Package 'procregcmpnt'

March 28, 2025

Title Support routines for importing data from the Census Bureau's regCMPNT program

Version 1.1

Description Utilities that allow the results from the regCMPNT modeling software into R.

License MIT + file LICENSE

Encoding UTF-8

LazyData TRUE

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

Imports dplyr (>= 1.0.10),
     ggplot2 (>= 3.0.0),
     magrittr (>= 1.5),
     openxlsx,
     rlang (>= 1.0.0),
     stringr,
     sautilities,
     tidyr (>= 1.3.0),
     tsbox,
     utils

Suggests cli,
     glue (>= 1.6.1),
     lifecycle (>= 1.0.3),
     stringi (>= 1.5.3),
     vctrs (>= 0.4.0)

Depends R (>= 3.6)

Contents

convert_date_string	*convert date string from regCMPNT UDG file*

Description

Converts date string from regCMPNT UDG file into a vector of beginning and ending dates

Usage

```
convert_date_string(this_date_string = NULL, this_freq = 12)
```

Arguments

this_date_string

> Character string; beginning and ending date from regCMPNT UDG file. This is a required entry

this_freq   Integer scalar; periodicity of time series Default is 12

Details

Version 1.3, 3/28/2025

Value

A vector of the beginning and ending date from the regCMPNT UDG file

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
this_dataspan <-
convert_date_string(n3000019.udg[["dataspan"]], n3000019.udg[["freq"]])
this_modelspan <-
convert_date_string(n3000019.udg[["modelspan"]], n3000019.udg[["freq"]])
this_sigexspan <-
convert_date_string(n3000019.udg[["sigexspan"]], n3000019.udg[["freq"]])
```

---

get_arima_estimates_matrix

ARMA Coefficient Summary

Description

Generate a summary of ARMA coefficients for a component in a regCMPNT model as run by SeasCen.

Usage

```
get_arima_estimates_matrix(
  this_udg = NULL,
  this_component = NULL,
  convert_to_space = FALSE
)
```

Arguments

`this_udg`	List object; UDG list generated from a regCMPNT run on a single time series This is a required entry.
`this_component`	Integer scalar; number of component ARIMA model This is a required entry.
`convert_to_space`	Logical scalar; replace underscores in UDG keys with spaces. Default is `FALSE`.

Details

Version 2.1, 2/20/2025

Value

matrix of ARMA coefficients, standard errors, and variances for a given series

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
n3008396_arima_c1   <- get_arima_estimates_matrix(n3008396.udg, 1)
n3008396_arima_c2   <- get_arima_estimates_matrix(n3008396.udg, 2)
n3008396_arima_c3   <- get_arima_estimates_matrix(n3008396.udg, 3)
```

get_component_model_list

Generate component model summary

Description

Generate a summary of component models for a single series into a list object

Usage

```
get_component_model_list(this_udg = NULL, convert_to_space = FALSE)
```

Arguments

this_udg   List object; UDG list generated from a regCMPNT run on a single time series
                  This is a required entry.

convert_to_space

                  Logical scalar; replace underscores with spaces. Default is FALSE.

Details

Version 2.1, 2/20/2025

Value

list of matrices of regression and ARIMA coefficients, standard errors, variances, and t-statistics for
a given series

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
n3008396_comp_list  <- get_component_model_list(n3008396.udg)
```

get_regression_estimates_matrix

Generate regression coefficient summary

Description

Generate a summary of regression coefficients for a single series

Usage

```
get_regression_estimates_matrix(this_udg = NULL, convert_to_space = FALSE)
```

Arguments

`this_udg`	List object; UDG list generated from a regCMPNT run on a single time series This is a required entry.
`convert_to_space`	
	Logical scalar; replace underscores in UDG keys with spaces. Default is `FALSE`.

Details

Version 2.1, 3/28/2025

Value

matrix of regression coefficients, standard errors, and t-statistics for a given series

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
n3008396_reg_matrix <- get_regression_estimates_matrix(n3008396.udg)
```

