Package ‘demcon’

September 1, 2022

Type Package
Title Interfacing with Popular Polity, Institutional, and Constitutional Datasets
Version 0.3.0
Description An open-source toolkit developed by ISciences, LLC and the DANTE Project that is intended for learning, accessing, pre-processing, and visualizing popular political, institutional, and constitutional datasets. ‘demcon’ aims to reduce barriers to entry in political science research by automating common acquisition and pre-processing procedures. This package particularly focuses on the V-Dem dataset (<https://www.v-dem.net/vdemds.html>), and provides adaptations of methods presented in Fjelde, H., Knutsen, C. H. & Nygård, H. M. 2021, <doi:10.1093/isq/sqaa076>.
License GPL (>= 3)
URL https://gitlab.com/dante-sttr/demcon,
https://dante-sttr.gitlab.io/demcon/index.html,
https://www.isciences.com
BugReports https://gitlab.com/dante-sttr/demcon/-/issues
Encoding UTF-8
LazyData true
RoxygenNote 7.2.0
Imports countrycode, data.table, httr, rlang, stringr, utils
Suggests cshapes, sf, states (>= 0.3.0), knitr, ggplot2, rmarkdown, maturaleza, maturaleza.data, rgeos, kableExtra, lubridate, haven, readxl, ggrepel, png, testthat (>= 3.0.0), vdiffr, compare, magrittr, devtools
VignetteBuilder knitr
Depends R (>= 2.10)
Config/testthat/edition 3
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Author Joshua Brinks [aut, cre]
**Description**

Create an annual index of valid Correlates of War Nations States.

**Usage**

```r
cow_index()
```

**Details**

This function generates a dataset to be used for indexing country-year datasets against the validated CoW states membership. In short, it will permit the user to quickly drop observations from country/territory-year data that although they are commonly included in a variety of political/geographical datasets, these nations or territories may be disputed (Palestine, Kosovo pre 2008), have a parent nation (Puerto Rico), or have other peculiarities that do not align with international standards (CoW, G&W, WDI, IMF).

This is built off of the `states` packages, which matched the official Correlates of War record at the time of publishing.
cow_iso_clean

Value
A data.frame of annual CoW states.

Examples

cow_index<-demcon::cow_index()

cow_iso_clean(x, cow.col, iso3.col, year.col)

Arguments

x A data.frame with CoW, ISO3, and year designations.
cow.col A character string of the column name with numeric CoW codes.
iso3.col A character string of the column name with ISO3 character codes.
year.col A character string of the column name for country-year observation.

Details
countrycode::countrycode() can result in messy ISO3 conversions; especially when historic data is included. This cleans up some common post-WWII historical (and other current bugs present at the time of publishing) ISO3C codes that are useful but no longer part of the current slate of ISO3C. The ISO_3166-1_alpha-3 Wikipedia page was used as reference for this function.

Value
A data.frame.

Examples

vdem<-demcon::get_vdem()

vdem$iso3<-countrycode::countrycode(vdem$COWcode, origin = "cown", destination = "iso3c")

vdem<-demcon::cow_iso_clean(x = vdem, cow.col = "COWcode", iso3.col = "iso3", year.col = "year")
cshp_mult

Mapping cshapes Multiples

Description
Create a sequence of cshapes maps highlighting changes in nation-state independence.

Usage
cshp_mult(
  dates,
  cowcodes,
  bb,
  jitter_labs = TRUE,
  highlight = "#00dada",
  lat_grat = round(as.numeric(abs(bb[2] - bb[4])/4)),
  long_grat = round(as.numeric(abs(bb[1] - bb[3])/4)),
  lab_size = 3
)

Arguments
dates A vector of dates indicating time-steps of interest. Each element must be formatted with as.Date(YYYY-M-D).
cowcodes A vector, or list, of Correlates of War numeric country codes to highlight at each corresponding timestep specified in date. The length of dates and cowcodes must be equal. Multiple countries can be highlighted at a given timestep by using a list.
bb A bounding box to crop the the global cshapes map. Must be a named vector of the form c(xmin=long, ymin=lat, xmax=long, ymax=lat).
jitter_labs Logical to toggle country label jittering with ggrepel::geom_text_repel().
highlight Hex color value for country highlighting.
lat_grat Numeric value for latitudinal graticule spacing.
long_grat Numeric value for longitudinal graticule spacing.
lab_size Numeric value for country label text size.

