Supplementary material

A. Political and attitudinal background

A.1 Party manifesto content analysis and the de-familialisation/ familialisation indexes

Following the established tradition in comparative politics and comparative welfare state literature, we performed a content analysis of the political programme manifestos issued during the 2019 elections to assess the family policy positions of Finnish parties (Budge, 2001; Enggist and Pinggera, 2021; Fischer and Giuliani, 2023; Giuliani, 2023, 2024).

To identify the extent to which political parties support familialism and de-familialism, we recoded the data as *quasi-sentences* from the Comparative Manifesto Project Database (CMP). The quasi-sentences were assigned to three categories: Domain A, "Familialising Policy Instruments"; Domain B, "De-Familialising Policy Instruments"; and Domain C, "Ambiguous Policy Instruments". We also coded whether the sentiment was *positive* (expanding) or *negative* (retrenching).

The quantitative results of the content analysis were used to construct a De-Familialisation/Familialisation Party Index. For the *De-familialisation Party Index*, the number of negative quasi-sentences on de-familialisation was subtracted from the number of positive quasi-stances on de-familialisation and taken as a share of all quasi-stances on family policy:

$$\text{De-fam. Party Index} = \frac{\text{DEFAM}_{\text{pro}} - \text{DEFAM}_{\text{con}}}{\text{DEFAM}_{\text{pro}} + \text{DEFAM}_{\text{con}} + \text{FAM}_{\text{pro}} + \text{FAM}_{\text{con}} + \text{AMBIGUOUS}}.$$

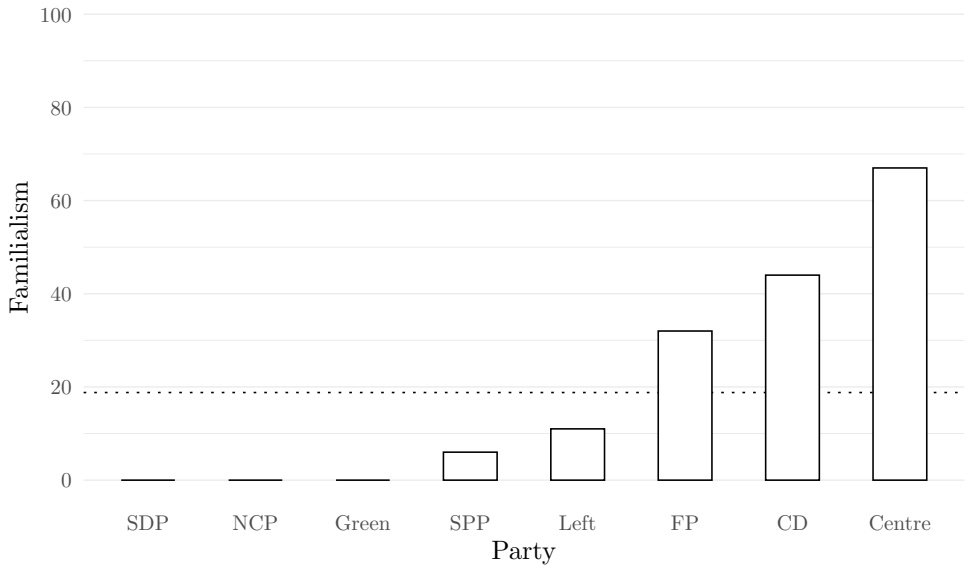
Similarly, for the *Familialisation Party Index*, the number of negative quasi-sentences on familialisation was subtracted from the number of positive quasi-stances on de-familialisation and taken as a share of all quasi-stances on family policy

$$\text{Fam. Party Index} = \frac{\text{FAM}_{\text{pro}} - \text{FAM}_{\text{con}}}{\text{DEFAM}_{\text{pro}} + \text{DEFAM}_{\text{con}} + \text{FAM}_{\text{pro}} + \text{FAM}_{\text{con}} + \text{AMBIGUOUS}}.$$

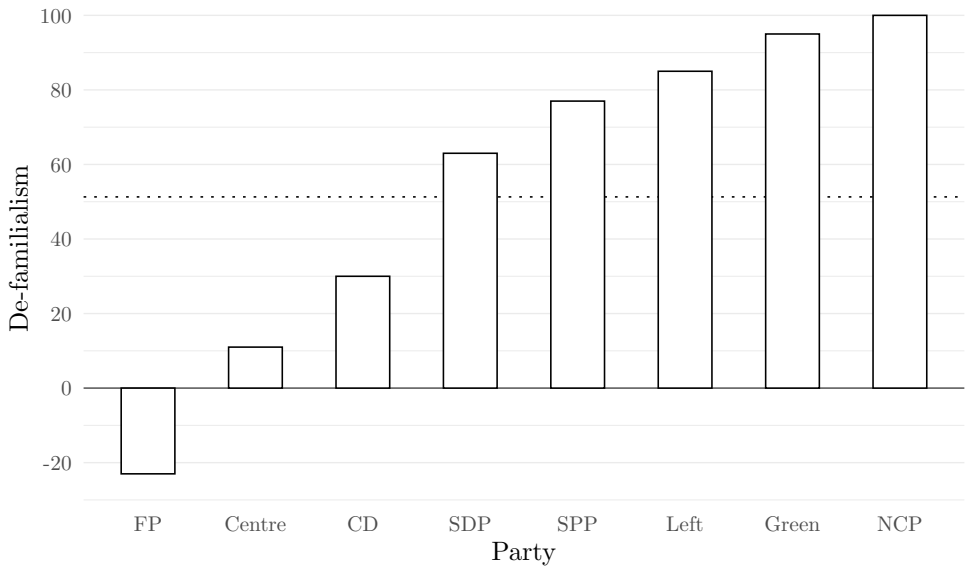
Both indexes range from -100 (strong opposition) to $+100$ (strong support), with 0 meaning that there is no support and up to 15 referring to a relatively neutral position. We calculated the values for all the main Finnish parties that ran in the 2019 elections. In total we coded 276 quasi-sentences. Supplementary Table 1, Supplementary Figure 1, and Supplementary Figure 2 show the values of the two indexes for all the Finnish major parties.

Supplementary Table 1: The absolute values of the familialisation and de-familialisation indexes. Both indexes range from −100 (complete opposition) to +100 (complete support), with values from 0 to +15 indicating neutral positions. Source: Authors' own elaboration on Comparative Manifesto Project Data.

Party	Familialisation Index	De-familialisation Index
Finns Party	32	−23
Social Democrats	0	63
National Coalition	0	100
Finnish Centre	67	11
Green Union	0	95
Left Alliance	11	85
Christian Democrats in Finland	44	30
Swedish People's Party	6	77
Country Mean	20	55
Country Mean (weighted by electoral score)	18.8	51.3



Supplementary Figure 1: Familialisation index by different Finnish parties. The index ranges from −100 (complete opposition) to +100 (complete support), with values from 0 to +15 indicating a neutral position. Source: Authors' own elaboration on Comparative Manifesto Project Data.



Supplementary Figure 2: De-familialisation index by different Finnish parties. The index ranges from −100 (complete opposition) to +100 (complete support), with values from 0 to +15 indicating a neutral position. Source: Authors' own elaboration on Comparative Manifesto Project Data.

A.2 The de-familialisation/familialisation indexes and the SPP case

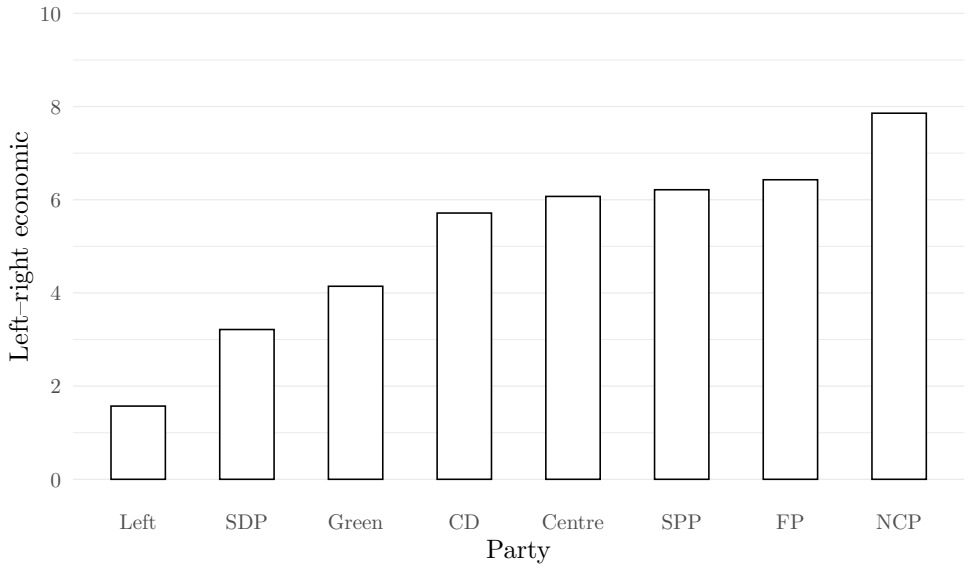
The inclusion of the Swedish People's Party (SPP) within our analysis has triggered some theoretical and methodological considerations which convinced us to drop it from our analysis.

The party represents the interests of the minority Swedish-speaking population of Finland (about 5% of the population) and its electoral support is mostly rooted in those regions with a substantial presence of this linguistic minority (mostly, Swedish Ostrobothnia, Southwest Finland, and Uusimaa). From an ideological perspective, the party is considered belonging to the *Liberal* party family—indeed, within the European Parliament, it is affiliated to *Alliance of Liberals and Democrats for Europe* and belongs to the European Parliament group *Renew Europe*. In line with the liberal ideology, the party combines pro-market position in the so-called left–right economic dimension, as showed by Supplementary Figure 3, and libertarian position in the so-called cultural (GAL–TAN) dimension of party competition, as showed by Supplementary Figure 4.

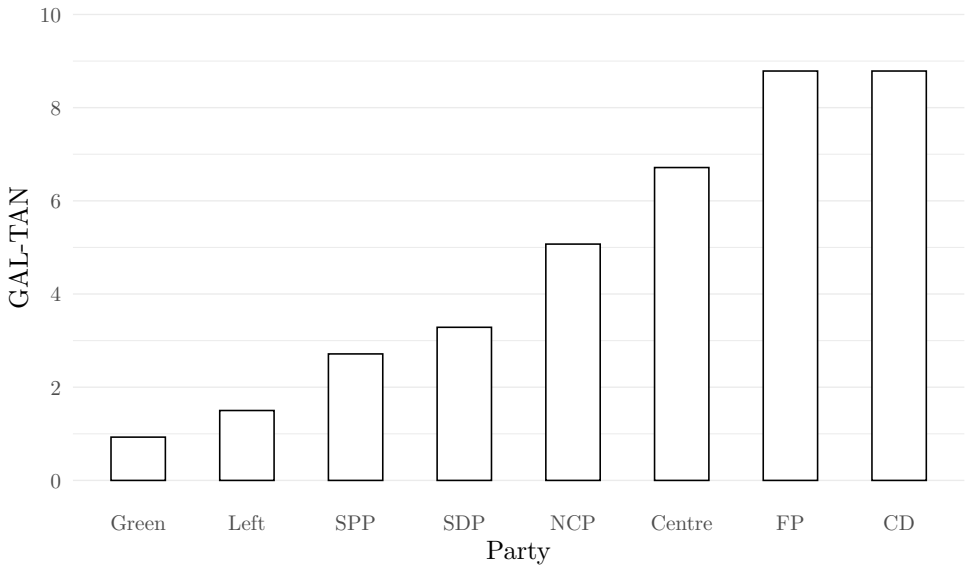
More specifically, when we focus on its position on social lifestyle (e.g. rights for homosexuals, gender equality), the party shows clear libertarian stances (see Supplementary Figure 5). These data are perfectly in line with party manifesto content analysis results: the party has a (very) low familialisation score and ranks high when considering the de-familialisation index.

However, the SPP is a *sui generis* liberal party: indeed, since it represents the interests of the minority Swedish-speaking population, it has very often been classified as an *Ethnic and regional party* (Lehmann et al., 2024). Ethnic and regional parties are considered *niche parties* since they mobilise their electors on a narrower set of issues—mostly connected with regional/linguistic identity—compared to the mainstream parties (Meguid, 2008).

