

Package: m4fsdp (via r-universe)

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Type Package

Title MAgPIE outputs R package for MAgPIE version 4.x to create outputs for FSDP project

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Description Output routines for extracting results from the MAgPIE framework (versions 4.x) for the FSDP project.

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URL <https://github.com/pik-piam/m4fsdp>,
<https://doi.org/10.5281/zenodo.7899913>

BugReports <https://github.com/pik-piam/m4fsdp/issues>

Depends gdx (>= 1.30), magclass (>= 2.40)

Imports RColorBrewer, cartogram, data.table, dplyr, DT, ggh4x, ggiraph, ggplot2, ggtext, htmlwidgets, luplot, madrat, magpie4, magpiesets, knitr, patchwork, quitte, rlang, rnaturalearth, rmarkdown, scales, sf, stats, stringr, terra, tidyr, readxl, withr

Suggests covr, flexdashboard, testthat

Encoding UTF-8

RoxygenNote 7.3.1

Repository <https://pik-piam.r-universe.dev>

RemoteUrl <https://github.com/pik-piam/m4fsdp>

RemoteRef HEAD

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m4fsdp-package	<i>m4fsdp: MAgPIE outputs R package for MAgPIE version 4.x to create outputs for FSDP project</i>
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Description

Output routines for extracting results from the MAgPIE framework (versions 4.x) for the FSDP project.

Author(s)

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See Also

Useful links:

- <https://github.com/pik-piam/m4fsdp>
- [doi:10.5281/zenodo.7899913](https://doi.org/10.5281/zenodo.7899913)
- Report bugs at <https://github.com/pik-piam/m4fsdp/issues>

appendReportHealthImpacts
appendReportHealthImpacts

Description

Reads in the results from Marco Springmann's health impacts model, filters them down to the FSEC-relevant variables, and saves them to the selected scenarios' report.mif.

Usage

```
appendReportHealthImpacts(healthImpacts_gdx, scenario, dir = ".")
```

Arguments

healthImpacts_gdx	full pathname of the health impacts dataset
scenario	name of the scenario
dir	scenario output directory

Author(s)

Michael Crawford

appendReportMAGICC7 *appendReportMAGICC7*

Description

Reads in the results from the MAGICC7 AR6 probabilistic scenarios

Usage

```
appendReportMAGICC7(resultsPath, scenario, dir = ".")
```

Arguments

resultsPath	full file path of the excel with the for MAGICC7 results
scenario	name of the scenario
dir	scenario output directory

Author(s)

Michael Crawford

`assignScenarioColors` *validationFSDP*

Description

Validation for FSDP MAgPIE runs written by openAI chatbot. The command was: "Please write a function in R. It should receive a vector of scenario_names. In the function, there is a mapping that assigns each element of potential_names to an individual color. The function checks which elements of scenario_names are in potential_names and returns the respective colors as a vector of colors.

Usage

```
assignScenarioColors(scenario_names)
```

Arguments

scenario_names scenario names to be checked for their colorcode.

Author(s)

openAI, Benjamin Bodirsky

`assignScenarioLinetype`
assignScenarioLinetype

Description

Line Type for FSDP MAgPIE runs

Usage

```
assignScenarioLinetype(scenario_names)
```

Arguments

scenario_names scenario names to be checked for their colorcode.

Author(s)

Florian Humpenoeder

bundlesFSDP

bundlesFSDP

Description

FDSP plot with single measure and bundles

Usage

```
bundlesFSDP(repReg, regionSel = "GLO", file = NULL)
```

Arguments

repReg	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script.
regionSel	Region that should be plotted
file	file name (e.g. BundleFSDP.pdf or BundleFSDP.jpg) or NULL

Details

plot with single measure and bundles

Value

depends on file argument. If file==NULL, the default, the plot is returned. If a filename is provided the plot is saved as file

Author(s)

Florian Humpenoeder

convertReportFSDP *convertReportFSDP*

Description

reads in FSDP reporting file

Usage

```
convertReportFSDP(rep, scengroup = NULL, subset = FALSE, varlist = NULL)
```

