Supplementary Material

Bound by Borders: Voter Mobilization through Social Networks*

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Abstract

A vast and growing quantitative literature considers how social networks shape political mobilization but the degree to which turnout decisions are strategic remains ambiguous. Unlike previous studies, we establish personal links between voters and candidates and exploit discontinuous incentives to mobilize across district boundaries to estimate causal effects. Considering three types of networks—families, coworkers, and immigrant communities—we show that a group member's candidacy acts as a mobilizational impulse that propagates through the group's network. In family networks, some of this impulse is non-strategic, surviving past district boundaries. However, the bulk of family mobilization is bound by the candidate's district boundary, as is the entirety of the mobilizational effects in the other networks.

The supplementary material includes the following appendices:

- Appendix A: Supplementary tables and figures
- Appendix B: Information about sample construction
- Appendix C: Information about candidate selection
- Appendix D: Additional analyses of heterogenous mobilization effects

*This online appendix provides supplementary material for the article published in the *British Journal of Political Science*.

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Appendix A: Supplementary analyses

Table A.1: Municipality-level summary statistics

	Included municipalities		Excluded municipalities	
	Mean	SD	Mean	SD
Population	84,571	132,625	7,572	9,428
Vote-eligible population	66,784	106,118	5,975	7,409
Pre-school age (percent)	7.24	0.70	6.47	1.28
School age (percent)	12.28	0.98	12.15	1.43
66 years and older (percent)	15.03	2.48	18.35	3.58
Women (percent)	49.72	0.73	49.12	1.04
Unemployed (percent)	2.52	0.60	2.01	0.71
Immigrants (percent)	13.68	4.65	9.24	3.41
Turnout (percent)	58.36	4.01	63.12	6.07
N	25		403	

Notes: This table reports summary statistics for various outcomes in municipalities that are included (N = 25) versus not included (N = 403) in our sample. The data are from 2015 only. Supplementary data from Fiva, Halse and Natvik (2020). The included municipalities [nation-wide population rank] are Oslo [1], Bergen [2], Trondheim [3], Stavanger [4], Bærum [5], Fredrikstad [7], Sandnes [8], Drammen [10], Asker [11], Sarpsborg [12], Skien [13], Skedsmo [14], Bodø [15], Ålesund [16], Karmøy [20], Tønsberg [21], Haugesund [22], Porsgrunn [23], Mandal [75], Vefsn [87], Hammerfest [111], Våle [120], Tynset [188], Radøy [202], and Bremanger [238].

Table A.2: Networks summary statistics

Panel A: 2015	Family (N = 1,400,563)		Co-workers (N = 543,781)		Immigrants (N = 119,905)	
	Close	Extended	Age-estbl.	Estbl.	3-digit	2-digit
Number of unique networks	1,400,563	1,400,563	171,716	97,443	8,372	4,167
Voters with $AnyDistrict = 1$	40,656	115,058	36,357	77,072	47,190	64,092
Voters with $SameDistrict = 1$	9,664	18,533	12,154	26,463	3,049	4,899
Network size (average)	4.85	14.92	3.17	5.58	14.32	28.77
Distance (km) $\|AnyDistrict = 1$	260.17	309.94	85.43	79.79	324.81	297.09
Distance (km) $\|SameDistrict = 1$	4.59	6.14	8.28	7.97	9.13	9.12
Panel B: 2019	**Family (N = 1,400,563)**		**Co-workers (N = 543,781)**		**Immigrants (N = 119,905)**	
	Close	Extended	Age-estbl.	Estbl.	3-digit	2-digit
Number of unique networks	1,400,563	1,400,563	171,716	97,443	8,372	4,167
Voters with $AnyDistrict = 1$	36,961	111,096	36,563	79,485	48,917	64,676
Voters with $SameDistrict = 1$	8,914	17,768	11,522	25,680	2,173	3,619
Network size (average)	4.85	14.92	3.17	5.58	14.32	28.77
Distance (km) $\|AnyDistrict = 1$	269.69	325.17	109.68	100.45	352.43	307.85
Distance (km) $\|SameDistrict = 1$	4.95	6.40	8.38	8.04	8.96	9.09

Notes: The table shows summary statistics relating to the social networks of voters and politicians in our estimation sample. 'Number of unique networks' reports the total number of social networks within each category (this is identical to N for families since family connections are unique to each person). 'Voters with..' counts the number of individual voters for whom the indicated variables are equal to one. 'Network size' reports the average number of connected members in each social network. 'Distance..' reports the average distance in kilometers between voters and (the nearest, if multiple) politicians, conditional on an existing connection and co-residence, respectively. The full distributions of these variables are shown in Appendix Figures A.3 and A.4.

Table A.3: Descriptive Statistics of Politicians

	2015			2019		
	Family	Co-workers	Immigrants	Family	Co-workers	Immigrants
Political attributes						
First time (percent)	40.51	41.50	62.73	41.22	39.62	55.12
Party bonus (percent)	8.55	9.40	5.40	8.96	9.65	6.00
List rank (average)	14	13	15	15	14	16
Elected (percent)	16.42	18.85	10.29	15.66	17.75	8.88
Personal characteristics						
Age (average)	50	47	44	50	49	46
Female (percent)	42.40	43.31	49.75	43.24	43.52	51.44
Immigrant (percent)	2.43	3.31	100.00	2.65	3.80	100.00
Higher education (percent)	45.77	45.49	59.79	48.92	50.07	63.47
Income (average)	54,805	59,460	58,199	54,593	59,468	60,385
N	47,483	26,853	1,186	43,787	24,662	1,250

*Notes: The table shows descriptive statistics for politicians in our sample across social networks and years. The top four statistics are computed from Fiva, Sørensen and Vøllo (2021); 'First time' reports the percent of network candidates who ran for the first time in the indicated year. 'Party bonus' reports the percent of network candidates selected by their party to receive a 25% boost in personal votes (see Appendix C). 'List rank' reports candidates' average rank on the ballots. 'Elected' reports the percent of candidates who won a seat in the indicated year. The remaining statistics are computed from matched administrative data. 'Immigrant' is defined (as in the paper) as a person born outside of Scandinavia to non-Norwegian parents. 'Higher edication' is defined as having completed the first stage of higher education (undergraduate level). 'Income' (reported in constant (2015) USD) is defined as the sum of pre-tax market income from wages, self-employment and work-related cash transfers, including unemployment benefits, sick leave benefits, and parental leave benefits ("*pensjonsgivende inntekt*"). The table does not distinguish between candidates in narrow and broad networks as these are essentially the same regardless of the definition used.*

Table A.4: Extended family analyses

	(1) Parents	(2) Siblings	(3) Children	(4) Grandpar.	(5) Grandch.	(6) Nieces & nephews	(7) Aunts & uncles	(8) Cousins
No network candidate	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Any District	0.006	0.007	0.002	-0.030	-0.009	0.004	-0.002	-0.000
	(0.005)	(0.004)	(0.006)	(0.019)	(0.011)	(0.003)	(0.004)	(0.003)
Same District	0.032	0.012	0.035	0.006	0.001	0.008	0.003	-0.003
	(0.012)	(0.008)	(0.009)	(0.044)	(0.019)	(0.009)	(0.013)	(0.010)
Observations	2,801,126	2,801,126	2,801,126	2,801,126	2,801,126	2,801,126	2,801,126	2,801,126
Clusters	3,733	3,733	3,733	3,733	3,733	3,733	3,733	3,733
Mean turnout (%)	66.56	66.56	66.56	66.56	66.56	66.56	66.56	66.56

Notes: Each column represents a separate regression based on Equation (1), where the dependent variable is turnout for voter i in BSU b at time t. The independent variables of interest in each specification are indicator for candidacy among the type of family members specified in the column headers. Voters with multiple family candidates figure in only one category (whoever is geographically closest). Not reported, but also included in all models, are individual-BSU fixed effects and year fixed effects. Standard errors are clustered on the basic statistical unit level and reported in parenthesis.

Table A.5: Extended co-worker analyses

	2-5 co-workers		6-15 co-workers		16+ co-workers	
	(1) Age-estbl.	(2) Estbl.	(3) Age-estbl.	(4) Estbl.	(5) Age-estbl.	(6) Estbl.
No network candidate	ref.	ref.	ref.	ref.	ref.	ref.
Any District	-0.003	-0.006	-0.001	-0.005	0.001	-0.002
	(0.007)	(0.008)	(0.005)	(0.005)	(0.005)	(0.003)
Same District	0.028	0.040	0.016	0.017	0.005	0.006
	(0.014)	(0.017)	(0.008)	(0.009)	(0.008)	(0.004)
Observations	478,054	245,446	422,968	352,094	186,540	490,022
Clusters	3,681	3,640	3,644	3,647	3,555	3,657
Mean turnout (%)	64.72	64.39	66.60	63.91	70.85	69.42

Notes: Each column represents a separate regression based on Equation (1), where the dependent variable is turnout for voter i in BSU b at time t. All models are estimated within (complete) subsamples of equally-sized co-worker networks (i.e., not equally-sized bins), as specified in the column headers. The reported coefficients for β and γ in columns (3)-(4) of Table 1 thus reflect a weighted average of these individual effects. Not reported, but also included in all models, are individual-BSU fixed effects and year fixed effects. Standard errors are clustered on the basic statistical unit level and reported in parenthesis.

