Package 'QuickUDS'

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Type Package

Title Extend the Unified Democracy Scores Backwards and Forwards in Time easily

Version 0.1.4

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Description Contains convenience functions to extend the Unified Democracy Scores of Pemstein, Meserve, and Melton. The package also includes an ``extended UDS'' dataset with latent democracy scores going back to the 19th century and a replication dataset with 61 different democracy measurements from 29 different projects to measure democracy.

License GPL-2

LazyData TRUE

Imports reshape2, dplyr, stringr, plyr

Depends mirt, R (>= 2.10)

Suggests knitr, rmarkdown, ggplot2, GGally, rworldmap

VignetteBuilder knitr

RoxygenNote 5.0.1

URL https://github.com/xmarquez/QuickUDS

BugReports https://github.com/xmarquez/QuickUDS/issues

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R topics documented:

`cutpoints` *A convenience function for extracting cutpoints from a UD model in a tidy data frame format.*

Description

This function takes a model of the democracy scores and extracts the discrimination parameters, score cutpoints, and standard errors for all the variables involved, putting these into a tidy data frame.

Usage

```
cutpoints(model, type = "score")
```

Arguments

`model`	A `mirt` `SingleGroupClass-class` model of the democracy scores.
`type`	A string specifying the cutpoint type. Can be (an abbreviation of) "score" (for score cutpoints) or "discrimination" (for discrimination parameters). Default is "score."

Value

A data frame with either score cutpoints for each variable used to construct the latent scores in terms of the latent variable, or discrimination parameters for each variable used to construct the index. For the score cutpoints (`type = 'score'`), the columns `estimate`, `pct975`, and `pct025` report the IRT parametrization of the model estimates, a normalized measure in the same scale as the latent variable.

Examples

```
# Replicate the official UDS 2011 release and calculate its cutpoints
library(reshape2)
library(dplyr)
library(mirt)
data <- prepare_data(democracy)
data <- melt(data, measure.vars = names(data)[grep("pmm",names(data))], na.rm = TRUE)
data <- data %>% group_by(country_name,year) %>% mutate(num_measures = n())
data <- dcast(data, ... ~ variable)
data <- data %>% arrange(country_name,year)
replication_2011_model <- mirt(data[ , names(data)[grep("pmm",names(data))]],
                                model = 1, itemtype = "graded", SE = TRUE)
cutpoints_2011 <- cutpoints(replication_2011_model)
```

democracy *All Democracy Scores Dataset*

Description

A dataset containing all (or nearly all) extant democracy indexes.

Usage

```
democracy
```

Format

An object of class `data.frame` with 24175 rows and 81 columns.

Overview

This dataset contains most democracy indexes in use today in a single panel (country-year) file. It attempts to be as comprehensive as possible, incorporating rarely used democracy indexes not easily available in country-year format.

The measurement of democracy is complicated and controversial. This dataset makes few judgments about what counts as a measure of democracy, as long as it has been used in scholarly work. It thus includes dichotomous, trichotomous, ordinal, and continuous indices; indices that focus primarily on the "competition" and indices that focus on the "participation" dimension of democracy; "thick" indices that attempt to measure a wide variety of characteristics plausibly attributed to democracy; and "minimalist" indexes that restrict themselves to the bare minimum of competition. Four broad families of democracy measures can be distinguished in this dataset:

Dichotomous indexes of democracy

These are indexes designed to distinguish between democracy and non-democracy. Most of them follow a fairly minimalist conception of democracy, focused on political competition while giving little weight to the extent of the suffrage or thicker civil or economic rights. These include the Boix, Miller, and Rosato (2012) indicator of democracy (`bmr_democracy`, `bmr_democracy_omitteddata`); the Bernhard, Nordstrom and Reenock index of democracy (`bnr`), originally developed for event history analysis (Bernhard, Nordstrom, and Reenock 2001); the Cheibub, Gandhi, and Vreeland (2013) extension of the PACL (Przeworski, Alvarez, Cheibub and Limongi) democracy/dictatorship dataset (`pacl_pmm`, `pacl`); Renske Doorenspleet's indicator of democracy (`doorenspleet`), based on the Polity III data and a measure of the extent of suffrage (Doorenspleet 2000); Freedom House's list of electoral democracies (`freedomhouse_electoral`); Jay Ulfelder's indicator of democracy (`ulfelder`), based on a recoding of the Polity IV data (Ulfelder 2012); the Political Instability Task Force's dichotomous indicator of democracy (`pitf_binary`) based on the `parcomp` and `exrec` variables of the Polity IV dataset (Taylor and Ulfelder 2015); and a number of dichotomous democracy/non-democracy indicators (`gwf`, `kalitz_binary`, `magaloni_democ_binary`, `svolik`, `utip_dichotomous`, `utip_dichotomous_strict`, and `wahman_teorell_hadenius`) from datasets concerned with the identification of authoritarian regime types (Geddes, Wright, and Frantz 2014; Hsu 2008; Kailitz 2013; Magaloni, Min, Chu 2013; Svolik 2012; Wahman, Teorell, and Hadenius 2013). These are all highly but not perfectly correlated with one another, with correlation coefficients ranging from 0.69 to 0.95.

Of these, only Doorenspleet's and BNR's measures give special weight to the extent of suffrage in determining whether a country is democratic; not surprisingly, they tend to display the lowest

correlation with the other dichotmous indicators of democracy. All of these indexes have world-wide spatial scope, though they differ greatly in temporal coverage. Indexes using the Polity dataset as their basis (e.g., doorenspleet, pitf) have the widest temporal scope.

Trichotomous indexes of democracy

Trichotomous indexes of democracy distinguish explicitly a "hybrid" or "semi-democratic" category. These include the measure of democracy in Central America developed by Bowman, Lehoucq, and Mahoney (blm, blm_pmm; see Bowman, Lehoucq, and Mahoney 2005), the trichotomous measure of democracy in Latin America by Mainwaring, Brinks, and Perez Linan (mainwaring, mainwaring_pmm), the "Political Regime Change" dataset (prc_notrans) described in Gasiorowski 1996 and extended in Reich 2002; and a couple of measures taken from datasets of autocratic regimes that explicitly distinguish between full democracies, electoral or multiparty autocracies, and other autocracies (magaloni_regime_tri, kailitz_tri, utip_trichotomous). Both blm and mainwaring are regional indexes developed by scholars with Latin-American expertise; the rest have world-wide scope. These correlate with other at levels ranging from 0.71 to 0.9.

Ordinal indexes of democracy

These indexes distinguish more than three "degrees" of democracy, but they are not explicitly continuous. They include V-dem ordinal indexes of democracy (no longer included in this dataset, but available as e_v2x_* in previous versions); Freedom House's 14 category freedom index (freedomhouse, freedomhouse_pmm); the 7 category Lexical Index of Democracy (lied, from Skaaning, Gerring, Bartusevicius 2015); a 5 category indicator of democracy used by the Political Instability Task Force based on the parcomp and exrec variables of the Polity dataset (pitf, described in Goldstone et al 2010); the Polity IV polity and polity2 variables (polity, polity_pmm, polity2, Polity3); Coppedge and Reinicke's Polyarchy index (polyarchy_pmm, polyarchy_reversed, and polyarchy_contestation from Coppedge and Reinicke 1991); and the "regime" variable from Adam Przeworski's PIPE dataset (przeworski, from Przeworski et al 2010). Of these, the Poliarchy measure is a specialist measure that conly covers 353 country-years, but the rest have worldwide scope, polity and lied go all the way back to the beginning of the 19th century, while the V-dem indexes go back to 1900 and include many "non-sovereign" territories (colonies, etc.).

Correlations between these measures vary from a low of 0.64 (pitf and przeworski) to a high of 0.94 (pitf and polity). Except for the PIPE measure, all of these indexes are meant to capture "thicker" conceptions of democracy. The freedomhouse measure puts some emphasis on civil and political rights; polity and pitf focus on differences in "authority patterns" (though they tend to downplay the scope of participation); polyarchy tries to operationalize both the participation and contestation dimensions of Dahl's "Polyarchy" concept; and lied tries to incorporate the degree of suffrage using measures originally collected for the PIPE dataset.

Continuous indexes of democracy

These indexes conceptualize democracy as a continuous quantity, and usually conceptualize democracy in "thick" ways. They include Arat's measure of democracy (arat_pmm, from Arat 1991); Bollen's index of democracy (bollen_pmm, from Bollen 2001); the Economist Intelligence Unit's Index of Democracy (eiu); Axel Hadenius' index of democracy, from Hadenius 1992 (hadenius_pmm), Munck's measure of democracy (munck_pmm); several variants of the Participation-Enhanced Polity Scores (PEPS*, from Moon et al 2006); continuous indexes of democracy from V-dem (v2x_*); and Vanahnen's index of democratization (vanhanen, vanhanen_full). Vanhanen, some of the V-dem indexes, and PEPS give special weight to participation; the EIU index combines a very wide variety of indicators of democracy. Only Vanahanen, the V-dem measures, and PEPS have long temporal coverage; the EIU has broad spatial coverage but is only available for a short time series. Arat and Bollen go back only until the 1950s, though they do have reasonable spatial coverage.

Correlations vary from a low of -0.05 (Munck and the EIU, 126 country-year overlap) to over 0.9. The lowest correlations are typically with the EIU measure of democracy.

Spatial and temporal organization

The state system is complicated, and not always amenable to presentation in tabular form. Countries change name, split, get absorbed into larger units, and are not always obviously independent. This dataset basically follows the Gleditsch and Ward list of independent states (Gleditsch and Ward 1999, updated by Gleditsch to 2013), supplemented by Gleditsch's tentative list of microstates (available at http://privatewww.essex.ac.uk/~ksg/statelist.html), and a very small number of judgment calls of my own. The Gleditsch and Ward list is very similar, but not identical, to the Correlates of War list of independent states that is commonly used in Political Science and International Relations research; in particular, the treatment of Germany, Yemen, Vietnam, Ethiopia, Yugoslavia, Serbia, Montenegro, and a few other countries and their successor states differs between them. I have included both the Gleditsch and Ward country code (`GWn`) and the COW code (`cown`) for each country-year, as well as an indicator of whether the country year is considered to be "in the international system" by Gleditsch and Ward and whether it is considered to be a microstate (`in_system` and `microstate`; note that microstates are considered to be "in system" in this dataset). Since the Gleditsch and Ward "international system" begins with the Congress of Vienna in 1816, country-years before 1816 are by definition not "in system," even though this does not mean that these states were not independent then. Care should thus be taken with the "in system" indicator for years before 1816.

It is worth noting that while most measures of democracy are produced only for sovereign countries, a number of measures have also been produced, either explicitly (the V-dem project) or not (sometimes researchers do not agree on whether a country-year represents a "sovereign" state), for non-sovereign territories. In fact in this dataset about 5091 country-years in or after 1816 are not "in system" (most of them from the V-dem indexes of democracy); these are easily excluded by filtering the dataset using the boolean `in_system` indicator (or a logical expression that filters data points that are not in system after 1816 but includes those before 1816).