Arguments

rep	reporting .rds file (produced by FDSP_collect.R output script)
scengroup	options: FSECa, FSECb, FSECc, FSECd
subset	TRUE returns "BAU 2020","BAU 2050","FSDP 2050". FALSE returns all scenarios. "FSTssp2_minus_BASEssp2" or "FSTsdp_minus_BASEssp2" returns the allFSM or FSDP scenario minus the BAU scenario in 2050.
varlist	file name for plain text variable list (e.g. "var_names.csv")

Details

blub

Value

if file is NULL a ggplot2 object will be return

Author(s)

Florian Humpenoeder

dashboardFSDP *dashboardFSDP*

Description

FDSP dashboard

Usage

```
dashboardFSDP(  
  repReg,  
  repIso,  
  repGrid,  
  regionSel = "GLO",  
  outputDir = "",  
  file = "dashboardFSDP.html"  
)
```

Arguments

repReg	rds file or data.frame with regional data from all MAgPIE runs, produced with FSDP_collect.R output script.
repIso	rds file or data.frame with country-level data from all MAgPIE runs, produced with FSDP_collect.R output script.
repGrid	rds file or data.frame with gridded data from all MAgPIE runs, produced with FSDP_collect.R output script.
regionSel	Region that should be plotted
outputDir	output directory
file	file name

Details

FDSP dashboard

Value

html file

Author(s)

Florian Humpenoeder

getScenarios

getScenarios

Description

Scenarios for FSDP plotting

Usage

```
getScenarios(tableType = NULL, oldformat = FALSE)
```

Arguments

tableType	select the scenarios based on csv file figureTableType.csv in inst/extdata folder. NULL (default) returns scenario names.
oldformat	return in format modelrun::bundle scenario name

Details

includes scenarios and their grouping into bundles

Value

named vector

Author(s)

Benjamin Bodirsky

<i>getVariables</i>	<i>getVariables</i>
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Description

Variables for FSDP plotting

Usage

```
getVariables(reportVariables = NULL)
```

Arguments

reportVariables	Variables in report file
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Details

includes information about unit, variable group, rounding etc

Value

named vector

Author(s)

Florian Humpenoeder

`heatmapFSDP`*heatmapFSDP*

Description

creates a heatmap for FSDP MAgPIE runs

Usage

```
heatmapFSDP(  
  repReg,  
  regionSel = "GLO",  
  tableType = 1,  
  file = NULL,  
  width = 10.5,  
  height = 9  
)
```

Arguments

<code>repReg</code>	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script.
<code>regionSel</code>	Region that should be plotted. select "IND" for India plots
<code>tableType</code>	options: 1, 2, 3
<code>file</code>	file name (e.g. FSDP_heatmap.pdf or FSDP_heatmap.jpg) or NULL
<code>width</code>	width
<code>height</code>	height

Details

blub

Value

if file is NULL a ggplot2 object will be return

Author(s)

Florian Humpenoeder, Vartika Singh

lineplotFSDP	<i>lineplotFSDP</i>
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Description

Line plots FSDP

Usage

```
lineplotFSDP(repReg, val, regionSel = "GLO", file = NULL, scens = "bundles")
```

Arguments

repReg	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script.
val	rds file or data.frame with validation data
regionSel	Region that should be plotted (e.g. c("IND","EUR","GLO")). Aggregate will return LIR, MIR and HIR.
file	file name
scens	if "BAU_FSEC", BAU and FSEC scenarios are plotted, with "central" plots the core scenarios, "extended" plot the core scenarios and all ssps.

Details

creates validation for FSDP MAgPIE runs

Author(s)

Florian Humpenoeder

lineplotFSDPIndia	<i>lineplotFSDPIndia</i>
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Description

Line plots FSDP

Usage

```
lineplotFSDPIndia(
  repReg,
  val,
  regionSel = "IND",
  file = NULL,
  scens = "bundles"
)
```

Arguments

repReg	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script.
val	rds file or data.frame with validation data
regionSel	Region that should be plotted (e.g. c("IND","EUR","GLO")). Aggregate will return LIR, MIR and HIR.
file	file name
scens	if "BAU_FSEC", BAU and FSEC scenarios are plotted, with "central" plots the core scenarios, "extended" plot the core scenarios and all ssps.