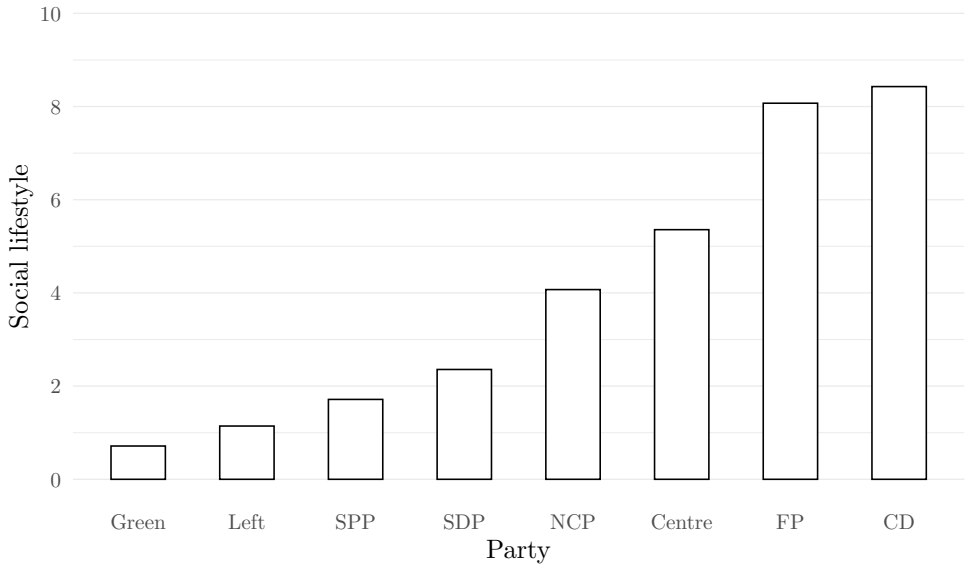
In this regard, data from the European Social Survey (ESS) help us approximate the



Supplementary Figure 3: Positions of Finnish parties in the left–right dimension in 2019 in terms of their ideological stances on economic issues. Parties on the economic left support government having an active role in the economy. Parties on the economic right want a reduced role for government. Scale: 0 = extreme left; 5 = centre; 10 = extreme right. Score of SPP is 6.2. Source: Chapel Hill Expert Survey (Jolly et al., 2022).



Supplementary Figure 4: Positions of Finnish parties in the liberal–traditional scale in 2019 in terms of their views on social and cultural values. "Libertarian" or "postmaterialist" parties support individual liberty, for example, abortion rights, divorce, and same-sex marriage. "Traditional" or "authoritarian" parties support the active role of government on social and cultural issues, rejecting the liberal ideas in favor of order, tradition, and stability. Scale: 0 = Libertarian/Postmaterialist; 5 = centre; 10 = Traditional/Authoritarian. Score of SPP is 2.7. Source: Chapel Hill Expert Survey (Jolly et al., 2022).



Supplementary Figure 5: Positions of Finnish parties regarding liberality in social lifestyle issues, e.g. rights for homosexuals and gender equality. Scale: 0 = Strongly supports liberal policies; 10 = Strongly opposes liberal policies. Score of SPP is 1.7. Source: Chapel Hill Expert Survey (Jolly et al., 2022).

preferences of both the SPP and the Swedish-speaking minorities in terms of cultural norms, as well as differences among Finnish regions[1].

Supplementary Table 2 shows that SPP voters tend to be slightly more libertarian than the national average. Additionally, Supplementary Table 3 displays that, overall, Swedish-speakers have slightly more libertarian preferences. Therefore, Swedish-speakers seem somewhat more libertarian compared to the Finnish-speaking population.

However, when focusing on the regional level, the results show that compared to the national level, the Swedish Ostrobothnia region is more conservative. In that area, Swedish-speakers are the majority and the SPP obtains a strong consensus—making it more similar to the neighbouring Finnish-dominant South Ostrobothnia region (see Supplementary Table 4).

The fact that Ostrobothnia is culturally conservative region is also corroborated by the data from the Barometer for Swedish-speaking Finns (Finnish Research Infrastructure for Public Opinion (FIRIPO) and Lindell, 2019). As showed by Supplementary Table 5, among the Swedish-speaking residents of the Swedish-speaking regions, support to the statement *"Strengthen the status of the traditional nuclear family"* is the highest in the Swedish Ostrobothnia region: highest in the Northern part and lowest in the Southern part (not to confuse with the Finnish-speaking regions of North Ostrobothnia and South Ostrobothnia). The region also shows conservative attitudes concerning other cultural-oriented issues (see, e.g., Supplementary Table 4 and Supplementary Table 6).

[1]The ESS does not provide a specific variable that would allow us to perfectly operationalise the "gender norm" concept. Nevertheless, variables related to LGBTQ+ rights have been largely used in the comparative sociological literature to detect the cultural-oriented attitudes of the respondents, and therefore can be considered as an acceptable approximation of gender norm preferences, since the two issues (gender equality and LGBTQ+) are often politically interconnected (e.g., Akkerman, 2015).

Supplementary Table 2: Positions of electors on cultural issues, based on agreeing to the following statements on a scale from *1: agree strongly* to *5: disagree strong*. Libertarian positions are in bold. The numbers indicate how much the average of the party voters differs from the average of the whole sample. For statement A and B, the lower the scores, the more libertarian the voters of a party. Therefore, negative values indicate that the party electors display a more libertarian position compared to the total voter mean. For statement C, the higher the scores, the more libertarian the voters of a party. Therefore, positive values indicate that the party electors display a more libertarian position compared to the total voter mean. Source: ESS round 8 (European Social Survey European Research Infrastructure (ESS ERIC), 2023).

	Statement A: Gays and lesbians free to live life as they wish	Statement B: Gay and lesbian couples right to adopt children	Statement C: Ashamed if close family member gay
The National Coalition Party	**-0.05**	+0.02	**+0.07**
The Swedish People's Party (SPP)	***−0.29***	***−0.25***	***+0.05***
The Centre Party	+0.23	+0.30	-0.23
Finns Party	+0.27	+0.63	-0.19
Christian Democrats	+1.2	+1.26	-0.68
Social Democratic Party	**−0.08**	**−0.16**	-0.02
Left Alliance	**−0.30**	**−0.72**	**+0.26**
Green League	**-0.59**	**-0.99**	**+0.54**
Total Voter Mean	*1.86*	*2.66*	*4.26*

Supplementary Table 3: Positions of linguistic communities on cultural issues based on agreeing to the following statements on a scale from *1: agree strongly* to *5: disagree strong*. Libertarian positions are in bold. The numbers indicate how much the average of the different language communities differs from the average of the whole sample. For statements A and B, the lower the scores, the more libertarian the voters of a party. Therefore, negative values indicate that the party electors display a more libertarian position compared to the total voter mean. For statement C, the higher the scores, the more libertarian the voters of a party. Therefore, positive values indicate that the party electors display a more libertarian position compared to the total voter mean. Source: ESS round 8 (European Social Survey European Research Infrastructure (ESS ERIC), 2023).

	Statement A: Gays and lesbians free to live life as they wish	Statement B: Gay and lesbian couples right to adopt children	Statement C: Ashamed if close family member gay
Finnish-speaking Community	0.00	+0.01	0.00
Swedish-speaking Community	***-0.21***	***-0.26***	***0.15***
National Mean	1.84	2.64	4.24

How can we explain this apparent paradox—that is, being culturally libertarian party with a strong consensus in a conservative region (Ostrobothnia)?

Supplementary Table 4: Positions of citizens on cultural issues by region, based on agreeing to the following statements on a scale from *1: agree strongly* to *5: disagree strong*. Libertarian positions are in bold. The numbers indicate how much the average of the regions differs from the average of the whole sample. For statements A and B, the lower the scores, the more libertarian the region. Therefore, negative values indicate that the region displays a more libertarian position compared to the national mean. For statement C, the higher the scores, the more libertarian the region. Therefore, positive values indicate that the region displays a more libertarian position compared to the national mean. Source: ESS round 8 (European Social Survey European Research Infrastructure (ESS ERIC), 2023).

	Statement A: Gays and lesbians free to live life as they wish	Statement B: Gay and lesbian couples right to adopt children	Statement C: Ashamed if close family member gay
Central Finland	+0.05	+0.05	-0.13
South Ostrobothnia	+0.42	+0.50	-0.38
Swedish Ostrobothnia	*+0.17*	*+0.16*	*-0.21*
Satakunta	+0.14	+0.34	-0.11
Pirkanmaa	+0.08	+0.11	-0.06
Helsinki-Uusimaa	**-0.25**	**-0.33**	**+0.27**
Southwest Finland	**-0.20**	**-0.23**	**+0.12**
Kanta-Häme	**-0.20**	**-0.29**	-0.11
Päijät-Häme	+0.13	+0.44	-0.28
Kymenlaakso	+0.17	+0.30	-0.11
South Karelia	+0.12	+0.19	-0.15
South Savo	+0.09	+0.18	-0.15
North Savo	+0.22	+0.03	**+0.05**
North Karelia	**-0.01**	+0.11	-0.06
Kainuu	+0.49	+0.46	-0.27
Central Ostrobothnia	+0.01	**-0.26**	**+0.03**
North Ostrobothnia	+0.09	+0.07	-0.08
Lapland	+0.29	+0.43	-0.21
Åland	**-0.55**	**-0.85**	**+0.62**
Finland Mean	*1.84*	*2.64*	*4.24*

The main logical explanation relies in the regionalist nature of the party, as previously mentioned. As a regionalist party, the SPP mostly mobilises its electors on identitarian issues; consequently, family policy and gender equality are not core issues for its electorate. This is confirmed by the data from a poll issued before the 2019 parliamentary elections[2]. The poll asked about the most important matters when making voting decisions, and *"family & fertility"* were among the least important (mentioned by 18%) among those that were planning to vote for SPP. For Swedish-speaking SPP voters, the most important issues were *"healthcare"* (mentioned by 75%) and *"Swedish language in Finland"* (69%), with the other

[2] https://magma.fi/opinionsmatning-bland-svenskspraakiga-regeringen-maste-bytas/

Supplementary Table 5: Positions of Swedish-speakers on cultural issues by region based on agreeing to the following statement on a scale from *0: the lowest support* to *10: the highest support*. Libertarian positions are in bold. The numbers indicate how much the average of the different language communities differs from the average of the whole sample. Source: Lindell (2020, p. 102). Our translation from Swedish.

	Strengthen the traditional position of the nuclear family
Northern Swedish Ostrobothnia	+0.8
Central Swedish Ostrobothnia	+0.5
Southern Swedish Ostrobothnia	+0.3
Western Uusimaa	+0.4
Eastern Uusimaa	+0.4
Central Uusimaa	**-0.8**
Swedish-speaking Turku region	**-0.7**
Åland	**-0.5**
Mean	5.8

matters considerably less important (the third most important matter was *"environment & climate"*, mentioned by 50% of respondents).

Therefore, while, on average, SPP voters cannot be considered conservative—and those located in more libertarian regions, such as the Helsinki region, might be pleased by the culturally progressive stances of the party—they simply do not make their voting decision on the basis of cultural-oriented considerations. It follows that the more conservative Swedish-speaking SPP electors in Ostrobothnia vote for the party *despite* its libertarian stances—which are not considered as relevant for them. Because of this peculiar characteristic of the party, the SPP's de-familialisation/familialisation scores are not a good proxy for detecting the spread of liberal/conservative gender norms among the citizens in that region. Therefore, the fact that the region shows the fastest increase in paternal leave uptake cannot be explained by the spread of pro-gender-equality norms. For this reason, in order to avoid a biased interpretation of the results, we decided to drop the SPP votes from our main analysis.

Supplementary Table 6: Positions of citizens on cultural issues by region, based on agreeing to the following statements on a scale from *1: agree strongly* to *5: disagree strong*. To enable consistent interpretation across the three statements, the scale of Statement B (w2q54) was reverse-coded, using the formula $6 - w2q54$, so that higher values always reflect a more conservative stance, and lower values a more liberal one. Statements A (w2q53) and C (w2q55) already followed this direction. As a result, for all three variables, negative values (Regional Mean – National Mean) indicate that the region holds more liberal attitudes compared to the national average, positive values indicate that the region is more conservative than the national average, and a value of zero indicates no difference from the national average. Libertarian values, using a threshold ±0.15, are in bold. Significance level for *t*-test: $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$. Source: CRONOS, wave 2 (European Social Survey European Research Infrastructure (ESS ERIC), 2024).

