Package: VulnerabilityScoreCalibration (via r-universe)

June 29, 2024

Title Vulnerability Score Calibration

Version 0.0.900

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Description Fill a longer description of your package here.

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URL https://github.com/unhcr-americas/VulnerabilityScoreCalibration

Imports config, conjoint, cregg, dplyr, forcats, ggplot2, ggridges, glue, golem, here, lubridate, patchwork, plyr, purrr, readr, readxl, rlang, rmarkdown, sandwich, scales, shiny, shinydashboard, stats, stringr, survival, tidyr, tidyselect, tidyverse, unhcrdown, unhcrshiny, unhcrthemes, writexl

Suggests knitr, spelling, testthat

VignetteBuilder knitr

Config/fusen/version 0.5.2

Encoding UTF-8

LazyData true

RoxygenNote 7.2.3.9000

Repository https://unhcrverse.r-universe.dev

RemoteUrl https://github.com/unhcr-americas/VulnerabilityScoreCalibration

RemoteRef HEAD

RemoteSha 24784d2cf4c0d8d1d307d76b4cf910e853bbe2b3

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conjoint_plot_bar *conjoint_plot_bar*

Description

Plot results per dimension - Average Marginal Component Effects (AMCEs)

Usage

```
conjoint_plot_bar(.x)
```

Arguments

.x	A list or atomic vector.

Value

gggplot2 graph

a ggplot2 object

Examples

```
kobodata <-  system.file("data-demo/conjoint_data.xlsx", package = "VulnerabilityScoreCalibration")
koboform <-  system.file("data-demo/conjoint_form.xlsx", package = "VulnerabilityScoreCalibration")

cj <- conjoint_review(kobodata, koboform)

## Plot AMCES as bar for dimension 2
conjoint_plot_bar( as.data.frame(cj[["cjdata"]][2,][["amces"]])) +
  ggplot2::labs( subtitle = "Average Marginal Component Effects (AMCEs)")

## Plot importance as bar for dimension 2
conjoint_plot_bar( as.data.frame(cj[["cjdata"]][2,][["importance"]])) +
  ggplot2::labs( subtitle = "Importance")
```

`conjoint_plot_point` *conjoint_plot_point*

Description

Plot results per dimension - Marginal Means

Usage

```
conjoint_plot_point(.x)
```

Arguments

`.x`	A list or atomic vector.

Value

a ggplot2 object

Examples

```
kobodata <-  system.file("data-demo/conjoint_data.xlsx", package = "VulnerabilityScoreCalibration")
koboform <-  system.file("data-demo/conjoint_form.xlsx", package = "VulnerabilityScoreCalibration")

cj <- conjoint_review(kobodata, koboform)

conjoint_plot_point( as.data.frame(cj[["cjdata"]][1,][["margins"]])) +
  ggplot2::labs( subtitle = "Margins)")

conjoint_plot_point( as.data.frame(cj[["cjdata"]][1,][["amces"]])) +
  ggplot2::labs( subtitle = "Average Marginal Component Effects (AMCEs)")

conjoint_plot_point( as.data.frame(cj[["cjdata"]][1,][["importance"]])) +
  ggplot2::labs( subtitle = "Importance")
```

`conjoint_prepare` *conjoint_prepare*

Description

Generate an xlsform used to perform consultation for conjoint analysis.

Usage

```
conjoint_prepare(
  opts,
  language = "English (en)",
  form_title = "Conjoint Review",
  id_string = "conjoint_rev",
  outdir = "data-raw",
  outfile = "conjoint_form.xlsx"
)
```

Arguments

`opts`	a dataframe containing the options to compare
`language`	what language to use in case of multiple language
`form_title`	Actividad #2: Calificación de perfiles de vulnerabilidad
`id_string`	vulnerability_rating
`outdir`	directory within project where to put the file
`outfile`	path of the file...

Details

The options that will be compared are the different levels of the section of indicators that should have been filtered through the quadratic voting stage.

