





The (Ir-)Relevance of Demographic Characteristics for Substantive Representation*

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Abstract

This paper examines how descriptive representation (numerical representation of demographic characteristics) relates to substantive representation (representation of preferences). Leveraging Switzerland's unique institutional setting, we assess whether voters' preferences are represented differently by legislators who share their demographic characteristics compared to legislators with opposing characteristics. We identify and compare voter preferences across gender, age, education, income, and place of residence for 270 popular votes held between 1992 and 2025 and link them to 54,792 parliamentary decisions made by 927 legislators on the same proposals. We document substantial variation in the descriptive representation of voter groups but little variation in how well their preferences are substantively represented. Legislators represent voters who share their demographic characteristics *no* better than legislators with opposing characteristics, particularly once legislators' political orientation is taken into account. These results persist even in settings where weak incentives to cater to the median voter would allow legislators to favor their demographic peers and in votes where preferences diverge strongly across voter groups. Overall, the evidence indicates that shared political orientation, rather than shared demographic characteristics, predicts substantive representation.

Keywords: Substantive representation, Descriptive representation, Voter–legislator congruence, Direct democracy, Social cleavages

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1 Introduction

[The Representative Assembly] should be in miniature, an exact portrait of the people at large.

John Adams, *Thoughts on Government* (1776)

Debates on what a representative assembly should portray have persisted since Adams (1776) wrote his seminal *Thoughts on Government*. Some argue that representatives should mirror the population's demographic characteristics so that the preferences of all population groups are considered in politics. Yet scholars and the public continue to debate whether demographic characteristics actually matter for political decisions and substantive representation¹.

One influential perspective, which we refer to as the *social identity view* of representation, holds that demographic characteristics shape political decisions through shared social backgrounds, experiences, and information advantages. Legislators may better understand and represent the interests of voters with whom they share demographic characteristics, leading to closer alignment between preferences and decisions (see Mansbridge, 1999, 2003; Phillips, 1998; Preuhs, 2006; Young, 2010). From this perspective, descriptive representation is an important mechanism through which substantive representation arises.

By contrast, theories of electoral competition emphasize that political decisions are structured primarily by ideology and party competition rather than demographic similarity (see Downs, 1957; Enelow, 1990; Osborne and Slivinski, 1996). In spatial models of electoral competition (Downs, 1957) and citizen-candidate models (Besley and Coate, 1997; Osborne and Slivinski, 1996), legislators have little strategic reason to condition representation on shared demographic characteristics beyond their correlation with ideological preferences. Instead, politicians respond to electorally decisive segments of the electorate, which are more likely to sort along ideological rather than demographic dimensions. We refer to this perspective as the *ideology view*. Even if policy preferences differ across demographic groups, electoral competition may attenuate the role of demographic similarity in shaping substantive representation (Branton, 2003; Hinich and Munger, 1994; Stadelmann, Portmann, et al., 2019).

¹By substantive representation, we refer to the extent to which politicians act in the interests of the electorate (Pitkin, 1967).

This paper empirically evaluates these competing views by testing whether descriptive similarity between voters and legislators translates into substantive representation once political orientation is taken into account. In particular, we ask two related questions: First, do legislators represent the preferences of demographic groups to different extents? Second, do legislators represent the preferences of voters who share their demographic characteristics more closely than legislators who do not share those characteristics?

To address these questions, we leverage Switzerland's institutional system of direct and representative democracy. Referenda allow us to compare citizens' revealed preferences with legislators' decisions in parliament on the same policy proposals (see Frey, 1994; Portmann, Stadelmann, and Eichenberger, 2012; Schneider and Naumann, 1982; Stadelmann, Portmann, et al., 2014a, 2019). Swiss referenda cover a wide range of policy issues and produce binding outcomes. Comparing parliamentary votes with referendum outcomes provides a direct and credible measure of congruence between legislators' and voters' preferences. We therefore contribute to the broader literature that interprets policy congruence as a measure of substantive representation (see Ansolabehere et al., 2001; Blais and Bodet, 2006; Golder and Ferland, 2018; Golder and Stramski, 2010; Matsusaka, 2010, 2026; Portmann, Stadelmann, and Eichenberger, 2022).

To measure preferences across demographic voter groups, we use post-referendum surveys in which respondents report their voting decisions and biographical information. We identify voters' preferences for specific policies across five demographic characteristics (gender, age, education, income, and place of residence) using the share of yes votes in 270 referenda held between 1992 and 2025. We then match the majority preferences of these voter groups with 54,792 parliamentary decisions made by 927 legislators on the same policy proposals. In addition to aggregating post-referendum survey data, we combine individual-level survey responses with the decisions of individual legislators, yielding 53,276,829 legislator-voter pairs. This design allows us to measure congruence between legislators and voters across demographic groups and to account for heterogeneity in group composition and preference intensity.

The data reveal large differences in the descriptive representation of demographic groups, but only minor differences in the representation of their preferences. For example, descriptive representation of female voters is 43.11 percentage points lower than that of male voters. In contrast, the share of parliamentary decisions aligning with the majority preference of fe-

male voters (substantive representation) is only 2.64 percentage points lower than that aligning with the majority preference of male voters. Similarly, highly educated voters are descriptively overrepresented by 28.01 percentage points, but their substantive representation exceeds that of less educated voters by only 1.38 percentage points. We find similarly large gaps in descriptive representation, but only small differences in substantive representation across the other characteristics we examine.

We then examine whether shared demographic characteristics between voters and legislators correspond to higher levels of substantive representation. Across all demographic characteristics studied, we find *no* systematic evidence that legislators represent voters with whom they share demographic characteristics more closely than legislators with opposing characteristics do. The results persist even in settings where weak incentives to cater to the median voter, approximated by incumbency advantages, large district magnitudes, final terms, and extensive legislative experience, allow legislators to favor their demographic peers. Robustness analyses focusing on referenda with strongly diverging voter-group preferences and exploiting individual-level survey data to account for heterogeneity within demographic groups confirm the baseline results.

Finally, we compare the role of shared demographics with that of shared political orientation. Our findings differ significantly when we conduct the same analyses for left, center, and right political orientations as we did for demographic characteristics. Differences in descriptive representation across political orientations closely mirror differences in substantive representation. Moreover, legislators are significantly more likely to vote in line with voters who share their political orientation than are legislators with different characteristics. Taken together, the findings indicate that substantive representation is predicted primarily by shared political orientation rather than by shared demographics, lending strong support to the *ideology view* of representation over the *social identity view*.

The paper is structured as follows. Section 2 reviews the existing literature and outlines the theory leading to our hypotheses. Section 3 presents the institutional setting, the data, and the empirical strategy. Section 4 presents the main results. Section 5 performs a variety of heterogeneity and robustness analyses. Section 6 offers concluding remarks.

2 Literature and theoretical considerations

2.1 Related literature

This study contributes to the literature on the relationship between demographic characteristics, political behavior, and representation. A first body of research shows that *voters'* political behavior varies systematically across demographic groups, including gender, age, income, and education, among others (Fraga and Holbein, 2020; Gallego, 2015; Huijsmans et al., 2022; Martín-Legendre and Rungo, 2025; Neugart and Zuazu, 2025). Policy preferences, in particular, also differ by gender, age, education, income, and place of residence.² Such differences provide the foundation for any analysis of representation across demographic groups. At the same time, existing work suggests that demographics do not exhaustively explain political behavior, as partisanship, institutions, and economic conditions also structure voters' choices (Bartels, 2000; Brunner et al., 2011; Cantoni and Pons, 2022; Clark et al., 2024; Portmann and Stadelmann, 2017).

A second strand of research examines the behavior of *politicians*. One set of studies asks whether some groups in the electorate are represented more strongly than others in legislative outcomes. The evidence suggests that the preferences of male, elderly, well-educated, and wealthy citizens are often better represented, even after accounting for differences in turnout.³ Another set of studies asks whether politicians' own demographic characteristics shape their behavior in office. Female policymakers appear to place greater emphasis on health care, child care, and education (Baskaran and Hessami, 2025; Clots-Figueras, 2011, 2012), and they respond differently to crises (Schirner, 2025); for an overview, see Hessami and Da Fonseca (2020). Younger politicians appear to prioritize different policies from older ones (Alesina, Cassidy, et al., 2019; Baskaran, Hessami, and Schirner, 2024). Higher educational attainment among leaders has been associated with different policy outcomes and, in some settings, with higher economic growth (Besley, Montalvo, et al., 2011). Wealth may also shape political behavior. Wealthier members of the US Congress are more likely to support tax policies favorable to wealth holders (Griffin and Anewalt-Remsburg, 2013), and wealthier legislators may

²See, for gender: Alesina and La Ferrara (2005), Funk and Gathmann (2015), and Ranehill and Weber (2022), age: Ahlfeldt et al. (2022), Mello et al. (2017), and Sørensen (2013), education: Schakel and van der Pas (2021), income: Choi (2021), Kerr (2014), and Stumpf and Uebelmesser (2025), and place of residence: Kenny and Luca (2021) and Taylor et al. (2024).

³See, for men Wängnerud (2009), the elderly Stockemer and Sundström (2018), the well-educated Schakel and van der Pas (2021), and high-income Brunner et al. (2013), Lupu and Warner (2022), and Stadelmann, Portmann, et al. (2015).

be more effective in advancing bills (Stacy, 2025). Research further shows that rural and urban legislators emphasize different policy concerns even within parties (Fiva et al., 2026). Yet this literature also highlights an important limitation of demographic accounts, namely that politicians' behavior is often shaped more strongly by party affiliation and the institutional environment (Kärnä and Öhberg, 2023; Stadelmann, Portmann, et al., 2019).

A third strand of literature connects these two debates and studies whether legislators represent the preferences of their descriptive peers more closely than legislators with different characteristics. Shared demographics may improve substantive representation if common experiences, interests, or information help legislators better understand and act on the preferences of voters who share their characteristics. Existing evidence is suggestive but mixed. Some studies find that female legislators more closely represent the preferences of female voters (see Campbell et al., 2010; Chattopadhyay and Duflo, 2004; Höhmann, 2020; Miller, 2008). Using Swiss direct-democratic votes, Kläy, Eichenberger, et al. (2025) show for social policy issues that female legislators respond more strongly to female voter preferences than male legislators. Other work suggests that legislators from underrepresented groups are more likely to raise issues relevant to their descriptive peers, though such effects may be concentrated in specific institutional settings or early career stages (Bailer et al., 2022; Lowande et al., 2019). Overall, however, the literature remains limited to particular policy domains, specific cases or countries, or candidate-centered systems, and it rarely compares legislators' revealed preferences with voters' revealed preferences on the same policy proposals.

Assessing whether legislators represent the preferences of their demographic peers more closely than other legislators is empirically demanding. It requires observing voters' preferences and legislators' decisions on the same issues, with real political consequences. In most countries, such data are unavailable. Thus, existing studies often rely on generic surveys, broad issue scales, or political communications rather than directly comparable policy choices. In addition, most studies do not account for the political orientations of both legislators and voters, even though these characteristics are correlated (Stadelmann, Portmann, et al., 2019). For example, wealthy, elderly, and male voters may be more likely to place themselves on the political right, whereas poorer, younger, and female voters may be more likely to place themselves on the political left (Pew Research Center, 2024). This makes it difficult to isolate the role of shared demographics from ideological alignment.

Our research contributes precisely at this point. We compare legislators' policy choices with voters' revealed preferences on identical policy proposals with binding consequences. We do so across a wide range of policy areas, for multiple demographic characteristics, and while explicitly accounting for the political orientation of both voters and legislators. This allows us to test whether descriptive similarity is associated with substantive representation once political orientation is held constant. We assess whether shared demographics matter independently of political orientation and how their role compares with shared political orientations.

2.2 Theory and hypotheses

The research question is whether shared demographic characteristics between voters and legislators independently generate substantive representation, or whether substantive representation is driven mainly by political orientation. We contrast two theoretical perspectives.

The *social identity view* builds on the idea that legislators who share demographic characteristics with constituents are better able, and may be more willing, to represent their policy preferences. Shared characteristics can proxy for common lived experiences, social networks, or exposure to similar constraints and opportunities. They may also reduce information asymmetries between voters and politicians and increase trust, mutual recognition, or expectations of responsiveness (Mansbridge, 2003; Preuhs, 2006). If these mechanisms are important, legislators should be more likely to align with the preferences of voters who are their demographic peers, and demographic groups may differ systematically in the extent to which they are substantively represented.

The *ideology view* is inspired by theories of electoral competition. In spatial models (Downs, 1957) and citizen-candidate models (Besley and Coate, 1997; Osborne and Slivinski, 1996), legislators have incentives to respond to electorally decisive segments of the electorate, and these segments are more plausibly organized along ideological than demographic lines. Electoral competition may therefore attenuate or even eliminate any independent influence of demographic characteristics on substantive representation beyond their correlation with political orientation (Branton, 2003; Hinich and Munger, 1994; Stadelmann, Portmann, et al., 2019). Electoral incentives need not operate identically across institutional settings.⁴ However, al-

⁴For example, in majoritarian systems, centripetal forces tend to push politicians toward the median voter. In proportional systems, especially with larger district magnitudes, politicians may secure election by appealing to narrower electoral segments (Cox, 1990; Stadelmann, Portmann, et al., 2014b). Yet even in proportional repre-

though institutions shape the strength of electoral incentives, they do not by themselves imply that demographic similarity should matter independently of ideology within a given institutional framework. From the perspective of the *ideology view*, demographic characteristics matter primarily insofar as they proxy for ideological preferences or electoral relevance, rather than constituting an independent basis of substantive representation.

Demographic characteristics may still affect substantive representation if they reveal policy preferences not captured by political orientation, or if electoral competition is imperfect due to incomplete information, rational ignorance, or other deviations from standard models. In such cases, demographic traits can serve as a signal of preferences, consistent with the social identity view (Cutler, 2002). However, political orientation can also serve as a signal of policy preferences and may do so more effectively (Hinich and Munger, 1994; Stadelmann, Portmann, et al., 2019). Voters and legislators who share a political orientation but not demographic characteristics may therefore have more similar policy preferences than those who share demographics but differ ideologically.

Whether demographic characteristics shape substantive representation is, therefore, ultimately an empirical question. If the social identity view dominates, we should observe differences in substantive representation across demographic voter groups, and legislators should represent voters with whom they share demographic characteristics more closely than legislators who do not. If the ideology view dominates, substantive representation should vary little across demographic groups, and shared demographic characteristics should contribute little once political orientation is taken into account. By contrast, shared political orientation should be strongly associated with substantive representation.

Based on these considerations, we formulate four testable hypotheses that summarize the contrasting expectations of the *social identity view* (Hypotheses 1a and 2a) and the *ideology view* (Hypotheses 1b and 2b). We evaluate these expectations separately across demographic characteristics and voter groups.

sentation systems, legislators may remain responsive to broad electoral demand, with Kang and Powell Jr (2010) finding no difference in responsiveness to the median voter between PR and SMD systems.

- Hypothesis 1a* There are systematic differences in average substantive representation across demographic voter groups.
- Hypothesis 1b* There are *no* systematic differences in average substantive representation across demographic voter groups.
- Hypothesis 2a* Legislators represent the preferences of voters who share the same demographic characteristics differently from legislators who do not share these characteristics.
- Hypothesis 2b* Legislators represent the preferences of voters who share the same demographic characteristics *no* differently from legislators who do not share these characteristics.

3 Research design

3.1 Institutional setting

We leverage Switzerland's distinctive institutional setting to analyze descriptive and substantive representation. Swiss citizens frequently vote on policy proposals in referenda, thereby revealing their preferences on issues with genuine policy consequences (see Frey, 1994; Portmann, Stadelmann, and Eichenberger, 2012; Schneider and Naumann, 1982; Stadelmann, Portmann, et al., 2014a, 2019). Post-referendum surveys, in which respondents report their voting decisions and individual characteristics, allow us to identify the preferences of voter groups defined by demographic characteristics and political orientation. Because legislators vote in parliament on the same legislative proposals that voters subsequently decide on in referenda, the Swiss case offers a rare opportunity to compare legislators' decisions directly with citizens' revealed preferences and thus to measure the substantive representation of different voter groups directly and credibly (for a similar measure for the United States, see Brunner et al., 2013; Matsusaka, 2018, 2026).

We analyze the final votes of Swiss parliamentarians on legislative proposals. The Swiss Federal Assembly consists of the National Council (lower house) with 200 seats and the Council of States (upper house) with 46 seats. Members of both houses serve four-year terms and are elected simultaneously in all 26 cantons, which function as electoral districts. In the National Council, seats are allocated to cantons in proportion to population, and members are

elected under proportional representation. In the Council of States, cantons elect one or two representatives, predominantly under majority rule.⁵

Both chambers include members from multiple parties. The five largest are the Swiss People's Party (SVP-right), the Social Democratic Party (SP-left), the Liberals (FDP-center), the Center (Die Mitte, formerly CVP/BDP-center), and the Green Party of Switzerland (GPS-left). Together, these parties account for more than 90 percent of parliamentarians in each house over our period of analysis. Party seat shares differ across chambers and cantons. The National Council broadly reflects nationwide vote shares due to proportional elections within cantons. The majoritarian-elected Council of States is more centrist, with comparatively more members from centrist parties (The Center and FDP) and fewer from the left (SP and GPS) and the right (SVP). Parties are organized in a decentralized manner, with cantonal branches that coordinate nationally through parliamentary party groups. These groups structure committee assignments, set the agenda, and issue voting recommendations. Parliamentarians are formally free in their voting decisions, as the Federal Constitution specifies that members of both houses vote without instructions (Swiss Confederation, 1999, Art. 161), but party discipline matters (Kläy, Portmann, et al., 2026). The Swiss parliament is a militia, or part-time, parliament in which most members combine their mandate with outside professional activity. They also receive parliamentary income and expense compensation, leading some to work effectively as full-time legislators.

Parliamentary decisions do not automatically take effect. Citizens can challenge parliamentary decisions through a referendum by collecting 50,000 signatures within 100 days. In addition, all constitutional amendments are subject to a mandatory referendum. Finally, federal popular initiatives allow citizens to propose constitutional changes by collecting 100,000 signatures within 18 months. Citizens vote by mail or in person on up to four voting dates per year and often decide on multiple referenda on the same day.⁶ All eligible Swiss citizens automatically receive voting materials by mail. These materials include the full text of the proposed legal or constitutional change, arguments from both supporters and opponents, and voting recommendations from the Federal Council and Parliament.⁷ Citizens can either support the

⁵Twenty cantons have the status of a “full” canton, and six cantons, originating from historical divisions of previously unified cantons, have the (unofficial) status of a “half” canton. They differ only in the number of representatives they hold in the Council of States.

⁶For simplicity, we use the term *referenda* to refer to federal initiatives, optional referenda, and mandatory referenda.

⁷Voting recommendations reflect the majority position of Parliament or the Federal Council on a given referendum (Stadelmann and Torgler, 2013).

proposed change or the status quo in a referendum. Referendum decisions are binding, have real political and economic consequences, and cover a broad range of policy areas, including taxation, public spending, environmental regulation, immigration, social policy, and institutional reform. Referendum outcomes reflect voters' revealed preferences on specific policy proposals.

We rely on post-referendum surveys (VOX surveys) to identify preferences across voter groups because referendum outcomes do not reveal the demographic characteristics or political orientations of the voter. These surveys are based on samples of 1,000 to 3,000 citizens and are conducted directly after each referendum. Respondents report their gender, age, income, highest educational attainment, party affiliation, placement on an 11-point left-right scale, and referendum voting decisions. VOX surveys are widely used in academic research and are regularly discussed in public debate (see, e.g., Ahlfeldt et al., 2022; Bello and Galasso, 2021; Kläy, Eichenberger, et al., 2025; Stutzer et al., 2019). They provide a reliable source of voting behavior, and their aggregate results closely replicate the official referendum outcomes. For further information, see gfs.bern (2026) and Voto (2026).

3.2 Data

We examine descriptive and substantive representation across the universe of all 270 referenda held between 1992 and 2025. To measure the preferences of different demographic groups, we use post-referendum survey data for all referenda. We focus on voters' gender, age, educational attainment, income, and place of residence, as these characteristics are consistently available in the data. For each characteristic, we divide voters into two subgroups and measure each subgroup's policy preference as the share of respondents who reported voting yes in a given referendum. We use two subgroups because finer splits produce samples too small to estimate group preferences reliably across all 270 referenda.

