Package ‘leontief’

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**Type** Package

**Title** Input-Output Analysis

**Version** 0.2

**Date** 2020-09-01

**Description** An implementation of the Input-Output model developed by Wassily Leontief that represents the interdependencies between different sectors of a national economy or different regional economies.

**License** GPL-3

**Imports** Rcpp

**LinkingTo** Rcpp, RcppArmadillo

**Suggests** knitr, rmarkdown, covr, roxygen2, testthat

**VignetteBuilder** knitr

**LazyData** true

**Depends** R (>= 3.2)

**URL** https://pachamaltese.github.io/leontief

**BugReports** https://github.com/pachamaltese/leontief/issues

**Encoding** UTF-8

**RoxygenNote** 7.1.1

**NeedsCompilation** yes

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**Repository** CRAN

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augmented_input_requirement

Augmented input requirement

Description

Augmented input requirement

Usage

augmented_input_requirement(X, w, c, d)

Arguments

- X: transaction matrix
- w: wage vector
- c: household consumption vector
- d: final demand vector
**backward_linkage**

### Examples

```r
set.seed(200100)
X <- matrix(rnorm(100), nrow = 10)
w <- rnorm(10)
c <- rnorm(10)
d <- rnorm(10)
augmented_input_requirement(X, w, c, d)
```

### Description

Backward linkage

### Usage

```r
backward_linkage(A)
```

### Arguments

- **A**: input requirement matrix

###就业矩阵

**employment_matrix**  
Employment matrix (2013 data)  
This matrix contains the employed people by industry and the employment coefficient that is the number of people divided by the total final demand from the wage and demand matrix.

### Description

Employment matrix (2013 data)  
This matrix contains the employed people by industry and the employment coefficient that is the number of people divided by the total final demand from the wage and demand matrix.

### Usage

```r
wage_demand_matrix
```

### Format

A matrix with 12 rows and 2 columns

### Author(s)

University of Bio-Bio, based on data from the National Bureau of Statistics
employment_number

References


employment_multiplier  Employment multiplier

Description

Employment multiplier

Usage

employment_multiplier(L, e)

Arguments

L  Leontief inverse matrix
  e  employment coefficients vector

employment_number  Employment number

Description

Employment number

Usage

employment_number(L, e, c)

Arguments

L  Leontief inverse matrix
  e  employment coefficients vector
  c  change in final demand
**equilibrium_output**

**Equilibrium output**

**Description**
Equilibrium output

**Usage**
equilibrium_output(L, d)

**Arguments**
- **L**: Leontief inverse matrix
- **d**: final demand vector

**Examples**
```
set.seed(200100)
L <- matrix(rnorm(100), nrow = 10)
d <- rnorm(10)
equilibrium_output(L,d)
```

---

**forward_linkage**

**Forward linkage**

**Description**
Forward linkage

**Usage**
forward_linkage(A)

**Arguments**
- **A**: input requirement matrix
**income_multiplier**

*Income multiplier*

**Description**

Income multiplier

**Usage**

`income_multiplier(L, w)`

**Arguments**

- `L`: Leontief inverse matrix
- `w`: wage vector

---

**input_requirement**

*Input requirement*

**Description**

Input requirement

**Usage**

`input_requirement(X, d)`

**Arguments**

- `X`: transaction matrix
- `d`: final demand vector

**Examples**

```r
set.seed(200100)
X <- matrix(rnorm(100), nrow = 10)
d <- rnorm(10)
input_requirement(X, d)
```
leontief_inverse  Leontief inverse

Description
Leontief inverse

Usage
leontief_inverse(A)

Arguments
A  input requirement matrix

Examples
set.seed(200100)
A <- matrix(rnorm(100), nrow = 10)
leontief_inverse(A)

multiplier_product_matrix  Multiplier product matrix

Description
Multiplier product matrix

Usage
multiplier_product_matrix(L)

Arguments
L  Leontief inverse matrix
output_allocation  Output allocation

**Description**
Output allocation

**Usage**

output_allocation(X, d)

**Arguments**

* X  transaction matrix
* d  final demand vector

**Examples**

```r
set.seed(200100)
X <- matrix(rnorm(100), nrow = 10)
d <- rnorm(10)
output_allocation(X,d)
```

output_multiplier  Output multiplier

**Description**
Output multiplier

**Usage**

output_multiplier(L)

**Arguments**

* L  Leontief inverse matrix

**Examples**

```r
set.seed(200100)
L <- matrix(rnorm(100), nrow = 10)
output_multiplier(L)
```
### power dispersion

**Power of dispersion**

**Description**

Power of dispersion

**Usage**

`power_dispersion(L)`

**Arguments**

- `L`: Leontief inverse matrix

### power dispersion_cv

**Power of dispersion coefficient of variation**

**Description**

Power of dispersion coefficient of variation

**Usage**

`power_dispersion_cv(L)`

**Arguments**

- `L`: Leontief inverse matrix

### sensitivity_dispersion

**Sensitivity of dispersion coefficient of variation**

**Description**

Sensitivity of dispersion coefficient of variation

**Usage**

`sensitivity_dispersion(L)`

**Arguments**

- `L`: Leontief inverse matrix
sensitivity_dispersion_cv

Sensitivity of dispersion coefficient of variation

Description
Sensitivity of dispersion coefficient of variation

Usage
sensitivity_dispersion_cv(L)

Arguments
L
Leontief inverse matrix

transaction_matrix

Transaction matrix (2013 data) This matrix contains the production of the chilean economy divided into 12 industries. The measuring unit is CLP million of the year 2013

Description
Transaction matrix (2013 data) This matrix contains the production of the chilean economy divided into 12 industries. The measuring unit is CLP million of the year 2013

Usage
transaction_matrix

Format
A matrix with 12 rows and 12 columns

Author(s)
Central Bank of Chile

References
https://si3.bcentral.cl/estadisticas/Principal1/Excel/CCNN/cdr/excel.html
Wage and demand matrix (2013 data) This matrix contains the wage, intermediate demand and disaggregated final demand of the Chilean economy divided into 12 industries. The final demand is given by components (household consumption, government consumption, etc.) and aggregated. The measuring unit is CLP million of the year 2013.

Description

Wage and demand matrix (2013 data) This matrix contains the wage, intermediate demand and disaggregated final demand of the Chilean economy divided into 12 industries. The final demand is given by components (household consumption, government consumption, etc.) and aggregated. The measuring unit is CLP million of the year 2013.

Usage

wage_demand_matrix

Format

A matrix with 12 rows and 9 columns

Author(s)

Central Bank of Chile

References

https://si3.bcentral.cl/estadisticas/Principal1/Excel/CCNN/cdr/excel.html
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