All countries are measured as of 31 December of the given year, as is the conventional rule. Some datasets do not use this rule (e.g., Freedom House, GWF), and others sometimes contain more than one data point per year (e.g., the Political Regime Change dataset gives all regime types measured in a single year, which sometimes results in two or three regimes when a transition occurs); I have tried my best to transform their coding so that all datapoints conform to convention, but some errors may remain.

A full discussion of the temporal and geographic coverage of these variables, is available in a package vignette; see `vignette("Spatial_and_temporal_coverage")` for details.

A note on sources

Wherever possible, I have used the original sources for these measures of democracy and put them in the right panel format myself. There are three exceptions.

First, in a few cases I have relied on the replication data for Pemstein, Meserve, and Melton (2010), which contains data I have not been able to find elsewhere. These variables are marked `_pmm`, and they are not always perfectly correlated with the original data (where available). For example, `freedomhouse_pmm` includes data for 1981, whereas `freedomhouse` conventionally does not; and there are a number of divergences between PMM's `prc_pmm` data and the `prc` dataset available from Reich 2002 that seem to have something to do with the treatment of country-years that include transition periods. A more extended discussion of the differences between the PMM replication data and the original data sources is available in a package vignette; see `vignette("Differences_between_PMM_and_original_data")` for details.)

Second, I have constructed the przeworski and pitf* variables following the instructions in the source, but have not found the data ready-made. This is probably unproblematic in the case of pitf – the instructions are very clear – but less so in the case of przeworski, where the instructions are less clear and it is difficult to produce a test that indicates whether the variable is properly constructed. It is also worth noting that the Polity data is occasionally revised, so that the pitf variable described and used in Goldstone et al 2010 is probably different from the pitf variable here for a small number of country-years. (Similarly, polity_pmm and polity2 differ in a few instances due to revisions of the Polity data between 2010 and today.)

Third, on at least one occasion I have recalculated an index from its original sources in different ways (see the utip_dichotomous, utip_dichotomous_strict, and utip_trichotomous variables), since the original data does not provide an unambiguous measure.

Variable Description

country_name Standardized country name.

GWn Gleditsch and Ward's numeric country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

GWc Gleditsch and Ward's alphabetic country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

cown The Correlates of War numeric country code. This differs from Gleditsch and Ward's numeric country code in a few cases, due to the treatment of a couple of country terminations: West Germany becomes 255 in CoW after reunification, but stays as 260 in G & W; Serbia continues as 345 in CoW after the break up of Yugoslavia, whereas it becomes 340 in GWn; Vietnam before 1948 is 816 in CoW, but 815 in G & W; and Yemen after unification is 679 in CoW, but it remains 678 on G & W, which considers it a continuation of the same state (absorbing South Yemen). Finally, Kiribati, Tonga, Tuvalu, and Nauru have different codes in G & W for reasons I cannot determine. For a full discussion of these differences, see the vignette at vignette("Spatial_and_temporal_coverage").

polity_ccode The numeric country code of the country in the Polity dataset, which is based on, but not identical to, the CoW codes in a few cases. For a full discussion of these differences, see the vignette at vignette("Spatial_and_temporal_coverage").

year Year. See the section on spatial and temporal organization for details on coding.

region Region. Based on the UN region classifications. For historic states, the region is the same as the region of the successor states (or states that absorbed the territory, as for example in the case of the German principalities). In one case, Austria-Hungary, the successor states straddle two regions (Western Europe and Eastern Europe); I have opted to assign it the region "Central Europe."

continent Continent. Based on the UN continent classifications.

GW_startdate The entry date of the state into the international system (usually the date of independence, though there can be more than one), according to Gleditsch and Ward, or 1 January 1816, whichever is later.

GW_enddate The exit date of the state from the international system (usually the date the state lost its independence, though there can be more than one), according to Gleditsch and Ward, or NA for countries that are still in the international system.

microstate Whether the state is a microstate, according to Gleditsch. His tentative list of microstates is available at http://privatewww.essex.ac.uk/~ksg/statelist.html.

lat The rough latitude of the state.

lon The rough longitude of the state.

in_system Whether the state is "in system" (that is, is independent and sovereign), according to Gleditsch and Ward, for this particular date.

in_cow Whether the state is in the COW system of states (that is, is independent and sovereign), for this particular date. Experimental.

arat_pmm Democracy score from Arat, Zehra F. 1991. Democracy and human rights in developing countries. Boulder: Lynne Rienner Publishers. Taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. Min = 29, max = 109, n = 3873.

blm Trichotomous measure of regime type from Bowman, Kirk, Fabrice Lehoucq, and James Mahoney. 2005. Measuring Political Democracy: Case Expertise, Data Adequacy, and Central America. Comparative Political Studies 38 (8): 939-970. http://cps.sagepub.com/content/38/8/939. Data available at http://www.blmdemocracy.gatech.edu/. 0 = authoritarian, 0.5 = semidemocratic, 1 = democratic. Available only for five Latin American countries (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua) from 1900 to 2000.

blm_pmm Same as previous but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. 0 = authoritarian, 0.5 = semidemocratic, 1 = democratic. Available only for five Latin American countries (Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua) from 1946 to 2000 in this version.

bmr_democracy Dichotomous measure of regime type from Boix, Carles, Michael Miller, and Sebastian Rosato. 2012. A Complete Data Set of Political Regimes, 1800-2007. Comparative Political Studies 46 (12): 1523-1554. Original data available at https://sites.google.com/site/mkmtwo/democracy-v2.0.dta?attredirects=0. 1 = democracy. N = 16986.

bmr_democracy_omitteddata Dichotomous measure of regime type from Boix, Carles, Michael Miller, and Sebastian Rosato. 2012. A Complete Data Set of Political Regimes, 1800-2007. Comparative Political Studies 46 (12): 1523-1554. Original data available at https://sites.google.com/site/mkmtwo/democracy-v2.0.dta?attredirects=0. 1 = democracy. This is the same measure as bmr_democracy, except it records an NA for countries occupied during an international war (e.g., the Netherlands 1940-44) or experiencing state collapse during a civil war (e.g., Lebanon 1976-89). The democracy variable instead fills in these years as continuations of the same regime type. N = 16761.

bnr Dichotomous indicator of democracy from the Bernhard, Nordstrom & Reenock Event History Coding of Democratic Breakdowns. 0 = non-democracy, 1 - democracy. In Michael Bernhard, Timothy Nordstrom, and Christopher Reenock, "Economic Performance, Institutional Intermediation and Democratic Breakdown," Journal of Politics 63:3 (2001), pp. 775-803. Data and coding description available at http://users.clas.ufl.edu/bernhard/content/data/data.htm This indicator has been put in country-year format, extending to 1913, with the help of the Correlates of War panel of independent states; independent countries (not microstates) in this panel that were not included in the original dataset are assumed to be non-democratic for the period. See `vignette("Spatial_and_temporal_coverage")` for details for more information about the additional country-years generated in this way.

bollen_pmm 0-100 index of democracy from Bollen, Kenneth A. 2001. "Cross-National Indicators of Liberal Democracy, 1950-1990." 2nd ICPSR version. Chapel Hill, NC: University of North

Carolina, 1998. Ann Arbor, MI: Inter-university Consortium for Political and Social Research, 2001. Original data available at http://webapp.icpsr.umich.edu/cocoon/ICPSR-STUDY/02532.xml. Taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM.

doorenspleet Dichotomous index of democracy from Doorenspleet, Renske. 2000. Reassessing the Three Waves of Democratization. World Politics 52 (03): 384-406. DOI: 10.1017/S0043887100016580. http://dx.doi.org/10.1017/S0043887100016580. 1 = authoritarian, 2 = democracy. Omits periods of interruption.

eiu 0-1 index of democracy from the updated version of the Economist Intelligence Unit. 2012. Democracy Index 2012: Democracy at a Standstill. 0 = least democratic, 1 = most democratic. Taken from http://www.govindicators.org.

freedomhouse Average civil liberties + political rights score (reversed so higher values are more democratic) from Freedom House. 2015. "Freedom in the World." Original data available at http://www.freedomhouse.org. Goes from 1 (least democratic) to 7 (most democratic). In this version, the index does not include a value for 1981. This is based on the latest Freedom House data going all the way to 2015.

freedomhouse_pmm Same as previous but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. Goes from 1 (least democratic) to 7 (most democratic). In this version the index stops at 2008. It also includes a value for 1981. For more on the differences between this variable and the current FH Freedom in the World index, see `vignette("Differences_between_PMM_and_origin`

freedomhouse_electoral An indicator of whether a country is an "electoral democracy" in Freedom House's estimation (1 = yes, 0 - no). Original data available at http://www.freedomhouse.org. Goes from 1 (least democratic) to 7 (most democratic). Available only from 1989. This is based on the latest Freedom House data going all the way to 2015.

gwf Dichotmous democracy/autocracy indicator from Geddes, Barbara, Joseph Wright, and Erica Frantz. 2014. Autocratic Breakdown and Regime Transitions: A New Data Set. Perspectives on Politics 12 (1): 313-331. Original data available at http://dictators.la.psu.edu/. 0 = autocracy, 1 = democracy. Extended beyond 1945 using Geddes, Wright, and Frantz's case variable, which encodes information about the first year of the regime. For more detail on the resulting additional country-years, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

hadenius_pmm 0-10 index of democracy from Hadenius, Axel. 1992. Democracy and Development. Cambridge: Cambridge University Press. Taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. Higher values are more democratic.

kailitz_binary Dichotomous democracy indicator from Kailitz, Steffen. 2013. Classifying political regimes revisited: legitimation and durability. Democratization 20 (1): 39-60. Original data available at http://dx.doi.org/10.1080/13510347.2013.738861. 1 = autocracy (all types including electoral autocracy), 2 = liberal democracy.

kailitz_tri Trichotomous democracy indicator from Kailitz, Steffen. 2013. Classifying political regimes revisited: legitimation and durability. Democratization 20 (1): 39-60. Original data available at http://dx.doi.org/10.1080/13510347.2013.738861. 1 = autocracy (all types except electoral autocracy), 2 = electoral autocracy, 3 = liberal democracy.

lied 0-6 Lexical Index of Electoral Democracy from Skaaning, Svend-Erik, John Gerring, and Henrikas Bartusevicius. 2015. A Lexical Index of Electoral Democracy. Comparative Political Studies 48 (12): 1491-1525. Original data available from http://thedata.harvard.edu/dvn/dv/skaaning. This is from V3 of the dataset, updated to 2015.

0 = nonelectoral,

1 = one- or no- party elections,

2 = limited competition multiparty elections for legislature only,

3 = Limited competition multiparty elections for both executive and legislature,

4 = Competitive elections for executive and legislative, limited suffrage,

5 = Male democracy,

6 = Electoral democracy.

lied_electoral A 0-2 index of the degree to which policymakers are elected, calculated from the sum of `exselec` and `legselec` variables in the LIED dataset:

0: No elections for either legislature or executive.

1: Elections for legislature or executive, but not both.

2: Elections for both legislature and executive.

lied_accountable A 0-2 index of the degree to which opposition can hold the government accountable, calculated from the sum of `opposition` and `competition` variables in the LIED dataset:

0: No opposition.