Table A.6: Extended immigrants analyses

	Europe inc. Russia		Africa		Asia		North America		South America	
	(1) 3-digit	(2) 2-digit	(3) 3-digit	(4) 2-digit	(5) 3-digit	(6) 2-digit	(7) 3-digit	(8) 2-digit	(9) 3-digit	(10) 2-digit
No network candidate	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
Any District	-0.007	-0.007	0.011	0.025	-0.007	-0.008	0.028	0.007	0.053	0.026
	(0.005)	(0.005)	(0.019)	(0.017)	(0.008)	(0.008)	(0.031)	(0.032)	(0.028)	(0.026)
Same District	0.040	0.008	0.079	0.057	0.039	0.056	-0.101	-0.033	-0.080	-0.047
	(0.021)	(0.015)	(0.025)	(0.022)	(0.018)	(0.015)	(0.355)	(0.124)	(0.058)	(0.039)
Observations	113,928	113,928	29,474	29,474	80,822	80,822	6,034	6,034	8,590	8,590
Clusters	3,453	3,453	2,479	2,479	3,134	3,134	1,710	1,710	1,880	1,880
Mean turnout (%)	33.92	33.92	48.55	48.55	46.76	46.76	54.52	54.52	49.44	49.44

Notes: Notes: Each column represents a separate regression based on Equation (1), where the dependent variable is turnout for voter i in BSU b at time t. All models are estimated within (complete) subsamples of immigrant networks originating from different continents, as specified in the column headers. The reported coefficients for β and γ in columns (5)-(6) of Table 1 thus reflect a weighted average of these individual effects. Not reported, but also included in all models, are individual-BSU fixed effects and year fixed effects. Standard errors are clustered on the basic statistical unit level and reported in parenthesis.

Table A.7: Results - Baseline networks analyses (geo-time fixed effects)

	Family		Co-workers		Immigrants	
	(1) Close	(2) Extended	(3) Age-estbl.	(4) Estbl.	(5) 3-digit	(6) 2-digit
No candidate in network	ref.	ref.	ref.	ref.	ref.	ref.
Any District	0.006	0.002	-0.000	-0.002	-0.004	-0.006
	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)	(0.004)
Same District	0.027	0.016	0.013	0.009	0.039	0.033
	(0.005)	(0.004)	(0.005)	(0.004)	(0.012)	(0.009)
Observations	2,029,996	2,029,996	752,908	752,908	150,494	150,494
Clusters	3,683	3,683	3,624	3,624	3,241	3,241
Mean turnout (%)	66.56	66.56	66.50	66.50	41.19	41.19

Notes: Each column represents a separate regression based on a variant of Equation (1) that also includes BSU-time fixed effects. The dependent variable is turnout for voter i in BSU b at time t. The model omits singleton-observations (i.e., people who move between periods). Not reported, but also included in all models, are individual-BSU fixed effects and year fixed effects. Standard errors are clustered on the basic statistical unit level and reported in parenthesis.

Table A.8: Summary of electoral efficiency, by network types

	Family		Co-workers		Immigrants	
	Close	Extended	Age-estbl.	Estbl.	3-digit	2-digit
Mean	55.7	43.3	79.1	73.5	47.6	38.8
Standard dev.	37.5	33.4	27.2	28.3	35.5	33.7
Minimum	0.0	0.0	2.4	2.2	0.9	1.0
Maximum	100.0	100.0	100.0	100.0	100.0	100.0
N	3,653,458	3,663,688	392,949	197,477	10,626	4,945

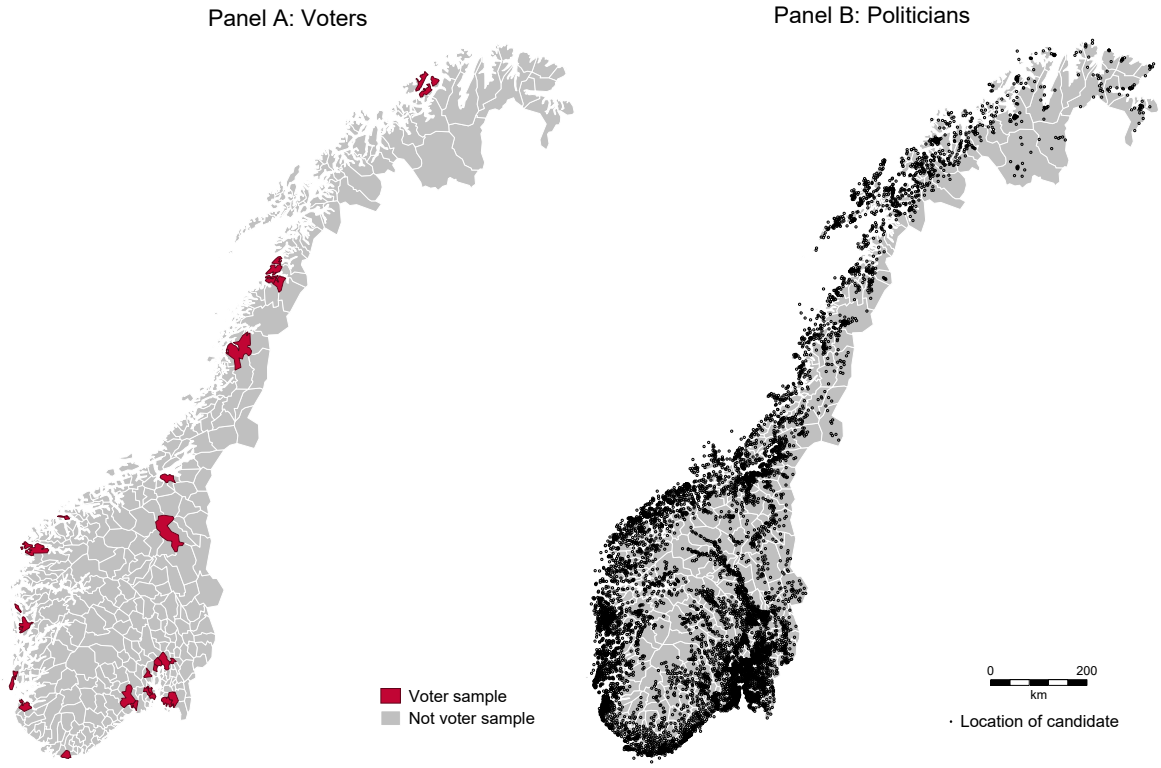
Notes: The table reports summary statistics on the electoral efficiency of each social network, using data from the entire Norwegian population (in 2015). Electoral efficiency is defined the average share of network members who reside in the same district. The unit of observation is at the level of the individual networks.

Table A.9: Alternate immigrant specifications

	(1)	(2)	(3)	(4)
Any District	ref.	ref.	ref.	ref.
Same District (Birthcountry)	0.008			0.005
	(0.007)			(0.008)
Same District (Occupation)		0.015		0.011
		(0.006)		(0.006)
Same District (Both)			0.036	0.029
			(0.014)	(0.015)
Observations	96,107	96,107	96,107	96,107
Clusters	3,419	3,419	3,419	3,419
Mean turnout (%)	44.22	44.22	44.22	44.22

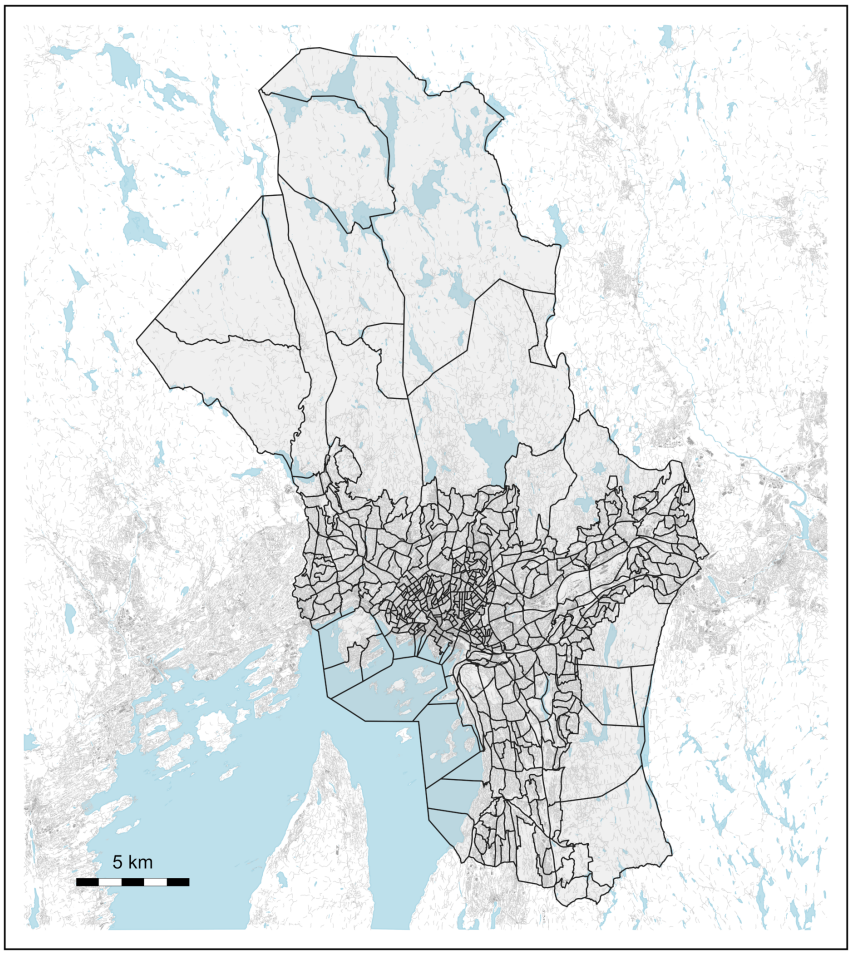
Notes: Each column represents a separate regression based on a modified Equation (1), where observations with AnyDistrict = 1 constitutes the reference category (β in equation (1) is no longer identified). The dependent variable is turnout for voter i in BSU b at time t. The independent variables capture effects of having a politician in the network originating from the same country of birth, the same occupation, or both, respectively. Not reported, but also included in all models, are individual-BSU fixed effects and year fixed effects. Standard errors are clustered on the basic statistical unit level and reported in parenthesis.