---

import_acf   *Import regCMPNT ACF file*

Description

Reads in the ACF and PACF of the KF standardized innovations saved by regCMPNT

Usage

```
import_acf(file_name = NULL, column_name = NULL, return_matrix = TRUE)
```

Arguments

`file_name`	Character string; file name for regCMPNT ACF file. This is a required entry
`column_name`	Array of character strings; names for the columns of the estimates matrix. Array must be of length 5. Default is c("LAG", "ACF", "ACF_SE", "Q", "DF", "Pval") for ACF files, or c("LAG", "PACF", "PACF_SE").
`return_matrix`	Logical scalar; determines if a matrix or data frame object is returned. Default is `TRUE`.

Details

Version 1.5, 3/28/2025

Value

A matrix object or a data frame of `ts` objects which contains the ACF or PACF estimates for the KF standardized innovations. The file name for the for the ACF file has an `.acf` file extension. The file name for the for the PACF file has an `.pacf` file extension.

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
## Not run:
n3000019_acf_df       <- import_acf("n300019_rev4.acf", return_matrix = FALSE)
n3000019_pacf_df      <- import_acf("n300019_rev4.pacf", return_matrix = FALSE)

## End(Not run)
```

---

import_est   *Import regCMPNT estimates file*

Description

Reads in an estimated component from a file saved by regCMPNT

Usage

```
import_est(file_name = NULL, column_name = NULL, return_matrix = TRUE)
```

Arguments

file_name   Character string; file name for regCMPNT estimate file. This is a required entry

column_name   Array of character strings; names for the columns of the estimates matrix. Array
                must be of length 5. Default is c("Unscaled_Stochastic", "Scale_Factors",
                "Scaled_Stochastic", "Regression_Effects", "Combined_Estimate").

return_matrix   Logical scalar; determines if a matrix or data frame object is returned. Default
                is TRUE.

Details

Version 2.0, 3/26/2025

Value

A ts matrix object or a data frame of ts objects which contains the contents of the estimates for a
given component from a regCMPNT run. The file name for the for the component file has an .est
file extension.

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
## Not run:
n3000019_trend_df        <- import_est("n300019_rev2_arima01.est", return_matrix = FALSE)
n3000019_seasonal_df     <- import_est("n300019_rev2_arima02.est", return_matrix = FALSE)
n3000019_irregular_df    <- import_est("n300019_rev2_arima03.est", return_matrix = FALSE)
n3000019_samplingerror_df <- import_est("n300019_rev2_arima04.est", return_matrix = FALSE)

## End(Not run)
```

import_inn	*Import regCMPNT KF Innovations file*

Description

Reads in the KF innovations from a file saved by regCMPNT

Usage

```
import_inn(file_name = NULL, column_name = NULL, return_matrix = TRUE)
```

Arguments

file_name	Character string; file name for regCMPNT KF innovations file. This is a required entry
column_name	Array of character strings; names for the columns of the estimates matrix. Array must be of length 4. Default is c("Data", "Innovations", "Innov_Var", "Standardized_Innov").
return_matrix	Logical scalar; determines if a matrix or data frame object is returned. Default is TRUE.

Details

Version 1.0, 2/18/2025

Value

A ts matrix object or a data frame of ts objects which contains the contents of the KF innovations from a regCMPNT run. The file name for the for the component file has an .inn file extension.

