## Online Appendix A. Tables and figures

Figure A.1. Levels of state public support to marriage equality in comparison to national average public support

Own elaboration. Data on public support has been provided by Dr. Andrew R. Flores and Dr. Scott Barclay. For each year, the table shows the estimates of the previous year to make sure that these are not affected by enactments of same-sex marriage laws.

Table A.1. Religious exemption clauses by state

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Clergy | Religious institutions and not-for-profit | Fraternal benefit societies | Adoption agencies and social services | No civil claim, cause of action or government penalty |
| CA04 |  |  |  |  |  |
| CA05 | X |  |  |  |  |
| CA07 | X |  |  |  |  |
| CT07 | X |  |  |  | X |
| DE13 | X |  |  |  | X |
| HI13A | X |  |  |  |  |
| HI13B | X | X |  |  | X |
| IL07 | X |  |  |  |  |
| IL09A/B | X |  |  |  |  |
| IL12 | X |  |  |  |  |
| IL13 | X | X |  |  | X |
| MD08 | X |  |  |  |  |
| MD09 | X |  |  |  |  |
| MD11 | X | X | X |  | X |
| MD12 | X | X | X | X | X |
| ME09 | X |  |  |  | X |
| MN08 | X |  |  |  |  |
| MN13 | X | X |  | X | X |
| NH09 | X | X | X |  | X |
| NJ10 | X |  |  |  |  |
| NJ12 | X | X |  |  | X |
| NY07 | X |  |  |  |  |
| NY09 | X |  |  |  |  |
| NY11 | X | X |  |  | X |
| PA09 | X |  |  |  |  |
| PA11 | X |  |  |  |  |
| PA13 | X |  |  |  |  |
| RI11 | X |  |  |  |  |
| RI13 | X | X | X | X | X |
| VT09 | X | X | X |  | X |
| WA11 | X |  |  |  |  |
| WA12 | X | X |  |  | X |
| WY13 |  |  |  |  |  |
| WY14 |  |  |  |  |  |

Own Elaboration.

Table A.2. Raw data

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ID | Normalized index of LGBT interest groups’ mobilization potential | Normalized index of LGBT interest groups’ expenditures | Normalized index of churches and religious interest groups’ mobilization potential | Normalized index of conservative religious interest groups’ expenditures | Index of LGBT interest groups’ strength (LGBTindex) | Index of churches and religious interest groups’ strength (RELindex) |
| CA04 | .9938 | 0 | .7567 | .0039 | .4969 | .3803 |
| CA05 | .9938 | 0 | .7567 | .0020 | .4969 | .3794 |
| CA07 | 1 | .0010 | .7567 | .0008 | .5005 | .3787 |
| CT07 | .7328 | .0169 | .6955 | .0049 | .3749 | .3502 |
| DE13 | .5256 | .0235 | .5833 | 0 | .2745 | .2916 |
| HI13A | .5636 | 0 | .4228 | 0 | .2818 | .2114 |
| HI13B | .5636 | 0 | .4228 | 0 | .2818 | .2114 |
| IL07 | .6175 | 0 | 1 | .0008 | .3087 | .5004 |
| IL09A/B | .3435 | .0010 | .9065 | .0006 | .1723 | .4536 |
| IL12 | .4315 | .0035 | .7755 | .0019 | .2175 | .3887 |
| IL13 | .4275 | .0034 | .7344 | .0006 | .2154 | .3675 |
| MD08 | .7806 | .0034 | .7976 | .0010 | .3920 | .3993 |
| MD09 | .3172 | .0046 | .7649 | .0002 | .1609 | .3825 |
| MD11 | .3749 | .0089 | .6961 | 0 | .1919 | .3480 |
| MD12 | .5065 | .0752 | .6601 | .0584 | .2909 | .3592 |
| ME09 | .8896 | 1 | .1035 | 1 | .9448 | .5517 |
| MN08 | .6025 | .0084 | .6818 | 0 | .3054 | .3409 |
| MN13 | .5567 | .1022 | .6913 | 0 | .3295 | .3456 |
| NH09 | .2966 | 0 | .2525 | 0 | .1483 | .1262 |
| NJ10 | .3523 | .0021 | .7219 | 0 | .1772 | .3609 |
| NJ12 | .3039 | .0015 | .6986 | 0 | .1527 | .3493 |
| NY07 | .7370 | .0110 | .6330 | 0 | .3740 | .3165 |
| NY09 | .6129 | .0148 | .6000 | 0 | .3138 | .3000 |
| NY11 | .6055 | .0153 | .5653 | .0001 | .3104 | .2827 |
| PA09 | .2773 | .0040 | .7935 | .0011 | .1407 | .397 |
| PA11 | .3028 | .0001 | .7259 | .0018 | .1514 | .3638 |
| PA13 | .3880 | .0017 | .6639 | .0026 | .1949 | .3333 |
| RI11 | .9852 | .0032 | .6270 | 0 | .4942 | .3135 |
| RI13 | .9928 | .0001 | .7324 | 0 | .4965 | .3662 |
| VT09 | .5648 | .0295 | 0 | 0 | .2972 | 0 |
| WA11 | .5995 | .0008 | .5681 | 0 | .3002 | .2840 |
| WA12 | .6314 | .1741 | .5458 | .0743 | .4028 | .3100 |
| WY13 | 0 | .0007 | .8965 | .0248 | .0003 | .4606 |
| WY14 | .0080 | .0005 | .9415 | .0180 | .0043 | .4798 |

