

Package ‘ionet’

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Type Package

Title Network Analysis for Input-Output Tables

Version 0.2.2

Maintainer Shiyong Xiao <shiyong.xiao@outlook.com>

Description Network functionalities specialized for data generated from input-output tables.

Depends R (>= 2.10)

License GPL (>= 3)

Encoding UTF-8

LazyData true

Imports Rcpp (>= 1.0.8.3)

LinkingTo Rcpp

URL <https://github.com/Carol-seven/ionet>

BugReports <https://github.com/Carol-seven/ionet/issues>

RoxygenNote 7.3.0

Suggests testthat (>= 3.0.0)

Config/testthat/edition 3

NeedsCompilation yes

Author Shiyong Xiao [aut, cre] (ORCID:

<<https://orcid.org/0000-0002-8846-3258>>),

Jun Yan [aut] (ORCID: <<https://orcid.org/0000-0003-4401-7296>>),

Panpan Zhang [aut] (ORCID: <<https://orcid.org/0000-0002-8211-5930>>)

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btw	<i>Betweenness centrality</i>
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Description

Compute the betweenness centrality with auxiliary information based on strongest path (SP).

Usage

```
btw(adjmat, gross, aux, alpha = 1, type = "consumption")
```

Arguments

adjmat	An n-by-n numerical matrix representing the matrix of intermediate transactions in the input-output table.
gross	An n-dimensional numerical vector representing the gross input/output.
aux	An n-dimensional numerical vector representing the node-specific auxiliary information.
alpha	A scalar (default = 1) between 0 and 1, representing the tuning parameter that controls the weights for SP strength and auxiliary information.
type	A character string specifying the type of SP to calculate. Available options: • type = "consumption" / type = "pull" (default) • type = "distribution" / type = "push"

Value

A list of betweenness score, associated SPs, SP distance and SP strength.

References

Xiao, S., Yan, J. and Zhang, P. (2022). Incorporating Auxiliary Information in Betweenness Measure for Input-Output Networks. *Physica A: Statistical Mechanics and its Applications*, 607, 128200.

china_2002_122	<i>Input-output table for China, 2002, 122 sectors</i>
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Description

The national input-output table of China for 2002, covering 122 sectors. Data are calculated at producers' prices in 2002. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2002_122)
```

Format

A data frame with 129 rows and 139 columns.

Source

[National Bureau of Statistics of China](#)

china_2005_42	<i>Input-output table for China, 2005, 42 sectors</i>
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Description

The national input-output table of China for 2005, covering 42 sectors. Data are calculated at producers' prices in 2005. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2005_42)
```

Format

A data frame with 49 rows and 55 columns.

Source

[National Bureau of Statistics of China](#)

china_2007_135	<i>Input-output table for China, 2007, 135 sectors</i>
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Description

The national input-output table of China for 2007, covering 135 sectors. Data are calculated at producers' prices in 2007. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2007_135)
```

Format

A data frame with 142 rows and 152 columns.

Source

National Bureau of Statistics of China

china_2010_41	<i>Input-output table for China, 2010, 41 sectors</i>
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Description

The national input-output table of China for 2010, covering 41 sectors. Data are calculated at producers' prices in 2010. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2010_41)
```

Format

A data frame with 48 rows and 58 columns.

Source

National Bureau of Statistics of China

china_2012_139*Input-output table for China, 2012, 139 sectors*

Description

The national input-output table of China for 2012, covering 139 sectors. Data are calculated at producers' prices in 2012. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2012_139)
```

Format

A data frame with 146 rows and 155 columns.

Source

National Bureau of Statistics of China

china_2015_42*Input-output table for China, 2015, 42 sectors*

Description

The national input-output table of China for 2015, covering 42 sectors. Data are calculated at producers' prices in 2015. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2015_42)
```

Format

A data frame with 49 rows and 59 columns.

Source

National Bureau of Statistics of China

china_2017_149	<i>Input-output table for China, 2017, 149 sectors</i>
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Description

The national input-output table of China for 2017, covering 149 sectors. Data are calculated at producers' prices in 2017. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2017_149)
```

Format

A data frame with 156 rows and 165 columns.

Source

National Bureau of Statistics of China

china_2017_42	<i>Input-output table for China, 2017, 42 sectors</i>
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Description

The national input-output table of China for 2017, covering 42 sectors. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2017_42)
```

Format

A data frame with 91 rows and 53 columns.

Source

National Bureau of Statistics of China

china_2018_153*Input-output table for China, 2018, 153 sectors*

Description

The national input-output table of China for 2018, covering 153 sectors. Data are calculated at producers' prices in 2018. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2018_153)
```

Format

A data frame with 160 rows and 169 columns.

Source

National Bureau of Statistics of China

china_2018_42*Input-output table for China, 2018, 42 sectors*

Description

The national input-output table of China for 2018, covering 42 sectors. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2018_42)
```

Format

A data frame with 91 rows and 53 columns.

Source

National Bureau of Statistics of China

`china_2020_153`*Input-output table for China, 2020, 153 sectors*

Description

The national input-output table of China for 2020, covering 153 sectors. Data are calculated at producers' prices in 2020. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2020_153)
```

Format

A data frame with 160 rows and 169 columns.

Source

National Bureau of Statistics of China

`china_2020_42`*Input-output table for China, 2020, 42 sectors*

Description

The national input-output table of China for 2020, covering 42 sectors. Values are denoted in 10 thousand Chinese Yuan (CNY).

Usage

```
data(china_2020_42)
```

Format

A data frame with 91 rows and 53 columns.

Source

National Bureau of Statistics of China

china_employment	<i>Sectoral employment data for China, 1990-2018</i>
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Description

Number of employed persons (in the unit of 10 thousands) in China 1990-2018, by sector.

Usage

```
data(china_employment)
```

Format

A data frame with 115 rows and 32 columns.

References

Wang, Y., Jia, X. and Wang, C. (2021). Research on Sectoral Employment Accounting of China. *Statistical Research*, 38(12), 3–18. [URL](#)

dijkstra	<i>Dijkstra's algorithm</i>
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Description

Implement the Dijkstra's algorithm to find the shortest paths from the source node to all nodes in the given network.

Usage

```
dijkstra(adjmat, src)
```

Arguments

adjmat	The adjacency matrix of a directed, weighted network.
src	An integer specifying the given source node to find the shortest distance.

Value

A list of distance and previous node.

References

Dijkstra, E. W. (1959). A Note on Two Problems in Connexion with Graphs. *Numerische Mathematik*, 1, 269–271.

OECD21ed_CHN_1995to2018

*Input-output tables of the OECD 2021 edition for China, 1995–2018,
45 sectors*

Description

The national input-output tables of China for the period from 1995 to 2018, covering 45 sectors. Data are calculated in current prices. Values are denoted in millions of US dollars (USD).

Usage

data(OECD21ed_CHN_1995to2018)

Format

A list containing 24 data frames, each with 50 rows and 56 columns.

Source

Input-Output Tables (IOTs) 2021 ed. - OECD

OECD21ed_JPN_1995to2018

*Input-output tables of the OECD 2021 edition for Japan, 1995–2018,
45 sectors*

Description

The national input-output tables of Japan for the period from 1995 to 2018, covering 45 sectors. Data are calculated in current prices. Values are denoted in millions of US dollars (USD).

Usage

data(OECD21ed_JPN_1995to2018)

Format

A list containing 24 data frames, each with 50 rows and 56 columns.

Source

Input-Output Tables (IOTs) 2021 ed. - OECD

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