004 bond election in Los Angeles (*highlights by the author*)

in measuring a community's age distribution. They concurrently provide high statistical power, a single state referendum producing results for more than 20,000 precincts. Contrasting state with local election data also permits to see whether results are robust to the mode of investment repayment, state debt being mostly repaid via income tax, while local borrowing is funded via property tax revenues. Data from local referendums in Ohio (3) is, on the contrary, characterized by a large number of elections, allowing to study variations in investment characteristics. They notably inform voters on the *length* of the investment put to vote, a central information in my inquiry on time-horizon. Finally, county-level data (4) from state referendums will be key to demonstrate the external validity of my results across time and space, as they cover the entire universe of states across six decades.

Figure 2 provides information on the referendums under study. A first observation is that these referendums are often successful (with a minimum of two thirds of successful local measures in

California), and are voted with relatively comfortable margins of victory.[3] It is also clear that the types of goods funded by these referendums vary by government levels and geography. States have a more important role in financing employment programs, higher education, and infrastructures such as water treatment and sewerage. Local governments, on the opposite, specialize in public safety (fire and police stations), recreational infrastructures (parks, libraries), and welfare programs (senior centers, mental health). Governments in California also focus more on infrastructure - often related to earthquake resilience and water treatment - while communities in Ohio center on fire safety and community support.

4 Age and intertemporal preferences for investments

In this first section, I study **H1**, which states that seniors will oppose policies with long-time horizons, even when it is funded by debt. I prove this hypothesis with three sets of evidence. First, I demonstrate that seniors are, on average, more hostile to long-term policies funded by debt than the rest of the population. Then I show that the length of a policy is a key mechanism to explain this result, as seniors' support decreases with policy length. I conclude by establishing that seniors are, on the contrary, indifferent as to whether a policy is funded by debt or taxation.

4.1 Seniors' general opposition toward long-term policies

To show that seniors are on average more hostile to long-term policies funded by debt than the rest of the population, I start by exploring the voting behaviors of seniors in state and local bond referendums in California, the datasets (1 and 2) for which I have the most fine-grained measures of the age distribution of communities. I estimate the following two-way fixed effects regression model:

$$Y_{ite} = \alpha_i + \gamma_e + \beta_1 D_{it} + \beta_2 \mathbf{X}_{it} + \varepsilon_{ite} \tag{1}$$

[3]The majority threshold for local referendums in California was raised to two-thirds of the vote in the wake of the fiscal revolution brought by Proposition 13 in 1978. It explains the lower success rates of these elections.

	State California (2002-2020)	Local California (2002-2020)	Local Ohio (2000-2020)	All states (1967-2020)
Level of results	Precinct	Precinct	City	County
Success rate	84.6%	67.8%	84.5%	77.6%
Median vote margin	57.1%	68.6%	68.3 %	58.1%
***N* elections**	26	90	21,195	975
Employment	11.5%	0%	0.2%	8.4%
Education	19.2%	4.4%	0.2%	17%
Environment	7.7%	8.9%	0%	12.1%
Infrastructure	19.2%	10%	2%	8.4%
Public safety	0%	20%	25.4%	5.5%
Recreational	3.8%	22.2%	10.2%	5.2%
Transportation	7.7%	12.2%	9.4%	8.7%
Welfare	30.8%	16.7%	24.6%	15.8%

Figure 2: Dataset characteristics

where Y_{ite} is the share of votes in favor of bond election e in precinct i in year t and the treatment, D_{it}, is the share of people above 65 - the traditional age threshold used in the literature for seniors - in precinct i in year t. α_i and γ_e are precinct and election fixed effects respectively. Such specification generally ensures that time-invariant confounders will not bias my results, as the estimation exploits only variations in the share of seniors within precinct over time, while taking into account the idiosyncrasies of each ballot measure (amount, timing, policy area, etc.). At the state level, I also interact election with county fixed effects (γ_{ce} instead of γ_e), to account for time-varying shocks at the county level. I am unable to add this feature at the local level, as I have several unique county-level elections. Recent work by de Chaisemartin and D'Haultfœuille (2020) shows that two-way fixed effects models estimate a weighted sum of the average treatment effects in each group and period, with weights that may be negative and hence bias the signs of coefficients. I run diagnostics for all such regressions in this paper using the procedure provided by the authors, and show that this peculiarity does not affect my results (see Appendix Table A1).

I also control for a variety of demographic, economic, and political determinants of vote shares, the most important one being the share of Democratic votes in the last general elections. The full list of precinct-level controls comprised in $\mathbf{X}_{it}$ is as follows: median income, median house value, share of people below poverty line, share of homeowners, share of people with a bachelor degree, share of whites, share of people who voted for a Democrat candidate in the last general election, share of people below 18, share of females and turnout levels. I weight my results by precinct population to account for variations in precinct size - which does not change my results substantially. Standard errors are clustered at the election level for local elections, and conservatively at the county level for state elections. I present my analysis separately between state and local levels, to see if my results are robust across government levels. More specifically, as California does tax non-Social Security retirement benefits, seniors will not be shielded from bond repayment via income tax at the state level and comparing state and local bond elections will test whether the repayment medium of bonds matters to explain support.

Table 1: Seniors and support for bond referendums in California (2002-2020)

	Share of votes in favor [0,1]	
	Local	State
	(1)	(2)
Share above 65 [0,1]	-0.153^{*}	-0.110^{***}
	(0.080)	(0.019)
Precinct + election fixed effects	✓	
Precinct + election × county fixed effects		✓
Demographic controls	✓	✓
N	31,488	519,016
R^2	0.853	0.813

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections

Table 1 shows that share of people above 65 in a precinct is negatively and robustly correlated with lower support for new investments. More precisely, for a 1% increase in the share of seniors in a precinct, votes in favor of investments decrease by 1.5% at the local level, and 1.1% at the state level. Estimates are slightly lower at the local level, showing that seniors might be particularly sensitive to increases in property tax, having high capital and low income. Point estimates are

probably upper bounds, as seniors vote disproportionately more in these elections (Kogan et al., 2018). As showed in Appendix Tables B.1 and B.2, results are robust across specifications and are unaffected by placebo lead treatments. Appendix Table B.3 and Figures B.4 and B.5 confirm these results with specifications with all other age groups and alternative dependent variable coding, showing that voters start to express negative attitudes toward investment after 50.

To verify that my results are not driven by the time period or state under study, I run a similar analysis on all 126 state bond referendums in California between 1967 and 2020 and all 975 state bond referendums in the United States, also between 1967 and 2020 (dataset 4). Results are reported at the county level, with election and county fixed effects and the exact same controls as in Table 1. Table 2 shows that seniors' hostility towards investment replicates over time both in California and in all other American states. Estimates are much higher than in the previous analysis, with 5.9% and 3.3% less votes in favor of investments for each 1% increase in the share of seniors in a county, respectively. Appendix Figure B.6 shows that these estimates are particularly stable over time - with the exception of the years 1967-1979 where seniors present more favorable attitudes towards investments.

Table 2: Senior county-level support for state bond referendums (1967-2020)

	Share of votes in favor [0,1]	
	California	All states
	(1)	(2)
Share above 65 [0,1]	-0.593^{***}	-0.327^{**}
	(0.215)	(0.127)
Election fixed effects	✓	✓
County fixed effects	✓	✓
Demographic controls	✓	✓
N	7,306	39,752
R^2	0.890	0.830

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Results weighted by county population. Standard errors clustered at the county level for California, and at the state level otherwise.

4.2 Seniors' time horizon and policy length

All in all, these results give support for **H1**, and contradict the hypothesis that given their shorter time horizon, seniors should be favorable to more debt issuance (Tabellini, 1991). Knowing that seniors dislike more long-term policies than the rest of the population however does not mean that seniors vote against these policies *because* they have long time horizons. Older voters could just dislike all policies usually offered in referendums, and it remains to be proved that policy length is an important mechanism to explain their vote. Tax and bond referendums from Ohio (dataset 3) are here empirically useful, because they inform voters how long the fiscal measure funding an investment will be in place.[4] For bond elections, such information indicates how many years the bond requires to be repaid, while for levies, it mentions for how many years the government is allowed to raise property taxes to fund the investment.

A few facts are important to consider here. As mentioned in the introduction, most local governments in Ohio are small rural communities which do not have the capacity to issue bonds, and consequently fund investment using increases in property taxes. The vast majority of the 21,995 local referendums here considered (99%) are consequently investments funded via direct property tax levies, rather than bond issues. The very high frequency of these elections is due to two factors. First, like in many states, Ohio provides local governments with a fiscal base - a 10 mills levy called inside mileage – and subject any increase beyond this base to popular approval. Second, most of these new levies can only be approved for a set period of time, with only 7.8% (1653) of referendums giving governments the possibility to increase taxes over a continuous period of time. The rest offers policies ranging from 2 years for the shortest tax increases to 30 years for the longest bonds, with 5 years being the most common length. I use the policy length given to voters on these ballots to see if seniors are indeed sensitive to investment duration, and estimate the following interactive two-way fixed effect linear regression model:

$$Y_{ite} = \alpha_i + \gamma_{ct} + \beta_1 D_{it} + \beta_2 L_{te} + \beta_3 (D_{it} \times L_{te}) + \beta_4 \mathbf{X}_{it} + \varepsilon_{ite} \tag{2}$$

where Y_{ite} is the share of votes in favor of policy e in unit (i.e. city or county) i in year t and

[4]The ballot for instance reads "The property tax increase of x mills to build the new fire station will be in place for 10 years".

the treatment, $D_{it} \times L_{te}$, is the interaction between the share of seniors in unit i at time t and the maturity of policy e offered to vote in year t. I treat policy length (L_{te}) as a continuous count of years, and consequently remove policies approved for a continuous period of time. The distribution of policy length is presented in Appendix Figure C.7, and is highly concentrated around 5 years, the maximum legal length for many local policies. To take this peculiar distribution into account, I also run an analysis on a dummy indicator for policy length, with 0 being the baseline 5-year length, and 1 being any policy longer than that. Appendix Table C.4 shows that results are equally robust with this specification. My specification further includes city (α_i) and county-year (γ_{ct}) fixed effects, along with the same set $\mathbf{X}_{it}$ of demographic controls as in Table 1. Note that I am able to add county-year fixed effects even though I have multiple county-level elections because many counties have several elections per year. Contrary to the previous analyses, I am unable to control for ideology, given that general election results are not available at the city level in Ohio. My current specification with city fixed effects however accounts for baseline ideological levels at the city level, and would only be biased if large ideological shocks happen within cities over time. I finally control for several important election characteristics such as policy area, the value of the tax increase, and whether the fiscal measure is a renewal of an old tax or an additional levy. Table 3 presents the results.

