Codebook bundeslaendeR

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Contents

Table 1: State-level Variables

state	nuts1	state_name_de	state_name_en
BB	DE4	Brandenburg	Brandenburg
BE	DE3	Berlin	Berlin
BW	DE1	Baden-Württemberg	Baden-Württemberg
BY	DE2	Bayern	Bavaria
HB	DE5	Bremen	Bremen
HE	DE7	Hessen	Hesse
HH	DE6	Hamburg	Hamburg
MV	DE8	Mecklenburg-Vorpommern	Mecklenburg-Vorpommern
NI	DE9	Niedersachsen	Lower-Saxony
NW	DEA	Nordrhein-Westfalen	North Rhine-Westphalia
RP	DEB	Rheinland-Pfalz	Rhineland-Palatine
SH	DEF	Schleswig-Holstein	Schleswig-Holstein
SL	DEC	Saarland	Saarland
SN	DED	Sachsen	Saxony
ST	DEE	Sachsen-Anhalt	Saxony-Anhalt
TH	DEG	Thüringen	Thuringia
BA		ehemaliges Land Baden	former state Baden
WB		ehemaliges Land Württemberg-Baden	former state Württemberg-Baden
WH		ehemaliges Land Württemberg-Hohenzollern	former state Württemberg-Hohenzollern

Introduction

Most election results data are provided by the Bundeswahlleiter. A machine-readable version of the Bundeswahlleiter's compiled data contained in the -periodically published- pdf available here (https://www.bundeswahlleiter.de/service/landtagswahlen.html) was kindly provided to me. Election data outside the timeframe covered by Bundeswahlleiter's data provided to me was collected from the states' local election authorities' (Landeswahlleiter) websites. More information on parties and the continuity of parties under different labels was collected by me.

The Bundeswahlleiter's election data in many cases contains differing names for the same party. Both between states (eg. "Christlich Demokratische Union Deutschlands" vs. "Christlich Demokratische Union Deutschlands in Niedersachsen") as well as within states between elections -in many cases due to parties being renamed- ("BÜNDNIS 90/DIE GRÜNEN, Landesverband Hamburg, Grün-Alternative Liste" vs. "BÜNDNIS 90/DIE GRÜNEN, Landesverband Hamburg"). Efforts were made to reconcile both of these inconsistencies by adding two new, harmonized variables identifying parties (`partyname_short` and `partyname`). This harmonized party identifier also covers merging of parties. The partyname given to the resulting party (eg. "Linke", "Grüne") is given to the largest of the preceding parties contesting an election unless a smaller party joined a government following the election. The original names provided by the Bundeswahlleiter (and Landeswahlleiters in elections after June 2021) are still available (`partyname_short_bundeswahlleiter` and `partyname_bundeswahlleiter`).

Information on Governments is mainly taken from replication data from Linhart, Pappi, and Schmitt (2008) which can be found online here: https://www.tu-chemnitz.de/phil/politik/pspi/forschung/daten.php. Information outside the timeframe of Linhart et al. as well as information on the names and party affiliations of the Ministerpräsidenten was collected by me, mainly from German Wikipedia.

Table 2: Structure of `ltw_elections`

State Variables Name, Abbreviation, NUTS1 Code			**Election Variables** Election date, Size Electorate, Turnout, ...			**Party Variables** Names, Abbreviations, several IDs			**Party-Election Variables** Vote Count, -Share, Seat Count, -Share, ...		
state	nuts1	...	election_date	turnout	...	partyname_short	ches_id	...	party_vshare	party_seat_count	...
BE	DE3	...	2015-09-18	0.765	...	Party A	001	...	0.45	46	...
BE	DE3	...	2015-09-18	0.765	...	Party B	002	...	0.30	12	...
BE	DE3	...	2015-09-18	0.765	...	Party C	003	...	0.25	18	...
NI	DE9	...	2012-12-16	0.560	...	Party A	001	...	0.17	12	...
NI	DE9	...	2012-12-16	0.560	...	Party B	002	...	0.33	27	...
NI	DE9	...	2012-12-16	0.560	...	Party D	004	...	0.50	46	...

`ltw_elections`

`bundeslaendeR::ltw_elections` returns data frame (tibble if the tibble package is loaded) containing one row per contesting party per election. For a schematic version of `bundeslaendeR::ltw_elections`'s structure see table 2.

`ltw_elections` Variable Information

`state`

State Abbreviation
ISO 3166-2:DE-code of the state; including BA for the former state of Baden, WH for the former state of Württemberg-Hohenzollern and WB for the former state of Württemberg-Baden.

`nuts1`

NUTS1 Code of State
NUTS1 code of state. NA for former states Baden, Württemberg-Baden, Württemberg-Hohenzollern.

`state_name_de`

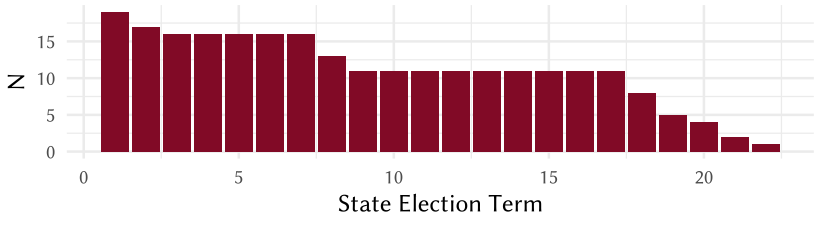
German Name of State
German name of the state.

`state_name_en`

English Name of State.
English name of the state.

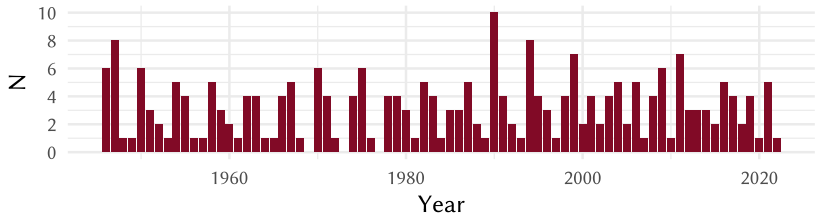
`state_election_term`

Election Term of State
Election term in the state. Counts up from 1.



election_date

Election Date
Date of the election. ISO 8601 or R-Date format.



election_id_ bundeswahlleiter

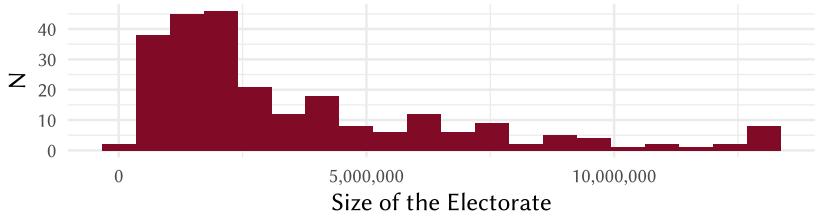
Election ID Bundeswahlleiter
Specific election_id as denoted by the Bundeswahlleiter. Note that BA, WH and WH are named as BW and the number counts down. NA for cases taken from Landeswahlleiters (i.e. elections after ST 2021).

election_remarks_ bundeswahlleiter

Election Remarks Bundeswahlleiter
Remarks on the election as given by the Bundeswahlleiter.