1: There is an opposition, but limited competition, or (very rarely, 4 country years) competition but no genuine opposition.

2: Non-restricted competition with multiple parties.

lied_inclusive A 0-2 index of the degree of suffrage, calculated from the sum of `male_suffrage` and `female_suffrage` variables in the LIED dataset:

0: Class-restricted or no suffrage.

1: Full suffrage for one gender (male).

2: Universal (male and female) suffrage.

mainwaring Trichotomous democracy indicator from Mainwaring, Scott, Daniel Brinks, and Anibal Perez Linan. 2008. "Political Regimes in Latin America, 1900-2007." Original data available from http://kellogg.nd.edu/scottmainwaring/Political_Regimes.pdf. -1 = non-democracy, 0 = hybrid, 1 = democracy.

mainwaring_pmm Same as previous but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. In this version the indicator goes only to 1945, and it is missing some country-years. For more on the differences between this variable and the original Mainwaring et al data, see `vignette("Differences_between_PMM_and_original_data")`.

magaloni_democ_binary Dichotomous democracy indicator from Magaloni, Beatriz, Jonathan Chu, and Eric Min. 2013. Autocracies of the World, 1950-2012 (Version 1.0). Dataset, Stanford University. Original data and codebook available at http://cddrl.fsi.stanford.edu/research/autocracies_of_the_world_dataset/. 0 = autocracy (all types including multiparty autocracy), 1 = democracy. Extended beyond 1950 using the `duration_nr` variable of the original dataset, which encodes information about the first year of each regime. For more detail on the resulting additional country-years, see the vignette at `vignette("Spatial_and_temporal_coverage`

magaloni_regime_tri Trichotomous democracy indicator fromMagaloni, Beatriz, Jonathan Chu, and Eric Min. 2013. Autocracies of the World, 1950-2012 (Version 1.0). Dataset, Stanford University. Original data and codebook available at http://cddrl.fsi.stanford.edu/research/autocracies_of_the_world_dataset/. 1 = autocracy (all types except multipary autocracy), 2 = multiparty autocracy, 3 = democracy. Extended beyond 1950 using the `duration_nr` variable of the original dataset, which encodes information about the first year of each regime. For more detail on the resulting additional country-years, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

munck_pmm 0-1 index of democracy from Munck, Gerardo L. 2009. Measuring Democracy: A Bridge Between Scholarship and Politics. Baltimore: Johns Hopkins University Press. Taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. Only available for 342 country-years. Higher values are more democratic.

pacl Dichotomous measure of democracy from Cheibub, Jose Antonio, Jennifer Gandhi, and James Raymond Vreeland. 2010. "Democracy and Dictatorship Revisited." Public Choice. 143(1):67-101. Original data available at https://sites.google.com/site/joseantoniocheibub/datasets/democracy-and-dictatorship-revisited. 1= democracy, 0 = non-democracy.

pacl_pmm Same as above but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. This is missing a couple of countries in the original dataset; for more detail on the missing cases, see `vignette("Differences_between_PMM_and_original_data")`.

PEPS1i Participation-Enhanced Polity Score 1, polity score adjusted using IDEA Votes/Voting age population. From Bruce E. Moon, Jennifer Harvey Birdsall, Sylvia Ceisluk, Lauren M. Garlett, Joshua J. Hermias, Elizabeth Mendenhall, Patrick D. Schmid, and Wai Hong Wong (2006) "Voting Counts: Participation in the Measurement of Democracy" Studies in Comparative International Development 42, 2 (Summer, 2006). The complete dataset is available here: http://www.lehigh.edu/~bm05/democracy/Obtain_data.htm.

PEPS2i Participation-Enhanced Polity Score 2, polity score adjusted using IDEA Votes/Voting age population. From Bruce E. Moon, Jennifer Harvey Birdsall, Sylvia Ceisluk, Lauren M. Garlett, Joshua J. Hermias, Elizabeth Mendenhall, Patrick D. Schmid, and Wai Hong Wong (2006) "Voting Counts: Participation in the Measurement of Democracy" Studies in Comparative International Development 42, 2 (Summer, 2006). The complete dataset is available here: http://www.lehigh.edu/~bm05/democracy/Obtain_data.htm.

PEPS1v Participation-Enhanced Polity Score 1, polity score adjusted using Vanhanen votes/two-thirds of Vanhanen population. From Bruce E. Moon, Jennifer Harvey Birdsall, Sylvia Ceisluk, Lauren M. Garlett, Joshua J. Hermias, Elizabeth Mendenhall, Patrick D. Schmid, and Wai Hong Wong (2006) "Voting Counts: Participation in the Measurement of Democracy" Studies in Comparative International Development 42, 2 (Summer, 2006). The complete dataset is available here: http://www.lehigh.edu/~bm05/democracy/Obtain_data.htm.

PEPS2v Participation-Enhanced Polity Score 2, polity score adjusted using Vanhanen votes/two-thirds of Vanhanen population. From Bruce E. Moon, Jennifer Harvey Birdsall, Sylvia Ceisluk, Lauren M. Garlett, Joshua J. Hermias, Elizabeth Mendenhall, Patrick D. Schmid, and Wai Hong Wong (2006) "Voting Counts: Participation in the Measurement of Democracy" Studies in Comparative International Development 42, 2 (Summer, 2006). The complete dataset is available here: http://www.lehigh.edu/~bm05/democracy/Obtain_data.htm.

PEPS1q Participation-Enhanced Polity Score 1, polity score adjusted using (mostly)IDEA votes/Voting age population, with participation coded zero for noncompetitive elections. From Bruce E. Moon, Jennifer Harvey Birdsall, Sylvia Ceisluk, Lauren M. Garlett, Joshua J. Hermias, Elizabeth Mendenhall, Patrick D. Schmid, and Wai Hong Wong (2006) "Voting Counts: Participation in the Measurement of Democracy" Studies in Comparative International Development 42, 2 (Summer, 2006). The complete dataset is available here: http://www.lehigh.edu/~bm05/democracy/Obtain_data.htm.

PEPS2q Participation-Enhanced Polity Score 2, polity score adjusted using (mostly)IDEA votes/Voting age population, with participation coded zero for noncompetitive elections. From Bruce E. Moon, Jennifer Harvey Birdsall, Sylvia Ceisluk, Lauren M. Garlett, Joshua J. Hermias, Elizabeth Mendenhall, Patrick D. Schmid, and Wai Hong Wong (2006) "Voting Counts: Participation in the Measurement of Democracy" Studies in Comparative International Development

42, 2 (Summer, 2006). The complete dataset is available here: http://www.lehigh.edu/~bm05/democracy/Obtain_data.htm.

pitf A five category indicator of democracy described in Goldstone et al 2010. Can be:

0-Full autocracy (exrec < 7, parcomp !=0 and parcomp < 3)

1-Partial autocracy (exrec < 7, parcomp = 0 or parcomp > 2)

2-Partial democracy with factionalism (exrec > 6, parcomp = 3)

3-Partial democracy (exrec > 6, parcomp = 0 or parcomp = 4 or parcomp = 5 but exrec != 8)

4-Full democracy (exrec = 8, parcomp = 5). See Goldstone et al. 2010 for full details.

pitf_binary A simplification of the `pitf` indicator of democracy described in Taylor, Sean J. and Ulfelder, Jay, A Measurement Error Model of Dichotomous Democracy Status (May 20, 2015). Available at SSRN: http://ssrn.com/abstract=2726962 or http://dx.doi.org/10.2139/ssrn.2726962. A country is a democracy (1) "if its chief executive is chosen in competitive elections (EXREC equal to 7 or 8) and political competition is not suppressed (PARCOMP equal to 0 or PARCOMP greater than 2)" Otherwise it is a non-democracy (0).

polity Annual polity index, including special codes for interruption, interregnum, and transition (-88,-77,-66). Higher values are more democratic. From Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. 2012. "Polity IV: Political Regime Characteristics and Transitions, 1800-2012." Updated with values to 2015. Original data available from http://www.systemicpeace.org/polity/polity4.htm.

polity2 Annual polity2 index, interpolating values for interruption, interregnum, and transition periods. Higher values are more democratic. From Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. 2012. "Polity IV: Political Regime Characteristics and Transitions, 1800-2012." Updated with values to 2015. Original data available from http://www.systemicpeace.org/polity/polity4.htm.

polity_pmm Same as previous, but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. In this version the indicator only goes to 1945, and it differs from `polity2` in a few cases. For more detail on the differences, see `vignette("Differences_between_PMM_and_original_data")`.

Polity3 Cleaned up version of polity score from Bruce E. Moon, Jennifer Harvey Birdsall, Sylvia Ceisluk, Lauren M. Garlett, Joshua J. Hermias, Elizabeth Mendenhall, Patrick D. Schmid, and Wai Hong Wong (2006) "Voting Counts: Participation in the Measurement of Democracy" Studies in Comparative International Development 42, 2 (Summer, 2006). The complete dataset is available here: http://www.lehigh.edu/~bm05/democracy/Obtain_data.htm. This differs from rom `polity2` in a few cases. For more detail on the differences, see `vignette("Spatial_and_temporal_coverage")`.

polyarchy_reversed 0-10 index of democracy from Coppedge, Michael and Wolfgang H. Reinicke. 1991. Measuring Polyarchy. In On Measuring Democracy: Its Consequences and Concomitants, ed. Alex Inkeles. New Brunswick, NJ: Transaction pp. 47-68. Revised in 2003-2006. This has been reversed so that higher values are more democratic; the original index was scored so that 0 was less democratic. The codebook for the dataset suggests using `polyarchy_contestation` instead, a more reliable version of the polyarchy scale with fewer categories. Includes a value for Western Sahara in 2000, which has been assigned COW code 605; Western Sahara is not coded by any other dataset in this compilation, and is not considered an independent state by either Gleditsch and Ward or the Correlates of War project. Exclude if necessary.

polyarchy_pmm Same as `polyarchy_reversed` but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.

handle.net/1902.1/PMM. Note that there are 22 discrepancies between polyarchy_reversed and polyarchy_pmm; these appear to be due to transcription error in PMM's replication dataset. polyarchy_pmm also misses 4 country-years in polyarchy_reversed (it counts 353 country-years instead of 357), namely Brunei 1985, East Timor 2000, San Marino 1985, and Western Sahara 2000.

polyarchy_contestation 1-9 index of contestation from the revised version of Coppedge, Michael and Wolfgang H. Reinicke. 1991. Measuring Polyarchy. In On Measuring Democracy: Its Consequences and Concomitants, ed. Alex Inkeles. New Brunswick, NJ: Transaction pp. 47-68. Revised in 2003-2006. Includes a value for Western Sahara in 2000, which has been assigned code 605; Western Sahara is not coded by any other dataset in this compilation, and is not considered an independent state by either Gleditsch and Ward or the Correlates of War project. Meaning of the scale is as follows:

9 Meaningful fair elections are held, there is full freedom for political organization and expression, and there is no preferential presentation of official views in the media.