	Statement A: A working mother doing paid work can establish just as warm and secure a relationship with her children as a mother who does not work	Statement B: Having a job is fine, but what almost all women really want is to take care of the home and children	Statement C: In general, fathers are just as well suited to care for their children as mothers are
Central Finland	+0.23	−0.12	+0.09
South Ostrobothnia	+0.39	−0.14	**−0.17**
Swedish Ostrobothnia	**+0.53***	**+1.02*****	+0.27
Satakunta	−0.12	−0.06	+0.02
Pirkanmaa	+0.16	+0.17	+0.21
Helsinki-Uusimaa	−0.08	**−0.15*****	−0.04
Southwest Finland	+0.01	**−0.17**	−0.13
Kanta-Häme	+0.16	+0.32	+0.23
Päijät-Häme	−0.02	+0.05	+0.20
Kymenlaakso	+0.07	+0.18	**−0.23**
South Karelia	+0.22	+0.24	+0.25
South Savo	+0.18	+0.29	**−0.36***
North Savo	−0.06	−0.01	**−0.15**
North Karelia	**−0.35**	+0.06	−0.11
Kainuu	**−0.74****	**+0.18**	**−0.41**
Central Ostrobothnia	**−0.46**	−0.05	**−0.37**
North Ostrobothnia	−0.14	+0.09	+0.05
Lapland	+0.27	**−0.44**	+0.11
Åland	**−0.93**	**−1.07**	**−0.84**
Finland Mean	1.93	2.07	1.84
Sample size	781	780	784

A.3 Media usage among Swedish-speaking Finns

The data for Barometer for Swedish-speaking Finns 2009 (Herberts, 2018) can be obtained from https://services.fsd.tuni.fi/catalogue/FSD3201. Here we see how the consumption of media from Sweden varies geographically in Finland. The response *uses_swedish_media* is based on questions *q16_6* (radio), *q17_4* (tv), *q20_6* (news), and *q23_8* (social media), see the descriptions in the data catalogue. If a person answered "often" or "daily" to any of the questions, we coded *uses_swedish_media* as yes. If the person answered all questions as "rarely" or "sometimes", the answer was coded as no, and in other cases the answer was set to missing.

Results show that in Ostrobothnia, the consumption of Sweden-based media is somewhat higher than in other parts of Finland (see Supplementary Table 7). More details about the barometer results considering Swedish media consumption by age and gender as well as the R codes to gain them can be found from GitHub (https://anonymous.4open.science/r/paternal_leaves-980D).

Supplementary Table 7: The percentages of Swedish-speaking Finns not consuming or consuming Swedish media from Sweden in different regions of Finland. The last column represents the share of respondents whose behaviour cannot be deduced from the data. Source: Herberts (2018).

	No	Yes	Missing
Swedish Ostrobothnia	0.38	0.34	0.28
Southwest Finland	0.49	0.13	0.38
Uusimaa	0.48	0.14	0.38
Other	0.47	0.16	0.38

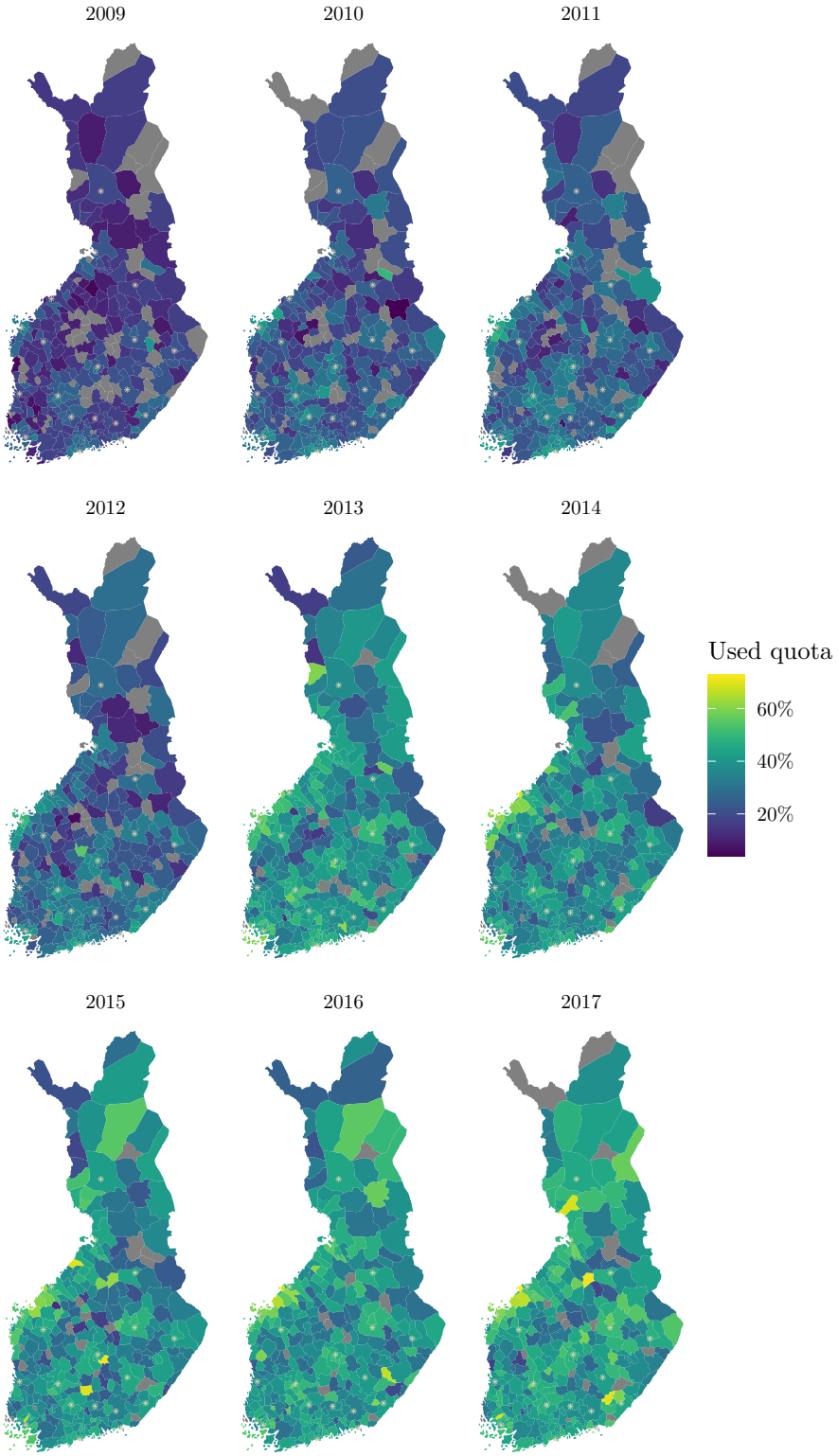
B. Administrative data

The yearly shares of taken fathers' quotas that we use as a response variable are illustrated in Supplementary Figure 6. Supplementary Figure 7 compares the shares of the quotas between different mother tongues and Supplementary Figure 8 between different areas having the largest numbers of Swedish-speaking fathers. Additionally, Supplementary Table 8 describes numerically all the administrational socioeconomic variables we have used in our analysis.

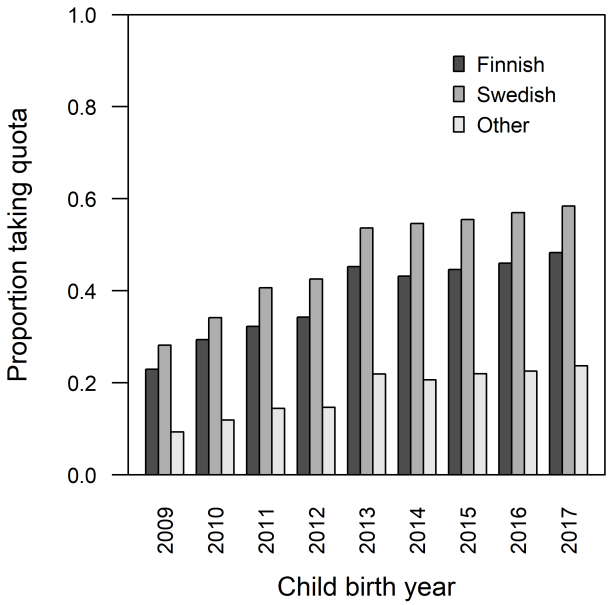
Additionally, using the familialisation and de-familialisation indexes as weights, we calculated the familialisation and de-familialisation scores, and, based on them, we constructed two principal components. The scores were calculated according to the values in Supplementary Table 1 as

$$\begin{aligned}\text{familialisation score} =& 32 \cdot \text{FP} + 0 \cdot \text{SDP} + 0 \cdot \text{NCP} + 67 \cdot \text{Centre} + 0 \cdot \text{Green} \\ &+ 11 \cdot \text{Left} + 44 \cdot \text{CD}, \text{ and} \\ \text{de-familialisation score} =& -23 \cdot \text{FP} + 63 \cdot \text{SDP} + 100 \cdot \text{NCP} + 11 \cdot \text{Centre} + 95 \cdot \text{Green} \\ &+ 85 \cdot \text{Left} + 30 \cdot \text{CD}.\end{aligned}$$

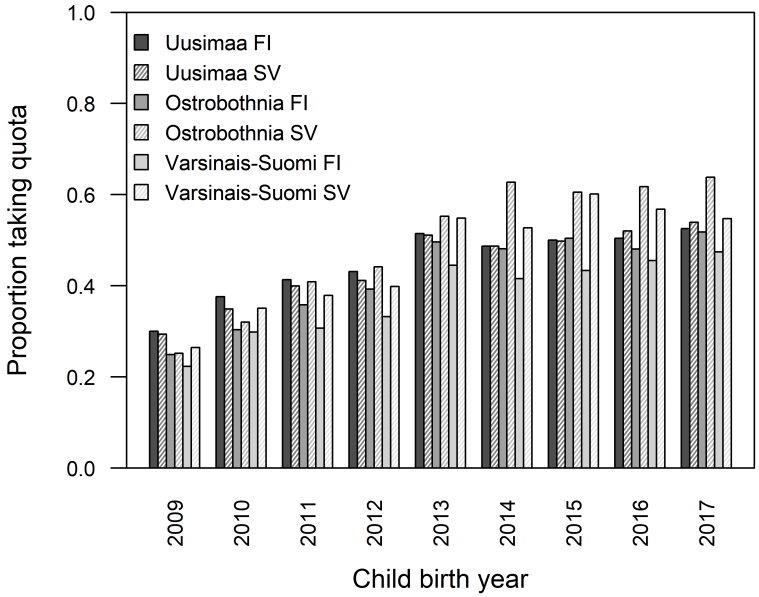
The letter abbreviations denote the average percentage of election votes over the years 2007, 2011, 2015, and 2019 for each party: FP = Finns Party (Perussuomalaiset in Finnish), SDP = Social Democratic Party (Suomen Sosialidemokraattinen Puolue), NCP = National Coalition Party (Kansallinen Kokoomus), Centre = Centre Party (Suomen Keskusta), Green = Green League (Vihreä liitto), Left = Left Alliance (Vasemmistoliitto), and CD = Christian Democrats (Suomen Kristillisdemokraatit).



Supplementary Figure 6: The percentage of the use of fathers' quota of parental leave by year and municipality. The white spots indicate the regional capital cities. The municipalities having fewer than five fathers or fewer than three fathers in the group of quota users or non-users are coloured with grey.



Supplementary Figure 7: Comparison of the taken quota across the whole of Finland by registered mother tongue (Finnish, Swedish, Other).



Supplementary Figure 8: Comparison between the three Finnish regions with the largest number of Swedish-speaking fathers. FI stands for Finnish and SV for Swedish.