Figure A.1: Maps of Norway



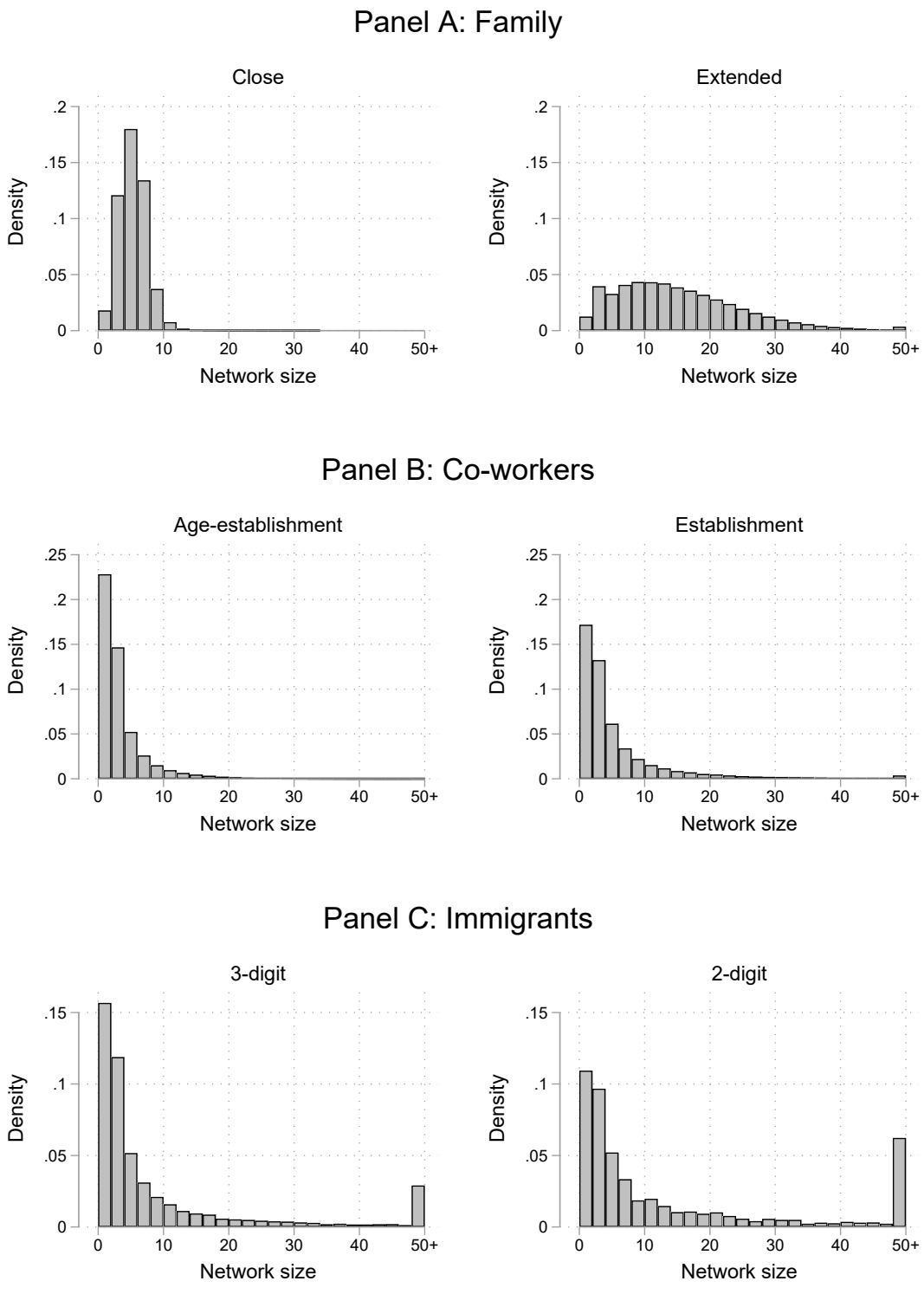
Notes: Panel A highlights the 25 municipalities for which our estimation sample covers the population of voters. This includes the four largest cities in Norway (Oslo, Bergen, Trondheim, and Stavanger). Panel B shows the locations of all political candidates (in 2015).

Figure A.2: Map of basic statistical units in Oslo municipality



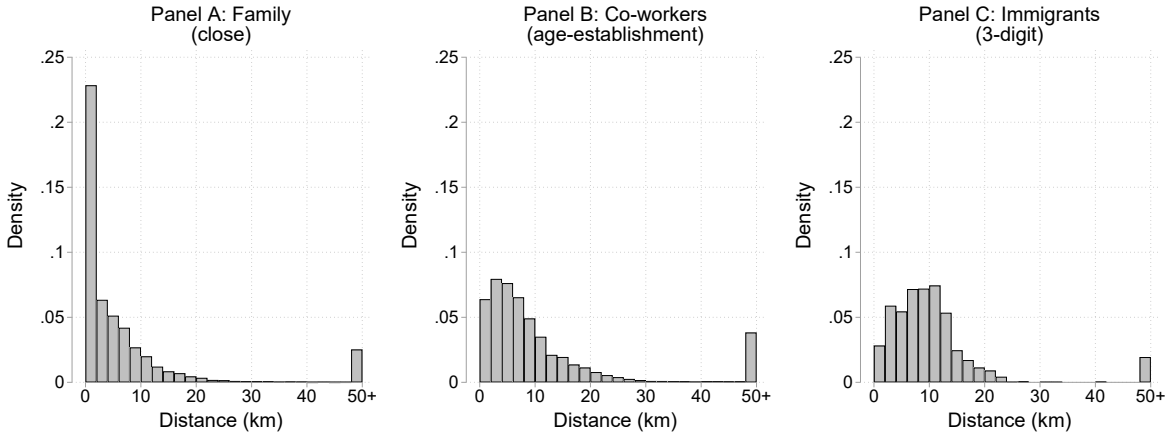
Notes: This map shows the basic statistical units (BSU's) of Oslo municipality. In total, there are 589 BSU's covering about 140 square kilometres. Like in the rest of Norway, each BSU is constructed to cover homogenous areas in terms of demography, nature and infrastructure. As a consequence, the size of each BSU vary dramatically from downtown Oslo to the forests in the north and east. On average, each BSU has a population of about 1,200 (the total population of Oslo is approximately 700,000). Underlying map data: ©OpenStreetMap contributors. Data available under the Open Database License.

Figure A.3: Distributions of network sizes



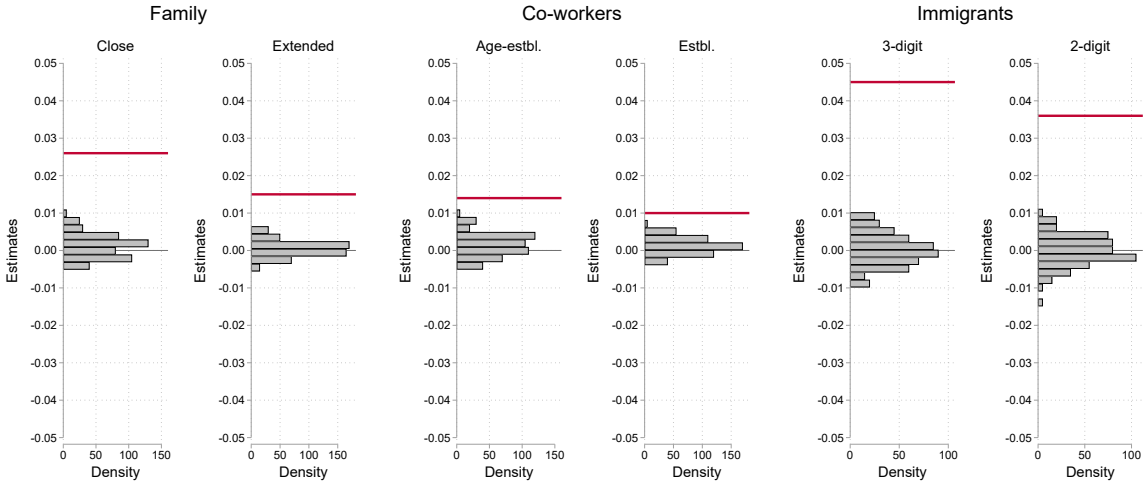
Notes: The figure shows the size distributions for each type of family network (Panel A), co-worker network (Panel B), and Immigrant network (Panel C) in our sample. We collapse all networks larger than 50 into "50+".

Figure A.4: Distance Between Voters and Politicians who Belong to the Same Network and Reside in the Same Municipality