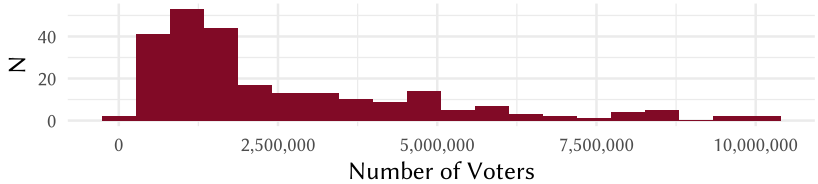
electorate

Size of the Electorate
Number of eligible voters. For more totals also see the last three columns.



number_of_voters

Number of Voters
Number of voters turning out. For more totals also see the last three columns.

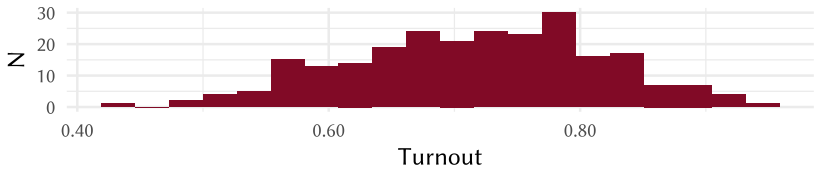


One missing observation: 1946 HB election.

turnout

Turnout

Turnout. Share of eligible voters turning out.

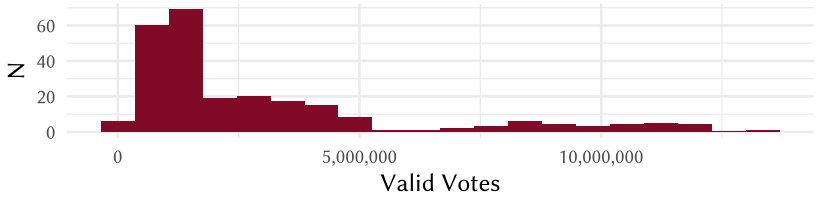


One missing observation: 1946 HB election.

valid_votes

Valid Votes

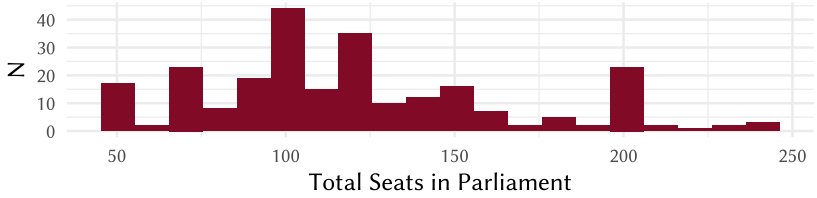
Number of valid votes. Does not have to be equal to the number of ballots cast, as sometimes a ballot contains multiple votes! For more totals also see the last three columns.



total_seats_parliament

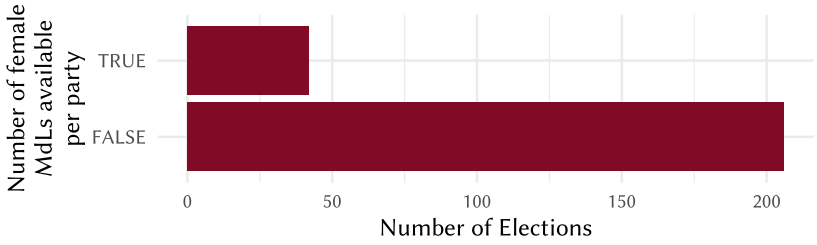
Total Seats in Parliament

Total number of members of the newly elected Landtag.



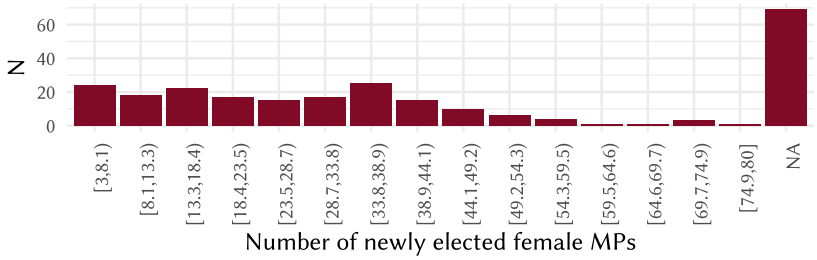
female_party_seats_available

Number of female MdLs available per party
Denotes whether information on the no. of female members of the Landtag per party is available for this election. Note that for parties not elected to the new Landtag party_female_mps always is.na() == TRUE.



total_female_mps_parliament

Number of Female MPs in Parliament
Number of newly elected female MPs.



partyname_short

Abbreviated Party Name
Harmonized abbreviation of the party's name. 374 unique parties.

partyname

Party Name
Harmonized name of the party. 374 unique parties.

partyname_short_bundeswahlleiter

Party Name Abbreviation from Bundeswahlleiter
Partyname abbreviation as documented by the Bundeswahlleiter. 461 different abbreviations.

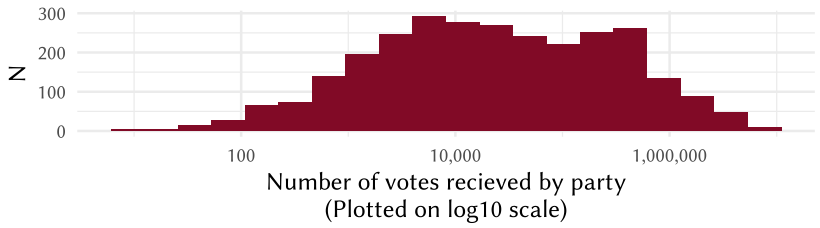
partyname_bundeswahlleiter

Party Name from Bundeswahlleiter
Partyname as documented by the Bundeswahlleiter. 499 different names.

party_vote_count

Party Vote Count

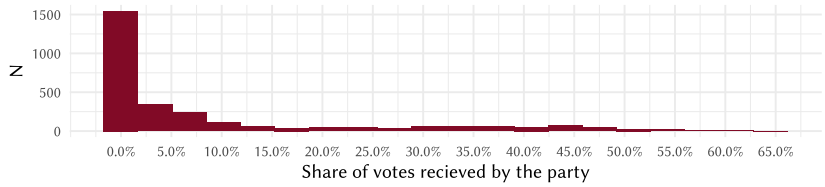
Number of votes recieved by the party.



