Package ‘r2dii.plot’

October 16, 2021

Title Visualize the Climate Scenario Alignment of a Financial Portfolio

Version 0.2.0

Description Create plots to visualize the alignment of a corporate lending financial portfolio to climate change scenarios based on climate indicators (production and emission intensities) across key climate relevant sectors of the ‘PACTA’ methodology (Paris Agreement Capital Transition Assessment; <https://2degrees-investing.org/>). Financial institutions use ‘PACTA’ to study how their capital allocation decisions align with climate change mitigation goals.

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URL https://github.com/2DegreesInvesting/r2dii.plot

BugReports https://github.com/2DegreesInvesting/r2dii.plot/issues

Depends R (>= 3.4)

Imports dplyr, forcats, ggplot2, ggrepel, glue, magrittr, r2dii.data, rlang, scales

Suggests covr, r2dii.analysis, r2dii.match, rmarkdown, spelling, testthat (>= 3.0.0)

Config/testthat/edition 3

Encoding UTF-8

Language en-US

LazyData true

RoxygenNote 7.1.2

NeedsCompilation no

Author Monika Furdyna [aut, ctr, cre] (<https://orcid.org/0000-0002-3728-0646>), Mauro Lepore [aut, ctr] (<https://orcid.org/0000-0002-1986-7988>), Alex Axthelm [aut, ctr] (<https://orcid.org/0000-0001-8579-8565>), 2 Degrees Investing Initiative [cph, fnd]

Maintainer Monika Furdyna <monika.furdyna@gmail.com>

Repository CRAN

Date/Publication 2021-10-16 04:10:02 UTC
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## Description

Dataset imitating the output of `r2dii.analysis::target_market_share()`.

## Usage

```r
market_share
```

## Format

An object of class `spec_tbl_df` (inherits from `tbl_df`, `tbl`, `data.frame`) with 1170 rows and 8 columns.

## See Also

`r2dii.analysis::target_market_share()`.

Other datasets: `sda`

## Examples

```r
market_share
```
plot_emission_intensity

Create an emission intensity plot

Description

Create an emission intensity plot

Usage

plot_emission_intensity(data, span_5yr = FALSE, convert_label = identity)

Arguments

data
A data frame. Requirements:
• The structure must be like sda.
• The column sector must have a single value (e.g. "cement").
• (Optional) If present, the column label is used for data labels.

span_5yr
Logical. Use TRUE to restrict the time span to 5 years from the start year (the default behavior of qplot_emission_intensity()), or use FALSE to impose no restriction.

convert_label
A symbol. The unquoted name of a function to apply to y-axis labels. For example:
• To convert labels to uppercase use convert_label = toupper.
• To get the default behavior of qplot_emission_intensity() use convert_label = to_title.

Value

An object of class "ggplot".

See Also

sda.

Examples

# 'data' must meet documented "Requirements"
data <- subset(sda, sector == "cement")
plot_emission_intensity(data)

# plot with 'qplot_emission_intensity()' \parameters
plot_emission_intensity(
  data,
  span_5yr = TRUE,
  convert_label = to_title
)
plot_techmix  Create a techmix plot

Description
Create a techmix plot

Usage
plot_techmix(
  data,
  span_5yr = FALSE,
  convert_label = identity,
  convert_tech_label = identity
)

Arguments

  data  A data frame. Requirements:
        • The structure must be like market_share.
        • The following columns must have a single value: sector, region, scenario_source.
        • The column metric must have a portfolio (e.g. "projected"), a benchmark (e.g. "corporate_economy"), and a single scenario (e.g. "target_sds").
        • (Optional) If present, the column label is used for data labels.
        • (Optional) If present, the column label_tech is used for technology labels.

  span_5yr Logical. Use TRUE to restrict the time span to 5 years from the start year (the default behavior of qplot_techmix()), or use FALSE to impose no restriction.

  convert_label A symbol. The unquoted name of a function to apply to y-axis labels. For example:
                   • To convert labels to uppercase use convert_label = toupper.
                   • To get the default behavior of qplot_techmix() use convert_label = recode_metric_techmix.

  convert_tech_label A symbol. The unquoted name of a function to apply to technology legend labels. For example, to convert labels to uppercase use convert_tech_label = toupper. To get the default behavior of qplot_techmix() use convert_tech_label = spell_out_technology.

Value
An object of class "ggplot".

