Package: didintrjl (via r-universe)

July 8, 2026

Title Intersection Difference-in-Differences

Version 0.2.6

Description A wrapper for the Julia package 'DiDInt.jl' <https://ebjamieson97.github.io/DiDInt.jl/stable/> which implements intersection difference-in-differences (DID-INT), a method developed by Karim & Webb (2025) <doi:10.48550/arXiv.2412.14447>. Allows for unbiased estimation of the average effect of treatment on the treated (ATT) in cases when the common causal covariates assumption is violated. Also computes p-values for the ATT via the randomization inference procedure described in MacKinnon and Webb (2020) <doi:10.1016/j.jeconom.2020.04.024>.

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Depends R (>= 3.4.0)

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SystemRequirements Julia (>= 1.10), DiDInt.jl

BugReports https://github.com/ebjamieson97/didintrjl/issues

Suggests knitr, rmarkdown, testthat (>= 3.0.0)

VignetteBuilder knitr

URL https://ebjamieson97.github.io/didintrjl/, https://github.com/ebjamieson97/undidR

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Imports JuliaConnectoR, ggplot2, rlang

Repository https://ebjamieson97.r-universe.dev

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Contents

`coef.DiDIntObj` *Extract coefficients from* `DiDIntObj`

Description

Extract coefficients from `DiDIntObj`

Usage

```
## S3 method for class 'DiDIntObj'
coef(object, level = c("agg", "sub"), ...)
```

Arguments

`object`	A `DiDIntObj` object
`level`	Specify either `"agg"` or `"sub"` to view the aggregate or sub-aggregate results.
`...`	other arguments

Value

A data frame of coefficient estimates

`didint` *Estimate the ATT using DID-INT*

Description

`didint()` estimates the average effect of treatment on the treated (ATT) using intersection difference-in-differences developped by Karim & Webb (2025). The method adjusts for covariates that may vary across states, over time, or jointly by state and time. This function is an R wrapper around the Julia implementation provided in the **DiDInt.jl** package. For more details on the **didintrjl** wrapper, visit the didintrjl documentation site: https://ebjamieson97.github.io/didintrjl/. For more details on the backend implementation, see: https://ebjamieson97.github.io/DiDInt.jl/stable/

Usage

```
didint(
  outcome,
  state,
  time,
  data,
  gvar = NULL,
  treated_states = NULL,
  treatment_times = NULL,
  date_format = NULL,
  covariates = NULL,
  ccc = "int",
  agg = "cohort",
  weighting = "both",
  ref = NULL,
  freq = NULL,
  freq_multiplier = 1,
  start_date = NULL,
  end_date = NULL,
  nperm = 999,
  verbose = TRUE,
  seed = sample.int(1e+06, 1),
  notyet = NULL,
  hc = "hc1",
  truejack = FALSE,
  edgecase = FALSE
)
```

Arguments

`outcome`	A string giving the column name of the outcome variable.
`state`	A string giving the column identifying states. The state column should be a character column.
`time`	A string giving the column identifying dates.
`data`	A data frame containing the variables used for estimation.
`gvar`	String giving the column that indicates first treatment time for each state. Use either this option or the combination of `treated_states` and `treatment_times`.
`treated_states`	Character values specifying the treated state(s).
`treatment_times`	Specify the treated_states using strings, numbers, or Dates, corresponding to `treated_states`.
`date_format`	Optional string specifying the input date format when dates are supplied as character strings. Applies to `start_date`, `end_date`, `treatment_times` and the data in the `time` column if any of those are strings.
`covariates`	Optional string or vector of strings specifying covariates to include.

ccc	A string specifying the DID-INT specification. One of "hom", "time", "state", "add", or "int" (default "int").
agg	A string indicating the aggregation method. One of "cohort", "simple", "state", "sgt", "time" or "none".
weighting	Weighting scheme to use. One of "both", "att", "diff", or "none".
ref	Optional named list indicating the reference category for categorical covariates.
freq	Optional string specifying the period length for staggered adoption. One of "year", "month", "week", "day".
freq_multiplier	Integer multiplier for freq. Default is 1.
start_date	Optional earliest date to retain in the data.
end_date	Optional latest date to retain in the data.
nperm	Number of permutations for randomization inference. Default is 999.
verbose	Logical value, if TRUE, prints progress during randomization inference procedure.
seed	Integer seed for randomization inference.
notyet	Logical value if TRUE, uses pre-treatment periods from treated states as controls.
hc	Heteroskedasticity-consistent covariance matrix estimator. One of "hc0", "hc1", "hc2", "hc3", "hc4".
truejack	Logical value, if TRUE, re-estimates the DID-INT model from the first step (if ccc option is not "int" or "state").
edgecase	Logical value, if TRUE computes any edge case standard errors from saturated Step 3 regressions - see the DiDInt.jl documentation site (https://ebjamieson97.github.io/DiDInt.jl/stable/) for more details. Defaults to FALSE.