Table A.3. Multi-value data

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Case ID | EXEMP | GPROM | VETO | REL | LGBT | OUT |
| CA04 | 0 | 0 | 1 | 1 | 2 | 0 |
| CA05 | 0 | 0 | 1 | 1 | 2 | 0 |
| CA07 | 0 | 0 | 1 | 1 | 2 | 0 |
| CT07 | 1 | 0 | 1 | 1 | 1 | 0 |
| DE13 | 1 | 1 | 0 | 1 | 1 | 1 |
| HI13A | 0 | 0 | 0 | 0 | 1 | 0 |
| HI13B | 1 | 1 | 0 | 0 | 1 | 1 |
| IL07 | 0 | 0 | 0 | 2 | 1 | 0 |
| IL09 | 0 | 0 | 0 | 2 | 0 | 0 |
| IL12 | 0 | 0 | 0 | 1 | 0 | 0 |
| IL13 | 1 | 0 | 0 | 1 | 0 | 1 |
| MD08 | 0 | 0 | 1 | 1 | 1 | 0 |
| MD09 | 0 | 0 | 1 | 1 | 0 | 0 |
| MD11 | 1 | 0 | 1 | 1 | 0 | 0 |
| MD12 | 1 | 1 | 1 | 1 | 1 | 1 |
| ME09 | 1 | 0 | 1 | 2 | 2 | 0 |
| MN08 | 0 | 0 | 1 | 1 | 1 | 0 |
| MN13 | 1 | 0 | 0 | 1 | 1 | 1 |
| NH09 | 1 | 0 | 0 | 0 | 0 | 1 |
| NJ10 | 0 | 0 | 1 | 1 | 0 | 0 |
| NJ12 | 1 | 0 | 1 | 1 | 0 | 0 |
| NY07 | 0 | 1 | 1 | 1 | 1 | 0 |
| NY09 | 0 | 1 | 0 | 1 | 1 | 0 |
| NY11 | 1 | 1 | 1 | 1 | 1 | 1 |
| PA09 | 0 | 0 | 1 | 1 | 0 | 0 |
| PA11 | 0 | 0 | 1 | 1 | 0 | 0 |
| PA13 | 0 | 0 | 1 | 1 | 0 | 0 |
| RI11 | 0 | 0 | 0 | 1 | 2 | 0 |
| RI13 | 1 | 0 | 0 | 1 | 2 | 1 |
| VT09 | 1 | 0 | 1 | 0 | 1 | 1 |
| WA11 | 0 | 0 | 1 | 1 | 1 | 0 |
| WA12 | 1 | 1 | 1 | 1 | 1 | 1 |
| WY13 | 0 | 0 | 1 | 2 | 0 | 0 |
| WY14 | 0 | 0 | 1 | 2 | 0 | 0 |