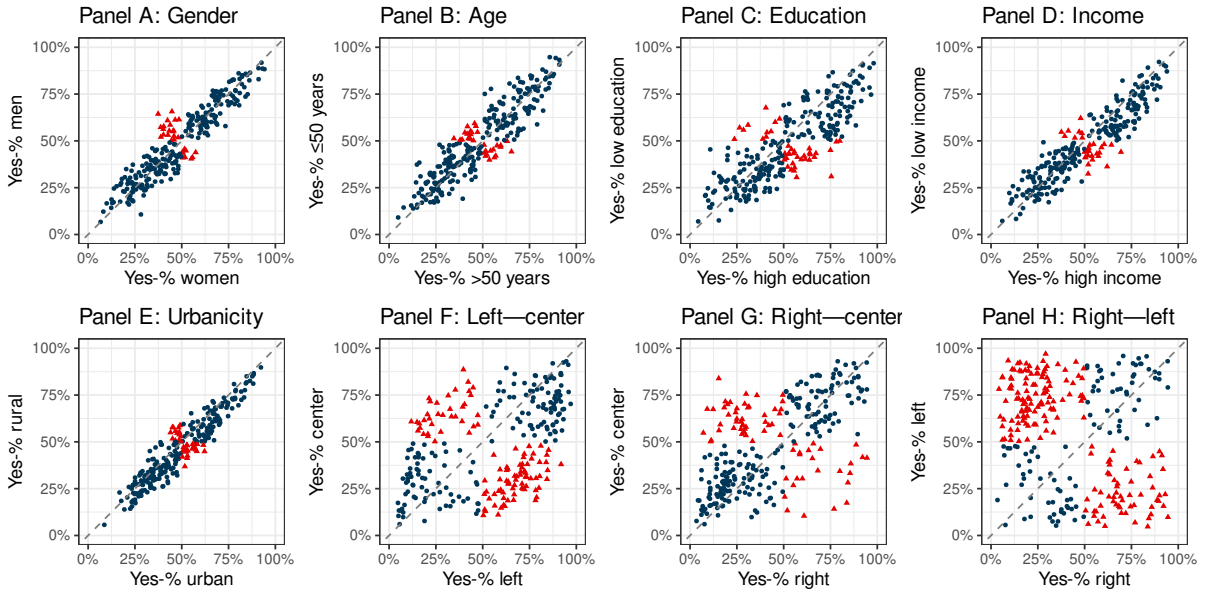
For gender, we distinguish between men and women. For age, we distinguish between voters above and below the median respondent age of 50 years. For education, we distinguish between respondents with a bachelor's degree or higher and those without such a degree. Income is reported in household-income brackets. We distinguish between respondents whose monthly household income falls below or above the CHF 5,000 to 7,000 bracket, which corresponds to the median household income in Switzerland during our study period.

We use official municipality-level referendum results to measure the preferences of urban and rural voters because the post-referendum surveys do not include respondents' place of residence. Following the Eurostat (2025) definition of "Degree of Urbanization", we classify municipalities with more than 5,000 inhabitants or a population density above 300 inhabitants per square kilometer as urban, while the remaining municipalities are classified as rural. We then calculate the share of yes votes for each type of municipality.⁸ Unlike the survey-based measures for the other four characteristics, this measure is arguably even more precise, as it draws on the full population of votes cast rather than a sample of survey respondents. We obtain yearly data on municipality area and population from the Federal Statistical Office (2025a,c).

We approximate political orientation using party affiliation. Following Stadelmann, Portmann, et al. (2019), we classify voters as left, center, or right based on their preferred party. When respondents do not report a preferred party, we instead use their self-placement on the left-right scale to approximate political orientation. This procedure allows us to analyze ideological congruence between voters and representatives in the same way as congruence based on demographic characteristics. Further details on party classifications and variable construction are reported in Table A1 in the appendix.

Referendum support differs across demographic voter groups, which is a necessary condition for identifying differences in substantive representation. Figure 1 shows the share of yes votes among voters with opposing demographic characteristics for each referendum. Each data point represents one referendum. Points farther from the 45-degree line indicate larger differences in preferences. Blue dots denote referenda in which the two subgroups share the same majority position (both $\geq 50\%$ or both $< 50\%$ yes), whereas red triangles denote referenda in which the groups differ in their majority positions. The mean absolute difference in the share of yes votes is 5.88 percentage points between men and women (correlation 0.933), 6.99 percentage points between older and younger voters (0.907), 11.23 percentage points between higher- and lower-educated voters (0.830), 7.03 percentage points between higher- and lower-income voters (0.924), and 5.54 percentage points between urban and rural voters (0.943). Panels F to H show that referendum support differs much more strongly across voters with different political orientations. The mean absolute difference is 24.19 percentage points between

⁸ As a robustness test, we also consider alternative classifications provided by the Federal Statistical Office (Federal Statistical Office, 2025b). Figures B1, B2, B3, and B4 show maps of urban and rural municipalities according to the different classifications over time. We prefer the classification based on population size and density because its rules are transparent and remain consistent over time.



Notes: The figure shows scatter plots comparing the share of yes votes between two distinct voter subgroups per characteristic in 270 referenda. Blue dots denote referenda in which the majority of the two subgroups voted the same (both $\geq 50\%$ or both $< 50\%$ yes). Red triangles indicate referenda in which the groups' majorities differ. The dashed 45° line indicates perfect agreement.

Figure 1: Referendum decisions across groups of voters by demographic characteristics and political orientation

left and center voters (correlation 0.442), 16.72 percentage points between right and center voters (0.617), and 38.36 percentage points between left and right voters (-0.216).

Turning to legislators, we collect data on roll-call votes, gender, age, education, and place of residence for 927 members of the Swiss National Council and the Swiss Council of States from 1990 to 2025 using the official web services of the Swiss Parliament (Parliamentary Services, 2025). For legislators serving before the 2015 elections, we identify place of residence through additional internet research using personal websites, party websites, and Swiss residence search engines. We define age, education, and residence categories analogously to the voter data. We do not observe legislators' private income, but we do observe their parliamentary compensation. Because parliamentary compensation alone already exceeds the Swiss median household income, we classify all legislators as above-median income earners. The income analysis is therefore restricted to testing whether legislators represent the preferences of high- and low-income voters to different degrees (Hypothesis 1). We do not report income results for the role of shared characteristics (Hypothesis 2). Legislators' political orientations are inferred directly from their party affiliations using the same left-center-right classification that we apply to voters.

Over the full period of analysis, women cast 28.4 percent of parliamentary decisions.⁹ This share rises from 17.4 percent during the 1991–1995 term to 37.3 percent in the 2023–2027 term. Legislators older than 50 cast 65.4 percent of decisions, and the average age of legislators when casting their vote is 52.7 years. Legislators with at least a bachelor’s degree cast 64.0 percent of decisions, up from 57.1 percent in the 1991–1995 term to 68.8 percent in the 2023–2027 term. All parliamentary decisions are made by above-median income earners. Legislators living in urban municipalities cast 75.5 percent of decisions, compared with 66.1 percent in the 1991–1995 term and 77.9 percent in the 2023–2027 term. By party affiliation, legislators from left parties cast 31.1 percent of decisions, legislators from center parties cast 42.8 percent, and legislators from right parties cast 25.9 percent.

Just as for the voters, legislators’ policy decisions in parliament vary systematically with these demographic characteristics. Figure B5 in the appendix presents a figure analogous to Figure 1, showing the share of yes votes among legislators with opposing demographic characteristics and political orientation.

To further assess the role of shared demographic characteristics in substantive representation, we also use the *individual-level* post-referendum survey data of voters. Rather than matching legislators’ decisions to aggregated preferences of voter groups, we combine individual-level legislator and voter data. The voter data comprise 248,039 individual voting records from all 270 referenda. Combining these records with the legislator data yields 53,276,829 legislator-voter matches.

3.3 Measurement and empirical strategy

For our empirical analysis, we combine individual legislators’ parliamentary decisions (yes vs. no) with the majority votes (yes vs. no) of different voter groups g (e.g., women and men) in referendum r . This allows us to identify, for each referendum, which legislators voted in line with the majority preference of a given voter group and whether those legislators shared the group’s demographic characteristics and political orientation.

Our key variables are descriptive representation and substantive representation. We measure descriptive representation as the congruence (or alignment) between the characteristics of legislator i and voter group g when considering the legislative proposal underlying refer-

⁹All legislators are identified as either men or women.

endum r .¹⁰ We measure substantive representation as the congruence between legislator i 's decision and the majority vote of voter group g in referendum r , for a given demographic characteristic $c \in \{\text{gender, age, income, education, place of residence}\}$. Formally,

$$\text{Substantive congruence}_{igr}^{(c)} = 1[L_{ir} = V_{gr}^{(c)}],$$

where L_{ir} is an indicator equal to 1 if legislator i votes yes on the legislative proposal underlying referendum r , and 0 otherwise. $V_{gr}^{(c)}$ is an indicator equal to 1 if the majority of voter group g , defined by demographic characteristic c , voted yes in referendum r , and 0 otherwise. The binary voter groups g are defined along the five demographic characteristics introduced above: gender (female, male), age (old, young), income (high, low), education (high, low), and place of residence (urban, rural). Within each characteristic, the two groups are mutually exclusive and jointly exhaustive. We discuss the implications of this binary measure in Sections 4.2.3 and 5, where individual-level voter data and preference-divergence subsamples address concerns about within-group heterogeneity and preference intensity.

Our measure captures one dimension of substantive representation: whether legislators' final votes on salient referendum proposals align with voter group preferences. It does not capture other channels, such as agenda setting, committee work, or deliberation. The advantage of focusing on vote congruence in referenda is that it provides a particularly demanding test. If shared demographic characteristics do not improve substantive representation on these highly visible proposals, the social identity view receives little support in the setting where it should matter most.

3.3.1 Average substantive representation of voter groups

To assess whether substantive representation differs between the two voter subgroups of a demographic characteristic, we estimate the following models separately for each demographic characteristic $c \in \{\text{gender, age, income, education, place of residence}\}$:

$$\text{Substantive congruence}_{igr}^{(c)} = \Lambda\left(\alpha^{(c)} + \gamma^{(c)}\text{Subgroup}_g^{(c)} + X'_{igr}\rho^{(c)} + \mu_i + \kappa_r\right), \quad (1)$$

¹⁰Formally, descriptive representation for demographic characteristic c can be defined as $\text{Descriptive congruence}_{igr}^{(c)} = 1[D_{ir}^{(c)} = G_{gr}^{(c)}]$, where $D_{ir}^{(c)}$ and $G_{gr}^{(c)}$ are indicators of whether legislator i and voter group g , respectively, possess characteristic c (e.g., being female), and zero otherwise. It equals 1 if legislator i and voter group g share the same characteristic and 0 otherwise.

where $\Lambda(\cdot)$ denotes the logit link function. The explanatory variable $Subgroup_g^{(c)}$ is a voter subgroup indicator that identifies the voter subgroup within the demographic characteristic c for which congruence is measured. It equals one if voter group g belongs to the first subgroup (female, older, higher education, higher income, or urban) and zero if it belongs to the second subgroup (male, young, low education, low income, or rural). The coefficients $\gamma^{(c)}$ capture the average difference in congruence between the two mutually exclusive subgroups of characteristic c while holding the legislator constant. A statistically significant $\gamma^{(c)}$ indicates that substantive representation differs between the two voter subgroups within characteristic c , thus providing evidence in favor of Hypothesis 1a for that characteristic. By contrast, an insignificant $\gamma^{(c)}$ is consistent with Hypothesis 1b.

In our estimations, we include legislator fixed effects (μ_i) and referendum fixed effects (κ_r) to account for time-invariant legislator characteristics and referendum-specific voting behavior. We can include legislator fixed effects because we compare how the same legislator represents different demographic groups of voters. Thus, Equation 1 assesses whether shared demographic characteristics increase substantive representation *beyond* shared political orientation and other time-invariant legislator characteristics. X_{igr} captures additional control variables. Assuming voter group g 's preferences reflect constituents' general preferences, we condition Equation 1 for congruence between the majority preference of voter group g and the majority preference of legislator i 's geographical constituency. Differences in substantive representation may further result from differences in participation. We control for this by accounting for group-specific referendum turnout, which we calculate using the post-referendum survey data.

3.3.2 Substantive representation and shared characteristics

We next assess whether legislators more closely represent the preferences of voter groups with whom they share a demographic characteristic. We again use substantive congruence as our measure of representation, but now we focus on whether it varies with demographic congruence. We estimate the following model separately for each voter group $g \in \{\text{female, male, old, young, high education, low education, high income, low income, urban, rural}\}$:

$$\begin{aligned} \text{Substantive congruence}_{igr}^{(g)} = & \Lambda \left(\alpha^{(g)} + \beta^{(g)} \text{Descriptive congruence}_{igr}^{(g)} + \right. \\ & \left. X_{igr}^{(g)} \rho^{(g)} + \nu_{p(i)}^{(g)} + \phi_{ch(i)}^{(g)} + \psi_{ca(i)}^{(g)} + \kappa_r^{(g)} \right), \end{aligned} \quad (2)$$

where the main explanatory variable, *descriptive congruence*_{igr}^(g), is an indicator equal to 1 if legislator *i* shares the demographic characteristic of voter group *g* for which *Substantive congruence*_{igr}^(g) is measured, and 0 otherwise. The coefficient $\beta^{(g)}$ captures whether legislators who belong to *the same* demographic subgroup as voter group *g* are more likely to vote in line with that group's majority vote in referendum *r*. A positive (negative) $\beta^{(g)}$ indicates higher (lower) congruence among legislators who share demographic characteristics with the voter group under consideration. A statistically significant $\beta^{(g)}$ indicates that legislators represent voter group *g* differently depending on whether they share that group's demographic characteristic, thus providing evidence in favor of Hypothesis 2a for that group. An insignificant $\beta^{(g)}$ is consistent with Hypothesis 2b.¹¹ We control for alignment between the majority preference of voter group *g* and the majority preference in legislator *i*'s constituency. In addition, we include referendum fixed effects ($\kappa_r^{(g)}$) as well as fixed effects for the legislator's party wing ($\nu_{p(i)}^{(g)}$), chamber ($\phi_{ch(i)}^{(g)}$), and canton ($\psi_{ca(i)}^{(g)}$). Referendum fixed effects absorb proposal-specific voting behavior, while party-wing, chamber, and canton fixed effects account for systematic differences in representation associated with legislators' ideological location, institutional setting, and territorial constituency. This specification isolates whether shared demographics contribute to substantive representation beyond these politically and institutionally salient factors.

To complement the analysis based on aggregated post-referendum survey data and to exploit the full potential of our data, we also link individual-level legislative decisions to individual-level post-referendum survey responses. The group-level approach in Equation 2 has the advantage of yielding coefficients that are straightforward to interpret and efficiently estimated. However, by relying on aggregated voter group preferences, we may lose informative within-group heterogeneity, particularly regarding political orientation and preference intensity. To address this concern, we additionally match individual legislators' decisions to

¹¹Unlike Equation 1, which compares *average* substantive representation across the two subgroups within a demographic characteristic *c*, Equation 2 relates congruence to whether the legislator belongs to that group's *g* demographic in-group or not.

the voting records reported by individual VOX survey participants. This allows us to analyze vote congruence across 53,276,829 legislator-voter pairs, based on 927 unique legislators matched to 248,039 unique voters. Analogous to Equation 2, we estimate the following model separately for each voter group g :

$$\begin{aligned} \text{Vote congruence}_{ijr}^{(g)} = & \Lambda \left(\alpha^{(g)} + \delta^{(g)} \text{Descriptive congruence}_{ijr}^{(g)} + \right. \\ & \left. X_{ijr}^{(g)} \rho^{(g)} + \nu_{p(i)}^{(g)} + \xi_{p(j)}^{(g)} + \phi_{ch(i)}^{(g)} + \psi_{ca(i)}^{(g)} + \kappa_r^{(g)} \right), \end{aligned} \quad (3)$$

where $\text{Vote congruence}_{ijr}^{(g)}$ is an indicator equal to 1 if legislator i casts the same vote on the policy proposal underlying referendum r as individual voter j , and 0 otherwise. The explanatory variable $\text{descriptive congruence}_{ijr}^{(g)}$ is an indicator equal to 1 if legislator i and voter j belong to the same demographic group g , and 0 otherwise. The coefficient $\delta^{(g)}$ has the same interpretation as $\beta^{(g)}$ in Equation 2: positive (negative) values indicate higher (lower) congruence between legislators and individual voters who share the same demographic characteristic.

The advantage of this specification relative to Equation 2 is that the individual-level voter data allow us to account directly for voters' political orientation through voter party-wing fixed effects ($\xi_{p(j)}^{(g)}$), i.e., we account for the political orientation of individual voters. This is necessary because political orientation is correlated with demographic characteristics and may predict substantive representation. Conditioning on voters' political orientations, therefore, reduces the risk that shared demographics merely proxy for ideological alignment. As a result, $\delta^{(g)}$ captures whether shared demographics are associated with substantive representation, net of ideological alignment.

Table A2 in the appendix reports the number of observed legislators and voters by demographic characteristic for each referendum.

4 Results

This section presents four main findings. First, demographic groups differ sharply in their descriptive representation in parliament. Second, these differences are not mirrored by similarly large differences in substantive representation. Third, legislators do not systematically represent voters who share their demographic characteristics more closely than legislators with opposing characteristics do. Fourth, shared political orientation between legislators and voters

is strongly associated with higher substantive representation. Taken together, these findings suggest that substantive representation is predicted primarily by political orientation, as emphasized by the *ideology view*, rather than by demographic similarity, as emphasized by the *social identity view*.

4.1 Descriptive and substantive representation across voter groups

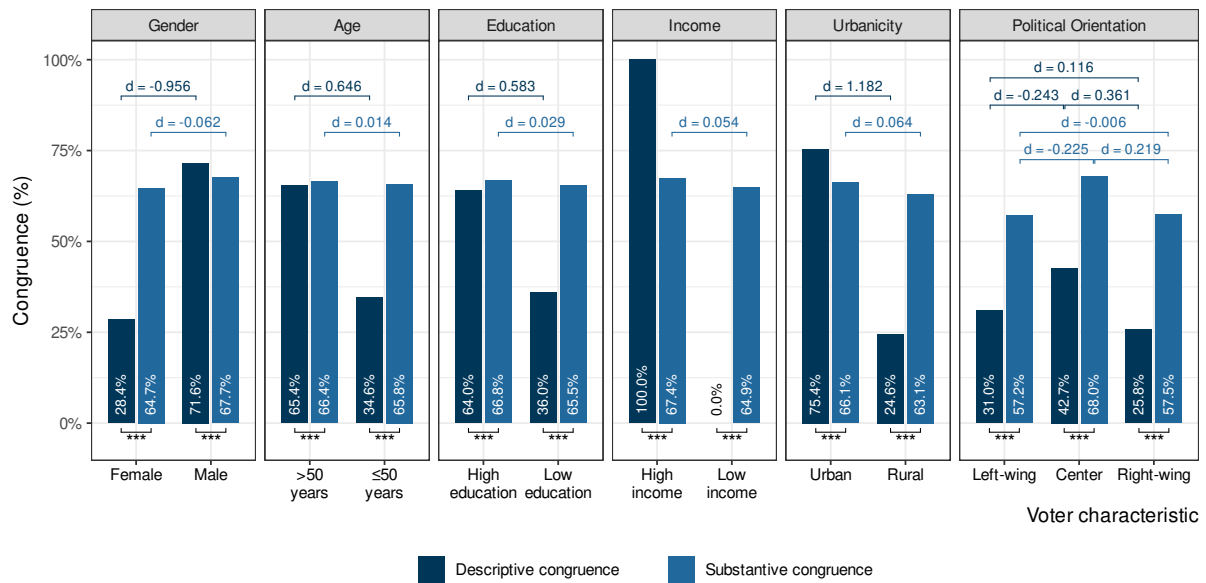
4.1.1 Descriptive evidence

Looking at the raw averages in Figure 2, we see that demographic groups differ substantially in their descriptive representation in parliament but only modestly in their substantive representation. The dark blue bars show descriptive representation, measured as the proportion of parliamentary decisions made by legislators with a certain demographic characteristic. The light blue bars show substantive representation, measured as vote congruence defined above.¹²

The dark blue bars and the brackets above them reveal major differences in descriptive representation across demographic voter groups. Women account for only 28.45 percent of parliamentary decisions, whereas men account for 71.56 percent ($\Delta = -43.11$; $d = -0.956$). Legislators aged 50 and above cast 65.36 percent of all votes, compared with 34.64 percent cast by legislators below the age of 50 ($\Delta = 30.73$; $d = 0.646$). Legislators with a bachelor's degree or higher cast 63.99 percent of votes, whereas those with lower educational attainment cast 35.98 percent ($\Delta = 28.01$; $d = 0.583$). All parliamentary decisions in our sample were made by legislators with incomes above the median household income. Finally, legislators living in urban municipalities account for 75.44 percent of all parliamentary decisions, while legislators from rural municipalities account for only 24.56 percent ($\Delta = 50.89$; $d = 1.182$). Figure B9 in the appendix shows that the findings are qualitatively stable over time across legislative periods. Figure B7 in the appendix reports pairwise differences in descriptive representation across all observed characteristics and their statistical significance.

The light blue bars in Figure 2 show the average probability that *all* legislators vote in line with the majority preference of a given demographic voter group. In contrast to the large differences in descriptive representation, the differences in substantive representation are modest. On average, legislators align with the majority preferences of female voters in 64.73 percent

¹²Our main measures of representation are decision-based. We adopt this approach because it captures representation through actual legislative choices and accounts for variation in the number of decisions cast by legislators. An alternative would be a person-based measure, calculating descriptive representation as the share of legislators with a given characteristic and substantive representation as the average congruence across these legislators' decisions. Figure B6 in the appendix shows that this approach yields similar results.



Notes: The figure shows the congruence between the characteristics and the decisions of legislators and voters. Descriptive representation is measured as alignment between the characteristics of voter group g and those of legislator i when voting on the policy proposal behind referendum r (dark blue bars). Substantive representation is measured as alignment between an individual legislator i 's decision on the policy proposal behind referendum r and the majority decision of the voters with characteristic g in the identical referendum r as given in (light blue bars). Cohen's d values above the bars, p -values below, where *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$. Table A3 in the appendix presents formal results.