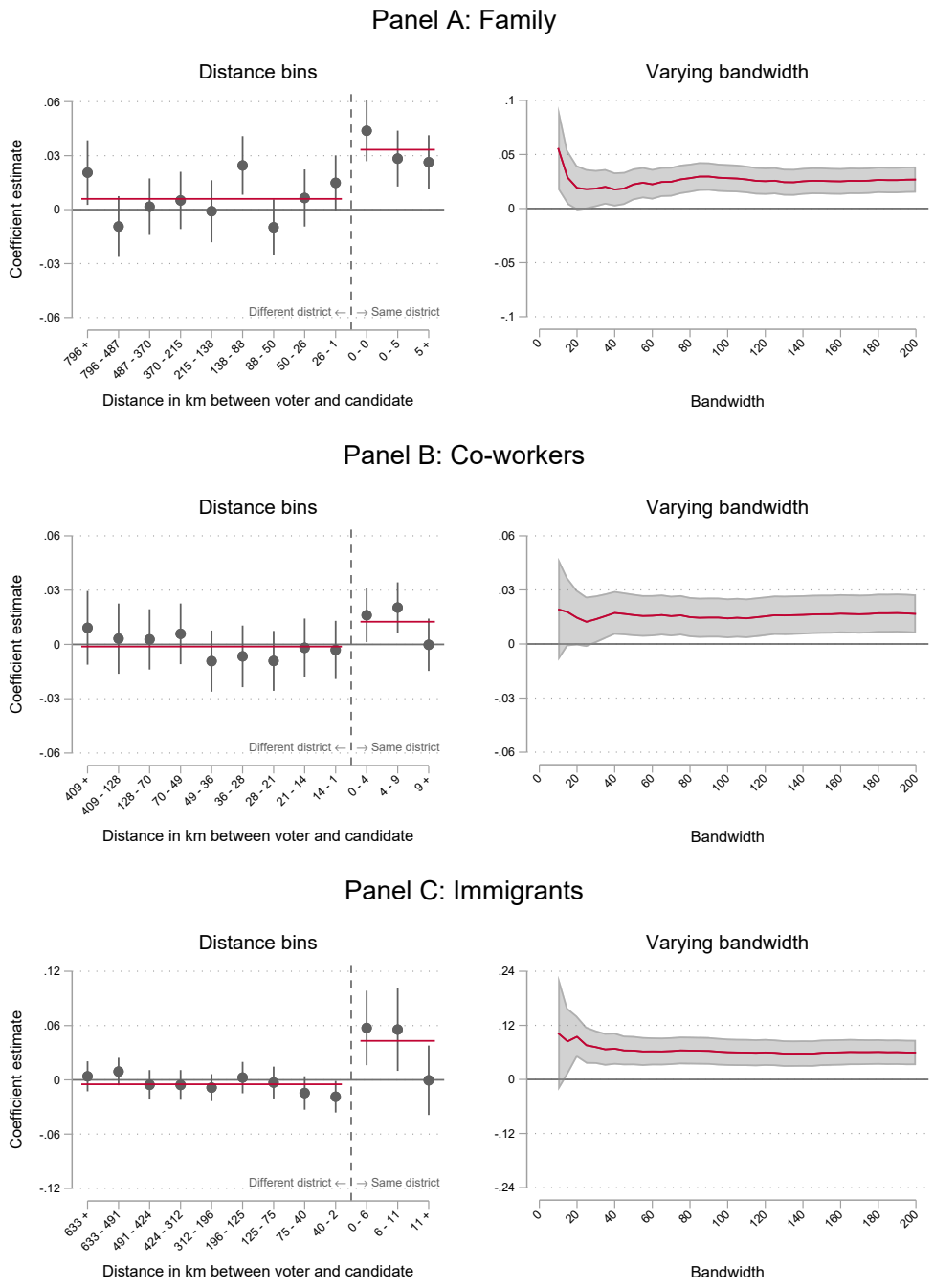
Notes: The figure shows the distributions of distance between voters and politicians in our sample, conditional on living in the same district (municipality). Only the narrow network categories are shown. We collapse all distances greater than 50 into "50+".

Figure A.5: Simulation results - randomized politicians



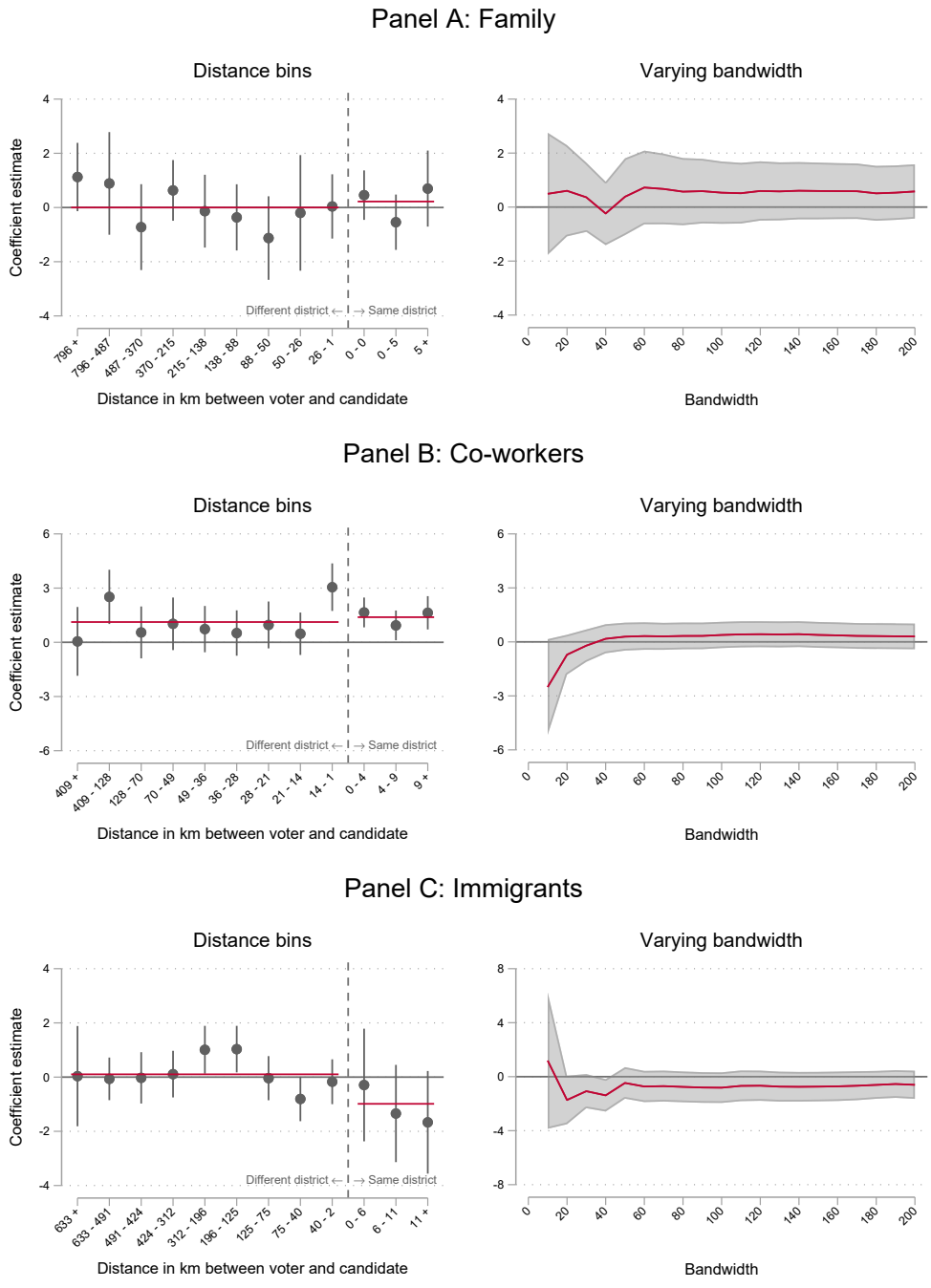
Notes: The figure shows the distribution of simulated effects for co-residence (γ in Equation (1)) after 100 iterations. In each iteration, we keep the actual network structures but assign randomly "politician status" to as many individuals in the vote-eligible population of Norway as there are true politicians in the sample (per year). The red line shows the actual estimates from Panel A in Table 1.

Figure A.6: Effects over distance and across district boundaries (broad)



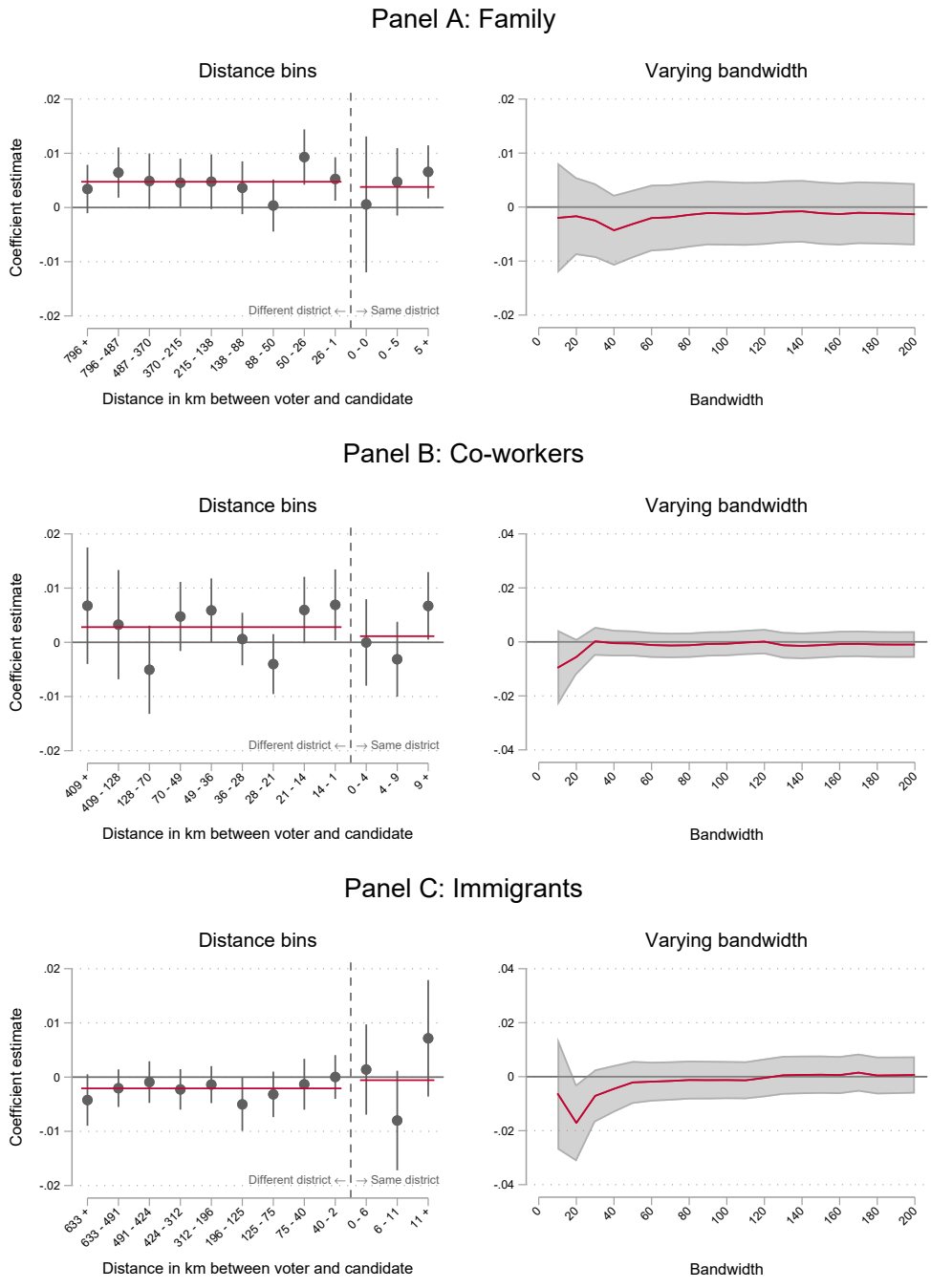
Notes: This figure displays how the mobilizational impact depends on distance in kilometers between voters' and candidates' basic statistical units (BSU). In each panel, the left plot reports coefficient estimates and 95 percent confidence intervals for observations belonging in each distance bin. The red lines denote the average mobilization impacts on the left and right side of the threshold. The number of observations per bin are constant on each side. The right plots in each panel reports our main coefficient estimates from Equation (1) but excludes from identification all observations whose distance falls outside the indicated bandwidth (i.e., the red line shows the difference between the lines in Panel A as we zoom closer to the threshold). If a person has multiple candidates in his/her network we use the geographically closest candidate to measure distance. For all networks, we use the broad definition ('extended', 'establishment', and '2-digit'). A small fraction of the sample is omitted from each analysis due to missing distance. Standard errors are clustered on the BSU level.