### Table A.4. Necessary conditions for the enactment and the non-enactment of marriage equality laws

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Enactment of same-sex marriage legislation | | | | Non-enactment of same-sex marriage legislation | | | |
|  | Consistency | RoN | Coverage |  | Consistency | RoN | Coverage | | |
| EXEMP{0} | 0 | .411 | 0 | EXEMP{0} | .833 | 1 | 1 | | |
| EXEMP{1} | 1 | .833 | .714 | EXEMP{1} | .166 | .666 | .285 | | |
| GPROM{0} | .500 | .241 | .185 | GPROM{0} | .916 | .583 | .814 | | |
| GPROM{1} | .500 | .931 | .714 | GPROM{1} | .083 | .843 | .285 | | |
| VETO{0} | .600 | .785 | .500 | VETO{0} | .250 | .785 | .500 | | |
| VETO{1} | .400 | .400 | .181 | VETO{1} | .750 | .750 | .818 | | |
| LGBT{0} | .200 | .656 | .153 | LGBT{0} | .458 | .913 | .846 | | |
| LGBT{1} | .700 | .703 | .466 | LGBT{1} | .333 | .730 | .533 | | |
| LGBT{2} | .100 | .848 | .166 | LGBT{2} | .208 | .965 | .833 | | |
| REL{0} | .300 | .967 | .750 | REL{0} | .041 | .909 | .250 | | |
| REL{1} | .700 | .333 | .280 | REL{1} | .750 | .562 | .720 | | |
| REL{2} | 0 | .852 | 0 | REL{2} | .208 | 1 | 1 | | |
| Note: Relevance of Necessity (RoN) indicates whether a condition is considered as necessary because it is constant and omnipresent, or not. If a condition is constant, then RoN takes the value of 0. | | | | | | | | |

Table A.5. Truth table for enactment of marriage equality laws

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | REL | LGBT | GPROM | EXEMP | VETO | OUT | N | Consistency | PRI | Case ID |
| 3 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | NH09 |
| 12 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | VT09 |
| 15 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | HI13B |
| 27 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | IL13 |
| 35 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | MN13 |
| 39 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | DE13 |
| 40 | 1 | 1 | 1 | 1 | 1 | 1 | 3 | 1 | 1 | MD12, NY11, WA12 |
| 43 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | RI13 |
| 9 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | HI13A |
| 25 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | IL12 |
| 26 | 1 | 0 | 0 | 0 | 1 | 0 | 5 | 0 | 0 | MD09, NJ10, PA09, PA11, PA13 |
| 28 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 0 | MD11, NJ12 |
| 34 | 1 | 1 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | MD08, MN08, WA11 |
| 36 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | CT07 |
| 37 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | NY09 |
| 38 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | NY07 |
| 41 | 1 | 2 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | RI11 |
| 42 | 1 | 2 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | CA04, CA05, CA07 |
| 49 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | IL09 |
| 50 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | WY13, WY14 |
| 57 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | IL07 |
| 68 | 2 | 2 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | ME09 |

Complex solution:

REL{1}\*LGBT{1}\*GPROM{1}\*EXEMP{1} + REL{1}\*GPROM{0}\*EXEMP{1}\*VETO{0} + REL{0}\*LGBT{0}\*GPROM{0}\*EXEMP{1}\*VETO{0} + REL{0}\*LGBT{1}\*GPROM{0}\*EXEMP{1}\*VETO{1} + REL{0}\*LGBT{1}\*GPROM{1}\*EXEMP{1}\*VETO{0} 🡪 OUT{1}

Parsimonious solutions (without exclusion of untenable assumptions):

The data presents tied logically redundant prime implicants and therefore a certain degree of model ambiguity – i.e. more than one parsimonious solution, as reported below (Schneider and Wagemann 2012: 111). The two solutions are identical, except for the last terms, which feature different roles of EXEMP and VETO. I opt for model 1, as it presents a higher coverage than model 2 – i.e. a coverage level of 0.300 instead of 0.100. The intermediate solution is the same for both parsimonious solutions.