Table 3: Seniors' intertemporal preferences in Ohio local referendums (2000-2020)

	Share of votes in favor [0,1]
Policy length (years)	0.007*
	(0.004)
Share above 65 [0,1]	0.187*
	(0.107)
Share above 65 × policy length	−0.049**
	(0.022)
City fixed effects	✓
County-year fixed effects	✓
Demographic controls	✓
Election characteristics	✓
N	19,012
R^2	0.727

*p < .1; **p < .05; ***p < .01
Standard errors clustered at the election level.

Support among seniors decreases as a policy is scheduled for a longer time. More quantitatively, an increase in policy duration of one year leads to a decrease in support for this policy of 4.9%, holding the number of senior voters constant. This result indicates that the opposition of older voters to long-term policies is partially driven by the very time-horizon of these policies, and not by other characteristics. As discussed above, this is likely driven by the fact that such *goods* have delayed benefits but large and immediate costs. Investment goods' cost-benefit balance is getting more favorable the longer the good is enjoyed, as they provide streams of benefits rather than a large unique payment, making them less attractive to citizens with shorter-time horizon.

4.3 Seniors' preferences for debt

The previous two sections showed that seniors dislike investment projects because of their distaste for long policies. The literature points to another mechanism which could influence seniors' support for investment: debt. Positing that older voters can enjoy the increase in consumption brought by debt while shifting most of the repayment burden on their younger counterparts, the political economy scholarship indeed predicts a positive relationship between age and preferences for public debt issuance (Tabellini, 1991; Persson and Tabellini, 2000). The previous findings contradict this prediction, as seniors oppose debt-funded investments more than other age groups. One could still argue that if these investments were funded by taxation, the opposition of seniors would be even higher. Without variations in repayment mode, it is difficult to determine what proportion of seniors' opposition is due to how long a policy is in place, as opposed to how it is funded.

Here again, referendums in Ohio are quite useful empirically (dataset 3). They include both bond and tax referendums for similar policies, allowing to study the impact of variations in financing strategies while holding many other policy characteristics.[5] To test whether seniors prefer debt over taxation, I run an interactive two-way fixed effect linear model similar to the one presented in equation 2 where my treatment is an interaction between the share of seniors in a city and a dummy taking the value of 1 if the policy is funded by debt and 0 if it is funded by taxation. In my preferred specification, I use election unit (county/city) and county-year fixed effects, exploit-

[5] As these polities are small communities however, many of them never issue bonds: out of 21,975 referendums, only 179 are bond elections. By using city fixed effects, I will however only compare cities which have funded policies both by debt and taxation.

ing variations within polities across elections, while taking into account time-related county-level shocks. I also control for the sort of policies put to vote. Note that I could further account for the length of fiscal measures (length of tax increase or bond repayment) and the property tax increases associated with new levies and bond repayment. While this would allow for a more standardized comparison between debt and taxation, it would also remove some of the key differences between them. As these differences should matters to voters according to theoretical predictions, I opt for not including tax increase and policy length in the current specification. I finally control for a wide array of city/county level demographics, which could bias my results if their variations over time are related to my dependent variable (see Table 1). I cluster the standard errors at the level of the election.

Table 4: Seniors' preferences for debt in Ohio local referendums (2000-2020)

	Share of votes in favor [0,1]
Funded by debt {0,1}	-0.118^{*}
	(0.060)
Share above 65 [0,1]	-0.058
	(0.065)
Share above 65 $\times$ funded by debt	-0.023
	(0.358)
City fixed effects	✓
County-year fixed effects	✓
Demographic controls	✓
Election characteristics	✓
N	20,864
R^2	0.567

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Standard errors clustered at the election level.

Table 4 demonstrates that seniors are indifferent as to whether a policy is funded by debt or taxation. The coefficient on the interaction is indeed very noisy, and of the opposite sign than what the political economy literature predicts. This result can be explained by the fact that the relevant literature has approached debt through the narrow lens of yearly *deficits* financing immediate consumption. Investment debt, on the contrary, distributes cost and benefits more equally between generations, and does not provide a clear advantage to older citizens. This result points to the necessity to refine theoretical predictions on debt accumulation by differentiating between these two

uses of borrowing. After having focused on the intertemporal aspect of senior preferences (**H1**), the second part of this paper focuses on its cross-sectional dimension (**H2**, **H3** and **H4**).

5 Age and cross-sectional preferences for investments

5.1 Age and preferences for public goods

The previous section showed that seniors had a general distaste for goods with long-time horizons and that this distaste was grounded in dynamic computations of cost and benefit streams. These analyses however did not unpack seniors' preferences *between* various investment categories. Age should also matter to explain these intra-investment variations, with two potential mechanisms. First, seniors can vote depending on the use they make of investments. Following this logic, older voters should express, for example, more support for a senior center than for a school. Second, seniors can vote according to ideology. If we assume that older citizens are more likely to be conservative, we should see them, for instance, vote more in favor of investments targeted towards veterans, than for those funding social housing projects. Seniors could also express more fiscally conservative positions, and oppose new public spending projects, independently of their purpose. As mentioned before, the literature shows weak evidence for a relationship between age and ideological or fiscal conservatism (Curtis et al., 2014; Bansak et al., 2021; Peterson et al., 2020). To unpack seniors' preferences *between* various investment categories, I consequently focus on the way age shapes utilization rates, as stated in **H2**.

I break down the support of seniors for various investment categories for state and local referendums in California between 2002 and 2020 (see D.1 for information on coding). I regress the share of votes in favor of a bond election in a precinct on an interaction between the share of seniors in this precinct and the category of the good voted upon. Besides this change in independent variable, specifications are exactly similar to the ones used in equation 1: a two-way fixed effect linear model with demographic controls and standard errors clustered at the election level for local elections, and at the county level for state referendums. As I intend to focus on utilization rates rather than ideology, I keep my control for the share of Democrat votes in the last general elections. While this does not ensure that all sources of variation due to ideology will be removed, it provides

a robust measure of ideological differences, especially coupled with precinct fixed effects. Figure 3 presents the results of these interactions with 95% confidence intervals (see Appendix Table D.5 for table format).

Figure 3 yields support for **H2** as utilization rates seem to be the main driver of variations in seniors' support for investments. Seniors are indeed comparatively less opposed to bonds funding disaster-related (earthquake infrastructure, ambulances, fire and police stations) and water infrastructures (water treatment and supply), goods they benefit quite directly from. On the contrary, they oppose to a higher extent transportation, open-space, recreational (libraries, museums, stadiums), and education bonds, goods they arguable use less than other age groups. Such results are consistent across government levels, with local estimates being slightly noisier.

An ideological reading of the results is ambiguous. On the one hand, seniors oppose social housing projects more than other age groups, which could result from variations in ideology not captured by my current controls. This opposition is stronger at the local level, confirming results from works on the NIMBY phenomenon (Marble and Nall, 2020). Estimates on investments targeted at veterans however weaken an ideology-based explanation. In this category fall state bonds issued to provide loans to veterans to purchase homes or farms, and local bonds used to fund the creation of memorials or museums celebrating the military. While these investments arguably cater to conservative audiences, it seems that seniors support them less than other age groups. This fact is quite incompatible with the argument stating that older citizens oppose certain investments *only* because they have more conservative values.

Two sets of evidence similarly show that fiscal conservatism cannot satisfactorily explain seniors' attitudes towards investments. First, the fact that seniors express various levels of support for different goods indicates that they do not oppose public spending regardless of its purpose. Second, their comparatively high support for the 2004 state bond election on deficit reduction further shows that policy goals matter more than public spending levels. Led by Republican governor Schwarzenegger, this referendum offered to issue $15bn to fund state deficits and create a reserve preventing future deficit financing. Its particularly strong support by seniors could be interpreted in different ways. On the one hand, the ballot measure was backed by taxpayer associations and initiated by a Republican administration arguing that it would "*allow California to get its financial*