Details
The cshp_mult and plot.cshp_mult functions are currently experimental functions that are slated for future improvements to the interface, automated ease of use, and stability. Despite the testing procedures in place, they may produce odd results with certain combinations of dates, countries (cow_codes), and bounding boxes (bb).

Value
A list of ggplot2 plotting devices. Each element corresponds to an element of dates.
get_cce

Examples

```r
if(requireNamespace("cshapes")){
  dates = c(
    as.Date("1989-1-1"),
    as.Date("1992-5-1"),
    as.Date("1993-5-1"),
    as.Date("2006-7-1"),
    as.Date("2008-3-1")
  )
  cow_codes = list(345,
                   c(344, 346, 349),
                   343,
                   341,
                   347)

  bb<-c(xmin=13,ymin=40,xmax=24,ymax=47)

  balkans<-cshp_mult(dates = dates, cowcodes = cow_codes, bb = bb,jitter_labs = FALSE)}
```

get_cce

Retrieve Chronology of Constitutional Events Dataset

Description

Downloads the Chronology of Constitutional Events (CCE) Dataset to a temporary directory from the Comparative Constitutions Project website.

Usage

```r
get_cce(load = TRUE, del_file = TRUE, write_out = FALSE)
```

Arguments

- `load` Logical to load downloaded data into local environment.
- `del_file` Logical to delete downloaded and unzipped files/directories after loading into the local environment.
- `write_out` Logical to write the CCE dataset to your local directory as a .csv file.

Details

The CCE Dataset:
The Chronology of Constitutional Events (CCE) is a narrowly focused offering containing annual country-year observations of generalized "constitutional events". There are 6 unique designations:
1. New Constitution
2. Amendment
3. Interim Constitution
4. Suspended Constitution
5. Reinstated Constitution
6. Non-Event (years without the above)

The limited scope of the CCE lends itself more to timeline visualizations or a quick reference, but could be helpful when used in conjunction with additional datasets or in other applications. CCE could also be used to derive quantitative metrics of constitutional stability similar to those included with version 2.0 of the Institutions and Elections Project.

Variables:
Version 1.3 of the CCE dataset contains 20,429 observations and 6 variables. The include:

- **cowcode**: The numeric Correlates of War country code.
- **country**: The CCE country name.
- **year**: Year of observation.
- **systid**: CCE identification number for the constitutional system.
- **evntid**: CCE identification number for the constitutional event.
- **evnttype**: CCE event type; see above.

Value

A data.frame of CCE country-year data.

See Also

- The Comparative Constitutions Project

Examples

```r
cce<-get_cce(del_file=TRUE, write_out = FALSE)
```

---

**get_polity5**

**Retrieve the Polity5 Dataset**

Description

Download the Polity5 Dataset from the Center for Systemic Peace website.

Usage

```r
get_polity5(load = TRUE, del_file = TRUE, excel = TRUE, write_out = FALSE)
```

Arguments

- **load**: Logical to load downloaded data into local environment.
- **del_file**: Logical to delete downloaded and unzipped files/directories after loading into the local environment.
- **excel**: Logical to download the .xls (TRUE) or the SAS .sav format (FALSE).
- **write_out**: Logical to write the Polity 5 dataset to your local directory as a .csv file.
get_vdem

Details

**Polity5:**
The Polity5 project continues the Polity research tradition of coding the authority characteristics of states in the world system for purposes of comparative, quantitative analysis. The original Polity conceptual scheme was formulated and the initial Polity I data collected under the direction of Ted Robert Gurr and informed by foundational, collaborative work with Harry Eckstein, Patterns of Authority: A Structural Basis for Political Inquiry (New York: John Wiley & Sons, 1975). The Polity project has proven its value to researchers over the years, becoming the most widely used resource for monitoring regime change and studying the effects of regime authority.