Supplementary Table 8: Mean, median, standard deviation and range of each temporally varying variable by child's birth year. The first column includes the name and a short description of each variable. The education indicator represents the average length of education after the primary education per person; an indicator value 246 represents 2.5 years of additional education (Kela, 2021).

variable	measure	2009	2010	2011	2012	2013	2014	2015	2016	2017
Fathers = total number of fathers	mean	197	199	195	194	189	187	180	172	163
	median	65	63	62	59	61	54	56	54	48
	sd	501	514	501	505	506	510	503	487	469
	min	5	3	4	2	2	4	1	4	2
	max	5938	6140	5973	6060	6203	6305	6399	6205	6000
Leaves % = percentage of fathers taking father's quota	mean	16.8	21.9	24.7	26.0	39.0	26.6	28.3	40.4	42.2
	median	16.7	21.5	25.0	25.7	40.1	37.0	39.0	40.0	42.9
	sd	7.3	9.0	9.4	10.4	10.2	10.2	11.6	9.6	10.8
	min	0.0	0.0	0.0	0.0	8.3	0.0	0.0	5.9	0.0
	max	40.9	50.0	50.0	80.0	66.7	68.7	100.0	86.7	75.0
Finnish and Sami % = percentage of population with Finnish or Sami as their registered native language	mean	92.9	92.8	92.6	92.5	92.3	92.2	92.1	91.9	91.8
	median	98.5	98.3	98.2	98.1	98.0	97.9	97.7	97.5	97.4
	sd	18.2	18.2	18.2	18.2	18.1	18.1	18.1	18.1	18.1
	min	3.6	3.7	3.1	3.0	3.3	3.2	3.2	3.7	3.1
	max	99.9	99.8	99.8	99.7	99.7	99.8	99.7	99.6	99.5
Swedish % = percentage of population with Swedish as their registered native language	mean	5.5	5.5	5.4	5.4	5.4	5.4	5.3	5.3	5.3
	median	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	sd	17.7	17.7	17.6	17.5	17.4	17.4	17.3	17.2	17.1
	min	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	max	92.6	92.0	92.2	92.2	92.5	92.3	92.2	92.1	91.8
Foreign languages % = percentage of population with a foreign language registered as their native language	mean	1.6	1.8	1.9	2.1	2.3	2.4	2.6	2.8	2.9
	median	1.2	1.3	1.5	1.6	1.7	1.8	1.9	2.2	2.3
	sd	1.4	1.5	1.6	1.8	1.9	2.0	2.1	2.3	2.4
	min	0.1	0.2	0.1	0.2	0.2	0.2	0.2	0.4	0.5
	max	10.2	10.8	11.5	12.2	13.2	14.4	15.4	16.6	17.7
Low income % = percentage of population at risk of poverty	mean	16.6	15.9	16.0	15.0	14.4	14.0	13.8	13.6	14.0
	median	16.7	16.3	16.3	15.3	14.9	14.3	14.1	13.8	14.4
	sd	4.6	4.4	4.5	4.3	4.0	3.8	3.9	3.7	3.9
	min	5.3	5.9	4.8	5.3	5.3	4.9	5.1	4.5	4.9
	max	28.6	27.1	27.6	27.6	26.2	22.9	24.0	23.4	23.8
Unemployment % = percentage of population being unemployed and seeking a job	mean	10.9	10.4	9.6	9.9	11.2	12.3	13.1	12.7	11.1
	median	11.0	10.2	9.4	9.8	11.0	12.0	13.0	12.4	10.8
	sd	3.5	3.1	3.1	3.3	3.5	3.6	3.6	3.3	3.2
	min	4.2	3.6	3.3	3.1	3.5	3.5	3.8	4.1	3.1
	max	22.0	21.0	20.7	20.7	21.2	24.7	23.0	22.3	20.1
Entrepreneurship % = percentage of population being entrepreneurs	mean	6.6	6.5	6.3	6.1	5.9	5.8	5.5	5.3	5.1
	median	6.5	6.4	6.3	6.1	5.9	5.8	5.5	5.4	5.0
	sd	2.6	2.6	2.5	2.4	2.3	2.3	2.2	2.1	2.0
	min	2.0	1.9	1.9	1.9	1.8	1.7	1.7	1.6	1.5
	max	14.7	13.9	13.1	13.0	12.5	12.0	11.5	11.3	11.0
Education = education indicator	mean	270.6	275.5	280.0	284.5	289.9	294.5	297.5	301.8	307.0
	median	261.0	265.8	270.4	274.1	280.1	284.9	286.5	291.3	296.0
	sd	49.1	49.3	49.5	49.6	49.6	49.4	49.4	49.2	49.3
	min	180.5	184.8	190.5	193.8	200.1	206.2	205.0	210.5	213.5
	max	563.3	568.6	572.9	573.5	576.0	576.3	576.6	579.3	584.1

Supplementary Table 9: Mean, median, standard deviation and range of the familialisation and de-familialisation variables. The values are reported separately for data excluding and including the votes for the SPP.

	SPP excluded		SPP included	
	familialisation	de-familialisation	familialisation	de-familialisation
mean	8.3	10.8	7.1	10.4
median	32.1	36.9	31.4	36.6
sd	31.0	37.7	29.8	38.2
min	54.6	78.1	52.9	76.2
max	10.0	11.5	10.6	12.9

C. Model

Here we present the model theory in more detail than in the main text. The main formulas are also repeated here for the sake of clarity.

We model the share of fathers who have taken the father's quota with binomial distribution and inverse logit link as:

$$y_{i,t} \sim \text{Bin}(n_{i,t},\ p_{i,t}), \tag{1}$$

where $y_{i,t}$ denotes the share of fathers, taken the quota, and $i = 1, \ldots, N$ denotes the municipality and $t = 1, \ldots, T$ the time point. N and T denote the numbers of municipalities and years, respectively. The first parameter of the distribution, $n_{i,t}$, is the total number of eligible fathers in the municipality i during the year t. By eligible we mean here a father who has a right to use fathers' quota during the current year. The second parameter, in turn, denotes the probability of a father to take the father's quota in that municipality and year, and it is defined as

$$p_{i,t} = \text{logit}^{-1}\left(c_t + \sigma_\varphi \varphi_{i,t} + \sum_{k=1}^{K} \beta_{k,t} x_{i,k,t}\right), \tag{2}$$

where K is the number of explanatory variables. There are three different components forming this probability. First of all, the time dependent nationwide constant, c_t, describes the average log-odds of taking father's quota. This parameter is constructed as a random walk $c_t \sim \text{N}(c_{t-1},\ \sigma_c^2)$.

Secondly, the spatial effect that cannot be explained with other included variables is captured by the term $\sigma_\varphi \varphi_{i,t}$. We assign an ICAR (Besag, 1974) structure for this component so that municipalities close to each other have more similar effects than those far from each other. As ICAR requires the knowledge of the neighbourhood of each site, we define that municipalities sharing borderline are neighbours. Based on this neighbourhood structure, we define a matrix W indicating the neighbourhood such that

$$w_{i,j} = \begin{cases} 1, & \text{when locations } i \text{ and } j \text{ are neighbours, and } i \neq j \\ 0, & \text{otherwise,} \end{cases}$$

and a diagonal matrix D collecting the numbers of neighbours of each location i as

$$d_{i,j} = \begin{cases} \text{number of neighbours of location } i, & \text{when } i = j \\ 0, & \text{otherwise.} \end{cases}$$

Then, the ICAR structure for the spatial random variables at each time point can be written as $\boldsymbol{\varphi}_t \sim \text{N}(0, (D - W)^{-1})$. The symbol in bold denotes a vector of length N. This results in having spatially dependent variables for each year such that they are independent between the years (Pasanen et al., 2025).

Finally, the probability of taking father's quota is explained with a general regression term using the covariates available. The regression coefficients are let to depend on time monotonically in a similar way as in Bürkner and Charpentier (2020), so that the effect is decreasing or increasing across the years but it cannot alter between these during the time window. This is done with helper vectors $\boldsymbol{b}_k$ of length T, with the first element fixed to

zero and the rest summing up to one, thus constructing a simplex for each covariate k. The regression coefficients at the first and the last time point, $\beta_{k,1}$ and $\beta_{k,T}$, are defined separately, in Bayesian context we set priors for them individually. Using the helper simplexes, the coefficients at the other time points are defined as

$$\beta_{k,t} = \beta_{k,1} + (\beta_{k,T} - \beta_{k,1}) \sum_{i=1}^{K} b_i$$

for all $k = 1, \ldots, K,$ and $t = 2, \ldots, T-1$. In our case, all the explanatory variables are standardized based on their mean and standard deviation on each year individually. This facilitates the comparison between the covariates but also has to be taken into consideration when interpreting the results.

The model is estimated within Bayesian framework, which requires setting prior distributions for the unknown parameters. The full listing of the priors we use is

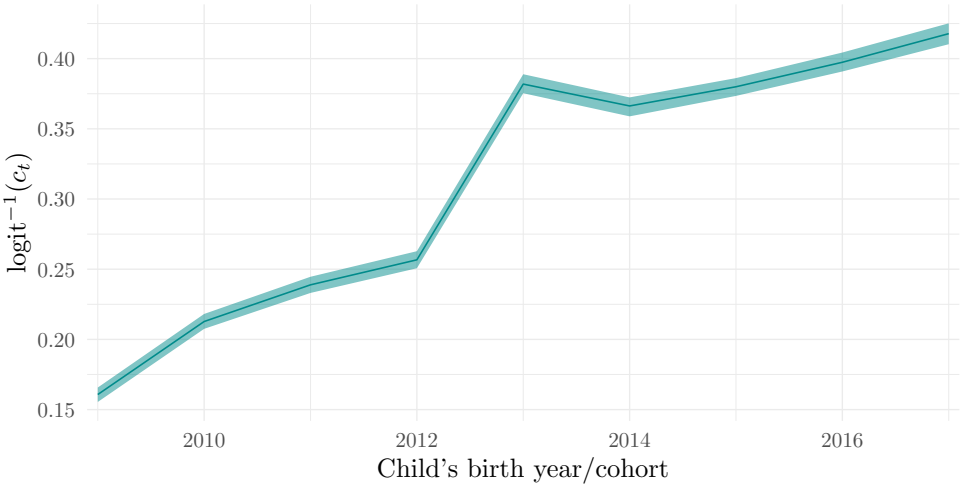
$$\begin{aligned}
c_1 &\sim \mathrm{N}(0,\ 1^2), \\
c_t &\sim \mathrm{N}(c_{t-1},\ \sigma_c^2),\ \text{for all } t = 2, \ldots, T, \\
\sigma_c &\sim \mathrm{N}(0,\ 1^2)[0,], \\
\sigma_\varphi &\sim \mathrm{N}(0,\ 1^2)[0,], \\
\boldsymbol{\varphi}_t &\sim \mathrm{N}(0, (D - W)^{-1}), \text{ given } \sum_{i=1}^{N} \varphi_{i,t} = 0,\ \text{for all } t = 2, \ldots, T, \\
\beta_{k,1} &\sim \mathrm{N}(0,\ 1^2),\ \text{for all } k = 1, \ldots, K, \\
\beta_{k,T} &\sim \mathrm{N}(0,\ 1^2),\ \text{for all } k = 1, \ldots, K, \\
\boldsymbol{b}_{k,2:T} &\sim \mathrm{Dirichlet}(1_1, \ldots, 1_{T-1}),\ \text{for all } k = 1, \ldots, K,
\end{aligned} \tag{3}$$

where $\mathrm{N}(.,.)[x,]$ indicates that the distribution is left-truncated at x and the indexation $\boldsymbol{b}_{k,2:T}$ denotes the components from 2 to T of the vector $\boldsymbol{b}_k$. These priors are mostly weakly informative and merely set to enhance the computation (see Banner et al., 2020).

The model was estimated with Markov chain Monte Carlo (MCMC) using rstan (Stan Development Team, 2023), which is an R interface (R Core Team, 2023) for the probabilistic programming language Stan for statistical inference (Stan Development Team, 2024). The posterior samples were drawn using the NUTS sampler (Hoffman and Gelman, 2014; Betancourt, 2018) with four chains. Each chain consisted of 8,000 iterations, of which the first 1,500 were discarded as a warm-up. The estimation was done on Statistics Finland's Fiona remote access system, equipped with 2.3 GHz Intel Icelake processors and 64 GB of RAM. The estimation took approximately 30 minutes using four parallel chains. According to the MCMC diagnostics available in rstan (Vehtari et al., 2021), the model converged appropriately. All the $\hat{R}$ statistics were less than 1.005 and the effective sample sizes were approximately between 1,200 and 27,000.