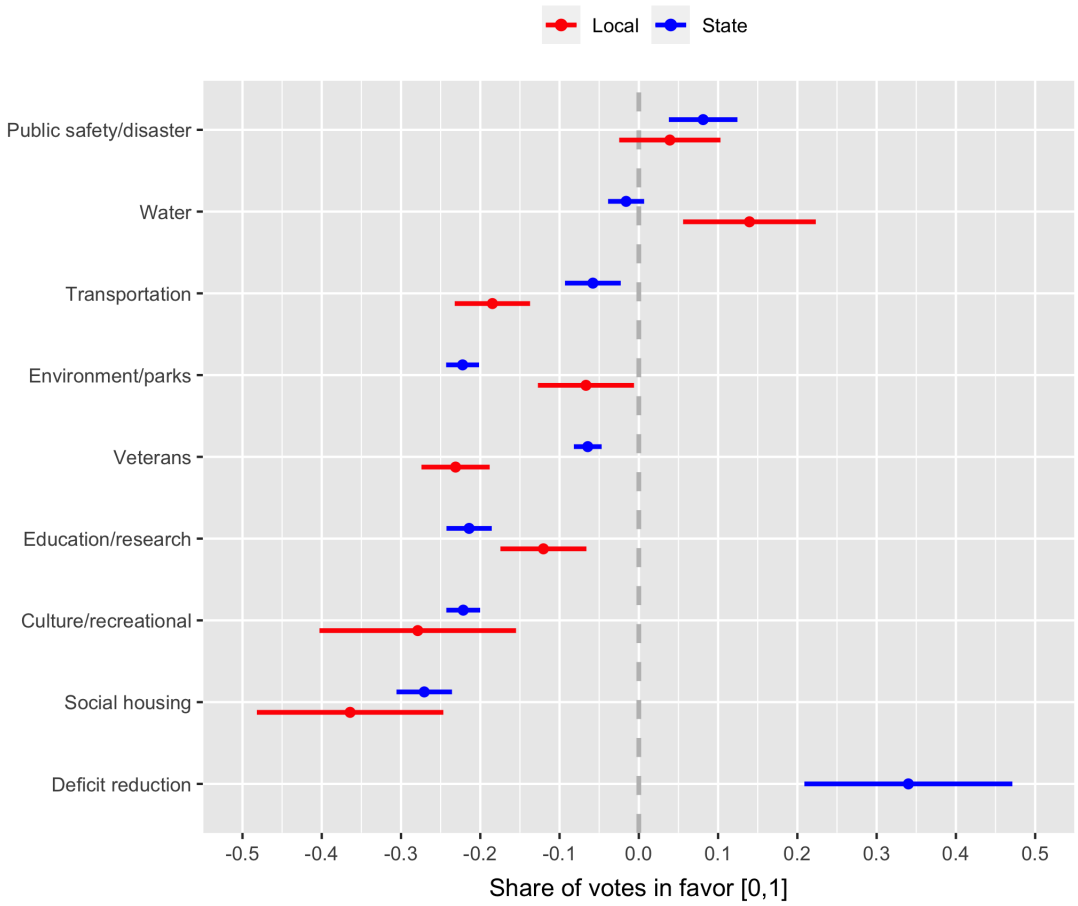


Figure 3: Effects of seniors' presence on support for investments

house in order"[6] while protecting voters from tax increases. As such, seniors' support would be congruent with higher fiscal conservatism among elders. On the other hand, this ballot *did* allow for the issuance of $15bn in bonds to be repaid over fourteen years. Most interestingly, these bonds were destined to replace a smaller $10.7bn issue repayable over five years.[7] While they certainly followed a fiscally conservative coalition, seniors still supported more expensive and longer-term bonds than initially planned, weakening the argument that seniors are fundamentally hostile to increases in public spending.

All in all, these results yield support for **H2**. Variations in utilization rates indeed explain differences in electoral support better than ideology or hostility to public spending. Note that

[6] Ballot pamphlet, UC Hastings Scholarship Repository

[7] This previous bond was authorized by the legislature alone and thus challenged in court as anti-constitutional.

H2 originates from a broader intuition that age shapes public good utilization, and in turn public good preferences. Showing that age groups have different preferences is also the cornerstone of **H3**, which argues that seniors' hostility toward investments will be stronger in communities with a high proportion of younger citizens. The cohabitation of age groups with different policy preferences will indeed heighten conflict over resource allocation and make age-based preferences more salient. In this vein, a particularly fruitful group to focus on is that of the youngest voters, aged from 18 to 34 years old. These citizens are likely to consume goods with little overlap with those preferred by seniors, while also having much longer time horizons. For this, I replicate the previous analysis by replacing the share of seniors by the share of citizens from 18 to 34 in the interaction term.

Figure 4 shows that an increase in the share of young adults in a precinct has very different effects on support for new investments (see Appendix Table D.6 for table format). First and contrary to what was found for seniors, the share of young citizens is positively correlated with higher support for most investments. I confirm this result in Appendix Table D.7, using the same model as in Table 1. Second, the large support of voters from 18 to 34 for transportation, open-space, education, and recreational bonds contrasts with the opposition of seniors on these same projects and yields additional evidence in favor of the utilization rate mechanism (**H2**). Like seniors, young adults express support for water safety bonds, hinting that pure public goods might be less polarizing between age groups.

Like for seniors, ideology alone seems inadequate to explain variations in preferences of the youth. While young voters' support for social housing could point to an ideological channel not captured by my current controls, their high endorsement of veteran-friendly policies demonstrates that ideology is not sufficient to account for these results. The diametric opposition between young adults and seniors over the 2004 deficit reduction bonds is concurrently striking: while seniors expressed strong support for this policy, voters from 18 to 34 voiced a resounding opposition to it. As discussed before, the ambiguities of this referendum - both framed as a fiscally conservative policy backed by Republicans and issuing a large amount of debt - complicates its interpretation in terms of fiscal conservatism. Like for seniors however, this result seems to indicate the young adults are not *a priori* debt-friendly. All in all, these findings yield further support for **H2**, as age-based utilization rates provide a more satisfactory account of variations in bond support than

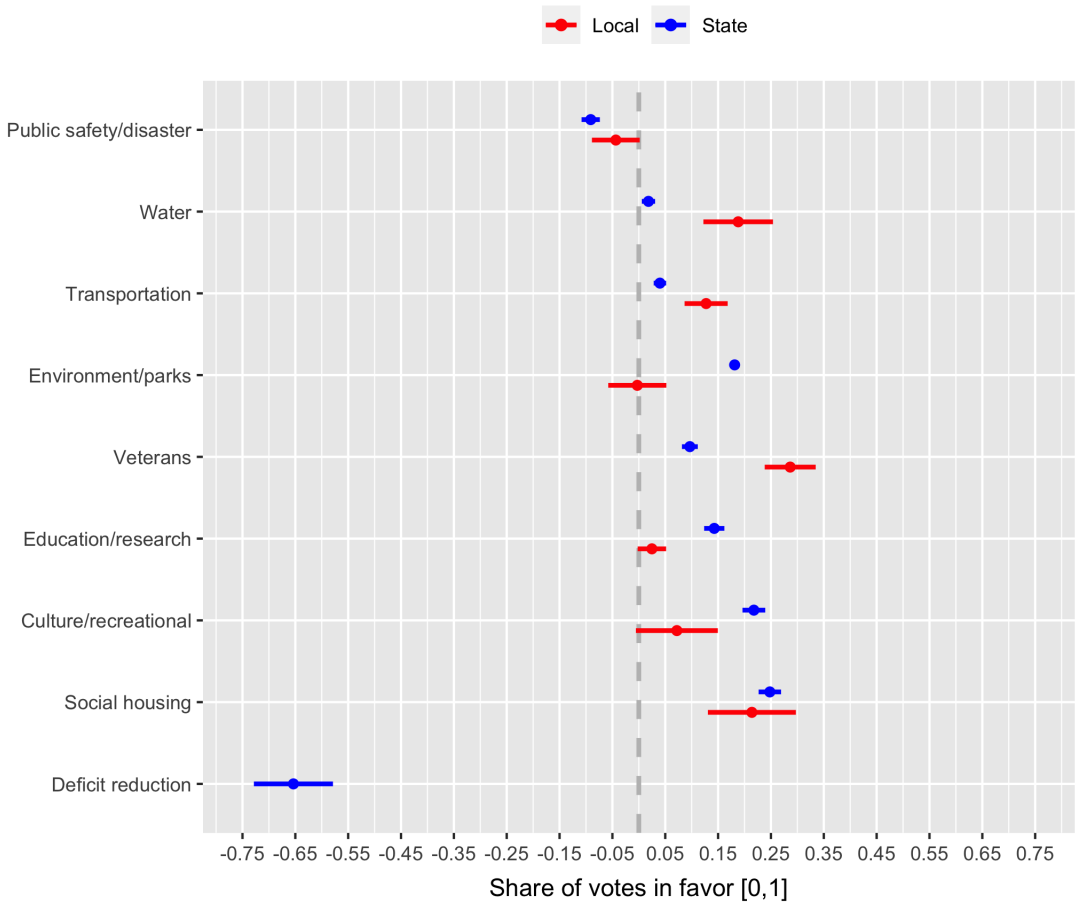


Figure 4: Effects of young adults' presence on support for investments

ideology or *a priori* attitudes towards debt. These diverging preferences between age groups are a central step towards studying intergenerational conflicts over investments (**H3**).

5.2 Intergenerational conflict over resource allocation

The previous section uncovered clear age-based cleavages in preferences for investments. A natural next step is to see whether the coexistence of age groups influences their attitudes towards investments. Works on racial relationships in the United States have showed that communities react to the presence of groups with different demographics (Dollard, 1957). More specifically, many of these works have found that dominant communities are hostile to growing minorities, as they feel threatened in their monopoly of resources (Blumer, 1958). Following the above reasoning, communities where various age groups cohabit might be particularly ripe for generational conflicts

over resource allocation. In the case of investments, focusing on how the presence of children impacts seniors' behaviors seems fruitful for several reasons. First, goods consumed by seniors and children have little overlap, creating a zero-sum game over resource allocation. Second, societal debates on investments and debt are usually framed around its impact on the future of children. Finally, the fact that children do not vote provides a clear causal direction for any detected change in seniors' behaviors. Inference will be less clear with young adults, who can also change their voting behaviors in the presence of older citizens. This reasoning results in **H3**, which states that the cohabitation of seniors with children should increase seniors' opposition towards investments.