8 Meaningful fair elections are held and there is full freedom for political organization and expression, but there is preferential presentation of official views in the media.

7 Meaningful fair elections are held and there is full freedom for political organization, but some public dissent is suppressed and there is preferential presentation of official views in the media.

6 Meaningful fair elections are held, but some independent political organizations are banned, some public dissent is suppressed, and there is preferential presentation of official views in the media.

5 Elections are marred by fraud or coercion, some independent political organizations are banned, some public dissent is suppressed, and there is preferential presentation of official views in the media.

4 Like score 5 except that there is less contestation in one or two of the following respects: no meaningful elections are held, only nonpolitical organizations are allowed to be independent, or alternatives to the official media are very limited.

3 No meaningful elections are held, only nonpolitical organizations are allowed to be independent, some public dissent is suppressed, and alternatives to the official media are very limited.

2 Like score 3 except that there is less contestation in one or two of the following respects: all organizations are banned or controlled by the government or official party, all public dissent is suppressed, or there is no public alternative to official information.

1 No meaningful elections are held, all organizations are banned or controlled by the government or official party, all public dissent is suppressed, and there is no public alternative to official information.

prc 1-4 index of democracy from Gasiorowski, Mark J. 1996. "An Overview of the Political Regime Change Dataset." Comparative Political Studies 29(4):469-483. Available in updated form in Reich, G. 2002. Categorizing Political Regimes: New Data for Old Problems. Democratization 9 (4): 1-24. http://www.tandfonline.com/doi/pdf/10.1080/714000289. 1= Authoritarian, 2 = transitional, 3 = semidemocratic, 4 = democratic.

prc_pmm Same as previous but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM. In this version the indicator only goes to 1945. It also differs from the original data in a few cases. For more detail on the differences, see For more detail on the differences, see vignette("Differences_between_PMM_and_original_data").

prc_notrans Same as prc but sets all 2 (transition) regimes to NA.

przeworski Calculated regime type variable from the PIPE dataset. Przeworski, Adam et al. 2013. Political Institutions and Political Events (PIPE) Data Set. Department of Politics, New York University. The original data and codebook can be downloaded from https://sites.google.com/a/nyu.edu/adam-przeworski/home/data. This variable is not found in the downloadable dataset; it is calculated according to the instructions in the codebook. The documentation gives the following instructions:

"0 if `electoral_age` [a variable in the original dataset] is missing. There are two distinct reasons why it may be missing: either elections are not held regularly or they are held but the winner does not complete a term in office or makes an autocoup. Elections are considered not to be held if (1) there is a constitution that specifies the length of term of the chief executive (or the legislature) and this period is exceeded by more than one year, except for war years, (2) there is no constitution or the constitution does not provide for elections and no elections are held during this period.

1 if `electoral_age` is not missing and `opposition`=0 [a variable in the original dataset] (or `republic_age` is missing). These are regimes in which elections are held regularly and the winners (or their constitutional successors) complete electoral terms but either elections are uncontested or there is one party and independents or parties are banned and everyone runs as independent. Note that if everyone runs as independents it is possible for the incumbent government to lose an election, as in Swaziland in 1993. It is also possible for the incumbent to lose if the regime had no opposition up to some time when a competitive election occurred but the winner did not complete a term, as in Honduras in 1852. Finally, incumbents can lose when `regime`=1 if the election was competitive but at the end of the year the opposition was suppressed, as in Panama in 1968.

2 if `republic_age` [a variable in the original dataset] is not missing, that is if `electoral_age` is not missing and `opposition`=1 (there is some minimal opposition), but no strong alternation has ocurred (power has not changed hands).

3 if `democracy_age` [`democracy_age` is not found in the original dataset]is not missing, that is, the country has elections, there is opposition, and a strong alternation – a change in parties controlling the government – has occurred."

svolik Dichotomous indicator of democracy from Svolik, Milan. 2012. The Politics of Authoritarian Rule. Cambridge and New York: Cambridge University Press. Original data available from http://campuspress.yale.edu/svolik/the-politics-of-authoritarian-rule/. 1 = authoritarian, 2 = democracy. This is extended for a few countries from the `o_startdate` variable in the original dataset. For more detail on the resulting additional country-years, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

ulfelder Dichotomous indicator of democracy from Ulfelder, Jay. 2012. "Democracy/Autocracy Data Set." In: Harvard Dataverse. http://hdl.handle.net/1902.1/18836. 0 = authoritarian, 1 = democracy.

utip_dichotomous Calculated dichotomous index of democracy from data in the UTIP dataset of political regimes (Hsu 2008). 1 if the regime is a social democracy, conservative democracy, or one party democracy, 0 otherwise. The category of "one party democracy" is not well documented.

utip_dichotomous_strict Stricter version of the calculated dichotomous index of democracy from data in the UTIP dataset of political regimes (Hsu 2008). 1 if the regime is a social democracy or a conservative democracy, 0 otherwise. This excludes "one party democracies" from the democracy category.

utip_trichotomous Calculated trichotomous index of democracy from data in the UTIP dataset of political regimes (Hsu 2008). 2 if the regime is a social democracy or conservative democracy, 1 if the regime is a one party democracy, 0 otherwise. The category of "one party democracy" is not well documented.

v2x_api Additive polyarchy index from V-dem version 6.1. Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, and Jan Teorell, with David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Brigitte Zimmerman, Frida Andersson, Valeriya Mechkova, Farhad Miri. 2016. V-Dem Codebook v6.1. Varieties of Democracy (V-Dem) Project. Original data available at https://v-dem.net/en/data/. Higher values are more democratic.

v2x_delibdem Deliberative democracy index from V-dem version 6.1. Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, and Jan Teorell, with David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Brigitte Zimmerman, Frida Andersson, Valeriya Mechkova, Farhad Miri. 2016. V-Dem Codebook v6.1. Varieties of Democracy (V-Dem) Project. Original data available at https://v-dem.net/en/data/. Higher values are more democratic.

v2x_egaldem Egalitarian democracy index from V-dem version 6.1. Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, and Jan Teorell, with David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Brigitte Zimmerman, Frida Andersson, Valeriya Mechkova, Farhad Miri. 2016. V-Dem Codebook v6.1. Varieties of Democracy (V-Dem) Project. Original data available at https://v-dem.net/en/data/. Higher values are more democratic.

v2x_libdem Egalitarian democracy index from V-dem version 6.1. Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, and Jan Teorell, with David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Brigitte Zimmerman, Frida Andersson, Valeriya Mechkova, Farhad Miri. 2016. V-Dem Codebook v6.1. Varieties of Democracy (V-Dem) Project. Original data available at https://v-dem.net/en/data/. Higher values are more democratic.

v2x_mpi Multiplicative polyarchy index from V-dem version 6.1. Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, and Jan Teorell, with David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Brigitte Zimmerman, Frida Andersson, Valeriya Mechkova, Farhad Miri. 2016. V-Dem Codebook v6.1. Varieties of Democracy (V-Dem) Project. Original data available at https://v-dem.net/en/data/. Higher values are more democratic.

v2x_partipdem Participatory democracy index from V-dem version 6.1. Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, and Jan Teorell, with David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Brigitte Zimmerman, Frida Andersson, Valeriya Mechkova, Farhad Miri. 2016. V-Dem Codebook v6.1. Varieties of Democracy (V-Dem) Project. Original data available at https://v-dem.net/en/data/. Higher values are more democratic.

v2x_polyarchy Continuous polyarchy index from V-dem version 6.1. Coppedge, Michael, John Gerring, Staffan I. Lindberg, Svend-Erik Skaaning, and Jan Teorell, with David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Carl Henrik Knutsen, Kelly McMann, Pamela Paxton, Daniel Pemstein, Jeffrey Staton, Brigitte Zimmerman, Frida Andersson, Valeriya Mechkova, Farhad Miri. 2016. V-Dem Codebook v6.1. Varieties of Democracy (V-Dem) Project. Original data available at https://v-dem.net/en/data/. Higher values are more democratic.

vanhanen_competition Index of competition from Vanhanen, Tatu. 2012. "FSD1289 Measures of Democracy 1810-2012." Original data available from http://www.fsd.uta.fi/english/

data/catalogue/FSD1289/meF1289e.html. From Vanahnen's documentation: "The smaller parties' share of the votes cast in parliamentary or presidential elections, or both, is used to indicate the degree of competition. It is calculated by subtracting the percentage of votes won by the largest party from 100. If the largest party gets, for example, 40 percent of the votes, the share of the smaller parties is 60 percent. If data on the distribution of votes are not available, the value of this variable is calculated on the basis of the distribution of seats in parliament. The distribution of seats is used also in cases in which it seems to indicate power relations more realistically than the distribution of votes." Its maximum value is 70. See the full documentation for Vanhanen's dataset for details.

vanhanen_participation Index of participation from Vanhanen, Tatu. 2012. "FSD1289 Measures of Democracy 1810-2012." Original data available from http://www.fsd.uta.fi/english/data/catalogue/FSD1289/meF1289e.html. From Vanahnen's documentation: "The percentage of the population which actually voted in the same elections is used to measure the degree of participation (= Participation). This percentage is calculated from the total population, not from the adult or enfranchized population." It is zero by construction in cases where no popular elections exist. May be modified by referenda. See the full documentation of Vanhanen's dataset for details.

vanhanen_democratization Index of democratization from Vanhanen, Tatu. 2012. "FSD1289 Measures of Democracy 1810-2012." Original data available from http://www.fsd.uta.fi/english/data/catalogue/FSD1289/meF1289e.html. Higher values are more democratic. Constructed multiplicatively from vanhanen_participation and vanhanen_competition.

vanhanen_pmm Same as vanhanen_democratization but taken from Pemstein, Daniel, Stephen A. Meserve, and James Melton. 2013. "Replication data for: Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type." In: Harvard Dataverse. http://hdl.handle.net/1902.1/PMM.

wahman_teorell_hadenius Dichotomous measure of democracy from the Authoritarian Regimes Data Set, version 5.0, by Axel Hadenius, Jan Teorell, & Michael Wahman, described in Hadenius, Axel & Jan Teorell. 2007. "Pathways from Authoritarianism", Journal of Democracy 18(1): 143-156 and Wahman, Michael, Jan Teorell, and Axel Hadenius. 2013. Authoritarian regime types revisited: updated data in comparative perspective. Contemporary Politics 19 (1): 19-34. The dataset and codebook can be downloaded from https://sites.google.com/site/authoritarianregimedataset/data. 1=democracy, 0 = non-democracy. Calculated from their regime1ny variable; non-democracy = all authoritarian regimes.

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Boix, Carles, Michael Miller, and Sebastian Rosato. 2012. A Complete Data Set of Political Regimes, 1800-2007. Comparative Political Studies 46 (12): 1523-1554. Original data available at https://sites.google.com/site/mkmtwo/democracy-v2.0.dta?attredirects=0

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See Also

Other democracy: extended_uds, kailitz, original.pmm.democracy.data.1946.2008, uds_2014

democracy_model *A convenience function for producing a UD model from democracy data.*

Description

This function is a simple wrapper for `mirt(data[, columns], model = 1,itemtype = "graded", SE = TRUE, ...)`. More fine-grained control can be achieved by using `mirt` directly.