party_vshare

Party Vote Share

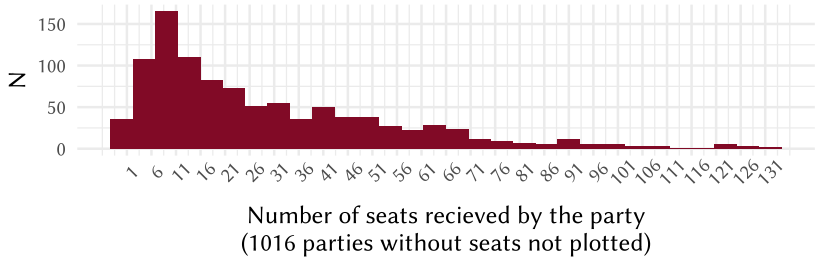
Share of votes recieved by the party.



party_seat_count

Party Seat Count

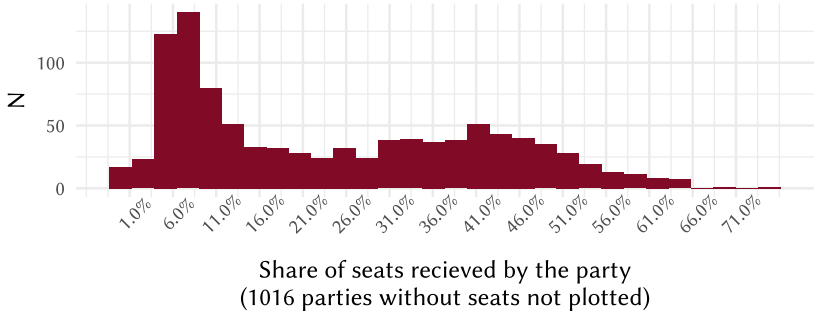
Number of seats recieved by the party.



party_sshare

Party Seat Share

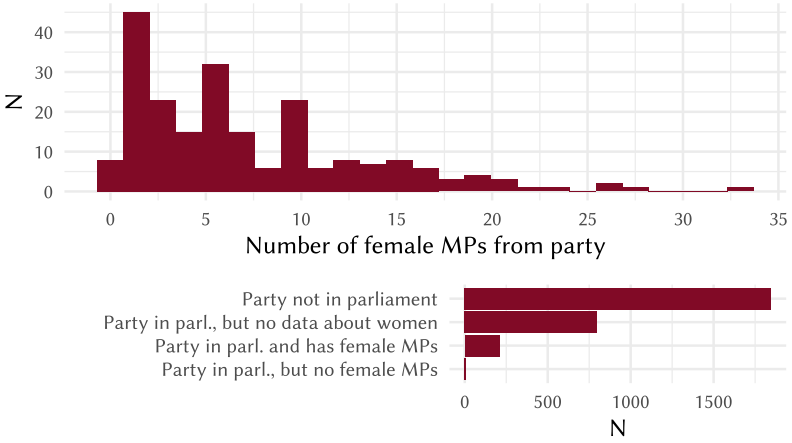
Share of seats recieved by the party.



party_female_mps

Number of female MPs from party

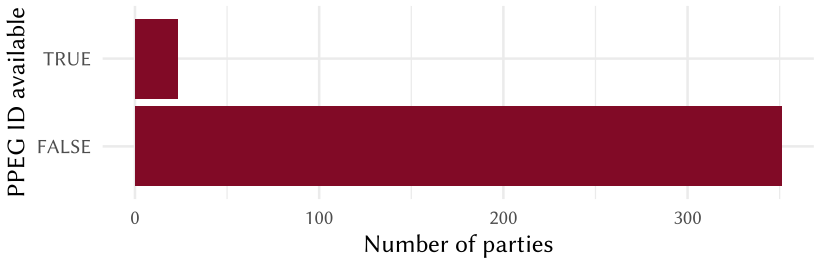
Number of female MPs elected for the party. Note that for parties not elected to the new Landtag party_female_mps always is.na() == TRUE.



ppeg_id

PPEG ID

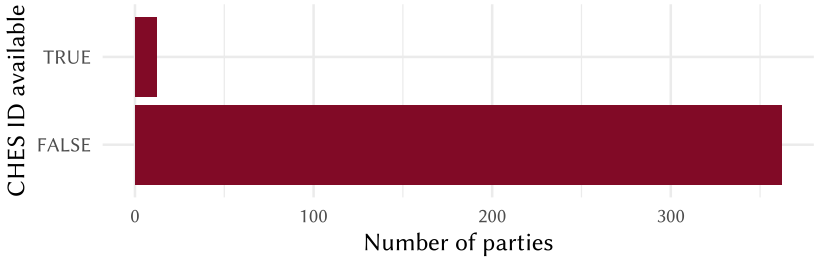
If available, party id of the party in the PPEG database (PPEG 2022). These party IDs are chiefly based on party IDs from Mackie and Rose (1991).



ches_id

CHES ID

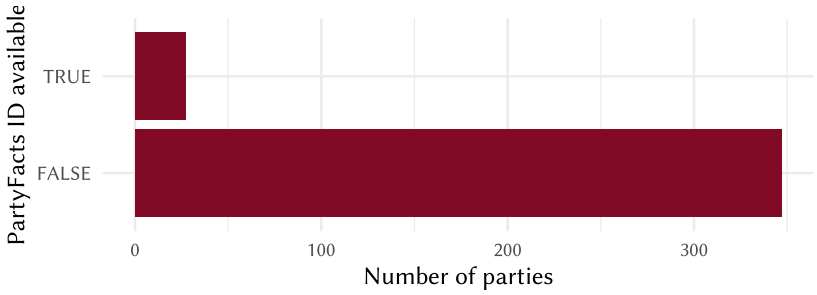
If available, ID of the party in the Chapel-Hill Expert Survey (Jolly et al. 2022).



partyfacts_id

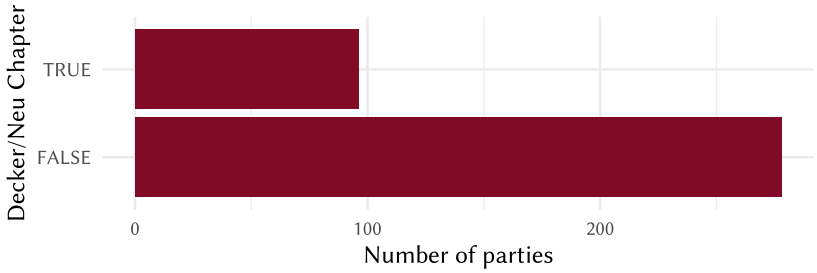
PartyFacts ID

If available, ID of the party in the partyfacts database (Döring and Regel 2019).



