

Package ‘surveyPrev’

June 19, 2026

Type Package

Title Mapping the Prevalence of Binary Indicators using Survey Data in Small Areas

Version 2.0.0

Description Provides a pipeline to perform small area estimation and prevalence mapping of binary indicators using health and demographic survey data, described in Dong et al. (2026) <[doi:10.1093/jssam/smaf048](https://doi.org/10.1093/jssam/smaf048)>, Wakefield et al. (2025) <[doi:10.48550/arXiv.2110.09576](https://doi.org/10.48550/arXiv.2110.09576)> and Wakefield et al. (2020) <[doi:10.1111/insr.12400](https://doi.org/10.1111/insr.12400)>.

URL <https://github.com/richardli/surveyPrev>

BugReports <https://github.com/richardli/surveyPrev/issues>

Depends R (>= 4.1.0), survey

License GPL (>= 2)

Imports stats, rlang, rdhs, SUMMER, ggplot2, ggridges, raster, terra, sp, sf, spdep, stringr, dplyr, data.table, matrixStats, scales, expss, labelled, sjlabelled, naniar, jsonlite

Encoding UTF-8

LazyData true

RoxygenNote 7.3.2

Additional_repositories <https://inla.r-inla-download.org/R/testing/>

Suggests INLA, knitr, rmarkdown, R.rsp, kableExtra, geodata, patchwork, htmltools, leaflegend, leaflet, plotly, viridisLite

VignetteBuilder R.rsp, knitr

NeedsCompilation no

Config/build/clean-inst-doc FALSE

Author Qianyu Dong [cre, aut],
Zehang R Li [aut],
Yunhan Wu [aut],
Jieyi Xu [aut],
Andrea Boskovic [aut],
Jon Wakefield [aut]

Maintainer Qianyu Dong <qdong14@ucsc.edu>

Repository CRAN

Date/Publication 2026-06-19 16:40:02 UTC

Contents

addNewIndicator	6
addUpper	8
adminInfo	9
aggPopulation	11
aggSurveyWeight	12
AH_TOBC_W_OTH	14
AH_TOBU_M_ASM	14
AH_TOBU_M_SNN	15
AH_TOBU_W_SNM	16
AH_TOBU_W_SNN	16
AN_ANEM_W_ANY	17
AN_NUTS_W_OVW	18
AN_NUTS_W_THN	19
CH_ARIS_C_ADV	19
CH_DIAT_C_ABI	20
CH_DIAT_C_ADV	21
CH_DIAT_C_AMO	22
CH_DIAT_C_NOT	22
CH_DIAT_C_ORIS	23
CH_DIAT_C_ORI	24
CH_DIAT_C_OSI	24
CH_DIAT_C_RHF	25
CH_DIFP_C_FAL	26
CH_FEVR_C_FEV	26
CH_FEVT_C_ADV	27
CH_SZWT_C_L25	28
CH_VACC_C_BAS	28
CH_VACC_C_BCG	29
CH_VACC_C_DP1	30
CH_VACC_C_DP3	31
CH_VACC_C_MSL	31
CH_VACC_C_NON	32
CH_VACC_C_PN3	33
CH_VACC_C_RT1	34
CH_VACS_C_PN3	34
clusterInfo	35
clusterModel	36
clusterModel_u5mr	38
CM_ECMR_C_IMF	40
CM_ECMR_C_IMR	41
CM_ECMR_C_NNF	42

CM_ECMR_C_NNR	42
CM_ECMR_C_U5F	43
CM_ECMR_C_U5M	44
CN_ANMC_C_ANY	45
CN_BRFI_C_EVR	45
CN_BRFS_C_EXB	46
CN_IYCF_C_4FA	47
CN_NUTS_C_HA2	48
CN_NUTS_C_HA3	49
CN_NUTS_C_WA2	49
CN_NUTS_C_WA3	50
CN_NUTS_C_WAP	51
CN_NUTS_C_WH2	51
CN_NUTS_C_WH3	52
CN_NUTS_C_WHP	53
CO_INUS_W_EVU	53
CO_INUS_W_U12	54
CO_MOBB_W_BNK	55
CO_MOBB_W_MBF	55
CO_MOBB_W_MOB	56
CP_BREG_C_CRT	57
CP_BREG_C_NCT	57
CP_BREG_C_REG	58
datainfo	59
directEST	60
directEST_u5mr	62
directEST_varfix	63
DV_AFSV_W_A10	65
DV_AFSV_W_A12	65
DV_EXPV_W_12M	66
DV_EXSV_W_12M	67
DV_EXSV_W_EVR	68
DV_PCPV_W_CBF	68
DV_PCPV_W_CHD	69
DV_PCPV_W_EMP	70
DV_PCPV_W_FLW	71
DV_PCPV_W_OLW	71
DV_STPS_W_BFR	72
DV_VPRG_W_VPG	73
ED_EDUC_W_SEH	73
ED_LITR_W_LIT	74
ED_MDIA_W_3MD	75
ED_MDIA_W_N3M	75
ED_MDIA_W_NWS	76
ED_MDIA_W_RDO	77
ED_MDIA_W_TLV	77
EM_EMPPM_W_EMP	78
exceedPlot	79

FG_KFCC_W_HFC	80
FG_PFCC_W_WCC	81
fhModel	82
FP_CUSA_W_ANY	84
FP_CUSA_W EMC	85
FP_CUSA_W_FCN	85
FP_CUSA_W_FST	86
FP_CUSA_W_IMP	87
FP_CUSA_W_INJ	87
FP_CUSA_W_IUD	88
FP_CUSA_W_MCN	89
FP_CUSA_W_MOD	89
FP_CUSA_W_MST	90
FP_CUSA_W_PIL	91
FP_CUSA_W_STD	92
FP_CUSA_W_TRA	92
FP_CUSA_W_WTH	93
FP_CUSM_W_MOD	94
FP_EFPM_M_NWS	95
FP_EFPM_M_TLV	95
FP_EFPM_W_NWS	96
FP_EFPM_W_RDO	97
FP_EFPM_W_TLV	97
FP_EVUM_W_MOD	98
FP_KMTA_W_ANY	99
FP_KMTA_W EMC	99
FP_KMTA_W_FCN	100
FP_KMTA_W_FST	101
FP_KMTA_W_IMP	101
FP_KMTA_W_INJ	102
FP_KMTA_W_IUD	103
FP_KMTA_W_MST	103
FP_KMTA_W_OMD	104
FP_KMTA_W_PIL	105
FP_KMTA_W_STD	105
FP_KMTA_W_TRA	106
FP_KMTA_W_WTH	107
FP_NADA_W_UNT	107
FP_NADM_W_PDM	108
FP_NADM_W_UNT	109
FP_NDYA_W_PDM	110
getCovariate	110
getDHSdata	112
getDHSgeo	113
getDHSindicator	114
getUR	116
get_api_table	118
get_geoBoundaries	119

HA_AFSY_M_A15	120
HA_AFSY_M_A18	121
HA_AFSY_W_A18	122
HA_ANSS_M_CND	122
HA_ANSS_W_CND	123
HA_ANSS_W_RSX	124
HA_CATH_W_ATN	124
HA_CATH_W_NRS	125
HA_HIVP_B_HIV	126
HA_HRSX_W_CND	127
HA_HVST_M_HRD	127
HA_HVST_M_USD	128
HA_HVTY_M_TRR	129
HA_HVTY_W_TRR	129
HA_KAID_W_HRD	130
HA_STIS_M_DIS	131
HA_STIS_M_SOR	131
HA_STIS_W_STI	132
HC_AGE_G_P_ADL	133
HC_ELEC_H_ELC	133
HC_FLRM_H_CER	134
HC_HEFF_H_RDO	135
HC_WIXQ_P_12Q	135
HC_WIXQ_P_2ND	136
HC_WIXQ_P_LOW	137
indicatorList	138
intervalPlot	138
match_all_result	140
MA_CWIV_W_CWV	140
MA_MBAG_W_B15	141
MA_MBAG_W_B18	142
MA_MBAY_W_B15	143
MA_MBAY_W_B18	143
MA_MSTA_W_NMA	144
ML_NETC_C_ITN	145
ML_NETP_H_IT2	146
ML_NETU_P_ITN	146
ML_PMAL_C_RDT	147
prevMap	148
prevMap.web	149
PR_DESL_W_WNM	151
rankPlot	152
RH_ANCN_W_N01	153
RH_ANCN_W_N4F	154
RH_ANCN_W_N4P	155
RH_ANCN_W_NON	155
RH_DELA_C_SKF	156
RH_DELA_C_SKP	157

RH_DELP_C_DHF	158
RH_DELP_C_DHT	158
RH_DELP_C_HOM	159
RH_DELP_C_HOT	160
RH_DELP_C_PRT	160
RH_DELP_C_PRV	161
RH_DELP_C_PUB	162
RH_DELP_C_PUT	162
RH_PAHC_W_DIS	163
RH_PAHC_W_MON	164
RH_PAHC_W_PRM	165
RH_PCCT_C_DY2	165
RH_PCMT_W_DY2	166
RH_PCMT_W_NON	167
ridgeprevPlot	168
scatterPlot	169
scatterPlot.web	171
WE_AWBT_M_ARG	172
WE_AWBT_M_BFD	173
WE_AWBT_M_OUT	174
WE_AWBT_M_REF	175
WE_AWBT_W_ARG	175
WE_AWBT_W_BFD	176
WE_AWBT_W_NEG	177
WE_AWBT_W_OUT	177
WE_AWBT_W_REF	178
WS_SRCE_H_USG	179
WS_SRCE_P_BAS	179
WS_TLET_H_IMP	180
WS_TLET_P_BAS	181
WS_WTRT_P_BLC	182
WS_WTRT_P_BOL	182
WS_WTRT_P_SOL	183
WS_WTRT_P_STN	184
ZambiaAdm1	184
ZambiaAdm2	185
ZambiaPopWomen	185

Index**186**

addNewIndicator	Create new row to add in indicatorList.
-----------------	---

Description

Create new row to add in indicatorList.

Usage

```
addNewIndicator(
  new_id,
  dictionary,
  IR = FALSE,
  PR = FALSE,
  KR = FALSE,
  BR = FALSE,
  HR = FALSE,
  MR = FALSE,
  AR = FALSE,
  CR = FALSE
)
```

Arguments

<code>new_id</code>	The ID of the new indicator (e.g., "FE_FRTR_W_A10").
<code>dictionary</code>	The DHS indicator dictionary data frame, e.g. <code>sae4health::DHS_ind_dictionary</code>
<code>IR</code>	Logical flag indicating whether the IR recode file is required.
<code>PR</code>	Logical flag indicating whether the PR recode file is required.
<code>KR</code>	Logical flag indicating whether the KR recode file is required.
<code>BR</code>	Logical flag indicating whether the BR recode file is required.
<code>HR</code>	Logical flag indicating whether the HR recode file is required.
<code>MR</code>	Logical flag indicating whether the MR recode file is required.
<code>AR</code>	Logical flag indicating whether the AR recode file is required.
<code>CR</code>	Logical flag indicating whether the CR recode file is required.

Value

The a row to rbind into `indicator_df`

Author(s)

Qianyu Dong

Examples

```
## Not run:
newrow=addNewIndicator(new_id="RH_DELP_C_HOM", dictionary= sae4health::DHS_ind_dictionary,
  IR=FALSE, PR=FALSE, KR=FALSE, BR=TRUE,
  HR=FALSE, MR=FALSE, AR=FALSE, CR=FALSE )
newrow <- newrow[, names(indicatorList)]
indicatorList <- rbind(indicatorList, newrow)

## End(Not run)
```

addUpper

Attach upper-level admin names to lower-level polygons

Description

Maps each polygon in a lower administrative layer (e.g., ADM2) to its containing polygon in an upper layer (e.g., ADM1), populating an upper-level name column. If containment fails for some polygons (e.g., due to slivers or minor topology issues), a nearest-centroid fallback is used.

Usage

```
addUpper(
  poly.adm.upper,
  poly.adm,
  by.adm,
  by.adm.upper,
  out_lower = "NAME_2",
  out_upper = "NAME_1",
  sort = TRUE
)
```

Arguments

poly.adm.upper	Spatial polygons for the <i>*upper*</i> admin level (e.g., Admin 1 when the desired output is Admin 2). Can be an <code>sf</code> object or an <code>sp::SpatialPolygonsDataFrame</code> .
poly.adm	Spatial polygons for the <i>*target*</i> admin level you want returned (e.g., Admin 2). Can be an <code>sf</code> object or an <code>sp::SpatialPolygonsDataFrame</code> .
by.adm	Character scalar. Column name in <code>poly.adm</code> that contains the admin names for the target level (e.g., "NAME_2").
by.adm.upper	Character scalar. Column name in <code>poly.adm.upper</code> that contains the admin names for the upper level (e.g., "NAME_1").
out_lower	Character scalar. Name of the output column to hold the lower-level names in the returned object. Defaults to "NAME_2".
out_upper	Character scalar. Name of the output column to hold the upper-level names in the returned object. Defaults to "NAME_1".
sort	Logical. If TRUE (default), alphabetically sorts the output by <code>out_upper</code> then <code>out_lower</code> .

Details

Inputs may be either `sf` or `sp` polygon data. If `sp` inputs are provided, they are converted to `sf` internally. Containment is determined via `sf::st_within()`. For polygons not matched by containment, the function uses `sf::st_nearest_feature()` on centroids (`sf::st_centroid()`) to assign an upper-level name.

Value

An sf object at the target (lower) admin level containing:

- out_lower: lower-level admin name (copied from by.adm)
- out_upper: upper-level admin name (derived via spatial matching)
- geometry: polygon geometry
- admin2.name.full: convenience concatenation `paste0(out_upper, "_", out_lower)`

Examples

```
## Not run:
library(sf)
adm1 <- st_read("geoBoundaries/geoBoundaries-NGA-ADM1-all/geoBoundaries-NGA-ADM1.shp")
adm2 <- st_read("geoBoundaries/geoBoundaries-NGA-ADM2-all/geoBoundaries-NGA-ADM2.shp")

# If both layers use "shapeName" but you want outputs named NAME_1/NAME_2:
res <- addUpper(
  poly.adm.upper = adm1,
  poly.adm       = adm2,
  by.adm         = "shapeName", # lower-level names
  by.adm.upper   = "shapeName", # upper-level names
  out_lower      = "NAME_2",
  out_upper      = "NAME_1",
  sort           = TRUE
)

# If the columns are already NAME_1 / NAME_2:
res2 <- addUpper(
  poly.adm.upper = adm1,
  poly.adm       = adm2,
  by.adm         = "NAME_2",
  by.adm.upper   = "NAME_1"
)

## End(Not run)
```

adminInfo

Get admin information

Description

This function get admin information including name, character, population and urban/rural proportion.

Usage

```
adminInfo(
  poly.adm,
  by.adm,
  admin,
  by.adm.upper = NULL,
  agg.pop = NULL,
  proportion = NULL
)
```

Arguments

poly.adm	spatial polygons dataframe for Admin levels such as Admin 1 or Admin 2. This object can be either an <code>sp::SpatialPolygonsDataFrame</code> object or an <code>sf</code> object.
by.adm	the column name of column for Admin names for desired output Admin level, can be such as "NAME_1" or "NAME_2".
admin	desired admin level for the output, can be 1 or 2.
by.adm.upper	the column name of column for Admin names for upper level of your desired output Admin level when admin=2, can be "NAME_1" when by.adm="NAME_2".
agg.pop	data frame of aggregated population from <code>aggPopulation</code> function. It should have two columns: "admin2.name.full" and "population".
proportion	data frame of urban/rural proportions. For admin1, it should have two columns: "admin1.name" and "urban". For admin2, in order to avoid issues merging datasets with duplicated admin2 names, either of the following two formats can be used: (a) three columns: "admin1.name", "admin2.name", and "urban"; and (b) two columns: "admin2.name.full" and "urban", where "admin2.name.full" takes both the admin1 and admin2 name and connect them with an "_", i.e., "Lusaka_Chilanga".

Value

This function returns the 1. dataframe that contains admin 1 and admin 2 information and coordinates for each cluster and 2. Adjacency matrix.

Author(s)

Qianyu Dong

Examples

```
# For sp::SpatialPolygonsDataFrame object
data(ZambiaAdm1)
class(ZambiaAdm1)
info <- adminInfo(poly.adm=ZambiaAdm1, admin = 1, by.adm="NAME_1")
data(ZambiaAdm2)
class(ZambiaAdm2)
info2 <- adminInfo(poly.adm=ZambiaAdm2, admin = 2, by.adm="NAME_2", by.adm.upper="NAME_1")
```

```
# For sf object
geo.sf <- sf::st_as_sf(ZambiaAdm1)
info <- adminInfo(poly.adm=geo.sf, admin = 1,by.adm="NAME_1")

# To include the population information
data(ZambiaPopWomen)
info <- adminInfo(poly.adm = ZambiaAdm1,
                  admin = 1,by.adm="NAME_1",
                  agg.pop = ZambiaPopWomen$admin1_pop,
                  proportion = ZambiaPopWomen$admin1_urban )
```

aggPopulation	<i>Get population information</i>
---------------	-----------------------------------

Description

This function aggregate population to particular admin levels

Usage

```
aggPopulation(tiff, fact = 10, poly.adm, by.adm, by.adm.upper = NULL)
```

Arguments

tiff	spatial raster of population estimates.
fact	factor to aggregate pixels. Default to be 10, i.e., the population estimates will be saved on 1km by 1km grids if the input is 100m by 100m tiff. Larger values of aggregation factor improves the computation speed, but can introduce more errors when the regions defined by the polygon are small in size.
poly.adm	spatial polygons dataframe.
by.adm	the column name of column for Admin names for desired output Admin level, can be such as "NAME_1" or "NAME_2". Duplicated admin names are handled internally when by.adm.upper is specified
by.adm.upper	the column name of column for Admin names for upper level of your desired output Admin level when admin=2, can be "NAME_1" when by.adm="NAME_2".