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
## Not run:
n3000019_inn_df          <- import_est("n300019_rev4.inn", return_matrix = FALSE)

## End(Not run)
```

---

import_udg *Import regCMPNT UDG file*

Description

Reads in diganostics and series information for a UDG file saved by regCMPNT

Usage

```
import_udg(file_name = NULL)
```

Arguments

file_name   Character string; file name for regCMPNT variance file. This is a required entry

Details

Version 2.0, 2/19/2025

Value

A list with the diagnostics stored in the UDG file read into the function

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
## Not run:
n3000019_udg        <- import_udg("n300019_rev2.udg")

## End(Not run)
```

---

import_var *Import regCMPNT Variance file*

Description

Reads in variances for a component from a file saved by regCMPNT

Usage

```
import_var(file_name = NULL, column_name = NULL, return_matrix = TRUE)
```

Arguments

file_name	Character string; file name for regCMPNT variance file. This is a required entry
column_name	Array of character strings; names for the columns of the estimates matrix. Array must be of length 4. Default is c("Unscaled_Stochastic", "Scaled_Stochastic", "Regression_Estimation", "Combined").
return_matrix	Logical scalar; determines if a matrix object is returned. Default is TRUE, which forces the function to return a data frame object.

Details

Version 2.0, 3/26/2025

Value

A ts matrix object or a data frame of ts objects which contains the contents of the variances for a given component from a regCMPNT run. The file name for the for the component file has an .var file extension.

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
## Not run:
n3000019_trend_var_df        <- import_var("n300019_rev2_arima01.var", return_matrix = FALSE)
n3000019_seasonal_var_df     <- import_var("n300019_rev2_arima02.var", return_matrix = FALSE)
n3000019_irregular_var_df    <- import_var("n300019_rev2_arima03.var", return_matrix = FALSE)
n3000019_samplingerror_var_df <- import_var("n300019_rev2_arima04.var", return_matrix = FALSE)

## End(Not run)
```

---

n3000019.acf.matrix   *n3000019.acf.matrix*

Description

A dataset containing the ACF from the UCM model information of the n3000019 CPS series. The variables are as follows:

Usage

```
n3000019.acf.matrix
```

Format

A matrix with 24 rows and 6 columns:

- LAG: Lag of the ACF (integer)
- ACF: Sample ACF of KF standardized innovations from UCM Model estimation
- ACF_SE: Standard error of ACF of KF standardized innovations

- Q: Ljung-Box Statistic
- DF: Degrees of freedom (integer)
- Pval: p-value

---

n3000019.comp.df   *n3000019.comp.df*

Description

A dataset containing the components of a UCM signal extraction of the n3000019 CPS series. The variables are as follows:

Usage

```
n3000019.comp.df
```

Format

A data frame with 252 rows and 8 variables:

- year: year of the observation (2003 to 20023)
- month: month of the observation (1 to 12)
- trend: trend of the UCM signal extraction of n3000019
- seasonal: seasonal of the UCM signal extraction of n3000019
- samplingerror: sampling error component of the UCM signal extraction of n3000019
- irregular: irregular of the UCM signal extraction of n3000019
- sadj: seasonal adjustment generated from the UCM signal extraction of n3000019
- sadj_minus_se: seasonal adjustment generated from the UCM signal extraction of n3000019 minus the sampling error component

---

n3000019.pacf.matrix   *n3000019.pacf.matrix*

Description

A dataset containing the PACF from the UCM model estimation of the n3000019 CPS series. The variables are as follows:

Usage

