

# Package ‘bacondecomp’

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**Type** Package

**Title** Goodman-Bacon Decomposition

**Version** 0.1.1

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**Description** Decomposition for differences-in-differences with variation in treatment timing from Goodman-Bacon (2018) <doi:10.3386/w25018>.

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**Depends** R (>= 2.10)

**Suggests** knitr, rmarkdown, testthat, ggplot2, covr

**VignetteBuilder** knitr

**RoxygenNote** 7.0.2

**Encoding** UTF-8

**LazyData** true

**NeedsCompilation** no

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**Repository** CRAN

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bacon

*Goodman-Bacon Decomposition***Description**

bacon() is a function that performs the Goodman-Bacon decomposition for differences-in-differences with variation in treatment timing (with or without time-varying covariates).

**Usage**

```
bacon(formula, data, id_var, time_var, quietly = F)
```

**Arguments**

formula	an object of class "formula": a symbolic representation of the model to be fitted. Must be of the form $y \sim D + \text{controls}$ , where $y$ is the outcome variable, $D$ is the binary treatment indicator, and 'controls' can be any additional control variables. Do not include the fixed effects in the formula. If using '.' notation must be of the form $y \sim D + . - \text{FE1} - \text{FE2}$
data	a data.frame containing the variables in the model.
id_var	character, the name of id variable for units.
time_var	character, the name of time variable.
quietly	logical, default = FALSE, if set to TRUE then bacon() does not print the summary of estimates/weights by type (e.g. Treated vs Untreated)

**Value**

If control variables are included in the formula, then an object of class "list" with three elements:

Omega	a number between 0 and 1, the weight of the within timing group coefficient
beta_hat_w	a number, the within timing group coefficient
two_by_twos	a data.frame with the covariate adjusted 2x2 estimates and weights

If not control variables are included then only the two\_by\_twos data.frame is returned.

**Examples**

```
# Castle Doctrine (Uncontrolled)
df_bacon <- bacon(l_homicide ~ post,
                 data = bacondcomp::castle,
                 id_var = "state",
                 time_var = "year")

# Castle Doctrine (Controlled)
ret_bacon <- bacon(l_homicide ~ post + l_pop + l_income,
                 data = bacondcomp::castle,
                 id_var = "state",
                 time_var = "year")
```

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castle	<i>Data from Cheng and Hoekstra (2013, JHR)</i>
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**Description**

Data from Cheng and Hoekstra (2013, JHR)

**Usage**

castle

**Format**

A data.frame with 520 observations and 159 variables

**st** The state (unit of analysis).

**year** Calendar year (time).

**l\_homicide** Log of state/year homicide rate

**post** Indicator whether castle reform has been implemented

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divorce	<i>Data from Stevenson and Wolfers (2006, QJE)</i>
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**Description**

Data from Stevenson and Wolfers (2006, QJE)

**Usage**

divorce

**Format**

A data.frame with 3366 observations and 147 variables

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`math_reform`*Aggregated data from Goodman (In Press)*

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**Description**

A data set containing state/year level data on an educational reform and future income. This is an aggregated version of the data used by Goodman (2019, JOLE) to estimate the effect of compulsory high school math coursework on future earnings.

**Usage**`math_reform`**Format**

A data.frame with 520 observations and 5 variables

**state** The state (unit of analysis).

**class** The high school class (time).

**reform\_math** Indicator for whether the reform was in place for the state/class.

**reformyr\_math** The year the math reform was first implemented for the state. Set to NA if never implemented.

**inccarn\_ln** Natural log of future income.

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