Figure A.7: Placebo effects: Labor income



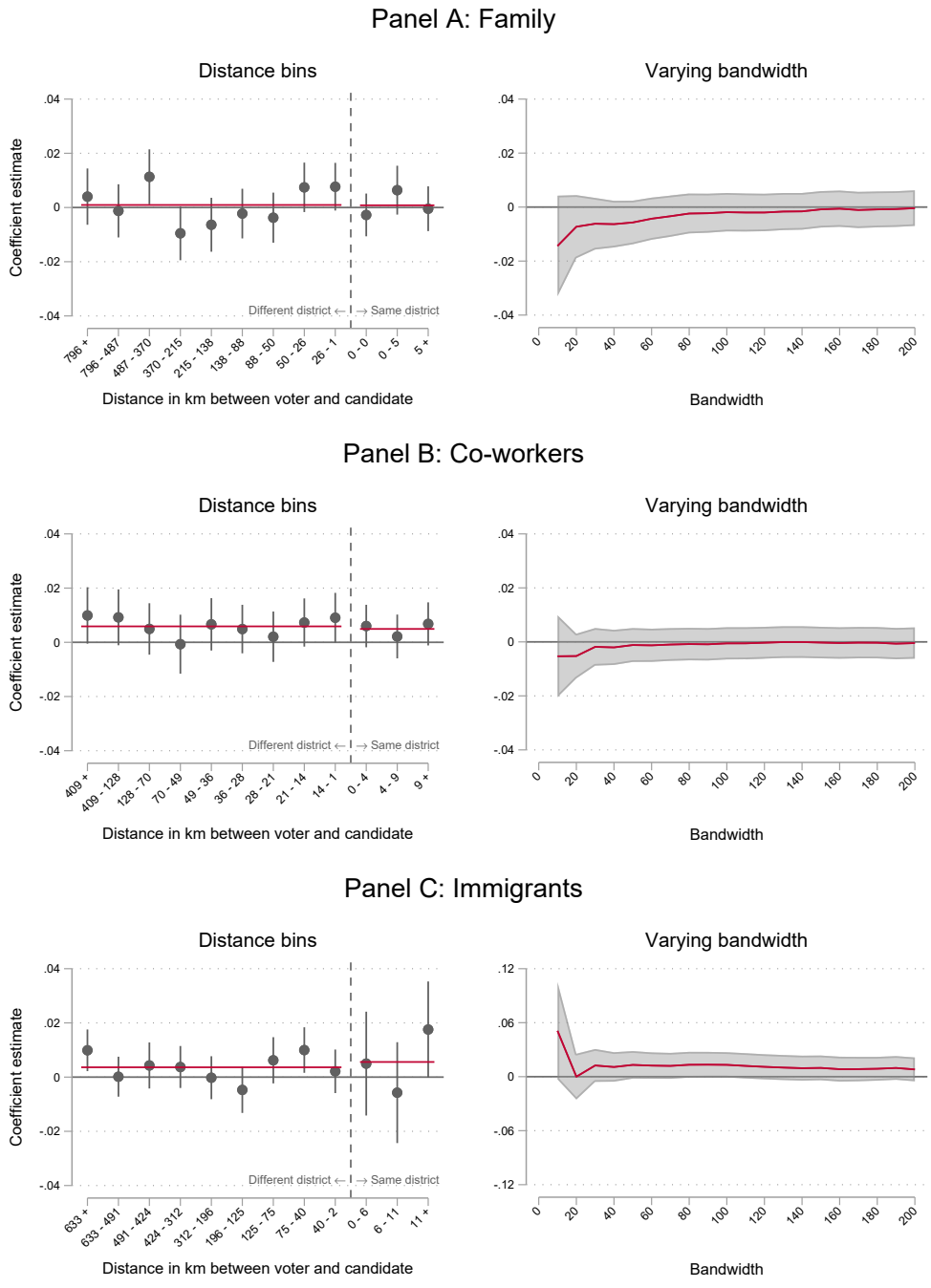
Notes: This figure displays how labor income, measured in 1000s of constant (2015) USD, depends on distance in kilometers between voters' and candidates' basic statistical units (BSU). The figure is otherwise constructed in the same manner as Figure 3.

Figure A.8: Placebo effects: Higher education



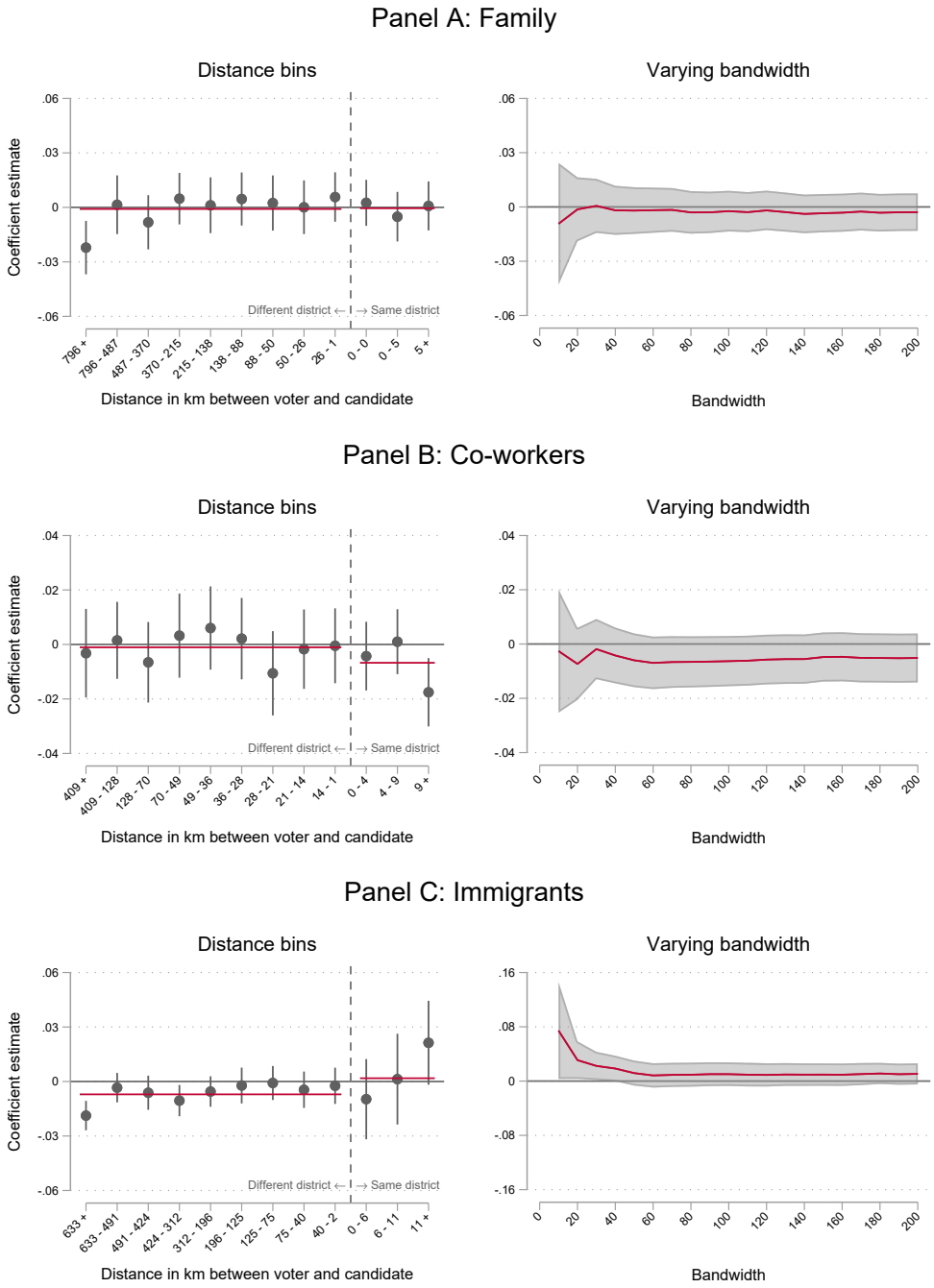
Notes: This figure displays how the propensity to take higher education depends on distance in kilometers between voters' and candidates' basic statistical units (BSU). The outcome variable is equal to one if individual i had obtained a college degree or higher by the year of observation. The figure is otherwise constructed in the same manner as Figure 3.