To model the cohabitation between seniors and children, I interact the share of seniors with the share of people under 18 years old in a precinct, for state and local referendums in California from 2002 to 2020. Besides the interaction, I use the exact same specification as in equation 1, with precinct and election fixed effects at the local level, precinct and election-county fixed effects at the state level, the same set of controls, and standard errors clustered at the election level for local referendums, and conservatively at the county level for state elections (columns 1 and 2). To make sure that my results replicate over time, I also run a similar interaction model for all state bond referendums in California between 1967 and 2020 with results at the county level (column 3).[8] In this analysis, I use the exact same specification as Table 2, with election and county fixed effects, a range of demographic controls, and standard errors clustered the county level.

Table 5 shows that the opposition of older voters to new investments is strongly fueled by the presence of children, both at the local and state levels and across time. Interaction terms are not only negative and strongly significant, but they also divide the main effect by four at both the local and state levels (columns 1 and 2). This finding is consistent with the intergenerational differences in good preferences previously described, as a rising share of children in a community most likely exacerbates conflicts over resource allocation (**H3**). Notice that this evidence of intergenerational conflict contrasts with survey evidence from Europe (Goerres and Tepe, 2010), showing solidarity between generations.[9]

[8]To be exact, I use the share of people below 19 rather than 18 for this last model, as county age group bins diverge from the block-level data I use for precincts.

[9]It could alternatively indicate that seniors are willing to protect the youth against the burden of debt. This latter hypothesis could explain why intergenerational effects are lower at the state level. Since geographical mobility is much higher within state than between states, younger citizens are more likely to benefit from state than local goods when they grow up. This could in turn alleviate the concerns of seniors regarding the nonproductive debt burden of

Table 5: Presence of children and seniors' support for bond referendums in California

	Share of votes in favor [0,1]		
	Local (2002-2020)	State (2002-2020)	State (1967-2020)
	(1)	(2)	(3)
Share above 65 [0,1]	−0.038	−0.027	0.124
	(0.066)	(0.020)	(0.381)
Share below 18 [0,1]	0.039	0.004	−0.272
	(0.112)	(0.028)	(0.248)
Above 65 × below 18	−0.838***	−0.583***	−3.064*
	(0.211)	(0.095)	(1.539)
Result level	Precinct	Precinct	County
Precinct + election fixed effects	✓		
Precinct + election × county fixed effects		✓	
County + election fixed effects			✓
Demographic controls	✓	✓	✓
N	31,488	519,016	7,306
R^2	0.853	0.813	0.890

*p < .1; **p < .05; ***p < .01
Results weighted by population. Standard errors clustered at the election level for (1), and at the county level for (2) and (3).

5.3 Intergenerational solidarity over resource allocation

While a strand of works has found that diversity breeds conflict, tenants of the social contact hypothesis have argued that close inter-community contact could, on the contrary, alleviate antagonism (Welch, 2001). More recent works on racial relations in the United States have notably argued that the contradictory findings of this literature could be explained by variations in the geographical scale of studies (Oliver, 2010). At levels where resources are administered (city and county), diversity nourishes intolerance as majority groups feel their benefits are being threatened. At the neighborhood level however, the distribution of resources is less salient and the benefits of social contact are most detectable. My results in California seem to contradict this latter prediction, as precincts - units with a few thousand people - could be compared to neighborhoods. One might still argue that precincts and counties are too large to capture the effect of close and daily contacts

future generations, and increase their support for bonds at the state level. Later results on intergenerational solidarity disqualifies this interpretation however.

between generations.

To check whether neighborhood-level contact alleviates seniors' opposition to investments, I replicate the results of Table 5 using Census block-level election results from 30 state bond referendums in California between 1992 and 2010. These results, computed by the Statewide database, are a relevant approximation of the closest social networks of seniors, the majority of census-blocks counting less than 200 individuals. While I keep the same dependent (vote share in favor) and independent (interaction between seniors and children) variables, I make minor changes in my specifications given this new level of analysis. I approximate the previous specifications by running a model interacting block-group with election fixed effects (block groups being the Census unit directly above blocks) and clustering my results at the county level. I however do not include block fixed effects, as blocks are not consistent between Census, being redrawn every decade.[10] Given the level of analysis, several of my usual demographic controls are also unavailable. I still include the share of whites, Hispanics, females, homeowners and most importantly, the share of Democrat vote in the last general elections in each block.

Table 6: Block intergenerational contact and support for investments in California (1992-2020)

	Share of votes in favor [0,1]
	State
Share above 65 [0,1]	0.011^{***}
	(0.001)
Share below 18 [0,1]	0.002
	(0.002)
Above 65 $\times$ below 18	-0.025^{***}
	(0.008)
Block-group $\times$ election fixed effects	✓
Demographic controls	✓
N	9,646,159
R^2	0.814

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Results weighted by unit population. Standard errors clustered at the county level.

Table 6 echoes previous findings, showing that in Census blocks where seniors cohabit with

[10]Note that block-groups also experience variations over decennial Censuses, but are generally more stable. I replicate the analysis with higher and more stable Census units in Appendix Table E.8, and find similar results.

more children, they express more hostile attitudes towards investments (**H3**). The point estimate is arguably between 20 and 40 times smaller than at the precinct level, which could indicate that this hostility is smaller - yet present - at the neighborhood-level. It still disproves the social-contact hypothesis as formulated by the current literature, as even block-level intergenerational contact does not change seniors' mind on investments.

A specificity of age is that different groups could be related, a situation rather rare in racially-diverse settings. While seniors' opposition grows when the number of children surrounding them increases, they might, on the contrary, be more favorable to investments when they live in close contact with young relatives (supposedly their grand-children), as they gain indirect utility from these policies (**H4**). Intergenerational households appear to be a relevant configuration to look at the social-contact hypothesis as applied to families. To test for **H4**, I interact the share of seniors with the share of households where grand-parents and grand-children live under the same roof,[11] and look at how it influences the support for state and local referendums in California from 2002 to 2020. Besides the interaction, I use the exact same specification as in Table 1.

Table 7 shows mixed evidence that the presence of grand-children within households makes seniors more favorable towards investments (**H4**). While point estimates are positive at both government levels, they are only precisely estimated at the state level. Plots of marginal effects shown in Appendix Figures F.8 and F.9 also illustrate that these effects are still too weak to make seniors net supporters of investments. The absence of effect at the local level is consistent with the geographical mobility argument previously mentioned. Seniors caring about young relatives might be reluctant to fund local goods since their grand-children will probably not enjoy them for long if they move out - a scenario quite likely at the local level. Financing state infrastructures might, on the contrary, be a safer way to invest in their young relatives' future, since the youth is less likely to move out of state. This finding is however inconsistent with the hypothesis stating that seniors' opposition to debt might stem from their desire to protect the youth against future debt burden. If that were the case, one should expect grand-parents to be particularly opposed to debt increases.

All in all, these findings yield mixed support for **H4**. They however refine the idea that the

[11] The presence of intergenerational households can also signal communities with higher poverty levels. As poorer communities are usually favorable to public spending, this specification could be subject to omitted variable bias. Note however that I do control for the share of people below the poverty line, which would weaken such concerns.

Table 7: Intergenerational solidarity and support for investments in California (2002-2020)

	Share of votes in favor [0,1]	
	Local	State
	(1)	(2)
Share above 65 [0,1]	-0.179^{*}	-0.116^{***}
	(0.105)	(0.020)
Share intergenerational households [0,1]	-0.398	-0.126^{**}
	(0.317)	(0.059)
Above 65 $\times$ intergenerational households	1.804	0.793^{**}
	(2.062)	(0.353)
Precinct + election fixed effects	✓	
Precinct + election $\times$ county fixed effects		✓
Demographic controls	✓	✓
N	31,488	519,016
R^2	0.853	0.813

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections.

scale of contact between groups matters to reconcile the social contact hypothesis with tensions in heterogeneous communities (Oliver, 2010). The present results indeed indicate that conflict is not mitigated by the scale of group contact, but rather by how overlapping the social networks of these groups are.

6 Conclusion

With governments turning to large debt-funded investment plans to build climate-resilient infrastructures, understanding citizens' preferences for investments is particularly timely, especially in ageing societies. As the electorate gets older, the time horizon of the median voter decreases, which can hurt support for long-term policies. Since most of these massive investments will need to be funded via borrowing, the inclination of seniors for debt might, on the contrary, facilitate political coalitions over investments. This article examined how age shapes preferences for investments by studying how different age groups vote on real public investment projects. By abstracting from social desirability bias and costless self-reported preferences, it dissects the various ways in which

age shapes preferences for long-term policies. My findings show that older voters dislike public investments, and that this opposition is rooted in a distaste for policies with long-time horizon. Contrary to predictions from the political economy literature, I also demonstrate that seniors are indifferent as to whether a policy is funded by taxation or debt. By affecting goods' utilization rates, age is also a strong predictor of preferences between different categories of investment. These age-based preferences are especially salient when different age groups cohabit. Seniors indeed become more hostile towards investments when the share of children in their community increases, as resource allocation becomes more conflictual. Only intergenerational contact within the same household can alleviate these tensions, as seniors gain indirect utility when their grand-children benefit from investments.

Taken together, this article first illustrates that age shapes both intertemporal and cross-sectional preferences for investments. Two issues seem like fruitful venues for future research in this space. First, the literature on public debt should integrate the differences between deficits aimed at immediate consumption and long-term borrowing directed toward investments. While deficits might be favored by short-sighted electorates, the same voters can symmetrically oppose investment debt because of its long time-horizon. Second, scholars should study more systematically how age shapes elite behaviors. There has been surprisingly little biographical work on age, even though seniors are overrepresented among elites (Krcmaric et al., 2020). A nascent literature has demonstrated effects of mayors' age on welfare policies (Curry and Haydon, 2018; McClean, 2020) and career concerns (Alesina et al., 2019), but more research should be done on other policies and government levels. Given that age is correlated with many variables, scholars should be particularly mindful to theoretically delineate these dimensions and choose relevant empirical strategies to isolate them.