`decker_neu`

Chapter Parteienhandbuch
Denotes, wether the Handbuch der deutschen Parteien (3. ed.) by Decker and Neu (Decker and Neu 2018) has a chapter on the party.



`url_info`

URL with additional info on the party
URL to informaton on the party on the web. Can contain multiple URLs!

`party_remarks_ stelzle`

Party remarks Stelzle
Remarks on the party by me.

`party_remarks_ bundeswahlleiter`

Party remarks Bundeswahlleiter
Remarks on the party as listed by the Bundeswahlleiter.

`gueltige_stimm -zettel_hh_hb`

Gültige Stimmzettel HH and HB
Messy totals.

`gesamtstimmen_by`

Gesamtstimmen BY
Messy totals.

`ausgefallene_ stimmen_be`

Ausgefallene Stimmen BE
Messy totals.

`abgegebene_ stimmen_hh`

Abgegebene Stimmen HH
Messy totals.

`ungueltige_ stimmen_except_ hh_hb`

Ungültige Stimmen except in HH and HB
Messy totals.

ungueltige_ stimmzettel_hh_hb	**Ungültige Stimmzettel in HH and HB** Messy totals.

ltw_governments

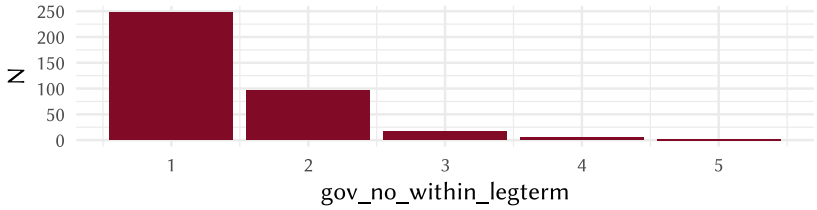
This section of the codebook only concerns variables specific to the ltw_governments dataset. For further variables please refer to the ltw_elections section.

ltw_governments returns a data frame (tibble if the tibble package is loaded) containing information on governments in the German states. Each row contains information on one state government.

ltw_elections Variable Information

gov_no_within_legterm

Number of cabinet within legislative term
Number of cabinet within legislative term (i.e. First cabinet in the 1990-1994 legislative term of state X).

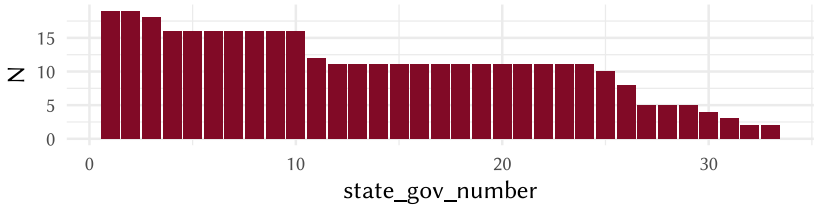


gov_id

Government ID
Unique ID of government. Taken from Linhart et al. However, this ID is not counting up within state by time. In cases where Governments were missing from Linhart et al. before the timeframe covered by Linhart et al. (eg. in Berlin) these earlyer governments have a higher ID than later cabinets contained in Linhart et al. data.

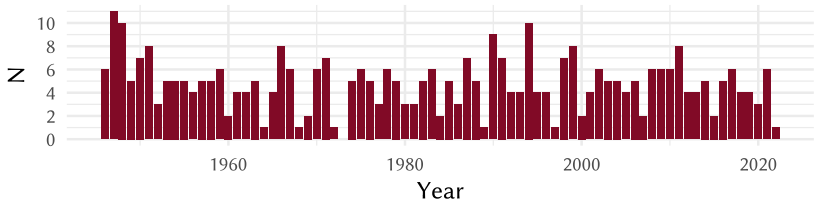
state_gov_number

Number of government in state.
Number of government in state.



`gov_start_date`

Government Starting Date
Starting date of the government. ISO 8601 or R-Date format.



`gov_source`

Government Source
Source of the information on the government. Either Linhart et al. or the URL of the German Wikipedia Page containing information on the cabinet.

`gov_remarks_ stelzle`

Governments remarks Stelzle
My remarks on governments.

`minister_president`

Name of minister president
Name of minister president.

`mp_party`

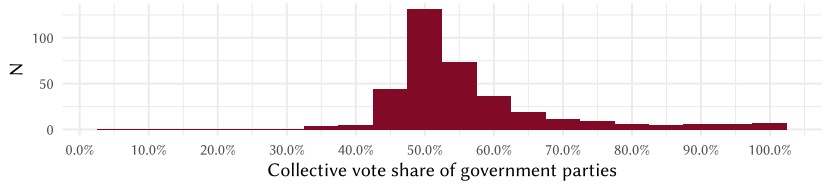
Minister President's Party
Party of the minister president. partyname_short format used. Note: There is a single cabinet with an independent minister president: Heinrich Welsch's caretaker government in the Saarland (at the time not yet a member of the FRG) in 1955.

`gov_parties`

Names of Government Parties
String containing the names (partyname_short format) of all government parties separated by ' ~ '. The MP's party first, followed by other government parties in the order of their seatshare.

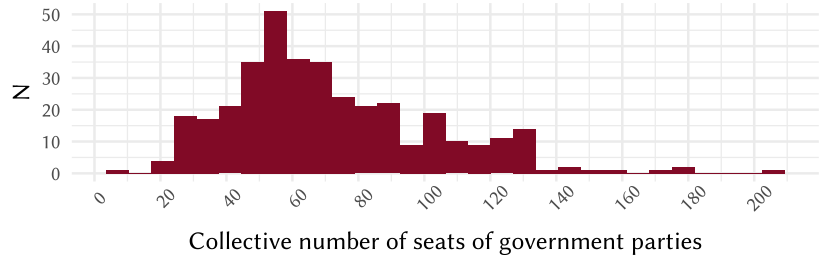
gov_vshare

Government Vote Share
Collective vote share of government parties.