Figure A.9: Placebo effects: Marriage



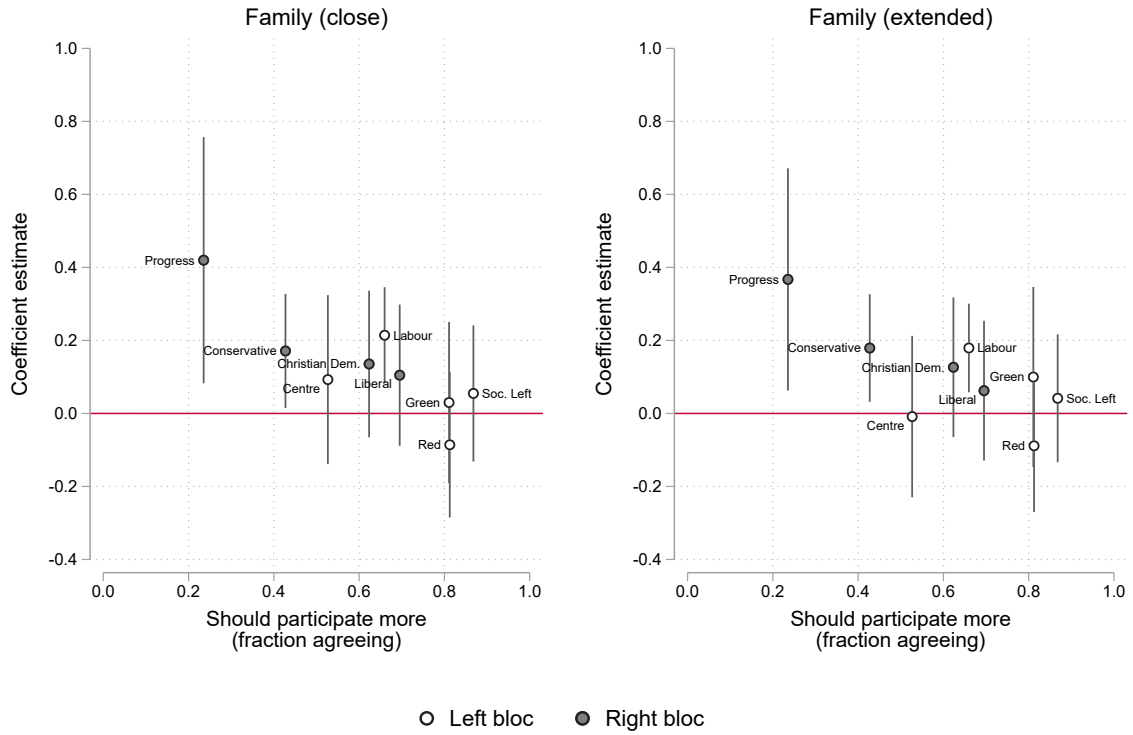
Notes: This figure displays how the propensity to be married depends on distance in kilometers between voters' and candidates' basic statistical units (BSU). The outcome variable is equal to one if individual i was registered as married in the year of observation. The figure is otherwise constructed in the same manner as Figure 3.

Figure A.10: Placebo effects: Donations to charity



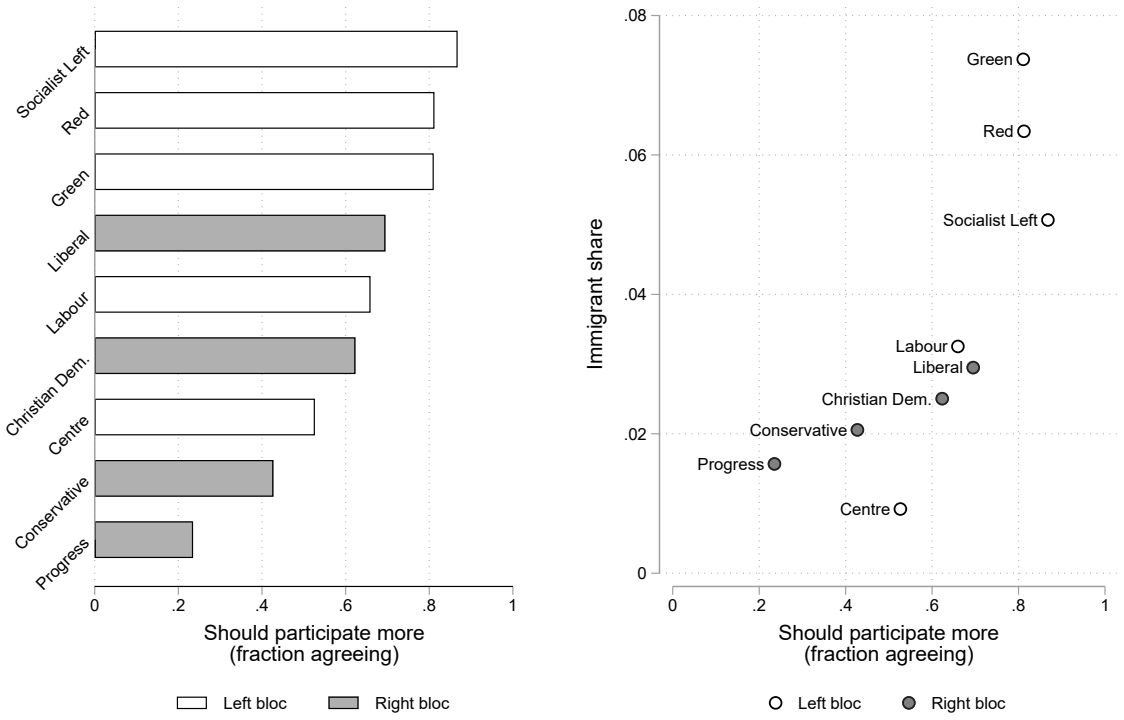
Notes: This figure displays how the propensity to offer donations to charity depends on distance in kilometers between voters' and candidates' basic statistical units (BSU). The outcome variable is equal to one if individual i had offered any amount to an organization that satisfies the Norwegian tax law's deduction requirements for activity, purpose and national scope in the year of observation. The figure is otherwise constructed in the same manner as Figure 3.

Figure A.11: Within-family mobilization boost for immigrants, by party



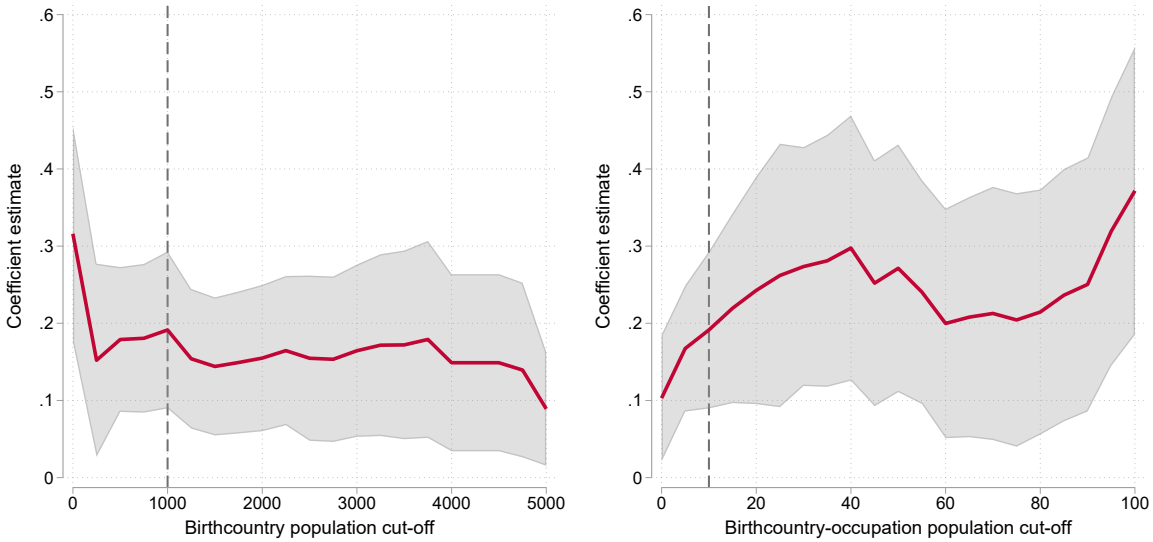
Notes: This figure shows estimates of γ in equation (1), split by political party. Coefficients are sorted by the fraction of respondents to the 2015 Local Election Survey (n= 1,190) who answered that 'immigrants should participate more in politics' (see Figure A.12). The β coefficient in equation (1) is treated as constant (an f-test of differential effects rejects that β varies by party ($p = 0.41$)). Models include individual-BSU fixed effects and year fixed effects. Standard errors are clustered on the basic statistical unit level.

Figure A.12: Survey evidence on attitudes toward immigrants, by party



Notes: The left plot shows voters' attitudes to immigrants by party for which they reported to have voted. Reported are the fraction of survey respondents answering that 'immigrants should participate more in politics'. Alternative responses are 'conditions are good as they are', 'should participate less', and 'don't know'. The right plot graphs responses against the proportion of immigrant candidates on party lists. Both plots distinguish between 'left bloc' and 'right bloc' parties. Data from the 2015 Local Election Survey (Lokalvalgsundersøkelsen) (n= 1,190)

Figure A.13: Sensitivity of maximum efficiency estimates to sample restrictions



Notes: The figure shows how estimates of the parameter of interest in Table 4 varies over the cut-offs used for the nationwide population of birthcountry groups (left) and the birthcountry-occupation population (right). Both plots use the specification presented in column (2) of Table 4, i.e., with linear population controls. The restrictions used in the baseline analysis is indicated with dashed gray lines. In the left plot, we vary the birthcountry population cut-off while keeping the birthcountry-occupation population cut-off constant at ten individuals (per year). In the right plot, we vary the birthcountry-occupation population cut-off, while keeping the birthcountry population cut-off constant at thousand (per year). Standard errors are clustered on the birthcountry level.

