**Appendix**

This Appendix has three parts. Part A describes the data used for the analysis. Part B reports the results of the replications of Tables 3–5 with data of the 2015 national elections and the 2016 cantonal executive elections. Part C reports the outcomes of the 2011 elections with absolute numbers.

**Part A: Description of data**

Figure A.1: Distribution of French speakers across municipalities

Rplot_FRrel.tiff

Figure A.2: Distribution of population size across municipalities

Rplot_Size_of_municipalities.tiff

**Part B: Replications of Tables 3–5 with data of the 2015 national elections and the 2016 cantonal executive elections**

Please note that due to municipality mergers the following analysis was possible only for a subsample of municipalities. Hence, reported vote shares might deviate substantially from real vote shares for the entire canton.

Table B.1: Candidate vote shares in the 2016 election to the cantonal executive in Fribourg (%)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Candidate | Party | Language | French speakers | German speakers | Total | ∆ | Relative electoral distance |
| Ropraz | PLR | French | 11.9 | 9.3 | 11.1 | 2.6 | 23.3 |
| Siggen | PDC | French | 11.7 | 9.9 | 11.1 | 1.8 | 16.3 |
| Godel | PDC | French | 11.2 | 10.5 | 11.0 | 0.7 | 7.0 |
| Curty | PDC | German | 10.0 | 11.5 | 10.5 | 1.5 | 14.8 |
| Wuethrich | PLR | German | 9.7 | 8.5 | 9.4 | 1.2 | 13.0 |
| Peiry | UDC | French | 9.1 | 8.2 | 8.8 | 0.9 | 10.9 |
| Steiert | PS | French | 7.9 | 9.2 | 8.3 | 1.3 | 15.4 |
| Demierre | PS | French | 7.4 | 6.4 | 7.1 | 1.0 | 14.3 |
| Garnier | PS | French | 7.4 | 7.2 | 7.3 | 0.2 | 2.4 |
| Schneider Schüttel | PS | German | 6.2 | 7.3 | 6.5 | 1.1 | 16.4 |
| Mäder-Brülhart | PCS | German | 5.1 | 8.3 | 6.1 | 3.2 | 52.1 |
| Bernhard | PVL | German | 1.4 | 2.1 | 1.6 | 0.7 | 46.0 |
| Rugo | KP | German | 0.6 | 0.9 | 0.7 | 0.3 | 52.4 |
| Goodwin Chescoe | KP | German | 0.5 | 0.8 | 0.6 | 0.3 | 58.7 |
| **Average relative electoral distance** | | | | | | | **13.5** |

*Notes*: Estimates are weighted municipality means from 1000 CxR estimates per municipality. Values for bilingual candidates and candidates receiving a higher vote share from the opposite group in parenthesis. For the calculation of the average their values were set at 0. Ecological inferences estimated with RxC ecological inference command in R package ‘eiPack’. ∆ = absolute difference between vote shares among German and French speakers.

Table B.2:Candidate vote shares in the 2015 National Council election in Fribourg (%)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Candidate | Party | Language | French speakers | German speakers | Total | ∆ | Relative electoral distance |
| Steiert | PS | French | 5.5 | 4.9 | 5.3 | 0.6 | 11.7 |
| De Buman | PDC | French | 4.6 | 4.1 | 4.4 | 0.5 | 12.9 |
| Rime | UDC | French | 4.5 | 6.0 | 5.0 | 1.5 | (29.2) |
| Bourgeois | PLR | French | 4.5 | 2.6 | 3.8 | 1.9 | 50.2 |
| Piller Carrard | PS | French | 4.1 | 2.2 | 3.4 | 1.9 | 55.4 |
| Page | UDC | French | 3.5 | 3.6 | 3.6 | 0.1 | (3.4) |
| Collomb | PDC | French | 3.4 | 1.7 | 2.8 | 1.7 | 62.7 |
| Buillard-Marbach | PDC | German | 3.1 | 5.7 | 4.0 | 2.6 | 66.0 |
| Gobet | PLR | French | 2.9 | 1.4 | 2.4 | 1.5 | 66.2 |
| Schneider Schuettel | PS | German | 2.9 | 4.3 | 3.4 | 1.4 | 41.8 |
| Waeber | UDC | German | 2.4 | 5.3 | 3.4 | 2.9 | 84.9 |
| Other | |  | 58.5 | 58.4 | 58.5 | 0.1 | 0.2 |
| **Average relative electoral distance** | | | | | | | **37.7** |

*Notes*: Estimates are weighted municipality means from 1000 CxR estimates per municipality. Values for bilingual candidates and candidates receiving a higher vote share from the opposite group in parenthesis. For the calculation of the average their values were set at 0. Ecological inferences estimated with RxC ecological inference command in R package ‘eiPack’. ∆ = absolute difference between vote shares among German and French speakers.

