

Package ‘tradepolicy’

May 27, 2021

Title Replication of 'An Advanced Guide To Trade Policy Analysis'

Version 0.5.0

Description Datasets from An Advanced Guide to Trade Policy Analysis
(Year: 2016, ISBN: 978-92-870-4367-2) by Yotov, et al. and functions to
report regression summaries with clustered robust standard errors.

URL https://r.tiid.org/R_structural_gravity/

BugReports <https://github.com/pachamaltese/tradepolicy/issues/>

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Encoding UTF-8

RoxygenNote 7.1.1

Imports magrittr, tibble, ggplot2, dplyr, tidyr, purrr, cli, crayon,
sandwich, lmtest, broom, msm, rstudioapi

Suggests testthat, covr

Depends R (>= 4.0)

LazyData true

NeedsCompilation no

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Repository CRAN

Date/Publication 2021-05-27 07:10:02 UTC

R topics documented:

agtpa_applications	2
tp_clustered_glm	3
tp_fixed_effects	4

tp_summary_app1	5
tp_summary_app2	5
tp_summary_app3	6
tp_summary_clustered	7
Index	9

agtpa_applications	<i>International Trade Data for Application Exercises in AGTPA</i>
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Description

Contains bilateral trade flows for different pairs of countries between 1986 and 2006 and additional variables modelling.

Format

A data frame with 99,981 rows and 17 columns:

exporter Exporter ISO country code

importer Importer ISO country code

pair_id Symmetric Pair ID

year Year

trade Nominal trade flows in current US dollars

dist Population-weighted bilateral distance between country 'i' and 'j', in kilometers

cntg Indicator. Equal to 1 if country 'i' and 'j' share a common border

lang Indicator. Equal to 1 if country 'i' and 'j' speak the same official language

clny Indicator. Equal to 1 if country 'i' and 'j' share a colonial relationship

rta Indicator that is equal to one when country 'i' and 'j' are members of same Regional Trade Agreement

rta_lag3 3rd lag of RTA

rta_lag4 4th lag of RTA

rta_lag6 6th lag of RTA

rta_lag8 8th lag of RTA

rta_lag9 9th lag of RTA

rta_lag12 12th lag of RTA

rta_lead4 4th lead of RTA

Details

The data was drawn from the WDI for the year 2005 (earliest year available), the countries with no entry cost data are mainly small probably not in service trade data, and there are some considerations for the countries in this dataset:

- KOR designates RKO since 1949
- RUS designates SUN between 1949 and 1991
- CZE designates CZS between 1949 and 1992
- DEU designates FRG between 1949 and 1989
- Germany unified (DEU) has data since 1991

Author(s)

AGTPA authors, adapted from The World Development Index made by The World Bank

tp_clustered_glm	<i>GLM Regression With Clustered Standard Errors</i>
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Description

Fits a regression with robust clustered standard errors. This uses a quasi-poisson family and returns the estimated coefficients after computing a clustered variance-covariance matrix.

Usage

```
tp_clustered_glm(  
  formula,  
  data,  
  pair = "pair_id",  
  fe_pattern = "^exporter|^importer"  
)
```

Arguments

formula	Formula for the model
data	Tibble or data.frame
pair	Inter-national fixed effects column (defaults to "pair_id")
fe_pattern	Pattern for the fixed effects variable, allows character or regex (defaults to "^exporter ^importer")

Value

A coeftest

tp_fixed_effects *Extract Fixed Effects From Regression Objects*

Description

Takes an lm/glm object and extracts the fixed effects estimated coefficients. This function was created to be used with `left_join()` and `predict()` as it pastes the effects and allows to create a column with the predicted output.

Usage

```
tp_fixed_effects(  
  fit,  
  fe_exp_pattern = "^exporter|^exp_year",  
  fe_imp_pattern = "^importer|^imp_year",  
  fe_pair_pattern = "^pair_id_2",  
  fe_time_pattern = "year"  
)
```

Arguments

<code>fit</code>	Regression object
<code>fe_exp_pattern</code>	Pattern for the fixed effects exporter variable, allows character or regex (defaults to " <code>^exporter ^exp_year</code> ")
<code>fe_imp_pattern</code>	Pattern for the fixed effects importer variable, allows character or regex (defaults to " <code>^importer ^imp_year</code> ")
<code>fe_pair_pattern</code>	Pattern for the fixed effects pair variable, allows character or regex (defaults to " <code>^pair_id_2</code> ")
<code>fe_time_pattern</code>	Pattern for the time-depending fixed effects, allows character or regex (defaults to " <code>year</code> ")

Value

A tibble

 tp_summary_app1

Application 1 (Traditional Gravity Estimates) Reporting Style

Description

Computes clustered standard errors, tests on coefficients with clustered standard errors and obtains RESET test p-value.