M1: GPROM{1}\*EXEMP{1} + EXEMP{1}\*VETO{0} + REL{0}\*EXEMP{1} 🡪 OUT{1}

M2: GPROM{1}\*EXEMP{1} + EXEMP{1}\*VETO{0} + REL{0}\*VETO{1} 🡪 OUT{1}

Untenable assumption (contradicts statement of necessity): EXEMP{0} 🡪 OUT{1}

Directional expectations:

REL{0} 🡪 OUT{1}

LGBT{1}; LGBT{2} 🡪 OUT{1}

GPROM{1} 🡪 OUT{1}

EXEMP{1} 🡪 OUT{1}

VETO{0} 🡪 OUT{1}

Enhanced parsimonious solution (excluding untenable assumptions):

REL{0}\*EXEMP{1} + REL{1}\*GPROM{1}\*EXEMP{1} + REL{1}\*EXEMP{1}\*VETO{0} 🡪 OUT{1}

Limited diversity: 50 out of 72 configurations (69.44%) are logical remainders.

Table A.6. Simplifying assumptions for enactment of marriage equality laws

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | REL | LGBT | GPROM | EXEMP | VETO | Easy Counterfactuals |
| 4 | 0 | 0 | 0 | 1 | 1 |  |
| 7 | 0 | 0 | 1 | 1 | 0 | X |
| 8 | 0 | 0 | 1 | 1 | 1 |  |
| 11 | 0 | 1 | 0 | 1 | 0 | X |
| 16 | 0 | 1 | 1 | 1 | 1 | X |
| 19 | 0 | 2 | 0 | 1 | 0 | X |
| 20 | 0 | 2 | 0 | 1 | 1 |  |
| 23 | 0 | 2 | 1 | 1 | 0 | X |
| 24 | 0 | 2 | 1 | 1 | 1 |  |
| 31 | 1 | 0 | 1 | 1 | 0 | X |
| 32 | 1 | 0 | 1 | 1 | 1 |  |
| 47 | 1 | 2 | 1 | 1 | 0 | X |
| 48 | 1 | 2 | 1 | 1 | 1 |  |
| 51 | 2 | 0 | 0 | 1 | 0 |  |
| 55 | 2 | 0 | 1 | 1 | 0 |  |
| 56 | 2 | 0 | 1 | 1 | 1 |  |
| 59 | 2 | 1 | 0 | 1 | 0 |  |
| 63 | 2 | 1 | 1 | 1 | 0 |  |
| 64 | 2 | 1 | 1 | 1 | 1 |  |
| 67 | 2 | 2 | 0 | 1 | 0 |  |
| 71 | 2 | 2 | 1 | 1 | 0 |  |
| 72 | 2 | 2 | 1 | 1 | 1 |  |

Table A.7. Truth table for non-enactment of marriage equality laws

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | REL | LGBT | GPROM | EXEMP | VETO | OUT | N | Consistency | PRI | Case ID |
| 9 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | HI13A |
| 25 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | IL12 |
| 26 | 1 | 0 | 0 | 0 | 1 | 1 | 5 | 1 | 1 | MD09, NJ10, PA09, PA11, PA13 |
| 28 | 1 | 0 | 0 | 1 | 1 | 1 | 2 | 1 | 1 | MD11, NJ12 |
| 34 | 1 | 1 | 0 | 0 | 1 | 1 | 3 | 1 | 1 | MD08, MN08, WA11 |
| 36 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | CT07 |
| 37 | 1 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | NY09 |
| 38 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | NY07 |
| 41 | 1 | 2 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | RI11 |
| 42 | 1 | 2 | 0 | 0 | 1 | 1 | 3 | 1 | 1 | CA04, CA05, CA07 |
| 49 | 2 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | IL09 |
| 50 | 2 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | WY13, WY14 |
| 57 | 2 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | IL07 |
| 68 | 2 | 2 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | ME09 |
| 3 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | NH09 |
| 12 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | VT09 |
| 15 | 0 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | HI13B |
| 27 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | IL13 |
| 35 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | MN13 |
| 39 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | DE13 |
| 40 | 1 | 1 | 1 | 1 | 1 | 0 | 3 | 0 | 0 | MD12, NY11, WA12 |
| 43 | 1 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | RI13 |