```
n3000019.pacf.matrix
```

Format

A matrix with 24 rows and 3 columns:

- LAG: Lag of the ACF (integer)
- PACF: Sample PACF of KF standardized innovations from UCM Model estimation
- PACF_SE: Standard error of PACF of KF standardized innovations
- Q: Ljung-Box Statistic
- DF: Degrees of freedom (integer)
- Pval: p-value of the Q statistics for this lag

---

n3000019.udg   *n3000019.udg*

Description

A dataset containing the contents of the UDG file of a UCM signal extraction of the n3000019 CPS series. The variables are as follows:

Usage

n3000019.udg

Format

A list object with 151 elements:

- date time
- srsttl
- freq
- dataspan
- modelspan
- sigexspan
- power
- converged
- nliter
- nfev
- ncomponents
- cmpttl$1
- cmptyp$1
- model$1
- Nonseasonal Difference$Lag 1$1
- Nonseasonal Difference$Lag 2$1
- Nonseasonal MA$Lag 1$1
- variance$1

- cmpttl$2
- cmptyp$2
- model$2
- User Nonseasonal Difference$Lag 1$2
- User Nonseasonal Difference$Lag 2$2
- User Nonseasonal Difference$Lag 3$2
- User Nonseasonal Difference$Lag 4$2
- User Nonseasonal Difference$Lag 5$2
- User Nonseasonal Difference$Lag 6$2
- User Nonseasonal Difference$Lag 7$2
- User Nonseasonal Difference$Lag 8$2
- User Nonseasonal Difference$Lag 9$2
- User Nonseasonal Difference$Lag 10$2
- User Nonseasonal Difference$Lag 11$2
- Nonseasonal MA$Lag 1$2
- Nonseasonal MA$Lag 2$2
- Nonseasonal MA$Lag 3$2
- Nonseasonal MA$Lag 4$2
- Nonseasonal MA$Lag 5$2
- Nonseasonal MA$Lag 6$2
- Nonseasonal MA$Lag 7$2
- Nonseasonal MA$Lag 8$2
- Nonseasonal MA$Lag 9$2
- Nonseasonal MA$Lag 10$2
- variance$2
- cmpttl$3
- cmptyp$3
- model$3
- variance$3
- cmpttl$4
- cmptyp$4
- model$4
- Nonseasonal AR$Lag 1$4
- Nonseasonal AR$Lag 2$4
- Nonseasonal AR$Lag 3$4
- Nonseasonal AR$Lag 4$4
- Nonseasonal AR$Lag 5$4
- Nonseasonal AR$Lag 6$4
- Nonseasonal AR$Lag 7$4
- Nonseasonal AR$Lag 8$4

- Nonseasonal AR$Lag 9$4
- Nonseasonal AR$Lag 10$4
- Nonseasonal AR$Lag 11$4
- Nonseasonal AR$Lag 12$4
- Nonseasonal AR$Lag 13$4
- Nonseasonal AR$Lag 14$4
- Nonseasonal AR$Lag 15$4
- variance$4
- ACF$Lag 1
- Q$Lag 1
- PValue$Lag 1
- ACF$Lag 2
- Q$Lag 2
- PValue$Lag 2
- ACF$Lag 3
- Q$Lag 3
- PValue$Lag 3
- ACF$Lag 4
- Q$Lag 4
- PValue$Lag 4
- ACF$Lag 5
- Q$Lag 5
- PValue$Lag 5
- ACF$Lag 6
- Q$Lag 6
- PValue$Lag 6
- ACF$Lag 7
- Q$Lag 7
- PValue$Lag 7
- ACF$Lag 8
- Q$Lag 8
- PValue$Lag 8
- ACF$Lag 9
- Q$Lag 9
- PValue$Lag 9
- ACF$Lag 10
- Q$Lag 10
- PValue$Lag 10
- ACF$Lag 11
- Q$Lag 11

- PValue$Lag 11
- ACF$Lag 12
- Q$Lag 12
- PValue$Lag 12
- ACF$Lag 13
- Q$Lag 13
- PValue$Lag 13
- ACF$Lag 14
- Q$Lag 14
- PValue$Lag 14
- ACF$Lag 15
- Q$Lag 15
- PValue$Lag 15
- ACF$Lag 16
- Q$Lag 16
- PValue$Lag 16
- ACF$Lag 17
- Q$Lag 17
- PValue$Lag 17
- ACF$Lag 18
- Q$Lag 18
- PValue$Lag 18
- ACF$Lag 19
- Q$Lag 19
- PValue$Lag 19
- ACF$Lag 20
- Q$Lag 20
- PValue$Lag 20
- ACF$Lag 21
- Q$Lag 21
- PValue$Lag 21