Figure 2: Substantive and descriptive representation by voter characteristics

of votes and with those of male voters in 67.67 percent ($\Delta = -2.94$; $d = -0.062$). They align with the preferences of voters aged 50 and above in 66.43 percent of votes and with those of voters below age 50 in 65.78 percent ($\Delta = 0.65$; $d = 0.014$). Substantive representation is 66.83 percent for voters with a bachelor's degree or higher and 65.45 percent for voters without a bachelor's degree ($\Delta = 1.38$; $d = 0.029$). The preferences of above-median-income voters are represented in 67.44 percent of parliamentary decisions, while those of below-median-income voters are represented in 64.88 percent ($\Delta = 2.56$; $d = 0.054$). Finally, legislators align with the preferences of urban voters in 66.11 percent of votes and with those of rural voters in 63.06 percent ($\Delta = 3.05$; $d = 0.064$). Also, the findings for substantive representation are stable over time and hold for all pairwise comparisons, as Figures B8 and B9 in the appendix show.

Figure 2 also shows that descriptive and substantive representation differ markedly from one another. Across all demographic characteristics, the share of parliamentary decisions cast by legislators with a given demographic characteristic differs substantially from the share of decisions that align with the majority preference of voters with that demographic characteristic. For example, although women cast only 28.45 percent of parliamentary decisions, 64.73 percent of all parliamentary decisions align with the majority preference of female voters. Thus, large inequalities in the demographic composition of parliament do *not* correspond to

similarly large inequalities in substantive representation. Table A3 in the appendix reports the corresponding formal results.

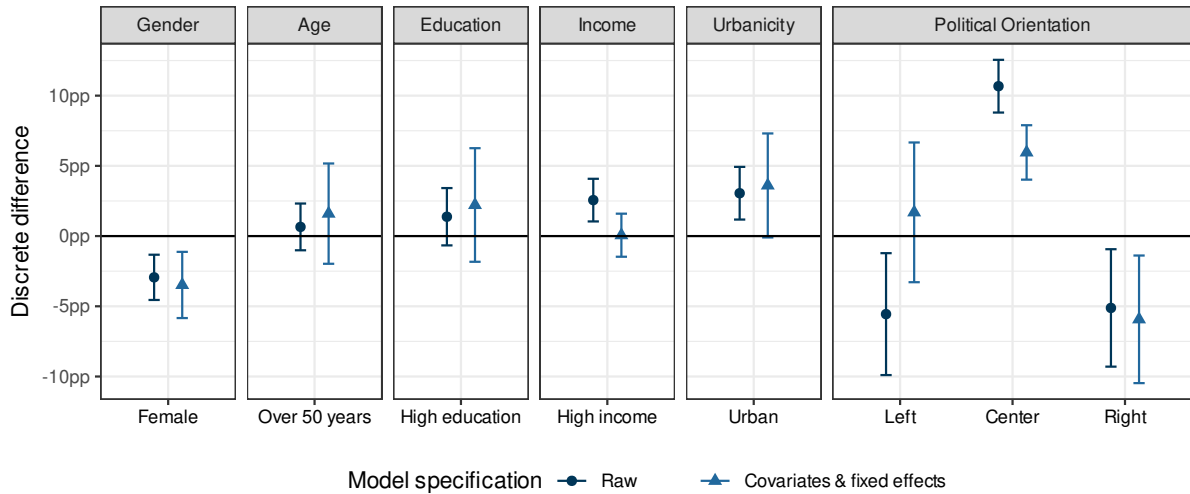
The results change markedly when grouping voters by political orientation in Figure 2. Although descriptive representation also differs across ideological groups, these differences are now mirrored in substantive representation. Consistent with spatial models of electoral competition, both descriptive and substantive representation are highest for center voters and lower for left and right voters. Most parliamentary decisions are cast by center legislators (42.65%), and the preferences of center voters are also best represented on average (67.98%). By contrast, both descriptive and substantive representation are lower for left voters (31.02%; 57.16%) and right voters (25.80%; 57.46%).

This first set of results suggests that substantive representation varies little across demographic voter groups, despite large differences in their descriptive representation. At the same time, the results for political orientation indicate that substantive representation tracks ideological representation much more closely. Because the evidence so far relies on raw averages, we estimate Equation 1 to assess whether these results persist after accounting for referendum-specific factors, legislator voting tendencies, turnout, and constituency alignment.

4.1.2 Empirical evidence

Figure 3 reports the discrete effects associated with the coefficient $\gamma^{(c)}$ on the indicator *Subgroup* in Equation 1, which distinguishes between the two mutually exclusive voter groups within each characteristic. We report estimates from a specification without controls or fixed effects (dark blue dots) and from the full specification in Equation 1, which includes legislator and referendum fixed effects, voter-group-specific turnout, and voter-group-constituency alignment (light blue triangles). Positive values indicate that legislators are more likely to vote in line with the subgroup named on the x-axis than with the corresponding comparison subgroup. Table A5 provides regression results for completeness.

The estimates confirm the previously presented descriptive findings in Figure 2. Legislators represent the preferences of the two voter groups equally for all demographic characteristics except gender, even after accounting for turnout, constituency alignment, legislator fixed effects, and referendum fixed effects. The only statistically significant difference is that legislators are, on average, 3.48 percentage points less likely to vote in line with the majority



Notes: The figure shows the estimated differences and 95% confidence intervals in substantive representation between the voter subgroups per characteristic. Positive values indicate greater alignment of the legislators' decisions with the voters with the mentioned characteristic than with voters with the opposite characteristic. Light blue triangle estimates are based on logit models with legislator and referendum fixed effects, control variables for voter group turnout, and congruence between voter group and district majority votes. Dark blue dot estimates are based on logit models without any additional terms. Robust standard errors are clustered at both the politician and referendum levels. See Table A1 for subgroup definitions and Table A5 for formal regression results.

Figure 3: Substantive representation across voter groups—Estimation results

preference of female voters than with that of male voters¹³. By contrast, we find no significant differences in the substantive representation of older versus younger voters, higher- versus lower-educated voters, above- versus below-median-income voters, or urban versus rural voters.

Despite large differences in descriptive representation, substantive representation varies little across demographic voter groups. The one exception is gender. This may reflect female voters leaning more to the left than male voters (see Funk and Gathmann, 2015; Pew Research Center, 2024), while the Swiss parliament is more centrist and right-leaning. In proposals where male and female voters disagree, female voters often hold a majority position that is outside the legislative majority. Overall, legislators' parliamentary decisions are largely insensitive to demographic differences in voter preferences.

The results differ markedly when voters are grouped by political orientation. The right panel of Figure 3 shows that legislators are, on average, 5.96 percentage points more likely to vote in line with the majority preference of center voters than with that of left and right voters. They are 5.93 percentage points less likely to vote in line with the majority preference of right voters than with that of left and center voters. By contrast, the probability that legislators

¹³With an average congruence of 67.67 percent with the male electorate and 270 referenda examined, legislators aligned with the preferences of the majority of the male electorate in 183 referenda and the preferences of the majority of the female electorate in 173 referenda.

vote in line with the majority preference of left voters does not differ significantly from the probability of aligning with center and right voters. These ideological differences exceed the differences observed for demographic characteristics to a large degree and are consistent with spatial models of electoral competition, according to which legislators respond primarily to ideologically rather than demographically defined segments of the electorate.

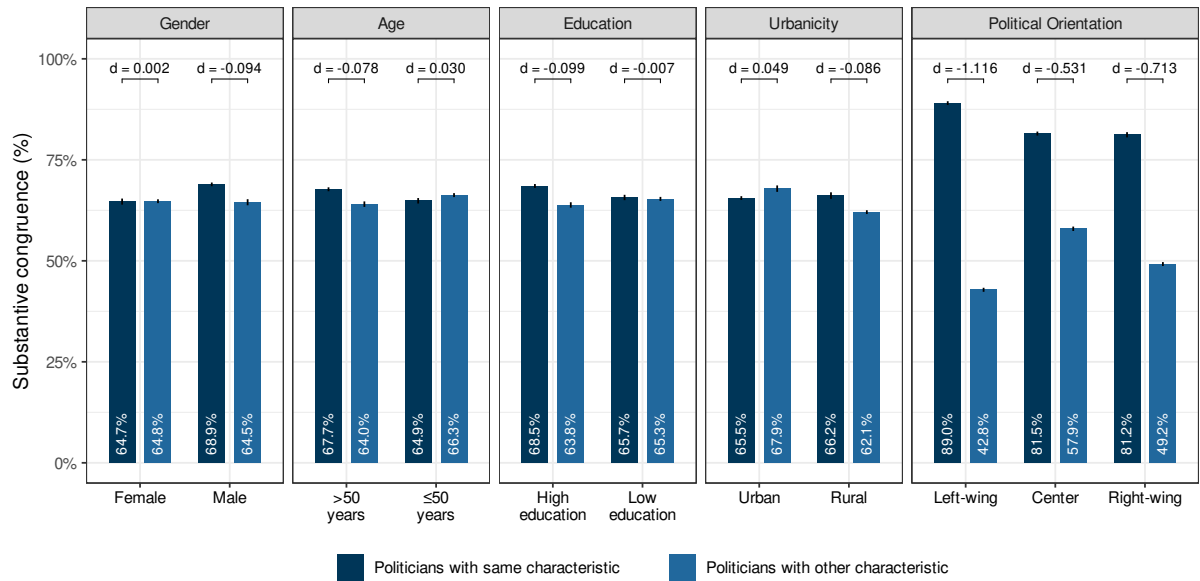
In summary, the results so far provide little support for Hypothesis 1a and the *social identity view*, as substantive representation differs little, if at all, across demographic voter groups. Instead, the findings are more consistent with the *ideology view* of representation. While substantive representation is largely uniform across demographic groups, it varies meaningfully across ideological groups.

4.2 Substantive representation and shared demographic characteristics

4.2.1 Descriptive evidence

So far, we have examined how legislators *in general* represent the preferences of different voter groups. We now turn to the central question of whether *shared* characteristics between legislators and voters matter for substantive representation. Figure 4 compares how well the preferences of each voter group are represented by legislators who share that group's characteristic (dark blue bars) and by legislators with the opposing characteristic (light blue bars).

The raw averages provide little support for Hypothesis 2a. Legislators do not systematically represent voter groups better when they share the same demographic characteristic. Female legislators' parliamentary decisions align with the majority preferences of female voters in 64.66 percent of votes, while male legislators' decisions do so in 64.76 percent of votes ($\Delta = 0.096$; $d = 0.002$). Conversely, congruence with the majority preferences of male voters is 64.50 percent for female legislators and 68.93 percent for male legislators ($\Delta = -4.426$; $d = -0.094$). For voters aged 50 and above, preference congruence is 67.71 percent among legislators aged 50 or older and 64.02 percent among younger legislators ($\Delta = -3.688$; $d = -0.078$), whereas the preferences of younger voters align with 64.86 percent of the decisions of younger legislators and 66.27 percent of the decisions of older legislators ($\Delta = 1.406$; $d = 0.030$). With respect to education, legislators with a bachelor's degree or higher align with the preferences of highly educated voters in 68.52 percent of cases, compared to 63.83 percent for less educated legislators ($\Delta = -4.698$; $d = -0.099$). However, legislators without a bachelor's degree

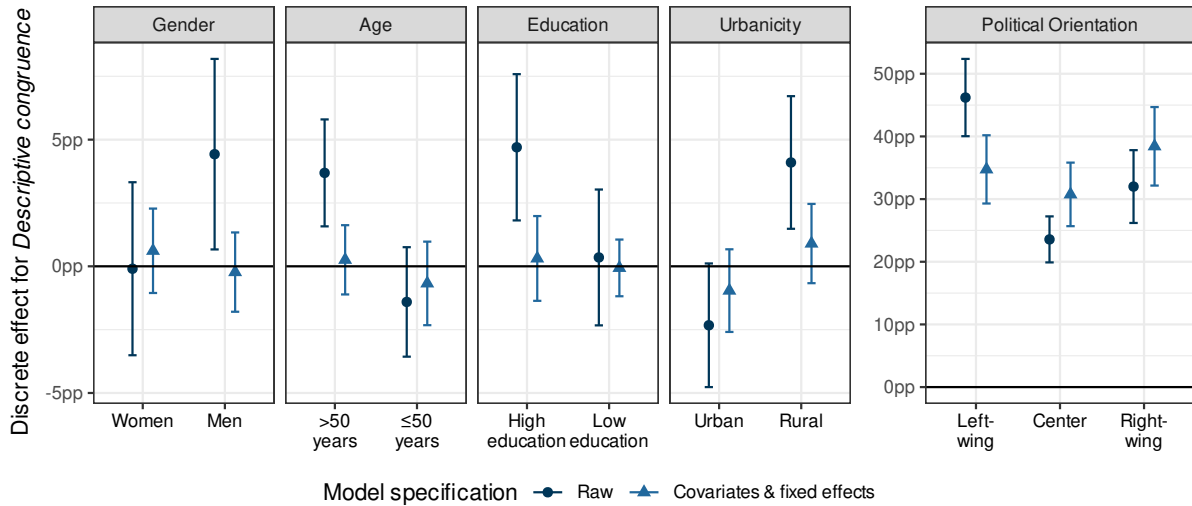


Notes: The figure shows the congruence between legislators' decisions and voters' preferences, with the same (dark blue bars) or opposite (light blue bars) characteristic. Preference congruence is measured as alignment between an individual legislator i 's decision on the policy proposal behind referendum r and the majority decision of voter group g in the identical referendum r . Table A4 in the appendix presents formal results.

Figure 4: Substantive representation of voter groups by legislators with shared and opposing characteristics

align with the preferences of less educated voters in 65.68 percent of cases, compared to 65.33 percent for highly educated legislators ($\Delta = -0.350$; $d = -0.007$). We cannot assess whether below- and above-median-income voters are represented differently by legislators with matching incomes, because all legislators in our sample fall into the above-median-income category. Finally, urban legislators align with the preferences of urban voters in 65.54 percent of cases, compared to 67.87 percent for rural legislators ($\Delta = 2.327$; $d = 0.049$). Similarly, 66.15 percent of rural legislators' decisions and 62.05 percent of urban legislators' decisions align with the majority preferences of rural voters ($\Delta = -4.099$; $d = -0.086$).

Taken together, these raw comparisons do not reveal a consistent in-group advantage in the substantive representation of voters who share the same demographic characteristic as politicians. If shared demographic characteristics systematically improved substantive representation, we would expect legislators to align more closely with the voter groups to which they belong. Instead, the descriptive evidence suggests that any such relationship is weak and not systematic across characteristics. Pairwise comparisons across all voter and legislator groups support this conclusion. Figure B10 in the appendix presents a heat map of substantive representation, with each cell reporting the congruence between a voter group's preferences (x-axis) and the decisions of a legislative group (y-axis).



Notes: The figure displays the discrete effects and 95% confidence intervals relating congruence between legislators' policy decisions and voter groups' majority preferences to an indicator for shared demographic characteristics. Dark blue dots report estimates from a raw specification without controls or fixed effects, while light blue triangles report estimates from the full specification, including canton, council type, party wing, and referendum fixed effects. Robust standard errors are clustered at the politician and referendum level. Table A6 in the appendix reports the corresponding regression results.

Figure 5: Substantive representation by legislators with shared and opposing characteristics—Estimation results

Whereas shared demographic characteristics are only weakly related to substantive representation, shared political orientation is strongly associated with it. The right panel of Figure 4 compares congruence between legislators and voters who share the same political orientation with congruence between voters and legislators with different political orientations. Left legislators align with left voters in 89.03 percent of votes, compared to 42.83 percent for center and right legislators ($\Delta = -46.203$; $d = -1.116$). Center legislators align with center voters in 81.50 percent of votes, compared to 57.93 percent for legislators with other political orientations ($\Delta = -23.568$; $d = -0.531$). Right legislators align with right voters in 81.20 percent of votes, compared to 49.20 percent for legislators with different political orientations ($\Delta = -32.000$; $d = -0.713$). Thus, unlike shared demographic characteristics, shared political orientation is associated with a large and systematic increase in substantive representation.

4.2.2 Empirical evidence

To assess whether these differences persist once we account for referendum-specific and institutional factors, we next turn to regression analyses. Figure 5 reports the discrete effects from Equation 2, comparing how well voter groups are substantively represented by legislators who share their respective demographic characteristics in comparison to legislators who do not. We show estimates from a raw specification without controls or fixed effects (dark

blue dots) and from a full specification including referendum, canton, and legislative-house fixed effects, as well as party-wing fixed effects (light blue triangles).¹⁴ Positive values indicate greater congruence between legislators' decisions and voter preferences when both share the same characteristic.

The uncontrolled discrete effect estimates suggest that shared demographic characteristics are associated with somewhat higher substantive representation for male, older, highly educated, and rural voters, i.e., male legislators substantively represent male voters somewhat better than female voters when not accounting for covariates. These associations completely disappear once we account for referendum- and canton-specific factors and, crucially, for the correlation between legislators' demographic characteristics and political orientation. The fully controlled estimates indicate that legislators do not systematically represent the preferences of voters with whom they share demographic characteristics more closely than legislators who do not share these characteristics. For example, female legislators are no more likely to vote in line with female voters than male legislators are, and analogous null results emerge for age, education, and place of residence.

By contrast, shared political orientation remains strongly associated with substantive representation. The right panel of Figure 5 shows that left legislators are 34.74 percentage points more likely to vote in line with the majority preference of left voters than legislators with different political orientations are. The corresponding association is 30.75 percentage points for center legislators and 38.42 percentage points for right legislators. The findings indicate that shared political orientations are strongly and robustly associated with substantive representation, whereas shared demographics are not.

We also examine whether the results are stable over time. We estimate Equation 2 separately for earlier (periods 44–47, 1991–2011) and more recent (periods 48–52, 2011–2027) legislative terms and report results in Table A7 in the appendix. The null result holds across both subperiods. Two slight exceptions emerge when groups are in a stark descriptive minority. In early periods, female legislators represent female preferences more closely than male legislators do. In later periods, rural legislators represent rural voter preferences more closely than urban legislators do. Neither effect is large, and the overall pattern remains one of near-zero demographic congruence effects throughout the sample period.

¹⁴We cannot include legislator fixed effects because there is only very limited within-legislator variation in demographic characteristics or political orientation.

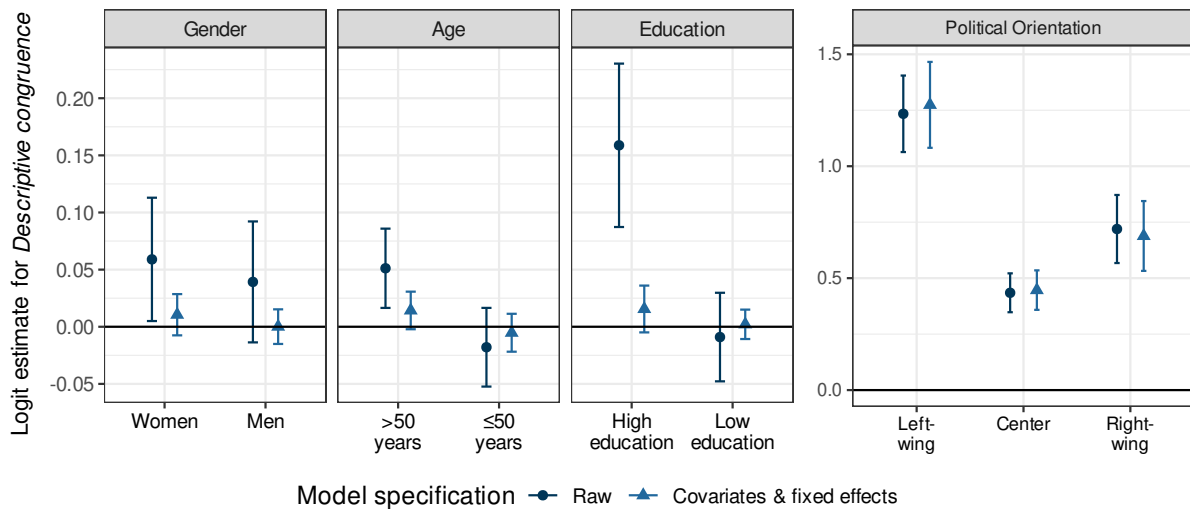
Taken together, the evidence is more consistent with Hypothesis 2b than with Hypothesis 2a, providing support for the *ideology view* of representation. Shared demographic characteristics contribute little to substantive representation, especially once political orientation is taken into account.

4.2.3 Individual-level evidence

We further examine whether individual legislators represent the preferences of individual voters with whom they share demographic characteristics differently from legislators who do not. To do so, we use *individual-level* post-referendum survey data. Instead of matching individual legislators' decisions to aggregated majority decisions of voter groups with different demographic characteristics, we now match each legislator's decision to each individual respondent's vote in a given referendum. As before, we only consider yes and no votes from legislators and voters. This yields a dataset of 53,276,829 legislator-voter pairs, which we use to estimate Equation 3 as outlined in Section 3.3.2. This individual-level approach addresses the possibility that aggregate preferences mask substantial heterogeneity within demographic groups. By using individual voter data, we can account directly for voter-level covariates, most importantly political orientation, and capture differences in the intensity and distribution of preferences within groups.¹⁵

Figure 6 reports the estimated coefficients from a raw specification without controls or fixed effects (dark blue dots) and from a specification that includes referendum, legislator party-wing, legislative-house, canton, and voter party-wing fixed effects (light blue triangles). The estimates confirm our earlier results. In the raw specifications, older and highly educated legislators appear to represent voters with whom they share these demographic characteristics somewhat more closely than legislators with opposing characteristics. However, these differences disappear once we account for referendum-specific factors and legislator and voter covariates. All coefficient estimates are close to zero and are not statistically significantly different from zero, though they have reasonably small confidence intervals. The fully controlled estimates provide little evidence that shared demographic characteristics are systematically associated with higher substantive representation.

¹⁵Because the role of place of residence was previously measured using official municipality-level referendum results rather than post-referendum surveys, and because the surveys do not report respondents' residence, the individual-level analysis focuses on gender, age, education, and political orientation.