See Also
market_share.
plot_trajectory

Examples

# `data` must meet documented "Requirements"

```r
data <- subset(
  market_share,
  scenario_source == "demo_2020" &
  sector == "power" &
  region == "global" &
  metric %in% c("projected", "corporate_economy", "target_sds")
)

plot_techmix(data)
```

# plot with `qplot_techmix()` parameters

```r
plot_techmix(
  data,
  span_5yr = TRUE,
  convert_label = recode_metric_techmix,
  convert_tech_label = spell_out_technology
)
```

plot_trajectory

Create a trajectory plot

Description

Create a trajectory plot

Usage

```r
plot_trajectory(
  data,
  span_5yr = FALSE,
  convert_label = identity,
  center_y = FALSE
)
```

Arguments

data

A data frame. Requirements:

- The structure must be like `market_share`.
- The following columns must have a single value: `sector`, `technology`, `region`, `scenario_source`.
- (Optional) If present, the column `label` is used for data labels.

span_5yr

Logical. Use `TRUE` to restrict the time span to 5 years from the start year (the default behavior of `qplot_trajectory()`), or use `FALSE` to impose no restriction.

convert_label

A symbol. The unquoted name of a function to apply to y-axis labels. For example:
• To convert labels to uppercase use `convert_label = toupper`.
• To get the default behavior of `qplot_trajectory()` use `convert_label = format_metric`.

`center_y` Logical. Use `TRUE` to center the y-axis around start value (the default behavior of `qplot_trajectory()`), or use `FALSE` to not center.

Value

An object of class "ggplot".

See Also

`market_share`.

Examples

```r
# `data` must meet documented "Requirements"
data <- subset(
  market_share,
  sector == "power" &
  technology == "renewables-cap" &
  region == "global" &
  scenario_source == "demo_2020"
)

plot_trajectory(data)

# plot with `qplot_trajectory()`'s parameters
plot_trajectory(
  data,
  span_5yr = TRUE,
  convert_label = format_metric
)
```

---

`qplot_emission_intensity`

Create a quick emission intensity plot

Description

Compared to `plot_emission_intensity()` this function:

• is restricted to plotting future as 5 years from the start year,
• outputs formatted labels, based on emission metric column,
• outputs a title,
• outputs formatted axis labels.
Usage

qplot_emission_intensity(data)

Arguments

data A data frame. Requirements:
  • The structure must be like sda.
  • The column sector must have a single value (e.g. "cement").
  • (Optional) If present, the column label is used for data labels.

Value

An object of class "ggplot".

See Also

plot_emission_intensity

Examples

# `data` must meet documented "Requirements"
data <- subset(sda, sector == "cement")
qplot_emission_intensity(data)

Description

Compared to plot_techmix() this function:

  • is restricted to plotting future as 5 years from the start year,
  • outputs pretty bar labels, based on metric column,
  • outputs pretty legend labels, based on technology column,
  • outputs a title.

Usage

qplot_techmix(data)
qplot_trajectory

Arguments

data  A data frame. Requirements:

• The structure must be like `market_share`.
• The following columns must have a single value: `sector`, `region`, `scenario_source`.
• The column `metric` must have a portfolio (e.g. "projected"), a benchmark (e.g. "corporate_economy"), and a single scenario (e.g. "target_sds").
• (Optional) If present, the column `label` is used for data labels.
• (Optional) If present, the column `label_tech` is used for technology labels.

Value

An object of class "ggplot".

See Also

`plot_techmix`

Examples

```r
# 'data' must meet documented "Requirements"
data <- subset(
    market_share,
    sector == "power" &
    region == "global" &
    scenario_source == "demo_2020" &
    metric %in% c("projected", "corporate_economy", "target_sds")
)
qplot_techmix(data)
```

---

**qplot_trajectory**

Create a quick trajectory plot

Description

Compared to `plot_trajectory()` this function:

• is restricted to plotting only 5 years from the start year,
• outputs pretty legend labels, based on the column holding metrics,
• outputs a title,
• outputs a subtitle,
• outputs informative axis labels in sentence case.

Usage

`qplot_trajectory(data)`
Arguments

data A data frame. Requirements:

- The structure must be like `market_share`.
- The following columns must have a single value: `sector`, `technology`, `region`, `scenario_source`.
- (Optional) If present, the column `label` is used for data labels.

Value

An object of class "ggplot".

See Also

`plot_trajectory`

Examples

```r
# 'data' must meet documented "Requirements"
data <- subset(
  market_share,
  sector == "power" &
  technology == "renewablesnap" &
  region == "global" &
  scenario_source == "demo_2020"
)

qplot_trajectory(data)
```

scale_colour_r2dii Custom 2DII colour and fill scales

Description

A custom discrete colour and fill scales with colours from 2DII palette.

Usage

```r
scale_colour_r2dii(labels = NULL, ...)
```

```r
scale_fill_r2dii(labels = NULL, ...)
```

Arguments

labels A character vector. Specifies colour labels to use and their order. Run `unique(r2dii.plot:::palette_colours$label)` to see available labels. Similar to `value` parameter in `ggplot2::scale_colour_manual()`.

... Other parameters passed on to `ggplot2::discrete_scale()`.
scale_colour_r2dii_sector

Value
An object of class "ScaleDiscrete".