**Structure:**
The Polity5 dataset contains 17,574 country-year observations and 37 variables. For more information regarding variable descriptions and other dataset documentation, please refer to the POLITY5: Political Regime Characteristics and Transitions, 1800-2018 Dataset Users’ Manual.

Value

A data.frame of Polity5 country-year data.

Examples

```r
polity <- demcon::get_polity5(excel = TRUE, del_file = TRUE, write_out = FALSE)
```

get_vdem

**Description**

Download a copy of the most recent version of V-Dem that is housed in the official vdemdata GitHub package.

**Usage**

```r
get_vdem(write_out = FALSE)
```

**Arguments**

- `write_out` Logical to write the V-Dem dataset to your local directory.

**Details**

This function is a simple download wrapper to directly acquire V-Dem’s current dataset from their GitHub repo. The vdemdata package is not available on CRAN or Bioconductor so it can disrupt workflows that do not permit non-standard package installations. Additionally, this function contains test scripts that will notify the package manager if the remote dataset undergoes significant structural changes (dimensions, location, etc.)
**Value**
A data.frame of V-Dem data.

**Examples**

```r
vdem <- demcon::get_vdem(write_out = FALSE)
```

---

**hci**  
**Horizontal Constraints Index (HCI)**

**Description**
Calculate the horizontal constraints index defined by Fjelde et al. (2021).

**Usage**

```r
hci(vdem, append = FALSE)
```

**Arguments**

- **vdem**  
  A data.frame of V-Dem data containing the required variables.

- **append**  
  Logical indicating whether to return the original data.frame with hci. If set to FALSE, the function returns a numeric vector of hci scores.

**Details**

**Source:**
The horizontal constraints index specified in this function were developed by Fjelde et al. (2021) in:

**The Index:**
Horizontal constraints (HCI) represent checks and balances on centralized executive power. These include constraints put in place by executive and judicial branches of government. Horizontal constraints mainly serve the interests of non-governmental elites by protecting their interests against an uncontrolled executive.

**Methods:**
The Horizontal Constraints Index represents a simple arithmetic mean (see of V-Dem’s legislative constraints (v2x1g_legcon) and judicial constraints variables (v2x_jucon)).

**Value**
A numeric vector of the horizontal constraints index.
iaepv2_adj

See Also

vci(), vdem_vci_hci

Examples

vdem <- demcon::get_vdem()
vdem$hci <- demcon::hci(vdem, append = FALSE)

---

iaepv2_adj      Adjusted Institutions and Elections Project Data (V2.0)

Description

A pre-processed and amended subset of the Institutions and Elections Project Data (V2.0) dataset.

Usage

iaepv2_adj

Format

An 8 column, 10648 row, data.table where each row is a country-year:

cname  Country name.
cowcode The numeric Correlates of War country code.
iso3   The International Organization for Standardization (ISO) 3 character country code.
year   Numeric year.
formalconstit   Binary indicator if constitution exists.
ineffect  Binary indicator if constitution was in effect on January 1 of the specified year.
timeineffect Numeric value specifying number of years the current constitution has been in effect as of January 1.
timeineffect2 Numeric value specifying number of consecutive years a constitution has been in effect without interruptions as of January 1.

Details

About:

This dataset was constructed after detecting numerous and egregious inconsistencies in the official dataset. We discovered several errors for the coding of constitutions and constitutional ages in the original dataset. This subset contains manual fixes using multiple sources for constitutional data. These corrections were carried out by Lisa Emmer under guidance from Joshua Brinks and Thomas Parris. For additional information regarding the official IAEP (V2) dataset refer to the user manual.
If you are hesitant to use our adjusted dataset, you might consider using Constitutes’ Chronology of Constitutional Events (CCE). You could construct a constitutional stability counter with CCE data using counter functions like Base R’s `rle()` or data.table’s `data.table::rleid()`.