Value

This function returns the dataset that contain district name and population for given tiff files and polygons of admin level

Author(s)

Qianyu Dong

Examples

```
## Not run:
library(raster)

# Download and find total population in age group 0 to 12 months
pre <- "https://data.worldpop.org/GIS/AgeSex_structures/"
f <- paste0(pre, "Global_2000_2020/2018/ZMB/zmb_f_0_2018.tif")
m <- paste0(pre, "Global_2000_2020/2018/ZMB/zmb_m_0_2018.tif")
pop_f_0 <- raster(f)
pop_m_0 <- raster(m)

pop_raster <- pop_f_0 + pop_m_0

# admin1 population
agg.pop1 <- aggPopulation(
  tiff = pop_raster,
  poly.adm = ZambiaAdm1,
  by.adm = "NAME_1")

# admin2 population
agg.pop2 <- aggPopulation(
  tiff = ZambiaPopWomen_raster,
  poly.adm = ZambiaAdm2,
  by.adm = "NAME_2",
  by.adm.upper="NAME_1")

## End(Not run)
```

aggSurveyWeight

Get survey weight by admin levels

Description

This function aggregate survey weight to particular admin levels

Usage

```
aggSurveyWeight(
  data,
  cluster.info,
  admin,
  poly.adm = NULL,
  by.adm = NULL,
  by.adm.upper = NULL
)
```

Arguments

<code>data</code>	dataframe that contains the indicator of interests, output of <code>getDHSIndicator</code> function
<code>cluster.info</code>	list that contains admin 1 and admin 2 information and coordinates for each cluster, output of <code>clusterinfo</code> function
<code>admin</code>	desired admin level for aggregation
<code>poly.adm</code>	spatial polygons dataframe
<code>by.adm</code>	the column name of column for Admin names for desired output Admin level, can be such as "NAME_1" or "NAME_2".
<code>by.adm.upper</code>	the column name of column for Admin names for upper level of your desired output Admin level when <code>admin=2</code> , can be "NAME_1" when <code>by.adm="NAME_2"</code> .

Value

This function returns the dataset that contain admin name and survey weight.

Author(s)

Qianyu Dong

Examples

```
## Not run:

# admin1 population

year <- 2018
country <- "Zambia"
indicator="nmr"

geo <- getDHSgeo(country = country, year = year)
dhsData <- getDHSdata(country = country, indicator=indicator, year = year)
data<- getDHSIndicator(dhsData, indicator = indicator)

poly.adm1=ZambiaAdm1
poly.adm2=ZambiaAdm2

cluster.info<-clusterInfo(geo=geo, poly.adm1=poly.adm1, poly.adm2=poly.adm2,
by.adm1 = "NAME_1",by.adm2 = "NAME_2")

agg.survey1<-aggSurveyWeight(data=data,cluster.info=cluster.info,admin=1)
agg.survey2<-aggSurveyWeight(data=data,cluster.info=cluster.info,admin=2,
                             poly.adm = poly.adm2, by.adm="NAME_2",
                             by.adm.upper ="NAME_1")

## End(Not run)
```

AH_TOBC_W_OTH

AH_TOBC_W_OTH

Description

AH_TOBC_W_OTH

Usage

AH_TOBC_W_OTH(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "AH_TOBC_W_OTH", year = 2018)

## End(Not run)
```

AH_TOBU_M_ASM

AH_TOBU_M_ASM

Description

AH_TOBU_M_ASM

Usage

AH_TOBU_M_ASM(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "AH_TOBU_M_ASM", year = 2018)

## End(Not run)
```

AH_TOBU_M_SNN

AH_TOBU_M_SNN

Description

AH_TOBU_M_SNN

Usage

```
AH_TOBU_M_SNN(MRdata)
```

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "AH_TOBU_M_SNN", year = 2018)

## End(Not run)
```


Value

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "AH_TOBU_W_SNN", year = 2018)

## End(Not run)
```

AN_ANEM_W_ANY	<i>AN_ANEM_W_ANY IRdata Percentage of women aged 15-49 classified as having any anemia</i>
---------------	--

Description

AN_ANEM_W_ANY IRdata Percentage of women aged 15-49 classified as having any anemia

Usage

```
AN_ANEM_W_ANY(Rdata)
```

Arguments

Rdata data.frame from `surveyPrev::getDHSdata`

Value

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "AN_ANEM_W_ANY",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                      FUN = surveyPrev::AN_ANEM_W_ANY)

## End(Not run)
```

AN_NUTS_W_OVW	<i>AN_NUTS_W_OVW Women who are overweight according to BMI (25.0-29.9) nt_wm_ovwt in github IR</i>
---------------	--

Description

AN_NUTS_W_OVW Women who are overweight according to BMI (25.0-29.9) nt_wm_ovwt in github IR

Usage

```
AN_NUTS_W_OVW(Rdata)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
-------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "AN_NUTS_W_OVW", year = 2018)

## End(Not run)
```

AN_NUTS_W_THN	<i>AN_NUTS_W_THN IRdata Women who are thin according to BMI (<18.5)</i>
---------------	--

Description

AN_NUTS_W_THN IRdata Women who are thin according to BMI (<18.5)

Usage

```
AN_NUTS_W_THN(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "AN_NUTS_W_THN",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::AN_NUTS_W_THN)

## End(Not run)
```

CH_ARIS_C_ADV	<i>CH_ARIS_C_ADV Children with ARI for whom advice or treatment was sought; ch_ari_care in github KR</i>
---------------	--

Description

CH_ARIS_C_ADV Children with ARI for whom advice or treatment was sought; ch_ari_care in github KR

Usage

```
CH_ARIS_C_ADV(Rdata)
```

Arguments

```
Rdata          data.frame from surveyPrev::getDHSdata
```

Value

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_ARIS_C_ADV", year = 2018)

## End(Not run)
```

CH_DIAT_C_ABI

CH_DIAT_C_ABI

Description

CH_DIAT_C_ABI

Usage

```
CH_DIAT_C_ABI(KRdata)
```

Arguments

```
KRdata          data.frame from surveyPrev::getDHSdata
```

Value

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_ABI", year = 2018)

## End(Not run)
```

CH_DIAT_C_ADV	<i>CH_DIAT_C_ADV Treatment of diarrhea: Advice or treatment was sought; ch_diar_care in github KR</i>
---------------	---

Description

CH_DIAT_C_ADV Treatment of diarrhea: Advice or treatment was sought; ch_diar_care in github KR

Usage

```
CH_DIAT_C_ADV(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_ADV", year = 2018)

## End(Not run)
```

CH_DIAT_C_AMO

CH_DIAT_C_AMO

Description

CH_DIAT_C_AMO

Usage

CH_DIAT_C_AMO(KRdata)

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_AMO", year = 2018)

## End(Not run)
```

CH_DIAT_C_NOT

CH_DIAT_C_NOT

Description

CH_DIAT_C_NOT

Usage

CH_DIAT_C_NOT(KRdata)

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_NOT", year = 2018)

## End(Not run)
```

CH_DIAT_C_ORS

CH_DIAT_C_ORS

Description

CH_DIAT_C_ORS

Usage

```
CH_DIAT_C_ORS(KRdata)
```

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_ORS", year = 2018)

## End(Not run)
```

CH_DIAT_C_ORT

CH_DIAT_C_ORT

Description

CH_DIAT_C_ORT

Usage

CH_DIAT_C_ORT(KRdata)

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_ORT", year = 2018)

## End(Not run)
```

CH_DIAT_C_OSI

CH_DIAT_C_OSI

Description

CH_DIAT_C_OSI

Usage

CH_DIAT_C_OSI(KRdata)

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_OSI", year = 2018)

## End(Not run)
```

CH_DIAT_C_RHF

CH_DIAT_C_RHF

Description

CH_DIAT_C_RHF

Usage

```
CH_DIAT_C_RHF(KRdata)
```

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIAT_C_RHF", year = 2018)

## End(Not run)
```

CH_DIFP_C_FAL

CH_DIFP_C_FAL

Description

CH_DIFP_C_FAL

Usage

CH_DIFP_C_FAL(KRdata)

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_DIFP_C_FAL", year = 2018)

## End(Not run)
```

CH_FEVR_C_FEV

CH_FEVR_C_FEV

Description

CH_FEVR_C_FEV

Usage

CH_FEVR_C_FEV(KRdata)

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_FEVR_C_FEV", year = 2018)

## End(Not run)
```

CH_FEVT_C_ADV	<i>CH_FEVT_C_ADV Children with fever for whom advice or treatment was sought ch_fev_care in github ml_fev_care should produce the same data KR</i>
---------------	--

Description

CH_FEVT_C_ADV Children with fever for whom advice or treatment was sought ch_fev_care in github ml_fev_care should produce the same data KR

Usage

```
CH_FEVT_C_ADV(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_FEVT_C_ADV", year = 2018)

## End(Not run)
```

CH_SZWT_C_L25	<i>CH_SZWT_C_L25</i>
---------------	----------------------

Description

CH_SZWT_C_L25

Usage

CH_SZWT_C_L25(KRdata)

Arguments

KRdata	data.frame from surveyPrev::getDHSdata
--------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_SZWT_C_L25", year = 2018)

## End(Not run)
```

CH_VACC_C_BAS	<i>CH_VACC_C_BAS KRdata Children with all 8 basic vaccinations (age 12-23)</i>
---------------	--

Description

CH_VACC_C_BAS KRdata Children with all 8 basic vaccinations (age 12-23)

Usage

CH_VACC_C_BAS(Rdata)

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
-------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACC_C_BAS",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACC_C_BAS)

## End(Not run)
```

CH_VACC_C_BCG

CH_VACC_C_BCG Percentage of children 12-23 months who had received BCG vaccination ms_afm_15 in github KR

Description

CH_VACC_C_BCG Percentage of children 12-23 months who had received BCG vaccination ms_afm_15 in github KR

Usage

```
CH_VACC_C_BCG(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CH_VACC_C_BCG", year = 2018)

## End(Not run)
```

CH_VACC_C_DP1

CH_VACC_C_DP1 KRdata Pentavalent 1st dose vaccination Percentage of children (age 12-23) with 1st dose of Pentavalent vaccine

Description

CH_VACC_C_DP1 KRdata Pentavalent 1st dose vaccination Percentage of children (age 12-23) with 1st dose of Pentavalent vaccine

Usage

```
CH_VACC_C_DP1(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACC_C_DP1",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACC_C_DP1)

## End(Not run)
```

CH_VACC_C_DP3	<i>CH_VACC_C_DP3 KRdata Pentavalent 3rd dose vaccination Percentage of children (age 12-23) with 3rd dose of Pentavalent vaccine</i>
---------------	--

Description

CH_VACC_C_DP3 KRdata Pentavalent 3rd dose vaccination Percentage of children (age 12-23) with 3rd dose of Pentavalent vaccine

Usage

```
CH_VACC_C_DP3(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACC_C_DP3",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACC_C_DP3)

## End(Not run)
```

CH_VACC_C_MSL	<i>CH_VACC_C_MSL KRdata Measles vaccination received Percentage of children (age 12-23)</i>
---------------	---

Description

CH_VACC_C_MSL KRdata Measles vaccination received Percentage of children (age 12-23)

Usage

```
CH_VACC_C_MSL(Rdata)
```

Arguments

```
Rdata          data.frame from surveyPrev::getDHSdata
```

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACC_C_MSL",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACC_C_MSL)

## End(Not run)
```

CH_VACC_C_NON	<i>CH_VACC_C_NON KRdata Children with no vaccinations (age 12-23)</i>
---------------	---

Description

CH_VACC_C_NON KRdata Children with no vaccinations (age 12-23)

Usage

```
CH_VACC_C_NON(Rdata)
```

Arguments

```
Rdata          data.frame from surveyPrev::getDHSdata
```

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACC_C_NON",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACC_C_NON)

## End(Not run)
```

CH_VACC_C_PN3

CH_VACC_C_PN3 KRdata Pneumococcal 3rd dose vaccination Percentage of children (age 12-23)

Description

CH_VACC_C_PN3 KRdata Pneumococcal 3rd dose vaccination Percentage of children (age 12-23)

Usage

CH_VACC_C_PN3(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACC_C_PN3",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACC_C_PN3)

## End(Not run)
```

CH_VACC_C_RT1

*CH_VACC_C_RT1 KRdata Rotavirus 1 vaccination received***Description**

CH_VACC_C_RT1 KRdata Rotavirus 1 vaccination received

Usage

CH_VACC_C_RT1(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACC_C_RT1",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACC_C_RT1)

## End(Not run)
```

CH_VACS_C_PN3

*CH_VACS_C_PN3 KRdata Pneumococcal 3 vaccination received***Description**

CH_VACS_C_PN3 KRdata Pneumococcal 3 vaccination received

Usage

CH_VACS_C_PN3(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CH_VACS_C_PN3",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CH_VACS_C_PN3)

## End(Not run)
```

clusterInfo	<i>Get cluster information</i>
-------------	--------------------------------

Description

This function add admin 1 and admin2 information to a particular DHS survey.

Usage

```
clusterInfo(
  geo,
  poly.adm1,
  poly.adm2 = NULL,
  by.adm1 = "NAME_1",
  by.adm2 = "NAME_2",
  map = FALSE
)
```

Arguments

geo spatial point dataframe

poly.adm1 spatial polygons dataframe for admin 1

poly.adm2 spatial polygons dataframe for admin 2 or other lower admin level.

by.adm1 the column name of column for Admin names for admin 1

by.adm2	the column name of column for Admin names for admin 2 or other lower admin level.
map	whether to return a map of clusters or not

Value

This function returns the dataset that contains admin 1 and admin 2 information and coordinates for each cluster.

Author(s)

Qianyu Dong

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
cluster.info <- clusterInfo(geo = geo,
                             poly.adm1 = ZambiaAdm1,
                             poly.adm2 = ZambiaAdm2)

## End(Not run)
```

clusterModel

Calculate cluster model estimates using beta binomial model

Description

This function calculate smoothed direct estimates at given admin level.

Usage

```
clusterModel(
  data,
  cluster.info,
  admin.info,
  X = NULL,
  X.unit = NULL,
  X.pixel = NULL,
  admin,
  CI = 0.95,
  model = c("bym2", "iid"),
  stratification = FALSE,
  aggregation = FALSE,
  nested = FALSE,
  interact = FALSE,
```

```

    overdisp.mean = 0,
    overdisp.prec = 0.4,
    pc.u = 1,
    pc.alpha = 0.01,
    pc.u.phi = 0.5,
    pc.alpha.phi = 2/3,
    ...
)

```

Arguments

data	dataframe that contains the indicator of interests(column name is value), output of getDHSindicator function
cluster.info	dataframe that contains admin 1 and admin 2 information and coordinates for each cluster.
admin.info	dataframe that contains population and urban/rural proportion at specific admin level
X	dataframe that contains areal covariates, the first column should be the same admin name as in admin.info\$data.
X.unit	dataframe that contains unit covariates, must contain cluster
X.pixel	dataframe that contains pixel covariates, must contain 1. admin1.name or admin2.name.full, 2. Population, 3. strata if stratification==T
admin	admin level for the model
CI	Credible interval to be used. Default to 0.95.
model	smoothing model used in the random effect. Options are independent ("iid") or spatial ("bym2").
stratification	whether or not to include urban/rural stratum.
aggregation	whether or not report aggregation results.
nested	whether or not to fit a nested model.
interact	whether or not to fit a admin1 x urban/rural model.
overdisp.mean	prior mean for logit(d), where d is the intracluster correlation.
overdisp.prec	prior precision for logit(d), where d is the intracluster correlation.
pc.u	pc prior u for iid or bym2 precision.
pc.alpha	pc prior alpha for iid or bym2 precision.
pc.u.phi	pc prior u for bym2 mixing paramete.
pc.alpha.phi	pc prior u for bym2 mixing paramete.
...	additional arguments for internal functions.

Value

This function returns the dataset that contain district name and population for given tiff files and polygons of admin level,

Author(s)

Qianyu Dong

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
data(ZambiaPopWomen)
cluster.info <- clusterInfo(geo = geo,
                             poly.adm1 = ZambiaAdm1,
                             poly.adm2 = ZambiaAdm2)

# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
admin.info1 <- adminInfo(poly.adm = ZambiaAdm1,
                         admin = 1,
                         agg.pop = ZambiaPopWomen$admin1_pop,
                         proportion = ZambiaPopWomen$admin1_urban)
cl_res_ad1 <- clusterModel(data=data,
                           cluster.info = cluster.info,
                           admin.info = admin.info1,
                           stratification = FALSE,
                           model = "bym2",
                           admin = 1,
                           aggregation = TRUE,
                           CI = 0.95)
cl_res_ad1$res.admin1

# compare with the DHS direct estimates
dhs_table <- get_api_table(country = "ZM",
                           survey = "ZM2018DHS",
                           indicator = "RH_ANCN_W_N4P",
                           simplify = TRUE)
subset(dhs_table, ByVariableLabel == "Five years preceding the survey")

## End(Not run)
```

Description

This function calculate smoothed direct estimates at given admin level.