One level can actually match multiple response options from the screening questionnaire

Value

a file in xlsform format

Examples

```
# indicator <-  system.file("data-demo/indicator_criteria.xlsx",
#                 package = "VulnerabilityScoreCalibration")
# opts <- read_excel("cja_opts_SAL.xlsx")
#
# conjoint_prepare( opts = opts,
#                   language = "Spanish (es)",
#                   form_title = "Actividad #2: Calificación de perfiles de
#                            vulnerabilidad - El Salvador, 23 de marzo, 2023",
#                   id_string = "vulnerability_rating",
#                   outdir = "",
#                   outfile = "form.xlsx" )
```

`conjoint_review` *conjoint_review*

Description

What is Conjoint analysis?

Conjoint analysis can speed up expert consultations by offering an __objective mean to compile expert opinions__.

* Conjoint analysis originated in mathematical psychology by psychometricians.

* often used to evaluate how people make decisions between a set of different options when considering a number of criteria at the same time (conjoint features; “trade-offs”).

1. Measurement framework

The Joint Intersectoral Analysis Framework (JIAF) is a theoretical generic measurement framework to be used for Humanitarian needs assessment. It specifies three distinct and complementary components of humanitarian severity and vulnerability indexes:

* Basic Needs & Living standards

* Coping Capacity

* Well Being & Community integration

This generic model can be contextualized: different sub-indicators might be used for each of the 3 components depending on cultural and political situations.

2. Define the combined alternatives to be compared

* participants rate their preferences for profiles with different combinations of the attributes or criteria.

* CA then allows to “decompose” or reverse-engineer these ratings into estimates of how important each criteria or attribute is to a participant’s ranking decisions

3. Utility scales & Agreement levels

Estimating the contribution of each potential answers

* Utility values indicate the overall contribution of each attribute to how the profiles were rated (e.g. whether number of meals is more important in vulnerability scoring than access to safe water).

* A higher _"utility"_ estimate indicates that this level contributes to a higher vulnerability than the level with the lower utility estimate (it does not give an absolute value for the utility of an option, but rather assumes a reference alternative).

* Standard deviation for each level within model allows to better understand how homogeneous the group of experts is with respect to one level.

4. Importance of each criteria

* Importance of each criteria represent the average importance as estimated from all experts.

* Importance values will then be used as the weights for each attribute inside each of our three dimensions.

* Importance values sum to 100

Usage

```
conjoint_review(kobodata, koboform, duration_min = 10, duration_max = 40)
```

Arguments

`kobodata`	path to data collected through kobotoolbox
`koboform`	form used to collected through kobotoolbox quadratic survey
`duration_min`	used to filter down expert contribution that would have taken less than a certain number of minutes (default is 10)
`duration_max`	used to filter down expert contribution that would have taken more than a certain number of minutes (default is 40)

Value

a series of plot

Examples

```
kobodata <-  system.file("data-demo/conjoint_data.xlsx", package = "VulnerabilityScoreCalibration")
koboform <-  system.file("data-demo/conjoint_form.xlsx", package = "VulnerabilityScoreCalibration")

cj <- conjoint_review(kobodata, koboform)

cj[["data_quality"]]
```

`conjoint_walk` *conjoint_walk*

Description

Print out a summary from the conjoint analysis

Usage

```
conjoint_walk(dim, margins, amces, importance, ...)
```

Arguments

`dim`	dimension of analysis
`margins`	margins
`amces`	amces
`importance`	importance
`...`	other argument

Details

* Marginal Means

* Average Marginal Component Effects (AMCEs)

* Average Marginal Component Effects (AMCEs)

* Importance Weights

Value

print some line for a notebook..