Details

creates validation for FSDP MAgPIE runs

Author(s)

Florian Humpenoeder

milestoneTable	<i>milestoneTable</i>
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Description

Creates csv with values for SI table on milestones

Usage

```
milestoneTable(scenarioFolder, outFolder = NULL, file = NULL)
```

Arguments

scenarioFolder	outputfolder of a specific MAgPIE run (should be an FSECe_FSDP run for SI table)
outFolder	main outputfolder, where output csv will be saved
file	name to save table as csv

 plotFSDP

plotFSDP

Description

Creates all FSDP plots

Usage

```
plotFSDP(
  outputfolder = "output",
  reg = NULL,
  iso = NULL,
  grid = NULL,
  val = NULL,
  reg2iso = NULL,
  rev = NULL,
  dirFsdp = NULL
)
```

Arguments

outputfolder	output folder
reg	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script. NULL will automatically detect the most recent version.
iso	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script. NULL will automatically detect the most recent version.
grid	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script. NULL will automatically detect the most recent version.#' @details uses the most recent vXX_reg/grid/iso.rds files in the "output" folder by default
val	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script. NULL will automatically detect the most recent version.#' @return plots in "output" folder
reg2iso	rds file or data.frame with Mapping, produced with FSDP_collect.R output script. NULL will automatically detect the most recent version.#' @author Florian Humpenoeder
rev	revision (e.g. "v28"). NULL will automatically detect the most recent version.
dirFsdp	path to outputfolder of the FSDP run (to create the milestones table). NULL will automatically detect the most recent version

```
spatialMapsAllFSMDiffmap  
  spatialMapsAllFSMDiffmap
```

Description

creates a spatial diffmap between allFSM scenario and reference

Usage

```
spatialMapsAllFSMDiffmap(  
  repReg,  
  repIso,  
  repGrid,  
  reg2iso,  
  file = NULL,  
  subset = c("FSTsdp_minus_BASEssp2")  
)
```

Arguments

repReg	reporting .rds file or data.frame with regional results (produced by FDSP_collect.R output script)
repIso	reporting .rds file or data.frame with country level results (produced by FDSP_collect.R output script)
repGrid	reporting .rds file or data.frame with grid level results (produced by FDSP_collect.R output script)
reg2iso	mapping file or data.frame with regions and countries (produced by FDSP_collect.R output script)
file	file name (e.g. FSDP_spatialmaps.pdf or FSDP_spatialmaps.pdf) or NULL
subset	"FSTssp2_minus_BASEssp2" or "FSTsdp_minus_BASEssp2" returns diffmaps for allFSM or FSDP scenario minus the BAU scenario in 2050.

Details

blub

Value

if file is NULL a ggplot2 object will be return

Author(s)

Florian Humpenoeder

spatialMapsFSDP *spatialMapsFSDP*

Description

creates a spatial mapsfor FSDP MAgPIE runs

Usage

```
spatialMapsFSDP(  
  repReg,  
  repIso,  
  repGrid,  
  reg2iso,  
  file = NULL,  
  recalcPolygons = FALSE  
)
```

Arguments

repReg	reporting .rds file or data.frame with regional results (produced by FDSP_collect.R output script)
repIso	reporting .rds file or data.frame with country level results (produced by FDSP_collect.R output script)
repGrid	reporting .rds file or data.frame with grid level results (produced by FDSP_collect.R output script)
reg2iso	mapping file or data.frame with regions and countries (produced by FDSP_collect.R output script)
file	file name (e.g. FSDP_spatialmaps.pdf or FSDP_spatialmaps.pdf) or NULL
recalcPolygons	recalculate polygons for cartogram projections (FALSE / TRUE)