**Amendment References:**
Edits to the original IAEP (V2.0) dataset were determined by reviewing several constitutional databases and news articles. Some are not listed below, because the websites are no longer available, but the currently available sources include:

- Constitution Net
- Country Studies
- Stanford Law
- Exit News
- Wikipedia
- Constitute
- CIA World Factbook
- Gulf Labor Markets and Migration
- Dynamic Analysis of Dispute Management (DADM) Project
- World Constitutions Illustrated
- Konrad Adenauer Stiftung
- The New York Times
- The USC USA-China Institute
- Global Security
- Egypt Today
- SciElo South Africa
- Nijii
- Law Hub Gambia
- University of Alberta
- Political Database of the Americas
- Library of Congress
- International Constitutional Law Countries
- Kazakhstan History Portal
- Cambridge University Press
- Malawi Legal Information Institute
- World Intellectual Property Organization
- University of Washington Law: Digital Commons
- Digital Himalaya
- Hathitrust Digital Library
- International Labour Organization
- International Foundation for Electoral Systems
- Congreso de la Republica
- Official Gazette of the Republic of the Philippines
- U.S. Agency for International Aid
- Michigan State University Vietnam Group Archives
See Also

The original dataset release was accompanied by a peer reviewed manuscript:


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multi_sub | Multiple Column Subset

### Description

Multiple Column Subset

### Usage

```r
multi_sub(dat, key.dat, vars = names(key.dat))
```

### Arguments

- `dat` A `data.table` to be subsetted.
- `key.dat` A `data.table` containing multiple columns used to index and subset `dat`.
- `vars` Character string of columns in `key.dat` to be used for subsetting.

### Value

A `data.frame`, `data.table` subsetted by `key.dat`. 
Examples

```r
cow_index<-demcon::cow_index()
names(cow_index)[1]<-"COWcode"
dat <- demcon::get_vdem()

dat <- demcon::multi_sub(dat, cow_index, vars = c("COWcode", "year"))
```

---

### Description

Determine qualitative regime classifications based on Goldstone et al. (2010) Figure 1.

### Usage

```r
p5_reg_cat(exrec, parcomp, pretty = FALSE)
```

### Arguments

- `exrec` Executive Recruitment Concept (`exrec`) variable from raw Polity5 data.
- `parcomp` Competitive of Participation (`parcomp`) variable from raw Polity5 data.
- `pretty` Logical to format categories with no spaces and first letter capitalized.

### Value

A character vector of ordinal categorical regime classifications based on Goldstone et al. (2010).

### Source

Methods for this function are adapted from:


### Examples

```r
polity<-demcon::get_polity5(write_out = FALSE)
polity$reg_cat<-demcon::p5_reg_cat(polity$exrec, polity$parcomp, pretty = TRUE)
```
Description
Create timeline plots for Chronology of Constitutional Event datasets.

Usage
```r
## S3 method for class 'cce'
plot(
x, y, ...
, cntry,
  lab_adj = 0.25,
  detailed_lab = TRUE,
  no_lab = FALSE,
  years = c(min(x$year), max(x$year)),
  plot_pal = c("#003f5c", "#ff6361", "#20639b", "#ffa600", "#58508d", "#bc5090"),
  text_col = "#3d3d3d"
)
```

Arguments
- `x`: A dataset of class cce prepared by `prep_cce()`.
- `y`: ignored
- `...`: Additional arguments to pass to the ggplot device.
- `cntry`: The country to plot. This may be a character string with the country name or the numeric Correlates of War code. For a list of possible values use the command `unique(x[, c("country", "cowcode")]).`
- `lab_adj`: Numeric value to buffer label positions near terminal point.
- `detailed_lab`: Logical to print detailed or simple labels. Detailed labels contain event type and year, simple labs contain just the year.
- `no_lab`: Logical to suppress event labels. Will make plots easier to read for countries with either long or active histories.
- `years`: Numeric vector of length representing the starting and ending years to plot.
- `plot_pal`: Character vector of length 6 containing color hex codes for plotting. The first element controls the line segments color, elements 2:6 control the event type colors.
- `text_col`: Character string with hex code for text labeling.