Appendix B: Sample construction

Voters

Our sample of voters covers the vote-eligible population[25] as of September 2015 in the 25 municipalities described in Table A.1.[26] We drop from this sample anyone who were not eligible to vote in both periods, those who moved in/out of the sample region between periods, and people who, in either of the two periods, ran for office themselves (including candidates from other than the nine major parties used in this paper). Turnout is observed for 98.5 percent of these individuals. The remainder is likely an artefact of the timing discrepancy between observations of turnout (measured in September) and residency (measured in January), and are dropped from the sample.

Politicians

While voter outcomes is only observed for a subset of Norway, our politicians sample covers the universe of political candidates running for local office in both years (approximately 60,000 candidates per year).[27] We focus on candidates running for the nine major Norwegian parties. Candidates who ran simultaneously for local and regional office are dropped. We also lose a small fraction of candidates who were not successfully matched with administrative registers (< 0.1 percent).

Social Networks

Close family members (parents, siblings and children) are directly linked in Statistics Norway's administrative registers, and politicians are matched to voters using their individual id's.[28] We match politicians to voters directly using their individual id's. For co-workers and immigrants, we first construct network id's using population registers and then match politicians and voters belonging to the same groups. All social networks are assumed to be static and defined as they exist in 2015.

[25]Norwegian citizens aged 18 or older by the end of the election year, Nordic citizens registered as residing in Norway by June 30 in the year of the election, and non-citizens with three years of consecutive residency, are eligible to vote (`https://www.ssb.no/en/valg/stortingsvalg/statistikk/personer-med-stemmerett`). In 2015, 20 municipalities participated in a trial in which the voting age was lowered to 16 years (three of these municipalities are part of our estimation sample). Our analysis only includes individuals who have reached the age of majority (18 years).

[26]The voting records are collected from the *Electronic Election Administration System*, which was gradually rolled out across Norway, and, in 2015 adopted by 27 municipalities. In 2019, all municipalities had adopted this system. We consider a balanced sample of 25 municipalities that were unaffected by an amalgamation reform implemented during our sample period (reducing the number of municipalities from 428 to 356).

[27]These data originate from the *Local Candidate Dataset* (Fiva, Sørensen and Vøllo, 2021).

[28]We identify extended members by iterating forward/backward through generations.

To classify places of work, we use compiled registers of payroll reports from Norwegian employers (*A-melding*).[29] Every person in our sample who were either part-time and full-time employed in September 2015 is included. If a person had multiple jobs, we keep the position with the highest average full-time equivalent percentage. If this is not reported, an implied percentage is computed based on the salary paid. We define "place of work" at the establishment level (as opposed to the higher-tiered enterprise level) and drop all establishments with more than 100 employees to conform with the Confederation of Norwegian Enterprises' definition of small and medium firms. From this sample we let age groups (18-34, 35-49, and 50+) proxy factions within firms, and distinguish between co-worker networks that are of approximately the same age (narrow) and all-encompassing (broad).

To classify occupations, we use the Norwegian standard classification of occupations (*STYRK-08*, based on *ISCO-08*).[30] The system has a four-level hierarchical structure, from which we use the second and third levels to distinguish between broad and narrow categories. All individuals in our sample with a registered occupation in 2015 are included. We then group each of these occupations by country of birth to form our immigrant networks.

Some voters are connected to more than one politician in their social networks. In analyses where we condition on candidates' attributes, we always use the politician residing in the same electoral district (if any), and then, secondarily, the candidate with the shortest distance.

Distance

Norway is divided into approximately 14,000 "basic statistical units" (BSUs) which are nested within electoral districts (see Appendix Figure A.2). This level constitutes the smallest geographic unit we observe in our data.[31] For each voter who is connected to a political candidate, we determine the *fastest* driving distance in kilometers between the geographic centers of the voter's BSU and the politician's BSU.[32] There are some locations between which the shortest route cannot be computed. In such cases the observation is dropped from the sample, unless there are other politicians in the network to whom a distance is successfully computed.

[29]The *A-melding* is a monthly report from Norwegian employers (who have employees or pay salary, pension or other benefits) to the Tax Administration containing information about the employment and income of each individual employee. In our data, each employer is assigned a unique ID.

[30]`https://www.ssb.no/en/klass/klassifikasjoner/7`

[31]To ensure consistency across time, we create synthetic BSUs for 50 units in the greater Oslo region that were partitioned between 2015 and 2019. A handful of BSUs where this is not practical (due to more complicated border reforms) are dropped.

[32]Travel distance data stem from Sand et al. (2022).

Appendix C: Candidate selection

Both voters and parties affect candidate selection

Local council elections in Norway are decided by a "flexible list system" where both voters and parties affect candidate selection. Voters choose a party list and may opt to express preferences for individual candidates by casting personal votes (for as many candidates as they like). Parties affect candidate selection by granting some candidates, listed on the top of the ballot in bold face, a "head start" (amounting to 25 % of the total number of list votes received by the party).[33] The advantage is so large that other candidates almost never receive enough personal votes to overtake a candidate with a head start. The initial ranking on the ballot, also decided by parties, only matters for the election outcome if there is a tie between candidates.

Example of candidate selection process

To illustrate the candidate selection process, consider the Labour Party in *Bodø* municipality in 2019. This list received 6922 out of 25309 of the party list votes (27%) and won 11 out of 39 seats in the local council (28%).[34] Table C.1 illustrates how the 11 candidates were selected among the 45 candidates the party had on their list. The top six candidates, including the party's popular mayoral candidate listed on the top of the list, received a head start. This corresponded to a boost of 1730.5 extra personal votes ($6922 \cdot 0.25 = 1730.5$). All the "head start" candidates was elected in addition to five "non head start" candidates originally listed in position 7, 8, 13, 14, and 16.

[33]The maximum number of candidates that party can give an advantage to depends on the size of the local council. In councils with fewer than 23 members, parties can give an advantage to a maximum of 4 candidates. For councils with 23 to 53 members, the maximum is 6, and for councils with more than 53 members, 10 is the limit.

[34]Seats are allocated *across* parties based on the modified Sainte-Laguë method. This method gives a proportional election outcome with a small advantage for large parties.

Table C.1: Illustration of candidate selection: the 2019 election in *Bodø* municipality

Rank	Candidate name	Head start	Votes	Incl. bonus	Elected
1	**Ida Maria Pinnerød**	1	2286	4016.5	1
2	**Morten Melå**	1	264	1994.5	1
3	**Ann Kristin Moldjord**	1	208	1938.5	1
4	**Fredric Martinsen Persson**	1	139	1869.5	1
5	**Anne Mari Haugen**	1	113	1843.5	1
6	**Håkon A. Magnussen**	1	121	1851.5	1
7	Salamatu Winningah	0	217	217	1
8	Sigurd Andreas Myrvoll	0	147	147	1
9	Rina Susanne Nicolaisen	0	134	134	0
10	Jorulf Haugen	0	52	52	0
11	Aida Barinan Knutsen	0	80	80	0
12	Terje Krutådal	0	27	27	0
13	Kristin Schjenken Navjord	0	166	166	1
14	Thor Arne Angelsen	0	170	170	1
15	Line Andresen Abelsen	0	103	103	0
16	Ali Horori	0	284	284	1
17	Aileen Sogn	0	80	80	0
18	Arild Nohr	0	93	93	0
19	Kristin Hunstad	0	77	77	0
20	Sander Delp Horn	0	37	37	0
21	Ingrid Torstensen	0	39	39	0
22	Jimmy Israelsen	0	47	47	0
23	Vibeke Nikolaisen	0	79	79	0
24	Hans Torger Austad	0	35	35	0
25	Henny Ovedie Aune	0	44	44	0
26	Lars Børre Vangen	0	31	31	0
27	Maya Sol Sørgård	0	75	75	0
28	Arild Ørjar Mentzoni	0	19	19	0
29	Rowena Daliva Ryvold	0	57	57	0
30	Mikael Ronnberg	0	54	54	0
31	Merete Silåmo	0	26	26	0
32	Arnstein Bård Brekke	0	18	18	0
33	Elsa Lovise Erichsen Øverland	0	35	35	0
34	Tor Erikstad	0	22	22	0
35	Lisbet Herring	0	19	19	0
36	Einar Lier Madsen	0	21	21	0
37	Judith Olafsen	0	21	21	0
38	Magnus Fjelldal Korsaksel	0	41	41	0
39	Amina Louise Persen	0	44	44	0
40	Øivind Jean Mathisen	0	34	34	0
41	Cecilie Haugseth	0	79	79	0
42	Odd Andreas Lund	0	93	93	0
43	Ingunn Fjelldal Korsaksel	0	43	43	0
44	Per Christian Størkersen	0	57	57	0
45	Selma Sørensen Bodøgaard	0	65	65	0

Appendix D: Heterogenous mobilization effects by candidates' electoral viability

Estimating candidates' likelihood of winning a seat in the council

To classify candidates chance of winning a seat in the council, we estimate a fully saturated linear probability model where we include the full interactions between year fixed effects, party fixed effects, list position fixed effects, and a "head start" dummy. We leave out the focal candidate from the estimation when obtaining the predicted probability for that candidate. In other words, we estimate the prediction model as many times as there are candidates in our data set. The likelihood that candidate j wins a seat corresponds then to the fraction of candidates in j's cell that win a seat, excluding j. The cell is defined by defined by year, party, list position and head start status.

The linear probability model strongly predicts candidates' election outcomes. The likelihood of winning a seat is strongly increasing in candidates' list position for all political parties. Candidates outside the top-ten have, on average, slim chances of winning a seat. However, for the largest parties, such as the Labour Party (a) and Center Party (sp), lower ranked candidates have non-trivial chances of winning a seat even outside the top-ten. The R^2 of the prediction model is 0.57.