Complex solution:

REL{1}\*LGBT{0}\*GPROM{0}\*EXEMP{0} + REL{1}\*LGBT{0}\*GPROM{0}\*VETO{1}+

REL{1}\*LGBT{1}\*GPROM{0}\*VETO{1} +

REL{1}\*LGBT{1}\*GPROM{1}\*EXEMP{0} + REL{1}\*LGBT{2}\*GPROM{0}\*EXEMP{0} + REL{2}\*LGBT{0}\*GPROM{0}\*EXEMP{0} + REL{2}\*LGBT{1}\*GPROM{0}\*EXEMP{0}\*VETO{0} + REL{2}\*LGBT{2}\*GPROM{0}\*EXEMP{1}\*VETO{1} + REL{0}\*LGBT{1}\*GPROM{0}\*EXEMP{0}\*VETO{0} 🡪 OUT{0}

Parsimonious solutions (without exclusion of untenable assumptions):

The data presents tied logically redundant prime implicants and therefore a certain degree of model ambiguity – i.e. more than one parsimonious solution, as reported below (Schneider and Wagemann 2012: 111). The two solutions are identical, except for the last terms, which feature different roles of REL, LGBT and VETO. I opt for model 1, as it presents a higher coverage than model 2 – i.e. a coverage level of 0.208 instead of 0.167.

M1: EXEMP{0} + REL{1}\*GPROM{0}\*VETO{1} + REL{2} 🡪 OUT{0}

M2: EXEMP{0} + REL{1}\*GPROM{0}\*VETO{1} + LGBT{2}\*VETO{1} 🡪 OUT{0}

Untenable assumptions (contradict statement of sufficiency of the enhanced parsimonious solution for OUT{1}):

REL{0}\*EXEMP{1} + REL{1}\*GPROM{1}\*EXEMP{1} + REL{1}\*EXEMP{1}\*VETO{0} 🡪 OUT{0}

Directional expectations:

REL{1}; REL{2} 🡪 OUT{0}

LGBT{0} 🡪 OUT{0}

GPROM{0} 🡪 OUT{0}

EXEMP{0} 🡪 OUT{0}

VETO{1} 🡪 OUT{0}

Enhanced parsimonious solution (excluding untenable assumptions):

EXEMP{0} + REL{1}\*GPROM{0}\*VETO{1} + REL{2}\*GPROM{0}\*VETO{1} 🡪 OUT{0}

Limited diversity: 50 out of 72 configurations (69.44%) are logical remainders.

Table A.8. Simplifying assumptions for non-enactment of marriage equality laws

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | REL | LGBT | GPROM | EXEMP | VETO | Easy Counterfactuals |
| 1 | 0 | 0 | 0 | 0 | 0 | X |
| 2 | 0 | 0 | 0 | 0 | 1 | X |
| 5 | 0 | 0 | 1 | 0 | 0 |  |
| 6 | 0 | 0 | 1 | 0 | 1 |  |
| 10 | 0 | 1 | 0 | 0 | 1 | X |
| 13 | 0 | 1 | 1 | 0 | 0 |  |
| 14 | 0 | 1 | 1 | 0 | 1 |  |
| 17 | 0 | 2 | 0 | 0 | 0 | X |
| 18 | 0 | 2 | 0 | 0 | 1 | X |
| 21 | 0 | 2 | 1 | 0 | 0 |  |
| 22 | 0 | 2 | 1 | 0 | 1 |  |
| 29 | 1 | 0 | 1 | 0 | 0 | X |
| 30 | 1 | 0 | 1 | 0 | 1 | X |
| 33 | 1 | 1 | 0 | 0 | 0 | X |
| 44 | 1 | 2 | 0 | 1 | 1 | X |
| 45 | 1 | 2 | 1 | 0 | 0 | X |
| 46 | 1 | 2 | 1 | 0 | 1 | X |
| 51 | 2 | 0 | 0 | 1 | 0 |  |
| 52 | 2 | 0 | 0 | 1 | 1 | X |
| 53 | 2 | 0 | 1 | 0 | 0 |  |
| 54 | 2 | 0 | 1 | 0 | 1 |  |
| 55 | 2 | 0 | 1 | 1 | 0 |  |
| 56 | 2 | 0 | 1 | 1 | 1 |  |
| 58 | 2 | 1 | 0 | 0 | 1 | X |
| 59 | 2 | 1 | 0 | 1 | 0 |  |
| 60 | 2 | 1 | 0 | 1 | 1 | X |
| 61 | 2 | 1 | 1 | 0 | 0 |  |
| 62 | 2 | 1 | 1 | 0 | 1 |  |
| 63 | 2 | 1 | 1 | 1 | 0 |  |
| 64 | 2 | 1 | 1 | 1 | 1 |  |
| 65 | 2 | 2 | 0 | 0 | 0 | X |
| 66 | 2 | 2 | 0 | 0 | 1 | X |
| 67 | 2 | 2 | 0 | 1 | 0 |  |
| 69 | 2 | 2 | 1 | 0 | 0 |  |
| 70 | 2 | 2 | 1 | 0 | 1 |  |
| 71 | 2 | 2 | 1 | 1 | 0 |  |
| 72 | 2 | 2 | 1 | 1 | 1 |  |