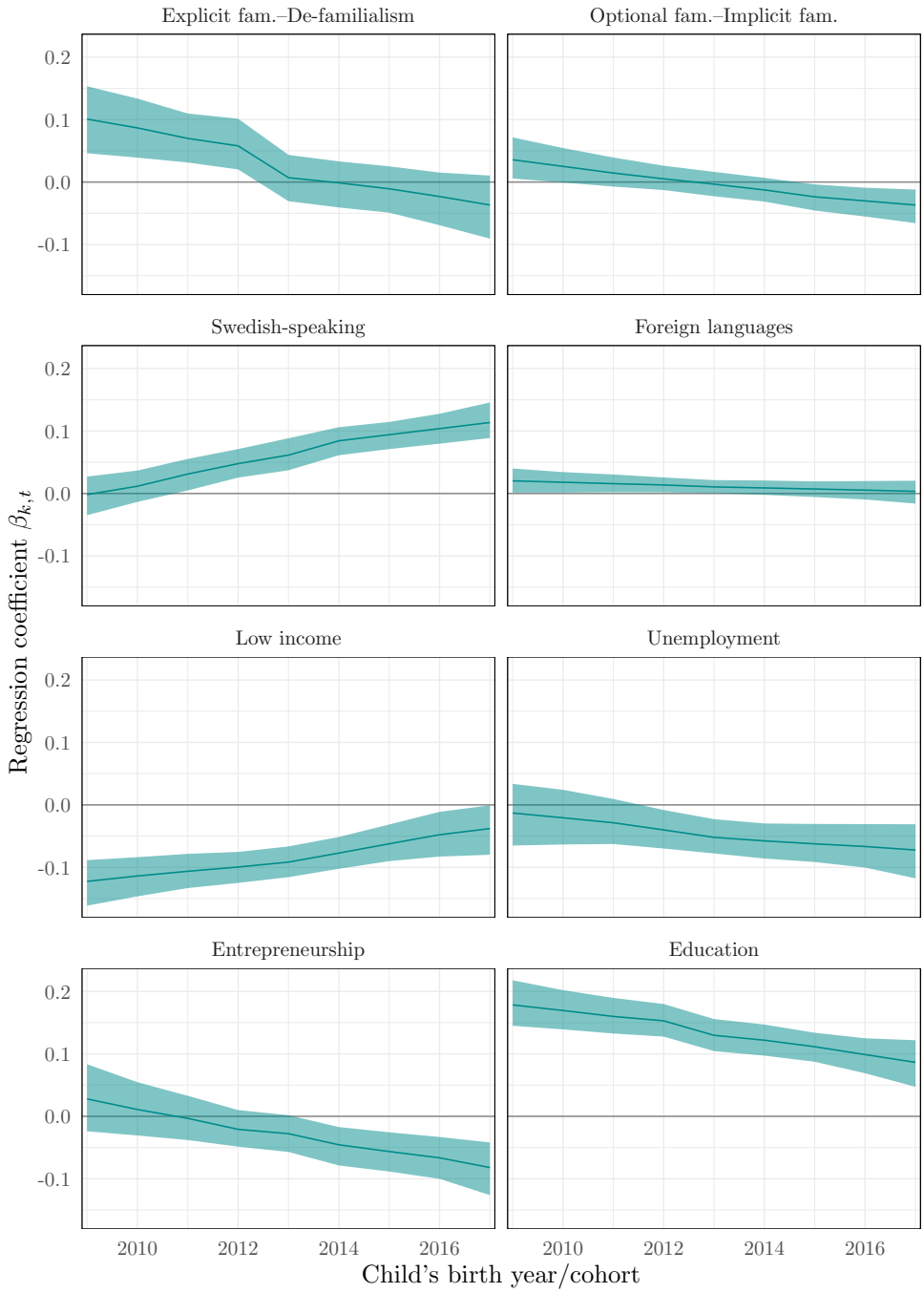
D. Detailed results of the main model

Supplementary Figure 9 illustrates the trend, which seems to be increasing during the nine years, meaning that the nationwide probability of taking the fathers' quota of parental leave increases. Despite the overall growth, there also seems to be an abrupt increase in 2013. The posterior mean of the standard deviation of the trend is $\sigma_c = 0.30$ (95% posterior interval [0.18, 0.53]), which describes the variation in the trend over time. The posterior interval of the trend itself seems to be quite narrow, as can be seen from Supplementary Figure 9.



Supplementary Figure 9: The posterior mean of the trend c_t as a dark curve and the 95% posterior interval as a shaded area on a probability scale. The curve describes the average national probability of using fathers' quota after controlling all the other variables included in the model.

The regression coefficients $\beta_{k,t}$ for all included covariates can be seen in Supplementary Figure 10. The coefficients are estimated based on the standardised data, which means that they are interpreted as effects of change of one standard deviation from the yearly average in the explanatory variable on the response. The higher share of foreign language speakers is not related to fathers' quota use. A higher share of population at risk of poverty (having at their disposal less than 60% of the national median equivalised disposable income after social transfers), being unemployed, and being entrepreneur are related to a lower probability of using the fathers' quota. Over time, the effect of poverty diminishes, whereas the negative effect of unemployment and entrepreneurship increase. The effect of higher education level decreases over time but remains positive. See the main text for the interpretations of the principal components and share of Swedish-speaking residents.

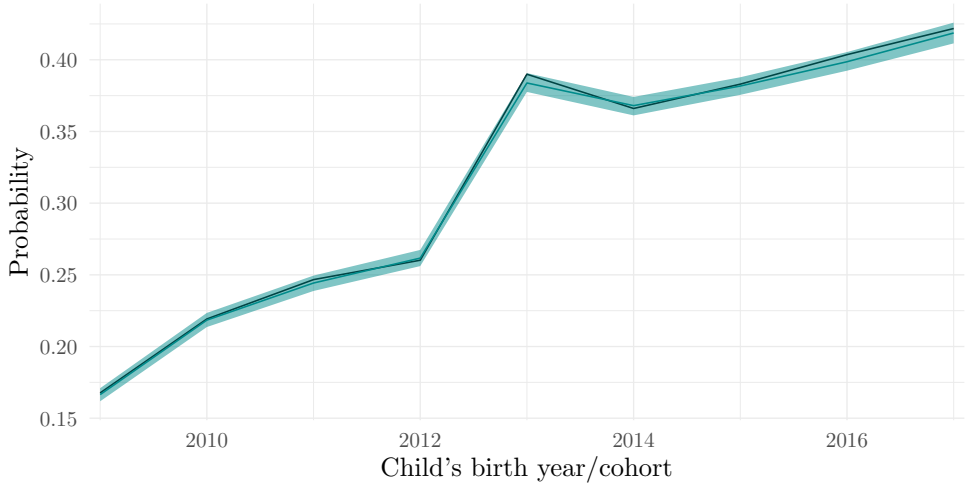


Supplementary Figure 10: The posterior means of the regression coefficients $\beta_{k,t}$ as dark curves and their 95% posterior intervals as shaded areas. The black vertical line highlights the zero level in order to facilitate the interpretation.

The spatial terms $\varphi_{i,t}$ describe the part of the total probability of taking the fathers' quota of parental leave that cannot be explained with the covariates that are included as the regression part. The actual coefficients are illustrated in Figure 5 in the main text of the article. The deviation parameter describing the variation of these spatial variables over the years and municipalities is $\sigma_\varphi = 0.19$ [0.17, 0.21].

The predicted probabilities based on our model are described in Supplementary Figure 11

and Supplementary Figure 12. Supplementary Figure 11 shows the time series representation which seems to align with the observed average. Supplementary Figure 12, in turn, illustrates the spatial predictions as yearly maps. The differences between the predictions and the observations, grouped by year, can be seen in Supplementary Table 10.



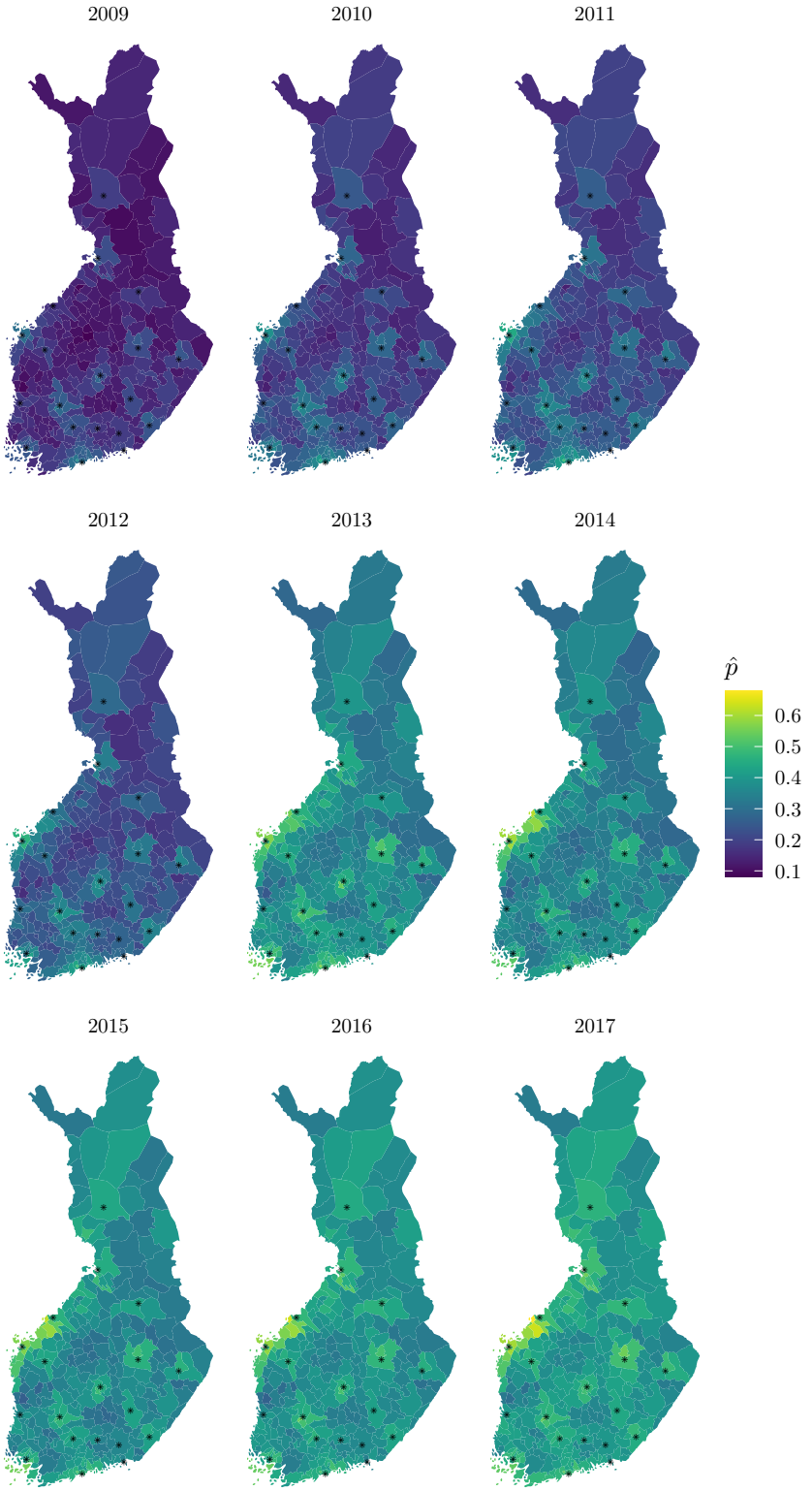
Supplementary Figure 11: Predicted average share of used fathers' quota and its 95% posterior interval as a turquoise line and area, and observed shares as a black line.

Supplementary Table 10: The yearly national average differences between the observations and the posterior predictions, and their standard deviations.

year	mean	sd
2009	0.001	0.002
2010	0.001	0.002
2011	0.002	0.003
2012	-0.001	0.003
2013	0.006	0.003
2014	-0.002	0.003
2015	0.001	0.003
2016	0.005	0.003
2017	0.003	0.004

E. Model comparisons

These comparisons are based on the censored data available also on Github. In the censored data the observations describing fewer than three individuals in the group of quota users or non-users are coded as missing, due to privacy reasons. These computations were done on a supercomputer node with four cores of Xeon Gold 6230 2.1 GHz processors, each core allocated 10 GB of RAM. Four chains were used, each consisting of 8,000 iterations, of which the first 1,500 were discarded as a warm-up.