Usage

```
clusterModel_u5mr(
  data,
  cluster.info,
  admin.info,
  X = NULL,
  X.unit = NULL,
  X.pixel = NULL,
  admin,
  CI = 0.95,
  model = c("bym2", "iid"),
  stratification = FALSE,
  aggregation = FALSE,
  nested = FALSE,
  interact = FALSE,
  overdisp.mean = 0,
  overdisp.prec = 0.4,
  pc.u = 1,
  pc.alpha = 0.01,
  pc.u.phi = 0.5,
  pc.alpha.phi = 2/3,
  age.space.group = c(1, 2, 2, 2, 3, 3, 3, 3)
)
```

Arguments

<code>data</code>	dataframe that contains the indicator of interests(column name is value), output of getDHSindicator function
<code>cluster.info</code>	dataframe that contains admin 1 and admin 2 information and coordinates for each cluster.
<code>admin.info</code>	dataframe that contains population and urban/rural proportion at specific admin level
<code>X</code>	dataframe that contains areal covariates, the first column should be the same admin name as in <code>admin.info\$data</code> .
<code>X.unit</code>	dataframe that contains unit covariates, must contain cluster
<code>X.pixel</code>	dataframe that contains pixel covariates, must contain 1. <code>admin1.name</code> or <code>admin2.name.full</code> , 2. Population, 3. strata if <code>stratification==T</code>
<code>admin</code>	admin level for the model
<code>CI</code>	Credible interval to be used. Default to 0.95.
<code>model</code>	smoothing model used in the random effect. Options are independent ("iid") or spatial ("bym2").
<code>stratification</code>	whether or not to include urban/rural stratum.

aggregation	whether or not report aggregation results.
nested	whether or not to fit a nested model.
interact	whether or not to fit a admin1 x urban/rural model.
overdisp.mean	prior mean for logit(d), where d is the intracluster correlation.
overdisp.prec	prior precision for logit(d), where d is the intracluster correlation.
pc.u	pc prior u for iid or bym2 precision.
pc.alpha	pc prior alpha for iid or bym2 precision.
pc.u.phi	pc prior u for bym2 mixing paramete.
pc.alpha.phi	pc prior u for bym2 mixing paramete.
age.space.group	vector indicating grouping of the ages groups in the spatial model. For example, if each age group is assigned a different spatial component, then set age.group.group to c(1:length(age.group)); if all age groups share the same spatial component, then set age.group.group to a rep(1, length(age.group)). The default for 8 age groups is c(1,2,2,2,3,3,3,3), which assigns a separate hazards to the first two groups and a common hazard for the rest of the age groups. The vector should contain values starting from 1.

Value

This function returns the dataset that contain district name and population for given tiff files and polygons of admin level,

CM_ECMR_C_IMF	<i>CM_ECMR_C_IMF imr 5 years prior to survey.</i>
---------------	---

Description

BR

Usage

```
CM_ECMR_C_IMF(Rdata, mort.cut = c(1, 2, 6, 12, 24, 36, 48, 60), mort.year = 5)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
mort.cut	age group cutoffs for hazard calculation. Constant hazards are assumed to be within the specified cutoffs.
mort.year	The number of years preceding survey. Set to be 5.

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CM_ECMR_C_IMF", year = 2018)

## End(Not run)
```

CM_ECMR_C_IMR

CM_ECMR_C_IMR imr 10 years prior to survey.

Description

BR

Usage

```
CM_ECMR_C_IMR(Rdata, mort.cut = c(1, 2, 6, 12, 24, 36, 48, 60), mort.year = 10)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
mort.cut	age group cutoffs for hazard calculation. Constant hazards are assumed to be within the specified cutoffs.
mort.year	The number of years preceding survey. Set to be 10.

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CM_ECMR_C_IMR", year = 2018)

## End(Not run)
```

CM_ECMR_C_NNF

CM_ECMR_C_NNF NMR five years prior to survey.

Description

BR

Usage

CM_ECMR_C_NNF(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CM_ECMR_C_NNF", year = 2018)

## End(Not run)
```

CM_ECMR_C_NNR

CM_ECMR_C_NNR BRdata Neonatal mortality rate

Description

CM_ECMR_C_NNR BRdata Neonatal mortality rate

Usage

CM_ECMR_C_NNR(Rdata, nmr.year = 10)

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
nmr.year	This is an argument specifically for NMR calculation. It specifies births how many years do we include prior to the date of survey. Default to be 10, i.e., NMR in the last 10 years prior to survey.

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CM_ECMR_C_NNR",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CM_ECMR_C_NNR)

## End(Not run)
```

CM_ECMR_C_U5F

CM_ECMR_C_U5F u5mr 5 years prior to survey.

Description

BR

Usage

```
CM_ECMR_C_U5F(Rdata, mort.cut = c(1, 2, 6, 12, 24, 36, 48, 60), mort.year = 5)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
mort.cut	age group cutoffs for hazard calculation. Constant hazards are assumed to be within the specified cutoffs.
mort.year	The number of years preceding survey. Set to be 5.

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CM_ECMR_C_U5F", year = 2018)

## End(Not run)
```

CM_ECMR_C_U5M

CM_ECMR_C_U5M u5mr 10 years prior to survey.

Description

BR

Usage

```
CM_ECMR_C_U5M(Rdata, mort.cut = c(1, 2, 6, 12, 24, 36, 48, 60), mort.year = 10)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
mort.cut	age group cutoffs for hazard calculation. Constant hazards are assumed to be within the specified cutoffs.
mort.year	The number of years preceding survey. Set to be 10.

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CM_ECMR_C_U5M", year = 2018)

## End(Not run)
```

CN_ANMC_C_ANY	<i>CN_ANMC_C_ANY PRdata Children with any anemia Children under five with any anemia</i>
---------------	--

Description

CN_ANMC_C_ANY PRdata Children with any anemia Children under five with any anemia

Usage

CN_ANMC_C_ANY(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CN_ANMC_C_ANY",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CN_ANMC_C_ANY)

## End(Not run)
```

CN_BRFI_C_EVR	<i>CN_BRFI_C_EVR</i>
---------------	----------------------

Description

CN_BRFI_C_EVR

Usage

CN_BRFI_C_EVR(KRdata)

Arguments

KRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_BRFI_C_EVR", year = 2018)

## End(Not run)
```

CN_BRFS_C_EXB	<i>CN_BRFS_C_EXB KRdata Children exclusively breastfed Prevalence of exclusive breastfeeding of children under six months of age</i>
---------------	--

Description

CN_BRFS_C_EXB KRdata Children exclusively breastfed Prevalence of exclusive breastfeeding of children under six months of age

Usage

CN_BRFS_C_EXB(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "CN_BRFS_C_EXB",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::CN_BRFS_C_EXB)

## End(Not run)
```

CN_IYCF_C_4FA	<i>CN_IYCF_C_4FA Percentage of children age 6-23 months fed five or more food groups. The food groups are a. breastmilk b. infant formula, milk other than breast milk, cheese or yogurt or other milk products; c. foods made from grains, roots, and tubers, including porridge and fortified baby food from grains; d. vitamin A-rich fruits and vegetables (and red palm oil); e. other fruits and vegetables; f. eggs; g. meat, poultry, fish, and shellfish (and organ meats); h. legumes and nuts. nt_mdd in github KR</i>
---------------	---

Description

CN_IYCF_C_4FA Percentage of children age 6-23 months fed five or more food groups. The food groups are a. breastmilk b. infant formula, milk other than breast milk, cheese or yogurt or other milk products; c. foods made from grains, roots, and tubers, including porridge and fortified baby food from grains; d. vitamin A-rich fruits and vegetables (and red palm oil); e. other fruits and vegetables; f. eggs; g. meat, poultry, fish, and shellfish (and organ meats); h. legumes and nuts. nt_mdd in github KR

Usage

```
CN_IYCF_C_4FA(Rdata)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
-------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_IYCF_C_4FA", year = 2018)

## End(Not run)
```

CN_NUTS_C_HA2

CN_NUTS_C_HA2

Description

CN_NUTS_C_HA2

Usage

```
CN_NUTS_C_HA2(PRdata)
```

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_HA2", year = 2018)

## End(Not run)
```

`CN_NUTS_C_HA3`*CN_NUTS_C_HA3*

Description`CN_NUTS_C_HA3`**Usage**`CN_NUTS_C_HA3(PRdata)`**Arguments**`PRdata` data.frame from `surveyPrev::getDHSdata`**Value**

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_HA3", year = 2018)

## End(Not run)
```

`CN_NUTS_C_WA2`*CN_NUTS_C_WA2*

Description`CN_NUTS_C_WA2`**Usage**`CN_NUTS_C_WA2(PRdata)`**Arguments**`PRdata` data.frame from `surveyPrev::getDHSdata`

Value

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_WA2", year = 2018)

## End(Not run)
```

CN_NUTS_C_WA3

CN_NUTS_C_WA3

Description

CN_NUTS_C_WA3

Usage

```
CN_NUTS_C_WA3(PRdata)
```

Arguments

PRdata data.frame from `surveyPrev::getDHSdata`

Value

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_WA3", year = 2018)

## End(Not run)
```

CN_NUTS_C_WAP

CN_NUTS_C_WAP

Description

CN_NUTS_C_WAP

Usage

CN_NUTS_C_WAP(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_WAP", year = 2018)

## End(Not run)
```

CN_NUTS_C_WH2

CN_NUTS_C_WH2

Description

CN_NUTS_C_WH2

Usage

CN_NUTS_C_WH2(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_WH2", year = 2018)

## End(Not run)
```

CN_NUTS_C_WH3

CN_NUTS_C_WH3

Description

CN_NUTS_C_WH3

Usage

CN_NUTS_C_WH3(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_WH3", year = 2018)

## End(Not run)
```

CN_NUTS_C_WHP

CN_NUTS_C_WHP

Description

CN_NUTS_C_WHP

Usage

CN_NUTS_C_WHP(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CN_NUTS_C_WHP", year = 2018)

## End(Not run)
```

CO_INUS_W_EVU

CO_INUS_W_EVU

Description

CO_INUS_W_EVU

Usage

CO_INUS_W_EVU(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CO_INUS_W_EVU", year = 2018)

## End(Not run)
```

CO_INUS_W_U12

CO_INUS_W_U12

Description

CO_INUS_W_U12

Usage

```
CO_INUS_W_U12(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CO_INUS_W_U12", year = 2018)

## End(Not run)
```

CO_MOBB_W_BNK	<i>CO_MOBB_W_BNK</i>
---------------	----------------------

Description

CO_MOBB_W_BNK

Usage

CO_MOBB_W_BNK(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CO_MOBB_W_BNK", year = 2018)

## End(Not run)
```

CO_MOBB_W_MBF	<i>CO_MOBB_W_MBF</i>
---------------	----------------------

Description

CO_MOBB_W_MBF

Usage

CO_MOBB_W_MBF(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CO_MOBB_W_MBF", year = 2018)

## End(Not run)
```

CO_MOBB_W_MOB

CO_MOBB_W_MOB

Description

CO_MOBB_W_MOB

Usage

```
CO_MOBB_W_MOB(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CO_MOBB_W_MOB", year = 2018)

## End(Not run)
```

CP_BREG_C_CRT

CP_BREG_C_CRT

Description

CP_BREG_C_CRT

Usage

CP_BREG_C_CRT(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CP_BREG_C_CRT", year = 2018)

## End(Not run)
```

CP_BREG_C_NCT

CP_BREG_C_NCT

Description

CP_BREG_C_NCT

Usage

CP_BREG_C_NCT(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CP_BREG_C_NCT", year = 2018)

## End(Not run)
```

CP_BREG_C_REG

CP_BREG_C_REG

Description

CP_BREG_C_REG

Usage

CP_BREG_C_REG(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "CP_BREG_C_REG", year = 2018)

## End(Not run)
```

datainfo	<i>Summarize Sample and Event Information by Administrative Level</i>
----------	---

Description

Computes summary statistics on the number of sampled observations, events, and unique clusters at national, admin1, and admin2 levels. The function merges the input dataset with cluster- and admin-level metadata and returns counts of samples, events, and clusters per geographic unit.

Usage

```
datainfo(data, cluster.info, admin.info1 = NULL, admin.info2 = NULL)
```

Arguments

<code>data</code>	A data frame containing at least the variables <code>cluster</code> and <code>value</code> . Typically the raw or processed indicator data (e.g., from <code>getDHSdata()</code>).
<code>cluster.info</code>	A list containing the element data, a data frame with cluster-level information. Must include a <code>cluster</code> column for merging.
<code>admin.info1</code>	A list containing the element data, a data frame with admin1-level identifiers and names. Must include the variable <code>admin1.name</code> .
<code>admin.info2</code>	A list containing the element data, a data frame with admin2-level identifiers and names. Must include the variable <code>admin2.name.full</code> .

Details

The function performs left and right joins to associate each observation in `data` with its cluster and administrative region. It removes rows with missing values before summarizing. For each administrative level:

- `n_samples`: number of non-missing observations.
- `n_events`: number of cases where `value == 1`.
- `n_clusters`: number of distinct survey clusters.

If `admin.info1` or `admin.info2` is `NULL`, the corresponding summaries are omitted.

Value

A list with up to three data frames:

`summary.ad0` National-level totals across all clusters.
`summary.ad1` Admin1-level summaries (if `admin.info1` provided).
`summary.ad2` Admin2-level summaries (if `admin.info2` provided).

Examples

```
## Not run:
datainfo(
  data = data,
  cluster.info = cluster.info,
  admin.info1 = admin.info1,
  admin.info2 = admin.info2
)

## End(Not run)
```

directEST	<i>Calculate direct estimates</i>
-----------	-----------------------------------

Description

This function calculate direct estimates at given admin level.

Usage

```
directEST(
  data,
  cluster.info,
  admin,
  strata = "all",
  CI = 0.95,
  weight = c("population", "survey")[1],
  admin.info = NULL,
  aggregation = FALSE,
  alt.strata = NULL,
  var.fix = FALSE,
  threshold = 1e-12,
  ...
)
```

Arguments

data	dataframe that contains the indicator of interests, output of getDHSindicator function
cluster.info	list contains data and wrong.points. data contains admin 1 and admin 2 information and coordinates for each cluster. wrong.points, contains cluster id for cluster without coordinates or admin 1 information. Output of getDHSindicator function
admin	admin level for the model.
strata	use only urban or rural data, only for national level model

CI	Credible interval to be used. Default to 0.95.
weight	the weight used for aggregating result, "population" or "survey"
admin.info	list contains data and mat, data contains population and urban/rural proportion at specific admin level and mat is the adjacency matrix, output of adminInfo function
aggregation	whether or not report aggregation results.
alt.strata	the variable name in the data frame that correspond to the stratification variable. Most of the DHS surveys are stratified by admin 1 area crossed with urban/rural, which is the default stratification variable created by the function (when alt.strata = NULL). When a different set of strata is used. The stratification variable should be included in the data and alt.strata should be set to the column name.
var.fix	Whether to add phantom cluster to fix admin 2 direct estimate with variance close to 0.
threshold	the threshold of variance to implement the variance fix method.
...	Additional arguments passed on to the 'smoothSurvey' function

Value

This function returns the dataset that contain district name and population for given tiff files and polygons of admin level,

Author(s)

Qianyu Dong

Examples

```
## Not run:

##
## Direct estimation of ANC visit 4+ proportion
##

geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
data(ZambiaPopWomen)
cluster.info<-clusterInfo(geo=geo, poly.adm1=ZambiaAdm1, poly.adm2=ZambiaAdm2,
by.adm1 = "NAME_1",by.adm2 = "NAME_2")
# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
res_ad1 <- directEST(data = data,
                    cluster.info = cluster.info,
                    admin = 1,
```

```

                                aggregation = FALSE)
res_ad1
# compare with the DHS direct estimates
dhs_table <- get_api_table(country = "ZM",
                           survey = "ZM2018DHS",
                           indicator = "RH_ANCN_W_N4P",
                           simplify = TRUE)
subset(dhs_table, ByVariableLabel == "Five years preceding the survey")

##
## Changing customized stratification variable
##

data_alt <- data
# Assuming the stratification is done with only admin1 area
# and not stratified by urban and rural
# Note that this is not the correct stratification, but we use
# this as an illustration to create user-specified strata variable
data_alt$new_strata <- data_alt$v024
res_ad1_wrong <- directEST(data = data_alt,
                           cluster.info = cluster.info,
                           admin = 1,
                           aggregation = FALSE,
                           alt.strata = "new_strata")
res_ad1_wrong

## End(Not run)

```

directEST_u5mr

Helper function for the U5MR direct estimation

Description

Helper function for the U5MR direct estimation

Usage

```
directEST_u5mr(modt, regionVar)
```

Arguments

modt	input data frame internally constructed from directEST() function
regionVar	region column

Value

a fitted object in the same format as smoothSurvey() function, to be slotted in directEST() internal script.

directEST_varfix	<i>Calculate direct estimates</i>
------------------	-----------------------------------

Description

This function calculate direct estimates at given admin level.

Usage