A second central finding of this paper is that age-based preferences can create conflict over resource allocation. Two questions remain open here. First, future research should establish the conditions under which political alliances between different age groups are possible. My results are worrisome from a policy standpoint, as they highlight the structural difficulties of creating robust support for long-term policies in societies where the median voter is getting older. As highlighted in this article, policy design and social network structure are key to build intergenerational support for policies. Age-based conflicts can for instance be heightened in large cities, where goods are more excludable and age heterogeneity is higher. Appendix Figure G.10 indeed shows that age-

based preferences are less salient in rural Ohio communities than in urbanized California. Second, my findings suggest that age could be an important driver of Tiebout-sorting (Tiebout, 1956). If age indeed shapes policy preferences, citizens might be incentivized to join communities with people of their age so that they can obtain their most preferred policy mix. In Appendix Figure G.11, I show that communities in the United States have indeed become more homogeneous with respect to age, as older citizens have moved away from large cities. This societal fact is important to further study, especially if it disincentivizes the promotion of intergenerational policies.

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Appendices

A General information

A.1 Crosswalk precinct-Census

The process used to combine socio-demographic variables at the precinct level is the following. We are using seven different datasets for each election:

1. Election data at the precinct level for election e at time t (e.g. general election in 2008);
2. Crosswalks between precinct and blocks for the two bounds (e.g. for 2008 crosswalk 2000-2008 and crosswalk 2008-2010);
3. Census data at the block group level for all socio-demographic variables ;
4. Census data at the block level to get the population only.

We start by computing the following populations by aggregating populations from several blocks. In each case this is an area weighted computation of the population). e.g. if only half of the surface of block 1 falls in the precinct, we associate only half of the population to the population count.

1. Compute the population in each block group-precinct pair intersection, named N_{bp} (note that here the letter b designates the Census block group and not the block!);
2. Compute the population in each Census block group, named $N_b = \sum_p N_{bp}$;
3. Compute the population in each precinct, named $N_p = \sum_b N_{bp}$.

We then compute two types of weights:

1. $w^b = \frac{N_{bp}}{N_b}$
2. $w^p = \frac{N_{bp}}{N_p}$

We then computed the weighted sum for each variable in count in each precinct. e.g.: the population that is 20-29 in precinct p:

$$Pop_p^{20-29} = \sum_{b|A_b \cap A_p \neq \emptyset} w_b^b Pop_b^{20-29}$$

with b the block group and A_b (resp. A_p) the associated area of the block group (resp. precinct). For variables in average, median, etc. we compute the following:

$$median_p^{housing\ price} = \sum_{b|A_b \cap A_p \neq \emptyset} w_b^p median_b^{housing\ price}$$

A.2 Descriptive statistics

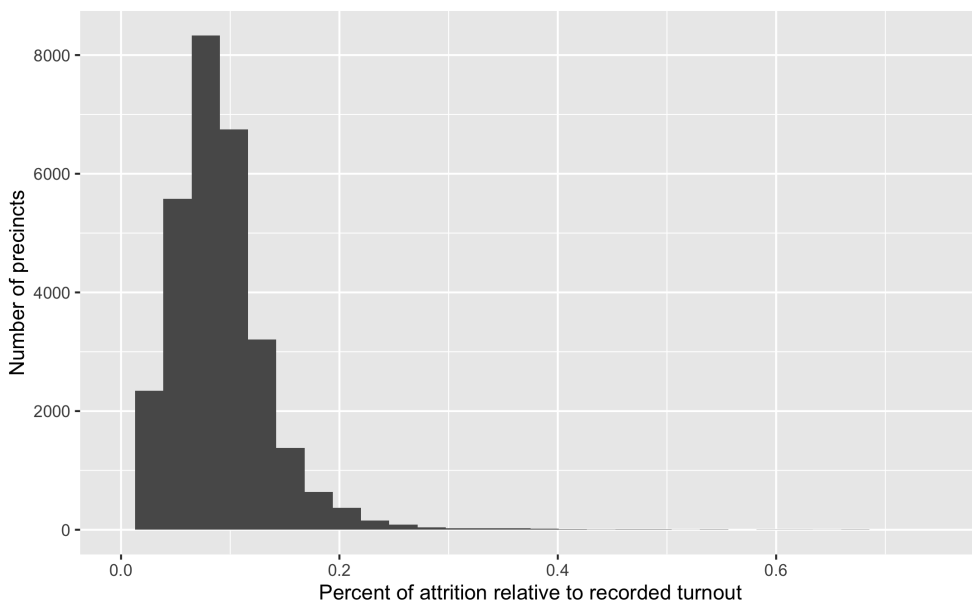

Figure A.1: Voter attrition in California local bond issues (2002-2020)

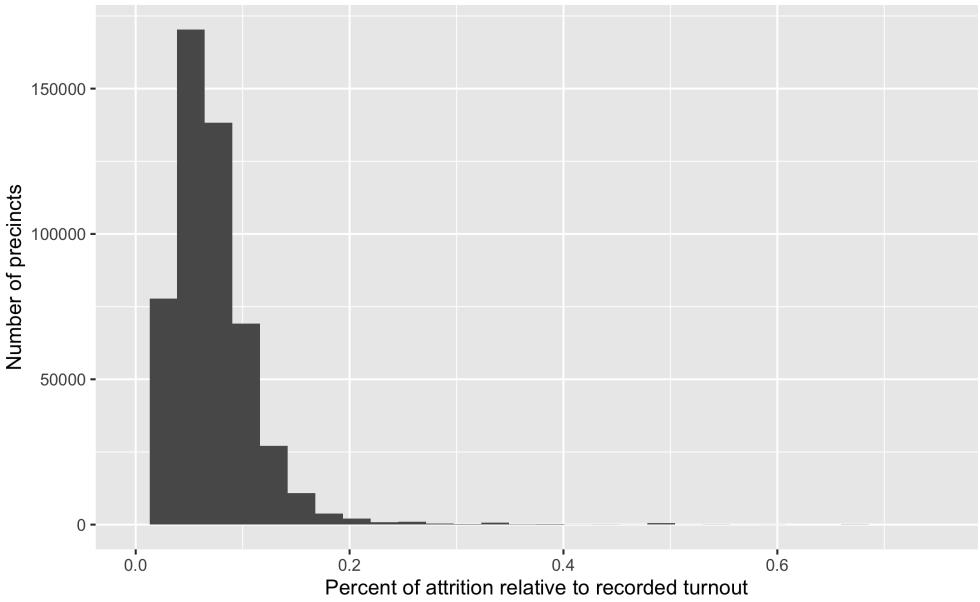

Figure A.2: Voter attrition in California state bond issues (2002-2020)

To verify if there is attrition between ballots of the same election, I compute the difference between the turnout in bond ballot questions, and the turnout in the presidential/congressional race that happens on the same day. The two following graphs show that in both local and state bond elections, less than 5% of the voters who voted for the president/their congressman, did not express opinions for the associated bond ballot question.

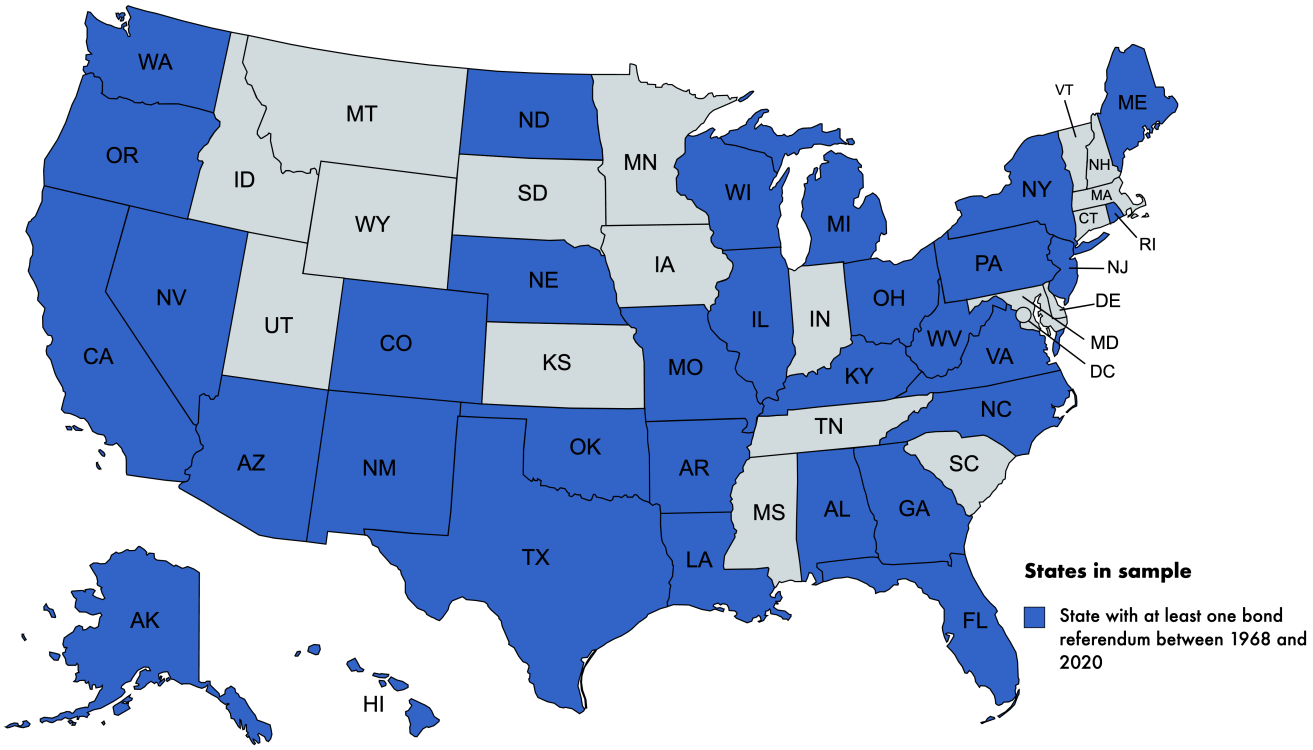

Figure A.3: States with bond referendum procedures

The following map shows all states which have had at least one state bond election between 1968 and 2020. Matsusaka (2018) also provides an up-to-date list of such states. Most states with bond elections at the state level also have referendum requirements at the local level. The ICMA survey provides an up-to-date list for local governments, and counts around 30 states with some sort of local bond requirement.