## Online Appendix B. Calibration of the outcome and conditions, robustness check and sources of limited diversity

In this section, I lay out the data sources, measurement details and calibration of the outcome and conditions, as well as the results of a robustness check. I also briefly discuss the sources of limited diversity in the present analysis and explain how the Enhanced Standard Analysis (ESA, henceforth) helps addressing this problem.

Enactment of marriage equality laws (OUT)

Data on marriage equality legislation has been mainly obtained from the website of Freedom to Marry and complemented with data made available online by state legislatures and the National Conference of State Legislatures. The outcome represents a clear-cut dichotomous category. Accordingly, either a state enacted legislation in favor of marriage equality, or not.

Promotion of the legislation by the governor (GPROM)

Data on the governor’s role in the policy-making process has been collected from the website of Freedom to Marry, newspaper articles and extant research (i.e. Solomon, 2014; Wilson and Kreis, 2013; Wilson, 2014). This condition can also be clear-cut divided into dichotomous sets: either the governor promoted the legislation, or not.

Exemptions afforded to religious officials and organizations by the marriage equality law (EXEMP)

Data for this condition has been collected from extant research (i.e. Wilson, 2012; 2014). To calibrate EXEMP, I consider that the key qualitative difference lies in whether the legislation affords protection from government penalties and lawsuit, or not. Another possibility would be to create a category for each combination of religious exemptions: only clergy, clergy and religious institutions, clergy and religious institutions and adoption agencies and social services, etc. Doing so, however, might pose important problems of limited diversity and also lead to highly individualized solutions (Cronqvist and Berg-Scglosser 2009: 77).

Existence of veto possibilities (VETO)

Data for this condition has been retrieved from the National Conference of State Legislatures and from the Initiative and Referendum Institute. VETO is a clear-cut dichotomous condition, as well. Indeed, either the state constitution allows for a popularly initiated legislative referendum to be held or not; either the government is controlled by Republicans or divided, or not.

Strength of churches and religious interest groups (REL)

The data on the share of adherents of each religious tradition has been obtained from the US Religious Landscape Survey conducted in 2007 and in 2014 by the Pew Research Center’s Forum on Religion & Public Life and distributed by the Association of Religious Data Archive (ARDA). The RELTRAD typology (Woodberry et al., 2012) is built into the survey, which also contains a question that allows identifying whether respondents attend religious service once a week or more. Both data are linearly interpolated for the period 2007-2014, while for the years 2004 and 2005 I use 2007 estimates. The data on conservative religious interest groups’ contributions for each state and year has been retrieved from the National Institute on Money in State Politics.