```
directEST_varfix(
  data,
  cluster.info,
  admin,
  strata = "all",
  CI = 0.95,
  weight = c("population", "survey")[1],
  admin.info = NULL,
  aggregation = FALSE,
  alt.strata = NULL,
  var.fix = TRUE,
  eps = 1e-12,
  floor_var = 1e-12,
  tol = 1e-12,
  all.fix = FALSE,
  ...
)
```

Arguments

<code>data</code>	dataframe that contains the indicator of interests, output of getDHSindicator function
<code>cluster.info</code>	list contains data and wrong.points. data contains admin 1 and admin 2 information and coordinates for each cluster. wrong.points. contains cluster id for cluster without coordinates or admin 1 information. Output of getDHSindicator function
<code>admin</code>	admin level for the model.
<code>strata</code>	use only urban or rural data, only for national level model
<code>CI</code>	Credible interval to be used. Default to 0.95.
<code>weight</code>	the weight used for aggregating result, "population" or "survey"
<code>admin.info</code>	list contains data and mat, data contains population and urban/rural proportion at specific admin level and mat is the adjacency matrix, output of adminInfo function
<code>aggregation</code>	whether or not report aggregation results.

DV_AFSV_W_A10

DV_AFSV_W_A10

Description

DV_AFSV_W_A10

Usage

DV_AFSV_W_A10(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:

## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_AFSV_W_A10", year = 2018)

## End(Not run)
```

DV_AFSV_W_A12

DV_AFSV_W_A12

Description

DV_AFSV_W_A12

Usage

DV_AFSV_W_A12(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:

## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_AFSV_W_A12", year = 2018)

## End(Not run)
```

DV_EXPV_W_12M	<i>DV_EXPV_W_12M Percentage of women who have experienced physical violence in the past 12 months often or sometimes dv_phy_12m in github IR</i>
---------------	--

Description

DV_EXPV_W_12M Percentage of women who have experienced physical violence in the past 12 months often or sometimes dv_phy_12m in github IR

Usage

DV_EXPV_W_12M(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_EXPV_W_12M", year = 2018)

## End(Not run)
```

DV_EXSV_W_12M	<i>DV_EXSV_W_12M Percentage of women who ever experienced sexual violence dv_sex_12m in github IR</i>
---------------	---

Description

DV_EXSV_W_12M Percentage of women who ever experienced sexual violence dv_sex_12m in github IR

Usage

```
DV_EXSV_W_12M(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_EXSV_W_12M", year = 2018)

## End(Not run)
```

DV_EXSV_W_EVR	<i>DV_EXSV_W_EVR Percentage of women who ever experienced sexual violence dv_sex in github IR</i>
---------------	---

Description

DV_EXSV_W_EVR Percentage of women who ever experienced sexual violence dv_sex in github IR

Usage

DV_EXSV_W_EVR(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_EXSV_W_EVR", year = 2018)

## End(Not run)
```

DV_PCPV_W_CBF	<i>DV_PCPV_W_CBF</i>
---------------	----------------------

Description

DV_PCPV_W_CBF

Usage

DV_PCPV_W_CBF(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_PCPV_W_CBF", year = 2018)

## End(Not run)
```

DV_PCPV_W_CHD

DV_PCPV_W_CHD

Description

DV_PCPV_W_CHD

Usage

DV_PCPV_W_CHD(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_PCPV_W_CHD", year = 2018)

## End(Not run)
```

DV_PCPV_W_EMP

DV_PCPV_W_EMP

Description

DV_PCPV_W_EMP

Usage

```
DV_PCPV_W_EMP(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_PCPV_W_EMP", year = 2018)

## End(Not run)
```

DV_PCPV_W_FLW

DV_PCPV_W_FLW

Description

DV_PCPV_W_FLW

Usage

DV_PCPV_W_FLW(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_PCPV_W_FLW", year = 2018)

## End(Not run)
```

DV_PCPV_W_OLW

DV_PCPV_W_OLW

Description

DV_PCPV_W_OLW

Usage

DV_PCPV_W_OLW(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_PCPV_W_OLW", year = 2018)

## End(Not run)
```

DV_STPS_W_BFR

DV_STPS_W_BFR

Description

DV_STPS_W_BFR

Usage

DV_STPS_W_BFR(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_STPS_W_BFR", year = 2018)

## End(Not run)
```

DV_VPRG_W_VPG	<i>DV_VPRG_W_VPG</i>
---------------	----------------------

Description

DV_VPRG_W_VPG

Usage

DV_VPRG_W_VPG(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "DV_VPRG_W_VPG", year = 2018)

## End(Not run)
```

ED_EDUC_W_SEH	<i>ED_EDUC_W_SEH IRdata Percentage of women with secondary or higher education</i>
---------------	--

Description

ED_EDUC_W_SEH IRdata Percentage of women with secondary or higher education

Usage

ED_EDUC_W_SEH(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSIndicator. The whole function can be used as a parameter in surveyPrev::getDHSIndicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSIndicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

ED_LITR_W_LIT

ED_LITR_W_LIT

Description

ED_LITR_W_LIT

Usage

```
ED_LITR_W_LIT(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSIndicator. The whole function can be used as a parameter in surveyPrev::getDHSIndicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "ED_LITR_W_LIT", year = 2018)

## End(Not run)
```

ED_MDIA_W_3MD	<i>ED_MDIA_W_3MD</i>
---------------	----------------------

Description

ED_MDIA_W_3MD

Usage

ED_MDIA_W_3MD(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "ED_MDIA_W_3MD", year = 2018)

## End(Not run)
```

ED_MDIA_W_N3M	<i>ED_MDIA_W_N3M</i>
---------------	----------------------

Description

ED_MDIA_W_N3M

Usage

ED_MDIA_W_N3M(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "ED_MDIA_W_N3M", year = 2018)

## End(Not run)
```

ED_MDIA_W_NWS

ED_MDIA_W_NWS

Description

ED_MDIA_W_NWS

Usage

```
ED_MDIA_W_NWS(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "ED_MDIA_W_NWS", year = 2018)

## End(Not run)
```

ED_MDIA_W_RDO	<i>ED_MDIA_W_RDO</i>
---------------	----------------------

Description

ED_MDIA_W_RDO

Usage

ED_MDIA_W_RDO(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "ED_MDIA_W_RDO", year = 2018)

## End(Not run)
```

ED_MDIA_W_TLV	<i>ED_MDIA_W_TLV</i>
---------------	----------------------

Description

ED_MDIA_W_TLV

Usage

ED_MDIA_W_TLV(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "ED_MDIA_W_TLV", year = 2018)

## End(Not run)
```

EM_EMPM_W_EMP

EM_EMPM_W_EMP

Description

EM_EMPM_W_EMP

Usage

```
EM_EMPM_W_EMP(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "EM_EMPM_W_EMP", year = 2018)

## End(Not run)
```

exceedPlot

*Plot exceedance probability of model results***Description**

This function return a map of exceedance probability for given model results.

Usage

```
exceedPlot(
  x,
  exceed = TRUE,
  direction = 1,
  threshold = NA,
  geo = geo,
  by.geo = NULL,
  ylim = NULL,
  ...
)
```

Arguments

<code>x</code>	a model result using surveyPrev of class "fhModel" or "clusterModel"
<code>exceed</code>	direction of the comparison The default is <code>exceed = TRUE</code> , which correspond to probability of prevalence larger than the threshold. If <code>exceed = FALSE</code> , the plot computes probability smaller than the threshold.
<code>direction</code>	Direction of the color scheme. It can be either 1 (smaller values are darker) or -1 (higher values are darker). Default is set to 1.
<code>threshold</code>	the threshold to be used in computing the exceedance probability
<code>geo</code>	SpatialPolygonsDataFrame object for the map
<code>by.geo</code>	variable name specifying region names in the data
<code>ylim</code>	range of the values to be plotted.
<code>...</code>	additional arguments passed to <code>SUMMER::mapPlot()</code> .

Value

This function returns a map showing probability of prevalence over/under the threshold.

Author(s)

Zehang Li, Qianyu Dong

Examples

```
## Not run:

geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
data(ZambiaPopWomen)
cluster.info <- clusterInfo(geo = geo,
                           poly.adm1 = ZambiaAdm1,
                           poly.adm2 = ZambiaAdm2)

# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                     indicator = "RH_ANCN_W_N4P",
                     year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
admin.info2 <- adminInfo(poly.adm = ZambiaAdm2,
                        admin = 2,
                        by.adm="NAME_2",
                        by.adm.upper = "NAME_1")
cl_res_ad2_unstrat <- clusterModel(data = data,
                                   cluster.info = cluster.info,
                                   admin.info = admin.info2,
                                   stratification = FALSE,
                                   model = "bym2",
                                   admin = 2,
                                   aggregation = TRUE,
                                   CI = 0.95)
ZambiaAdm2$admin2.name.full <- paste0(ZambiaAdm2$NAME_1,
                                     "_",
                                     ZambiaAdm2$NAME_2)
exceedPlot(cl_res_ad2_unstrat, threshold = 0.5,
           exceed = TRUE, direction = -1,
           geo = ZambiaAdm2, by.geo = "admin2.name.full")
exceedPlot(cl_res_ad2_unstrat, threshold = 0.5,
           exceed = FALSE, direction = -1,
           geo = ZambiaAdm2, by.geo = "admin2.name.full")

## End(Not run)
```

FG_KFCC_W_HFC

*FG_KFCC_W_HFC IRdata Percentage of women who have ever
heard of female circumcision*

Description

FG_KFCC_W_HFC IRdata Percentage of women who have ever heard of female circumcision

Usage

```
FG_KFCC_W_HFC(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

FG_PFCC_W_WCC	<i>FG_PFCC_W_WCC IRdata Percentage of women circumcised (women who experienced female genital cutting (FGM))</i>
---------------	--

Description

FG_PFCC_W_WCC IRdata Percentage of women circumcised (women who experienced female genital cutting (FGM))

Usage

```
FG_PFCC_W_WCC(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

fhModel

Calculate smoothed direct estimates

Description

This function calculate smoothed direct estimates at given admin level.

Usage

```
fhModel(
  data,
  cluster.info,
  admin.info = NULL,
  X = NULL,
  nested = FALSE,
  admin,
  CI = 0.95,
  model = c("bym2", "iid"),
  aggregation = FALSE,
  alt.strata = NULL,
  var.fix = FALSE,
  ...
)
```

Arguments

data	dataframe that contains the indicator of interests, output of getDHSindicator function
cluster.info	list contains data and wrong.points. data contains admin 1 and admin 2 information and coordinates for each cluster. wrong.points. contains cluster id for cluster without coordinates or admin 1 information. Output of getDHSindicator function

<code>admin.info</code>	list contains data and mat, data contains population and urban/rural proportion at specific admin level and mat is the adjacency matrix, output of <code>adminInfo</code> function
<code>X</code>	dataframe that contains areal covariates, the first column should be the same admin name as in <code>admin.info\$data</code> .
<code>nested</code>	whether or not to fit a nested model.
<code>admin</code>	admin level for the model
<code>CI</code>	Credible interval to be used. Default to 0.95.
<code>model</code>	smoothing model used in the random effect. Options are independent ("iid") or spatial ("bym2").
<code>aggregation</code>	whether or not report aggregation results.
<code>alt.strata</code>	the variable name in the data frame that correspond to the stratification variable. Most of the DHS surveys are stratified by admin 1 area crossed with urban/rural, which is the default stratification variable created by the function (when <code>alt.strata = NULL</code>). When a different set of strata is used. The stratification variable should be included in the data and <code>alt.strata</code> should be set to the column name.
<code>var.fix</code>	Whether to use fix variance admin 2 direct estimate as input for the model.
<code>...</code>	Additional arguments passed on to the 'smoothSurvey' function

Value

This function returns the dataset that contain district name and population for given tiff files and polygons of admin level,

Author(s)

Qianyu Dong

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
data(ZambiaPopWomen)
cluster.info <- clusterInfo(geo = geo,
                           poly.adm1 = ZambiaAdm1,
                           poly.adm2 = ZambiaAdm2)

# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                     indicator = "RH_ANCN_W_N4P",
                     year = 2018)

data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
admin.info1 <- adminInfo(poly.adm = ZambiaAdm1,
```

```

        admin = 1,
        by.adm = "NAME_1",
        agg.pop =ZambiaPopWomen$admin1_pop,
        proportion = ZambiaPopWomen$admin1_urban)
smth_res_ad1 <- fhModel(data,
        cluster.info = cluster.info,
        admin.info = admin.info1,
        admin = 1,
        model = "bym2",
        aggregation = F)

smth_res_ad1

## End(Not run)

```

FP_CUSA_W_ANY

FP_CUSA_W_ANY

Description

FP_CUSA_W_ANY

Usage

```
FP_CUSA_W_ANY(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```

## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_ANY", year = 2018)

## End(Not run)

```

FP_CUSA_W EMC

FP_CUSA_W EMC

Description

FP_CUSA_W EMC

Usage

FP_CUSA_W EMC(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W EMC", year = 2018)

## End(Not run)
```

FP_CUSA_W FCN

FP_CUSA_W FCN

Description

FP_CUSA_W FCN

Usage

FP_CUSA_W FCN(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_FCN", year = 2018)

## End(Not run)
```

FP_CUSA_W_FST

FP_CUSA_W_FST

Description

FP_CUSA_W_FST

Usage

```
FP_CUSA_W_FST(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_FST", year = 2018)

## End(Not run)
```

FP_CUSA_W_IMP

FP_CUSA_W_IMP

Description

FP_CUSA_W_IMP

Usage

FP_CUSA_W_IMP(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_IMP", year = 2018)

## End(Not run)
```

FP_CUSA_W_INJ

FP_CUSA_W_INJ

Description

FP_CUSA_W_INJ

Usage

FP_CUSA_W_INJ(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_INJ", year = 2018)

## End(Not run)
```

FP_CUSA_W_IUD

FP_CUSA_W_IUD

Description

FP_CUSA_W_IUD

Usage

```
FP_CUSA_W_IUD(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_IUD", year = 2018)

## End(Not run)
```

FP_CUSA_W_MCN	<i>FP_CUSA_W_MCN</i>
---------------	----------------------

Description

FP_CUSA_W_MCN

Usage

FP_CUSA_W_MCN(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_MCN", year = 2018)

## End(Not run)
```

FP_CUSA_W_MOD	<i>FP_CUSA_W_MOD IRdata Modern contraceptive prevalence rate (women currently using any modern method of contraception)</i>
---------------	---

Description

FP_CUSA_W_MOD IRdata Modern contraceptive prevalence rate (women currently using any modern method of contraception)

Usage

FP_CUSA_W_MOD(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::FP_CUSA_W_MOD)

## End(Not run)
```

FP_CUSA_W_MST

FP_CUSA_W_MST

Description

FP_CUSA_W_MST

Usage

FP_CUSA_W_MST(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_MST", year = 2018)

## End(Not run)
```

FP_CUSA_W_PIL

FP_CUSA_W_PIL

Description

FP_CUSA_W_PIL

Usage

```
FP_CUSA_W_PIL(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_PIL", year = 2018)

## End(Not run)
```

FP_CUSA_W_STD

FP_CUSA_W_STD

Description

FP_CUSA_W_STD

Usage

FP_CUSA_W_STD(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_STD", year = 2018)

## End(Not run)
```

FP_CUSA_W_TRA

FP_CUSA_W_TRA

Description

FP_CUSA_W_TRA

Usage

FP_CUSA_W_TRA(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_TRA", year = 2018)

## End(Not run)
```

FP_CUSA_W_WTH

FP_CUSA_W_WTH

Description

FP_CUSA_W_WTH

Usage

```
FP_CUSA_W_WTH(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_CUSA_W_WTH", year = 2018)

## End(Not run)
```

FP_CUSM_W_MOD	<i>FP_CUSM_W_MOD IRdata Modern contraceptive prevalence rate (Married women currently using any modern method of contraception)</i>
---------------	---

Description

FP_CUSM_W_MOD IRdata Modern contraceptive prevalence rate (Married women currently using any modern method of contraception)

Usage

```
FP_CUSM_W_MOD(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::FP_CUSM_W_MOD)

## End(Not run)
```

FP_EFPM_M_NWS

FP_EFPM_M_NWS

Description

FP_EFPM_M_NWS

Usage

FP_EFPM_M_NWS(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_EFPM_M_NWS", year = 2018)

## End(Not run)
```

FP_EFPM_M_TLV

FP_EFPM_M_TLV

Description

FP_EFPM_M_TLV

Usage

FP_EFPM_M_TLV(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_EFPM_M_TLV", year = 2018)

## End(Not run)
```

FP_EFPM_W_NWS

FP_EFPM_W_NWS

Description

FP_EFPM_W_NWS

Usage

```
FP_EFPM_W_NWS(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_EFPM_W_NWS", year = 2018)

## End(Not run)
```

FP_EFPM_W_RDO

FP_EFPM_W_RDO

Description

FP_EFPM_W_RDO

Usage

FP_EFPM_W_RDO(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_EFPM_W_RDO", year = 2018)

## End(Not run)
```

FP_EFPM_W_TLV

FP_EFPM_W_TLV

Description

FP_EFPM_W_TLV

Usage

FP_EFPM_W_TLV(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_EFPM_W_TLV", year = 2018)