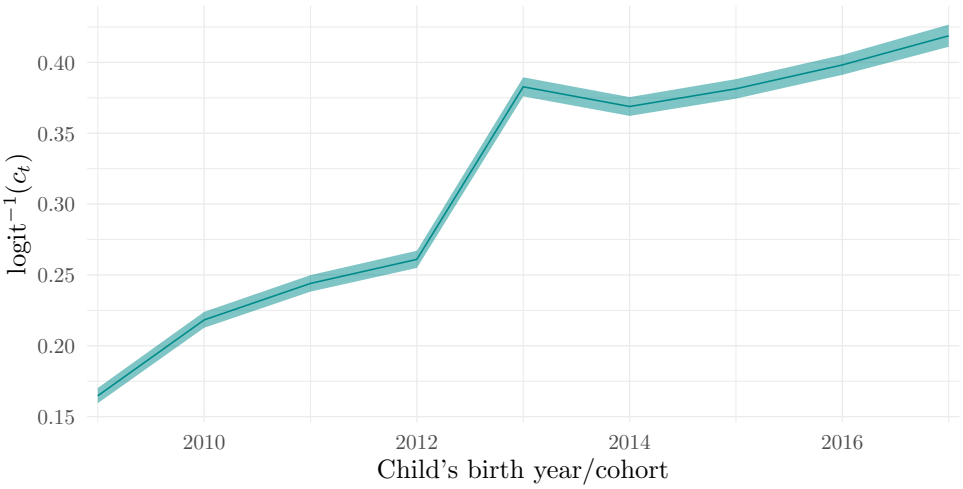


Supplementary Figure 12: The posterior means of the predictions $\hat{p}$ of the probability of a father to use the fathers' quota of the parental leave in each municipality and year. The black spots show the locations of the main cities in each region.

E.1 Binomial model

The estimation of this model took approximately 40 minutes. According to the MCMC diagnostics, the model converged appropriately. All the $\hat{R}$ statistics were below 1.003 and the effective sample sizes were approximately between 1,100 and 31,000.

Supplementary Figure 13 illustrates the trend, which corresponds to that of the main model. The standard deviation $\sigma_c = 0.29$ [0.17, 0.52] also aligns with the main results.

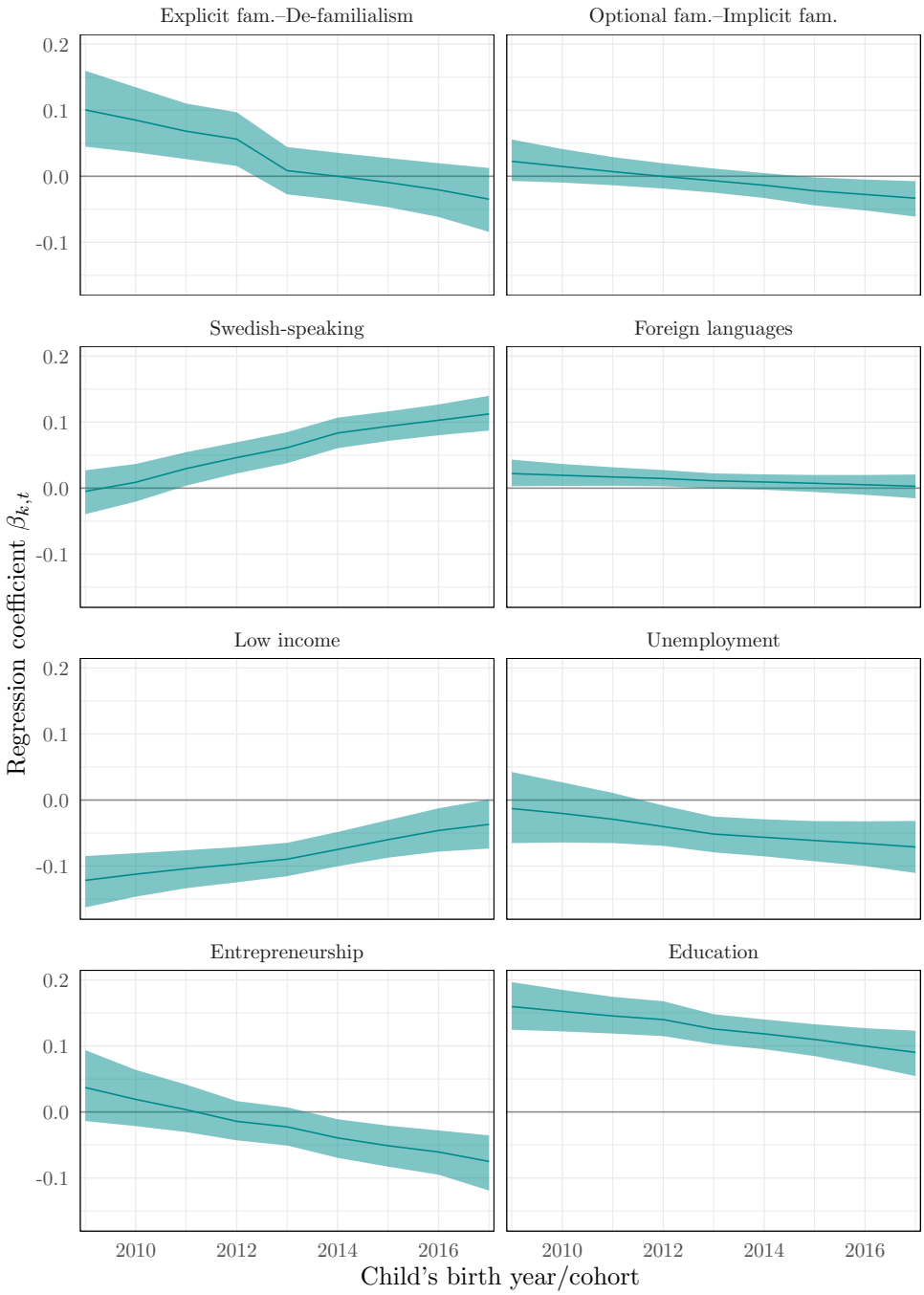


Supplementary Figure 13: Model using binomial distribution: The posterior mean of the trend c_t as a dark curve and the 95% posterior interval as a shaded area on a probability scale. The curve describes the average national probability of using fathers' quota after controlling all the other variables included in the model.

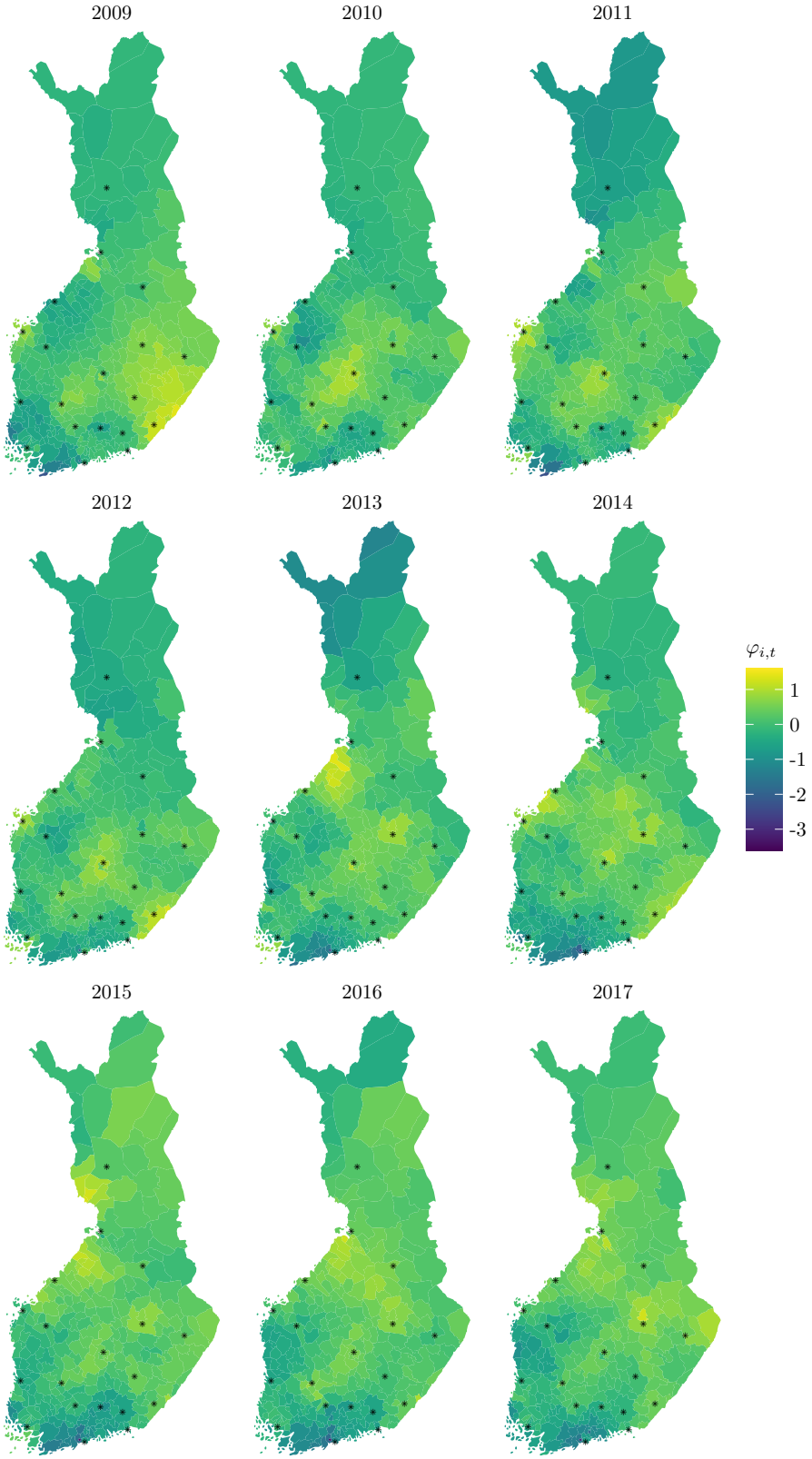
The regression coefficients $\beta_{k,t}$ for all included covariates can be seen in Supplementary Figure 14. Again, the results correspond to those of the main model.

The spatial terms $\varphi_{i,t}$, describing the part of the total probability of taking the fathers' quota of parental leave that cannot be explained with the covariates that are included as the regression part, are illustrated in Supplementary Figure 15. They are also aligned with the main model. The deviation parameter describing the variation of these spatial variables over the years and municipalities is $\sigma_\varphi = 0.19$ [0.17, 0.21].

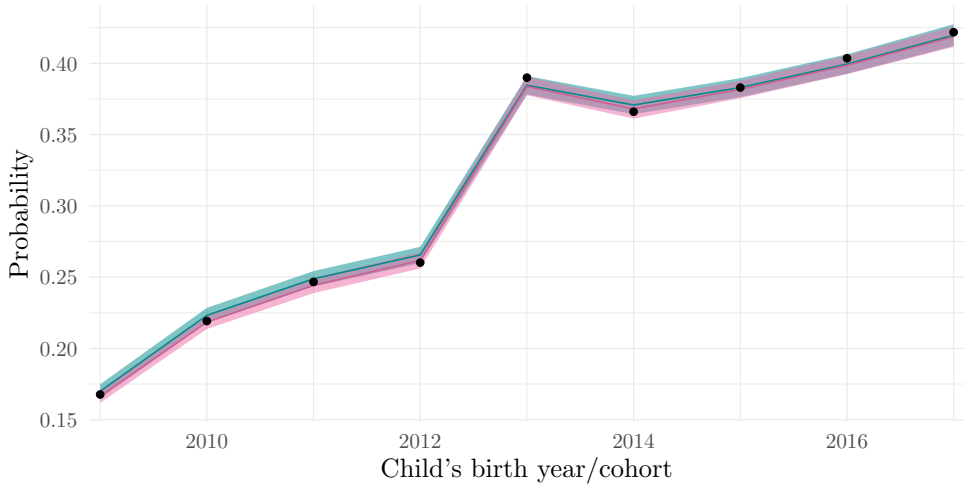
Supplementary Figure 16 and Supplementary Figure 17 describe the predictions based on the model. The differences between the predictions and the observations are shown in Supplementary Table 11. All these are aligned with the main model.