- ACF$Lag 22
- Q$Lag 22
- PValue$Lag 22
- ACF$Lag 23
- Q$Lag 23
- PValue$Lag 23
- ACF$Lag 24
- Q$Lag 24
- PValue$Lag 24

- KFinn$Min
- KFinn$Max
- KFinn$Med
- KFinn$Rsd
- ncombinations
- nb
- nregderived
- componentreg
- nopr$1
- nopr$2
- nopr$3
- nopr$4
- nACFlag

---

n3008396.udg   *n3008396.udg*

Description

A dataset containing the contents of the UDG file of a UCM signal extraction of the n3008396 CPS series. The variables are as follows:

Usage

n3008396.udg

Format

A list object with 135 elements:

- date time
- srsttl
- freq
- dataspan
- modelspan
- sigexspan
- power
- converged
- nliter
- nfev
- nb
- Outliers$ls2008.may
- Outliers$ao2020.mar
- Outliers$ao2020.apr

- Outliers$ao2020.dec
- User Defined$reg45
- User Defined$tc2009Jan
- User Defined$tc2020Mar
- nregderived
- ncomponents
- componentreg
- component
- cmpttl$1
- model$1
- Nonseasonal Difference$Lag 1$1
- Nonseasonal Difference$Lag 2$1
- Nonseasonal MA$Lag 1$1
- variance$1
- cmpttl$2
- model$2
- User Nonseasonal Difference$Lag 1$2
- User Nonseasonal Difference$Lag 2$2
- User Nonseasonal Difference$Lag 3$2
- User Nonseasonal Difference$Lag 4$2
- User Nonseasonal Difference$Lag 5$2
- User Nonseasonal Difference$Lag 6$2
- User Nonseasonal Difference$Lag 7$2
- User Nonseasonal Difference$Lag 8$2
- User Nonseasonal Difference$Lag 9$2
- User Nonseasonal Difference$Lag 10$2
- User Nonseasonal Difference$Lag 11$2
- Nonseasonal MA$Lag 1$2
- Nonseasonal MA$Lag 2$2
- Nonseasonal MA$Lag 3$2
- Nonseasonal MA$Lag 4$2
- Nonseasonal MA$Lag 5$2
- Nonseasonal MA$Lag 6$2
- Nonseasonal MA$Lag 7$2
- Nonseasonal MA$Lag 8$2
- Nonseasonal MA$Lag 9$2
- Nonseasonal MA$Lag 10$2
- variance$2
- cmpttl$3
- model$3

- variance$3
- ACF$Lag 1
- Q$Lag 1
- PValue$Lag 1
- ACF$Lag 2
- Q$Lag 2
- PValue$Lag 2
- ACF$Lag 3
- Q$Lag 3
- PValue$Lag 3
- ACF$Lag 4
- Q$Lag 4
- PValue$Lag 4
- ACF$Lag 5
- Q$Lag 5
- PValue$Lag 5
- ACF$Lag 6
- Q$Lag 6
- PValue$Lag 6
- ACF$Lag 7
- Q$Lag 7
- PValue$Lag 7
- ACF$Lag 8
- Q$Lag 8
- PValue$Lag 8
- ACF$Lag 9
- Q$Lag 9
- PValue$Lag 9
- ACF$Lag 10
- Q$Lag 10
- PValue$Lag 10
- ACF$Lag 11
- Q$Lag 11
- PValue$Lag 11
- ACF$Lag 12
- Q$Lag 12
- PValue$Lag 12
- ACF$Lag 13
- Q$Lag 13
- PValue$Lag 13

- ACF$Lag 14
- Q$Lag 14
- PValue$Lag 14
- ACF$Lag 15
- Q$Lag 15
- PValue$Lag 15
- ACF$Lag 16
- Q$Lag 16
- PValue$Lag 16
- ACF$Lag 17
- Q$Lag 17
- PValue$Lag 17
- ACF$Lag 18
- Q$Lag 18
- PValue$Lag 18
- ACF$Lag 19
- Q$Lag 19
- PValue$Lag 19
- ACF$Lag 20
- Q$Lag 20
- PValue$Lag 20
- ACF$Lag 21
- Q$Lag 21
- PValue$Lag 21
- ACF$Lag 22
- Q$Lag 22
- PValue$Lag 22
- ACF$Lag 23
- Q$Lag 23
- PValue$Lag 23
- ACF$Lag 24
- Q$Lag 24
- PValue$Lag 24
- KFinn$Min
- KFinn$Max
- KFinn$Med
- KFinn$Rsd
- nopr$1
- nopr$2
- nopr$3
- nACFlag

---

plot_acf_innov *Generate ACF plot of the regCMPNT innovations.*

Description

Generate ACF or PACF plot of the regCMPNT innovations.

Usage