Value
A `ggplot2::ggplot()` device.
See Also

The Comparative Constitutions Project

Examples

cce <- demcon::get_cce(del_file = TRUE, write_out = FALSE)
cce <- demcon::prep_cce(cce, evnttype_fix = TRUE)
plot(cce, cntry = "France", years = c(1850, 2010))

Description

Plot A cshapes Multiple

Usage

## S3 method for class 'cshp_mult'
plot(x, y, ...)

Arguments

x A list of class chsp_mult with multiple cshapes \texttt{ggplot2::ggplot()} devices produced by \texttt{cshp_mult()}.
y ignored.
... Additional arguments to be passed to the plotting device.

Value

A single \texttt{ggplot2::ggplot()} device.

Examples

if(requireNamespace("cshapes")){
dates = c(
as.Date("1989-1-1"),
as.Date("1992-5-1"),
as.Date("1993-5-1"),
as.Date("2006-7-1"),
as.Date("2008-3-1"))
cow_codes = list(345,
c(344, 346, 349),
prep_cce

Pre-Process Chronology of Constitutional Events (CCE) Data

Description

Pre-Process Chronology of Constitutional Events (CCE) Data

Usage

\[
\text{prep\_cce}(\text{cce, cow\_fix = TRUE, evnttype\_fix = TRUE, years = c(min(cce\$year), max(cce\$year)))}
\]

Arguments

- **cce**: A data.frame or data.table of CCE data.
- **cow\_fix**: Logical to hardcode changes to CCE cowcode values for Yugoslavia/Serbia, present day Germany, and present day Yemen to match official CoW designations.
- **evnttype\_fix**: Logical to hardcode (presumed) typos in evnttype coding.
- **years**: Numeric vector of length 2 to subset data with.

Value

A data.frame of pre-processed CCE data.

See Also

The Comparative Constitutions Project
Examples

```r
cce<-demcon::get_cce(del_file=TRUE, write_out = FALSE)
cce<-demcon::prep_cce(cce, cow_fix = TRUE, evnttype_fix = TRUE)
```

---

**prep_vdem**

*Prepare V-Dem Data*

**Description**

Given a raw data.frame of vdem data, enact further automated pre-processing.

**Usage**

```r
prep_vdem(
  vdem, 
  years = NULL, 
  metrics = NULL, 
  drop_no_cow = FALSE, 
  cow_index = FALSE, 
  drop_pal = FALSE, 
  srb_kos = FALSE, 
  srb_mon = FALSE, 
  micro = TRUE, 
  iso3 = FALSE
)
```

**Arguments**

- `vdem` A data.frame or data.table of raw vdem observations.
- `years` A numeric vector of length 2 with start and end years to subset by.
- `metrics` Character vector of vdem metrics of interest to subset against. These will be combined with country-year id variables by default.
- `drop_no_cow` Logical to drop observations without Correlates of War country codes.
- `cow_index` Logical to index vdem against valid Correlates of War country-years.
- `drop_pal` Logical to remove all Palestine related observations.
- `srb_kos` Logical to average metrics Serbia/Yugoslavia with Kosovo for all years < 2008.
- `srb_mon` Logical to calculate values for the State Union of Serbia and Montenegro (2003-2006) using the average of Serbia’s and Montenegro’s scores. To include Kosovo, specify `srb_kos = TRUE`.
- `micro` Logical to keep (TRUE) or drop (FALSE) microstates.
- `iso3` Logical to generate ISO3C country codes.
Value

A data.frame of post-processed vdem data.

Examples

vdem<-demcon::get_vdem(write_out = FALSE)
vdem<-prep_vdem(vdem, years = c(2010, 2020), cow_index = TRUE, micro = FALSE)

range01  Standardize a Variable to 0-1

Description

Standardize a vector to 0-1 using the cumulative distribution function of the normal distribution.

Usage

range01(x)

Arguments

x  A vector of numeric values.

Value

A standardized numeric vector scaled to 0-1.

Examples

nums<-rnorm(50, 6.5, 3)
nums<-demcon::range01(nums)
vci

Vertical Constraints Index (VCI)

Description
Calculate the vertical constraints index defined by Fjelde et al. (2021).

Usage
vci(vdem, append = TRUE)

Arguments
vdem A data.frame of V-Dem data containing the required variables.
append Logical indicating whether to return the original data.frame with vci and modified
modified v2xel_frefair index (v2xel_frefair_adj). If set to FALSE, the function returns a numeric vector of VCI scores.