Usage

```
democracy_model(data, columns, model = 1, itemtype = "graded", SE = TRUE,
  ...)
```

Arguments

`data`	The prepared democracy data. Run `prepare_data` first on your democracy data. Note that `mirt` will throw an error if some country-years are not measured by any dataset; it is thus necessary to ensure that your data has at least one measurement of democracy for every country-year (though NAs are fine in many of the variables). See the examples for details.
`columns`	The columns to use to estimate the model.
`model`	The model type for `mirt`. The default, 1, calculates a one-factor model (a single latent variable).
`itemtype`	The type of item to estimate. See `mirt` for details. The default fits a "graded" model like the one Pemstein, Meserve, and Melton use in their 2010 paper.
`SE`	Boolean. Whether to calculate the standard errors of the model parameters. The default is `TRUE`.
`...`	Other parameters passed on to `mirt`

Value

a `SingleGroupClass-class` model of latent democracy scores suitable for use by `democracy_scores`.

Examples

```
# Not run:
# data <- prepare_data(democracy)
# data <- melt(data, measure.vars = names(data)[grep("pmm",names(data))], na.rm = TRUE)
# data <- data %>% group_by(country_name,year) %>% mutate(num_measures = n())
# data <- dcast(data, ... ~ variable)
# data <- data %>% arrange(country_name,year)
# replication_2011_model <- democracy_model(data, columns = names(data)[grep("pmm",names(data))])
```

democracy_scores *A convenience function for producing UD scores from a UD model.*

Description

This function is a simple wrapper for `fscores(model, full.scores = TRUE, full.scores.SE = TRUE, ...)` that returns scores in a tidy data frame instead of a matrix. More fine-grained control can be achieved by using `fscores` directly.

Usage

```
democracy_scores(model, ...)
```

Arguments

model	a `SingleGroupClass-class` model produced by `democracy_model`.
...	Other parameters passed on to `fscores`.

Value

A data frame with latent variable democracy scores (posterior means) for all country-years in the data, with standard errors and 95 intervals.

Examples

```
# Replicate the official UDS scores (2011 release)
library(reshape2)
library(dplyr)
data <- prepare_data(democracy)
data <- melt(data, measure.vars = names(data)[grep("pmm",names(data))], na.rm = TRUE)
data <- data %>% group_by(country_name,year) %>% mutate(num_measures = n())
data <- dcast(data, ... ~ variable)
data <- data %>% arrange(country_name,year)
replication_2011_model <- democracy_model(data, columns = names(data)[grep("pmm",names(data))])
replication_2011_scores <- democracy_scores(replication_2011_model)
replication_2011_scores <- bind_cols(data %>%
                                  select(country_name, GWn, year,in_system,num_measures),
                                                      replication_2011_scores)
```

extended_uds *Extended UDS*

Description

A dataset extending the Unified Democracy Scores of Pemstein, Meserve, and Melton (2010) to the 19th century (and sometimes before), updating it with 2013-2015 data, and calculating scores for countries not in the official UD release. Cite both Pemstein, Meserve, and Melton 2010 as well as Marquez 2016.

Usage

```
extended_uds
```

Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 24136 rows and 26 columns.

Overview

This dataset contains an extension of the Unified Democracy Scores of Pemstein, Meserve, and Melton (2010). PMM 2010 use a latent variable approach to combine diverse measurements of democracy for a broad panel of countries from 1946 to 2012; this dataset extends the scores by using more democracy measures with broader temporal and spatial coverage, generating democracy scores for 24111 country-years (224 distinct countries and territories), including 18329 country-years for independent, sovereign countries from 1816 to 2015.

The measurement of democracy is complicated and controversial. The extended UDS makes few judgments about what measures of democracy should be used to generate latent democracy scores, as long as they have been used in scholarly work. It uses dichotomous, trichotomous, ordinal, and continuous indices; indices that focus primarily on the "competition" and indices that focus on the "participation" dimension of democracy; "thick" indices that attempt to measure a wide variety of characteristics plausibly attributed to democracy; and "minimalist" indexes that restrict themselves to the bare minimum of competition. Nevertheless, most of these indexes agree that democracy has something to do with competition and participation, even if they weight these dimensions somewhat differently, and even if they include other things, such as civil rights.

The latent variable score is calculated using four broad families of democracy measures, all of which are available in the `democracy` file (variable names in this section refer to columns in that file):

Dichotomous indexes of democracy

These are indexes designed to distinguish between democracy and non-democracy. Most of them follow a fairly minimalist conception of democracy, focused on political competition while giving little weight to the extent of the suffrage or thicker civil or economic rights. These include the Boix, Miller, and Rosato (2012) indicator of democracy (`bmr_democracy`); the Bernhard, Nordstrom and Reenock index of democracy (`bnr`), originally developed for event history analysis (Bernhard, Nordstrom, and Reenock 2001); Renske Doorenspleet's indicator of democracy (`doorenspleet`), based on the Polity III data and a measure of the extent of suffrage (Doorenspleet 2000); Freedom House's list of electoral democracies (`freedomhouse_electoral`); the Cheibub, Gandhi, and Vreeland (2013) extension of the PACL (Przeworski, Alvarez, Cheibub and Limongi) democracy/dictatorship dataset (`pacl`); Jay Ulfelder's indicator of democracy (`ulfelder`), based on a recoding of the Polity IV data (Ulfelder 2012); and a number of dichotomous democracy/non-democracy indicators (`gwf`, `svolik`, `utip_dichotomous_strict`, and `wahman_teorell_hadenius`) from datasets concerned with the identification of authoritarian regime types (Geddes, Wright, and Frantz 2014; Svolik 2012, Wahman, Teorell, and Hadenius 2013). These are all highly but not perfectly correlated with one another, with correlation coefficients ranging from 0.41 (`freedomhouse_electoral` and `bnr`) to 0.92 (`gwf` and `pacl`)

Of these, only Doorenspleet's and Bernhard, Nordstrom, and Reenock's measures give special weight to the extent of suffrage in determining whether a country is democratic; not surprisingly, they display the lowest correlation with the other dichotomous indicators of democracy. All of these indexes have world-wide spatial scope, though they differ greatly in temporal coverage. `doorenspleet` and `bmr_democracy` have the widest temporal scope, going all the way back to the 19th century. Some of the countries in `gwf` are also coded far into the past.

Trichotomous indexes of democracy

Trichotomous indexes of democracy distinguish explicitly a "hybrid" or "semi-democratic" category. These include the measure of democracy in Central America developed by Bowman, Lehoucq, and Mahoney (`blm`, see Bowman, Lehoucq, and Mahoney 2005), the trichotomous measure of democracy in Latin America by Mainwaring, Brinks, and Perez Linan (`mainwaring`), the "Political Regime Change" dataset (`prc_notrans`, omitting the code for "transition" in the original dataset) described in Gasiorowski 1996 and extended in Reich 2002; and a couple of measures taken from datasets of autocratic regimes that explicitly distinguish between full democracies, electoral or multiparty autocracies, and other autocracies (`magaloni_regime_tri`, `kailitz_tri`). Both `blm` and `mainwaring` are regional indexes developed by scholars with Latin-American expertise; the rest have world-wide scope. These correlate with each other at levels ranging from 0.70 to 0.92.

Ordinal indexes of democracy

These indexes distinguish more than three "degrees" of democracy, but they are not explicitly continuous. They include Freedom House's 14 category freedom index (`freedomhouse`); the 7 category Lexical Index of Democracy (`lied`, from Skaaning, Gerring, Bartusevicius 2015); a 5 category indicator of democracy used by the Political Instability Task Force based on the `parcomp` and `exrec` variables of the Polity dataset (`pitf`, described in Goldstone et al 2010); the Polity IV `polity2` variable; Coppedge and Reinicke's Poliarchy index (`polyarchy_contestation`, from Coppedge and Reinicke 1991). Of these, the Poliarchy measure is a specialist measure that only covers 357 country-years, but the rest have worldwide scope, `polity` and `lied` go all the way back to the beginning of the 19th century.

Most of these indexes are meant to capture "thicker" conceptions of democracy. The Freedom House measure puts some emphasis on civil and political rights; Polity and PITF focus on differences in "authority patterns" (though they tend to downplay the scope of participation); Poliarchy tries to operationalize both the participation and contestation dimensions of Dahl's "Poliarchy" concept; and LIED tries to incorporate the degree of suffrage using measures originally collected for the PIPE dataset (Prezeworski et al 2010). They correlate with one another at levels ranging from 0.71 (`lied2` and `pitf`) to 0.94 (`polity2` and `pitf`).

Continuous indexes of democracy

These indexes conceptualize democracy as a continuous quantity, and usually in "thicker" ways. They include Arat's measure of democracy (`arat_pmm`, from Arat 1991); Bollen's index of democracy (`bollen_pmm`, from Bollen 2001); the Economist Intelligence Unit's Index of Democracy (`eiu`); Axel Hadenius' index of democracy, from Hadenius 1992 (`hadenius_pmm`); Munck's measure of democracy (`munck_pmm`); one variant of the Participation-Enhanced Polity Scores (`PEPS1v`, from Moon et al 2006); a continuous index of poliarchy from V-dem (`v2x_polyarchy`); and Vanahnen's index of democratization (`vanhanen_democratization`). Vanhanen and PEPS give special weight to participation in the measurement of democracy; the EIU index combines a very wide variety of indicators of democracy. Only Vanahanen, the V-dem measure, and PEPS have long temporal coverage; the EIU has broad spatial coverage but is only available for a short time series. Arat and Bollen go back only until the 1950s, though they do have reasonable spatial coverage.

Correlations vary from a low of -0.05 (Munck and the EIU, 126 country-year overlap, nonsignificant) to 0.91 for Bollen and Arat. The lowest correlations are typically with the EIU measure of democracy. These indexes are transformed into ordinal measures with at most 20 categories before using them to calculate the extended UDS, following the advice of PMM's original paper and the indications in their replication code. In particular, the following cutoffs are used before calculating the index:

Arat (1991)'s 0-109 democracy score is cut into 7 intervals with the following cutoffs: 50, 60, 70, 80, 90, and 100. The resulting score is ordinal from 1 to 8.

Bollen's (2001)'s 0-100 democracy score is cut into 10 intervals with the following cutoffs: 10,20,30,40,50,60,70,80, and 90. The resulting score is ordinal from 1 to 10.

The Economist Intelligence Unit's index of democracy 0-1 value is cut into 10 categories by first rounding to the first decimal place. The resulting score is ordinal from 1 to 11.

Hadenius (1992)'s 0-10 democracy score is cut into 8 intervals with the following cutoffs: 1, 2,3,4, 7, 8, and 9. The resulting score is ordinal from 1 to 8.

Munck's (2009)'s 0-1 democracy score is cut into 4 intervals with the following cutoffs: 0.5,0.5,0.75, and 0.99. The resulting score is ordinal from 1 to 4.

PEPS is rounded to an integer, which transforms it into an ordinal measure from -10 to 10 (same categories as the Polity2 score).