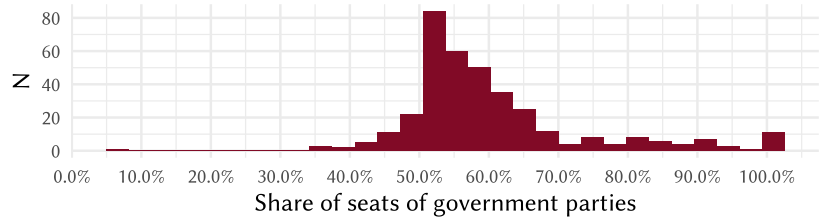
gov_seat_count

Government Seat Count
Collective number of seats of government parties.



gov_sshare

Government Seat Share
Share of seats of government parties.



gov_tog

Type of Government
Type of Government:

- Single Party Majority
- Oversized Coalition
- Minimal Winning Coalition
- Single Party Minority
- Multi Party Majority
- Caretaker.

ltw_combined

This section of the codebook only concerns variables specific to the ltw_combined dataset. For further variables please refer to the sections on ltw_elections and ltw_governments.

ltw_combined returns a returns data frame (tibble if the tibble package is loaded) containing both election results as well as linked information on governments in the German states. Each row contains information on one party during the time in office of one cabinet. For a schematic version of bundeslaendeR::ltw_combined's structure see table 3.

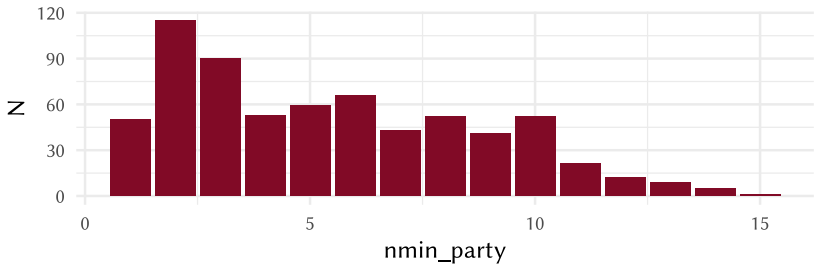
ltw_combined Variable Information

gov_party

Government Party
Boolean wether the party was a cabinet party. Note: There is a single cabinet where no party is marked as part of the cabinet: Heinrich Welsch's caretaker government in the Saarland (at the time not yet a member of the FRG) in 1955.

nmin_party

Number of Ministers of Party
Number of ministers of party. Note that the number of party-independent ministers is not collected. Thus, the sum of the number of ministers of all government parties can not reliably be understood as the size of the cabinet.



is_mp_party

Is MP Party?
Is the governments minister president from this party? Note: There is a single cabinet where the minister president is not part of any party: Heinrich Welsch's caretaker government in the Saarland (at the time not yet a member of the FRG) in 1955.

Table 3: Structure of `ltw_combined`

State Variables Name, Abbreviation, NUTS1 Code			**Election Variables** Election date, Size Electorate, Turnout, ...			**Party Variables** Names, Abbreviations, several IDs several IDs			**Party-Election Variables** Vote Count, -Share, Seat Count, -Share, ...			**Government Variables** Inauguration date, PM Name, gov. numbering, gov_id, ...			**Government-Party Variables** Status in government, number of party ministers, ...		
state	nuts1	...	election_date	turnout	...	partyname_short	ches_id	...	party_vshare	party_seat_count	...	gov_start_date	minister_president	...	gov_party	nmin_party	...
BE	DE3	...	2015-09-18	0.765	...	Party A	001	...	0.45	46	...	2015-10-07	Mustermann, Max	...	TRUE	7	...
BE	DE3	...	2015-09-18	0.765	...	Party B	002	...	0.30	12	...	2015-10-07	Mustermann, Max	...	TRUE	4	...
BE	DE3	...	2015-09-18	0.765	...	Party C	003	...	0.25	18	...	2015-10-07	Mustermann, Max	...	FALSE	NA	...
BE	DE3	...	2015-09-18	0.765	...	Party A	001	...	0.45	46	...	2017-02-28	Mustermann, Max	...	TRUE	11	...
BE	DE3	...	2015-09-18	0.765	...	Party B	002	...	0.30	12	...	2017-02-28	Mustermann, Max	...	FALSE	NA	...
BE	DE3	...	2015-09-18	0.765	...	Party C	003	...	0.25	18	...	2017-02-28	Mustermann, Max	...	FALSE	NA	...
NI	DE9	...	2012-12-16	0.560	...	Party A	001	...	0.17	12	...	2013-01-07	Musterfrau, Erika	...	FALSE	NA	...
NI	DE9	...	2012-12-16	0.560	...	Party B	002	...	0.33	27	...	2013-01-07	Musterfrau, Erika	...	FALSE	NA	...
NI	DE9	...	2012-12-16	0.560	...	Party D	004	...	0.50	46	...	2013-01-07	Musterfrau, Erika	...	TRUE	13	...

ltw_elections_meta

This section of the codebook only concerns variables specific to the ltw_elections_meta dataset. For further variables please refer to the sections on ltw_elections.

ltw_elections_meta returns a returns data frame (tibble if the tibble package is loaded) containing both meta information on election results. Each row contains information on one election.

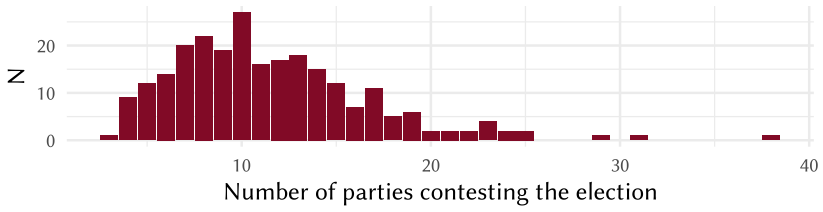
For a discussion of the various measures quantifying party system properties see Niedermayer (2013). For descriptions of the various measures of electoral disproportionality see Karpov (2008).

ltw_elections_meta Variable Information

In the following section v_i refers to party i's vote share, s_i to party i's seat share and n refers to the number of parties contesting a given election.

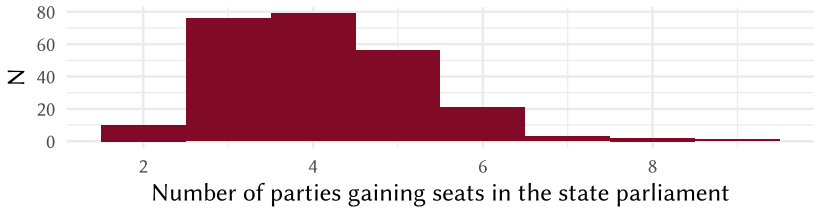
number_parties

Number of parties contesting the election
Number of parties n contesting the election.



number_parties_parliament

Number of parties gaining seats in the state parliament
Number of parties gaining seats in the state parliament.