B Seniors' general opposition toward long-term policies

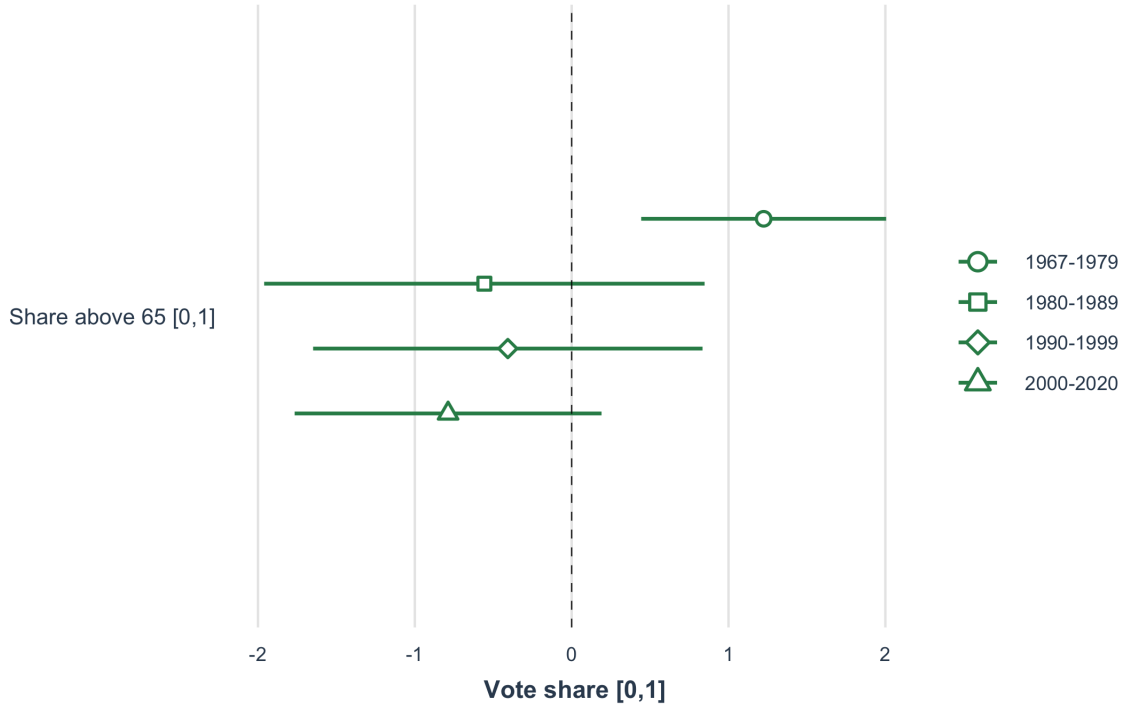

Figure B.6: Decade-by-decade analysis of seniors' vote in all state bond elections between 1967 and 2020

The graph above splits dataset 4 into four different periods, and use the specifications from Table 2. Periods are usually of 10 years, except for 1967-1979 where I add the only three years I have for the sixties, and 2000-2020 where I lump both decades together to allow for the inclusion of county fixed effects. There are indeed less elections in the 2000s, so I would not have multiple observations for several states if I used a 10-year division.

Table B.1: Table 1 full specifications

	Share of votes in favor [0,1]							
	Local	State	Local	State	Local	State	Local	State
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share above 65 [0,1]	-0.317^{***}	-0.390^{***}	-0.425^{***}	-0.392^{***}	-0.180^{***}	-0.192^{***}	-0.153^{*}	-0.110^{***}
	(0.044)	(0.091)	(0.073)	(0.094)	(0.049)	(0.031)	(0.080)	(0.019)
Med. income (10k)							0.001	0.003^{***}
							(0.001)	(0.001)
Share below poverty [0,1]							0.075^{**}	0.106^{***}
							(0.030)	(0.026)
Med. house val. (10k)							-0.0001	-0.0001^{***}
							(0.0001)	(0.00002)
Share homeowners (log)							-0.006^{*}	-0.012^{***}
							(0.003)	(0.003)
Share B.A. [0,1]							-0.034	-0.044^{***}
							(0.033)	(0.014)
Share white [0,1]							0.044^{*}	-0.016
							(0.025)	(0.011)
Share Democrat [0,1]							0.300^{***}	0.146^{***}
							(0.091)	(0.034)
Turnout [0,1]							-0.067^{**}	-0.017
							(0.031)	(0.032)
Share below 18 [0,1]							-0.050	-0.052^{**}
							(0.115)	(0.025)
Share female [0,1]							-0.006	0.091^{***}
							(0.029)	(0.016)
Election fixed effects			✓	✓	✓	✓	✓	✓
Precinct fixed effects					✓	✓	✓	✓
N	32,214	537,459	32,214	537,459	32,214	537,459	31,488	519,016
R^2	0.028	0.035	0.422	0.247	0.845	0.804	0.853	0.813

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$

Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections. For state elections, election fixed effects are interacted with county fixed effects.

Table B.2: Placebo leads of share of seniors

	Share of votes in favor [0,1]			
	Local	State	Local	State
	(1)	(2)	(3)	(4)
Share above 65 lead 2 [0,1]	−0.096	−0.032*		
	(0.062)	(0.016)		
Share above 65 lead 4 [0,1]			−0.074	−0.012
			(0.097)	(0.012)
Precinct + election fixed effects	✓		✓	
Precinct + election × county fixed effects		✓		✓
Demographic controls	✓	✓	✓	✓
N	21,131	401,015	16,349	296,878
R^2	0.853	0.811	0.859	0.814

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections.

Table B.3: Non-parametric age groups specification

	Share of votes in favor [0,1]	
	Local	State
	(1)	(2)
Share 18-34 [0,1]	0.054	0.075***
	(0.108)	(0.024)
Share 35-49 [0,1]	0.072	0.056
	(0.254)	(0.051)
Share 50-64 [0,1]	0.023	−0.023
	(0.147)	(0.031)
Share above 65 [0,1]	−0.087	−0.037
	(0.060)	(0.031)
Precinct + election fixed effects	✓	
Precinct + election × county fixed effects		✓
Demographic controls	✓	✓
N	31,488	519,016
R^2	0.853	0.813

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections.

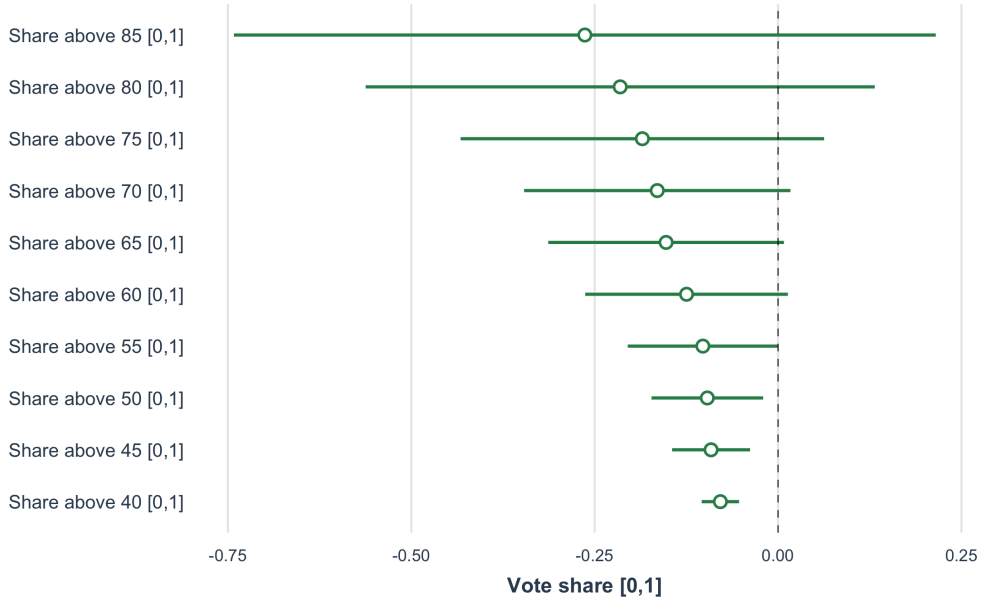

Figure B.4: Sensitivity of Table 1 results to alternative definitions of seniors in California local bond elections