To create a normalized index of churches and religious interest groups’ mobilization potential for each state and year, I transform the original variable measuring churches and religious interest groups’ mobilization potential (X) for each state (i) and year (j) by X’ij = . I follow the same procedure for the variable measuring conservative religious interest groups’ expenditures. The index of churches and religious interest groups’ strength (RELindex) is then calculated by averaging the index of churches and religious interest groups’ mobilization potential and the one of conservative religious interest groups’ expenditures.

The raw data obtained is numerical and has to be divided into sets. For doing so, crossover points above which a case is assigned the value of 0, 1 or 2, have to be established following either external or internal calibration criteria. External criteria result from prior case-specific and theoretical knowledge, while internal criteria can be established by empirically analyzing the data (Thiem and Duşa 2012: 27). For this study, no theoretical information exists as to what “strong interest groups” or “strong churches” exactly implies in numerical terms. Nevertheless, an empirical examination of the data allows fixing crossover points. As the goal is not to establish “objective” thresholds, but rather to assess interest groups’ relative strength across the observed states, internal criteria can be followed. One empirical approach can be to examine the cases’ distribution and identify large gaps in the data that would indicate a significant qualitative difference. I consider that such gaps can be found, but nevertheless check whether they coincide with the crossover points suggested by a statistical hierarchical clustering (Duşa 2018:74; Hinterleitner, Sager and Thomann 2018: 10).

A first examination of the data displayed in Figure B.1 reveals that significant gaps can be found between Hawaii in 2013 (0.211) and New York in 2011 (0.282), as well as between Maryland in 2008 (0.399) and Illinois in 2009 (0.453). The hierarchical cluster analysis also suggests fixing the first crossover point at 0.247 – i.e. between Hawaii in 2013 and New York in 2011 – and the second one at 0.426 – i.e. between Maryland in 2008 and Illinois in 2009.

Figure B.1. Gaps in the data (RELindex)



Strength of LGBT interest groups (LGBT)

The data on the share of same-sex unmarried partner households in each state is made available by the US Census Bureau for the period 2005-2014. For each year I use the estimates of the previous year to make sure that these are not affected by a state’s enactment of marriage equality. For the year 2004, I make use of the 2005 estimates. The data on LGBT interest groups’ contributions for each state and year has been retrieved from the National Institute on Money in State Politics.

I follow the same approach used in the case of conservative churches and religious interest groups to create a normalized index of LGBT interest groups’ mobilization potential and another one of their expenditures for each state and year. The index of LGBT interest groups’ strength (LGBTindex) is then calculated by averaging the index of LGBT interest groups’ mobilization potential and the one of their expenditures. A first examination of the data displayed in Figure B.2 shows that significant gaps can be found between Illinois in 2012 (0.217) and Delaware in 2013 (0.274) and between Washington in 2012 (0.402) and Rhode Island in 2011 (0.494).

Figure B.2. Gaps in the data (LGBTindex)



The hierarchical cluster analysis, however, suggests fixing the first crossover point at 0.351 and the second at 0.722. Anchoring one threshold at 0.722 would result in very differently sized sets with only one case, Maine in 2009, being assigned to the set of states with very strong LGBT interest groups. Such set skewedness should be avoided, as it could pose analytical problems (Schneider and Wagemann 2012: 232). In the case of the other crossover point, I perform a robustness check in which I keep the first threshold at 0.246 but fix the second one at 0.351 – i.e. between Minnesota in 2013 (0.329) and New York in 2007 (0.374). For space constraints and complexity reasons, the robustness check is only performed on the complex solution. Since the new complex solution is not a subset of the original intermediate and parsimonious solutions, the new intermediate and parsimonious solutions are different as well.

This new calibration leads to recoding LGBT interest groups in Connecticut in 2007, Maryland in 2008, New York in 2007 and Washington in 2012 from strong to very strong. It does not alter the results of the analysis of necessity – i.e. there is no new necessary condition and no previous necessary condition disappears. In the case of enactment of marriage equality legislation, the complex solution presents a new term (in bold), as Washington in 2012 now occupies a truth table row on its own:

REL{1}\*LGBT{1}\*GPROM{1}\*EXEMP{1} + REL{1}\*GPROM{0}\*EXEMP{1}\*VETO{0} + REL{0}\*LGBT{0}\*GPROM{0}\*EXEMP{1}\*VETO{0} + REL{0}\*LGBT{1}\*GPROM{0}\*EXEMP{1}\*VETO{1} + **REL{1}\*LGBT{2}\*GPROM{1}\*EXEMP{1}\*VETO{1}** + REL{0}\*LGBT{1}\*GPROM{1}\*EXEMP{1}\*VETO{0} 🡪 OUT{1}

In the case of non-enactment of marriage equality legislation, the complex solution presents new terms (in bold), as Maryland in 2008 now occupies truth table row 42 together with California in 2004, 2005 and 2007:

REL{1}\*LGBT{0}\*GPROM{0}\*EXEMP{0} +

REL{1}\*LGBT{0}\*GPROM{0}\*VETO{1} +

REL{1}\*LGBT{2}\*GPROM{0}\*EXEMP{0} +

**REL{1}\*LGBT{2}\*GPROM{0}\*VETO{1}** +

**REL{1}\*LGBT{2}\*EXEMP{0}\*VETO{1}** +

**REL{1}\*GPROM{0}\*EXEMP{0}\*VETO{1}** +

REL{2}\*LGBT{0}\*GPROM{0}\*EXEMP{0} +

**REL{1}\*LGBT{1}\*GPROM{1}\*EXEMP{0}\*VETO{0}** +

REL{2}\*LGBT{1}\*GPROM{0}\*EXEMP{0}\*VETO{0} +

REL{2}\*LGBT{2}\*GPROM{0}\*EXEMP{1}\*VETO{1} +

REL{0}\*LGBT{1}\*GPROM{0}\*EXEMP{0}\*VETO{0} 🡪 OUT{0}

With this new calibration, very strong LGBT interest groups lead to marriage equality laws not to be adopted in four, instead of two paths. Since this result is more counterintuitive, I opted for the original calibration. Nevertheless, the interpretation of the results is not substantially altered. In Connecticut in 2007, defenders of the status quo made use of the veto opportunity offered by a divided government. In New York in 2007, the legislation did not include religious exemptions generous enough to garner the necessary votes in the Republican-controlled Senate. Similarly, in Maryland in 2008, a bill with no religious exemption clauses did not gain the support by legislators who were facing the possibility of a popularly-initiated referendum.

Lastly, I identify three sources of limited diversity in the present analysis (Schneider and Wagemann 2012: 154-155). Limited diversity refers to the existence of logical remainders, that is rows for which no empirical evidence is available (rows that are devoid of cases) (Schneider and Wagemann 2012: 119). First, limited diversity results from the fact that the logically possible combinations of conditions (72) outnumbers the cases at hand (34). Second, limited diversity also arises because the cases included tend to be clustered in certain truth table rows, as can be observed in Table A.5. and Table A.7. Third, the condition GPROM is somewhat skewed – i.e. a majority of cases has membership 0 in the set –, which further exacerbates the problem of limited diversity (Thomann and Maggetti, 2017: 17).

The higher the level of limited diversity, the more the causal statements derived from the analysis may rest on simplifying assumptions on logical remainders, that is rows that are devoid of solid empirical foundation. This represents an important analytical problem, because the solution formula of the analysis of sufficiency greatly depends on the decision of which rows are included as counterfactuals (Schneider and Wagemann, 2012: 119). Indeed, all logical remainders could potentially contribute to the minimization process to obtain the most parsimonious solution, even though some of them may be difficult counterfactuals or untenable assumptions (Duşa, 2018: 188). Difficult counterfactuals are all those simplifying assumptions that are not in line with the theoretical expectations or the empirical data at hand. Untenable assumptions are those that are logically impossible (such as the “pregnant man”), those that end up being sufficient for both the outcome and its negation (contradictory simplifying assumptions), as well as those that are necessary for the outcome but are then part of a sufficiency solution that contradicts that claim of necessity (incoherent counterfactuals) (Schneider and Wagemann, 2012: 201-206). The Enhanced Standard Analysis (Schneider and Wagemann, 2012: 200) mitigates these problems posed by limited diversity by including only those logical remainders that are easy counterfactuals and are tenable.

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