Notes: The figure displays logit estimates and 95% confidence intervals relating the congruence between legislators' policy decisions and individual voter preferences to an indicator for shared characteristics. Dark blue dots report estimates from a raw specification without controls or fixed effects, while light blue triangles report estimates from the full specification, including canton, council type, politician party wing, voter party wing, and referendum fixed effects when assessing demographic characteristics and canton, council type, and referendum fixed effects when assessing political orientations. Robust standard errors are clustered at the politician and referendum level. Table A13 in the appendix reports the corresponding regression results.

Figure 6: Substantive representation by legislators with shared and opposing characteristics—Estimations using matches with individual voter data

We perform the same analysis for shared political orientation using individual-level voter data. Consistent with the results in sections 4.1 and 4.2, the right panel of Figure 6 shows that legislators are substantially more likely to vote in line with voters who share their political orientation than legislators with different political orientations. This association is strongest for left orientations, followed by right and center orientations.

The individual-level analysis is consistent with the finding that substantive representation is at most weakly associated with shared demographics, and that any such differences disappear once covariates are taken into account. By contrast, substantive representation remains strongly associated with shared political orientations.

5 Scope conditions for demographic representation

We examine the conditions under which our findings hold and their robustness in two ways. First, we examine settings in which legislators face weaker incentives to respond to electorally pivotal voters, allowing them to represent narrower constituencies, such as their demographic peers. Second, we focus on referenda in which the two groups defined by a demographic characteristic hold opposing majority preferences, so that representing one group necessarily implies *not* representing the majority of the other. Both analyses make the empirical test more

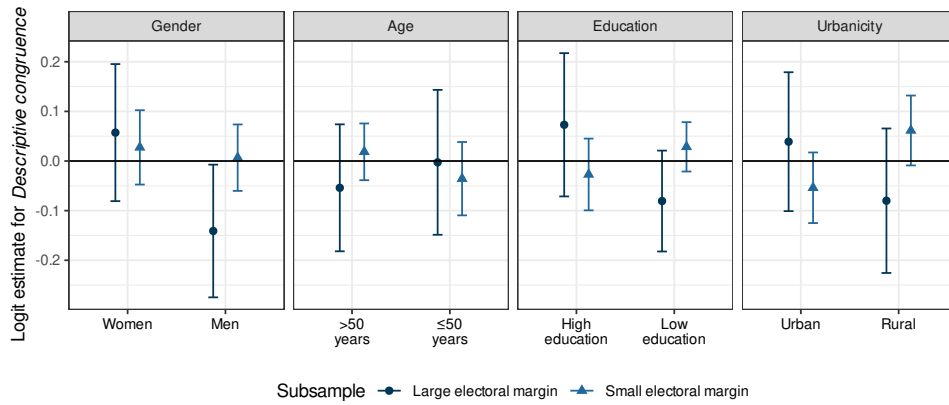
demanding for the *ideology view* and offer conditions under which the *social identity view* is more likely to apply.

5.1 Electoral constraints

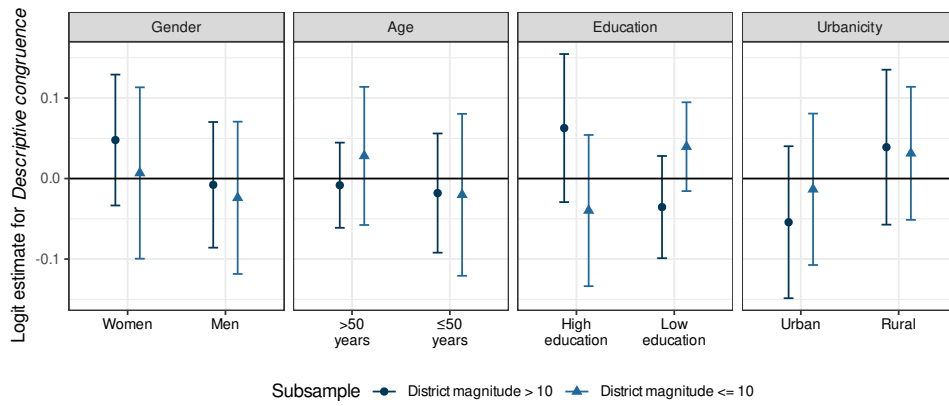
Electoral competition creates incentives that shape legislators' behavior (Duggan and Martinelli, 2017; Portmann, Stadelmann, and Eichenberger, 2022). Under intense competition, legislators have strong incentives to appeal to electorally pivotal voters, who are more plausibly defined along ideological than demographic lines. When electoral constraints weaken, however, legislators are less tightly bound to broad electoral demand and are better able to focus on representing narrower constituencies, including voters who share their demographic characteristics.

To assess this possibility, we examine whether the relationship between shared demographic characteristics and substantive representation varies with four determinants of electoral constraints: incumbency advantages, district magnitude, reelection incentives, and time in parliament. Narrow electoral margins, small districts, and strong reelection incentives should push legislators toward electorally decisive segments of the electorate, thereby limiting the scope for representing demographic peers. Conversely, large incumbency advantages, large districts, final terms, and extensive parliamentary experience should relax these constraints and provide more leeway to focus on demographics.

We begin with incumbency advantages. Specifically, we compare legislators facing weaker and stronger electoral constraints, proxied by high and low previous vote margins (Dropp and Peskowitz, 2012; Henderson and Brooks, 2016). The intuition is that legislators with larger vote margins should be less dependent on marginal voters and, therefore, more able to represent the preferences of voters who share their demographic characteristics. We measure legislators' vote margins using the approach proposed by Luechinger et al. (2024) and estimate our models separately for legislators whose vote margins lie above and below the third quartile. Figure 7a reports logit estimates with 95% confidence intervals for the relationship between shared demographic characteristics and substantive representation under weak and strong electoral competition based on Equation 2. The results provide little evidence that weaker electoral competition strengthens the role of shared demographic characteristics. The only exception is that male legislators elected by large vote margins are *less* likely to represent the preferences of male voters than female legislators are. This means that securely elected male



(a) Electoral competition



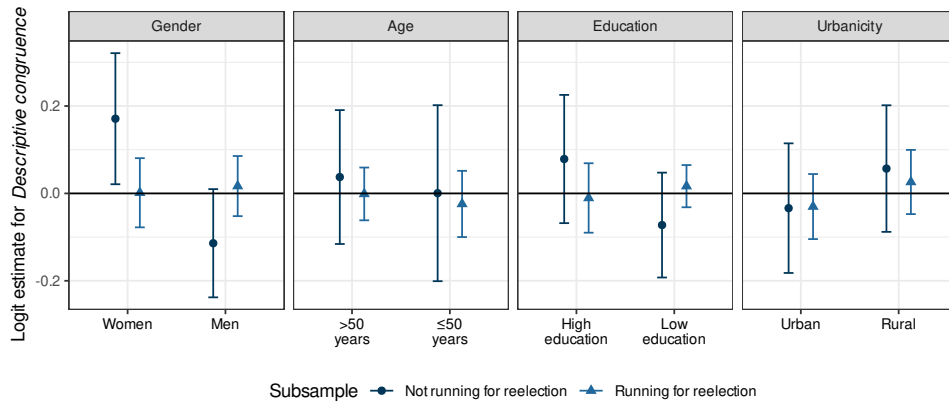
(b) District magnitude

Notes: The four subfigures display logit estimates and 95% confidence intervals that relate congruence between legislators' policy decisions and voter groups' majority preferences to shared demographic characteristics. Panel (a) compares legislators with large electoral margins in the previous election (above the third quartile) to those with low margins (below the third quartile). Panel (b) compares members of the National Council from large districts (more than ten seats) to members of the Council of States and National Council members from small districts (ten or fewer seats). All models include canton, council type, party wing, and referendum fixed effects, with standard errors clustered at both the politician and referendum levels. Tables A8 and A9 in the appendix report formal results.

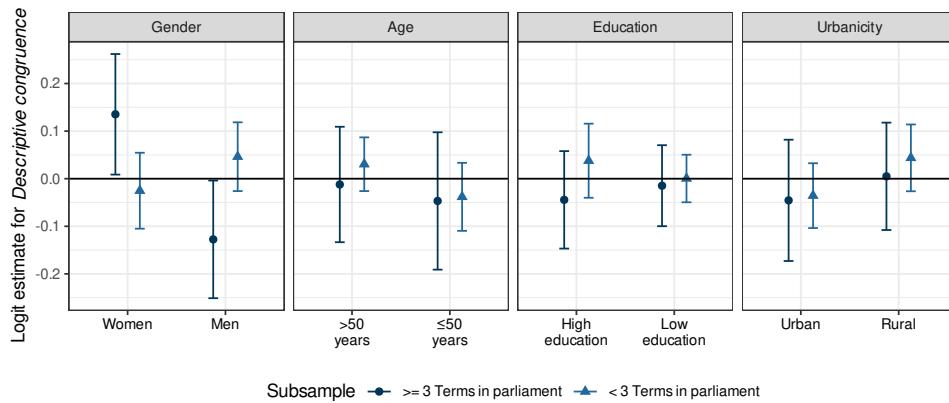
Figure 7: Substantive representation by legislators with shared and opposing characteristics–Scope conditions

legislators represent male voters, if anything, even worse. For all other demographic characteristics, legislators represent voter groups similarly, regardless of whether they share those characteristics, both under stronger and weaker electoral competition.

A second scope condition is district magnitude. In districts electing only a small number of representatives, centripetal forces may push legislators toward the median voter. In larger multi-member districts, by contrast, legislators may be able to secure election by appealing to narrower segments of the electorate, including demographic peers (Catalinac, 2018; Cox, 1990; Kläy, Portmann, et al., 2026; Stadelmann, Portmann, et al., 2019). If shared demographic characteristics matter for substantive representation, they should be more likely to do so in districts



(a) Final terms



(b) Terms in office

Notes: The four subfigures display logit estimates and 95% confidence intervals that relate congruence between legislators' policy decisions and voter groups' majority preferences to shared demographic characteristics. Panel (a) compares legislators not running for reelection to those running for reelection. Panel (b) compares legislators who have spent two or fewer terms in office to those who spent more than two terms in parliament when casting their vote. All models include canton, council type, party wing, and referendum fixed effects, with standard errors clustered at both the politician and referendum levels. Tables A10 and A11 in the appendix report formal results.

Figure 8: Substantive representation by legislators with shared and opposing characteristics—Scope conditions

with larger magnitudes. Yet, Figure 7b shows that this is not what we observe. District magnitude does not significantly alter the relationship between shared demographic characteristics and substantive representation. Legislators represent voter groups similarly, regardless of whether they share demographic characteristics with those groups.

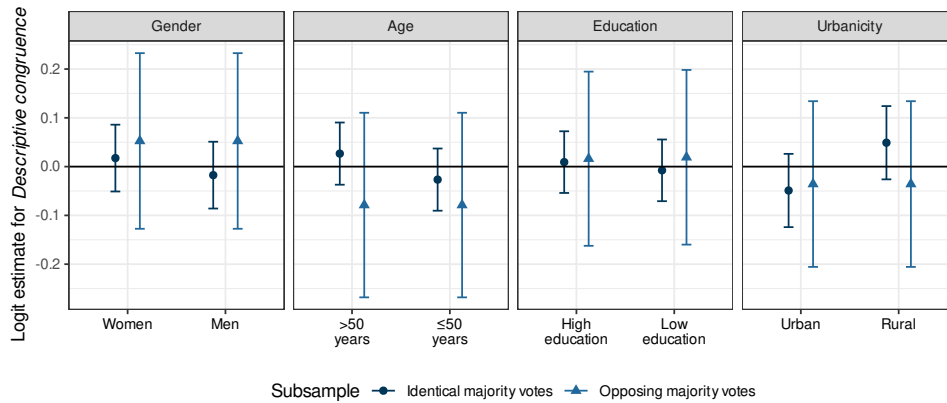
Third, we examine reelection incentives by distinguishing between legislators who seek reelection and those who do not. Theory and empirical evidence suggest that even limited retrospective voting gives legislators seeking reelection incentives to align with majority preferences. Legislators who are not seeking reelection may be more likely to pursue their own agendas, which may depend on their demographic characteristics. This could make them more

likely to represent voter groups with whom they share demographic characteristics (List and Sturm, 2006; Smart and Sturm, 2013).

Figure 8a, however, shows that reelection incentives do not systematically alter the relationship between shared demographic characteristics and substantive representation. The only exception is gender. Female legislators represent the preferences of female voters somewhat better when they are no longer constrained by reelection concerns. When seeking reelection, by contrast, female legislators do not represent women more closely than male legislators do. We do not observe this relationship for any other demographic characteristics. Thus, even when reelection incentives weaken, shared demographic characteristics generally do not correspond to higher substantive representation.

Finally, we examine legislative experience. More experienced legislators enjoy greater name recognition, stronger electoral security, and more autonomy within parliament, which could allow them to cater more easily to their demographic peers. We therefore distinguish between legislators who have served more than two terms in parliament and those who have served two or fewer terms at the time of voting. Figure 8b yields results similar to those for legislators who are not seeking reelection. Experienced female legislators represent the preferences of female voters somewhat better than male legislators do. By contrast, experienced male legislators are, if anything, *less* likely than female legislators to represent the preferences of male voters. For all other demographic characteristics, however, there is again no systematic evidence that experience affects the association between shared demographics and substantive representation.

Together, the results show that weak electoral incentives do little to strengthen the role of shared demographics for substantive representation. This is especially noteworthy because these are precisely the settings in which legislators have greater scope to represent narrower constituencies, including their demographic peers. Yet, even under these favorable conditions, shared demographic characteristics contribute little to substantive representation. Interaction estimates using our electoral-incentive proxies confirm the subsample analyses (see Panel C of Tables A8, A9, A10, and A11 in the appendix). The results reinforce the main message of the paper that sharing demographic characteristics has little effect on how well legislators represent voters' preferences, whereas sharing political orientation has a large effect.



Notes: The figure displays logit estimates and 95% confidence intervals that relate the congruence between legislators' policy decisions and voter groups' majority preferences to an indicator for shared demographic characteristics. Dark blue dots show estimates when limiting the dataset to referenda where the majority of the two voter groups voted the same. Light blue triangles show estimates when limiting the dataset to referenda where the majority of the two voter groups voted differently. Estimations use canton, council type, party wing, and referendum fixed effects, and robust standard errors clustered at both the politician and referendum levels. Table A12 in the appendix shows the formal results.

Figure 9: Substantive representation by legislators with shared and opposing characteristics—Opposing voter majority preferences

5.2 Divergence in group preferences

One reason why shared demographic characteristics may not empirically matter for substantive representation could be that many policy proposals do not divide voters along demographic lines. To examine whether shared demographics matter more when policies have a demographic dimension, we restrict the analysis to referenda in which the two voter groups within a demographic characteristic hold opposing majority positions. For example, proposals on which a majority of male voters agree and a majority of female voters disagree. This strategy allows us to identify policy proposals with a meaningful demographic cleavage directly from the referendum results themselves, without imposing *ex ante* assumptions about which issues should matter for which groups.

Figure 9 reports logit estimates with 95% confidence intervals for such restricted samples across different demographic dimensions. The results show that even when demographic groups clearly disagree on the policy proposal at stake, legislators do not systematically represent voters with whom they share demographic characteristics more closely than legislators who do not share those characteristics. Even in settings where shared demographics are most likely to matter, they contribute little, if anything, to the substantive representation of these groups. This provides no support for the *social identity view*.

6 Conclusion

This paper examines whether descriptive similarity between voters and legislators is associated with substantive representation. To do so, we compare 54,792 parliamentary decisions made by Swiss legislators with the revealed preferences of voter groups on the same 270 policy proposals decided in Swiss referenda between 1992 and 2025. Using post-referendum surveys, we identify voter preferences across five demographic characteristics (gender, age, education, income, and place of residence) and relate them to the decisions and characteristics of individual legislators.

Our analysis speaks to a central debate in political science. One view, which we term the *social identity view*, holds that shared demographic characteristics foster common experiences, reduce information asymmetries, and thereby affect substantive representation. The competing *ideology view* holds that representation is structured primarily by political orientation and electoral competition, so that any apparent effect of shared demographics largely reflects ideological alignment rather than demographics per se. Switzerland offers a uniquely informative setting to adjudicate between these views because voters and legislators take positions on the same policy proposals with real political consequences.

We document four main findings. First, demographic groups differ sharply in their descriptive representation in parliament. Second, these differences in descriptive representation are not mirrored by similarly large differences in substantive representation. Third, legislators do not systematically represent voters who share their demographic characteristics more closely than do legislators with opposing characteristics. This result persists once legislators' political orientation is taken into account, when using individual-level legislator-voter matches, when electoral incentives are weak, and when voter groups are divided over policy proposals. Fourth, the findings change markedly when voters and legislators are grouped by political orientation. Here, differences in descriptive representation are systematically reflected in substantive representation, and legislators are substantially more likely to vote in line with voters who share their political orientation.

The contribution of our paper is therefore not to show that substantive representation is unrelated to demographic characteristics. Rather, it is to show that demographic characteristics contribute little, if anything, to substantive representation once political orientation is held constant, whereas political orientation matters a great deal. In this sense, the results pro-

vide stronger support for the *ideology view* than for the *social identity view*. Shared demographic characteristics may still matter for other dimensions of representation, such as agenda-setting, deliberation, symbolic inclusion, or political engagement. But with respect to substantive representation, measured as congruence between politicians' and voters' decisions on binding policy choices, political orientation appears to be the more important dimension.

These findings have broader implications for the study of political representation. Much of the existing literature has focused on single minority groups, specific policy domains, or settings in which voter and legislator preferences are not directly comparable. By comparing the revealed preferences of voters with the decisions of legislators on identical policy proposals across multiple demographic characteristics, and while accounting explicitly for political orientation, our analysis offers an unusually direct test of whether descriptive similarity itself improves substantive representation. The answer, at least in the Swiss case, is largely *no* for demographic characteristics and clearly *yes* for political orientation.¹⁶

This conclusion should not be read as implying that demographic diversity in legislatures is normatively unimportant. Descriptive representation may matter for legitimacy, political voice, deliberation, and the range of issues that reach the political agenda. Rather than settling the broader debate on descriptive representation, our evidence places limits on the claim that demographic similarity between voters and legislators, by itself, improves congruence between voters' preferences and politicians' decisions. If the goal is to understand who substantively represents whom in legislative voting, ideological alignment appears to be considerably more important than demographic similarity. Descriptive diversity may matter for many aspects of democratic representation, but for congruence between voters' preferences and politicians' decisions on policy choices, ideology matters far more than demographics.

¹⁶The broader applicability of our approach does not appear limited to Switzerland. Similar measures of congruence between voters' preferences and politicians' decisions can, for example, also be constructed for the United States (Matsusaka, 2010, 2026), and average levels of congruence, once analyzed, appear remarkably similar across the two settings (Kläy, Portmann, et al., 2026). This suggests that applying a design similar to ours in other institutional contexts, such as the United States, could be a promising avenue for future research.

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Appendix for
The (Ir)relevance of Demographic Characteristics for Substantive Representation¹

Yves Kläy, Reiner Eichenberger, Marco Portmann, David Stadelmann

Appendix A: Additional Tables

Table A1: Variable Descriptions

Variable	Description
Vote congruence $_{igr}$	Indicator equal to 1 if politician i votes in line with the majority of voter group g in referendum r .
In group $_{igr}$	Indicator equal to 1 if politician i shares the background characteristic of voter group g when voting on the policy proposal behind referendum r .
Subgroup	Factor variable for the background characteristic of the voter group under consideration: male, female, old (> 50 years), young (≤ 50 years), degree (university and university of applied sciences degree), no degree, high income ($> CHF 7,000$), low income ($\leq CHF 7,000$), left, center, right.
Left $_{ir}$	Indicator variable equal to 1 for politicians from SP, PdAS, GPS, FGA, and Sol.
Center $_{ir}$	Indicator variable equal to 1 for politicians from CVP, GLP, LPS, FDP, CSP, BDP, EVP, and Mitte.
Right $_{ir}$	Indicator variable equal to 1 for politicians from SVP, Lega, EDU, and SD.
Female $_i$	Indicator equal to 1 if legislator i is female, 0 otherwise.
Age $_{ir}$	Age of legislator i when voting on the policy proposal behind referendum r .
High income $_i$	Indicator equal to 1 if legislator i earns more than CHF 7,000, 0 otherwise.
High education $_i$	Indicator equal to 1 if legislator i holds a university or university of applied sciences degree, 0 otherwise.
Council $_{ir}$	Indicator equal to 1 (0) if politician i voted in the National Council (Council of States) on the policy proposal behind referendum r .
Years in parliament $_{ir}$	Years politician i has spent in parliament when voting on the policy proposal behind referendum r .
Leg period $_r$	Number of the legislative period in which referendum r was held.
Referendum type $_r$	Factor variable for the type of referendum r (mandatory, optional, or initiative).
District magnitude $_{ir}$	Number of seats of politician i 's canton when referendum r was held.
Canton congruence $_{igr}$	Indicator equal to 1 the majority preference of voter group g is in line with the majority preference of politician i 's canton in referendum r .