Supplementary Figure 14: Model using binomial distribution: The posterior means of the regression coefficients $\beta k, t$ as dark curves and their 95% posterior intervals as shaded areas. The black vertical line highlights the zero level in order to facilitate the interpretation.



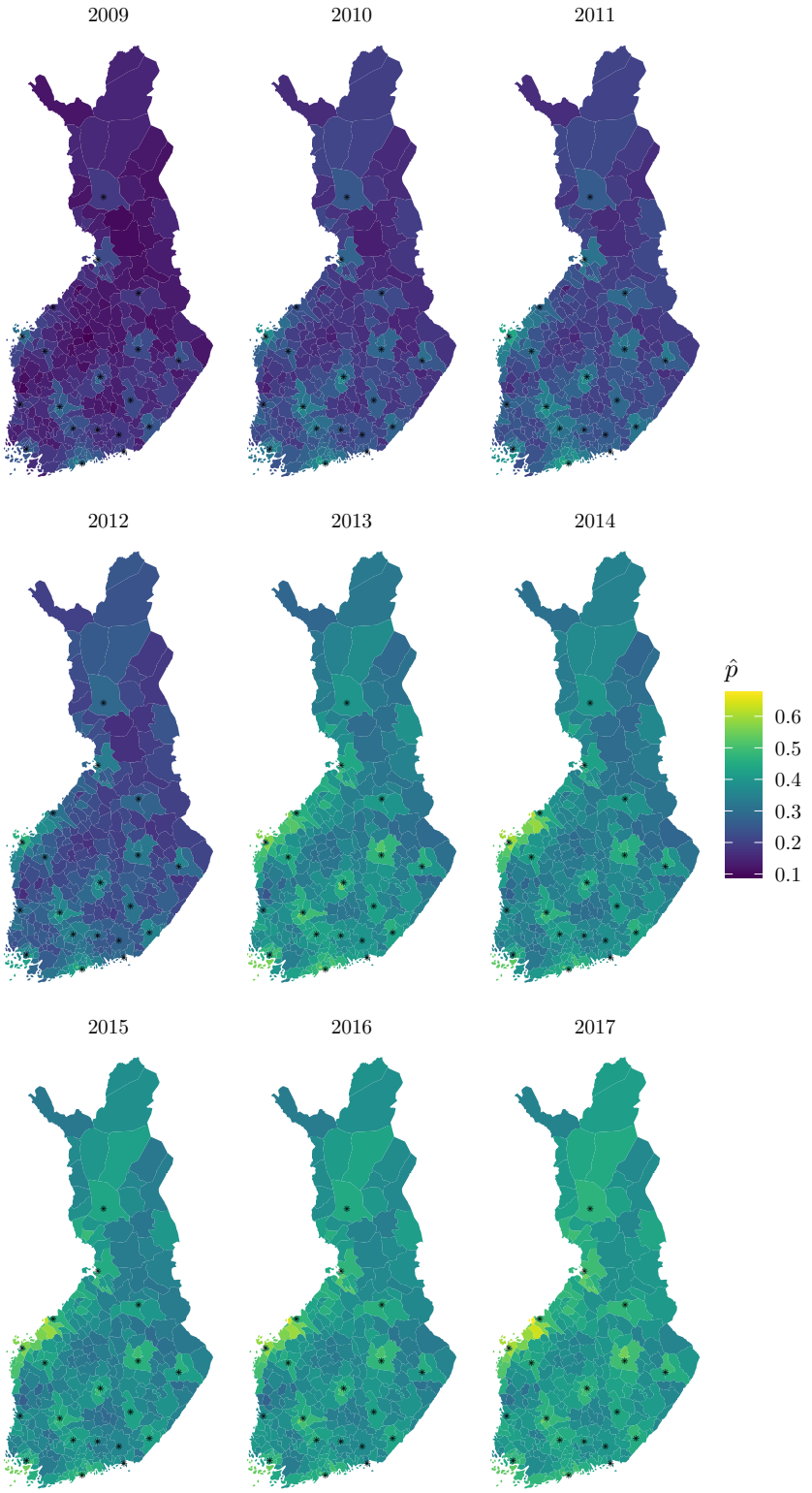
Supplementary Figure 15: Model using binomial distribution: The posterior means of the spatial variables $\varphi_{i,t}$ showing the spatial dependency not explained by the covariates. The black spots show the locations of the main cities in each region.



Supplementary Figure 16: Model using binomial distribution: Predicted average share of used fathers' quota and its 95% posterior interval as a turquoise line and area, corresponding results of the main model as a pink line and area, and observed shares of the uncensored data as black dots.

Supplementary Table 11: Model using binomial distribution: The yearly national average differences between the observations and the posterior predictions, and their standard deviations. The differences $(p - \hat{p})$ are calculated only considering the uncensored data points.

year	mean	sd
2009	-0.006	0.002
2010	-0.008	0.003
2011	-0.008	0.003
2012	-0.003	0.003
2013	-0.004	0.003
2014	-0.002	0.003
2015	-0.001	0.003
2016	-0.006	0.003
2017	-0.007	0.004



Supplementary Figure 17: Model using binomial distribution: The posterior means of the predictions $\hat{p}$ of the probability of a father to use the fathers' quota of the parental leave in each municipality and year. The black spots show the locations of the main cities in each region.

E.2 Beta-binomial model

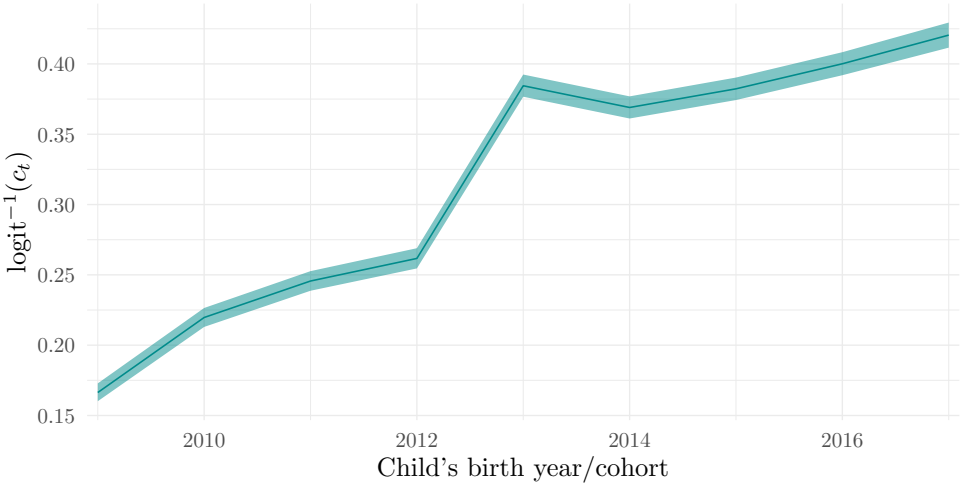
As an alternative model, we estimated the main model using beta-binomial distribution instead of the original binomial distribution. That is,

$$y_{i,t} \sim \text{Beta-binomial}(n_{i,t},\ p_{i,t}\kappa,\ (1-p_{i,t})\kappa),$$

where κ is the overdispersion parameter reflecting the non-spatial heterogeneity in the parental uptakes between municipalities and years. The probability $p_{i,t}$ is as in the main model.

It took about 80 minutes to estimate this model which also converged appropriately. All the $\hat{R}$ statistics were below 1.007 and the effective sample sizes were approximately between 800 and 21,000.

The nationwide trend c_t, visualised in Supplementary Figure 18, is similar to the one of the main model. Its standard deviation $\sigma_c = 0.29$ [0.17, 0.53] which is almost equal to the estimate gained with our main model.



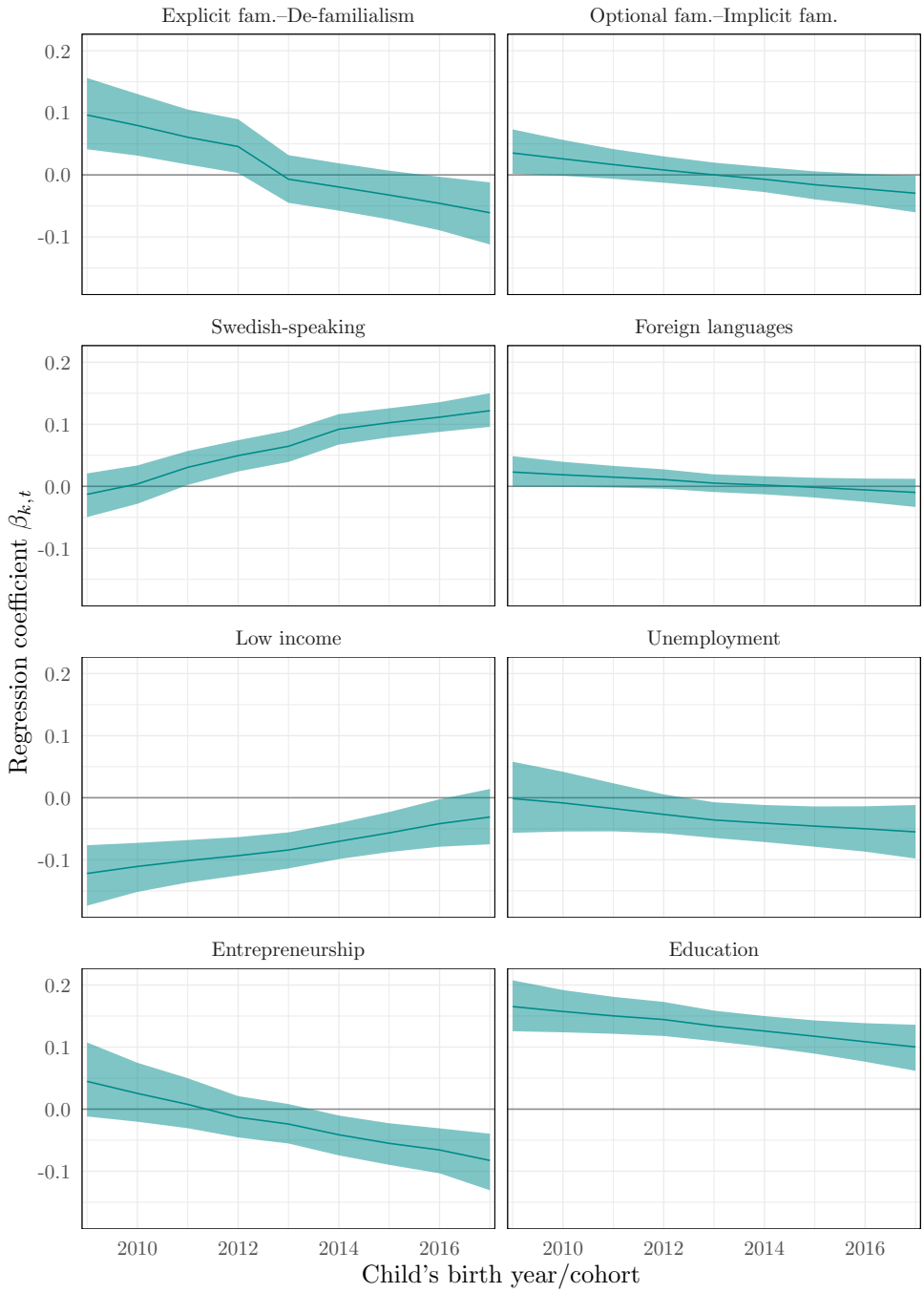
Supplementary Figure 18: Model using beta-binomial distribution: The posterior mean of the trend c_t as a dark curve and the 95% posterior interval as a shaded area on a probability scale. The curve describes the average national probability of using fathers' quota after controlling all the other variables included in the model.

The regression coefficients $\beta_{k,t}$ for all included covariates can be seen in Supplementary Figure 19. The results are aligned with our main model.

The spatial coefficients $\varphi_{i,t}$ are illustrated in Supplementary Figure 20. Also they show results similar to the main model. Beta-binomial model results in slightly smoother distribution with less variation according to visual inspection of Supplementary Figure 20. The deviation parameter $\sigma_\varphi = 0.12$ [0.09, 0.15], implying lesser variation on its behalf. The heterogeneity not seen within the spatial component is most likely captured by the the dispersion parameter $\kappa = 238$ [212, 265].