Details

The arguments treated_states and treatment_times must be supplied such that their ordering corresponds with one another. That is, the first element of treated_states refers to the state treated at the date given by the first element of treatment_times, and so on.

Dates can be entered as strings, numbers, or Date objects. When character strings are supplied, the input format must be specified via the date_format argument (e.g. "yyyy-mm-dd").

Period grids for staggered adoption are constructed automatically, based on the inputted data. Otherwise, the period grid can be created manually using the arguments freq, freq_multiplier, start_date, and end_date. More information on this process can be seen on the DiDInt.jl documentation site: https://ebjamieson97.github.io/DiDInt.jl/stable/.

Value

An object of class DiDIntObj, a list containing the aggregate results, sub-aggregate results, and model specifications. Has associated print.DiDIntObj, summary.DiDIntObj, and coef.DiDIntObj methods.

References

Karim & Webb (2025). *Good Controls Gone Bad: Difference-in-Differences with Covariates*. https://arxiv.org/abs/2412.14447

MacKinnon & Webb (2020). *Randomization inference for difference-in-differences with few treated clusters*. doi:10.1016/j.jeconom.2020.04.024

Examples

```
if (Sys.getenv("NOT_CRAN") == "true" && didintrjl_ready()) {
 file_path <- system.file("extdata", "merit.csv", package = "didintrjl")
 df <- utils::read.csv(file_path)
 res <- didint("coll", "state", "year", df, verbose = FALSE,
              treated_states = c(71, 58, 64, 59, 85, 57, 72, 61, 34, 88), nperm = 399,
          treatment_times = c(1991, 1993, 1996, 1997, 1997, 1998, 1998, 1999, 2000, 2000))
 summary(res)

}
```

`didint_plot` *Make event study or parallel trends plots*

Description

`didint_plot()` produces either event study plots or parallel trends plots depending on what is specified via the `event` argument. The parallel trends plots, as well as the event study plots, are created using the means residualized by covariates under different model specifications that account for different violations of the common causal covaraites (CCC) assumptions.

Usage

```
didint_plot(
  outcome,
  state,
  time,
  data,
  gvar = NULL,
  treated_states = NULL,
  treatment_times = NULL,
  date_format = NULL,
  covariates = NULL,
  ref = NULL,
  ccc = "all",
  event = FALSE,
  weights = TRUE,
  ci = 0.95,
  freq = NULL,
```

```
  freq_multiplier = 1,
  start_date = NULL,
  end_date = NULL,
  hc = "hc1"
)
```

Arguments

outcome	A string giving the column name of the outcome variable.
state	A string giving the column identifying states. The state column should be a character column.
time	A string giving the column identifying dates.
data	A data frame containing the variables used for estimation.
gvar	String giving the column that indicates first treatment time for each state. Use either this option or the combination of treated_states and treatment_times.
treated_states	Character values specifying the treated state(s).
treatment_times	Specify the treated_states using strings, numbers, or Dates, corresponding to treated_states.
date_format	Optional string specifying the input date format when dates are supplied as character strings. Applies to start_date, end_date, treatment_times and the data in the time column if any of those are strings.
covariates	Optional string or vector of strings specifying covariates to include.
ref	Optional named list indicating the reference category for categorical covariates.
ccc	A string specifying the DID-INT specification. Any combination of "none", "hom", "time", "state", "add", and "int". Or, alternatively, "all" (default).
event	A logical value used to specify if event study plots should be made (TRUE) or if parallel trends plots should be made (FALSE).
weights	A logical value, if TRUE, estimates for the event study plot are computed as weighted averages of state level means for each period relative to their treatment period; if FALSE, uses unweighted averages.
ci	A number between 0 and 1 used to specify the size of the confidence bands.
freq	Optional string specifying the period length for staggered adoption. One of "year", "month", "week", "day".
freq_multiplier	Integer multiplier for freq. Default is 1.
start_date	Optional earliest date to retain in the data.
end_date	Optional latest date to retain in the data.
hc	Heteroskedasticity-consistent covariance matrix estimator. One of "hc0", "hc1", "hc2", "hc3", "hc4".