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Table A2: Legislator and Voter observations by referendum

Ref.	Legislators											Voters										
	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N
3880	34	153	95	92	108	79	187	0	127	60	187	421	442	295	567	55	803	-	-	-	-	863
3890	32	149	96	85	103	78	181	0	124	57	181	322	394	284	432	73	640	-	-	-	-	716
4130	28	133	96	65	95	66	161	0	105	56	161	240	304	203	338	48	481	103	254	-	-	544
4150	29	133	95	67	96	66	162	0	105	57	162	278	297	229	342	51	506	122	274	-	-	575
4170	26	136	97	65	93	69	162	0	103	59	162	278	294	227	341	48	506	121	271	-	-	572
4180	29	145	110	64	100	74	174	0	115	59	174	216	293	199	308	40	440	132	209	-	-	509
4190	28	129	94	63	89	68	157	0	103	54	157	216	289	197	306	41	435	132	206	-	-	505
4210	24	138	99	63	89	73	162	0	104	58	162	204	294	194	302	42	427	133	201	-	-	498
4220	29	136	104	61	92	73	165	0	108	57	165	281	241	255	267	71	449	89	277	-	-	522
4230	30	144	111	63	95	79	174	0	115	59	174	234	218	222	230	66	386	83	240	-	-	452
4240	30	138	102	66	98	70	168	0	112	56	168	254	224	236	242	64	413	85	259	-	-	478
4250	33	138	110	61	96	75	171	0	116	55	171	189	239	204	224	52	372	96	268	-	-	428
4260	35	130	95	70	110	55	165	0	108	57	165	175	231	192	214	51	352	92	252	-	-	406
4270	32	134	106	60	97	69	166	0	111	55	166	92	136	110	118	28	198	52	134	-	-	228
4280	32	139	109	62	100	71	171	0	115	56	171	67	117	79	105	24	158	47	107	-	-	184
4290	26	138	106	58	98	66	164	0	109	55	164	85	131	97	119	27	187	54	124	-	-	216
4300	40	137	97	80	117	60	177	0	117	60	177	189	217	203	203	60	344	110	243	-	-	406
4310	25	128	102	51	80	73	153	0	98	55	153	183	218	201	200	57	342	108	241	-	-	401
4320	36	139	97	78	115	60	175	0	114	61	175	274	259	224	309	60	469	97	377	-	-	533
4330	36	133	93	76	110	59	169	0	112	57	169	279	257	217	319	59	474	99	379	-	-	536
4340	40	144	109	75	121	63	184	0	123	61	184	211	268	253	226	63	413	111	319	-	-	479
4350	37	134	103	68	111	60	171	0	114	57	171	217	272	261	228	66	420	112	327	-	-	489
4360	41	141	115	67	119	63	182	0	122	60	182	145	226	202	169	55	314	92	239	-	-	371
4370	38	132	106	64	110	60	170	0	115	55	170	247	286	227	306	79	450	134	358	-	-	533
4380	34	109	95	48	89	54	143	0	94	49	143	266	292	235	323	84	470	139	377	-	-	558
4390	38	135	113	60	109	64	173	0	116	57	173	245	265	262	248	82	423	141	306	-	-	510
4400	35	116	102	49	94	57	151	0	98	53	151	283	279	276	286	90	466	155	335	-	-	562
4410	40	144	108	76	120	64	184	0	124	60	184	227	244	244	227	78	389	132	281	-	-	471
4420	38	128	108	58	110	56	166	0	109	57	166	304	319	287	336	70	551	151	383	-	-	623
4430	34	118	98	54	96	56	152	0	96	56	152	264	285	260	289	60	487	128	338	-	-	549
4440	37	143	120	60	113	67	180	0	117	63	180	294	301	281	314	67	526	148	367	-	-	595
4450	37	119	102	54	98	58	156	0	103	53	156	238	289	280	247	75	449	145	298	-	-	527
4460	41	120	102	59	103	58	161	0	105	56	161	173	237	228	182	64	345	115	231	-	-	410
4470	33	121	102	52	94	60	154	0	95	59	154	239	283	275	247	73	445	142	292	-	-	522
4480	38	129	107	60	108	59	167	0	110	57	167	183	242	228	197	65	358	123	241	-	-	425
4490	43	138	121	60	116	65	181	0	121	60	181	287	322	324	285	78	529	158	358	-	-	609
4500	40	129	115	54	103	66	169	0	112	57	169	255	287	281	261	73	466	148	309	-	-	542
4510	42	133	118	57	109	66	175	0	116	59	175	293	312	317	288	78	525	160	357	-	-	605
4520	38	126	104	60	108	56	164	0	103	61	164	264	286	285	265	76	471	156	312	-	-	550
4530	32	116	101	47	100	48	148	0	96	52	148	308	287	315	280	69	520	137	361	-	-	595
4540	40	133	115	58	108	65	173	0	115	58	173	327	290	313	304	62	549	171	355	-	-	617

Table A2: Legislator and Voter observations by referendum

Ref.	Legislators											Voters										
	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N
4550	40	138	119	59	111	67	178	0	117	61	178	289	273	282	280	56	502	158	322	-	-	562
4560	43	138	122	59	113	68	181	0	120	61	181	343	289	317	315	63	565	177	364	-	-	632
4570	38	131	110	59	108	61	169	0	110	59	169	321	269	299	291	58	528	169	337	-	-	590
4580	40	134	118	56	113	61	174	0	114	60	174	371	303	346	328	64	604	183	391	-	-	674
4590	43	130	119	54	111	62	173	0	117	56	173	192	243	208	227	63	371	127	227	-	-	435
4600	47	143	134	56	119	71	190	0	127	63	190	214	246	212	248	61	398	133	243	-	-	460
4610	41	119	110	50	95	65	160	0	105	55	160	227	243	216	254	63	407	136	248	-	-	470
4620	29	121	105	45	95	55	150	0	98	52	150	228	231	209	250	62	396	130	245	-	-	459
4630	34	106	100	40	78	62	140	0	92	48	140	233	248	221	260	62	418	140	257	-	-	481
4640	46	148	138	56	123	71	194	0	129	65	194	324	320	332	312	70	571	166	347	-	-	644
4651	43	145	133	55	121	67	188	0	126	62	188	219	277	241	255	69	424	134	289	-	-	496
4652	46	144	135	55	119	71	190	0	129	61	190	206	264	230	240	65	402	130	268	-	-	470
4660	41	142	129	54	117	66	183	0	123	60	183	190	258	216	232	65	380	126	252	-	-	448
4670	45	115	109	51	105	55	160	0	108	52	160	233	285	250	268	69	446	138	309	-	-	518
4680	45	134	110	69	116	63	179	0	130	49	179	129	190	162	157	46	273	88	184	-	-	319
4690	39	138	120	57	117	60	177	0	119	58	177	229	269	264	234	49	446	138	304	-	-	498
4700	39	133	117	55	113	59	172	0	115	57	172	234	264	266	232	48	447	135	309	-	-	498
4710	45	139	111	73	120	64	184	0	134	50	184	208	259	249	218	50	414	132	285	-	-	467
4720	45	138	111	72	119	64	183	0	133	50	183	225	253	258	220	46	429	133	296	-	-	478
4730	39	124	101	62	104	59	163	0	118	45	163	182	260	235	207	48	391	126	264	-	-	442
4740	40	123	96	67	106	57	163	0	115	48	163	353	355	337	371	73	632	194	393	-	-	708
4750	12	64	51	25	39	37	76	0	51	25	76	343	335	328	350	67	608	185	377	-	-	678
4760	44	142	114	72	118	68	186	0	133	53	186	347	352	331	368	71	625	192	386	-	-	699
4770	39	129	106	62	105	63	168	0	121	47	168	231	267	290	208	53	438	117	267	-	-	498
4780	40	132	108	64	110	62	172	0	121	51	172	212	261	278	195	51	415	111	254	-	-	473
4790	44	143	120	67	119	68	187	0	133	54	187	178	212	236	154	45	340	98	199	-	-	390
4800	43	148	127	64	120	71	191	0	136	55	191	209	266	259	216	50	420	126	268	-	-	475
4810	44	140	121	63	116	68	184	0	130	54	184	188	245	233	200	48	381	117	243	-	-	433
4820	44	137	121	60	111	70	181	0	131	50	181	227	266	264	229	54	433	132	283	-	-	493
4830	42	146	123	65	118	70	188	0	133	55	188	190	238	230	198	47	377	120	241	-	-	428
4840	43	142	121	64	115	70	185	0	131	54	185	196	255	243	208	50	397	126	249	-	-	451
4850	46	140	125	61	115	71	186	0	130	56	186	377	319	347	348	81	613	197	400	-	-	696
4860	41	138	119	60	112	67	179	0	125	54	179	373	316	346	342	78	609	194	395	-	-	689
4870	41	135	113	63	114	62	176	0	122	54	176	284	243	256	271	64	463	150	294	-	-	527
4880	41	123	107	57	106	58	164	0	115	49	164	266	231	242	255	62	435	143	279	-	-	497
4891	44	138	126	56	114	68	182	0	129	53	182	280	277	284	273	66	490	171	326	-	-	557
4892	44	138	126	56	114	68	182	0	129	53	182	268	270	278	260	64	472	169	310	-	-	538
4900	43	141	114	70	118	66	184	0	131	53	184	248	255	259	244	63	438	161	291	-	-	503
4910	43	138	124	57	112	69	181	0	125	56	181	264	290	288	266	65	484	155	318	-	-	554
4920	37	135	122	50	105	67	172	0	117	55	172	235	273	271	237	64	439	145	293	-	-	508
4930	34	135	125	44	105	64	169	0	118	51	169	181	200	197	184	79	300	107	228	-	-	381

Table A2: Legislator and Voter observations by referendum

Ref.	Legislators											Voters										
	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N
4940	48	141	130	59	117	72	189	0	132	57	189	175	197	196	176	74	296	107	221	-	-	372
4950	33	116	110	39	87	62	149	0	105	44	149	229	278	233	274	105	398	160	260	-	-	507
4960	32	125	118	39	93	64	157	0	109	48	157	234	277	236	275	105	402	162	260	-	-	511
4970	39	123	113	49	101	61	162	0	116	46	162	284	253	261	276	111	425	180	287	-	-	537
4980	41	125	121	45	100	66	166	0	118	48	166	270	280	248	302	112	435	166	290	-	-	550
4990	40	104	103	41	90	54	144	0	100	44	144	240	260	227	273	105	392	154	264	-	-	500
5000	46	131	130	47	108	69	177	0	126	51	177	256	262	233	285	106	409	160	275	-	-	518
5010	45	126	125	46	103	68	171	0	120	51	171	295	272	273	294	113	453	190	304	-	-	567
5020	44	132	129	47	108	68	176	0	125	51	176	262	250	250	262	109	402	174	271	-	-	512
5030	43	139	126	56	115	67	182	0	128	54	182	275	253	253	275	113	414	176	282	-	-	528
5040	48	138	142	44	114	72	186	0	132	54	186	305	289	320	274	114	477	187	314	-	-	594
5050	45	124	121	48	104	65	169	0	119	50	169	289	269	307	251	108	448	172	299	-	-	558
5070	43	139	137	45	113	69	182	0	128	54	182	306	317	288	335	118	503	201	339	-	-	623
5080	47	126	130	43	103	70	173	0	122	51	173	308	316	289	335	118	504	203	336	-	-	624
5090	47	146	122	71	121	72	193	0	142	51	193	309	308	285	332	115	500	200	334	-	-	617
5100	48	133	136	45	113	68	181	0	127	54	181	310	303	299	314	132	478	174	346	-	-	613
5110	48	141	143	46	119	70	189	0	133	56	189	308	299	297	310	132	472	173	341	-	-	607
5120	48	141	119	70	120	69	189	0	140	49	189	276	277	276	277	121	428	165	304	-	-	553
5130	49	138	141	46	117	70	187	0	134	53	187	311	303	302	312	134	476	174	346	-	-	614
5140	46	134	135	45	110	70	180	0	125	55	180	230	223	234	219	104	342	141	254	-	-	453
5150	48	143	124	67	120	71	191	0	143	48	191	211	206	225	192	91	319	132	228	-	-	417
5160	43	117	103	57	95	65	160	0	117	43	160	242	229	240	231	104	360	139	268	-	-	471
5170	47	142	127	62	116	73	189	0	140	49	189	350	368	339	379	175	540	234	387	-	-	718
5180	47	116	109	54	106	57	163	0	123	40	163	346	359	329	376	175	527	229	383	-	-	705
5190	47	135	120	62	113	69	182	0	135	47	182	326	346	336	336	160	509	206	378	-	-	672
5200	51	134	124	61	111	74	185	0	143	42	185	306	301	315	292	142	460	197	331	-	-	607
5210	42	132	115	59	110	64	174	0	125	49	174	306	300	317	289	140	461	199	329	-	-	606
5220	48	131	124	55	108	71	179	0	137	42	179	223	214	234	203	130	307	152	239	-	-	437
5230	49	137	127	59	114	72	186	0	142	44	186	278	287	306	259	147	412	226	283	-	-	565
5240	43	129	119	53	105	67	172	0	128	44	172	274	284	307	251	143	409	216	284	-	-	558
5250	44	133	123	54	108	69	177	0	133	44	177	271	290	301	260	145	410	224	280	-	-	561
5260	50	130	127	53	111	69	180	0	140	40	180	288	301	338	251	137	444	240	279	-	-	589
5270	51	140	137	54	117	74	191	0	147	44	191	298	300	338	260	134	455	236	287	-	-	598
5280	48	141	137	52	119	70	189	0	147	42	189	316	320	332	304	187	446	229	328	-	-	636
5290	47	134	127	54	113	68	181	0	137	44	181	295	305	342	258	166	432	223	319	-	-	600
5300	49	158	161	46	130	77	207	0	155	52	207	228	266	285	209	137	355	211	246	-	-	494
5310	56	172	175	53	146	82	228	0	175	53	228	205	253	268	190	134	322	197	227	-	-	458
5320	59	173	178	54	146	86	232	0	177	55	232	303	268	332	239	181	390	233	280	-	-	571
5330	65	162	148	79	144	83	227	0	178	49	227	272	261	313	220	175	358	223	261	-	-	533
5340	63	159	141	81	138	84	222	0	175	47	222	284	246	319	211	166	364	212	266	-	-	530
5350	64	159	146	77	139	84	223	0	173	50	223	238	242	275	205	140	336	201	217	-	-	480

Table A2: Legislator and Voter observations by referendum

Ref.	Legislators											Voters										
	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N
5360	62	159	148	73	137	84	221	0	171	50	221	263	262	297	228	140	381	215	241	-	-	525
5370	63	157	147	73	143	77	220	0	177	43	220	201	228	255	174	132	293	178	195	-	-	429
5380	57	161	146	72	138	80	218	0	174	44	218	236	235	272	199	135	332	191	217	-	-	471
5390	66	158	150	74	143	81	224	0	177	47	224	201	202	229	174	127	273	164	186	-	-	403
5400	63	154	142	75	137	80	217	0	167	50	217	340	336	390	286	171	502	291	328	-	-	676
5410	54	145	138	61	124	75	199	0	151	48	199	291	259	321	229	154	395	231	253	-	-	550
5420	57	151	138	70	128	80	208	0	160	48	208	282	270	318	234	158	393	235	250	-	-	552
5430	65	160	151	74	139	86	225	0	173	52	225	248	282	312	218	103	422	186	278	-	-	530
5440	61	161	161	61	141	81	222	0	174	48	222	180	210	248	142	84	302	143	204	-	-	390
5450	58	162	152	68	139	81	220	0	169	51	220	229	307	296	240	163	373	249	232	-	-	536
5460	66	168	167	67	149	85	234	0	185	49	234	320	342	357	305	188	473	294	298	-	-	662
5470	66	157	158	65	142	81	223	0	176	47	223	337	344	363	318	189	491	298	312	-	-	681
5480	54	161	155	60	139	76	215	0	167	48	215	426	394	463	357	238	578	323	372	-	-	820
5490	57	156	156	57	132	81	213	0	166	47	213	479	436	520	395	266	645	362	414	-	-	915
5500	59	161	158	62	139	81	220	0	172	48	220	448	433	495	386	259	618	355	400	-	-	881
5510	60	136	142	54	127	69	196	0	156	40	196	362	409	443	328	241	523	341	334	-	-	771
5521	54	149	152	51	120	83	203	0	157	46	203	463	460	498	425	270	644	393	426	-	-	923
5522	57	159	161	55	129	87	216	0	167	49	216	426	439	470	395	262	594	375	390	-	-	865
5530	65	161	166	60	138	88	226	0	175	51	226	403	424	472	355	249	569	357	380	-	-	827
5540	61	166	172	55	142	85	227	0	174	53	227	520	493	553	460	301	709	378	498	-	-	1,013
5550	62	153	164	51	133	82	215	0	170	45	215	422	424	518	328	225	621	348	394	-	-	846
5560	56	142	150	48	122	76	198	0	153	45	198	321	354	418	257	192	483	277	316	-	-	675
5570	64	161	173	52	139	86	225	0	175	50	225	438	429	508	359	220	647	353	412	-	-	867
5580	54	121	137	38	107	68	175	0	137	38	175	281	295	362	214	163	413	235	272	-	-	576
5590	62	158	168	52	139	81	220	0	171	49	220	351	348	430	269	208	491	292	328	-	-	699
5600	54	144	151	47	119	79	198	0	153	45	198	392	333	437	288	202	519	311	321	-	-	725
5610	65	170	142	93	154	81	235	0	193	42	235	368	325	423	270	204	484	296	305	-	-	693
5620	58	143	152	49	120	81	201	0	155	46	201	399	330	435	294	216	509	315	316	-	-	729
5630	58	148	125	81	128	78	206	0	167	39	206	435	387	536	286	268	554	290	432	-	-	822
5640	63	168	146	85	149	82	231	0	189	42	231	381	381	496	266	247	515	283	400	-	-	762
5650	60	162	138	84	143	79	222	0	180	42	222	437	421	551	307	276	582	307	450	-	-	858
5660	63	173	151	85	153	83	236	0	192	44	236	321	362	416	267	194	488	241	355	-	-	683
5670	65	157	138	84	141	81	222	0	181	41	222	449	424	553	320	284	585	392	371	-	-	873
5680	67	162	146	83	149	80	229	0	186	43	229	480	443	584	339	298	621	413	391	-	-	923
5690	63	160	142	81	146	77	223	0	183	40	223	426	419	549	296	280	561	378	363	-	-	845
5700	63	162	145	80	146	79	225	0	180	45	225	428	407	510	325	274	558	354	381	-	-	835
5710	54	162	143	73	137	79	216	0	170	46	216	412	383	494	301	259	533	341	355	-	-	795
5720	61	164	141	84	146	79	225	0	178	47	225	490	470	558	402	320	637	413	430	-	-	960
5730	53	152	140	65	130	75	205	0	162	43	205	435	418	518	335	302	548	375	375	-	-	853
5740	60	165	144	81	146	79	225	0	181	44	225	454	429	525	358	313	567	391	393	-	-	883
5750	60	164	141	83	142	82	224	0	179	45	224	506	405	587	324	285	621	388	410	-	-	911

Table A2: Legislator and Voter observations by referendum

Ref.	Legislators											Voters										
	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N
5760	63	162	144	81	145	80	225	0	182	43	225	496	390	573	313	277	604	384	400	-	-	886
5770	59	163	138	84	142	80	222	0	177	45	222	503	408	589	322	283	623	385	413	-	-	911
5780	56	129	120	65	118	67	185	0	149	36	185	480	490	603	367	313	650	404	471	-	-	970
5790	66	164	150	80	148	82	230	0	186	44	230	508	474	603	379	315	659	404	478	-	-	982
5800	66	170	153	83	152	84	236	0	189	47	236	521	491	619	393	319	684	415	497	-	-	1,012
5810	65	167	152	80	146	86	232	0	184	48	232	465	456	561	360	316	600	399	415	-	-	921
5820	64	162	146	80	146	80	226	0	182	44	226	513	472	593	391	331	647	418	450	-	-	985
5830	67	161	149	79	144	84	228	0	184	44	228	532	494	600	425	338	682	431	470	-	-	1,026
5840	62	168	148	82	148	82	230	0	185	45	230	522	493	599	415	339	670	430	462	-	-	1,015
5850	66	150	142	74	135	81	216	0	173	43	216	491	434	582	343	272	642	360	433	-	-	925
5860	67	166	157	76	148	85	233	0	188	45	233	529	476	620	385	299	694	378	481	-	-	1,005
5870	69	171	160	80	153	87	240	0	196	44	240	500	448	582	366	341	602	387	449	-	-	948
5880	70	168	160	78	152	86	238	0	193	45	238	497	447	574	370	347	593	394	442	-	-	944
5890	69	154	153	70	146	77	223	0	184	39	223	444	427	557	314	330	537	372	398	-	-	871
5900	69	170	163	76	151	88	239	0	194	45	239	467	455	563	359	307	606	363	439	-	-	922
5910	70	171	163	78	151	90	241	0	195	46	241	456	458	559	355	306	599	359	435	-	-	914
5920	66	167	161	72	144	89	233	0	190	43	233	470	406	564	312	335	532	344	426	-	-	876
5930	67	170	164	73	149	88	237	0	189	48	237	436	394	544	286	320	502	322	402	-	-	830
5940	67	171	164	74	147	91	238	0	190	48	238	457	407	568	296	327	528	344	408	-	-	864
5950	68	168	161	75	150	86	236	0	191	45	236	443	394	558	279	314	515	330	394	-	-	837
5960	69	168	168	69	148	89	237	0	188	49	237	573	529	675	427	417	682	481	440	-	-	1,102
5970	70	171	166	75	151	90	241	0	193	48	241	610	554	705	459	423	738	500	470	-	-	1,164
5980	69	161	162	68	141	89	230	0	183	47	230	465	469	596	338	383	549	424	366	-	-	934
5990	69	172	164	77	151	90	241	0	195	46	241	612	562	710	464	431	740	507	471	-	-	1,174
6000	71	168	169	70	147	92	239	0	189	50	239	493	463	593	363	350	604	379	468	-	-	956
6010	58	159	132	85	133	84	217	0	170	47	217	575	507	650	432	382	698	421	532	-	-	1,082
6020	67	158	159	66	141	84	225	0	178	47	225	472	466	581	357	361	575	386	450	-	-	938
6030	63	162	154	71	137	88	225	0	182	43	225	537	456	607	386	355	636	384	494	-	-	993
6040	69	164	164	69	143	90	233	0	185	48	233	520	493	625	388	369	642	405	492	-	-	1,013
6050	68	166	144	90	145	89	234	0	184	50	234	396	446	563	279	253	585	418	316	-	-	842
6060	67	167	144	90	145	89	234	0	183	51	234	396	446	563	279	253	585	418	316	-	-	842
6070	65	161	157	69	138	88	226	0	177	49	226	396	446	563	279	253	585	418	316	-	-	842
6080	67	171	147	91	147	91	238	0	186	52	238	493	569	686	376	295	761	512	408	-	-	1,062
6090	70	171	156	85	149	92	241	0	188	53	241	494	504	641	357	303	690	482	370	-	-	998
6100	67	169	153	83	146	90	236	0	183	53	236	440	487	607	320	287	635	448	353	-	-	927
6110	68	165	148	85	146	87	233	0	181	52	233	445	477	591	331	290	629	458	334	-	-	922
6120	71	162	149	84	145	88	233	0	184	49	233	478	504	663	319	291	688	494	352	-	-	982
6130	65	155	145	75	135	85	220	0	173	47	220	494	494	666	322	295	690	490	385	-	-	988
6140	73	165	155	83	150	88	238	0	187	51	238	495	508	677	326	302	697	505	385	-	-	1,003
6150	73	165	155	83	150	88	238	0	187	51	238	488	503	664	327	300	687	506	375	-	-	991
6160	71	169	159	81	148	92	240	0	189	51	240	502	574	731	345	331	743	565	360	-	-	1,076