## End(Not run)
```

FP_EVUM_W_MOD

FP_EVUM_W_MOD

Description

FP_EVUM_W_MOD

Usage

```
FP_EVUM_W_MOD(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_EVUM_W_MOD", year = 2018)

## End(Not run)
```

FP_KMTA_W_ANY

FP_KMTA_W_ANY

Description

FP_KMTA_W_ANY

Usage

FP_KMTA_W_ANY(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_ANY", year = 2018)

## End(Not run)
```

FP_KMTA_W EMC

FP_KMTA_W EMC

Description

FP_KMTA_W EMC

Usage

FP_KMTA_W EMC(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W EMC", year = 2018)

## End(Not run)
```

FP_KMTA_W_FCN

FP_KMTA_W_FCN

Description

FP_KMTA_W_FCN

Usage

```
FP_KMTA_W_FCN(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_FCN", year = 2018)

## End(Not run)
```

FP_KMTA_W_FST	<i>FP_KMTA_W_FST</i>
---------------	----------------------

Description

FP_KMTA_W_FST

Usage

FP_KMTA_W_FST(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_FST", year = 2018)

## End(Not run)
```

FP_KMTA_W_IMP	<i>FP_KMTA_W_IMP</i>
---------------	----------------------

Description

FP_KMTA_W_IMP

Usage

FP_KMTA_W_IMP(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_IMP", year = 2018)

## End(Not run)
```

FP_KMTA_W_INJ

FP_KMTA_W_INJ

Description

FP_KMTA_W_INJ

Usage

```
FP_KMTA_W_INJ(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_INJ", year = 2018)

## End(Not run)
```

FP_KMTA_W_IUD

FP_KMTA_W_IUD

Description

FP_KMTA_W_IUD

Usage

FP_KMTA_W_IUD(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_IUD", year = 2018)

## End(Not run)
```

FP_KMTA_W_MST

FP_KMTA_W_MST

Description

FP_KMTA_W_MST

Usage

FP_KMTA_W_MST(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_MST", year = 2018)

## End(Not run)
```

FP_KMTA_W_OMD

FP_KMTA_W_OMD

Description

FP_KMTA_W_OMD

Usage

```
FP_KMTA_W_OMD(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_OMD", year = 2018)

## End(Not run)
```

FP_KMTA_W_PIL

FP_KMTA_W_PIL

Description

FP_KMTA_W_PIL

Usage

FP_KMTA_W_PIL(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_PIL", year = 2018)

## End(Not run)
```

FP_KMTA_W_STD

FP_KMTA_W_STD

Description

FP_KMTA_W_STD

Usage

FP_KMTA_W_STD(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_STD", year = 2018)

## End(Not run)
```

FP_KMTA_W_TRA

FP_KMTA_W_TRA

Description

FP_KMTA_W_TRA

Usage

```
FP_KMTA_W_TRA(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_TRA", year = 2018)

## End(Not run)
```

FP_KMTA_W_WTH	<i>FP_KMTA_W_WTH</i>
---------------	----------------------

Description

FP_KMTA_W_WTH

Usage

FP_KMTA_W_WTH(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_KMTA_W_WTH", year = 2018)

## End(Not run)
```

FP_NADA_W_UNT	<i>FP_NADA_W_UNT IRdata Women with an unmet need for family planning for spacing and limiting</i>
---------------	---

Description

FP_NADA_W_UNT IRdata Women with an unmet need for family planning for spacing and limiting

Usage

FP_NADA_W_UNT(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_NADA_W_UNT",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::FP_NADA_W_UNT)

## End(Not run)
```

FP_NADM_W_PDM

*FP_NADA_W_UNT IRdata Women with an unmet need for family
planning for spacing and limiting*

Description

FP_NADA_W_UNT IRdata Women with an unmet need for family planning for spacing and limiting

Usage

FP_NADM_W_PDM(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_NADM_W_PDM",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                      FUN = surveyPrev::FP_NADM_W_PDM)

## End(Not run)
```

FP_NADM_W_UNT	<i>FP_NADM_W_UNT #unmet_family IRdata Married women with an unmet need for family planning for spacing and limiting, line 17 manually added by Qianyu</i>
---------------	---

Description

FP_NADM_W_UNT #unmet_family IRdata Married women with an unmet need for family planning for spacing and limiting, line 17 manually added by Qianyu

Usage

```
FP_NADM_W_UNT(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "FP_NADM_W_UNT", year = 2018)

## End(Not run)
```

FP_NDYA_W_PDM	<i>FP_NADA_W_UNT IRdata Women with an unmet need for family planning for spacing and limiting</i>
---------------	---

Description

FP_NADA_W_UNT IRdata Women with an unmet need for family planning for spacing and limiting

Usage

FP_NDYA_W_PDM(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_NDYA_W_PDM",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::FP_NDYA_W_PDM)

## End(Not run)
```

getCovariate	<i>Extract Covariate Data from A list of Rasters</i>
--------------	--

Description

This function aligns raster covariates to a population density grid, extracts values for a national grid, associates administrative information, and prepares covariates for cluster-based data.

Usage

```

getCovariate(
  tiffs,
  tiff.population,
  UR.surface = NULL,
  cluster.info,
  poly.adm,
  by.adm,
  by.adm.upper,
  standardize = FALSE,
  na.rm = FALSE,
  fact = 1
)

```

Arguments

<code>tiffs</code>	A list of 'SpatRaster' with element names the column names for the covariates.
<code>tiff.population</code>	A 'SpatRaster' object representing population density used as the reference grid.
<code>UR.surface</code>	(Optional) A 'SpatRaster' object indicating urban-rural classification.
<code>cluster.info</code>	**Need STRATA here**
<code>poly.adm</code>	A 'sf' object
<code>by.adm</code>	the column name of column for Admin names for admin 1
<code>by.adm.upper</code>	the column name of column for Admin names for admin 2 or other lower admin level.
<code>standardize</code>	whether to standardize the covariates/tiffs or not
<code>na.rm</code>	whether to remove rows that have no Population or admin 2 membership
<code>fact</code>	A numeric value indicating the aggregation factor for resampling the raster data. If 'fact = 1', no aggregation is performed.

Details

The function follows these steps: 1. Converts 'poly.adm' to an 'sf' object. 2. Aligns rasters in 'tiffs' to match the 'tiff.population' grid using bilinear resampling. 3. Aggregates raster resolution if 'fact' is greater than 1. 4. Extracts pixel center coordinates and values for the national grid. 5. Matches pixel locations to administrative boundaries. 6. Extracts raster values at cluster locations.

Value

A list with two elements:

<code>natl.grid</code>	A data frame containing natl grid of pixels for covariates and Admin information.
<code>cluster.cov</code>	A data frame with extracted covariates for cluster locations. U/R info from DHS

Examples

```
## Not run:

kenya_cov <- getCovariate(
  tiffs = cov_raster_stack,
  tiff.population = avg.pop,
  UR.surface = UR_surface,
  cluster.info = cluster.info,
  poly.adm = poly.adm2,
  by.adm = 'NAME_2',
  by.adm.upper = 'NAME_1',
  standardize=FALSE,
  .    na.rm=FALSE,
  fact = 1)

## End(Not run)
```

getDHSdata

*Download DHS survey data***Description**

This function downloads DHS data for a particular country and survey.

Usage

```
getDHSdata(country, indicator = NULL, Recode = NULL, year, SurveyType = "DHS")
```

Arguments

country	Country name.
indicator	Indicator of interests. Current list of supported indicators include: "womananemia", "ancvisit4+", "stunting", "wasting", "DPT3".
Recode	Types of dhs Recode
year	Year the survey conducted.
SurveyType	Type of survey ("DHS","SPE"). Default is "DHS".

Value

This function returns the survey dataset that contains the indicator.

Author(s)

Qianyu Dong

Examples

```
## Not run:
# When indicator is known, download only the relevant file
# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)

# When indicator is NULL or not recognized, download all files
dhsData <- getDHSdata(country = "Zambia",
                      indicator = NULL,
                      year = 2018)

names(dhsData)

## End(Not run)
```

getDHSgeo

*Download DHS geo data***Description**

This function downloads cluster's coordinate data for country and survey.

Usage

```
getDHSgeo(country, year)
```

Arguments

country	Country name.
year	Year the survey conducted.

Value

The function returns a spatial point dataset with coordinates for each cluster based on the chosen survey and year.

Author(s)

Qianyu Dong

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)

## End(Not run)
```

getDHSindicator	<i>Process DHS data</i>
-----------------	-------------------------

Description

This function processes DHS data from getDHSdata function.

Usage

```
getDHSindicator(
  Rdata,
  indicator = NULL,
  FUN = NULL,
  nmr.year = 10,
  filter = NULL,
  yesCondition = NULL,
  noCondition = NULL
)
```

Arguments

Rdata	Result from getDHSdata function, the raw DHS survey data from get_datasets.
indicator	Indicator of interests.
FUN	a function to process the DHS data into a binary indicator if not using one of the implemented indicators. See surveyPrev::AN_ANEM_W_ANY for an example function to obtain the indicator for women classified as having any anemia.
nmr.year	This is an argument specifically for NMR calculation. It specifies births how many years do we include prior to the date of survey. Default to be 10, i.e., NMR in the last 10 years prior to survey.
filter	This arguments specifies how the data should be filtered for creating a customized indicator. It should be a character string or a vector of character strings specifying the expression used to filter the data. See example for details
yesCondition	This arguments specifies how to define a yes label, i.e., value = 1, for creating a customized indicator. It should be a character string specifying the expression used to define the outcome value equal to 1. See example for details.
noCondition	This arguments specifies how to define a no label, i.e., value = 0, for creating a customized indicator. It should be a character string specifying the expression used to define the outcome value equal to 0. See example for details.

Value

The function returns processed survey data that contains the indicator of interests.

Author(s)

Qianyu Dong

Examples

```
## Not run:
# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData1 <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data1 <- getDHSIndicator(dhsData, indicator = "RH_ANCN_W_N4P")

#-----#
# User-specified function to process the data
# For example see the internal function surveyPrev::AN_ANEM_W_ANY
#-----#
dhsData2 <- getDHSdata(country = "Zambia",
                      indicator = NULL,
                      year = 2018)
data2 <- getDHSIndicator(dhsData2, indicator = NULL,
                      FUN = surveyPrev::AN_ANEM_W_ANY)
# which should be identical to the following
dhsData3 <- getDHSdata(country = "Zambia",
                      indicator = "womananemia",
                      year = 2018)
data3 <- getDHSIndicator(dhsData3, indicator = "womananemia")

#-----#
# User-specified filtering condition
# Demonstrating NMR data preparation by specifying how to subset data
#   and specify the outcome variable and its levels
#-----#
Recode <- "Births Recode"
dhsData4 <- getDHSdata(country = "Zambia", indicator = NULL,
                      Recode=Recode, year = "2018")

#
# Here we filter the births to be within the last 10 years
#   this is specified by condition = "v008 - b3 < 120"
# b3 is the date of births in CMC format
# v008 is the date of interview in CMC format
# the difference is the number of months between the two dates
# b7 is the age of death for the child. We consider neonatal deaths where
#   b7 = 0.
# b7 = NA when the child is alive at the time of interview.
data4 <- getDHSIndicator(Rdata = dhsData4,
                      indicator = NULL,
                      filter = "v008 - b3 < 120",
                      yesCondition = "b7 == 0",
                      noCondition = "b7 > 0 | is.na(b7)")

# This will return the same dataset as below
data5 <- getDHSIndicator(Rdata = dhsData4, indicator = "nmr")

# Notice that filter can have more than one conditions specified by vector
# The following four specifications lead to the same dataset for
```

```
# neonatal deaths in the last 5 years
data6a <- getDHSindicator(Rdata = dhsData4,
                        indicator = NULL,
                        filter = "v008 - b3 < 120 & v008 - b3 < 60",
                        yesCondition = "b7 == 0",
                        noCondition = "b7 > 0 | is.na(b7)")
data6b <- getDHSindicator(Rdata = dhsData4,
                        indicator = NULL,
                        filter = c("v008 - b3 < 120", "v008 - b3 < 60"),
                        yesCondition = "b7 == 0",
                        noCondition = "b7 > 0 | is.na(b7)")
data6c <- getDHSindicator(Rdata = dhsData4,
                        indicator = NULL,
                        filter = "v008 - b3 < 60",
                        yesCondition = "b7 == 0",
                        noCondition = "b7 > 0 | is.na(b7)")
data7 <- getDHSindicator(Rdata = dhsData4, indicator = "nmr", nmr.year = 5)

## End(Not run)
```

getUR

Function to threshold population raster to obtain urban/rural fractions by Admin1 and Admin2 areas

Description

This function computes the urban proportion at a given survey year. It requires two population raster files and urban population fraction by admin 1 area from the census. The census year overall population raster is used to partition the grids into urban and rural pixels, based on the urban population fractions in a given area at the census year. The thresholding process is performed by first sorting the pixels from high to low population density, and find a threshold such that the fraction of population above this threshold matches the urban population fraction from the census. This step defines the urbanicity of each pixel. In the second step, for any given year's raster for a specific (sub-)population (e.g., specific age groups), we aggregate the population in the urban pixels defined in the previous step to compute urban proportion for the (sub-)population, within both admin1 and admin2 regions.

Usage

```
getUR(
  tiff.census,
  tiff.survey,
  prop.census,
  fact = 10,
  poly.adm1,
  poly.adm2,
  varname1,
  varname2
)
```

Arguments

tiff.census	spatial raster of population estimates at the census year when the sampling frame is based, for the whole population.
tiff.survey	spatial raster of population estimates at the survey year, for the target population.
prop.census	a data frame with two columns: 'admin1' column correspond to the admin 1 names in the 'poly.adm1' file. And 'frac' column specifying the proportion of population in each admin 1 area during the census year. See examples for detail.
fact	factor to aggregate pixels from tiff.survey to tiff.census. For example, if tiff.census is a population raster at 1km by 1km resolution and tiff.survey is a raster at 100m by 100m resolution, then fact should be set to 10. Currently we only support fact > 1. Default is 10.
poly.adm1	spatial polygons data frame for admin 1
poly.adm2	spatial polygons data frame for admin 2
varname1	column name of district name in the admin 1 spatial polygon data frame
varname2	column name of district name in the admin 2 spatial polygon data frame

Value

a list of two data frames for admin 1 and admin 2 urban ratios and UR surface where 1 for urban.

Examples

```
## Not run:
# -----#
# Here we consider the example of computing urban/rural fraction for
# Zambia 2018 DHS for the sub-population of children under 1 years old.
# This survey is based on sampling frame from the 2010 Zambia Census.
# -----#
#
# From Table A1 of Zambia 2013-2014 DHS final report, we can obtain the fraction of
# urban population by Admin 1 areas in the 2010 survey.
# Notice that in the appendix of the 2018 DHS final report,
# only distribution of household is reported and not population size by urbanicity.
# When the table is not provided in the DHS report, you need to find it from
# the census website directly.
# Please note that the admin1 column needs to match the admin 1 names in the
# Admin 1 spatial polygon file exactly.
# For example, here we change "Northwestern" to "North-Western"

urban.frac <- data.frame(
  admin1 = c('Central', 'Copperbelt', 'Eastern',
            'Luapula', 'Lusaka', 'Muchinga',
            'North-Western', 'Northern', 'Southern', 'Western'),
  frac = c(0.2513, 0.809, 0.1252,
           0.1963, 0.8456, 0.1714,
           0.2172, 0.1826, 0.2448, 0.1474))
# The corresponding census year population tiff can be found at:
# https://data.worldpop.org/GIS/Population/Global_2000_2020_1km_UNadj/
```

```

# The code below downloads the file from the internet directly
# You can also download the file directly and read into R
link1="https://data.worldpop.org/GIS/Population/Global_2000_2020_1km_UNadj/"
file1="2010/ZMB/zmb_ppp_2010_1km_Aggregated_UNadj.tif"
tempfile1 = tempfile()
download.file(paste0(link1, file1), destfile = tempfile1,
method = "libcurl", mode="wb")
library(raster)
tiff1 <- raster(tempfile1)

# https://hub.worldpop.org/geodata/summary?id=16429
# Here we compute population fractions for 0-1 year old population.
# The from the same link below
link2="https://data.worldpop.org/GIS/AgeSex_structures/Global_2000_2020/"
# The two files are for female and male population respectively,
file2f="2018/ZMB/zmb_f_0_2018.tif"
file2m="2018/ZMB/zmb_m_0_2018.tif"

# Since the two files are very large, we recommend downloading them
# manually and then load them into R.
tiff2f <- raster("zmb_f_0_2018.tif")
tiff2m <- raster("zmb_m_0_2018.tif")
tiff2 <- tiff2f + tiff2m

frac <- getUR(tiff.census = tiff1, tiff.survey = tiff2,
prop.census = urban.frac, fact = 10,
poly.adm1 = ZambiaAdm1, poly.adm2 = ZambiaAdm2,
varname1 = "NAME_1", varname2 = "NAME_2")

library(SUMMER)
mapPlot(frac$admin1.ur, geo = ZambiaAdm1,
by.data = "admin1.name", by.geo = "NAME_1", variable = "urban")
mapPlot(frac$admin2.ur, geo = ZambiaAdm2,
by.data = "admin2.name", by.geo = "NAME_2", variable = "urban")
# Compare with the proportion of Women 14-49 years old in the built-in data
# These two plots should be similar but not identical
# since the population is different
mapPlot(ZambiaPopWomen$admin2_urban, geo = ZambiaAdm2,
by.data = "admin2.name", by.geo = "NAME_2", variable = "urban")

## End(Not run)

```

get_api_table

Function to obtain subnational estimates from DHS API

Description

Function to obtain subnational estimates from DHS API

Usage

```
get_api_table(country, survey, indicator, simplify = TRUE, admin = 1)
```

Arguments

country	A character string of keys at: https://api.dhsprogram.com/rest/dhs/countries?returnFields=CountryName,La
survey	A character string of keys at: https://api.dhsprogram.com/rest/dhs/surveys?returnFields=SurveyId,Survey
indicator	A character string of keys at: https://api.dhsprogram.com/rest/dhs/indicators?returnFields=IndicatorId,La
simplify	if TRUE only the value and region index is returned.
admin	Either 0 (national) or 1 (subnational admin 1 area).