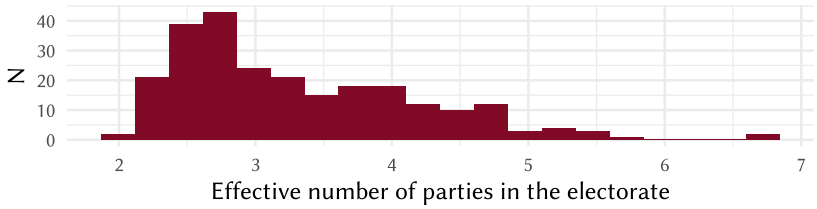


fragmentation_enep

Effective number of parties in the electorate

Effective number of parties in the electorate $N_{2electorate}$ (Laakso and Taagepera 1979):

$$N_{2electorate} = \frac{1}{\sum_{i=1}^{n} v_i^2}. \quad (1)$$

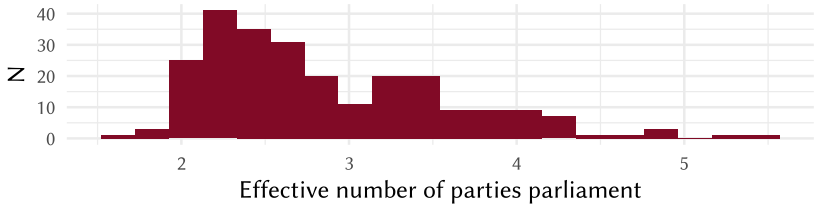


fragmentation_enpp

Effective number of parties in parliament

Effective number of parties in parliament $N_{2parliament}$ (Laakso and Taagepera 1979):

$$N_{2parliament} = \frac{1}{\sum_{i=1}^{n} s_i^2}. \quad (2)$$

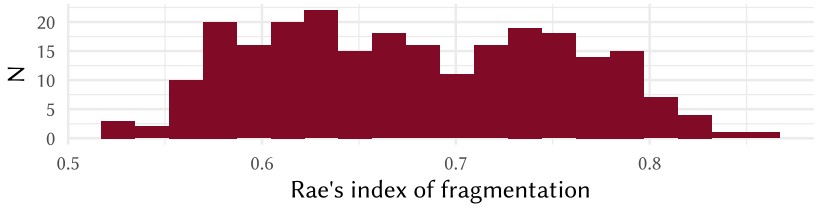


fragmentation_rae

Rae's index of fragmentation

Rae's index of fragmentation (Rae 1968):

$$F = 1 - \sum_{i=1}^{n} v_i^2. \quad (3)$$

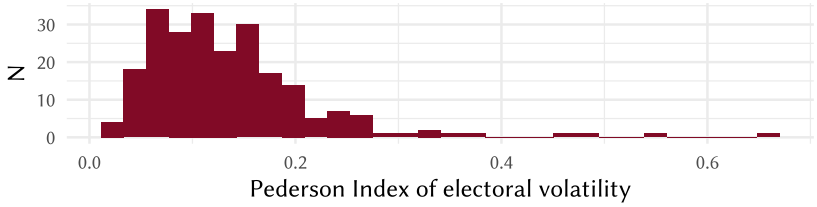


volatility_pedersen

Pederson Index of electoral volatility
Pederson Index of electoral volatility (Pedersen 1979):

$$V_t = \sum_{i=1}^{n_t \wedge n_{t-1}} |v_{i,t} - v_{i,t-1}|. \tag{4}$$

If a party did not contest an election t or $t-1$ it's voteshare for the respective election v_t or v_{t-1} is 0. Attention: These figures probably slightly overestimate the real extent of electoral volatility, as party splits/mergers are not considered: If parties A (7% at $t-1$) and B (4% at $t-1$) contest election $t-1$ separately but merge before contesting election t and gaining 15% under the label of party A, they really only contribute $|(7\% + 4\%) - 15\%| = 4\%$ to the calculation of the Pedersen Index. Here, they would contribute $|7\% - 15\%| + |4\% - 0\%| = 12\%$ to the calculation as the merger is not properly accounted for.



All of the disproportionality measures presented here, their calculation and properties are presented and discussed in Karpov (2008). The distributions of these measures are presented in figure 1 below.

disprop_ max_deviation

Maximum deviation index of electoral disproportionality
Maximum deviation index of electoral disproportionality:

$$MD = \max_{i=\overline{1,n}} |s_i - v_i|. \tag{5}$$

disprop_rae

Rae's index of electoral disproportionality
Rae's index of electoral disproportionality (Rae 1971):

$$I_{Rae} = \frac{1}{n} \sum_{i=1}^{n} |s_i - v_i|. \tag{6}$$

disprop_loosmore_hanby	**Loosemore-Hanby index of electoral disproportionality** Loosemore-Hanby index of electoral disproportionality (Loosemore and Hanby 1971): $$I_{LH} = \frac{1}{2} \sum_{i=1}^{n} |s_i - v_i|. \quad (7)$$
disprop_grofman	**Grofman index of electoral disproportionality** Grofman index of electoral disproportionality.
disprop_lijphart	**Lijphart index of electoral disproportionality** Lijphart index of electoral disproportionality.
disprop_gallagher	**Gallagher index of electoral disproportionality** Gallagher index of electoral disproportionality.
disprop_monroe	**Monroe index of electoral disproportionality** Monroe index of electoral disproportionality.
disprop_gatev	**Gatev index of electoral disproportionality** Gatev index of electoral disproportionality.
disprop_ryabtsev	**Ryabtsev index of electoral disproportionality** Ryabtsev index of electoral disproportionality.
disprop_szalai	**Szalai index of electoral disproportionality** Szalai index of electoral disproportionality.
disprop_szalai_weighted	**Weighted Szalai index of electoral disproportionality** Weighted Szalai index of electoral disproportionality.
disprop_aleskerov_platonov	**Aleskerov-Platonov index of electoral disproportionality** Aleskerov-Platonov index of electoral disproportionality.
disprop_dhondt	**D'Hondt index of electoral disproportionality** D'Hondt index of electoral disproportionality.

disprop_sainte_lague	**Sainte-Lague index of electoral disproportionality** Sainte-Lague index of electoral disproportionality.