Examples

```
kobodata <-  system.file("data-demo/conjoint_data.xlsx", package = "VulnerabilityScoreCalibration")
koboform <-  system.file("data-demo/conjoint_form.xlsx", package = "VulnerabilityScoreCalibration")

cj <- conjoint_review(kobodata, koboform)
cjdata <- cj[["cjdata"]]
## Get a summary of all dimensions
purrr::pwalk(cjdata, conjoint_walk)

## Save a csv extract of the weights
# purrr::walk2(cjdata$dim, cjdata$amces, ~write_csv(.y, fs::path(.x, ext = "csv")))

#all <- purrr::walk2(cjdata$amces,  ~cbind())

all <-purrr::pwalk(cjdata$amces, rbind)
all2 <- dplyr::bind_rows(cjdata$amces, .id = "column_label")
```

`quadratic_prepare` *quadratic_prepare*

Description

This function aims at quickly building a quadratic voting questionnaire

Usage

```
quadratic_prepare(indicator)
```

Arguments

`indicator`	a dataframe with max 5 groups of 5 indicators

Details

The questionnaire comes with limitation as it can process not more than 5 groups of maximum 5 indicators. Each indicators is associated to different levels that will be then assessed through conjoint analysis for the weighting stage

After quadratic voting, it is expected that the facilitation of the result interpretation should allow to reduce the numbers of indicators to a maximum of 12 indicators

Value

a questionnaire...

Examples

```
indicator <-  system.file("data-demo/indicator_criteria.xlsx",
                          package = "VulnerabilityScoreCalibration")
#quadratic_prepare(indicator)
```

quadratic_report *Generate Report From Quadratic Voting*

Description

Generate Report From Quadratic Voting

Usage

```
quadratic_report(data = "data.xlsx", form = "form.xlsx", folder = "data-raw")
```

Arguments

data	name of the file with data collected through kobotoolbox should be xlsx
form	name of the file with form used to collected through kobotoolbox quadratic survey (should be xlsx)
folder	folder within your project where to put the generated report. Folder will be created if it does not exist

Value

nothing the file for the report is generated

Examples

```
## Example -> the report will be saved in the same folder...
# quadratic_report(data = "data.xlsx",
#                  form = "form.xlsx",
#                  folder = "data-raw")
```

quadratic_review *quadratic_review*

Description

Explore the results from a quadratic voting consultations. 1. What are the prioritized Topics? 2. How dispersed participants votes are? 3. Who is expecting or pushing back... on what?

Usage

```
quadratic_review(kobodata, koboform)
```

Arguments

kobodata	path to data collected through kobotoolbox
koboform	form used to collected through kobotoolbox quadratic survey

Value

list with data and standard plots

Examples

```
# kobodata <- here::here("", "quadra_data.xlsx")
# koboform <- here::here("", "survey_quadraticvoting_CBI_Indicators.xlsx")

kobodata <-  system.file("data-demo/quadra_data.xlsx", package = "VulnerabilityScoreCalibration")
koboform <-  system.file("data-demo/quadra_form.xlsx", package = "VulnerabilityScoreCalibration")

## Run the process
result <- quadratic_review(kobodata, koboform)

## Review output
result[["topic_prioritisation"]]

result[["vote_dispersion"]]

result[["individual_prioritisation"]]
```

run_app *Run the Shiny Application*

Description

Run the Shiny Application

Usage

```
run_app(
  onStart = NULL,
  options = list(),
  enableBookmarking = NULL,
  uiPattern = "/",
  ...
)
```

Arguments

onStart
: A function that will be called before the app is actually run. This is only needed for `shinyAppObj`, since in the `shinyAppDir` case, a `global.R` file can be used for this purpose.

options
: Named options that should be passed to the `runApp` call (these can be any of the following: "port", "launch.browser", "host", "quiet", "display.mode" and "test.mode"). You can also specify `width` and `height` parameters which provide a hint to the embedding environment about the ideal height/width for the app.

enableBookmarking
: Can be one of `"url"`, `"server"`, or `"disable"`. The default value, `NULL`, will respect the setting from any previous calls to `enableBookmarking()`. See `enableBookmarking()` for more information on bookmarking your app.

uiPattern
: A regular expression that will be applied to each `GET` request to determine whether the `ui` should be used to handle the request. Note that the entire request path must match the regular expression in order for the match to be considered successful.

`...`
: arguments to pass to golem_opts. See ‘?golem::get_golem_options‘ for more details.

Value

a shiny app

Examples

```
# run_app()
```

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