Table A2: Legislator and Voter observations by referendum

Ref.	Legislators											Voters										
	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N
6170	67	138	138	67	131	74	205	0	165	40	205	596	600	805	391	355	837	604	408	-	-	1,196
6180	58	162	147	73	136	84	220	0	171	49	220	322	386	501	207	219	487	356	268	-	-	708
6190	65	164	154	75	140	89	229	0	179	50	229	330	392	510	212	221	499	355	279	-	-	722
6200	69	154	152	71	139	84	223	0	174	49	223	401	445	593	253	268	577	424	309	-	-	846
6210	58	153	142	69	127	84	211	0	167	44	211	390	440	583	247	267	562	421	305	-	-	830
6220	54	153	138	69	129	78	207	0	167	40	207	361	425	551	235	256	529	400	290	-	-	786
6230	56	149	139	66	133	72	205	0	163	42	205	492	525	722	295	281	732	497	383	-	-	1,017
6240	70	171	161	80	151	90	241	0	189	52	241	473	536	705	304	289	716	508	373	-	-	1,009
6250	66	165	154	77	143	88	231	0	182	49	231	494	540	728	306	291	739	512	387	-	-	1,034
6260	60	157	146	71	132	85	217	0	171	46	217	388	453	585	256	268	571	439	309	-	-	841
6270	66	156	148	74	141	81	222	0	178	44	222	455	503	711	247	298	658	454	403	-	-	958
6280	71	158	152	77	144	85	229	0	182	47	229	454	517	709	262	304	666	464	403	-	-	971
6290	68	171	161	78	151	88	239	0	187	52	239	498	447	675	270	300	643	480	362	-	-	945
6300	66	164	157	73	144	86	230	0	179	51	230	480	432	644	268	298	612	470	337	-	-	912
6310	91	146	133	104	167	70	237	0	187	50	237	557	606	775	388	348	812	594	413	-	-	1,163
6320	64	168	161	71	146	86	232	0	181	51	232	578	606	792	392	351	831	592	425	-	-	1,184
6330	66	170	166	70	148	88	236	0	184	52	236	521	559	731	349	332	746	569	369	-	-	1,080
6340	68	169	163	74	151	86	237	0	188	49	237	608	605	802	411	353	857	613	424	-	-	1,213
6350	89	145	132	102	165	69	234	0	185	49	234	597	619	812	404	354	859	604	434	-	-	1,216
6360	94	145	135	104	167	72	239	0	189	50	239	1,015	1,005	1,256	775	561	1,417	1,077	666	1,590	441	2,031
6370	93	149	138	104	170	72	242	0	192	50	242	978	988	1,222	754	546	1,383	1,045	645	1,545	431	1,976
6380	90	143	132	101	163	70	233	0	185	48	233	1,081	1,048	1,254	889	592	1,476	1,105	722	1,684	450	2,143
6390	64	168	159	73	146	86	232	0	181	51	232	1,052	1,026	1,221	871	581	1,440	1,089	694	1,652	431	2,092
6400	80	137	121	96	155	62	217	0	169	48	217	1,007	1,009	1,200	828	576	1,384	1,062	675	1,609	410	2,028
6410	86	142	129	99	160	68	228	0	183	45	228	1,134	1,145	1,347	947	635	1,575	1,197	743	1,758	535	2,294
6420	88	141	128	101	162	67	229	0	185	44	229	1,133	1,141	1,344	944	636	1,568	1,186	740	1,756	531	2,288
6430	90	143	135	98	164	69	233	0	187	46	233	1,106	1,122	1,319	924	634	1,523	1,176	717	1,719	523	2,243
6440	90	136	128	98	158	68	226	0	181	45	226	1,112	1,138	1,330	934	645	1,535	1,185	724	1,742	521	2,264
6450	93	147	137	103	169	71	240	0	192	48	240	1,076	1,123	1,300	914	629	1,502	1,169	711	1,710	504	2,214
6460	92	146	140	98	167	71	238	0	189	49	238	1,077	1,046	1,254	878	649	1,417	1,183	650	1,683	449	2,132
6470	87	132	121	98	157	62	219	0	175	44	219	1,153	1,056	1,277	943	667	1,481	1,208	688	1,753	467	2,220
6480	94	140	136	98	165	69	234	0	188	46	234	1,436	1,297	1,549	1,202	727	1,918	1,436	880	2,143	606	2,751
6490	93	143	139	97	165	71	236	0	187	49	236	1,253	1,235	1,428	1,074	682	1,737	1,347	787	1,936	564	2,502
6500	89	137	134	92	164	62	226	0	180	46	226	1,439	1,317	1,559	1,216	732	1,935	1,449	888	2,157	616	2,775
6510	93	144	139	98	167	70	237	0	188	49	237	962	985	1,245	716	581	1,306	1,039	603	1,545	413	1,961
6520	91	141	137	95	167	65	232	0	183	49	232	970	996	1,249	731	580	1,327	1,058	603	1,558	418	1,980
6530	93	140	136	97	163	70	233	0	186	47	233	832	916	1,169	592	521	1,181	956	535	1,389	368	1,761
6540	91	137	132	96	159	69	228	0	181	47	228	916	958	1,224	665	558	1,266	1,018	579	1,489	396	1,889
6550	92	139	134	97	163	68	231	0	184	47	231	921	914	1,154	693	579	1,216	974	583	1,478	360	1,847
6560	95	133	133	95	162	66	228	0	182	46	228	967	939	1,189	729	583	1,276	991	603	1,530	378	1,918
6570	89	123	122	90	159	53	212	0	171	41	212	856	895	1,131	632	548	1,162	936	540	1,410	346	1,763

Table A2: Legislator and Voter observations by referendum

Ref.	Legislators											Voters										
	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N	F	M	>50y	<50y	>Edu.	<Edu.	>Inc.	<Inc.	Urb.	Rur.	N
6580	86	137	133	90	155	68	223	0	177	46	223	1,108	1,122	1,393	850	625	1,546	1,222	726	1,776	467	2,243
6590	77	132	134	75	142	67	209	0	165	44	209	1,088	1,105	1,382	823	614	1,515	1,212	703	1,752	453	2,205
6600	94	141	141	94	165	70	235	0	188	47	235	1,080	1,091	1,362	822	625	1,488	1,208	695	1,734	450	2,184
6610	94	144	144	94	166	72	238	0	190	48	238	917	1,015	1,255	689	555	1,324	1,091	611	1,558	386	1,944
6620	90	136	137	89	161	65	226	0	179	47	226	902	856	1,133	635	557	1,161	977	544	1,408	360	1,768
6630	95	137	137	95	164	68	232	0	183	49	232	913	874	1,137	663	566	1,184	991	556	1,446	354	1,800
6640	93	137	136	94	166	64	230	0	187	43	230	925	865	1,144	660	557	1,193	980	560	1,445	359	1,804
6650	93	143	141	95	165	71	236	0	188	48	236	1,308	1,235	1,609	951	741	1,732	1,352	878	1,995	564	2,560
6660	84	142	134	92	157	69	226	0	181	45	226	1,263	1,194	1,559	916	725	1,664	1,320	842	1,926	548	2,475
6670	92	144	142	94	165	71	236	0	187	49	236	969	956	1,228	711	618	1,269	1,070	610	1,543	395	1,939
6680	54	121	112	63	113	62	175	0	135	40	175	917	929	1,178	682	594	1,217	1,040	579	1,477	382	1,860
6690	90	141	140	91	160	71	231	0	185	46	231	871	906	1,135	655	589	1,160	1,016	555	1,429	360	1,790
6700	92	148	145	95	168	72	240	0	191	49	240	908	921	1,182	659	591	1,204	1,022	577	1,461	379	1,841
6710	91	150	126	115	170	71	241	0	188	53	241	1,038	1,035	1,329	759	647	1,377	1,115	678	1,615	473	2,088
6720	89	130	131	88	160	59	219	0	177	42	219	1,011	988	1,288	725	617	1,335	1,082	657	1,558	455	2,013
6730	90	143	138	95	163	70	233	0	185	48	233	956	1,007	1,234	745	620	1,278	1,083	615	1,555	424	1,979
6740	91	145	141	95	165	71	236	0	188	48	236	898	945	1,167	691	587	1,202	1,035	573	1,472	386	1,858
6750	91	148	145	94	167	72	239	0	190	49	239	882	938	1,145	691	589	1,183	1,031	565	1,451	385	1,836
6760	83	145	123	105	156	72	228	0	177	51	228	876	916	1,139	666	576	1,164	1,014	556	1,429	376	1,805
6770	88	148	127	109	165	71	236	0	186	50	236	938	922	1,202	673	548	1,264	1,016	574	-	-	1,875
6780	81	139	122	98	147	71	220	0	168	48	220	1,044	1,082	1,355	782	685	1,391	1,212	604	-	-	2,137
6790	90	149	133	106	164	73	239	0	183	51	239	1,072	1,091	1,367	808	695	1,416	1,218	623	-	-	2,175
6800	89	144	133	100	153	74	233	0	172	52	233	933	978	1,239	688	621	1,256	1,122	547	-	-	1,927
6810	86	146	134	98	154	72	232	0	175	49	232	883	929	1,180	647	603	1,181	1,066	530	-	-	1,827

Note: The table shows the number of legislators and voters with each demographic characteristic for every referendum included in the analysis. For each demographic dimension, one characteristic (e.g., female) excludes the other (e.g., male), such that the two categories jointly cover all individuals. Counts are based on unique legislators and voters per referendum.

Table A3: Descriptive and substantive representation

Voter Group	Descriptive Representation [se]		Substantive Representation [se]		Difference [p-value]	
A: Gender						
Female	28.445	[0.193]	64.729	[0.204]	-36.284	[0.000]
Male	71.555	[0.193]	67.667	[0.200]	3.887	[0.000]
Difference [Cohen's d]	-43.110	[-0.956]	-2.938	[-0.062]		
B: Age						
>50 years	65.362	[0.203]	66.434	[0.202]	-1.071	[0.000]
≤50 years	34.638	[0.203]	65.780	[0.203]	-31.143	[0.000]
Difference [Cohen's d]	30.725	[0.646]	0.653	[0.014]		
C: Education						
High education	63.988	[0.205]	66.832	[0.201]	-2.843	[0.000]
Low education	35.983	[0.205]	65.454	[0.203]	-29.471	[0.000]
Difference [Cohen's d]	28.005	[0.583]	1.378	[0.029]		
D: Income						
High income	100.000	[0.000]	67.436	[0.201]	32.564	[0.000]
Low income	0.000	[0.000]	64.875	[0.205]	-64.875	[0.000]
Difference [Cohen's d]	100.000		2.561	[0.054]		
E: Urbanity						
Urban	75.444	[0.186]	66.110	[0.204]	9.334	[0.000]
Rural	24.556	[0.186]	63.058	[0.208]	-38.502	[0.000]
Difference [Cohen's d]	50.888	[1.182]	3.052	[0.064]		
F: Ideology						
Left-wing	31.020	[0.198]	57.162	[0.211]	-26.142	[0.000]
Center	42.653	[0.211]	67.983	[0.199]	-25.330	[0.000]
Right-wing	25.795	[0.187]	57.456	[0.211]	-31.661	[0.000]
Difference c-l [Cohen's d]	11.633	[0.243]	10.821	[0.225]		
Difference c-r [Cohen's d]	16.858	[0.361]	10.527	[0.219]		
Difference l-r [Cohen's d]	5.225	[0.116]	-0.294	[-0.006]		

Notes: The table presents the share of decisions made by politicians with a certain characteristic (descriptive representation) and the share of decisions that align with the majority preference of the voters with a certain characteristic (substantive representation).

Table A4: Substantive representation of voter groups by legislators with the same and different characteristics

Voter group	Substantive representation [se]				Difference [d]	
	same characteristic		other characteristic			
A: Gender						
Female	64.661	[0.383]	64.756	[0.241]	0.096	[0.002]
Male	68.926	[0.234]	64.500	[0.383]	-4.426	[-0.094]
B: Age						
>50	67.711	[0.247]	64.023	[0.348]	-3.688	[-0.078]
≤50	64.861	[0.347]	66.267	[0.250]	1.406	[0.030]
C: Education						
High education	68.523	[0.248]	63.825	[0.342]	-4.698	[-0.099]
Low education	65.678	[0.338]	65.328	[0.254]	-0.350	[-0.007]
D: Income						
High income	67.436	[0.201]				
Low income			64.875	[0.205]		
E: Urbanity						
Urban	65.539	[0.236]	67.866	[0.407]	2.327	[0.049]
Rural	66.150	[0.412]	62.052	[0.241]	-4.099	[-0.086]
F: Ideology						
Left-wing	89.033	[0.240]	42.830	[0.255]	-46.203	[-1.116]
Center	81.498	[0.254]	57.931	[0.279]	-23.568	[-0.531]
Right-wing	81.201	[0.329]	49.202	[0.248]	-31.999	[-0.713]

Notes: The table presents the share of legislative decisions aligned with the preferences of voters in each demographic group by legislators who share the characteristic, and those who do not. Standard errors and Cohen's d in square brackets.

Table A5: Substantive representation across voter groups

Dependent variable: Comparison by:	Gender		Age		Education		Vote congruence Income		Urbanicity		Political Orientation					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Constant	0.739*** (0.056)		0.654*** (0.058)		0.639*** (0.058)		0.614*** (0.058)		0.535*** (0.061)		0.520*** (0.054)		0.294*** (0.044)		0.514*** (0.054)	
Female (=1)	-0.131*** (0.036)	-0.155*** (0.046)														
Over 50 years (=1)			0.029 (0.038)	0.069 (0.076)												
High education (=1)					0.061 (0.046)	0.108 (0.089)										
High income (=1)							0.114*** (0.035)	0.006 (0.068)								
Urban (=1)									0.134** (0.042)	0.154** (0.056)						
Left-wing (=1)											-0.232* (0.092)	0.071 (0.108)				
Center (=1)													0.459*** (0.043)	0.251*** (0.046)		
Right-wing (=1)															-0.213* (0.089)	-0.248** (0.092)
Discrete effect in %	-2.938 (0.822)	-3.481 (1.203)	0.653 (0.849)	1.599 (1.822)	1.378 (1.041)	2.214 (2.064)	2.561 (0.775)	0.062 (0.782)	3.052 (0.957)	3.606 (1.890)	-5.557 (2.215)	1.690 (2.538)	10.674 (0.958)	5.957 (0.989)	-5.117 (2.133)	-5.928 (2.318)
Controls		✓		✓		✓		✓		✓	✓		✓		✓	
MP FE		✓		✓		✓		✓		✓	✓		✓		✓	
Referendum FE		✓		✓		✓		✓		✓	✓		✓		✓	
Observations	109,586	106,110	109,586	106,110	109,586	106,132	108,850	105,406	107,266	103,686	164,379	159,738	164,379	159,738	164,379	159,738
Pseudo R ²	0.00075	0.17880	3.72 × 10 ⁻⁵	0.17637	0.00017	0.16617	0.00057	0.18024	0.00078	0.18516	0.00214	0.13538	0.00805	0.13686	0.00182	0.13730

Notes: The table presents logit estimates that relate the congruence between legislators' policy decisions and voter groups' majority preferences to indicators for voter subgroups (Female vs. Male, Old vs. Young, Tertiary degree vs. No degree, High vs. Low income, Left vs. Center and Right, Center vs. Left and Right, Right vs Left and Center). Table A1 explains the voter subgroups. Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Table A6: Substantive representation by legislators with the same and opposing characteristics

<i>Dependent variable:</i> Voter group	Vote congruence										
	Female	Male	>50 years	≤50 years	High educ.	Low educ.	Urban	Rural	Left- wing	Center	Right- wing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Shared characteristic	0.025 (0.034)	- (0.032)	0.010 (0.028)	- (0.034)	0.012 (0.034)	- (0.023)	- (0.033)	0.036 (0.032)	3.218*** (0.325)	1.353*** (0.129)	1.924*** (0.237)
Discrete effect in %	0.613 (0.850)	- (0.799)	0.256 (0.697)	- (0.841)	0.310 (0.854)	- (0.571)	- (0.832)	0.898 (0.798)	34.741 (2.778)	30.750 (2.587)	38.424 (3.196)
MP demographics									✓	✓	✓
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓			
Observations	52,952	52,952	52,952	52,952	52,952	52,952	51,792	51,792	53,057	53,057	53,057
Pseudo R ²	0.1699	0.1775	0.1777	0.1681	0.1679	0.1750	0.1670	0.2050	0.4084	0.1799	0.2915

Notes: The dependent variable is a legislator's congruence with the majority preferences of female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), voters from urban municipalities (7), voters from rural municipalities (8), left-wing voters (9), centrist voters (10), and right-wing voters (11). Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A7: Substantive representation by legislators with the same and different characteristics–Temporal variation

<i>Dependent variable:</i> Voter group	Female	Male	>50 years	Vote congruence ≤50 years	High educ.	Low educ.	Urban	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Large electoral margin								
Shared characteristic	0.119* (0.053)	-0.098 (0.058)	0.008 (0.048)	-0.020 (0.039)	0.082 (0.045)	-0.036 (0.040)	-0.0002 (0.043)	-0.014 (0.045)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	19,755	19,755	19,755	19,755	19,755	19,755	19,755	19,755
Pseudo R ²	0.1873	0.2083	0.2096	0.1757	0.1711	0.1995	0.2084	0.2856
Panel B: Small electoral margin								
Shared characteristic	0.002 (0.024)	0.023 (0.028)	-0.013 (0.025)	0.013 (0.033)	0.026 (0.026)	0.010 (0.022)	-0.049* (0.022)	0.050** (0.016)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	33,197	33,197	33,197	33,197	33,197	33,197	32,037	32,037
Pseudo R ²	0.1711	0.1629	0.1631	0.1756	0.1918	0.1624	0.1562	0.1683

Notes: The dependent variable is a legislator's congruence with the majority preferences of female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), voters from urban municipalities (7), and voters from rural municipalities (8). The data set is restricted to observations from legislative periods 44 to 47 (48 to 52) in Panel A (B). Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A8: Substantive representation by legislators with the same and different characteristics–Electoral competition

<i>Dependent variable:</i> Voter group	Female	Male	>50 years	≤50 years	High educ.	Low educ.	Urban	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Large electoral margin								
Shared characteristic	0.057 (0.417)	-0.141* (0.039)	-0.054 (0.408)	-0.003 (0.972)	0.073 (0.322)	-0.081 (0.120)	0.039 (0.585)	-0.080 (0.281)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	11,277	11,272	11,272	11,277	11,277	11,277	11,045	11,040
Pseudo R ²	0.1832	0.1839	0.1879	0.1807	0.1834	0.1857	0.1820	0.2194
Panel B: Small electoral margin								
Shared characteristic	0.028 (0.038)	0.007 (0.034)	0.018 (0.029)	-0.036 (0.038)	-0.027 (0.037)	0.029 (0.025)	-0.054 (0.036)	0.061 (0.036)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	40,353	40,353	40,353	40,353	40,353	40,353	39,433	39,433
Pseudo R ²	0.1650	0.1756	0.1741	0.1639	0.1634	0.1712	0.1621	0.1993
Panel C: Interaction								
Shared characteristic	-0.004 (0.039)	0.040 (0.035)	0.009 (0.032)	-0.017 (0.041)	-0.002 (0.039)	0.017 (0.026)	-0.030 (0.037)	0.032 (0.036)
Vote margin	-0.189 (0.261)	1.427*** (0.410)	0.106 (0.435)	0.170 (0.296)	-0.180 (0.401)	0.051 (0.262)	0.156 (0.534)	0.349 (0.286)
Shared characteristic × Vote margin	0.905 (0.574)	-1.832*** (0.501)	-0.112 (0.512)	-0.215 (0.680)	0.127 (0.523)	-0.392 (0.387)	-0.063 (0.585)	-0.040 (0.559)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	51,979	51,979	51,979	51,979	51,979	51,979	50,827	50,827
Pseudo R ²	0.1687	0.1771	0.1768	0.1671	0.1672	0.1741	0.1659	0.2038