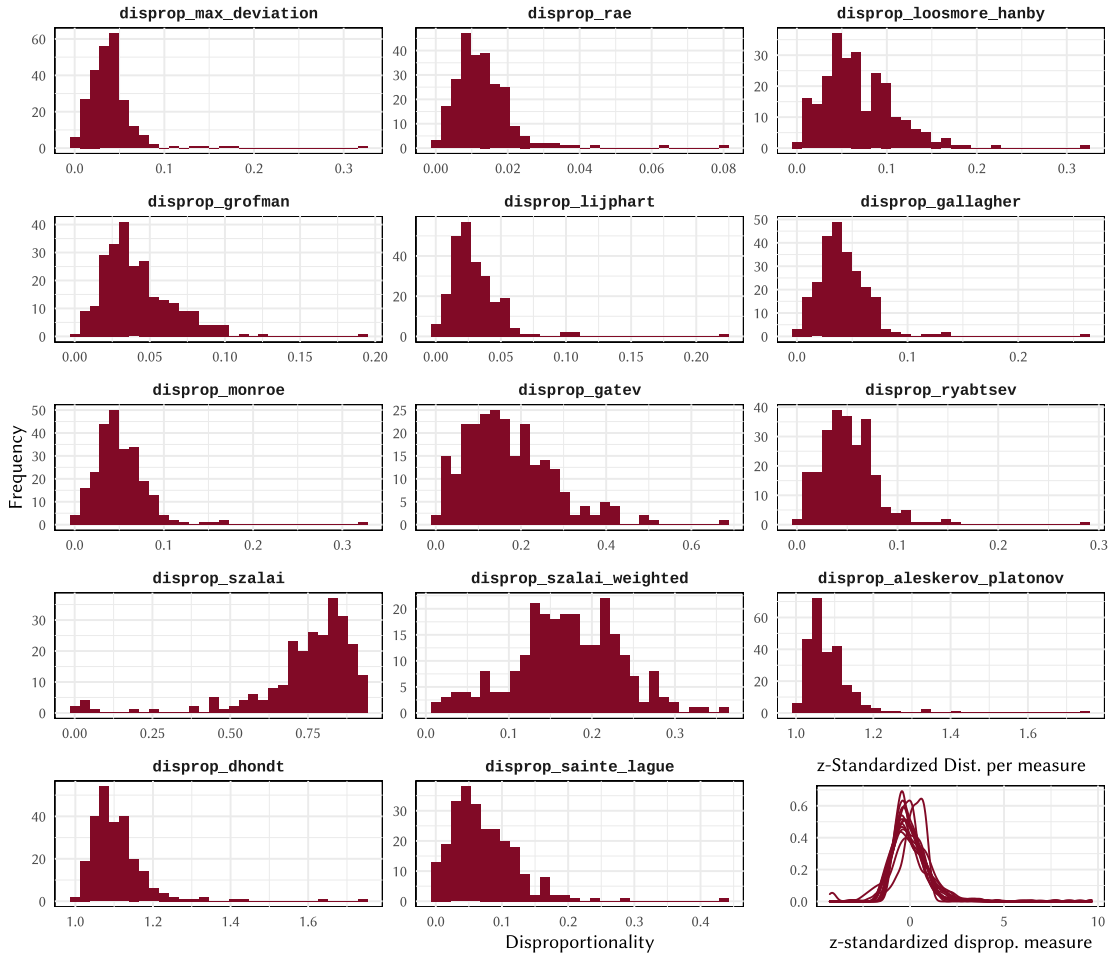


Figure 1: Distribution of Disproportionality Measures

link_manifestos and link_coalitionagreements

link_manifestos and link_coalitionagreements provide easy links of bundeslaendeR data with party manifestos and coalition agreements made available from polidoc.net - The Political Documents Archive (Benoit, Bräuninger, and Debus 2009; Gross and Debus 2018; Pappi and Seher 2014, 2009; for the codebook see Bräuninger et al. 2018). While file names from polidoc.net follow a naming pattern (partyID.stateID.year.1.number of party manifesto for election), the provided links make joining the data easier.

Note that polidoc.net provides a manifesto for the Neue Liberale in the HB 2015 election (41441.005.2015.1.1). Since the party withdrew it's candidacy before the election and is thus not included in the election results in ltw_elections, the manifesto id is not included in link_manifestos.

Note that polidoc.net provides a coalition agreement between the SPD and the Greens following the 2008 HE election (41001.006.2008.1.1). Since this potential coalition under leadership of SPD politician Andrea Ypsilanti never came to be due to several SPD MPs opposing the red-green minority cabinet being externally supported by Die Linke the coalition agreement can't be matched with a government in ltw_combined and is thus not included.

Linking-Variables Information

The variables state, election_date, and partyname_short can be used in order to link manifestos to the bundeslaendeR data.

state	**State Abbreviation** ISO 3166-2:DE-code of the state.
election_date	**Election Date** Date of the election. ISO 8601 or R-Date format.
partyname_short	**Abbreviated Party Name** Harmonized abbreviation of the party's name. 374 unique parties.

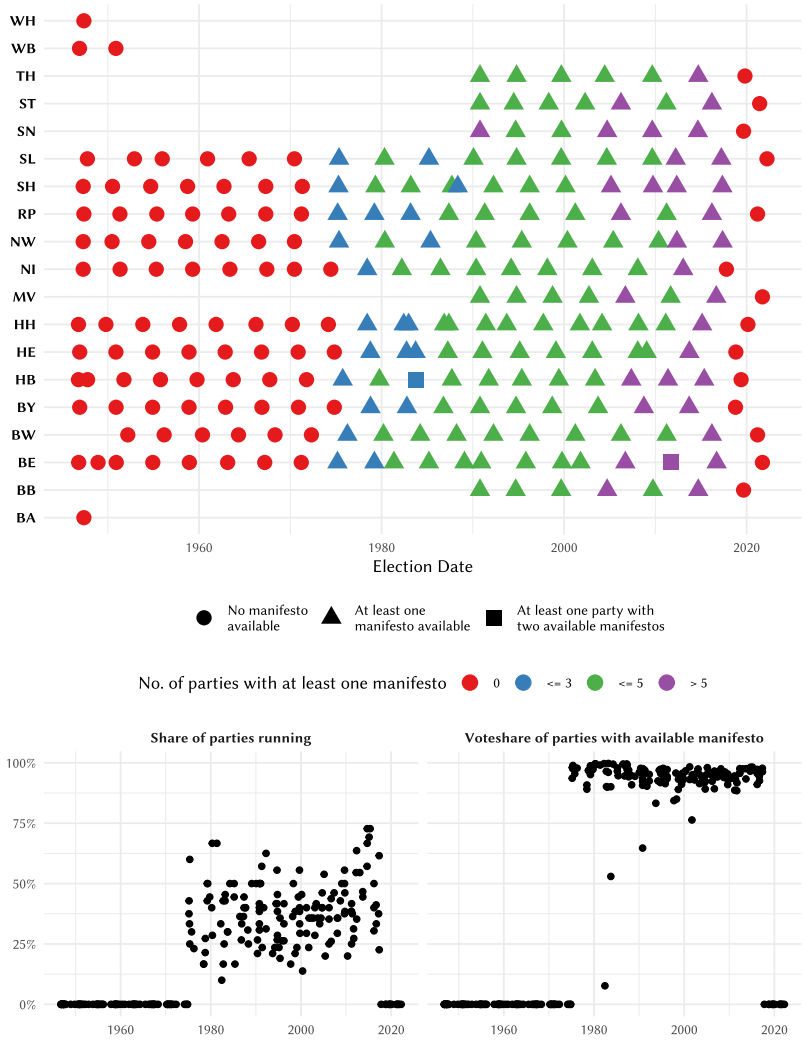
The variable gov_id can be used in order to link manifestos to the bundeslaendeR data.