The V-Dem polyarchy index (`v2x_polyarchy`) is cut into 20 intervals. The resulting score is ordinal from 1 to 20.

Vanhanen's (2012)'s 0-100 index of democratization is cut into 8 intervals with the following cutoffs: 5,10,15,20,25,30, and 35. The resulting score is ordinal from 1 to 8.

Spatial and temporal organization

The state system is complicated, and not always amenable to presentation in tabular form. Countries change name, split, get absorbed into larger units, and are not always obviously independent. This dataset basically follows the Gleditsch and Ward list of independent states (Gleditsch and Ward 1999, updated by Gleditsch to 2013), supplemented by Gleditsch's tentative list of microstates (available at http://privatewww.essex.ac.uk/~ksg/statelist.html), and a very small number of judgment calls of my own. The Gleditsch and Ward list is very similar, but not identical, to the Correlates of War list of independent states that is commonly used in Political Science and International Relations research; in particular, the treatment of Germany, Yemen, Vietnam, Ethiopia, Yugoslavia, Serbia, Montenegro, and a few other countries and their successor states differs between them. See `vignette("Spatial_and_temporal_coverage")` for details of these differences.

I have included three different codes for each country-year: the Gleditsch and Ward country code (`GWn`), the COW code (`cown`), and the Polity IV code (`polity_ccode`), as well as an indicator of whether the country year is considered to be "in the international system" by Gleditsch and Ward and whether it is considered to be a microstate (`in_system` and `microstate`; note that microstates are considered to be "in system" in this dataset). Since the Gleditsch and Ward "international system" begins with the Congress of Vienna in 1816, country-years before 1816 are by definition not "in system," even though this does not mean that these states were not independent then. Care should thus be taken with the "in system" indicator for years before 1816.

It is worth noting that while most measures of democracy are produced only for sovereign countries, a number of measures have also been produced, either explicitly (the V-dem project) or not (sometimes researchers do not agree on whether a country-year represents a "sovereign" state), for non-sovereign territories. In fact in this dataset about 5091 country-years in or after 1816 are not "in system" (most of them from the V-dem indexes of democracy); these are easily excluded by filtering the dataset using the boolean `in_system` indicator (or a logical expression that filters data points that are not in system after 1816 but includes those before 1816).

All countries are measured as of 31 December of the given year, as is the conventional rule. Some datasets do not use this rule (e.g., Freedom House, Geddes, Wright, and Frantz 2014), and others sometimes contain more than one data point per year (e.g., the Political Regime Change dataset); I have tried my best to transform their coding so that all datapoints conform to convention, but some errors may remain.

A note on sources

Wherever possible, I have used the original sources for these measures of democracy and put them in the right panel format myself. There are three exceptions.

First, in a few cases I have relied on the replication data for Pemstein, Meserve, and Melton (2010), which contains data I have not been able to find elsewhere. These variables are marked `_pmm` in the `democracy` file.

Second, I have constructed the `pitf*` variable following the instructions in the source, but have not found the data ready-made. This is probably unproblematic in the case of `pitf` – the instructions are very clear, but it is also worth noting that the Polity data is occasionally revised, so that the `pitf` variable described and used in Goldstone et al 2010 is probably different from the `pitf` variable here for a small number of country-years.

Third, I have calculated some indexes (e.g., `magaloni_tri`, `utip_dichotmous_strict`) myself from the original datasets.

Variables

country_name Standardized country name.

GWn Gleditsch and Ward's numeric country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at `http://privatewww.essex.ac.uk/~ksg/statelist.html`.

GWc Gleditsch and Ward's alphabetic country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at `http://privatewww.essex.ac.uk/~ksg/statelist.html`.

cown The Correlates of War numeric country code. This differs from Gleditsch and Ward's numeric country code in a few cases, due to the treatment of a couple of country terminations: West Germany becomes 255 in CoW after reunification, but stays as 260 in G & W; Serbia continues as 345 in CoW after the break up of Yugoslavia, whereas it becomes 340 in GWn; Vietnam before 1948 is 816 in CoW, but 815 in G & W; and Yemen after unification is 679 in CoW, but it remains 678 on G & W, which considers it a continuation of the same state (absorbing South Yemen). Finally, Kiribati, Tonga, Tuvalu, and Nauru have different codes in G & W for reasons I cannot determine. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

polity_ccode The numeric country code of the country in the Polity dataset, which is based on, but not identical to, the CoW codes in a few cases. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

year Year. See the section on spatial and temporal organization for details on coding.

region Region. Based on the UN region classifications. For historic states, the region is the same as the region of the successor states (or states that absorbed the territory, as for example in the case of the German principalities). In one case, Austria-Hungary, the successor states straddle two regions (Western Europe and Eastern Europe); I have opted to assign it the region "Central Europe."

continent Continent. Based on the UN continent classifications.

GW_startdate The entry date of the state into the international system (usually the date of independence, though there can be more than one), according to Gleditsch and Ward, or 1 January 1816, whichever is later.

GW_enddate The exit date of the state from the international system (usually the date the state lost its independence, though there can be more than one), according to Gleditsch and Ward, or NA for countries that are still in the international system.

microstate Whether the state is a microstate, according to Gleditsch. His tentative list of microstates is available at http://privatewww.essex.ac.uk/~ksg/statelist.html.

lat The rough latitude of the state.

lon The rough longitude of the state.

in_system Whether the state is "in system" (that is, is independent and sovereign), according to Gleditsch and Ward, for this particular date.

in_cow Whether the state is in the COW system of states (that is, is independent and sovereign), for this particular date. Experimental.

z1 The mean of the latent unfied democracy variable (the factor scores computed by the model).

se.z1 The standard error of the latent variable. This is typically higher for years in the distant past or with few measurements.

pct975 The top of the 95 percent confidence interval around z1. Calculated as z1 + 1.96*se.z1.

pct025 The bottom of the 95 percent confidence interval. Calculated as z1 - 1.96*se.z1.

adj.z1 The mean of the latent unfied democracy variable (the factor scores computed by the model), adjusted to match the average cutpoints for the dichotomous measures of democracy used to generate it (essentially, z1 - 0.64). See the vignette `vignette("Replicating_and_extending_the_UD_scores")` for details.

adj.pct975 The top of the 95 percent confidence interval around z1, adjusted to match the average cutpoints for the dichotomous measures of democracy used to generate it (essentially, pct975 - 0.64).

adj.pct025 The bottom of the 95 percent confidence interval, adjusted to match the average cutpoints for the dichotomous measures of democracy used to generate it (essentially, pct025 - 0.64).

index A transformation of adj.z1 to a 0-1 scale, using the normal cumulative distribution function. See Marquez 2016 for more details. This form of the index has a natural interpretation as the probability that a country-year is a democracy. It could also be used in ordinal from, with values from 0 to 0.2 understood to be "closed autocracies," 0.2-0.4 "autocratic", 0.4-0.6 "hybrid", 0.6-0.8 "minimally democratic", and 0.8-1 "fully democratic".

index.pct025 A transformation of adj.z1.pct025 to a 0-1 scale, using the normal cumulative distribution function.

index.pct975 A transformation of adj.z1.pct975 to a 0-1 scale, using the normal cumulative distribution function.

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See Also

Other democracy: democracy, kailitz, original.pmm.democracy.data.1946.2008, uds_2014

kailitz *The Steffen Kailitz Dataset of Authoritarian Regime Types*

Description

Contains the authoritarian regime types dataset from Kailitz, Steffen. 2013. Classifying political regimes revisited: legitimation and durability. Democratization 20 (1): 39-60. Original data available at http://dx.doi.org/10.1080/13510347.2013.738861.

Usage

```
kailitz

kailitz.yearly
```

Format

An object of class grouped_df (inherits from tbl_df, tbl, data.frame) with 813 rows and 18 columns.

Variables

year The calendar year. Only in the kailitz.yearly file. Note that more than one regime type may overlap over a single year.

kailitz_country The country name, as in the original dataset. Use country_name instead.

start The start year of the regime. More than one regime type may overlap over a period of time. For example Spain has three regime types - military, personalistic, and party - overlapping for the entire period 1946-1974. Only in the kailitz file.

end The end year of the regime. More than one regime type may overlap over a period of time. For example Spain has three regime types - military, personalistic, and party - overlapping for the entire period 1946-1974. Only in the kailitz file.

regime The regime type for the period within the start-end years. Can be: Communist Ideocracy, Electoral Autocracy, Liberal Democracy, Military Autocracy, Monarchy, One party Autocracy, Personalist Autocracy, State Failure or Occupation, Transition.

country_name Standardized country name.

GWn Gleditsch and Ward's numeric country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

GWc Gleditsch and Ward's alphabetic country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

cown The Correlates of War numeric country code. This differs from Gleditsch and Ward's numeric country code in a few cases, due to the treatment of a couple of country terminations: West Germany becomes 255 in CoW after reunification, but stays as 260 in G & W; Serbia continues as 345 in CoW after the break up of Yugoslavia, whereas it becomes 340 in GWn;

Vietnam before 1948 is 816 in CoW, but 815 in G & W; and Yemen after unification is 679 in CoW, but it remains 678 on G & W, which considers it a continuation of the same state (absorbing South Yemen). Finally, Kiribati, Tonga, Tuvalu, and Nauru have different codes in G & W for reasons I cannot determine. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

polity_ccode The numeric country code of the country in the Polity dataset, which is based on, but not identical to, the CoW codes in a few cases. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

year Year. See the section on spatial and temporal organization for details on coding.

region Region. Based on the UN region classifications. For historic states, the region is the same as the region of the successor states (or states that absorbed the territory, as for example in the case of the German principalities). In one case, Austria-Hungary, the successor states straddle two regions (Western Europe and Eastern Europe); I have opted to assign it the region "Central Europe."

continent Continent. Based on the UN continent classifications.

GW_startdate The entry date of the state into the international system (usually the date of independence, though there can be more than one), according to Gleditsch and Ward, or 1 January 1816, whichever is later.