```
plot_acf_innov(
  this_acf_matrix = NULL,
  this_plot = "acf",
  acf_range = NULL,
  add_ci = TRUE,
  this_acflimit = 1.6,
  this_frequency = 12,
  main_title = NULL,
  sub_title = NULL,
  this_x_label = "Lag",
  this_y_label = NULL,
  this_x_axis_breaks = NULL,
  do_grid = FALSE,
  do_background = FALSE,
  acf_color = "steelblue",
  ci_color = "grey"
)
```

Arguments

this_acf_matrix

        Matrix object; ACF or PACF values saved from regCMPNT. This is a required entry.

this_plot   Character string; three character code for the type of plot to be generated. Allowed entries are "acf" (sample autocorrelation function, default), "pcf" (sample partial autocorrelation function), "ac2" (squared autocorrelation function).

acf_range   Range of values you wish the acf plot to be plotted over. Default is range of the series.

add_ci   Logical scalar; indicates if confidence intervals are added to the plot. Default is confidence intervals are added.

this_acflimit   Numeric scalar; the multiplier for the confidence interval usually read from the udg. Default: 1.6.

this_frequency Integer scalar; Frequency of the time series. Default is 12.

main_title   Title for the plot. Default is character string 'ACF Plot'.

sub_title   Subtitle for the plot. Default is NULL, or no subtitle.

this_x_label   Label for X axis. Default is "Lags".

this_y_label   Label for Y axis. Default is "ACF".

this_x_axis_breaks

        Numeric vector; sets the values for the x-axis. Default uses the value of this_frequency to set x-axis.

do_grid	Logical scalar; indicates if certain plots will have grid lines. Default is no grid lines.
do_background	Logical scalar; indicates grey background included in plot. Default is no grey background;
acf_color	Color used for lines in ACF plot. Default is "steelblue".
ci_color	Color used for confidence interval in ACF plot. Default is "grey".

Details

Version 2.0, 2/18/2025

Value

A ggplot object that produces an ACF or PACF plot of the regCMPNT innovations.

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
n3000019_acf_plot        <- plot_acf_innov(n3000019.acf.matrix)
n3000019_pacf_plot       <- plot_acf_innov(n3000019.pacf.matrix, this_plot = "pacf")
```