Value

a data frame of the DHS indicator estimates

Examples

```
## Not run:
# country: Zambia
# survey: 2018 DHS
# indicator: Percentage of children stunted
#           (below -2 SD of height for age
#           according to the WHO standard)
dhs_table <- get_api_table(country = "ZM",
                           survey = "ZM2018DHS",
                           indicator = "CN_NUTS_C_HA2",
                           simplify = TRUE)

dhs_table

## End(Not run)
```

get_geoBoundaries	<i>Download geoBoundaries Shapefile as sf Object</i>
-------------------	--

Description

Retrieves official administrative boundary shapefiles from the [geoBoundaries](<https://www.geoboundaries.org/>) API for a given country ISO3 code and administrative level. Returns the data as an 'sf' object for direct spatial use.

Usage

```
get_geoBoundaries(iso3, adm = "ADM1", release = "gbOpen")
```

Arguments

iso3	Character. The three-letter ISO3 country code (e.g., "NGA", "ZMB").
adm	Character. Administrative level to download (e.g., "ADM0", "ADM1", "ADM2"). Defaults to "ADM1".
release	Character. geoBoundaries release type. Either "gbOpen" (default) for open data or "gbAuthoritative" for official boundaries.

Value

An 'sf' object containing the requested administrative boundaries.

Examples

```
## Not run:
# Download Nigeria Admin 1 boundaries
nga_adm1 <- get_geoBoundaries("NGA", adm = "ADM1")

# Download Burkina Faso Admin 2 boundaries from the authoritative release
bfa_adm2 <- get_geoBoundaries("BFA", adm = "ADM2", release = "gbAuthoritative")

## End(Not run)
```

HA_AFSY_M_A15	HA_AFSY_M_A15
---------------	---------------

Description

HA_AFSY_M_A15

Usage

```
HA_AFSY_M_A15(MRdata)
```

Arguments

MRdata	data.frame from surveyPrev::getDHSdata
--------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSIndicator. The whole function can be used as a parameter in surveyPrev::getDHSIndicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_AFSY_M_A15", year = 2018)

## End(Not run)
```

*HA_AFSY_M_A18**HA_AFSY_M_A18*

Description

HA_AFSY_M_A18

Usage

HA_AFSY_M_A18(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_AFSY_M_A18", year = 2018)

## End(Not run)
```

HA_AFSY_W_A18

*HA_AFSY_W_A18***Description**

HA_AFSY_W_A18

Usage

HA_AFSY_W_A18(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_AFSY_W_A18", year = 2018)

## End(Not run)
```

HA_ANSS_M_CND

*HA_ANSS_M_CND***Description**

HA_ANSS_M_CND

Usage

HA_ANSS_M_CND(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_ANSS_M_CND", year = 2018)

## End(Not run)
```

HA_ANSS_W_CND

HA_ANSS_W_CND

Description

HA_ANSS_W_CND

Usage

```
HA_ANSS_W_CND(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_ANSS_W_CND", year = 2018)

## End(Not run)
```


Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:

## Not run:

## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_CATH_W_ATN", year = 2018)

## End(Not run)
```

HA_CATH_W_NRS	HA_CATH_W_NRS
---------------	---------------

Description

HA_CATH_W_NRS

Usage

HA_CATH_W_NRS(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:

## Not run:

## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_CATH_W_NRS", year = 2018)

## End(Not run)
```

HA_HIVP_B_HIV	<i>HA_HIVP_B_HIV hv_hiv_pos "HIV prevalence among general population"</i>
---------------	---

Description

HA_HIVP_B_HIV hv_hiv_pos "HIV prevalence among general population"

Usage

```
HA_HIVP_B_HIV(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata IR+AR+MR

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "HA_HIVP_B_HIV",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::HA_HIVP_B_HIV)

## End(Not run)
```

HA_HRSX_W_CND

HA_HRSX_W_CND

Description

HA_HRSX_W_CND

Usage

HA_HRSX_W_CND(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_HRSX_W_CND", year = 2018)

## End(Not run)
```

HA_HVST_M_HRD

HA_HVST_M_HRD

Description

HA_HVST_M_HRD

Usage

HA_HVST_M_HRD(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_HVST_M_HRD", year = 2018)

## End(Not run)
```

HA_HVST_M_USD

HA_HVST_M_USD

Description

HA_HVST_M_USD

Usage

```
HA_HVST_M_USD(MRdata)
```

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_HVST_M_USD", year = 2018)

## End(Not run)
```

HA_HVTY_M_TRR	<i>HA_HVTY_M_TRR</i>
---------------	----------------------

Description

HA_HVTY_M_TRR

Usage

HA_HVTY_M_TRR(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_HVTY_M_TRR", year = 2018)

## End(Not run)
```

HA_HVTY_W_TRR	<i>HA_HVTY_W_TRR</i>
---------------	----------------------

Description

HA_HVTY_W_TRR

Usage

HA_HVTY_W_TRR(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_HVTY_W_TRR", year = 2018)

## End(Not run)
```

HA_KAID_W_HRD	<i>HA_KAID_W_HRD Percentage of women who have heard of HIV or AIDS hk_ever_heard in github IR</i>
---------------	---

Description

HA_KAID_W_HRD Percentage of women who have heard of HIV or AIDS hk_ever_heard in github IR

Usage

```
HA_KAID_W_HRD(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_KAID_W_HRD", year = 2018)

## End(Not run)
```

HA_STIS_M_DIS	<i>HA_STIS_M_DIS</i>
---------------	----------------------

Description

HA_STIS_M_DIS

Usage

HA_STIS_M_DIS(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_STIS_M_DIS", year = 2018)

## End(Not run)
```

HA_STIS_M_SOR	<i>HA_STIS_M_SOR</i>
---------------	----------------------

Description

HA_STIS_M_SOR

Usage

HA_STIS_M_SOR(MRdata)

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_STIS_M_SOR", year = 2018)

## End(Not run)
```

HA_STIS_W_STI

HA_STIS_W_STI Percentage of women reporting a sexually transmitted infection in the 12 months preceding the survey among women who ever had sexual intercourse hk_sti in github IR

Description

HA_STIS_W_STI Percentage of women reporting a sexually transmitted infection in the 12 months preceding the survey among women who ever had sexual intercourse hk_sti in github IR

Usage

```
HA_STIS_W_STI(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HA_STIS_W_STI", year = 2018)

## End(Not run)
```

 HC_AGEG_P_ADL

HC_AGEG_P_ADL

Description

HC_AGEG_P_ADL

Usage

HC_AGEG_P_ADL(PRdata)

Arguments

PRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HC_AGEG_P_ADL", year = 2018)

## End(Not run)
```

 HC_ELEC_H_ELC

*HC_ELEC_H_ELC Percentage of households with electricity
ph_electric in github HR*

Description

HC_ELEC_H_ELC Percentage of households with electricity ph_electric in github HR

Usage

HC_ELEC_H_ELC(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HC_ELEC_H_ELC", year = 2018)

## End(Not run)
```

HC_FLRM_H_CER	<i>HC_FLRM_H_CER Percentage of households with ceramic tile floors ph_floor in github HR</i>
---------------	--

Description

HC_FLRM_H_CER Percentage of households with ceramic tile floors ph_floor in github HR

Usage

```
HC_FLRM_H_CER(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HC_FLRM_H_CER", year = 2018)

## End(Not run)
```

HC_HEFF_H_RDO	<i>HC_HEFF_H_RDO Percentage of households possessing a radio ph_radio in github HR</i>
---------------	--

Description

HC_HEFF_H_RDO Percentage of households possessing a radio ph_radio in github HR

Usage

```
HC_HEFF_H_RDO(Rdata)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
-------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "HC_HEFF_H_RDO", year = 2018)

## End(Not run)
```

HC_WIXQ_P_12Q	<i>HC_WIXQ_P_12Q PRdata Population in the lowest and second wealth quintile</i>
---------------	---

Description

HC_WIXQ_P_12Q PRdata Population in the lowest and second wealth quintile

Usage

```
HC_WIXQ_P_12Q(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

HC_WIXQ_P_2ND

HC_WIXQ_P_2ND PRdata Population in the second wealth quintile

Description

HC_WIXQ_P_2ND PRdata Population in the second wealth quintile

Usage

HC_WIXQ_P_2ND(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

HC_WIXQ_P_LOW

*HC_WIXQ_P_LOW PRdata Population in the lowest wealth quintile***Description**

HC_WIXQ_P_LOW PRdata Population in the lowest wealth quintile

Usage

```
HC_WIXQ_P_LOW(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

indicatorList	<i>Table of supported DHS indicators.</i>
---------------	---

Description

A data frame listing the DHS indicators supported by the package, including their IDs, descriptions, full definitions, associated DHS chapters, and the recode files (IR, PR, KR, BR, HR, MR, AR, CR) required to compute them.

Usage

```
data(indicatorList)
```

Format

A data frame with 182 rows and 15 columns:

Chap_abbrev Chapter acronym.

ID DHS standard indicator ID.

Description Short label of the indicator.

Full_definition Full definition of the indicator.

Topic Chapter topic the indicator belongs to.

IR, PR, KR, BR, HR, MR, AR, CR Logical flags indicating which DHS recode files are required.

Chapter DHS chapter number.

Title DHS chapter title.

intervalPlot	<i>Get scatter plot for any two model results</i>
--------------	---

Description

This function return scatter plot at admin 1 level for any two model results

Usage

```
intervalPlot(
  admin = 0,
  compare = FALSE,
  model = NULL,
  group = FALSE,
  sort_by = NULL,
  decreasing = FALSE
)
```

Arguments

admin	level of plot
compare	plot for compare multiple plot or not
model	list of model results using surveyPrev
group	plot by group or not
sort_by	the name of the model to sort the areas by. Default to be NULL
decreasing	whether the regions are sorted in decreasing order. Default to be NULL

Value

This function returns the dataset that contain district name and population for given tiff files and polygons of admin level.

Author(s)

Qianyu Dong

Examples

```
## Not run:

geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
data(ZambiaPopWomen)
cluster.info <- clusterInfo(geo = geo,
                           poly.adm1 = ZambiaAdm1,
                           poly.adm2 = ZambiaAdm2)

# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                     indicator = "RH_ANCN_W_N4P",
                     year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
admin.info2 <- adminInfo(poly.adm = ZambiaAdm2,
                        admin = 2,
                        agg.pop = ZambiaPopWomen$admin2_pop,
                        proportion = ZambiaPopWomen$admin2_urban)

# unstratified model
cl_res_ad2_unstrat <- clusterModel(data = data,
                                   cluster.info = cluster.info,
                                   admin.info = admin.info2,
                                   stratification = FALSE,
                                   model = "bym2",
                                   admin = 2,
                                   aggregation = TRUE,
                                   CI = 0.95)

head(cl_res_ad2_unstrat$res.admin2)
```

```
head(cl_res_ad2_unstrat$agg.admin1)
plots <- intervalPlot(cl_res_ad2_unstrat)
plots[["Central"]]

# unstratified model
cl_res_ad2 <- clusterModel(data = data,
                           cluster.info = cluster.info,
                           admin.info = admin.info2,
                           stratification = TRUE,
                           model = "bym2",
                           admin = 2,
                           aggregation = TRUE,
                           CI = 0.95)
head(cl_res_ad2$res.admin2)
head(cl_res_ad2$agg.admin1)
plots <- intervalPlot(cl_res_ad2)
plots[["Central"]]

library(patchwork)
wrap_plots(plots, ncol = 5)

## End(Not run)
```

match_all_result	<i>Indicator matching table.</i>
------------------	----------------------------------

Description

A data frame with DHS indicator information used to match across different code bases.

Usage

```
data(match_all_result)
```

Format

An object of class data.frame with 146 rows and 21 columns.

MA_CWIV_W_CWV	MA_CWIV_W_CWV
---------------	---------------

Description

MA_CWIV_W_CWV

Usage

```
MA_CWIV_W_CWV(IRdata)
```

Arguments

```
IRdata          data.frame from surveyPrev::getDHSdata
```

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "MA_CWIV_W_CWV", year = 2018)

## End(Not run)
```

MA_MBAG_W_B15

*MA_MBAG_W_B15 Women first married by exact age 15 ms_afm_15
in github IR*

Description

MA_MBAG_W_B15 Women first married by exact age 15 ms_afm_15 in github IR

Usage

```
MA_MBAG_W_B15(Rdata)
```

Arguments

```
Rdata          data.frame from surveyPrev::getDHSdata
```

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "MA_MBAG_W_B15", year = 2018)

## End(Not run)
```

MA_MBAG_W_B18	<i>##' MA_MBAG_W_B18 Percentage of women first married by exact age 18 ms_afm_18 in github IR</i>
---------------	---

Description

```
##' MA_MBAG_W_B18 Percentage of women first married by exact age 18 ms_afm_18 in github IR
```

Usage

```
MA_MBAG_W_B18(Rdata)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
-------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "MA_MBAG_W_B18", year = 2018)

## End(Not run)
```

MA_MBAY_W_B15	<i>MA_MBAY_W_B15 Young women age 20-24 first married by exact age 15 ms_afm_15 in github IR</i>
---------------	---

Description

MA_MBAY_W_B15 Young women age 20-24 first married by exact age 15 ms_afm_15 in github IR

Usage

```
MA_MBAY_W_B15(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "MA_MBAY_W_B15", year = 2018)

## End(Not run)
```

MA_MBAY_W_B18	<i>MA_MBAY_W_B18 Percentage of Young women age 20-24 first married by exact age 18 ms_afm_18 in github IR</i>
---------------	---

Description

MA_MBAY_W_B18 Percentage of Young women age 20-24 first married by exact age 18 ms_afm_18 in github IR

Usage

```
MA_MBAY_W_B18(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "MA_MBAY_W_B18", year = 2018)

## End(Not run)
```

MA_MSTA_W_NMA	<i>MA_MSTA_W_NMA</i>
---------------	----------------------

Description

MA_MSTA_W_NMA

Usage

MA_MSTA_W_NMA(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "MA_MSTA_W_NMA", year = 2018)

## End(Not run)
```

ML_NETC_C_ITN	<i>ML_NETC_C_ITN PRdata Percentage of children under age five who slept under an insecticide treated net (ITN) the night before the survey</i>
---------------	--

Description

ML_NETC_C_ITN PRdata Percentage of children under age five who slept under an insecticide treated net (ITN) the night before the survey

Usage

```
ML_NETC_C_ITN(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

ML_NETP_H_IT2	<i>ML_NETP_H_IT2 HRdata Households with access to an insecticide-treated mosquito net (ITN)</i>
---------------	---

Description

ML_NETP_H_IT2 HRdata Households with access to an insecticide-treated mosquito net (ITN)

Usage

```
ML_NETP_H_IT2(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "ML_NETP_H_IT2",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::ML_NETP_H_IT2)

## End(Not run)
```

ML_NETU_P_ITN	<i>ML_NETU_P_ITN PRdata Percentage of the de facto household population who slept under an insecticide treated net the night before the survey</i>
---------------	--

Description

ML_NETU_P_ITN PRdata Percentage of the de facto household population who slept under an insecticide treated net the night before the survey

Usage

```
ML_NETU_P_ITN(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

ML_PMAL_C_RDT

ML_PMAL_C_RDT PRdata Malaria prevalence according to RDT

Description

ML_PMAL_C_RDT PRdata Malaria prevalence according to RDT

Usage

```
ML_PMAL_C_RDT(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "ML_PMAL_C_RDT",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                      FUN = surveyPrev::ML_PMAL_C_RDT)

## End(Not run)
```

prevMap	<i>static prevalence map for any subnational level</i>
---------	--

Description

produce static map for any subnational level, with the option to focus on one admin-1 level

Usage

```
prevMap(
  res.obj,
  poly.shp,
  admin1.focus = NULL,
  value.to.plot = "mean",
  map.title = NULL,
  legend.label = "Estimates",
  threshold.p = NULL,
  color.palette = NULL,
  color.reverse = T,
  value.range = NULL,
  ...
)
```

Arguments

res.obj	result object from surveyPrev
poly.shp	polygon file for plotting
admin1.focus	if needed, the admin 1 level area name to create an individual focused prevalence map on
value.to.plot	statistics to appear on the map
map.title	title for the map
legend.label	label for the legend, such as 'Coefficient of Variation'

threshold.p	cutoff for the exceedance probability map
color.palette	which palette to use for plotting
color.reverse	whether to use reverse color scale
value.range	what range to plot, useful if want to compare plots using the same scale
...	arguments passed to mapPlot function from SUMMER package