Details

The arguments `treated_states` and `treatment_times` must be supplied such that their ordering corresponds with one another. That is, the first element of `treated_states` refers to the state treated at the date given by the first element of `treatment_times`, and so on.

Dates can be entered as strings, numbers, or Date objects. When character strings are supplied, the input format must be specified via the `date_format` argument (e.g. `"yyyy-mm-dd"`).

Period grids are constructed automatically, based on the inputted data Otherwise, the period grid can be created manually using the arguments `freq`, `freq_multiplier`, `start_date`, `end_date`. More information on this process can be seen on the didintrjl documentation site: https://ebjamieson97.github.io/didintrjl/.

Value

An object of class `DiDIntPlotObj`, a list containing the parallel trends data or event study data (if `event` is set to `TRUE`) and the name of the outcome variable. Has an associated `plot.DiDIntPlotObj` method for producing event study or parallel trends plots.

References

Karim & Webb (2025). *Good Controls Gone Bad: Difference-in-Differences with Covariates*. https://arxiv.org/abs/2412.14447

Examples

```
if (Sys.getenv("NOT_CRAN") == "true" && didintrjl_ready()) {
 file_path <- system.file("extdata", "merit.csv", package = "didintrjl")
 df <- utils::read.csv(file_path)
 res_event <- didint_plot(
   "coll", "state", "year", df, event = TRUE,
   treated_states = c(71, 58, 64, 59, 85, 57, 72, 61, 34, 88),
   treatment_times = c(1991, 1993, 1996, 1997, 1997, 1998, 1998, 1999,
                       2000, 2000),
   covariates = c("asian", "black", "male")
 )
 plot(res_event)

}
```

`didintrjl_ready` *Check if didintrjl is ready to go*

Description

Checks whether Julia is set up correctly via `JuliaConnectoR` and the `DiDInt.jl` package (version >= 0.9.6) is available. Used to guard examples and tests that require a live Julia session.

Usage

```
didintrjl_ready()
```

Value

A single logical value: `TRUE` if Julia, JuliaConnectoR, and DiDInt.jl (>= 0.9.6) are all available; `FALSE` otherwise.

`plot.DiDIntPlotObj` *Plot method for* `DiDIntPlotObj`

Description

Plot method for `DiDIntPlotObj`

Usage

```
## S3 method for class 'DiDIntPlotObj'
plot(x, y = NULL, ccc = "all", groupmin = 3, window = NULL, ...)
```

Arguments

`x`	A `DiDIntPlotObj` object.
`y`	`NULL` value passed to `plot()` method.
`ccc`	Specify which `ccc` options you would like plotted from the data. Any combination of `"none"`, `"hom"`, `"time"`, `"state"`, `"add"`, and `"int"`. Or, alternatively, `"all"` (default).
`groupmin`	The minimum number of states used to compute a point on the event study for which the confidence band should be shown. Defaults to `3`.
`window`	Either `NULL` or a vector with two elements defining the first and last period that should be plotted.
`...`	other arguments

Value

A `ggplot` object showing either the event study plot or the parallel trends plot.

print.DiDIntObj *Print method for* DiDIntObj

Description

Print method for DiDIntObj

Usage

```
## S3 method for class 'DiDIntObj'
print(x, level = c("agg", "sub"), ...)
```

Arguments

x	A DiDIntObj object.
level	Specify either "agg" or "sub" to view the aggregate or sub-aggregate results.
...	other arguments

Value

The DiDIntObj object, returned invisibly. Called for its side effect of printing results to the console.

summary.DiDIntObj *Summary method for* DiDIntObj

Description

Summary method for DiDIntObj

Usage

```
## S3 method for class 'DiDIntObj'
summary(object, level = c("all", "agg", "sub"), ...)
```

Arguments

object	A DiDIntObj object
level	Specify either "agg", "sub", or "all", to view the results at the aggregate level, the sub-aggregate level, or to view both simultaneously.
...	other arguments

Value

The DiDIntObj object, returned invisibly. Called for its side effect of printing summary results to the console.

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