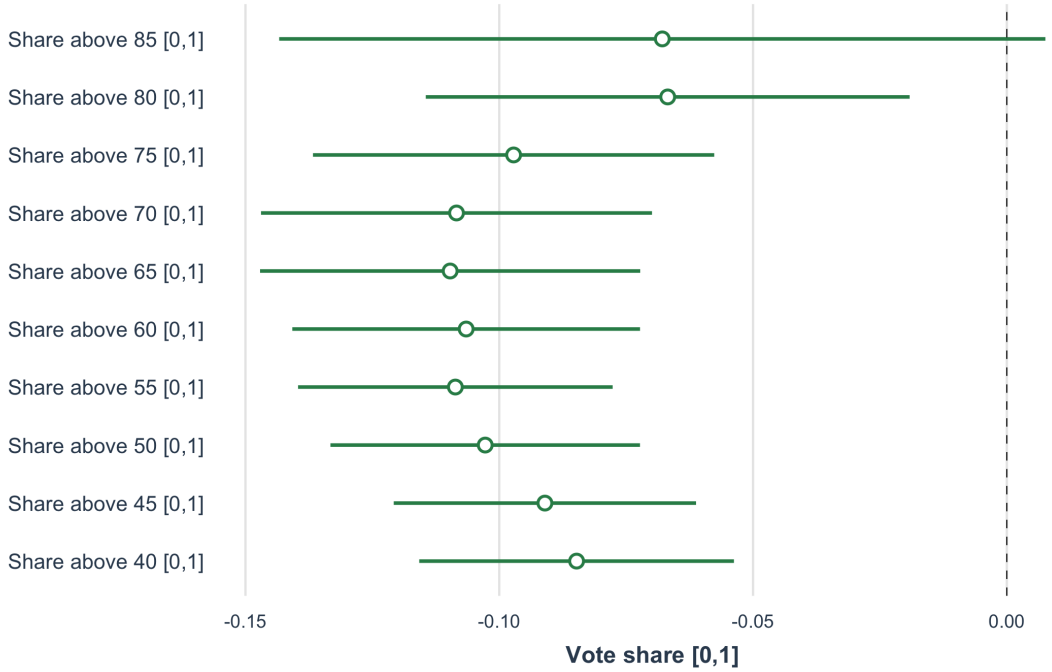

Figure B.5: Sensitivity of Table 1 results to alternative definitions of seniors in California state bond elections

C Seniors' time horizon and policy length

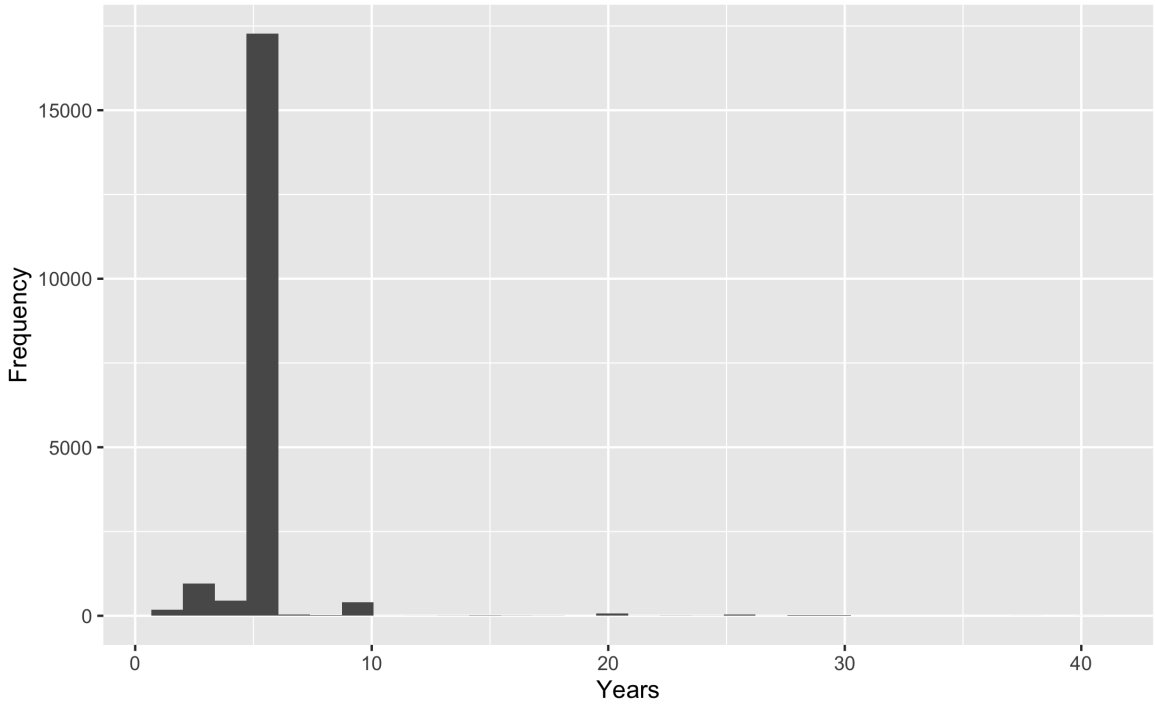

Figure C.7: Distribution of maturities in Ohio local referendums (2000-2020)

Table C.4: Seniors' intertemporal preferences in Ohio local referendums (dummy specification)

	Vote in favor [0,1]
Policy length $>$ 5 years {0,1}	0.027
	(0.026)
Share above 65 [0,1]	-0.055
	(0.056)
Share above 65 $\times$ policy length $>$ 5 years	-0.271^{**}
	(0.136)
City fixed effects	✓
County-year fixed effects	✓
Demographic controls	✓
Election characteristics	✓
N	19,012
R^2	0.727

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Standard errors clustered at the election level.

D Age and preferences for public goods

D.1 Category coding

I hand-coded all referendums into several categories inspired by the ones adopted by Rugh and Trounstine (2011). Here is a list of all categories with examples of the most recurring categories:

- Public safety/disaster relates to policies funding police and fire stations, earthquake response offices and jails.
- Economic/employment (state only) relates to policies destined to stimulate the economy, most notably programs support employment/training and policies related to firms (loans, etc.).
- Education relates to policies funding schools and colleges and research programs. While schools are usually funded at the local level and colleges at the state level, the State of California has broad funding programs for all educations levels.
- Environment indicates policies related to renewable energy, parks and pollution reduction.
- Water indicates policies with relation to sewerage and water provision.
- Recreational/culture relates to policies funding stadiums, libraries, zoos, and museums.
- Transportation relates to policies funding roads, highways, bridges and street re-pavement.
- Veterans count welfare programs targeted towards veterans, along with building celebrating the military.
- Social housing funds the construction of rent-control housing.

Here are also several categories for which there are elections, but that I do not use, as they are too peculiar and/or lack category coherence.

- Bundled (only local) relates to bonds funding multiple projects at the same time.
- Hospitals relate to two state bonds funding children hospital.

- City hall (only local) relates to a bond funding the renovation of a city hall.
- Pension (only local) relates to a bond funding refinancing in local civil servants' pension fund.

D.2 Tables

Table D.5: Seniors' support for investments by category in California (2002-2020)

	Share of votes in favor [0,1]	
	Local	State
	(1)	(2)
Share above 65 [0,1]	-0.120^{**}	-0.214^{***}
	(0.054)	(0.029)
Above 65 × public safety/disaster	-0.159	-0.003
	(0.124)	(0.021)
Above 65 × environment/parks	0.159^{**}	0.300^{***}
	(0.064)	(0.043)
Above 65 × water		0.559^{***}
		(0.131)
Above 65 × social housing	-0.244^{**}	-0.052
	(0.118)	(0.035)
Above 65 × transportation	0.053	-0.003
	(0.061)	(0.021)
Above 65 × culture/recreational	-0.065	0.161^{***}
	(0.048)	(0.035)
Above 65 × veteran	-0.111^{**}	0.155^{***}
	(0.043)	(0.018)
Above 65 × deficit reduction	0.260^{***}	0.203^{***}
	(0.084)	(0.023)
Precinct + election fixed effects	✓	
Precinct + county × county fixed effects		✓
Demographic controls	✓	✓
N	29,946	456,089
R^2	0.860	0.817

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$
Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections. Reference good is public school.

Table D.6: Youth support for investments by category in California (2002-2020)

	Share of votes in favor [0,1]	
	Local	State
	(1)	(2)
Share 18-34 [0,1]	0.025	0.143***
	(0.027)	(0.019)
18-34 × public safety/disaster	−0.069	−0.237***
	(0.045)	(0.017)
18-34 × environment/parks	−0.028	0.035***
	(0.055)	(0.008)
18-34 × water	0.163**	−0.128***
	(0.066)	(0.013)
18-34 × social housing	0.189**	0.102***
	(0.083)	(0.021)
18-34 × transportation	0.102**	−0.106***
	(0.041)	(0.012)
18-34 × culture/recreational	0.047	0.072***
	(0.078)	(0.022)
18-34 × veteran	0.261***	−0.049***
	(0.048)	(0.015)
18-34 × deficit reduction		−0.800***
		(0.075)
Precinct + election fixed effects	✓	
Precinct + county × county fixed effects		✓
Demographic controls	✓	✓
N	29,946	456,089
R^2	0.860	0.822

*p < .1; **p < .05; ***p < .01
Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections. Reference good is public school.

Table D.7: Young adult support for bond referendums in California (2002-2020)

	Share of votes in favor [0,1]	
	Local	State
	(1)	(2)
Share 18-34 [0,1]	0.078***	0.092***
	(0.012)	(0.019)
Precinct + election fixed effects	✓	
Precinct + election × county fixed effects		✓
Demographic controls	✓	✓
N	31,488	519,016
R^2	0.853	0.813

*p < .1; **p < .05; ***p < .01
Results weighted by precinct population. Standard errors clustered at the election level for local referendums, and at the county level for state elections.

E Intergenerational conflict over resource allocation

Table E.8: Block intergenerational contact and support for investments in California (1992-2010)

	Share of votes in favor [0,1]
	State
Share above 65 [0,1]	0.018^{***}
	(0.002)
Share below 18 [0,1]	0.005^{**}
	(0.002)
Above 65 $\times$ below 18	-0.044^{***}
	(0.008)
Census tract $\times$ election fixed effects	✓
Demographic controls	✓
N	9,646,159
R^2	0.781

$^{*}p < .1$; $^{**}p < .05$; $^{***}p < .01$

Results weighted by unit population. Standard errors clustered at the county level.