gov_id	**Government ID** Unique ID of government. Taken from Linhart et al. However, this ID is not counting up within state by time. In cases where Governments were missing from Linhart et al. before the timeframe covered by Linhart et al. (eg. in Berlin) these earlyer governments have a higher ID than later cabinets contained in Linhart et al. data.

polidoc_filename and polidoc_filename_2 in link_manifestos

Polidoc File Name of Party Manifesto

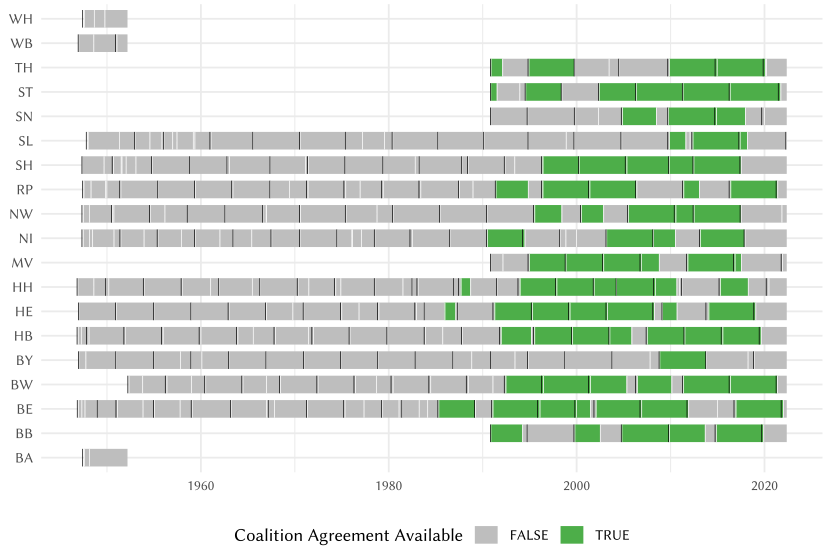
File name of state party manifesto (or 2nd manifesto if available) available in The Political Documents Archive (polidoc.net).



polidoc_filename in link_coalitionagreements

Polidoc File Name of Coalition Agreement

File name of coalition agreement available in The Political Documents Archive (polidoc.net).



Black vertical bars mark election dates. White vertical bars mark start date of government.

de_states_grid_4x4()

`de_states_grid_4x4()` exports a data frame containing state IDs, German and English state names and approximate state locations on a 4x4 grid. The exported data frame can be used to approximately plot state-facets in their approximate locations using the `ggplot2` extension `geofacet` (Hafen and Schloerke 2020).

Please find a comparison of state locations and the grid layout as well as some example code below.

Example Code:

```
library(bundeslaendeR)
library(tidyverse)
library(geofacet)

turnout_plot <-
ltw_elections %>%
  select(state, election_date, turnout) %>%
  distinct() %>%
  filter(!(state %in% c("WB", "BA", "WH"))) %>%
  filter(!is.na(turnout)) %>%
  ggplot(aes(x = election_date, y = turnout)) +
    geom_line(col = "#810a26", size = 1.2) +
    facet_geo(grid = de_states_geofacet_grid_4x4(linebreak = T),
              facets = ~state, label = "name") +
    scale_y_continuous(limits = c(0,1),
                       labels = scales::percent) +
    theme(strip.text = element_text(face = "bold")) +
    labs(x = NULL, y = "Turnout")
```

Map data from *geoBoundaries* (Runfola et al. 2020).

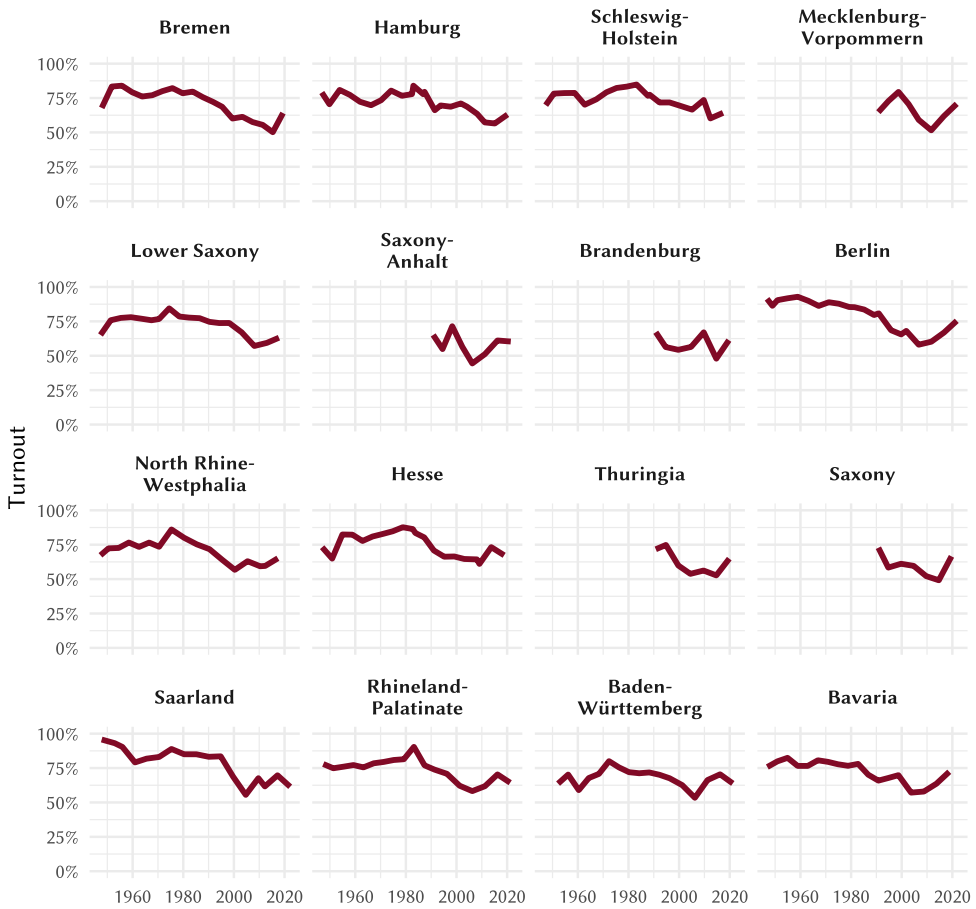


Figure 2: Comparison of state location and grid layout

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