GW_enddate The exit date of the state from the international system (usually the date the state lost its independence, though there can be more than one), according to Gleditsch and Ward, or `NA` for countries that are still in the international system.

microstate Whether the state is a microstate, according to Gleditsch. His tentative list of microstates is available at http://privatewww.essex.ac.uk/~ksg/statelist.html.

lat The rough latitude of the state.

lon The rough longitude of the state.

in_system Whether the state is "in system" (that is, is independent and sovereign), according to Gleditsch and Ward, for this particular date.

in_cow Whether the state is in the COW system of states (that is, is independent and sovereign), for this particular date. Experimental.

combined_regime Only in the `kailitz.yearly` file. The "combined regime" for the country year. This is just identical to `regime` if the country only has one regime for the year, but it is the concatenation of all regimes for that year if the country has more than one regime type. For example, Spain has a "combined regime" of "Military Autocracy-One party Autocracy-Personalist Autocracy" for the each of the years 1946-1974.

kailitz_binary Only in the `kailitz.yearly` file. Dichotomous democracy indicator. 1 if `combined_regime` is "Liberal democracy", 0 otherwise.

kailitz_tri Only in the `kailitz.yearly` file. Trichotomous democracy indicator. 2 if `combined_regime` is "Liberal Democracy", 1 if it is "Electoral Autocracy" or "Electoral Autocracy-Liberal Democracy", 0 otherwise.

personal Only in the `kailitz.yearly` file. Binary indicator of personalism. `TRUE` if `combined_regime` contains "Personal Autocracy", `FALSE` otherwise.

communist Only in the `kailitz.yearly` file. Binary indicator of communism. `TRUE` if `combined_regime` contains "Communist Ideocracy", `FALSE` otherwise.

military Only in the `kailitz.yearly` file. Binary indicator of military autocracy. `TRUE` if `combined_regime` contains "Military Autocracy", `FALSE` otherwise.

party Only in the `kailitz.yearly` file. Binary indicator of one party autocracy `TRUE` if `combined_regime` contains "One party Autocracy", `FALSE` otherwise.

monarchy Only in the `kailitz.yearly` file. Binary indicator of monarchy. `TRUE` if `combined_regime` contains "Monarchy", `FALSE` otherwise.

electoral Only in the `kailitz.yearly` file. Binary indicator of electoral autocracy. `TRUE` if `combined_regime` contains "Electoral autocracy", `FALSE` otherwise.

failure Only in the `kailitz.yearly` file. Binary indicator of state failure or occupation. `TRUE` if `combined_regime` contains "State Failure or Occupation", `FALSE` otherwise.

transition Only in the `kailitz.yearly` file. Binary indicator of transition. `TRUE` if `combined_regime` contains "Transition", `FALSE` otherwise.

Source

Kailitz, Steffen. 2013. Classifying political regimes revisited: legitimation and durability. Democratization 20 (1): 39-60. Original data available at http://dx.doi.org/10.1080/13510347.2013.738861.

See Also

Other democracy: `democracy`, `extended_uds`, `original.pmm.democracy.data.1946.2008`, `uds_2014`

`match_to_uds` *A convenience function to match extensions of the UD scores to the level of a particular release of the UD scores*

Description

A convenience function to match extensions of the UD scores to the level of a particular release of the UD scores

Usage

```
match_to_uds(data, release = 2014)
```

Arguments

`data`	A dataset containing an extension of the UD scores, from the output of democracy_scores. It must contain a `country_name` column, a `year` column, `z1` column, a `pct025` column, and a `pct975` column.
`release`	The year of a Unified Democracy Scores official release (see the available releases in their data page at http://www.unified-democracy-scores.org/uds.html and http://www.unified-democracy-scores.org/archive.html). Default is 2014.

Value

The dataset with three columns appended: `adj.z1` (the mean democracy score, adjusted to match the UD release), `adj.pct025` and `adj.pct975` (the adjusted confidence bounds).

Examples

```
# Not run:
library(dplyr)
indexes <- c("arat_pmm","blm","bmr_democracy","bollen_pmm",
                            "doorenspleet","eiu","freedomhouse",
                            "gwf","hadenius_pmm","lied","mainwaring",
                            "munck_pmm","pacl","polity2","polyarchy_pmm","prc",
                            "svolik","ulfelder","vanhanen_democratization",
                            "wahman_teorell_hadenius")
data <- prepare_democracy(indexes)
extended_model <- democracy_model(data,indexes, verbose=TRUE)
extended_scores <- democracy_scores(extended_model)
extended_scores <- bind_cols(data,extended_scores)
extended_scores <- match_to_uds(extended_scores)
```

`original.pmm.democracy.data.1946.2008`

Replication data for Pemstein, Meserve, and Melton 2010

Description

Replication data for Pemstein, Meserve, and Melton (2010), released as Pemstein, Meserve, and Melton 2013. For a discussion of the differences between the original sources for these variables and PMM's replication data, see `vignette("Differences_between_PMM_and_original_data")`.

Usage

```
original.pmm.democracy.data.1946.2008
```

Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 9137 rows and 30 columns.

Details

uds_country The name of the country in the UDS release

year Calendar year. Min 1945, max 2008.

uds_ccode The correlates of war numeric code, as in the original UDS release. This may differ from the actual COW code in some cases. Use the `cown` variable instead for merging with COW-indexed data.

country_name Standardized country name.

GWn Gleditsch and Ward's numeric country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

GWc Gleditsch and Ward's alphabetic country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

cown The Correlates of War numeric country code. This differs from Gleditsch and Ward's numeric country code in a few cases, due to the treatment of a couple of country terminations: West Germany becomes 255 in CoW after reunification, but stays as 260 in G & W; Serbia continues as 345 in CoW after the break up of Yugoslavia, whereas it becomes 340 in GWn; Vietnam before 1948 is 816 in CoW, but 815 in G & W; and Yemen after unification is 679 in CoW, but it remains 678 on G & W, which considers it a continuation of the same state (absorbing South Yemen). Finally, Kiribati, Tonga, Tuvalu, and Nauru have different codes in G & W for reasons I cannot determine. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

polity_ccode The numeric country code of the country in the Polity dataset, which is based on, but not identical to, the CoW codes in a few cases. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

year Year. See the section on spatial and temporal organization for details on coding.

region Region. Based on the UN region classifications. For historic states, the region is the same as the region of the successor states (or states that absorbed the territory, as for example in the case of the German principalities). In one case, Austria-Hungary, the successor states straddle two regions (Western Europe and Eastern Europe); I have opted to assign it the region "Central Europe."

continent Continent. Based on the UN continent classifications.

GW_startdate The entry date of the state into the international system (usually the date of independence, though there can be more than one), according to Gleditsch and Ward, or 1 January 1816, whichever is later.

GW_enddate The exit date of the state from the international system (usually the date the state lost its independence, though there can be more than one), according to Gleditsch and Ward, or `NA` for countries that are still in the international system.

microstate Whether the state is a microstate, according to Gleditsch. His tentative list of microstates is available at http://privatewww.essex.ac.uk/~ksg/statelist.html.

lat The rough latitude of the state.

lon The rough longitude of the state.

in_system Whether the state is "in system" (that is, is independent and sovereign), according to Gleditsch and Ward, for this particular date.

in_cow Whether the state is in the COW system of states (that is, is independent and sovereign), for this particular date. Experimental.

arat Democracy score from Arat, Zehra F. 1991. Democracy and human rights in developing countries. Boulder: Lynne Rienner Publishers. Min = 29, max = 109, n = 3873.

blm Trichotomous measure of regime type from Bowman, Kirk, Fabrice Lehoucq, and James Mahoney. 2005. Measuring Political Democracy: Case Expertise, Data Adequacy, and Central America. Comparative Political Studies 38 (8): 939-970. http://cps.sagepub.com/content/38/8/939. Data available at http://www.blmdemocracy.gatech.edu/. 0 = authoritarian, 0.5 = semidemocratic, 1 = democratic.

bollen 0-100 index of democracy from Bollen, Kenneth A. 2001. "Cross-National Indicators of Liberal Democracy, 1950-1990." 2nd ICPSR version. Chapel Hill, NC: University of North Carolina, 1998. Ann Arbor, MI: Inter-university Consortium for Political and Social Research, 2001. Original data available at http://webapp.icpsr.umich.edu/cocoon/ICPSR-STUDY/02532.xml.

freedomhouse Average civil liberties + political rights score (reversed so higher values are more democratic) from Freedom House. 2015. "Freedom in the World." Original data available at http://www.freedomhouse.org. Goes from 1 (least democratic) to 7 (most democratic). In

this version index stops at 2008. It also includes a value for 1981, which the original Freedom House scores skip.

hadenius 0-10 index of democracy from Hadenius, Axel. 1992. Democracy and Development. Cambridge: Cambridge University Press.

mainwaring Trichotomous democracy indicator from Mainwaring, Scott, Daniel Brinks, and Anibal Perez Linan. 2008. "Political Regimes in Latin America, 1900-2007." Original data available from http://kellogg.nd.edu/scottmainwaring/Political_Regimes.pdf. -1 = non-democracy, 0 = hybrid, 1 = democracy.

pacl Dichotomous measure of democracy from Cheibub, Jose Antonio, Jennifer Gandhi, and James Raymond Vreeland. 2010. "Democracy and Dictatorship Revisited." Public Choice. 143(1):67-101. Original data available at https://sites.google.com/site/joseantoniocheibub/datasets/democracy-and-dictatorship-revisited. 1= democracy. The replication data for PMM is missing a couple of countries.

polity Annual polity2 index, interpolating values for interruption, interregnum, and transition periods. Higher values are more democratic. From Marshall, Monty G., Ted Robert Gurr, and Keith Jaggers. 2012. "Polity IV: Political Regime Characteristics and Transitions, 1800-2012." Updated to 2015. Original data available from http://www.systemicpeace.org/polity/polity4.htm.

poliarchy 0-10 index of democracy from Coppedge, Michael and Wolfgang H. Reinicke. 1991. Measuring Polyarchy. In On Measuring Democracy: Its Consequences and Concomitants, ed. Alex Inkeles. New Brunswuck, NJ: Transaction pp. 47-68. Higher values are more democratic.

prc 1-4 index of democracy from Gasiorowski, Mark J. 1996. "An Overview of the Political Regime Change Dataset." Comparative Political Studies 29(4):469-483. Available in updated form in Reich, G. 2002. Categorizing Political Regimes: New Data for Old Problems. Democratization 9 (4): 1-24. http://www.tandfonline.com/doi/pdf/10.1080/714000289. 1= Authoritarian, 2 = transitional, 3 = semidemocratic, 4 = democratic. The version in PMM's replication data is inconsistent regarding the treatment of years with transitions - it does not always obey the "31 Dec" coding rule.

vanhanen_full Index of democratization from Vanhanen, Tatu. 2012. "FSD1289 Measures of Democracy 1810-2012." Original data available from http://www.fsd.uta.fi/english/data/catalogue/FSD1289/meF1289e.html. Higher values are more democratic.

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Vanhanen, Tatu. 2012. "FSD1289 Measures of Democracy 1810-2012." Original data available from http://www.fsd.uta.fi/english/data/catalogue/FSD1289/meF1289e.html

See Also

Other democracy: democracy, extended_uds, kailitz, uds_2014

`prepare_data` *A convenience function to prepare democracy data before replicating the UDS model*

Description

This function is designed to take the democracy data included in this package and put it in a form suitable for use with the mirt package to replicate the UDS model. It takes a data frame and tries to determine which columns contain democracy scores (from the column names).

Usage

```
prepare_data(data)
```

Arguments

data	A dataset of democracy scores. For the function to do anything, the column names must contain at least one of the following strings: arat, blm, bmr, bollen, doorenspleet, eiu, e_v2x, gwf, hadenius, kailitz, lied, munck, pacl, peps, poliarchy, polity, prc, przeworski, svolik, ulfelder, utip, v2x, vanhanen_democratization vanhanen_pmm, or wahman_teorell_hadenius. For details of these variables, see the documentation for democracy.