Table B.3: Candidate vote shares in the 2015 Council of States election in Fribourg (%)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Candidate | Party | Language | French speakers | German speakers | Total | ∆ | Relative electoral distance |
| Levrat | PS | French | 32.3 | 24.8 | 29.7 | 7.5 | 25.1 |
| Vonlanthen | PDC | German | 23.9 | 30.1 | 26.1 | 6.2 | 24.0 |
| Bourgeois | PLR | French | 20.3 | 10.8 | 17.0 | 9.5 | 55.8 |
| Waeber | UDC | German | 12.6 | 20.6 | 15.4 | 8.0 | 51.7 |
| Schmid | PVL | German | 9.8 | 11.8 | 10.5 | 2.0 | 19.3 |
| Castioni | PBD | Bilingual | 1.1 | 1.8 | 1.3 | 0.7 | (51.6) |
| **Average relative electoral distance** | | | | | |  | **37.9** |

*Notes*: Estimates are weighted municipality means from 1000 CxR estimates per municipality. Values for bilingual candidates and candidates receiving a higher vote share from the opposite group in parenthesis. For the calculation of the average their values were set at 0. Ecological inferences estimated with RxC ecological inference command in R package ‘eiPack’. ∆ = absolute difference between vote shares among German and French speakers.

Table B.4: Party vote share in the 2015 National Council election in Fribourg (%)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Party | French speakers | German speakers | Total | ∆ | Relative electoral distance |
| PS | 25.6 | 17.8 | 23.0 | 7.8 | 33.9 |
| UDC | 21.6 | 30.2 | 24.5 | 8.6 | 35.1 |
| PDC | 20.5 | 16.1 | 19.0 | 4.4 | 23.2 |
| PLR | 14.5 | 11.0 | 13.3 | 3.5 | 26.6 |
| PCS | 1.7 | 2.3 | 1.9 | 0.6 | 34.4 |
| Greens | 4.1 | 4.5 | 4.2 | 0.4 | 9.1 |
| PVL | 2.1 | 3.9 | 2.7 | 1.8 | 68.4 |
| Other | 9.9 | 14.2 | 11.4 | 4.3 | 37.5 |

*Notes*: Estimates are weighted municipality means from 1000 CxR estimates per municipality. Ecological inferences estimated with RxC ecological inference command in R package ‘eiPack’. ∆ = absolute difference between vote shares among German and French speakers.

**Part C: Results of the 2011 elections with absolute numbers**

Table C.1: Candidate votes in the 2011 election to the cantonal executive in Fribourg (n)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Candidate | Party | Votes  1st round | Votes  2nd round | Seats gained |
| Chassot | PDC | 37472 | 35622 | 1 |
| Vonlanthen | PDC | 36204 | 35191 | 1 |
| Jutzet | PS | 33728 | 33143 | 1 |
| Godel | PDC | 33100 | 33504 | 1 |
| Demierre | PS | 29816 | 30474 | 1 |
| Garnier | Greens | 24833 | 31224 | 1 |
| Ropraz | PLR | 23366 | 28359 | 1 |
| Ganioz | PS | 21592 | - | 0 |
| Nobs | PCS | 21560 | 19836 | 0 |
| Page | UDC | 20569 | 20450 | 0 |
| Bachmann | Ind. | 15981 | - | 0 |
| Ith | PLR | 14730 | - | 0 |
| Total |  | 280290 | 267803 | 7 |
| *Source*: Etat de Fribourg. | |  |  |  |

Table C.2:Candidate votes in the 2011 National Council election in Fribourg (n)