Value

summer map object

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
cluster.info <- clusterInfo(geo = geo,
                           poly.adm1 = ZambiaAdm1,
                           poly.adm2 = ZambiaAdm2)
# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                     indicator = "RH_ANCN_W_N4P",
                     year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
admin.info2 <- adminInfo(poly.adm = sf::st_as_sf(ZambiaAdm2),
                        admin = 2,
                        by.adm = "NAME_2",
                        by.adm.upper = "NAME_1")
cl_res_ad2 <- clusterModel(data=data,
                          cluster.info = cluster.info,
                          admin.info = admin.info2,
                          model = "bym2",
                          admin = 2)

prevMap.adm2.central <- prevMap(res.obj=cl_res_ad2,
                              poly.shp=poly.adm2,
                              admin1.focus = "Central")

## End(Not run)
```

prevMap.web

leaflet (interactive) prevalence map for any subnational level

Description

produce interactive map for any subnational level, with the option to focus on one admin-1 level

Usage

```
prevMap.web(
  res.obj,
  poly.shp,
  admin1.focus = NULL,
  color.palette = NULL,
  value.to.plot = "mean",
  value.range = NULL,
  num_bins = NULL,
  legend.label = "Estimates",
  map.title = NULL,
  color.reverse = T,
  no.hatching = F,
  hatching.density = 12,
  use.basemap = NULL,
  threshold.p = NULL,
  legend.color.reverse = T
)
```

Arguments

res.obj	result object from surveyPrev
poly.shp	polygon file for plotting
admin1.focus	if needed, the admin 1 level area name to create an individual focused prevalence map on
color.palette	which palette to use for plotting
value.to.plot	statistics to appear on the map
value.range	what range to plot, useful if want to compare plots using the same scale
num_bins	number of bins on the legend (what displayed might not be exact)
legend.label	label for the legend, such as 'Coefficient of Variation'
map.title	title for the map
color.reverse	whether to use reverse color scale
no.hatching	whether to hatch region with problematic uncertainties, recommend F (depends on rgeos package, set to T if not installed)
hatching.density	density of the hatching lines
use.basemap	what basemap to use 'OSM', if NULL, no basemap
threshold.p	cutoff for the exceedance probability map
legend.color.reverse	logical indicator of reversing the color legend

Value

leaflet map object

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
cluster.info <- clusterInfo(geo = geo,
                             poly.adm1 = ZambiaAdm1,
                             poly.adm2 = ZambiaAdm2)
# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
poly.adm2 <- sf::st_as_sf(ZambiaAdm2)
admin.info2 <- adminInfo(poly.adm = poly.adm2,
                         admin = 2,
                         by.adm = "NAME_2",
                         by.adm.upper = "NAME_1")
cl_res_ad2 <- clusterModel(data=data,
                           cluster.info = cluster.info,
                           admin.info = admin.info2,
                           model = "bym2",
                           admin = 2)
prevMap.adm2.central <- prevMap.web(res.obj=cl_res_ad2,
                                   poly.shp=poly.adm2,
                                   admin1.focus = "Central")

## End(Not run)
```

PR_DESL_W_WNM

PR_DESL_W_WNM

Description

PR_DESL_W_WNM

Usage

PR_DESL_W_WNM(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "PR_DESL_W_WNM", year = 2018)

## End(Not run)
```

rankPlot

Get ranking plot of model results

Description

This function return scatter plot at admin 1 or 2 level for given model results.

Usage

```
rankPlot(x, direction = 1)
```

Arguments

x	a model result using surveyPrev of class "fhModel" or "clusterModel"
direction	direction of the ranking. The default is direction = 1, which correspond to larger value having higher ranking. If direction = -1, larger value has lower ranking.

Value

This function returns a ranking plot.

Author(s)

Zehang Li, Qianyu Dong

Examples

```
## Not run:

geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
data(ZambiaPopWomen)
cluster.info <- clusterInfo(geo = geo,
                             poly.adm1 = ZambiaAdm1,
                             poly.adm2 = ZambiaAdm2)
```

```

# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
admin.info2 <- adminInfo(poly.adm = ZambiaAdm2,
                        admin = 2,
                        by.adm="NAME_2",
                        by.adm.upper = "NAME_1")
cl_res_ad2_unstrat <- clusterModel(data = data,
                                   cluster.info = cluster.info,
                                   admin.info = admin.info2,
                                   stratification = FALSE,
                                   model = "bym2",
                                   admin = 2,
                                   aggregation = TRUE,
                                   CI = 0.95)
rankPlot(cl_res_ad2_unstrat)

## End(Not run)

```

RH_ANCN_W_N01

AH_TOBC_W_OTH

Description

AH_TOBC_W_OTH

Usage

RH_ANCN_W_N01(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_ANCN_W_N01", year = 2018)

## End(Not run)
```

RH_ANCN_W_N4F	<i>RH_ANCN_W_N4F IRdata Antenatal visits for pregnancy: 4+ visits FIVE year</i>
---------------	---

Description

RH_ANCN_W_N4F IRdata Antenatal visits for pregnancy: 4+ visits FIVE year

Usage

```
RH_ANCN_W_N4F(Rdata)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
-------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::RH_ANCN_W_N4P)

## End(Not run)
```

RH_ANCN_W_N4P	<i>RH_ANCN_W_N4P IRdata Antenatal visits for pregnancy: 4+ visits TWO year</i>
---------------	--

Description

RH_ANCN_W_N4P IRdata Antenatal visits for pregnancy: 4+ visits TWO year

Usage

```
RH_ANCN_W_N4P(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::RH_ANCN_W_N4P)

## End(Not run)
```

RH_ANCN_W_NON	<i>RH_ANCN_W_N4P IRdata Antenatal visits for pregnancy: no visits TWO year</i>
---------------	--

Description

RH_ANCN_W_N4P IRdata Antenatal visits for pregnancy: no visits TWO year

Usage

```
RH_ANCN_W_NON(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_NON",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::RH_ANCN_W_NON)

## End(Not run)
```

RH_DELA_C_SKF	<i>RH_DELA_C_SKF BRdata Assistance during delivery from a skilled provider</i>
---------------	--

Description

RH_DELA_C_SKF BRdata Assistance during delivery from a skilled provider

Usage

RH_DELA_C_SKF(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_DELA_C_SKF",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::RH_DELA_C_SKF)

## End(Not run)
```

RH_DELA_C_SKP	<i>RH_DELA_C_SKP BRdata Assistance during delivery from a skilled provider</i>
---------------	--

Description

RH_DELA_C_SKP BRdata Assistance during delivery from a skilled provider

Usage

```
RH_DELA_C_SKP(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_DELA_C_SKP",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::RH_DELA_C_SKP)

## End(Not run)
```

RH_DELP_C_DHF

RH_DELP_C_DHF

Description

RH_DELP_C_DHF

Usage

RH_DELP_C_DHF(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_DHF", year = 2018)

## End(Not run)
```

RH_DELP_C_DHT

RH_DELP_C_DHT

Description

RH_DELP_C_DHT

Usage

RH_DELP_C_DHT(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_DHT", year = 2018)

## End(Not run)
```

RH_DELP_C_HOM

RH_DELP_C_HOM

Description

RH_DELP_C_HOM

Usage

RH_DELP_C_HOM(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_DHT", year = 2018)

## End(Not run)
```

RH_DELP_C_HOT

RH_DELP_C_HOT

Description

RH_DELP_C_HOT

Usage

RH_DELP_C_HOT(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_DHT", year = 2018)

## End(Not run)
```

RH_DELP_C_PRT

RH_DELP_C_PRT

Description

RH_DELP_C_PRT

Usage

RH_DELP_C_PRT(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_PRT", year = 2018)

## End(Not run)
```

RH_DELP_C_PRV

RH_DELP_C_PRV

Description

RH_DELP_C_PRV

Usage

RH_DELP_C_PRV(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_PRV", year = 2018)

## End(Not run)
```

RH_DELP_C_PUB

RH_DELP_C_PUB

Description

RH_DELP_C_PUB

Usage

RH_DELP_C_PUB(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_PUB", year = 2018)

## End(Not run)
```

RH_DELP_C_PUT

RH_DELP_C_PUT

Description

RH_DELP_C_PUT

Usage

RH_DELP_C_PUT(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_DELP_C_PUT", year = 2018)

## End(Not run)
```

RH_PAHC_W_DIS

RH_PAHC_W_DIS IRdata Problems in accessing health care: Distance to health facility

Description

RH_PAHC_W_DIS IRdata Problems in accessing health care: Distance to health facility

Usage

```
RH_PAHC_W_DIS(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

RH_PAHC_W_MON

RH_PAHC_W_MON IRdata Problems in accessing health care: Getting money for treatment

Description

RH_PAHC_W_MON IRdata Problems in accessing health care: Getting money for treatment

Usage

```
RH_PAHC_W_MON(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

RH_PAHC_W_PRM	<i>RH_PAHC_W_PRM IRdata Problems in accessing health care: Getting permission to go for treatment</i>
---------------	---

Description

RH_PAHC_W_PRM IRdata Problems in accessing health care: Getting permission to go for treatment

Usage

```
RH_PAHC_W_PRM(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "FP_CUSA_W_MOD",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                       FUN = surveyPrev::fp_cruse_mod)

## End(Not run)
```

RH_PCCT_C_DY2	<i>RH_PCCT_C_DY2 Newborn's first postnatal checkout: 1-2 days RH_PCCT_C_DY2 in github IR</i>
---------------	--

Description

RH_PCCT_C_DY2 Newborn's first postnatal checkout: 1-2 days RH_PCCT_C_DY2 in github IR

Usage

```
RH_PCCT_C_DY2(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_PCCT_C_DY2", year = 2018)

## End(Not run)
```

RH_PCMT_W_DY2

RH_PCMT_W_DY2 Mother's first postnatal checkup: 1-2 days IR

Description

RH_PCMT_W_DY2 Mother's first postnatal checkup: 1-2 days IR

Usage

```
RH_PCMT_W_DY2(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_PCMT_W_DY2", year = 2018)

## End(Not run)
```

RH_PCMT_W_NON

*RH_PCMT_W_NON No Mother's postnatal checkup in 42 days IR***Description**

RH_PCMT_W_NON No Mother's postnatal checkup in 42 days IR

Usage

```
RH_PCMT_W_NON(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "RH_PCMT_W_NON", year = 2018)

## End(Not run)
```

ridgeprevPlot	<i>ridge plot for prevalence</i>
---------------	----------------------------------

Description

static ridge plot for posterior densities

Usage

```
ridgeprevPlot(
  res.obj,
  admin1.focus = NA,
  plot.extreme.num = 8,
  legend.label = "Value",
  color.reverse = T,
  plot.format = c("Long", "Wide")[1],
  top.bottom.label = c("Top", "Bottom")
)
```

Arguments

res.obj	result object from surveyPrev
admin1.focus	whether to plot densities for regions within a single upper admin
plot.extreme.num	number of regions to plot for the top n and bottom n regions
legend.label	label on the legend
color.reverse	whether to reverse color scheme
plot.format	c('Long','Wide') for extreme regions, side-by-side or long plot
top.bottom.label	c('Top','Bottom') how to name the extremes, top 10 bottom 10? need to change when close to 0 is bad for the indicator

Value

ggplot2 object

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
cluster.info <- clusterInfo(geo = geo,
                             poly.adm1 = ZambiaAdm1,
                             poly.adm2 = ZambiaAdm2)
# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
```

```

                                indicator = "RH_ANCN_W_N4P",
                                year = 2018)
data <- getDHSIndicator(dhsData, indicator = "RH_ANCN_W_N4P")
poly.adm1 <- sf::st_as_sf(ZambiaAdm1)
admin.info1 <- adminInfo(poly.adm = poly.adm1,
                        admin = 1,
                        by.adm = "NAME_1")
cl_res_ad1 <- clusterModel(data=data,
                        cluster.info = cluster.info,
                        admin.info = admin.info1,
                        stratification = FALSE,
                        model = "bym2",
                        admin = 1,
                        aggregation = TRUE,
                        CI = 0.95)

ridgeprevPlot(cl_res_ad1, plot.extreme.num=5)

## End(Not run)

```

scatterPlot

Get scatter plot for any two model results

Description

This function return scatter plot at admin 1 level for any two model results

Usage

```

scatterPlot(
  res1,
  value1,
  res2,
  value2,
  label1,
  label2,
  by.res1,
  by.res2,
  title
)

```

Arguments

res1	model result 1 using surveyPrev
value1	value1
res2	model result 2 using surveyPrev

value2	value2
label1	label for x axis
label2	label for y axis
by.res1	by.res1
by.res2	by.res2
title	title

Value

This function returns the dataset that contain district name and population for given tiff files and polygons of admin level

Author(s)

Qianyu Dong

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
data(ZambiaAdm1)
data(ZambiaAdm2)
data(ZambiaPopWomen)
cluster.info <- clusterInfo(geo = geo,
                           poly.adm1 = ZambiaAdm1,
                           poly.adm2 = ZambiaAdm2)

# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                    indicator = "RH_ANCN_W_N4P",
                    year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
admin.info1 <- adminInfo(poly.adm = ZambiaAdm1,
                        admin = 1,
                        agg.pop = ZambiaPopWomen$admin1_pop,
                        proportion = ZambiaPopWomen$admin1_urban)
smth_res_ad1 <- fhModel(data,
                      cluster.info = cluster.info,
                      admin.info = admin.info1,
                      admin = 1,
                      model = "bym2",
                      aggregation = F)

admin.info2 <- adminInfo(poly.adm = ZambiaAdm2,
                        admin = 2,
                        agg.pop = ZambiaPopWomen$admin2_pop,
                        proportion = ZambiaPopWomen$admin2_urban)
cl_res_ad2 <- clusterModel(data = data,
                        cluster.info = cluster.info,
```

```

        admin.info = admin.info2,
        stratification = FALSE,
        model = "bym2",
        admin = 2,
        aggregation = TRUE,
        CI = 0.95)

scatterPlot(
  res1 = smth_res_ad1,
  res2 = cl_res_ad2$agg.admin1,
  value1 = "value",
  value2 = "value",
  by.res1 = "admin1.name",
  by.res2 = "admin1.name",
  title = "Aggregated cluster model v.s. Fay-Herriot",
  label1 = "Fay-Herriot",
  label2 = "Aggregated cluster model")

## End(Not run)

```

scatterPlot.web

web-based scatter plot

Description

interactive scatter plot comparing estimates from two methods for the same admin level

Usage

```

scatterPlot.web(
  res.obj.x,
  res.obj.y,
  value.to.plot = "mean",
  label.x = "Method 1 Estimates",
  label.y = "Method 2 Estimates",
  plot.title = NULL,
  interactive = T
)

```

Arguments

res.obj.x	result object from surveyPrev
res.obj.y	result object from surveyPrev
value.to.plot	which statistics to plot 'mean'
label.x	label on x-axis

label.y	label on y-axis
plot.title	title for the plot
interactive	whether to render interactive or static plot

Value

plotly or ggplot2 object

Examples

```
## Not run:
geo <- getDHSgeo(country = "Zambia", year = 2018)
cluster.info <- clusterInfo(geo = geo,
                             poly.adm1 = ZambiaAdm1,
                             poly.adm2 = ZambiaAdm2)
# "RH_ANCN_W_N4P" is an indicator for having more than four ANC visits.
# In previous versions of the package, it is labeled "ancvisit4+".
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "RH_ANCN_W_N4P",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = "RH_ANCN_W_N4P")
poly.adm2 <- sf::st_as_sf(ZambiaAdm2)
admin.info2 <- adminInfo(poly.adm = poly.adm2,
                         admin = 2,
                         by.adm = "NAME_2",
                         by.adm.upper = "NAME_1")
res_adm2_cl <- clusterModel(data=data,
                           cluster.info = cluster.info,
                           admin.info = admin.info2,
                           model = "bym2",
                           admin = 2)
res_adm2_fh <- fhModel(data=data,
                      cluster.info = cluster.info,
                      admin.info = admin.info2,
                      model = "bym2",
                      admin = 2)

scatterPlot.web(res_adm2_cl, res_adm2_fh)

## End(Not run)
```

WE_AWBT_M_ARG

WE_AWBT_M_ARG

Description

WE_AWBT_M_ARG

Usage

```
WE_AWBT_M_ARG(MRdata)
```

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_M_ARG", year = 2018)

## End(Not run)
```

WE_AWBT_M_BFD

WE_AWBT_M_BFD

Description

WE_AWBT_M_BFD

Usage

```
WE_AWBT_M_BFD(MRdata)
```

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_M_BFD", year = 2018)

## End(Not run)
```

WE_AWBT_M_OUT

WE_AWBT_M_OUT

Description

WE_AWBT_M_OUT

Usage

```
WE_AWBT_M_OUT(MRdata)
```

Arguments

MRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_M_OUT", year = 2018)

## End(Not run)
```

`WE_AWBT_M_REF`*WE_AWBT_M_REF*

Description`WE_AWBT_M_REF`**Usage**`WE_AWBT_M_REF(MRdata)`**Arguments**`MRdata` data.frame from `surveyPrev::getDHSdata`**Value**