Details

If the column names contain the strings arat, blm, bmr, bollen, doorenspleet, eiu, e_v2x, gwf, hadenius, kailitz, lied, munck, pacl, peps, poliarchy, polity, prc, svolik, ulfelder, v2x, vanhanen_pmm, vanhanen_democratization, or wahman_teorell_hadenius, the function performs the following transformations:

arat: Following Pemstein, Meserve, and Melton's replication code (Pemstein, Meserve, and Melton 2013), the function cuts Arat (1991)'s 0-109 democracy score into 7 intervals with the following cutoffs: 50, 60, 70, 80, 90, and 100. The resulting score is ordinal from 1 to 8.

bollen: Following Pemstein, Meserve, and Melton's replication code (Pemstein, Meserve, and Melton 2013), the function cuts Bollen's (2001)'s 0-100 democracy score into 10 intervals with the following cutoffs: 10,20,30,40,50,60,70,80, and 90. The resulting score is ordinal from 1 to 10.

eiu: If the Economist Intelligence Unit's index of democracy is included in the file, the function rounds the 0-1 value to the first decimal place and cuts the result into 10 categories. The resulting score is ordinal from 1 to 11.

hadenius: Following Pemstein, Meserve, and Melton's replication code (Pemstein, Meserve, and Melton 2013), the function cuts Hadenius (1992)'s 0-10 democracy score into 8 intervals with the following cutoffs: 1, 2,3,4, 7, 8, and 9. The resulting score is ordinal from 1 to 8.

munck: Following Pemstein, Meserve, and Melton's replication code (Pemstein, Meserve, and Melton 2013), the function cuts Munck's (2009)'s 0-1 democracy score into 4 intervals with the following cutoffs: 0.5,0.5,0.75, and 0.99. The resulting score is ordinal from 1 to 4.

peps: If any of the variants of the Participation-Enhanced Polity Score (Moon et al 2006) is included in the file, the function rounds its value (eliminates the decimal) and then transforms it into an ordinal measure from 1 to 21.

polity: Following Pemstein, Meserve, and Melton's replication code (Pemstein, Meserve, and Melton 2013), the function takes the polity scores and puts NA for any values below -10, and then transforms it into an ordinal measure from 1 to 21.

v2x: If any of the v2x_ continuous indexes of democracy from the V-Dem dataset (Coppedge et al 2015) are included in the file, the function cuts them into 20 categories. The resulting score is ordinal from 1 to 20.

vanhanen_democratization or vanhanen_pmm: Following Pemstein, Meserve, and Melton's replication code (Pemstein, Meserve, and Melton 2013), the function cuts Vanhanen's (2012)'s index of democratization into 8 intervals with the following cutoffs: 5,10,15,20,25,30, and 35. The resulting score is ordinal from 1 to 8.

The function also recognizes the following column names (or partial column names - it also recognizes, e.g., blm_pmm) as measures of democracy: blm (from Bowman, Lehoucq, and Mahoney 2005), bmr (from Boix, Miller, and Rosato 2012), doorenspleet (from Doorenspleet 2000), e_v2x (the "ordinal" indexes from the V-dem project, Coppedge at al 2015), freedomhouse (from Freedom House - freedom scale must be reversed so that "more freedom" is higher), gwf (from Geddes, Wright, and Frantz 2014 - the dichotomous democracy indicator only), kailitz (from

Kailitz 2013 - democracy/non-democracy indicator), `lied` (from Skaaning, Gerring, and Bartusevicius 2015), `mainwaring` (from Mainwaring and Perez Linan 2008), `magaloni` (from Magaloni, Min, Chu 2013 - democracy/non-democracy indicator), `pacl` (from Cheibub, Gandhi, and Vreeland 2010), `pitf` (from Goldstone et al 2010 or Taylor and Ulfelder 2015), `poliarchy` (from Coppedge and Reinicke 1991), `prc` (from Gasiorowski 1996 or Reich 2002), `przeworski` (from Przeworski 2010), `svolik` (from Svolik 2012, democracy/dictatorship indicator only), `ulfelder` (from Ulfelder 2012), `utip` (from Hsu 2008), and `wahman_teorell_hadenius` (from Wahman, Teorell, and Hadenius 2013). In each of these cases the function transforms the values of these scores by running `as.numeric(unclass(factor(x)))`, which transforms them into ordinal variables from 1 to the number of categories.

For details of these scores, see the documentation for `democracy`.

Value

A data frame with the transformed scores, if any.

Note

Warning! The function does not perform any sanity checks. It will try to transform anything that has the right name. You should always check the results make sense.

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Examples

```
# Not run:
# data  <- prepare_data(QuickUDS::democracy)
```

`prepare_democracy` *Prepares the selected indexes in the* `democracy` *dataset*

Description

Prepares the selected indexes in the `democracy` dataset

Usage

```
prepare_democracy(indexes)
```

Arguments

`indexes`	a set of measures of democracy in the `democracy` dataset. They must be names of the columns of the `democracy` dataset - otherwise the function throws an error.

Value

A dataset ready for use with `democracy_model`

Examples

```
prepare_democracy(names(democracy)[grep("pmm",names(democracy))])
```

prob_more — *Calculates the probability that* country1 *at* year[1] *is more democratic than* country2 *at* year[2]

Description

Calculates the probability that country1 at year[1] is more democratic than country2 at year[2]

Usage

```
prob_more(data, country1, country2, years, mean_col = "z1",
  sd_col = "se.z1", country_col = "country_name", year_col = "year")
```

Arguments

data	A UD dataset with a country_name, year, latent variable mean and latent variable standard deviation columns at least. Little sanity checking is performed - careful!
country1	The first country to compare.
country2	The second country to compare. Can be the same as country1
years	Either a single year, or a length 2 vector of years.
mean_col	The name of the column that contains the mean of the latent variable (defaults to z1)
sd_col	The name of the column that contains the standard error of the latent variable (defaults to se.z1)
country_col	The name of the column that contains the country name (defaults to country_name)
year_col	The name of the column that contains the years (defaults to year)

Value

The probability that the first country-year in the comparison is more democratic than the second.

Examples

```
# Probability that the USA in 2000 was more democratic than Brazil in 2000,
# according to 2010 release of UDS
prob_more(uds_2010, "United States of America","Brazil",
          2000, mean_col="mean", sd_col="sd")
# Probability that Brazil in 1980 was more democratic than the USA in 1980,
# according to 2010 release of UDS
prob_more(uds_2010, "Brazil","United States of America",
          1980, mean_col="mean", sd_col="sd")
# Probability that the USA in 2000 was more democratic than the USA in 1950,
# according to 2010 release of UDS
prob_more(uds_2010, "United States of America","United States of America",
           years = c(2000,1950), mean_col="mean", sd_col="sd")
```

raterinfo *A convenience function for extracting rater info from a UD model in a tidy data frame format.*

Description

A convenience function for extracting rater info from a UD model in a tidy data frame format.

Usage

```
raterinfo(model)
```

Arguments

model	A mirt SingleGroupClass-class model of the democracy scores.

Value

A data frame with rater information for each democracy index over the range of the latent variable theta.

Examples

```
# Not run:
# library(QuickUDS)
# data <- prepare_data(democracy)
# data <- melt(data, measure.vars = names(data)[grep("pmm",names(data))], na.rm = TRUE)
# data <- data %>% group_by(country_name,year) %>% mutate(num_measures = n())
# data <- dcast(data, ... ~ variable)
# data <- data %>% arrange(country_name,year)
# replication_2011_model <- mirt(data[ , names(data)[grep("pmm",names(data))],
#                                model = 1, itemtype = "graded", SE = TRUE)
# raterinfo_2011 <- raterinfo(replication_2011_model)
# head(raterinfo)
```

uds_2014 *The Unified Democracy Scores*

Description

The 2014, 2011, and 2010 releases of the Unified Democracy Scores by Pemstein, Meserve, and Melton (2010).

Usage

```
uds_2014

uds_2011

uds_2010
```

Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 9850 rows and 37 columns.

Details

uds_country The name of the country in the UDS release

uds_ccode The correlates of war numeric code, as in the original UDS release. This is different for Yugoslavia/Serbia from the actual COW code after 2006. Use the `cown` variable instead for merging with COW-indexed data.

year Calendar year.

country_name Standardized country name.

GWn Gleditsch and Ward's numeric country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

GWc Gleditsch and Ward's alphabetic country code, from the Gleditsch and Ward list of independent states. For details, see Gleditsch, Kristian S. & Michael D. Ward. 1999. "Interstate System Membership: A Revised List of the Independent States since 1816." International Interactions 25: 393-413. The list can be found at http://privatewww.essex.ac.uk/~ksg/statelist.html.

cown The Correlates of War numeric country code. This differs from Gleditsch and Ward's numeric country code in a few cases, due to the treatment of a couple of country terminations: West Germany becomes 255 in CoW after reunification, but stays as 260 in G & W; Serbia continues as 345 in CoW after the break up of Yugoslavia, whereas it becomes 340 in GWn; Vietnam before 1948 is 816 in CoW, but 815 in G & W; and Yemen after unification is 679 in CoW, but it remains 678 on G & W, which considers it a continuation of the same state (absorbing South Yemen). Finally, Kiribati, Tonga, Tuvalu, and Nauru have different codes in G & W for reasons I cannot determine. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

polity_ccode The numeric country code of the country in the Polity dataset, which is based on, but not identical to, the CoW codes in a few cases. For a full discussion of these differences, see the vignette at `vignette("Spatial_and_temporal_coverage")`.

year Year. See the section on spatial and temporal organization for details on coding.

region Region. Based on the UN region classifications. For historic states, the region is the same as the region of the successor states (or states that absorbed the territory, as for example in the case of the German principalities). In one case, Austria-Hungary, the successor states straddle two regions (Western Europe and Eastern Europe); I have opted to assign it the region "Central Europe."

continent Continent. Based on the UN continent classifications.

GW_startdate The entry date of the state into the international system (usually the date of independence, though there can be more than one), according to Gleditsch and Ward, or 1 January 1816, whichever is later.

GW_enddate The exit date of the state from the international system (usually the date the state lost its independence, though there can be more than one), according to Gleditsch and Ward, or `NA` for countries that are still in the international system.

microstate Whether the state is a microstate, according to Gleditsch. His tentative list of microstates is available at http://privatewww.essex.ac.uk/~ksg/statelist.html.

lat The rough latitude of the state.

lon The rough longitude of the state.

in_system Whether the state is "in system" (that is, is independent and sovereign), according to Gleditsch and Ward, for this particular date.

in_cow Whether the state is in the COW system of states (that is, is independent and sovereign), for this particular date. Experimental.

mean The posterior mean of the latent variable in the UD release.

sd The posterior standard deviation of the latent variable in the UD release.

median The posterior median of the latent variable in the UD release.

pct025 Unified democracy score posterior 2.5 percentile.

pct975 Unified democracy score posterior 97.5 percentile.

References

Pemstein, Daniel, Stephen Meserve, and James Melton. 2010. Democratic Compromise: A Latent Variable Analysis of Ten Measures of Regime Type. Political Analysis 18 (4): 426-449.

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See Also

Other democracy: democracy, extended_uds, kailitz, original.pmm.democracy.data.1946.2008

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