Details
Source:
The vertical constraints metrics specified in this function were developed by Fjelde et al. (2021) in:

The Index:
The Vertical constraints index (VCI) represent civil liberties attributed to the general populace the constrain executive actions. These include suffrage, the presence of elections that appoint executive officials, freedom of association, freedom of expression, and the presence of clean and fair elections.

Methods:
At its core, VCI is a multiplicative aggregation of 5 V-Dem variables designed to measure suffrage, elected officials, freedom of association, freedom of expression and clean elections, (v2x_suffr, v2x_accex, v2x_frassoc_thick, v2x_freexp_thick, v2xel_frefair). However, the final component (v2xel_frefair) is a composite index developed with a Bayesian factor analysis of 8 other V-Dem indicators (v2elembaut, v2elembcap, v2elrgstry, v2elvotbuy, v2elirreg, v2elintim, v2elpeace, v2elfrfair), of which, the authors adapted by purging 2 of the components representing government intimidation or violent actions (v2elintim, v2elpeace) to prevent potential endogeneity in their regressions for the onset of conflict; i.e. you don’t want to predict the onset of conflict with and independent variable that is, in-part, composed of measures of conflict.

Although the original v2xel_frefair composite index was developed using V-Dem’s Bayesian Factor Measurement Model, the VCI adapted for this study took a simpler approach. In footnote 12, the authors state that the modified composite index was created by averaging the 6 non-violent
indicators of `v2xel_frefair` (`v2elembaut`, `v2elembcap`, `v2elrgstry`, `v2elvotbuy`, `v2elirreg`, `v2elfrfair`). Although not explicitly stated, it's presumed that the average for these 6 indicators was converted to a 0-1 scale using "...the cumulative distribution function of the normal distribution". This is the standard V-Dem procedure for their 0-1 interval indices as stated on page 7 of the V-Dem V11.1 Methodology handbook.

Lastly, the VCI constructed for this manuscript was carried out using the V-Dem 7.1 dataset. Since that time (current version is V11.1), 2 of the indicators used in the VCI calculation have been renamed and slightly altered:

1. `v2x_freexp_thick` was converted to `v2x_freexp_altinf` starting with version 11. The sub-components of this composite index were altered slightly, but they still encompass the same concepts of censorship in media.

2. `v2x_accex` was renamed `v2x_elecoff` starting with version 8. This was due to changes in the aggregation method for calculating the composite index. Although the conceptual design for the composite indicator has not changed, the aggregation formula is more complex and consists of 20 indicators (opposed to 10 for the original `v2x_accex`).

Value

A data.frame with a modified `v2xel_frefair` index (`v2xel_frefair_adj`) and the calculated VCI (`vci`).

See Also

`hci()`, `vdem_vci_hci`

Examples

```r
vdem <- demcon::get_vdem()

# Appended to the input dataset
dem.dat<-demcon::vci(vdem, append = TRUE)

# Just return the numeric vector
ci<-demcon::vci(vdem = vdem, append = FALSE)
```

---

`vdem_vci_hci` Vertical and Horizontal Constraints Indices

**Description**

A dataset of country-year vertical and horizontal constraints as calculated by Fjelde et al. 2021.

**Usage**

vdem_vci_hci
Format

A data frame with 15040 rows and 6 variables:

- **country_name**  The common country name.
- **gwno**  The Gleditsch and Ward numeric country code.
- **cowcode**  The Correlates of War numeric country code.
- **year**  The year of valid CoW observations.
- **hci**  The horizontal constraint index.
- **vci**  The vertical constrain index.

Details

**Data Source:**
The horizontal and vertical constraints metrics in this dataset were developed by Fjelde et al. (2021) in:


Dataset is available in the supplementary materials **Replication Package**

**The Indices:**
Horizontal constraints (HCI) represent checks and balances on centralized executive power. These include constraints put in place by executive and judicial branches of government. Horizontal constraints mainly serve the interests of non-governmental elites by protecting their interests against an uncontrolled executive.