Notes: The dependent variable is a legislator's congruence with the majority preferences of female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), voters from urban municipalities (7), and voters from rural municipalities (8). The data set is restricted to observations from legislators with vote margins above (below) the 3rd quartile in Panel A (B). Panel C uses an interaction between the indicator for shared characteristics and the legislator's (continuous) previous vote margin. Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A9: Substantive representation by legislators with the same and different characteristics–District magnitude

<i>Dependent variable:</i> Voter group	Female	Male	>50 years	Vote congruence ≤50 years	High educ.	Low educ.	Urban	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: District magnitude > 10								
Shared characteristic	0.048 (0.042)	-0.008 (0.040)	-0.008 (0.027)	-0.018 (0.038)	0.063 (0.047)	-0.035 (0.032)	-0.054 (0.048)	0.039 (0.049)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	27,037	27,037	27,037	27,037	27,037	27,037	26,473	26,473
Pseudo R ²	0.1393	0.1504	0.1494	0.1385	0.1415	0.1448	0.1384	0.1746
Panel B: District magnitude ≤ 10 and Council of States								
Shared characteristic	0.007 (0.054)	-0.024 (0.048)	0.028 (0.044)	-0.020 (0.051)	-0.040 (0.048)	0.040 (0.028)	-0.013 (0.048)	0.031 (0.042)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	25,238	25,238	25,238	25,238	25,238	25,238	24,642	24,642
Pseudo R ²	0.2069	0.2094	0.2117	0.2048	0.2011	0.2115	0.2024	0.2421
Panel C: Interaction								
Shared characteristic	0.062 (0.058)	-0.053 (0.053)	0.021 (0.041)	-0.015 (0.051)	-0.017 (0.050)	0.018 (0.028)	-0.026 (0.058)	0.011 (0.054)
District magnitude	0.001 (0.002)	-0.003 (0.002)	-0.0006 (0.002)	0.001 (0.002)	-0.0010 (0.003)	-0.0006 (0.001)	0.003 (0.004)	0.0008 (0.002)
Shared characteristic × District magnitude	-0.002 (0.003)	0.002 (0.003)	-0.0006 (0.002)	-0.0008 (0.003)	0.002 (0.003)	-0.001 (0.002)	-0.002 (0.004)	0.002 (0.004)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	52,952	52,952	52,952	52,952	52,952	52,952	51,792	51,792
Pseudo R ²	0.1694	0.1771	0.1773	0.1675	0.1669	0.1747	0.1665	0.2048

Notes: The dependent variable is a legislator's congruence with the majority preferences of female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), voters from urban municipalities (7), and voters from rural municipalities (8). In Panel A, the data set is restricted to observations from members of the National Council from cantons with more than ten seats. In Panel B, the data set is limited to observations from members of the Council of States Councilors and members of the National Council from cantons with ten or less seats. Panel C uses an interaction term between the continuous measure for district magnitude and the indicator for shared demographics. Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A10: Substantive representation by legislators with the same and different characteristics–Final terms

<i>Dependent variable:</i> Voter group	Female	Male	>50 years	Vote congruence ≤50 years	High educ.	Low educ.	Urban	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Not running for reelection								
Shared characteristic	0.171* (0.076)	-0.114 (0.063)	0.037 (0.078)	0.0005 (0.103)	0.079 (0.075)	-0.072 (0.061)	-0.034 (0.076)	0.057 (0.074)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	10,422	10,422	10,422	10,422	10,422	10,422	10,422	10,429
Pseudo R ²	0.2117	0.2110	0.2166	0.2071	0.2013	0.2111	0.2097	0.2440
Panel B: Running for reelection								
Shared characteristic	0.002 (0.040)	0.017 (0.035)	-0.001 (0.031)	-0.024 (0.039)	-0.010 (0.041)	0.017 (0.025)	-0.030 (0.038)	0.026 (0.037)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	40,449	40,449	40,449	40,449	40,449	40,449	40,449	40,449
Pseudo R ²	0.1592	0.1692	0.1651	0.1634	0.1630	0.1627	0.1577	0.1950
Panel C: Interaction								
Shared characteristic	0.113 (0.071)	-0.101 (0.057)	0.025 (0.066)	0.022 (0.099)	0.092 (0.067)	-0.074 (0.054)	-0.085 (0.065)	0.070 (0.060)
Runs next election (=1)	0.024 (0.034)	-0.122* (0.053)	0.007 (0.062)	-0.033 (0.036)	0.021 (0.051)	-0.071 (0.041)	-0.055 (0.059)	0.024 (0.035)
Shared characteristic × Runs next election (=1)	-0.095 (0.081)	0.112 (0.066)	-0.034 (0.070)	-0.036 (0.104)	-0.105 (0.075)	0.088 (0.061)	0.059 (0.071)	-0.042 (0.072)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	51,323	51,323	51,323	51,323	51,323	51,323	51,323	51,323
Pseudo R ²	0.1686	0.1765	0.1742	0.1712	0.1698	0.1715	0.1671	0.2043

Notes: The dependent variable is a legislator's congruence with the majority preferences of female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), voters from urban municipalities (7), and voters from rural municipalities (8). The data set is restricted to observations from legislators not running for reelection in Panel A and those running for reelection in Panel B. Panel C uses an interaction between the indicators for shared characteristics and running for reelection. Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A11: Substantive representation by legislators with the same and different characteristics—Terms in parliament

<i>Dependent variable:</i> Voter group	Female	Male	>50 years	Vote congruence ≤50 years	High educ.	Low educ.	Urban	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: ≥ 3 Terms in parliament								
Shared characteristic	0.135* (0.065)	-0.128* (0.063)	-0.012 (0.062)	-0.047 (0.074)	-0.044 (0.052)	-0.015 (0.043)	-0.045 (0.065)	0.005 (0.058)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	16,202	16,202	16,202	16,202	16,202	16,202	15,676	15,676
Pseudo R ²	0.1582	0.1570	0.1578	0.1591	0.1703	0.1534	0.1468	0.1721
Panel B: < 3 Terms in parliament								
Shared characteristic	-0.025 (0.041)	0.046 (0.037)	0.030 (0.029)	-0.038 (0.036)	0.038 (0.040)	0.0004 (0.025)	-0.036 (0.035)	0.044 (0.036)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	36,057	36,057	36,057	36,057	36,057	36,057	35,423	35,423
Pseudo R ²	0.1713	0.1835	0.1828	0.1688	0.1648	0.1807	0.1726	0.2154
Panel C: Interaction								
Shared characteristic	-0.135 (0.084)	0.193* (0.083)	0.036 (0.063)	-0.037 (0.072)	-0.068 (0.075)	0.108 (0.060)	-0.068 (0.067)	0.044 (0.067)
Terms in parliament	-0.050** (0.017)	0.067* (0.029)	-0.011 (0.030)	-0.020 (0.016)	-0.037 (0.021)	0.020 (0.018)	-0.028 (0.028)	-0.011 (0.016)
Shared characteristic × Terms in parliament	0.073* (0.035)	-0.096** (0.036)	-0.008 (0.030)	-0.001 (0.035)	0.038 (0.029)	-0.052* (0.024)	0.014 (0.028)	-0.004 (0.027)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	52,952	52,952	52,952	52,952	52,952	52,952	51,792	51,792
Pseudo R ²	0.1702	0.1778	0.1778	0.1682	0.1680	0.1751	0.1671	0.2050

Notes: The dependent variable is a legislator's congruence with the majority preferences of female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), voters from urban municipalities (7), and voters from rural municipalities (8). The data set is restricted to observations from legislators who served three or more (fewer than three) terms in parliament when casting their vote in Panel A (B). Panel C uses an interaction between the indicator for shared characteristics and the legislator's number of terms in parliament. Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A12: Substantive representation by legislators with the same and different characteristics–Opposing majority preferences

<i>Dependent variable:</i> Voter group	Female	Male	>50 years	≤50 years	High educ.	Low educ.	Urban	Rural
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Opposing majority preferences								
Shared characteristic	0.053 (0.092)	0.053 (0.092)	-0.079 (0.097)	-0.079 (0.097)	0.016 (0.091)	0.019 (0.091)	-0.036 (0.087)	-0.036 (0.087)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	5,990	5,990	6,584	6,584	8,815	8,815	7,882	7,882
Pseudo R ²	0.4212	0.4212	0.5120	0.5120	0.4065	0.4065	0.3542	0.3542
Panel B: Identical majority preferences								
Shared characteristic	0.018 (0.035)	-0.018 (0.035)	0.027 (0.033)	-0.027 (0.033)	0.009 (0.032)	-0.008 (0.032)	-0.049 (0.038)	0.049 (0.038)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓
Canton FE	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓
Party-wing FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	46,962	46,962	46,368	46,368	44,137	44,137	43,910	43,910
Pseudo R ²	0.1741	0.1741	0.1727	0.1727	0.1667	0.1667	0.1911	0.1911

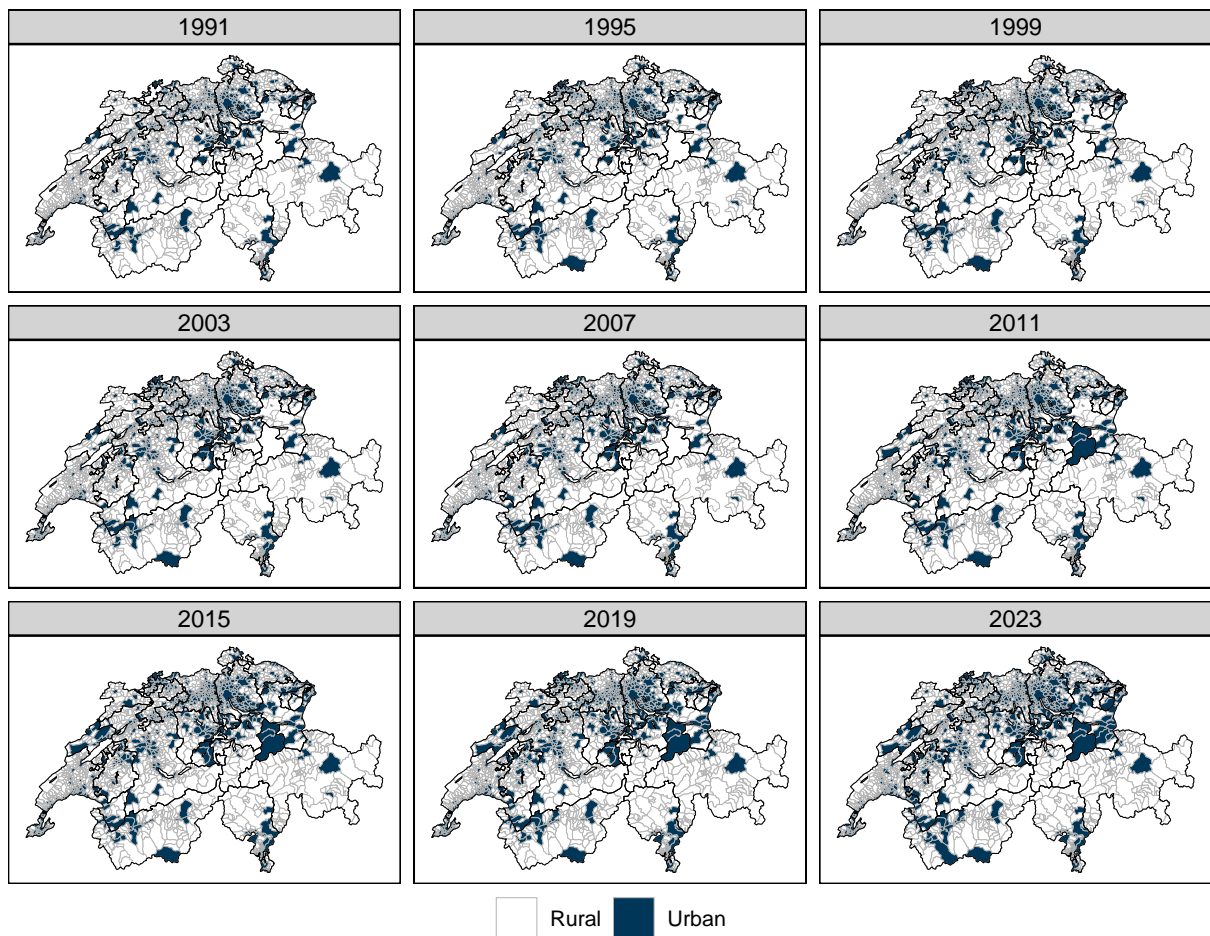
Notes: The dependent variable is a legislator's congruence with the majority preferences of female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), voters from urban municipalities (7), and voters from rural municipalities (8). In Panel A (B), the data set is restricted to referenda with opposing (identical) majority votes between the two demographic voter groups of a characteristic. Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A13: Substantive representation by legislators with the same and differing characteristics–Individual voter data

<i>Dependent variable:</i> Voter group	Vote congruence								
	Female	Male	>50 years	≤50 years	High educ.	Low educ.	Left	Center	Right
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Shared characteristics	0.011 (0.009)	0.000 (0.008)	0.014 (0.008)	-0.005 (0.008)	0.016 (0.011)	0.002 (0.007)	1.274*** (0.098)	0.4466*** (0.045)	0.6884*** (0.080)
Referendum FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
MP canton FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chamber FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
MP party-wing FE	✓	✓	✓	✓	✓	✓			
Voter party-wing FE	✓	✓	✓	✓	✓	✓			
MP Demographics							✓	✓	✓
Voter Demographics							✓	✓	✓
Observations	24,414,865	25,426,331	29,956,477	20,009,169	14,120,699	35,065,125	12,352,309	23,080,107	7,218,383
Pseudo R ²	0.0387	0.0319	0.0342	0.0358	0.0529	0.0319	0.1240	0.0415	0.0605

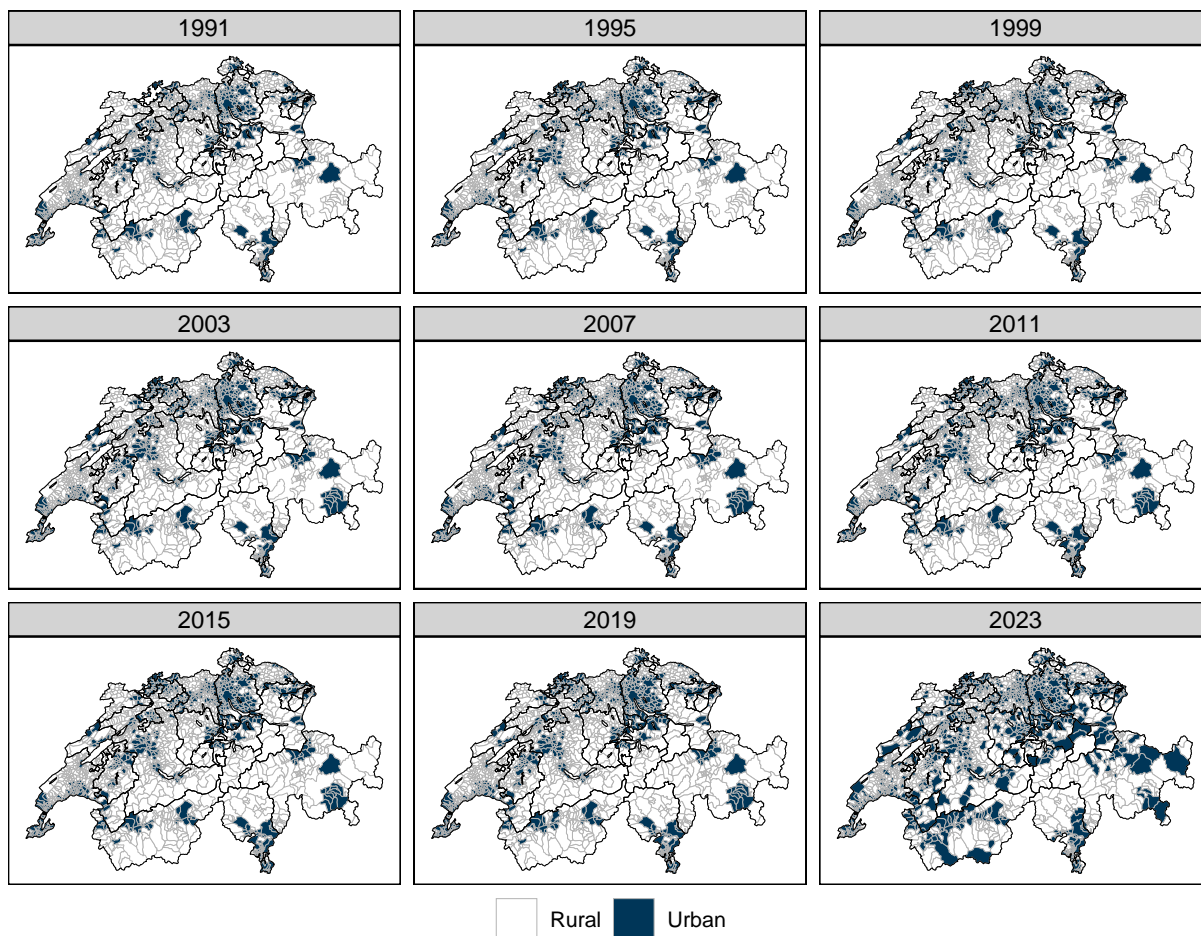
Notes: The dependent variable is congruence between the votes of legislator i and voter j in referendum r . The data is restricted to female voters (1), male voters (2), voters aged 50 and older (3), voters under 50 (4), voters with a tertiary degree (5), voters without a tertiary degree (6), left voters (7), center voters (8), and right voters (9). *Shared characteristic* is an indicator equal to one if the legislator belongs to the respective voter group of the subsample. Robust standard errors clustered at both the politician and referendum levels are reported in parentheses. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Appendix B: Additional Figures



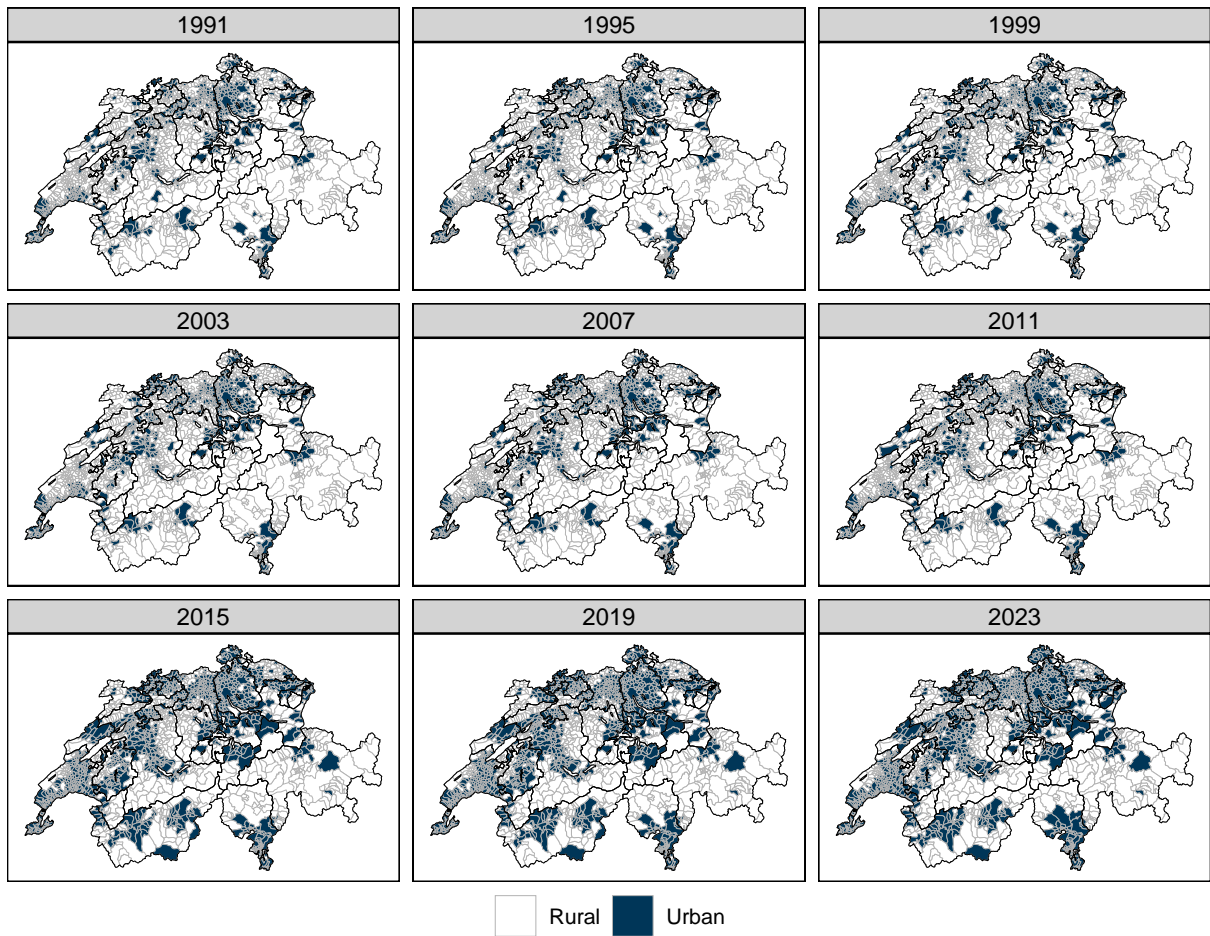
Notes: Municipalities are categorized based on the Eurostat (2025) Degree of Urbanization (DEGURBA). A municipality is classified as urban if it has a population of more than 5,000 or a population density of more than 300 inhabitants per square kilometer.