Details

blub

Value

if file is NULL a ggplot2 object will be return

Author(s)

Florian Humpenoeder

SupplPlotsCropShr *SupplPlotsCropShr*

Description

Creates crop share plot

Usage

```
SupplPlotsCropShr(  
  outFolder,  
  file = NULL,  
  scenarios = c("BAU", "FSDP"),  
  plotyears = c("2020", "2050"),  
  panel = "row",  
  combined = TRUE,  
  HR = TRUE  
)
```

Arguments

outFolder	output folder
file	Name of file output
scenarios	scenarios used for plotting
plotyears	years for the plot
panel	plot regions as "row" or as "matrix"
combined	whether regional and global plots should be combined
HR	using high resolution data or low resolution data

Details

blub

Value

Crop share on the y-axis and cropland area in each cluster on the x-axis.

Author(s)

Patrick v. Jeetze, Benjamin Bodirsky

`SupplPlotsFSDP`*SupplPlotsFSDP*

Description

creates supplementary plots for FSDP MAgPIE runs

Usage

```
SupplPlotsFSDP(  
  repReg,  
  scenarioType = "manuscript",  
  outFolder,  
  calorieSupply = TRUE,  
  caseRegion = NULL  
)
```

Arguments

<code>repReg</code>	rds file or data.frame with all MAgPIE runs, produced with FSDP_collect.R output script.
<code>scenarioType</code>	options: all, or one of the a-e groupings
<code>outFolder</code>	output folder to save to
<code>calorieSupply</code>	parameter to set if calorie figures needed for calories supply or calorie intake, set FALSE for Intake
<code>caseRegion</code>	set to a particular region (i.e. "IND") if plots are being used for country case studies

Value

if file is NULL a ggplot2 object will be return

Author(s)

David M Chen, Vartika Singh

SupplPlotsLandConsv *SupplPlotsLandConsv*

Description

Creates land conservation map

Usage

```
SupplPlotsLandConsv(
  outFolder,
  file = "supplPlotsLandConsv.png",
 .gdxFolder = NULL
)
```

Arguments

outFolder	output folder
file	Name of file output
.gdxFolder	Run folder

Details

Produces map of land targeted in the food system measure LandConservation

Value

Map with cell share included in land conservation measure

Author(s)

Patrick v. Jeetze

themeSupplFood *themeSupplFood*

Description

creates supplementary themes for FSDP MAgPIE runs

Usage

```
themeSupplFood(base_size = 16)
```

Arguments

base_size	base size of plot
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themeSupplReg	<i>themeSupplFood</i>
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Description

creates supplementary themes for FSDP MAgPIE runs

Usage

```
themeSupplReg(  
  base_size = 11,  
  base_family = "",  
  rotate_x = FALSE,  
  panel.spacing = 3  
)
```

Arguments

base_size	plot settings
base_family	plot settings
rotate_x	plot settings
panel.spacing	plot settings

validationFSDP	<i>validationFSDP</i>
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Description

Validation for FSDP MAgPIE runs

Usage

```
validationFSDP(  
  repReg,  
  val,  
  regionSel = "aggregate",  
  folder = "output",  
  scens = "BAU_FSEC",  
  showHistLegend = TRUE  
)
```

Arguments

<code>repReg</code>	rds file or data.frame with all MAgPIE runs, produced with <code>FSDP_collect.R</code> output script.
<code>val</code>	rds file or data.frame with validation data
<code>regionSel</code>	Region that should be plotted (e.g. <code>c("IND","EUR","GLO")</code>). Aggregate will return LIR, MIR and HIR.
<code>folder</code>	output folder
<code>scens</code>	if "BAU_FSEC", BAU and FSEC scenarios are plotted, with "central" plots the core scenarios, "extended" plot the core scenarios and all ssps.
<code>showHistLegend</code>	show legend for historic data sets. TRUE / FALSE

Details

creates validation for FSDP MAgPIE runs

Author(s)

Florian Humpenoeder

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