

# Package ‘r2dii.plot’

May 6, 2022

**Title** Visualize the Climate Scenario Alignment of a Financial Portfolio

**Version** 0.3.0

**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.

**License** MIT + file LICENSE

**URL** <https://github.com/2DegreesInvesting/r2dii.plot>,  
<https://2degreesinvesting.github.io/r2dii.plot/>

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

**Depends** R (>= 3.4)

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

**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** 2022-05-05 23:20:10 UTC

## R topics documented:

market_share . . . . .	2
plot_emission_intensity . . . . .	3
plot_techmix . . . . .	4
plot_trajectory . . . . .	5
qplot_emission_intensity . . . . .	7
qplot_techmix . . . . .	8
qplot_trajectory . . . . .	9
scale_colour_r2dii . . . . .	10
scale_colour_r2dii_sector . . . . .	11
scale_colour_r2dii_tech . . . . .	12
sda . . . . .	13
theme_2dii . . . . .	13
to_title . . . . .	14

**Index** **16**

---

market_share	<i>An example of a market_share-like dataset</i>
--------------	--------------------------------------------------

---

### Description

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

### Usage

```
market_share
```

### Format

An object of class `spec_tbl_df` (inherits from `tbl_df`, `tbl`, `data.frame`) with 802 rows and 10 columns.

### See Also

`r2dii.analysis::target_market_share()`.

Other datasets: `sda`

### Examples

```
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: <ul style="list-style-type: none"><li>• The structure must be like <a href="#">sda</a>.</li><li>• The column sector must have a single value (e.g. "cement").</li><li>• (Optional) If present, the column label is used for data labels.</li></ul>
span_5yr	Logical. Use TRUE to restrict the time span to 5 years from the start year (the default behavior of <code>qplot_emission_intensity()</code> ), 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: <ul style="list-style-type: none"><li>• To convert labels to uppercase use <code>convert_label = toupper</code>.</li><li>• To get the default behavior of <code>qplot_emission_intensity()</code> use <code>convert_label = to_title</code>.</li></ul>

### Value

An object of class "ggplot".

### See Also

[sda](#).

### Examples

```
# `data` must meet documented "Requirements"
data <- subset(sda, sector == "cement" & region == "global")
plot_emission_intensity(data)

# plot with `qplot_emission_intensity()` parameters
plot_emission_intensity(
  data,
  span_5yr = TRUE,
  convert_label = to_title
)
```

---

plot_techmix	<i>Create a techmix plot</i>
--------------	------------------------------

---

### Description

Create a techmix plot

### Usage

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

### Arguments

data	<p>A data frame. Requirements:</p> <ul style="list-style-type: none"> <li>• The structure must be like <a href="#">market_share</a>.</li> <li>• The following columns must have a single value: sector, region, scenario_source.</li> <li>• The column metric must have a portfolio (e.g. "projected"), a benchmark (e.g. "corporate_economy"), and a single scenario (e.g. "target_sds").</li> <li>• (Optional) If present, the column label is used for data labels.</li> <li>• (Optional) If present, the column label_tech is used for technology labels.</li> </ul>
span_5yr	<p>Logical. Use TRUE to restrict the time span to 5 years from the start year (the default behavior of <code>qplot_techmix()</code>), or use FALSE to impose no restriction.</p>
convert_label	<p>A symbol. The unquoted name of a function to apply to y-axis labels. For example:</p> <ul style="list-style-type: none"> <li>• To convert labels to uppercase use <code>convert_label = toupper</code>.</li> <li>• To get the default behavior of <code>qplot_techmix()</code> use <code>convert_label = recode_metric_techmix</code>.</li> </ul>
convert_tech_label	<p>A symbol. The unquoted name of a function to apply to technology legend labels. For example, to convert labels to uppercase use <code>convert_tech_label = toupper</code>. To get the default behavior of <code>qplot_techmix()</code> use <code>convert_tech_label = spell_out_technology</code>.</p>

### Value

An object of class "ggplot".

### See Also

[market\\_share](#).

**Examples**

```
# `data` must meet documented "Requirements"
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
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**

```
plot_trajectory(
  data,
  span_5yr = FALSE,
  convert_label = identity,
  center_y = FALSE,
  value_col = "percentage_of_initial_production_by_scope",
  perc_y_scale = FALSE
)
```

**Arguments**

data	A data frame. Requirements: <ul style="list-style-type: none"> <li>• The structure must be like <a href="#">market_share</a>.</li> <li>• The following columns must have a single value: sector, technology, region, scenario_source.</li> <li>• (Optional) If present, the column label is used for data labels.</li> </ul>
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: <ul style="list-style-type: none"> <li>• To convert labels to uppercase use <code>convert_label = toupper</code>.</li> <li>• To get the default behavior of <code>qplot_trajectory()</code> use <code>convert_label = recode_metric_trajectory</code>.</li> </ul>
center_y	Logical. Use TRUE to center the y-axis around start value (the default behavior of <code>qplot_trajectory()</code> ), or use FALSE to not center.
value_col	Character. Name of the column to be used as a value to be plotted.
perc_y_scale	Logical. FALSE defaults to using no label conversion. Use TRUE to convert labels on y-axis to percentage using <code>scales::percent</code> (the default behavior of <code>qplot_trajectory()</code> ).