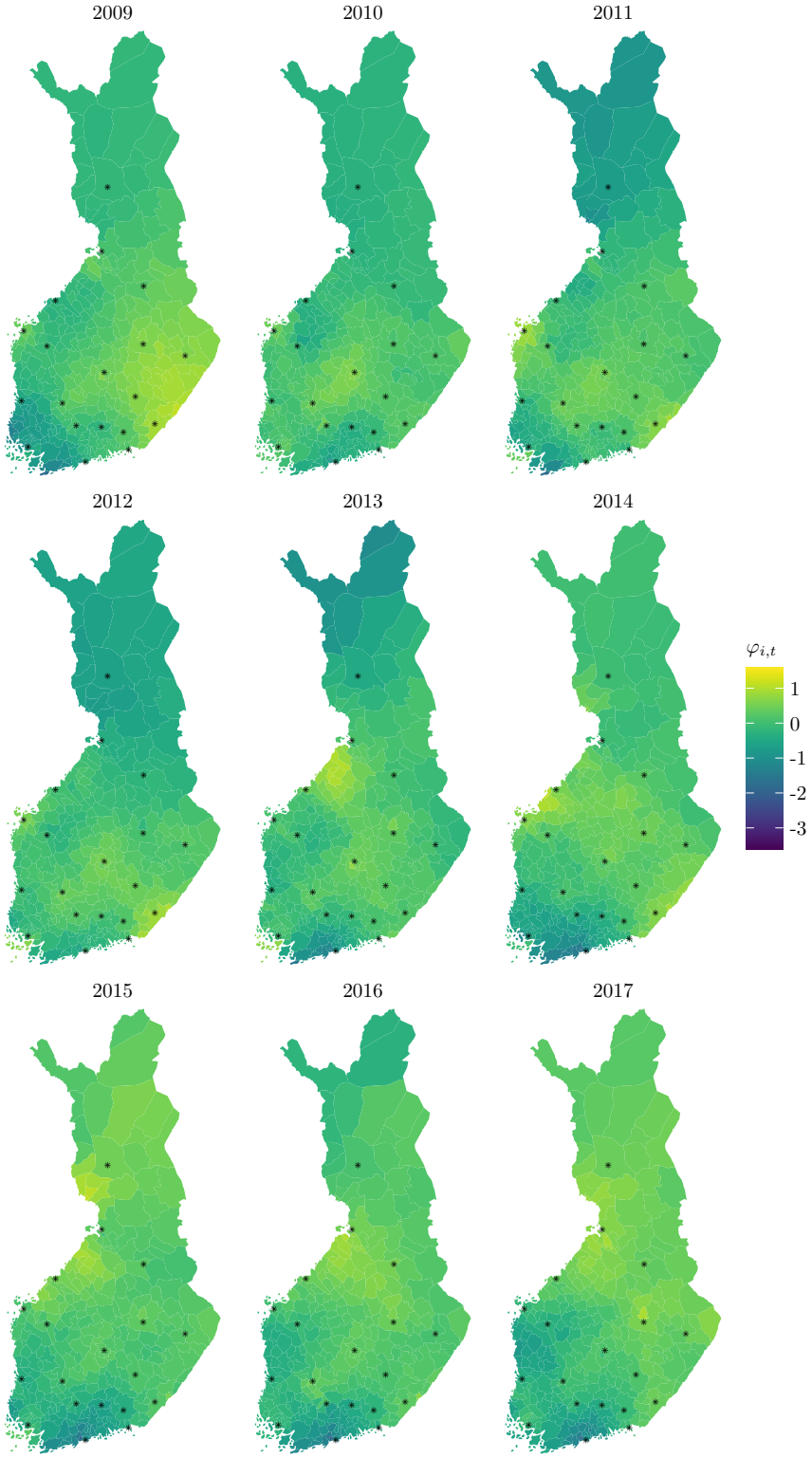
The predicted probabilities based on the model are described in Supplementary Figure 21 and Supplementary Figure 22, and the differences between the predictions and the obervations in Supplementary Table 12. Again, the results are aligned with our main model.

Additionally, both beta and beta-binomial models were estimated without the spatial component $\varphi_{i,t}$. These models were fitted to estimate the necessity of the spatial term.

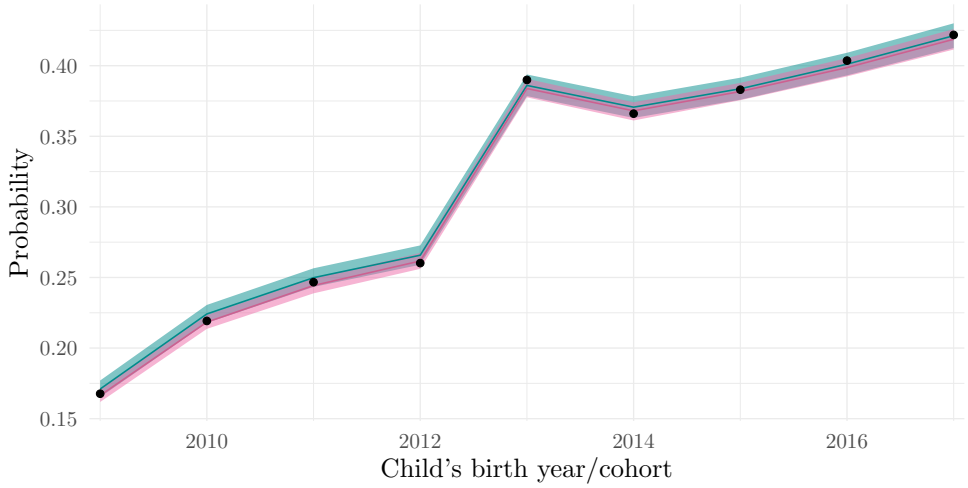


Supplementary Figure 19: Model using beta-binomial distribution: The posterior means of the regression coefficients $\beta k, t$ as dark curves and their 95% posterior intervals as shaded areas. The black vertical line highlights the zero level in order to facilitate the interpretation.

All the models were compared using the expected log predictive density (ELPD), which measures the goodness of the entire predictive posterior distribution (Vehtari et al., 2017). The ELPDs were calculated estimating the model ten times using data from which 10% were removed randomly each time. Thus each of the ten estimations (folds) were based on different datasets. According to the results, represented in Supplementary Table 13, the



Supplementary Figure 20: Model using beta-binomial distribution: The posterior means of the spatial variables $\varphi_{i,t}$ showing the spatial dependency not explained by the covariates. The black spots show the locations of the main cities in each region.

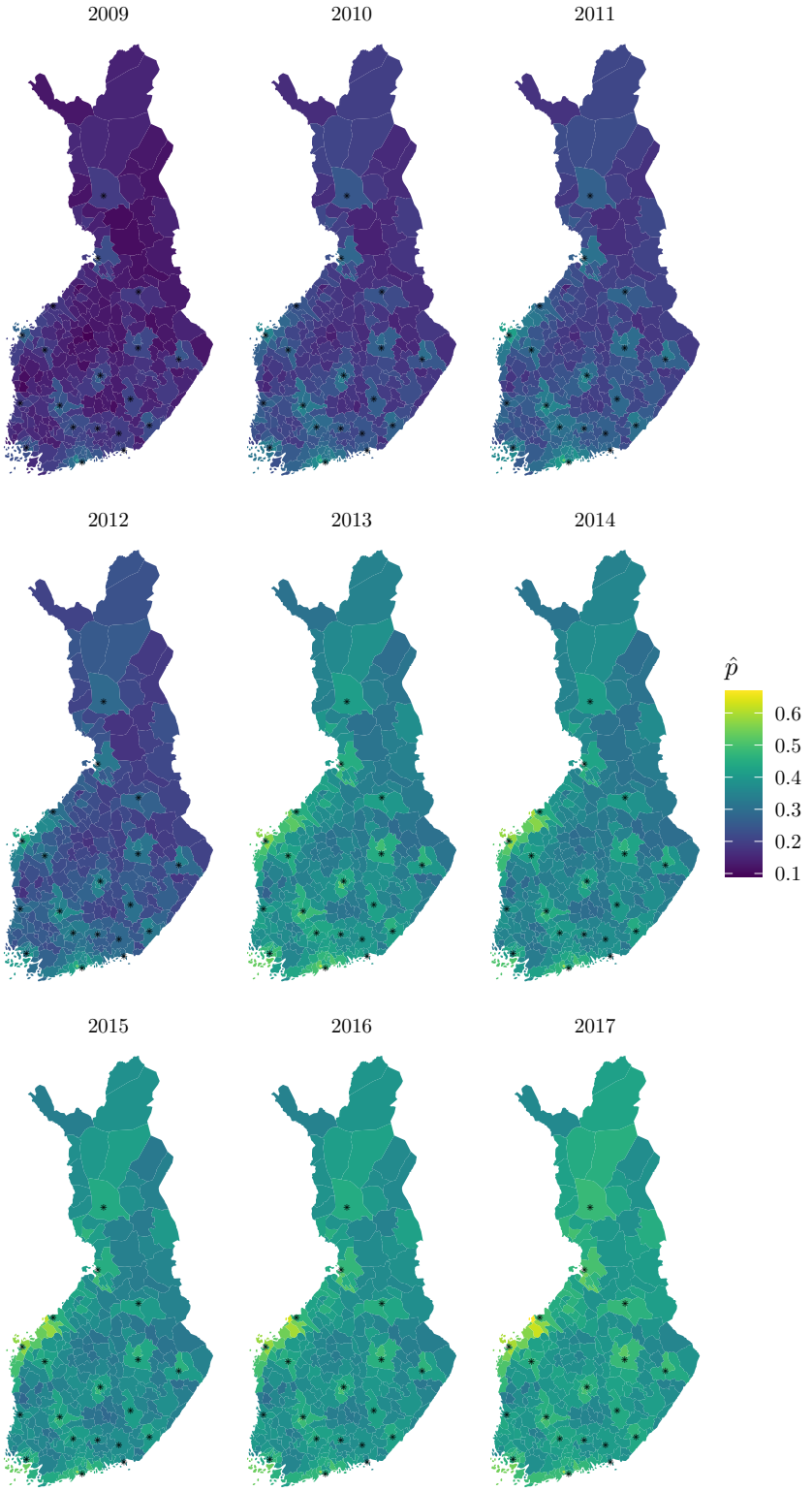


Supplementary Figure 21: Model using beta-binomial distribution: Predicted average share of used fathers' quota and its 95% posterior interval as a turquoise line and area, corresponding results of the main model as a pink line and area, and observed shares of the uncensored data as black dots.

Supplementary Table 12: Model using beta-binomial distribution: The yearly national average differences between the observations and the posterior predictions, and their standard deviations. The differences $(p - \hat{p})$ are calculated only considering the uncensored data points.

year	mean	sd
2009	-0.005	0.003
2010	-0.007	0.003
2011	-0.007	0.003
2012	-0.003	0.003
2013	-0.003	0.004
2014	-0.002	0.004
2015	-0.000	0.004
2016	-0.004	0.004
2017	-0.005	0.004

binomial model including the spatial component outperformed.



Supplementary Figure 22: Model using beta-binomial distribution: The average marginal predictions $\hat{p}$ of the probability of a father to use the fathers' quota of the parental leave in each municipality and year. The black spots show the locations of the main cities in each region.

E.3 Including the votes for the SPP

For a robustness check, we estimated all our model variations also using the data including the SPP votes. The results are consistent between all the models. Additionally, these models were included in the model comparison based on the ELPD (see Supplementary Table 13). The goodness of the different model variations remains the same in this case regardless of the data.

Supplementary Table 13: Differences of the ELPDs and the standard errors of the ELPD differences for the ten-fold cross-validation. The first column includes "SPP" in parenthesis for the models using the data including the votes for Swedish Peoples' Party, which we excluded from our main model. The comparisons here are based on the censored data.

model	$\text{ELPD}_{\text{diff}}$	SE_{diff}
Binomial with φ (SPP)	0.0	0.0
Binomial with φ	-0.7	2.3
Beta-binomial with φ (SPP)	-88.4	9.8
Beta-binomial with φ	-91.0	10.4
Beta-binomial without φ	-131.9	14.4
Beta-binomial without φ (SPP)	-135.6	14.3
Binomial without φ	-271.4	31.7
Binomial without φ (SPP)	-273.2	31.7

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