See Also
Other r2dii scales: scale_colour_r2dii_sector(), scale_colour_r2dii_tech()

Examples
library(ggplot2, warn.conflicts = FALSE)

ggplot(mpg) +
  geom_point(aes(displ, hwy, color = class)) +
  scale_colour_r2dii()

ggplot(mpg) +
  geom_histogram(aes(cyl, fill = class), position = "dodge", bins = 5) +
  scale_fill_r2dii()

scale_colour_r2dii_sector
Custom 2DII sector colour and fill scales

Description
A custom discrete colour and fill scales with colours from 2DII sector palette.

Usage
scale_colour_r2dii_sector(sectors = NULL, ...)
scale_fill_r2dii_sector(sectors = NULL, ...)

Arguments
sectors A character vector. Specifies sector colours to use and their order. Run
          unique(r2dii.plot:::sector_colours$label) to see available labels. Similar to
          value parameter in ggplot2::scale_colour_manual().
...
Other parameters passed on to ggplot2::discrete_scale().

Value
An object of class "ScaleDiscrete".

See Also
Other r2dii scales: scale_colour_r2dii_tech(), scale_colour_r2dii()
Examples

```r
library(ggplot2, warn.conflicts = FALSE)

ggplot(mpg) +
  geom_point(aes(displ, hwy, color = class)) +
  scale_colour_r2dii_sector()

ggplot(mpg) +
  geom_histogram(aes(cyl, fill = class), position = "dodge", bins = 5) +
  scale_fill_r2dii_sector()
```

scale_colour_r2dii_tech

*Custom 2DII technology colour and fill scales*

Description

A custom discrete colour and fill scales with colours from 2DII technology palette.

Usage

```r
scale_colour_r2dii_tech(sector, technologies = NULL, ...)
scale_fill_r2dii_tech(sector, technologies = NULL, ...)
```

Arguments

- `sector` A string. Sector name specifying a colour palette. Run `unique(r2dii.plot:::technology_colours$sector)` to see available sectors.
- `technologies` A character vector. Specifies technologies to use as colours and their order. Run `unique(r2dii.plot:::technology_colours$technology)` to see available technologies (pay attention if they match the sector). Similar to `value` parameter in `ggplot2::scale_colour_manual()`.
- `...` Other parameters passed on to `ggplot2::discrete_scale()`.

Value

An object of class "ScaleDiscrete".

See Also

Other r2dii scales: `scale_colour_r2dii_sector()`, `scale_colour_r2dii()`
Examples

```r
library(ggplot2, warn.conflicts = FALSE)

ggplot(mpg) +
  geom_point(aes(displ, hwy, color = class)) +
  scale_colour_r2dii_tech("automotive")

ggplot(mpg) +
  geom_histogram(aes(cyl, fill = class), position = "dodge", bins = 5) +
  scale_fill_r2dii_tech("automotive")
```

---

**sda**

An example of an sda-like dataset

Description

Dataset imitating the output of `r2dii.analysis::target_sda()`.

Usage

`sda`

Format

An object of class `spec_tbl_df` (inherits from `tbl_df`, `tbl`, `data.frame`) with 208 rows and 4 columns.

Source

[https://github.com/2DegreesInvesting/r2dii.plot/issues/55](https://github.com/2DegreesInvesting/r2dii.plot/issues/55).

See Also

`r2dii.analysis::target_sda()`.

Other datasets: `market_share`

Examples

`sda`
theme_2dii

Complete theme

Description

A ggplot theme which can be applied to all graphs to appear according to 2DII plotting aesthetics.

Usage

```r
theme_2dii(
  base_size = 12,
  base_family = "Helvetica",
  base_line_size = base_size/22,
  base_rect_size = base_size/22
)
```

Arguments

- `base_size`  
  base font size, given in pts.
- `base_family`  
  base font family
- `base_line_size`  
  base size for line elements
- `base_rect_size`  
  base size for rect elements

Value

An object of class "theme", "gg".

See Also

ggplot2::theme_classic.

Examples

```r
library(ggplot2, warn.conflicts = FALSE)

ggplot(mtcars) +
  geom_histogram(aes(mpg), bins = 10) +
  theme_2dii()
```
to_title

Replicate labels produced with qplot_*() functions

Description

- to_title() converts labels like `qplot_emission_intensity()`.
- format_metric() converts labels like `qplot_trajectory()`.
- recode_metric_techmix() converts labels like `qplot_techmix()`.
- spell_out_technology() converts technology labels like `qplot_techmix()`.

Usage

to_title(x)

format_metric(x)

recode_metric_techmix(x)

spell_out_technology(x)

Arguments

x

A character vector.

Value

A character vector.

Examples

to_title(c("a.string", "another_STRING"))

metric <- c("projected", "corporate_economy", "target_xyz", "else")
format_metric(metric)

recode_metric_techmix(metric)

spell_out_technology(c("gas", "ice", "coalcap", "hdv"))
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