Package 'entrymodels'

October 13, 2022

Type Package

Title Estimate Entry Models

Version 0.2.1

Maintainer Guilherme Jardim <gnjardim1@gmail.com>

Description Tools for measuring empirically the effects of entry in concentrated markets, based in Bresnahan and Reiss (1991) <https://www.jstor.org/stable/2937655>.

License MIT + file LICENSE

Encoding UTF-8

LazyData true

Imports stats, magrittr, dplyr, readr

RoxygenNote 6.1.1

NeedsCompilation no

Author Guilherme Jardim [aut, cre],
Arthur Bragança [ctb],
Pedro Fernandes [ctb]

Repository CRAN

Date/Publication 2020-05-06 13:20:03 UTC

R topics documented:

aux_matrix *Build our auxiliary matrices to estimate entry models*

Description

Build our auxiliary matrices to estimate entry models

Usage

```
aux_matrix(data, y, N_max, n)
```

Arguments

data	A data.frame object containing your data
y	A string indicating the outcome variable
N_max	An integer indicating the maximum number of competitors
n	Number of observations in data

Value

A list of the auxiliary matrices

br1 *Build our optimization function*

Description

Build our optimization function

Usage

```
br1(params, n, N_max, l_params, A1, A2, S, N)
```

Arguments

params	Parameters to construct function
n	Number of observations in data
N_max	An integer indicating the maximum number of competitors
l_params	Length of parameters vector
A1	Auxiliary matrix A1
A2	Auxiliary matrix A2
S	Size of the market
N	Vector of zeros

Value

The function to be optimized

`br2` *Build our optimization function*

Description

Build our optimization function

Usage

```
br2(params, n, N_max, A1, A2, S1, S2, N)
```

Arguments

`params`	Parameters to construct function
`n`	Number of observations in `data`
`N_max`	An `integer` indicating the maximum number of competitors
`A1`	Auxiliary matrix A1
`A2`	Auxiliary matrix A2
`S1`	First variable for size of the market
`S2`	Second variable for size of the market
`N`	Vector of zeros

Value

The function to be optimized

`em_2var` *Two-Variable Entry Model*

Description

Estimate entry model with two variables for the market size.

Usage

```
em_2var(data, Sm1, Sm2, y, N_max = 5, alpha0 = rep(0.1, N_max),
  gamma0 = rep(1, N_max))
```

Arguments

data	A data.frame object containing your data
Sm1	A string indicating the main market size variable, present in data
Sm2	A string indicating the second market size variable, present in data
y	A string indicating the outcome variable, present in data
N_max	An integer indicating the maximum number of competitors. Defaults to 5.
alpha0	A vector of type numeric and length N_max indicating the initial condition for alpha. Defaults to a vector of 0.1's.
gamma0	A vector of type numeric and length N_max indicating the initial condition for gamma. Defaults to a vector of 1's.

Value

A tibble with critical market sizes and estimated parameters, as explained in Bresnahan and Reiss (1991)

Author(s)

Guilherme N. Jardim, Department of Economics, Pontifical Catholic University of Rio de Janeiro

References

Bresnahan, T. F., & Reiss, P. C. (1991). Entry and competition in concentrated markets. Journal of political economy, 99(5), 977-1009.

Examples

```
tb <- data.frame(Sm1 = 1:5, Sm2 = 1:5, y = 1:5)

# estimate default model
em_n5 <- em_2var(tb, "Sm1", "Sm2", "y")

# estimate model with 3 competitors only
em_n3 <- em_2var(tb, "Sm1", "Sm2", "y", N_max = 3)


## Not run:
# estimate model with different initial conditions
em_difc <- em_2var(tb, "Sm1", "Sm2", "y", alpha0 = rep(0.2, 5), gamma0 = rep(1.1, 5))

# estimate model with example data
tb <- load_example_data()
em <- em_2var(tb, "Populacao", "RendaPerCapita", "n_agencias")

## End(Not run)
```

em_basic *Basic Entry Model*

Description

Estimate basic entry model with only one variable for the market size.

Usage

```
em_basic(data, Sm, y, N_max = 5, alpha0 = rep(0.1, N_max),
  gamma0 = rep(1, N_max))
```

Arguments

data	A data.frame object containing your data
Sm	A string indicating the market size variable, present in data
y	A string indicating the outcome variable, present in data
N_max	An integer indicating the maximum number of competitors. Defaults to 5.
alpha0	A vector of type numeric and length N_max indicating the initial condition for alpha. Defaults to a vector of 0.1's.
gamma0	A vector of type numeric and length N_max indicating the initial condition for gamma. Defaults to a vector of 1's.

Value

A tibble with critical market sizes and estimated parameters, as explained in Bresnahan and Reiss (1991)

Author(s)

Guilherme N. Jardim, Department of Economics, Pontifical Catholic University of Rio de Janeiro

References

Bresnahan, T. F., & Reiss, P. C. (1991). Entry and competition in concentrated markets. Journal of political economy, 99(5), 977-1009.

Examples

```
tb <- data.frame(Sm = 1:5, y = 1:5)

# estimate default model
em_n5 <- em_basic(tb, "Sm", "y")

# estimate model with 3 competitors only
em_n3 <- em_basic(tb, "Sm", "y", N_max = 3)
```

```
## Not run:
# estimate model with different initial conditions
em_difc <- em_basic(tb, "Sm", "y", alpha0 = rep(0.2, 5), gamma0 = rep(1.1, 5))

# estimate model with example data
tb <- load_example_data()
em <- em_basic(tb, "Populacao", "n_agencias")

## End(Not run)
```

`load_example_data` *Load example dataset*

Description

Load example dataset

Usage

```
load_example_data()
```

Value

Example dataset as tibble

Author(s)

Guilherme N. Jardim, Department of Economics, Pontifical Catholic University of Rio de Janeiro

Index