This is in contrast to vertical constraints (VCI), which represent civil liberties attributed to the general populace that constrain executive actions. These include suffrage, the presence of elections that appoint executive officials, freedom of association, freedom of expression, and the presence of clean and fair elections.

**Methods:**
Both indices were developed from existing variables in the greater V-Dem data. Although HCI represents a simple arithmetic mean (see \( \text{hci}() \)) of V-Dem’s legislative constraints (\( \text{v2xlg_legcon} \)) and judicial constraints variables (\( \text{v2x_jucon} \)), the methods behind the VCI are more complicated.

At its core, VCI is a multiplicative aggregation of 5 V-Dem variables designed to measure suffrage, elected officials, freedom of association, freedom of expression and clean elections, (\( \text{v2x_suffr} \), \( \text{v2x_accex} \), \( \text{v2x_frassoc_thick} \), \( \text{v2x_freeexp_thick} \), \( \text{v2xel_frefair} \)). However, the final component (\( \text{v2xel_frefair} \)) is a composite index developed with a Bayesian factor analysis of 8 other V-Dem indicators (\( \text{v2elembaut} \), \( \text{v2elembcap} \), \( \text{v2elrgstry} \), \( \text{v2elvotbuy} \), \( \text{v2elirreg} \), \( \text{v2elintim} \), \( \text{v2elpeace} \), \( \text{v2elfrfair} \)), of which, the authors adapted by purging 2 of the components representing government intimidation or violent actions (\( \text{v2elintim} \), \( \text{v2elpeace} \)) to prevent potential endogeneity in their regressions for the onset of conflict; i.e. you don’t want to predict the onset of conflict with an independent variable that is, in-part, composed of measures of conflict.

Although the original \( \text{v2xel_frefair} \) composite index was developed using V-Dem’s **Bayesian Factor Measurement Model**, the VCI adapted for this study took a simpler approach. In footnote
12, the authors state that the modified composite index was created by averaging the 6 non-violent indicators of \texttt{v2xel_freexp} (\texttt{v2elemembaut}, \texttt{v2elemembcap}, \texttt{v2elrgstry}, \texttt{v2elvotbuy}, \texttt{v2elirreg}, \texttt{v2elfrfair}). Although not explicitly stated, it’s presumed that the average for these 6 indicators was converted to a 0-1 scale using “...the cumulative distribution function of the normal distribution”. This is the standard V-Dem procedure for their 0-1 interval indices as stated on page 7 of the \textit{V-Dem V11.1 Methodology} handbook.

Lastly, the VCI constructed for this manuscript was carried out using the V-Dem 7.1 dataset. Since that time (current version is V11.1), 2 of the indicators used in the VCI calculation have been renamed and slightly altered:

1. \texttt{v2x_freexp_thick} was converted to \texttt{v2x_freexp_altinf} starting with version 11. The sub-components of this composite index were altered slightly, but they still encompass the same concepts of censorship in media.

2. \texttt{v2x_accex} was renamed \texttt{v2x_elecoff} starting with version 8. This was due to changes in the aggregation method for calculating the composite index. Although the conceptual design for the composite indicator has not changed, the aggregation formula is more complex and consists of 20 indicators (opposed to 10 for the original \texttt{v2x_accex}).

\textbf{Source}

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\textbf{See Also}

\texttt{hci()}, \texttt{vci()}
Index

* datasets
  iaepv2_adj, 9
  vdem_vci_hci, 19

countrycode::countrycode(), 3
cow_index, 2
cow_iso_clean, 3
cshp_mult, 4
cshp_mult(), 14

data.table, 10
data.table::rleid(), 10

get_cce, 5
get_polity5, 6
get_vdem, 7
ggplot2::ggplot(), 13, 14

hci, 8
hci(), 19–21
iaepv2_adj, 9

multi_sub, 11

p5_reg_cat, 12
plot.cce, 13
plot.cshp_mult, 14
prep_cce, 15
prep_cce(), 13
prep_vdem, 16

range01, 17
rle(), 10

vci, 18
vci(), 9, 21
vdem_vci_hci, 9, 19, 19