|  |  |  |  |
| --- | --- | --- | --- |
| Candidate | Party | Votes | Seats  gained |
| Levrat | PS | 36951 | 1 |
| Steiert | PS | 26836 | 1 |
| Rime | UDC | 24152 | 1 |
| de Buman | PDC / CVP | 23335 | 1 |
| Page | UDC | 18792 | 0 |
| Bulliard-Marbach | PDC / CVP | 18591 | 1 |
| Bourgeois | PLR | 17932 | 1 |
| Piller Carrard | PS | 15784 | 1 |
| Schneider Schüttel | PS | 15761 | 0 |
| Wassmer | PS | 15477 | 0 |
| Emonet | PS | 15368 | 0 |
| Tschopp | PS | 15296 | 0 |
| Losey | UDC | 15223 | 0 |
| Collomb | PDC / CVP | 14541 | 0 |
| Waeber | UDC | 14528 | 0 |
| Peiry | UDC | 14339 | 0 |
| Demont | UDC | 14285 | 0 |
| Bosson | PDC / CVP | 13757 | 0 |
| Mesot | UDC | 13221 | 0 |
| Herren | PDC / CVP | 12432 | 0 |
| Weber-Gobet | PCS | 11806 | 0 |
| Lambelet | PDC / CVP | 11311 | 0 |
| Kaelin | PDC / CVP | 9974 | 0 |
| Vonlanthen | PLR | 9492 | 0 |
| Glauser | PLR | 8284 | 0 |
| Clément | PLR | 6595 | 0 |
| Aebersold | PLR | 6449 | 0 |
| Wüthrich | PLR | 6305 | 0 |
| Esseiva | PLR | 6221 | 0 |
| Mutter | Verts | 5167 | 0 |
| Demierre | Vert’libéral | 4426 | 0 |
| von Dach | PBD | 3819 | 0 |
| Peisl-Gaillet | Verts | 3378 | 0 |
| Braillard | Verts | 3373 | 0 |
| Etter | Vert’libéral | 3314 | 0 |
| Aeby-Egger | PCS | 3157 | 0 |
| Schmid | Vert’libéral | 2964 | 0 |
| Collaud | Verts | 2819 | 0 |
| Rey | PCS | 2762 | 0 |
| Arcioni | PBD | 2696 | 0 |
| Ecoffey | PBD | 2690 | 0 |
| Bardet-Leuenberger | Verts | 2648 | 0 |
| Savary | Vert’libéral | 2621 | 0 |
| Hapka | Verts | 2610 | 0 |
| Gasser | Vert’libéral | 2432 | 0 |
| Beyeler | PCS | 2351 | 0 |
| Wismer | Vert’libéral | 2278 | 0 |
| Chassot | PCS | 2263 | 0 |
| Marmier | Verts | 2118 | 0 |
| Rollier | Vert’libéral | 2075 | 0 |
| Mayer Aldana | PCS | 1852 | 0 |
| Besse | PCS | 1787 | 0 |
| Schwarz | sans-partis | 1614 | 0 |
| Messer | Vert-NG | 1483 | 0 |
| Gapany | Jeunes PLR | 1408 | 0 |
| Truttmann | PBD | 1401 | 0 |
| Brady | Jeunes PLR | 1334 | 0 |
| Bovard | Jeunes PS | 1217 | 0 |
| Andrey | Vert-NG | 1123 | 0 |
| Mendez | Vert-NG | 1094 | 0 |
| Eichenberger | UDF | 993 | 0 |
| Lorente | UDF | 993 | 0 |
| Buntschu | Jeunes PS | 981 | 0 |
| de Roche | PEV | 977 | 0 |
| Schafer | Jeunes PLR | 938 | 0 |
| Bischof | Jeunes PS | 927 | 0 |
| Menoud | UDF | 921 | 0 |
| Zurich | Jeunes PS | 886 | 0 |
| Pache | PPFR | 860 | 0 |
| Studer | CG-Jeunes PCS | 859 | 0 |
| Schneuwly | Vert-NG | 837 | 0 |
| Jaquet | Jeunes PLR | 777 | 0 |
| von Niederhäusern | Vert-NG | 747 | 0 |
| Nguyen | CG-Jeunes PCS | 730 | 0 |
| Blanc | PPFR | 711 | 0 |
| Gaschen | Jeunes PLR | 701 | 0 |
| Michellod | Jeunes PLR | 667 | 0 |
| Sitapati | Vert-NG | 649 | 0 |
| Rüfenacht-Schenk | PEV | 621 | 0 |
| Mooser | Jeunes PS | 610 | 0 |
| Descuves | PPFR | 599 | 0 |
| Germain | PPFR | 583 | 0 |
| Verdun | Jeunes PLR | 543 | 0 |
| Herren | PEV | 541 | 0 |
| Frieden | CG-Jeunes PCS | 540 | 0 |
| Jüni | PEV | 495 | 0 |
| Dellsperger | Jeunes PS | 486 | 0 |
| Singy | Politique Int. | 484 | 0 |
| Plüss | PEV | 472 | 0 |
| Aeby | CG-Jeunes PCS | 470 | 0 |
| Kocher | PEV | 470 | 0 |
| Baraké | CG-Jeunes PCS | 418 | 0 |
| Zimmermann | PEV | 403 | 0 |
| Gratwohl | MCI | 374 | 0 |
| Gogniat | Politique Int. | 348 | 0 |
| Preti | Politique Int. | 288 | 0 |
| Ruch | MCI | 271 | 0 |
| Niclass | MCI | 263 | 0 |
| Botchi Morel | MCI | 233 | 0 |
| Total |  | 533978 | 7 |
|  |  |  |  |
| *Source*: Etat de Fribourg. |  |  |  |

Table C.3: Candidate votes in the 2011 Council of States election in Fribourg (n)

|  |  |  |  |
| --- | --- | --- | --- |
| Candidate | Party | Votes | Seats gained |
| Berset | PS | 46295 | 1 |
| Schwaller | PDC | 44699 | 1 |
| Rime | UDC | 20558 | 0 |
| Vonlanthen | PLR | 7685 | 0 |
| Total |  | 119237 | 2 |
| *Source*: Etat de Fribourg. |  |  |  |
| *Notes*: In this two-member district election the first two candidates obtained the absolute majority and were therefore elected in the first round. | | | |