Usage

```
tp_summary_app1(
  formula,
  data,
  method = "lm",
  pair = "pair_id",
  etfe = "exp_year",
  itfe = "imp_year"
)
```

Arguments

formula	Formula for the model
data	Tibble or data.frame
method	Regression method, which can be "lm" (default) or "glm"
pair	Inter-national fixed effects column (defaults to "pair_id")
etfe	Exporter time fixed effects column (defaults to "exp_year")
itfe	Importer time fixed effects column (defaults to "imp_year")

Value

A list

 tp_summary_app2

Application 2 (The "Distance Puzzle" Resolved) Reporting Style

Description

Computes clustered standard errors, tests on coefficients with clustered standard errors and uses the delta method to obtain changes in time-based distance estimated coefficients.

Usage

```
tp_summary_app2(
  formula,
  data,
  method = "lm",
  pair = "pair_id",
  etfe = "exp_year",
  itfe = "imp_year",
  dist = "log_dist",
  intr = "log_dist_intra",
  csfe = "intra_pair"
)
```

Arguments

formula	Formula for the model
data	Tibble or data.frame
method	Regression method (lm or glm)
pair	Inter-national fixed effects column (defaults to "pair_id")
etfe	Exporter time fixed effects column (defaults to "exp_year")
itfe	Importer time fixed effects column (defaults to "imp_year")
dist	Distance column (defaults to "log_dist")
intr	Intra-national distance column (defaults to "log_dist_intra")
csfe	Country-specific fixed effects (defaults to "intra_pair")

Value

A list

tp_summary_app3	<i>Application 3 (Regional Trade Agreements Effects) Reporting Style</i>
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Description

Computes clustered standard errors, tests on coefficients with clustered standard errors and returns total RTAs effect with its associated standard error.

Usage

```
tp_summary_app3(
  formula,
  data,
  method = "lm",
  pair = "pair_id",
```

```

    pair2 = "pair_id_2",
    etfe = "exp_year",
    itfe = "imp_year",
    dist = "log_dist",
    intr = "log_dist_intra",
    brdr = "intl_brdr"
  )

```

Arguments

formula	Formula for the model
data	Tibble or data.frame
method	Regression method, which can be "lm" (default) or "glm"
pair	Inter-national fixed effects column (defaults to "pair_id")
pair2	Intra-national fixed effects column (defaults to "pair_id_2")
etfe	Exporter time fixed effects column (defaults to "exp_year")
itfe	Importer time fixed effects column (defaults to "imp_year")
dist	Distance column (defaults to "log_dist")
intr	Intra-national distance column (defaults to "log_dist_intra")
brdr	Inter-national borders column (defaults to "intl_brdr")

Value

A list

tp_summary_clustered *Stata-Like Clustered Standard Errors Summary*

Description

Returns a list for a a general lm or glm which returns number of observations, F-statistic (with degrees of freedom and p-value), R-squared (and pseudo R-squared for Poisson-type generalized models), root MSE and clustered standard errors for estimated coefficients.

Usage

```
tp_summary_clustered(model, cluster)
```

Arguments

model	lm or glm object
cluster	Clustering variable in the model data (e.g. "pair_id")

Value

A list

Examples

```
# These regressions constitute a dummy example
model1 <- lm(mpg ~ wt, data = mtcars)
tp_summary_clustered(model1, "cyl")

model2 <- glm(mpg ~ wt, data = mtcars, family = quasipoisson)
tp_summary_clustered(model2, "cyl")
```


Index

* data

agtpa_applications, 2

agtpa_applications, 2

tp_clustered_glm, 3

tp_fixed_effects, 4

tp_summary_app1, 5

tp_summary_app2, 5

tp_summary_app3, 6

tp_summary_clustered, 7