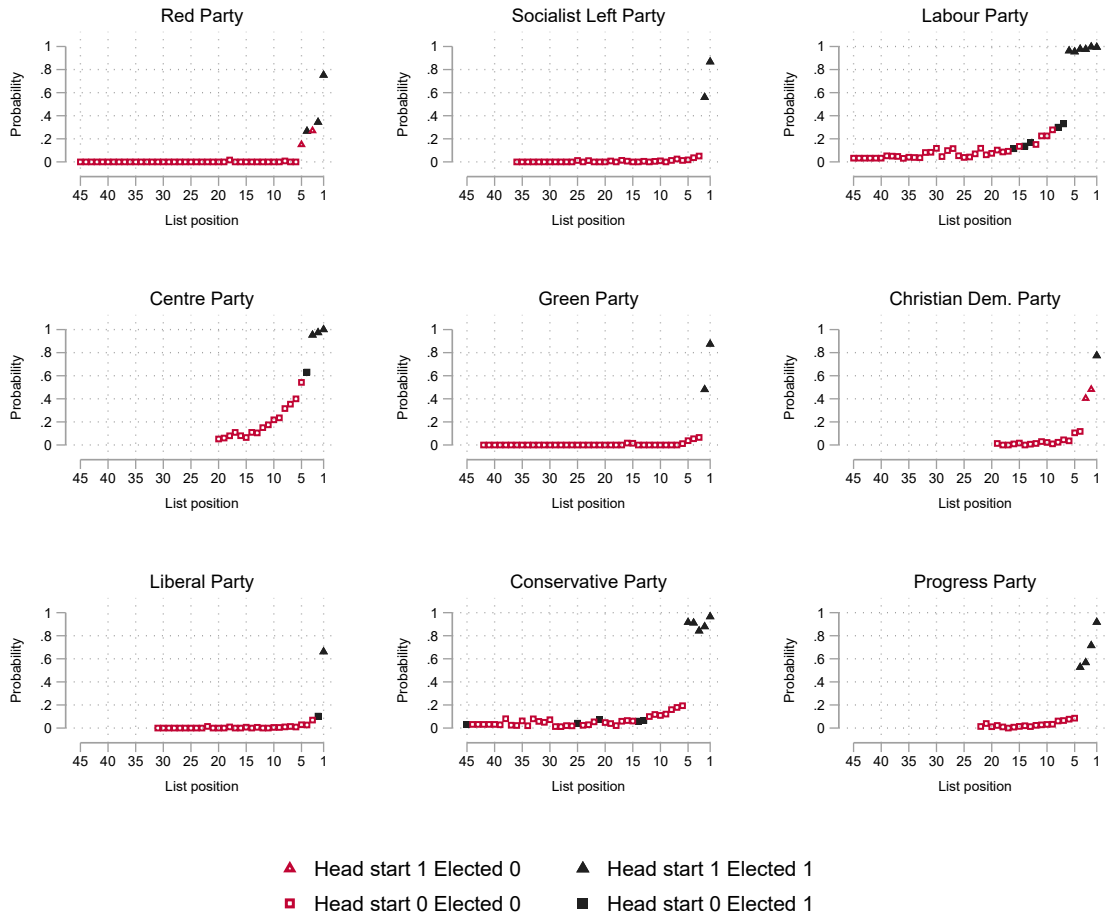
Illustrative example

To illustrate the results from the prediction model, we consider the case of *Bodø* municipality, one of the 25 municipalities included in our main estimation sample. Figure D.1 plots individual candidates' estimated probability of winning a seat for the nine main parties running in the 2019 election.

The Labour Party list, used as an example in Table C.1, is in the top-right panel of Figure D.1. Our prediction model gives the "head start" candidates from the Labour Party almost a hundred percent chance of winning a seat in the council. Among the "non head start" candidates the chances of winning are fairly low, but increasing in list rank. For smaller parties, such as the Red Party (middle-left), the chance of winning a seat is essentially zero for "non head start" candidates.

The plot for the largest party of the right-wing bloc, the Conservatives (bottom-middle), resembles the plot for the Labour Party. Here the lowest ranked candidate on the list, which the prediction model gives a zero chance of winning, ultimately got elected. This candidate was a former mayor of the Conservative party who ran in the top-ranked position in the three preceding elections. The final position on a list is sometimes used as an honorary position.

Figure D.1: Illustration of prediction model: The 2019 election in *Bodø* municipality



Notes: The figure plots individual candidates' estimated probability of winning a seat for the nine main parties in the 2019 election in Bodø *municipality.*

Results

Figure D.2 estimates heterogenous mobilization effects depending on candidates' electoral viability. We separate between candidates of four types:

- Hopeless candidates (likelihood below 1%; 22.0% of sample)
- Weak candidates (likelihood between 1% and 10%; 37.1% of sample)
- Viable candidates (likelihood between 10% and 50%; 28.2% of sample)
- Safe candidate (likelihood 50% and above; 12.8% of sample)

To interpret Figure D.2, we begin by noting that—because Norwegian parties run seniority systems (Cirone, Cox and Fiva, 2021)—candidates in all viability categories can have strong incentives to mobilize their networks. Candidates in hopeless and weak spots mobilize because they expect to be rewarded in future with advancement to a better spot. Candidates in viable spots mobilize both to earn future advancement and to win their current election. Candidates in strong spots mobilize because they will be in line to enter the municipal executive board (and other important posts) if their party wins.[35]

That said, some candidates who run in hopeless spots are non-careerists. They enter their party's list once, in order to help fill out the list, without any serious intention of seeking future advancement on the list. While these once-off candidates may exert mobilizational effort in order to help their party, we expect that they will not exert as much effort as other candidates, who will share the desire to help their party and also have the personal incentives discussed above.

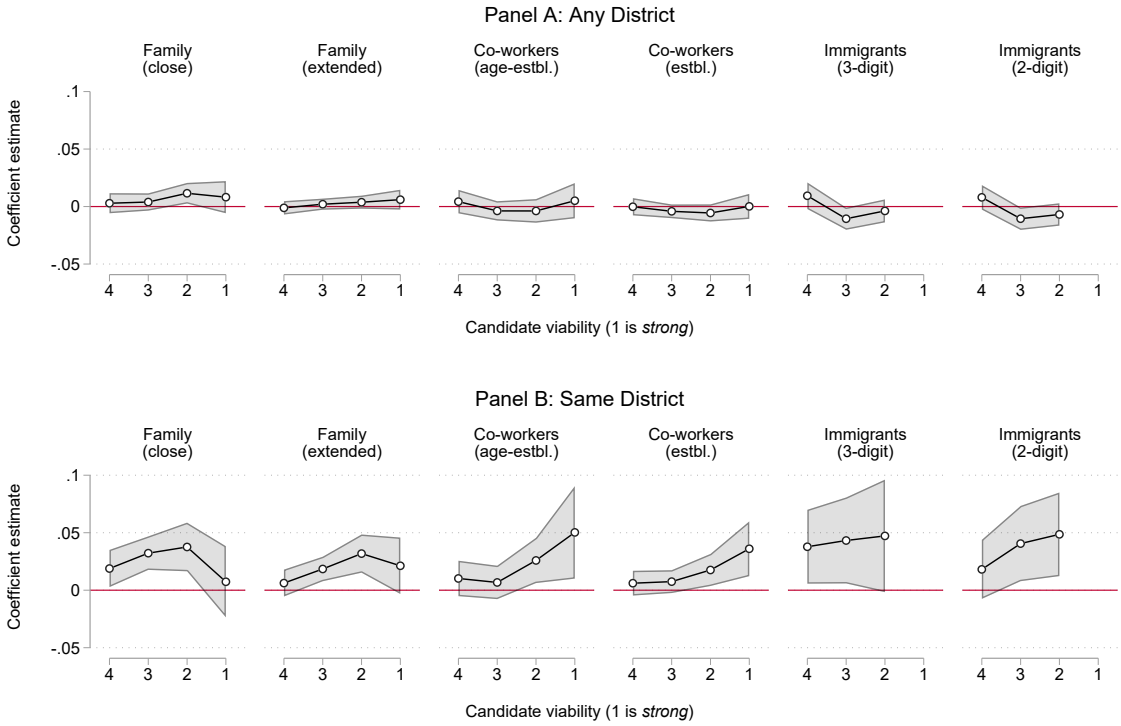
In line with our baseline results, Panel A shows that the effects of having a network member running in *another* district from the voter live is small or non-existent irrespective of candidate viability. Panel B indicates that the additional within-district mobilization effect is increasing in candidate viability.[36] For example, we estimate that a strong co-worker candidate in the same age group increases network members probability of voting with six percentage points, while a hopeless co-worker candidate in the same age group only increases network members probability to vote with one percentage point. The relationships between candidate viability and voter mobilization are similar, but more muted for family and co-occupational immigrant networks. The confidence intervals surrounding the point estimates in Figure D.2 are however quite broad, which makes it hard to draw firm conclusions.[37]

[35]Parties put their mayoral candidate on the top of the party list. Ideally, we would like to differentiate between candidates that are almost certain to win a seat in the council and other strong candidates, but we do not have statistical power to do so. Among immigrants, safe candidates are particularly rare.

[36]Because there are almost no immigrant candidates in strong spots, this category is merged with the viable group in the figure.

[37]The p-values from a test of equal effects among all four 'same district' categories are $p = 0.19$, $p = 0.08$, $p = 0.10$, $p = 0.08$, $p = 0.94$, and $p = 0.33$, respectively.

Figure D.2: Results - Split by electoral viability



Notes: This figure shows regression estimates based on equation (1), split by candidates' electoral viability (4=Hopeless, 3=Weak, 2=Viable, 1=Strong). Panel A reports network-wide effect on members' propensity to turn out (β), while Panel B reports the additional effect of co-residence (γ). The top two categories in the immigrant models are merged due to few observations. All estimated models include individual-BSU fixed effects and year fixed effects. Standard errors are clustered on the basic statistical unit level.