F Intergenerational solidarity over resource allocation

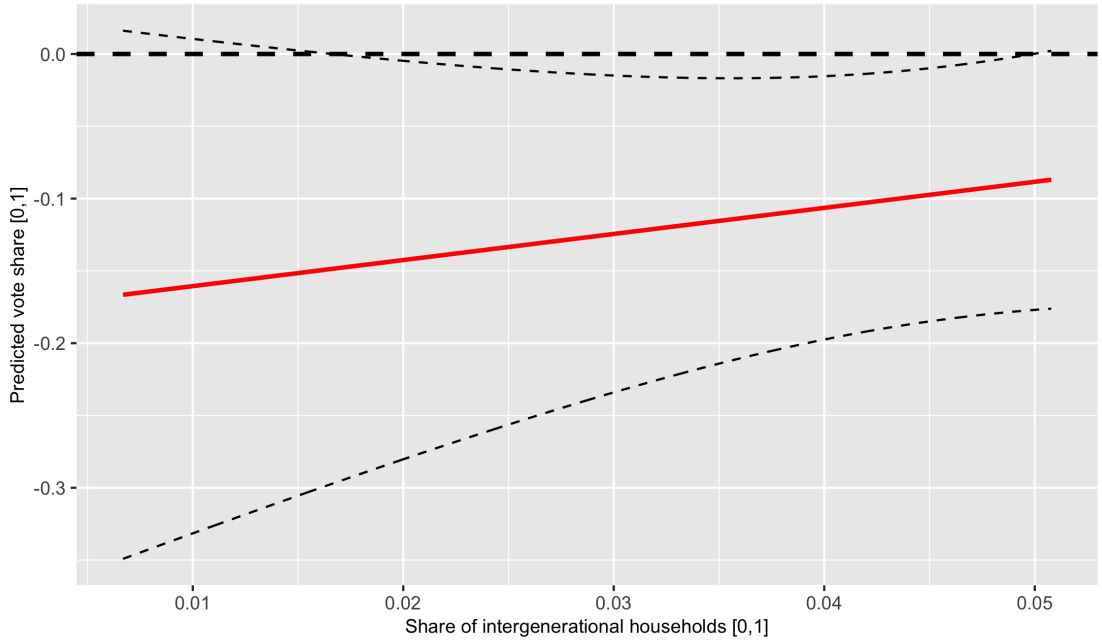

Figure F.8: Effect of intergenerational households on vote share for local investments in California (2002-2020) (95% confidence interval)

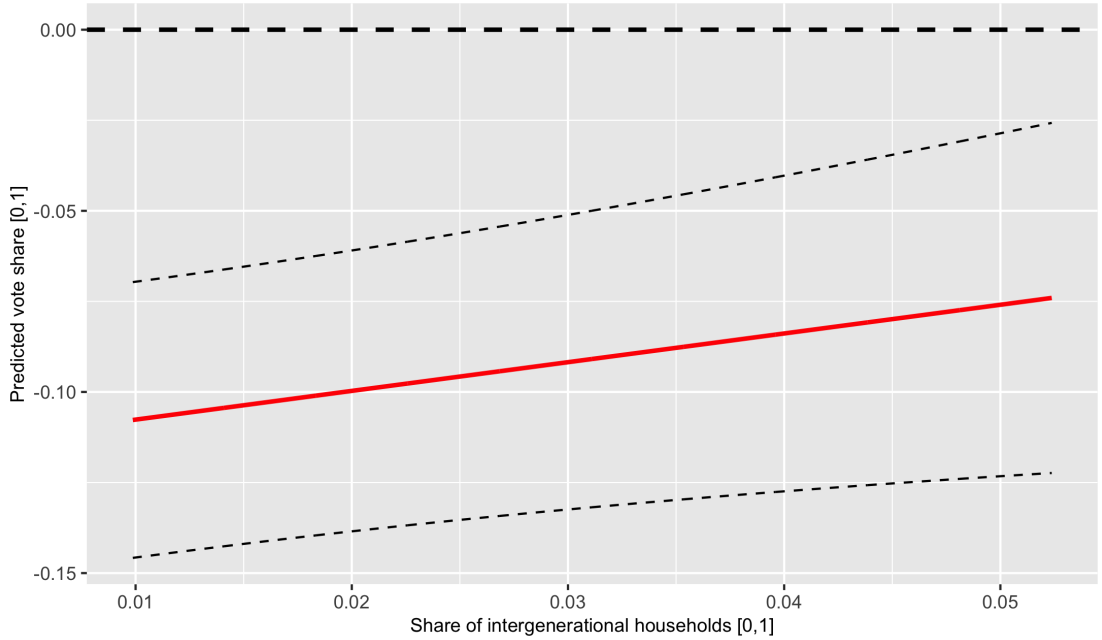

Figure F.9: Effect of intergenerational households on vote share for state investments in California (2002-2020) (95% confidence interval)

G Further research

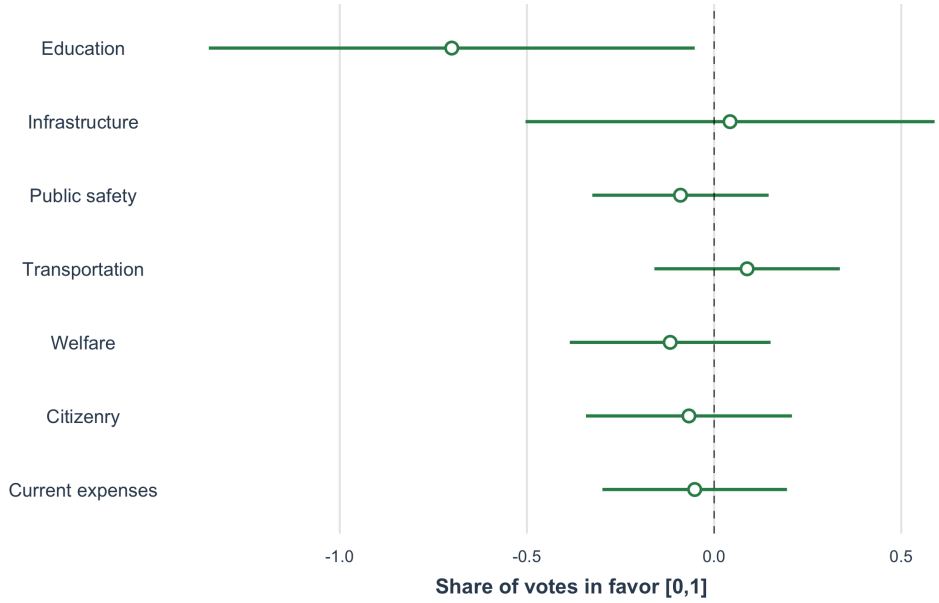

Figure G.10: Effect of seniors' presence on support for investments in Ohio local referendums (2000-2020)

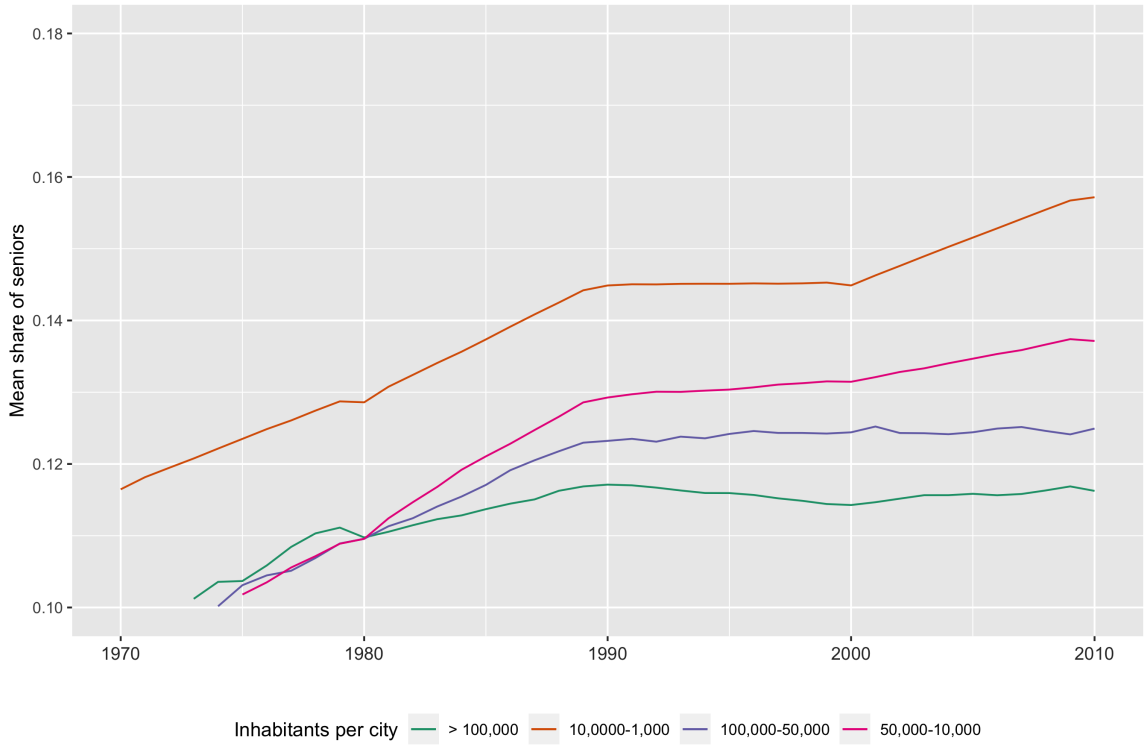

Figure G.11: Evolution of the shares of seniors by city size (1970-2010)