plot_component_facet   *Component facet plot*

Description

Generates a plot for the components of a UCM signal extraction from regCMPNT - trend, seasonal, and irreglar, with an optional additional component for holiday or sampling error.

Usage

```
plot_component_facet(
  comp_df = NULL,
  additional_comp = NULL,
  main_title = "Component Facet Plot",
  sub_title = NULL,
  this_x_label = "Time",
  this_y_label = " ",
  do_grid = FALSE,
  do_background = FALSE,
  this_scale = "free_y",
  rel_strip_label_size = 1,
  rel_y_axis_text_size = 1,
  line_color = "steelblue"
)
```

Arguments

`comp_df`	data frame composed of time series objects of components from a UCM signal extraction from regCMPNT. The data frame should have entries for month, year, trend, seasonal, irregular, and could contain one other element. This is a required entry.
`additional_comp`	Character string for additional component in `comp_df` include in plot. Possible entries would be `samplingerror`, `holiday`. Default is no additional components.
`main_title`	Title for the plot. Default is character string `'Component Facet Plot'`.
`sub_title`	Subtitle for the plot. Default is either "SEATS seasonal adjustment" or "X-11 seasonal adjustment".
`this_x_label`	Label for X axis. Default is `"Time"`.
`this_y_label`	Label for Y axis. Default is `" "`.
`do_grid`	Logical scalar; indicates if certain plots will have grid lines. Default is no grid lines.
`do_background`	Logical scalar; indicates grey background included in plot. Default is no grey background.
`this_scale`	Character scalar; set the scale for the y-axis of the facet plots. Default is `"free_y"`. To set axis to be the same for the different plots, set `this_scale = "fixed"`. Note: Setting `this_scale = "fixed"` seasonal is not recommended for mulitplicative adjustments.
`rel_strip_label_size`	Numeric scalar; resizes the facet strip label - values smaller than one makes the label smaller, larger than one makes the label larger. Default leavels the strip label the same size.
`rel_y_axis_text_size`	Numeric scalar; resizes the y-axis text - values smaller than one makes the label smaller, larger than one makes the label larger. Default leaves the y-axis text the same size.
`line_color`	Color used for lines in component plot. Default is `"steelblue"`.

Details

Version 2.0, 3/28/2025

Value

A ggplot object that generates a facet plot for the trend, seasonal, and irregular from the data frame `comp_df`.

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
n3000019_comp_plot <-
   plot_component_facet(n3000019.comp.df, additional_comp = "samplingerror",
                        main_title = "N3000019 regCMPNT Signal Extraction",
```

```
                                sub_title = "Local Linear Trend, TRIG-1, White Noise, Sampling Error",
                                    rel_strip_label_size = 0.8,
                                    rel_y_axis_text_size = 0.75)
```

---

qs   *Generate qs statistic*

Description

Generates QS statistic for a given time series

Usage

```
qs(x = NULL, freq = 12, log_trans = TRUE, first_diff = TRUE, full_span = TRUE)
```

Arguments

x	Time series used to generate QS statistic. This is a required entry.
freq	Integer scalar; frequency of the time series specified in x. This is a required entry.
log_trans	Logical scalar; takes log of time series before computing QS. Default is TRUE.
first_diff	Logical scalar; takes first difference of time series before computing QS. Default is TRUE.
full_span	Logical scalar. If TRUE, QS will be computed for the entire series. If FALSE, QS will be computed for the last 8 years of the series. Default is TRUE.

Details

Version 1.4, 1/28/2025

Value

Returns a list with entries for QS, p-value.

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
UKgas_qs_full  <- qs(UKgas, freq = 4)
UKgas_qs_short <- qs(UKgas, freq = 4, full_span = FALSE)
```

save_component_model_list

Saves a component model into Excel

Description

Generate a summary of regression coefficients for a single series

Usage

```
save_component_model_list(
  this_comp_list = NULL,
  this_file_name = NULL,
  save_as_table = TRUE,
  this_table_style = "TableStyleLight9"
)
```

Arguments

this_comp_list	List object; compoent model summary for a single series. This is a required entry.
this_file_name	character string; file that component model will be saved in. Default is formed from the name of the variable used for `this_comp_list`.
save_as_table	Logical scalar; saves the components as an Excel table. Default is TRUE.
this_table_style	
	Character string; specify an Excel table style to save the worksheets. This argument is only used if save_as_table = TRUE Default is "TableStyleLight9"

Details

Version 1.0, 2/11/2025

Value

Saves the component model into an Excel file, with each component in a separate worksheet

Author(s)

Brian C. Monsell, <monsell.brian@bls.gov> or <bcmonsell@gmail.com>

Examples

```
## Not run:
n3008396_udg        <- import_udg("n3008396.udg")
n3008396_comp_list  <- get_component_model_list(n3008396_udg)
save_component_model_list(n3008396_comp_list, "n3008396_comp.xlsx",
                          this_table_style = "TableStyleLight2")

## End(Not run)
```

Index