### Value

An object of class "ggplot".

### See Also

[market\\_share](#).

### Examples

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

plot_trajectory(data)

# plot with `qplot_trajectory()` parameters
plot_trajectory(
  data,
  span_5yr = TRUE,
  convert_label = recode_metric_trajectory,
  center_y = TRUE,
  value_col = "percentage_of_initial_production_by_scope",
  perc_y_scale = TRUE
)
```

---

`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

<code>data</code>	A data frame. Requirements: <ul style="list-style-type: none"><li>• The structure must be like <a href="#">sda</a>.</li><li>• The column <code>sector</code> must have a single value (e.g. "cement").</li><li>• (Optional) If present, the column <code>label</code> is used for data labels.</li></ul>
-------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

## Value

An object of class "ggplot".

## See Also

`plot_emission_intensity`

## Examples

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

---

qplot\_techmix      *Create a quick techmix plot*

---

### 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)
```

### 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

```
# `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

```
# `data` must meet documented "Requirements"
data <- subset(
  market_share,
  sector == "power" &
  technology == "renewables" &
  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

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

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

### Arguments

`labels`            A character vector. Specifies colour labels to use and their order. Run `unique(r2dii.plot::palette_c)` 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\\_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_c)` 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**

```
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

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

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

### Arguments

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

### Value

An object of class "ScaleDiscrete".

### See Also

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

### Examples

```
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	<i>An example of an sda-like dataset</i>
-----	------------------------------------------

---

**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 110 rows and 6 columns.

**Source**

<https://github.com/2DegreesInvesting/r2dii.plot/issues/55>.

**See Also**

`r2dii.analysis::target_sda()`.

Other datasets: `market_share`

**Examples**

```
sda
```

---

theme_2dii	<i>Complete theme</i>
------------	-----------------------

---

**Description**

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

**Usage**

```
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**

```
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\(\)](#).
- recode\_metric\_trajectory() 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)

recode_metric_techmix(x)

recode_metric_trajectory(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")  
recode_metric_trajectory(metric)
```

```
recode_metric_techmix(metric)
```

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

# Index

- \* **datasets**
  - market\_share, 2
  - sda, 13
- \* **plotting functions**
  - theme\_2dii, 13
- \* **r2dii scales**
  - scale\_colour\_r2dii, 10
  - scale\_colour\_r2dii\_sector, 11
  - scale\_colour\_r2dii\_tech, 12
- ggplot2::discrete\_scale(), 10–12
- ggplot2::scale\_colour\_manual(), 10–12
- ggplot2::theme\_classic, 14
- market\_share, 2, 4–6, 8, 9, 13
- plot\_emission\_intensity, 3
- plot\_emission\_intensity(), 7
- plot\_techmix, 4
- plot\_techmix(), 8
- plot\_trajectory, 5
- plot\_trajectory(), 9
- qplot\_emission\_intensity, 7
- qplot\_emission\_intensity(), 14
- qplot\_techmix, 8
- qplot\_techmix(), 14
- qplot\_trajectory, 9
- qplot\_trajectory(), 14
- r2dii.analysis::target\_market\_share(), 2
- r2dii.analysis::target\_sda(), 13
- recode\_metric\_techmix (to\_title), 14
- recode\_metric\_trajectory (to\_title), 14
- scale\_color\_r2dii (scale\_colour\_r2dii), 10
- scale\_color\_r2dii\_sector (scale\_colour\_r2dii\_sector), 11
- scale\_color\_r2dii\_tech (scale\_colour\_r2dii\_tech), 12
- scale\_colour\_r2dii, 10, 11, 12
- scale\_colour\_r2dii\_sector, 10, 11, 12
- scale\_colour\_r2dii\_tech, 10, 11, 12
- scale\_fill\_r2dii (scale\_colour\_r2dii), 10
- scale\_fill\_r2dii\_sector (scale\_colour\_r2dii\_sector), 11
- scale\_fill\_r2dii\_tech (scale\_colour\_r2dii\_tech), 12
- sda, 2, 3, 7, 13
- spell\_out\_technology (to\_title), 14
- theme\_2dii, 13
- to\_title, 14