Figure B1: Urban and rural municipalities 1991-2023 - Own categorization based on DEGURBA



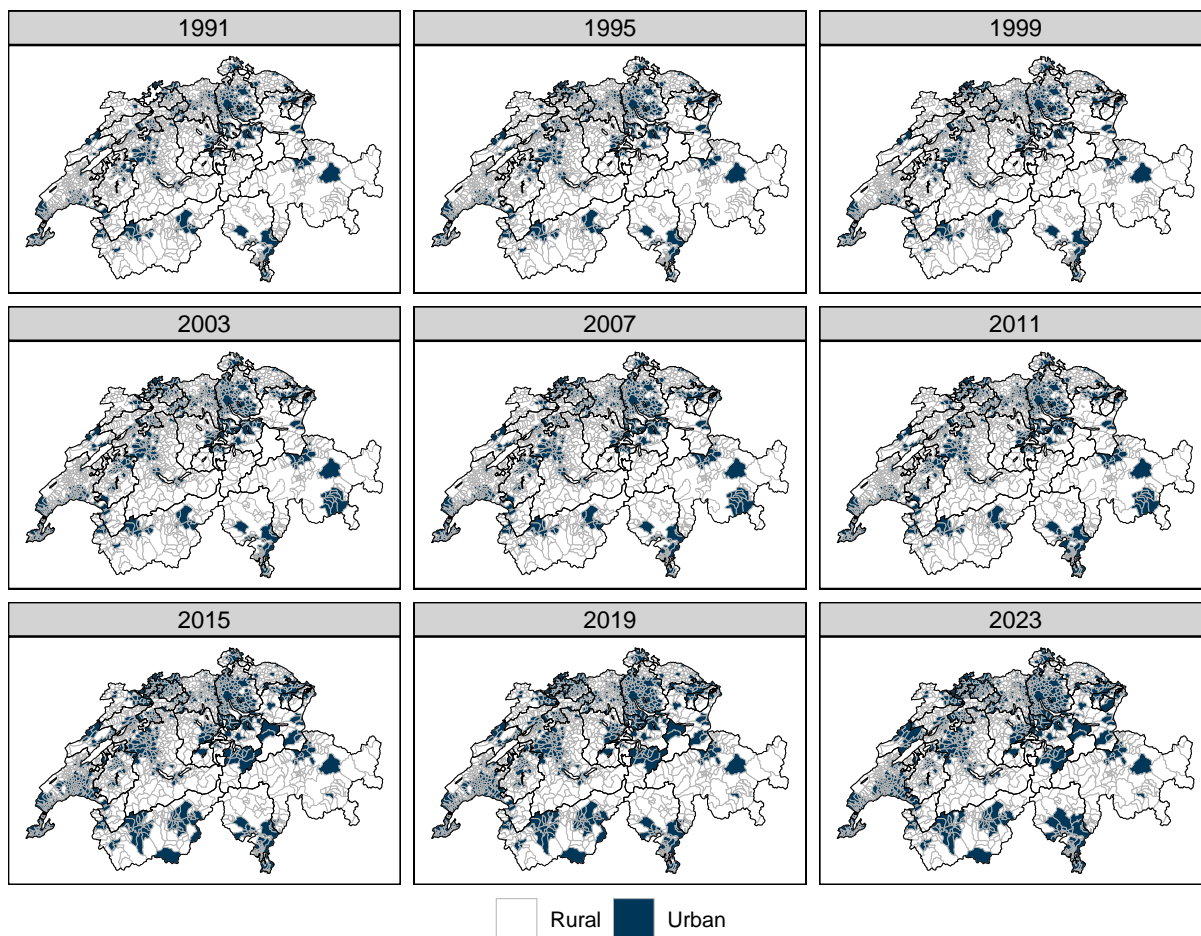
Notes: Municipalities are categorized based on the Federal Statistical Office (2025b) urban-rural typology. The classification was compiled for the years 1990, 2000, 2012, and 2020, with changing classification criteria.

Figure B2: Urban and rural municipalities 1991-2023 - BfS urban-rural typology



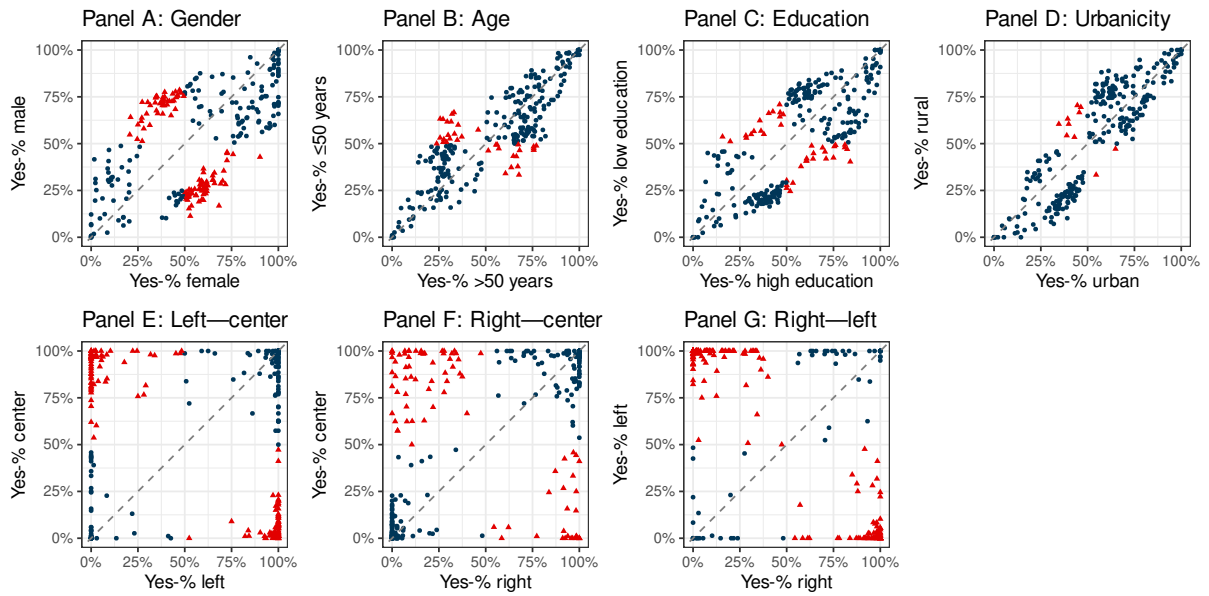
Notes: Municipalities are categorized based on the Federal Statistical Office (2025b) nine-level municipality typology. The classification was compiled for the years 1990, 2000, 2012, and 2020, with changing classification criteria.

Figure B3: Urban and rural municipalities 1991-2023 - BFS nine-level municipality typology



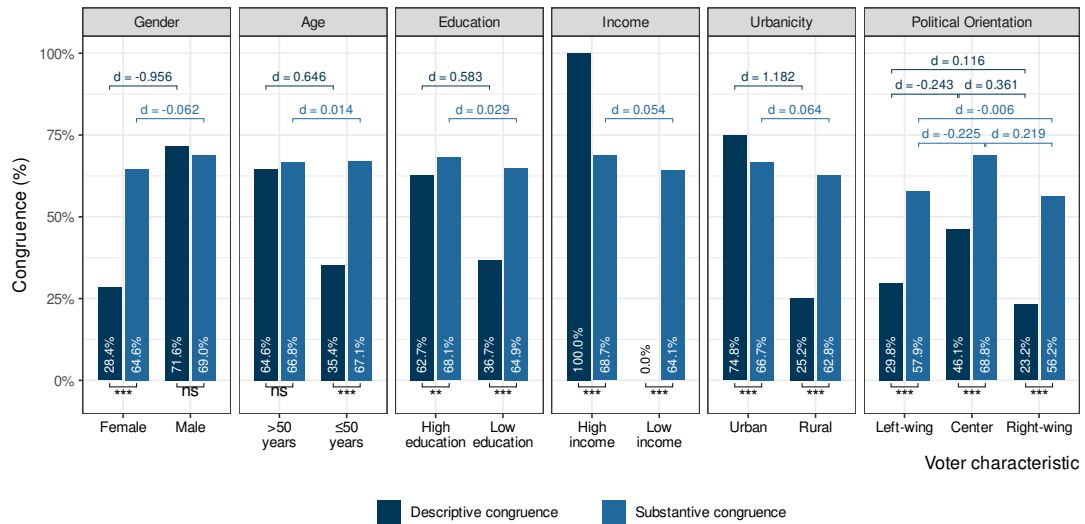
Notes: Municipalities are categorized based on the Federal Statistical Office (2025b) agglomerations. The classification was compiled for the years 1990, 2000, 2012, and 2020, with changing classification criteria.

Figure B4: Urban and rural municipalities 1991-2023 - BfS agglomerations



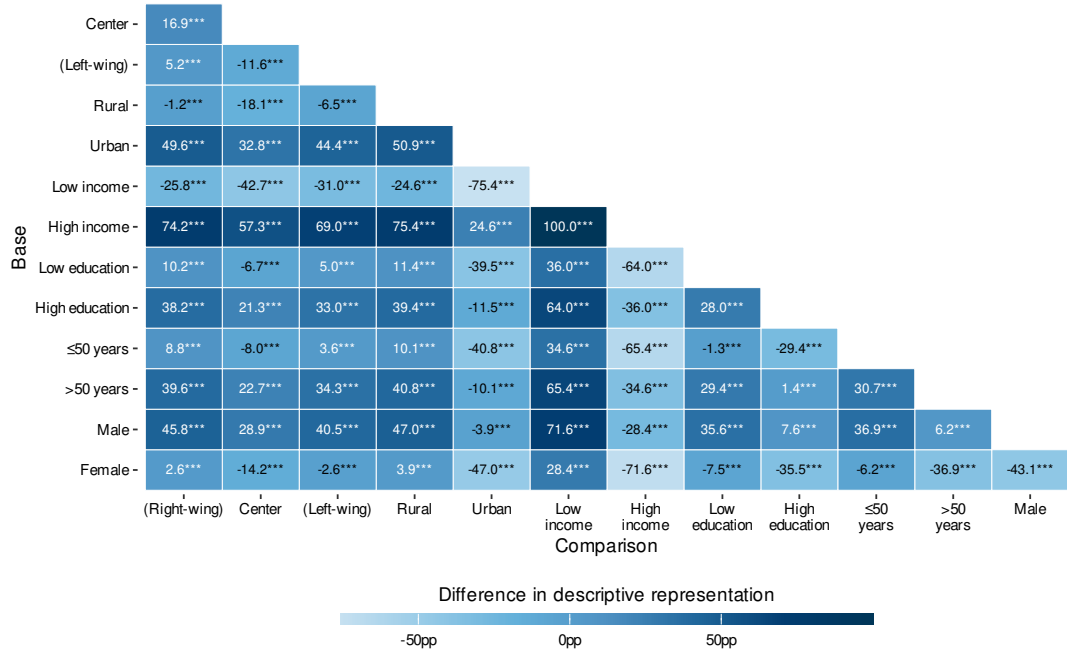
Notes: The figure shows scatter plots comparing the share of yes votes between two distinct legislator subgroups per characteristic in 266 popular votes. Blue dots denote referenda in which the majority of the two subgroups voted the same (both $\geq 50\%$ or both $< 50\%$ yes). Red triangles indicate referenda in which the groups' majorities differ. The dashed 45° line indicates perfect agreement.

Figure B5: Parliamentary decisions across legislator groups



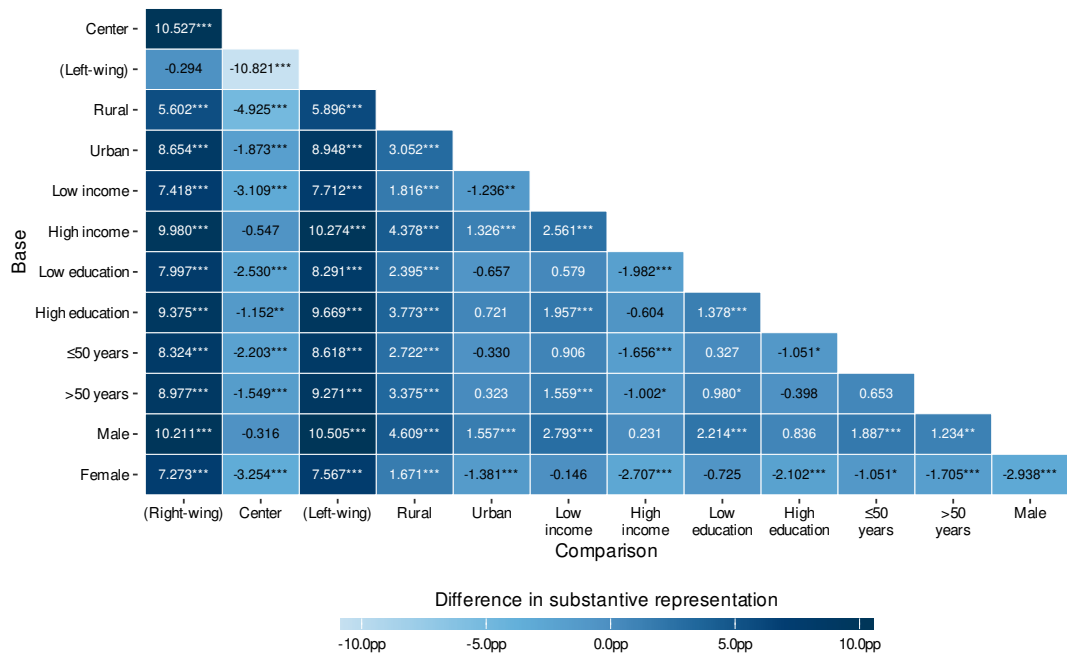
Notes: The figure shows the legislator-aggregated congruence between legislators' and voters' demographic characteristics (dark blue bars) and decisions (light blue bars). Descriptive representation is measured as alignment between the demographic characteristic of voter group g and that of an individual legislator i . Substantive representation is measured as the average alignment between an individual legislator i 's decisions and the majority decision of the voters with demographic characteristic c in the identical referendum r . Cohen's d values above the bars, p -values below, where *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$.

Figure B6: Substantive and descriptive representation - Legislator aggregation



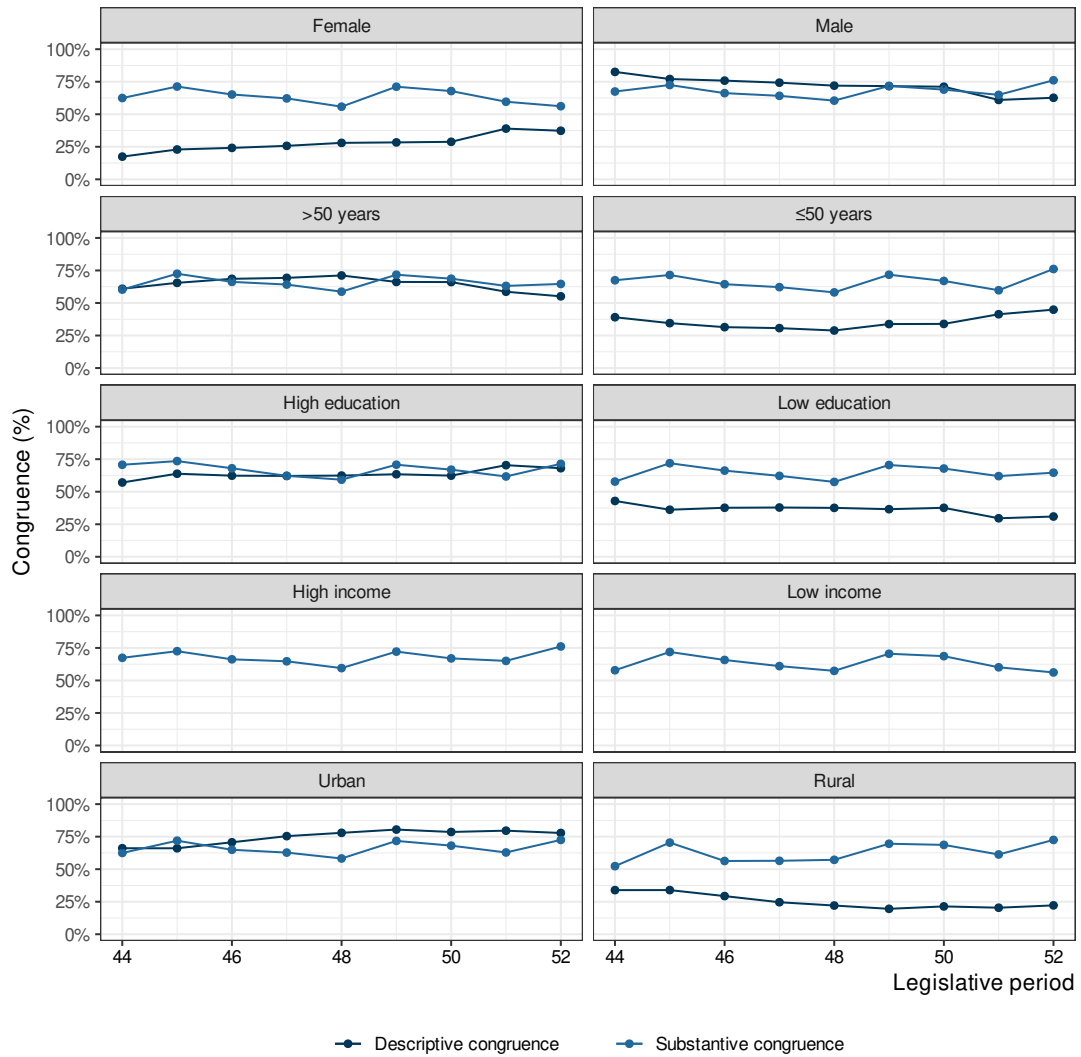
Notes: The figure shows pairwise differences in descriptive representation between voter groups in percentage points. Each cell compares a *Base* group (row) to a *Comparison* group (column). Positive values indicate that the descriptive representation of the *Base* group is higher than that of the *Comparison* group; negative values indicate the opposite. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Figure B7: Pairwise differences in descriptive representation



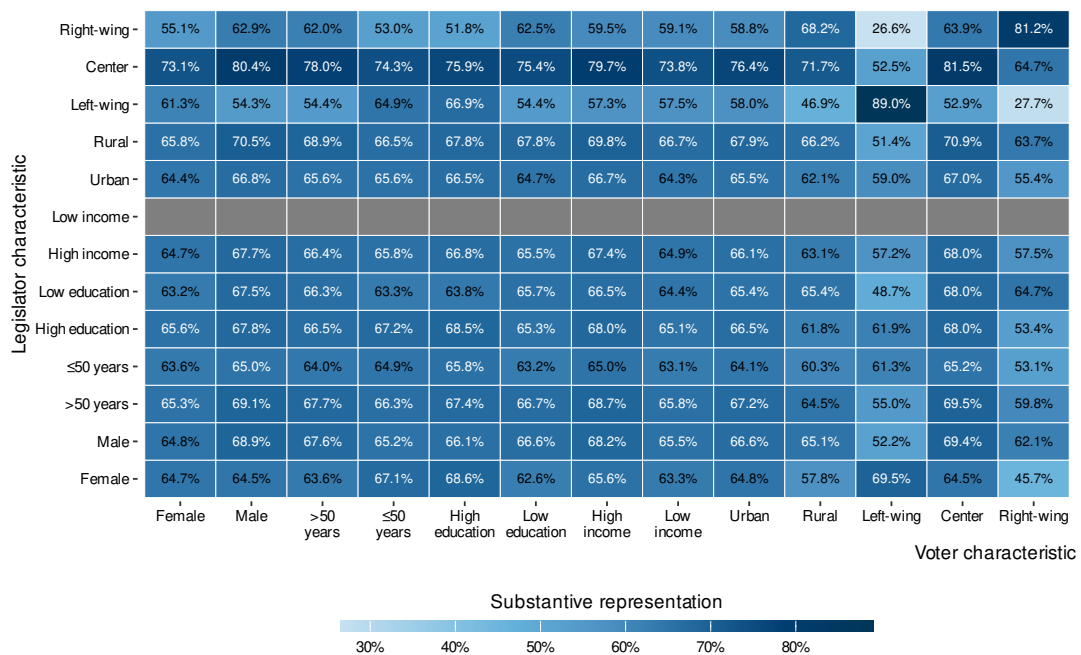
Notes: The figure shows raw pairwise differences in substantive representation between voter groups in percentage points. Each cell compares a *Base* group (row) to a *Comparison* group (column). Positive values indicate that the substantive representation of the *Base* group is higher than that of the *Comparison* group; negative values indicate the opposite. *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Figure B8: Pairwise raw differences in substantive representation



Notes: The figure shows the congruence between legislators' and voters' demographic characteristics (dark blue lines) and decisions (light blue lines) across legislative periods. Legislative periods range over the following years: Period 44 (1991-1995), 45 (1995-1999), 46 (1999-2003), 47 (2003-2007), 48 (2007-2011), 49 (2011-2015), 50 (2015-2019), 51 (2019-2023), and 52 (2023-2027).

Figure B9: Substantive and descriptive representation over time



Notes: The figure shows average congruence levels between the majority preference of voter groups (x-axis) and the decisions of legislator groups (y-axis).

Figure B10: Substantive representation of voter groups by individual legislator groups