A partially processed data.frame that will be used in `surveyPrev::getDHSindicator`. The whole function can be used as a parameter in `surveyPrev::getDHSindicator`

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_M_REF", year = 2018)

## End(Not run)
```

`WE_AWBT_W_ARG`*WE_AWBT_W_ARG*

Description`WE_AWBT_W_ARG`**Usage**`WE_AWBT_W_ARG(IRdata)`**Arguments**`IRdata` data.frame from `surveyPrev::getDHSdata`

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_W_ARG", year = 2018)

## End(Not run)
```

WE_AWBT_W_BFD

WE_AWBT_W_BFD

Description

WE_AWBT_W_BFD

Usage

```
WE_AWBT_W_BFD(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_W_BFD", year = 2018)

## End(Not run)
```

WE_AWBT_W_NEG	<i>WE_AWBT_W_NEG</i>
---------------	----------------------

Description

WE_AWBT_W_NEG

Usage

WE_AWBT_W_NEG(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_W_NEG", year = 2018)

## End(Not run)
```

WE_AWBT_W_OUT	<i>WE_AWBT_W_OUT</i>
---------------	----------------------

Description

WE_AWBT_W_OUT

Usage

WE_AWBT_W_OUT(IRdata)

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_W_OUT", year = 2018)

## End(Not run)
```

WE_AWBT_W_REF	<i>WE_AWBT_W_REF</i>
---------------	----------------------

Description

WE_AWBT_W_REF

Usage

```
WE_AWBT_W_REF(IRdata)
```

Arguments

IRdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WE_AWBT_W_REF", year = 2018)

## End(Not run)
```

WS_SRCE_H_USG	<i>WS_SRCE_H_USG Percentage of households whose main source of drinking water is an unprotected spring ph_wtr_source in github "unprotected spring" = 42, HR</i>
---------------	--

Description

WS_SRCE_H_USG Percentage of households whose main source of drinking water is an unprotected spring ph_wtr_source in github "unprotected spring" = 42, HR

Usage

```
WS_SRCE_H_USG(Rdata)
```

Arguments

Rdata	data.frame from surveyPrev::getDHSdata
-------	--

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WS_SRCE_H_USG", year = 2018)

## End(Not run)
```

WS_SRCE_P_BAS	<i>WS_SRCE_P_BAS PRdata Population using a basic water source</i>
---------------	---

Description

WS_SRCE_P_BAS PRdata Population using a basic water source

Usage

```
WS_SRCE_P_BAS(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "WS_SRCE_P_BAS",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                      FUN = surveyPrev::WS_SRCE_P_BAS)

## End(Not run)
```

WS_TLET_H_IMP	<i>WS_TLET_H_IMP PRdata Percentage of households using an improved sanitation facility</i>
---------------	--

Description

WS_TLET_H_IMP PRdata Percentage of households using an improved sanitation facility

Usage

WS_TLET_H_IMP(Rdata)

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "WS_TLET_H_IMP",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                      FUN = surveyPrev::WS_TLET_H_IMP)

## End(Not run)
```

WS_TLET_P_BAS

WS_TLET_P_BAS PRdata Population with access to a basic sanitation service

Description

WS_TLET_P_BAS PRdata Population with access to a basic sanitation service

Usage

```
WS_TLET_P_BAS(Rdata)
```

Arguments

Rdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia",
                      indicator = "WS_TLET_P_BAS",
                      year = 2018)
data <- getDHSindicator(dhsData, indicator = NULL,
                      FUN = surveyPrev::WS_TLET_P_BAS)

## End(Not run)
```

WS_WTRT_P_BLC

WS_WTRT_P_BLC

Description

WS_WTRT_P_BLC

Usage

WS_WTRT_P_BLC(WASHdata)

Arguments

WASHdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WS_WTRT_P_BLC", year = 2018)

## End(Not run)
```

WS_WTRT_P_BOL

WS_WTRT_P_BOL

Description

WS_WTRT_P_BOL

Usage

WS_WTRT_P_BOL(WASHdata)

Arguments

WASHdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WS_WTRT_P_BOL", year = 2018)

## End(Not run)
```

WS_WTRT_P_SOL

WS_WTRT_P_SOL

Description

WS_WTRT_P_SOL

Usage

```
WS_WTRT_P_SOL(WASHdata)
```

Arguments

WASHdata data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WS_WTRT_P_SOL", year = 2018)

## End(Not run)
```

WS_WTRT_P_STN

WS_WTRT_P_STN

Description

WS_WTRT_P_STN

Usage

WS_WTRT_P_STN(WASHdata)

Arguments

WASHdata

data.frame from surveyPrev::getDHSdata

Value

A partially processed data.frame that will be used in surveyPrev::getDHSindicator. The whole function can be used as a parameter in surveyPrev::getDHSindicator

Author(s)

Miaolei Bao, Yunhan Wu, Qianyu Dong

Examples

```
## Not run:
dhsData <- getDHSdata(country = "Zambia", indicator = "WS_WTRT_P_STN", year = 2018)

## End(Not run)
```

ZambiaAdm1

Admin 1 Polygon Map for Zambia.

Description

A SpatialPolygonsDataFrame corresponding to Zambia's admin-1 regions. The dataset is downloaded from GADM (<https://gadm.org/data.html>) version 4.1.

Usage

data(ZambiaAdm1)

Format

An object of class SpatialPolygonsDataFrame with 10 rows and 4 columns.

ZambiaAdm2

Admin 2 Polygon Map for Zambia.

Description

A `SpatialPolygonsDataFrame` corresponding to Zambia's admin-2 regions. The dataset is downloaded from GADM (<https://gadm.org/data.html>) version 4.1.

Usage

```
data(ZambiaAdm2)
```

Format

An object of class `SpatialPolygonsDataFrame` with 115 rows and 6 columns.

ZambiaPopWomen

Population estimates for Women of age 15 to 49 in Zambia in 2018.

Description

A list of three objects

- `raster` A 100m by 100m raster file for the population estimates for women of age 15 to 49 in Zambia in 2018
- `admin1_urban` A data frame specifying the proportion of urban population (as defined by those living in regions designated as urban in the previous census) for Women of age 15 to 49 in Zambia in 2018, in each admin1 region.
- `admin2_urban` A data frame specifying the proportion of urban population (as defined by those living in regions designated as urban in the previous census) for Women of age 15 to 49 in Zambia in 2018, in each admin2 region. The corresponding admin1 region name is also included.

The dataset is downloaded from WorldPop (<https://hub.worldpop.org/geodata/summary?id=16429>) and post processed.

Usage

```
data(ZambiaPopWomen)
```

Format

An object of class `list` of length 4.

Index

* datasets

- indicatorList, [138](#)
- match_all_result, [140](#)
- ZambiaAdm1, [184](#)
- ZambiaAdm2, [185](#)
- ZambiaPopWomen, [185](#)

- addNewIndicator, [6](#)
- addUpper, [8](#)
- adminInfo, [9](#)
- aggPopulation, [11](#)
- aggSurveyWeight, [12](#)
- AH_TOBC_W_OTH, [14](#)
- AH_TOBU_M_ASM, [14](#)
- AH_TOBU_M_SNN, [15](#)
- AH_TOBU_W_SNM, [16](#)
- AH_TOBU_W_SNN, [16](#)
- AN_ANEM_W_ANY, [17](#)
- AN_NUTS_W_OVW, [18](#)
- AN_NUTS_W_THN, [19](#)

- CH_ARIS_C_ADV, [19](#)
- CH_DIAT_C_ABI, [20](#)
- CH_DIAT_C_ADV, [21](#)
- CH_DIAT_C_AMO, [22](#)
- CH_DIAT_C_NOT, [22](#)
- CH_DIAT_C_ORO, [23](#)
- CH_DIAT_C_ORO, [24](#)
- CH_DIAT_C_ORO, [24](#)
- CH_DIAT_C_RHF, [25](#)
- CH_DIFP_C_FAL, [26](#)
- CH_FEVR_C_FEV, [26](#)
- CH_FEVT_C_ADV, [27](#)
- CH_SZWT_C_L25, [28](#)
- CH_VACC_C_BAS, [28](#)
- CH_VACC_C_BCG, [29](#)
- CH_VACC_C_DP1, [30](#)
- CH_VACC_C_DP3, [31](#)
- CH_VACC_C_MSL, [31](#)
- CH_VACC_C_NON, [32](#)
- CH_VACC_C_PN3, [33](#)
- CH_VACC_C_RT1, [34](#)
- CH_VACS_C_PN3, [34](#)
- clusterInfo, [35](#)
- clusterModel, [36](#)
- clusterModel_u5mr, [38](#)
- CM_ECMR_C_IMF, [40](#)
- CM_ECMR_C_IMR, [41](#)
- CM_ECMR_C_NNF, [42](#)
- CM_ECMR_C_NNR, [42](#)
- CM_ECMR_C_U5F, [43](#)
- CM_ECMR_C_U5M, [44](#)
- CN_ANMC_C_ANY, [45](#)
- CN_BRFI_C_EVR, [45](#)
- CN_BRFS_C_EXB, [46](#)
- CN_IYCF_C_4FA, [47](#)
- CN_NUTS_C_HA2, [48](#)
- CN_NUTS_C_HA3, [49](#)
- CN_NUTS_C_WA2, [49](#)
- CN_NUTS_C_WA3, [50](#)
- CN_NUTS_C_WAP, [51](#)
- CN_NUTS_C_WH2, [51](#)
- CN_NUTS_C_WH3, [52](#)
- CN_NUTS_C_WHP, [53](#)
- CO_INUS_W_EVU, [53](#)
- CO_INUS_W_U12, [54](#)
- CO_MOBB_W_BNK, [55](#)
- CO_MOBB_W_MBF, [55](#)
- CO_MOBB_W_MOB, [56](#)
- CP_BREG_C_CRT, [57](#)
- CP_BREG_C_NCT, [57](#)
- CP_BREG_C_REG, [58](#)

- datainfo, [59](#)
- directEST, [60](#)
- directEST_u5mr, [62](#)
- directEST_varfix, [63](#)
- DV_AFSV_W_A10, [65](#)
- DV_AFSV_W_A12, [65](#)
- DV_EXPV_W_12M, [66](#)

- DV_EXSV_W_12M, [67](#)
 DV_EXSV_W_EVR, [68](#)
 DV_PCPV_W_CBF, [68](#)
 DV_PCPV_W_CHD, [69](#)
 DV_PCPV_W_EMP, [70](#)
 DV_PCPV_W_FLW, [71](#)
 DV_PCPV_W_OLW, [71](#)
 DV_STPS_W_BFR, [72](#)
 DV_VPRG_W_VPG, [73](#)

 ED_EDUC_W_SEH, [73](#)
 ED_LITR_W_LIT, [74](#)
 ED_MDIA_W_3MD, [75](#)
 ED_MDIA_W_N3M, [75](#)
 ED_MDIA_W_NWS, [76](#)
 ED_MDIA_W_RDO, [77](#)
 ED_MDIA_W_TLV, [77](#)
 EM_EMPM_W_EMP, [78](#)
 exceedPlot, [79](#)

 FG_KFCC_W_HFC, [80](#)
 FG_PFCC_W_WCC, [81](#)
 fhModel, [82](#)
 FP_CUSA_W_ANY, [84](#)
 FP_CUSA_W EMC, [85](#)
 FP_CUSA_W_FCN, [85](#)
 FP_CUSA_W_FST, [86](#)
 FP_CUSA_W_IMP, [87](#)
 FP_CUSA_W_INJ, [87](#)
 FP_CUSA_W_IUD, [88](#)
 FP_CUSA_W_MCN, [89](#)
 FP_CUSA_W_MOD, [89](#)
 FP_CUSA_W_MST, [90](#)
 FP_CUSA_W_PIL, [91](#)
 FP_CUSA_W_STD, [92](#)
 FP_CUSA_W_TRA, [92](#)
 FP_CUSA_W_WTH, [93](#)
 FP_CUSM_W_MOD, [94](#)
 FP_EFPM_M_NWS, [95](#)
 FP_EFPM_M_TLV, [95](#)
 FP_EFPM_W_NWS, [96](#)
 FP_EFPM_W_RDO, [97](#)
 FP_EFPM_W_TLV, [97](#)
 FP_EVUM_W_MOD, [98](#)
 FP_KMTA_W_ANY, [99](#)
 FP_KMTA_W EMC, [99](#)
 FP_KMTA_W_FCN, [100](#)
 FP_KMTA_W_FST, [101](#)
 FP_KMTA_W_IMP, [101](#)

 FP_KMTA_W_INJ, [102](#)
 FP_KMTA_W_IUD, [103](#)
 FP_KMTA_W_MST, [103](#)
 FP_KMTA_W_OMD, [104](#)
 FP_KMTA_W_PIL, [105](#)
 FP_KMTA_W_STD, [105](#)
 FP_KMTA_W_TRA, [106](#)
 FP_KMTA_W_WTH, [107](#)
 FP_NADA_W_UNT, [107](#)
 FP_NADM_W_PDM, [108](#)
 FP_NADM_W_UNT, [109](#)
 FP_NDYA_W_PDM, [110](#)

 get_api_table, [118](#)
 get_geoBoundaries, [119](#)
 getCovariate, [110](#)
 getDHSdata, [112](#)
 getDHSgeo, [113](#)
 getDHSindicator, [114](#)
 getUR, [116](#)

 HA_AFSY_M_A15, [120](#)
 HA_AFSY_M_A18, [121](#)
 HA_AFSY_W_A18, [122](#)
 HA_ANSS_M_CND, [122](#)
 HA_ANSS_W_CND, [123](#)
 HA_ANSS_W_RSX, [124](#)
 HA_CATH_W_ATN, [124](#)
 HA_CATH_W_NRS, [125](#)
 HA_HIVP_B_HIV, [126](#)
 HA_HRSX_W_CND, [127](#)
 HA_HVST_M_HRD, [127](#)
 HA_HVST_M_USD, [128](#)
 HA_HVTY_M_TRR, [129](#)
 HA_HVTY_W_TRR, [129](#)
 HA_KAID_W_HRD, [130](#)
 HA_STIS_M_DIS, [131](#)
 HA_STIS_M_SOR, [131](#)
 HA_STIS_W_STI, [132](#)
 HC_AGEG_P_ADL, [133](#)
 HC_ELEC_H_ELC, [133](#)
 HC_FLRM_H_CER, [134](#)
 HC_HEFF_H_RDO, [135](#)
 HC_WIXQ_P_12Q, [135](#)
 HC_WIXQ_P_2ND, [136](#)
 HC_WIXQ_P_LOW, [137](#)

 indicatorList, [138](#)
 intervalPlot, [138](#)

- MA_CWIV_W_CWV, [140](#)
- MA_MBAG_W_B15, [141](#)
- MA_MBAG_W_B18, [142](#)
- MA_MBAY_W_B15, [143](#)
- MA_MBAY_W_B18, [143](#)
- MA_MSTA_W_NMA, [144](#)
- match_all_result, [140](#)
- ML_NETC_C_ITN, [145](#)
- ML_NETP_H_IT2, [146](#)
- ML_NETU_P_ITN, [146](#)
- ML_PMAL_C_RDT, [147](#)

- PR_DESL_W_WNM, [151](#)
- prevMap, [148](#)
- prevMap.web, [149](#)

- rankPlot, [152](#)
- RH_ANCN_W_N01, [153](#)
- RH_ANCN_W_N4F, [154](#)
- RH_ANCN_W_N4P, [155](#)
- RH_ANCN_W_NON, [155](#)
- RH_DELA_C_SKF, [156](#)
- RH_DELA_C_SKP, [157](#)
- RH_DELP_C_DHF, [158](#)
- RH_DELP_C_DHT, [158](#)
- RH_DELP_C_HOM, [159](#)
- RH_DELP_C_HOT, [160](#)
- RH_DELP_C_PRT, [160](#)
- RH_DELP_C_PRV, [161](#)
- RH_DELP_C_PUB, [162](#)
- RH_DELP_C_PUT, [162](#)
- RH_PAHC_W_DIS, [163](#)
- RH_PAHC_W_MON, [164](#)
- RH_PAHC_W_PRM, [165](#)
- RH_PCCT_C_DY2, [165](#)
- RH_PCMT_W_DY2, [166](#)
- RH_PCMT_W_NON, [167](#)
- ridgeprevPlot, [168](#)

- scatterPlot, [169](#)
- scatterPlot.web, [171](#)

- WE_AWBT_M_ARG, [172](#)
- WE_AWBT_M_BFD, [173](#)
- WE_AWBT_M_OUT, [174](#)
- WE_AWBT_M_REF, [175](#)
- WE_AWBT_W_ARG, [175](#)
- WE_AWBT_W_BFD, [176](#)
- WE_AWBT_W_NEG, [177](#)
- WE_AWBT_W_OUT, [177](#)
- WE_AWBT_W_REF, [178](#)
- WS_SRCE_H_USG, [179](#)
- WS_SRCE_P_BAS, [179](#)
- WS_TLET_H_IMP, [180](#)
- WS_TLET_P_BAS, [181](#)
- WS_WTRT_P_BLC, [182](#)
- WS_WTRT_P_BOL, [182](#)
- WS_WTRT_P_SOL, [183](#)
- WS_WTRT_P_STN, [184](#)

- ZambiaAdm1, [184](#)
- ZambiaAdm2, [185](#)
- ZambiaPopWomen, [185](#)