Package 'ttwa'

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Type Package

Title Travel To Work Area.

Version 0.8.5.1

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Author Francois Semecurbe, Joachim Timoteo

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Description This package makes Travel To Work Area from a commuting flow data frame.

License GPL (>= 2.0)

LazyLoad yes

Depends data.table

NeedsCompilation no

Repository CRAN

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ttwa-package	*Travel To Work Area.*

Description

This package makes Travel To Work Area from a commuting flow data frame.

Details

Package:	ttwa
Type:	Package
Version:	0.8.5.1
Date:	2013-08-12
License:	GPL (>=2.0)

Author(s)

Francois Semecurbe and Joachim Timoteo. <francoissemecurbe@gmail.com> and <joachim.timoteo@gmail.com>

References

Christophe Terrier web site is a reference to the method Anabel-Mirabel: www.christophe-terrier.com

See Also

ttwa,reunion_ttw

Examples

```
data(reunion_ttw) #commuting flow in Reunion island
zone_emploi<-ttwa(df=reunion_ttw,origin="HOME",
  destination="WORK", flow="FLOW",
  conti="CONTI",size_center=50000)
zone_emploi$statistic #Zoning quality
# 4 centers : Saint-Denis, Saint-Paul, Saint-Pierre and Saint-Benoit
center_emploi<-ttwa(df=reunion_ttw,origin="HOME",
  destination="WORK",flow="FLOW",
  conti="CONTI",size_center=500000,
  list_center=c("97411","97415","97416","97410"))
center_emploi$statistic
```

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reunion_ttw	*Census data on travel to work flow between Reunion Island munici-palities.*

Description

A flow data frame travel to work between Reunion island municipalities from census (2010).

Usage

```
data(reunion_ttw)
```

Format

A data frame with 5732 observations on the following 4 variables.

HOME a character vector, INSEE Ids of the municipalities of the resident population

WORK a character vector, INSEE Ids of the municipalities of work

FLOW a numeric vector, working flow between the municipality of residence and the municipality of work

CONTI a numeric vector, indicator function of the contiguity between the municipality of residence and the municipality of work

Source

Mobilites professionnelles (deplacements domicile - lieu de travail) - 2010 (Bases flux de mobilite)

Decoupage geographique au 01/01/2012 - Mise a jour : juin 2013

Insee, Recensements de la population

Original data can be retreived here : http://www.insee.fr/fr/bases-de-donnees/default.asp?page=recensement/resultats/doc/pre flux-mobilite-prof.htm

See Also

[ttwa](#)

Examples

```
data(reunion_ttw) #commuting flow in Reunion island
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center_emploi$statistic
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ttwa   *Zoning Commuting flow*

Description

This function computes the commuting areas from a flow data. It is especially effective for calculating the travel to work area (TTWA). TTWA are defined to reflect areas where the bulk of the resident population also works within the same area. TTWA defines local labour market area. The ttwa function uses a greedy algorithm. Progressively, areas aggregate themselves with their link when above a threshold. The ttwa is an adaptation of the algorithm used by the INSEE zoning, Anabel.

Usage

```
ttwa(df, origin, destination, flow, conti = NULL,
minimum_link = 0.00001, size_center, list_center = NULL)
```

Arguments

df	data frame that contains the flow information
origin	name of the variable that containd the identifier of the origin area
destination	name of the variable that containd the identifier of the destination area
flow	name of the qualitative variable that contains the flow
conti	default NULL, name of the boolean variable that contains the contiguity beetween origin and destination area
minimum_link	minimum link aggregation allows between area
size_center	size of area who can't be aggregated to an other area. enter_size determines the minimum size of commuting area.
list_center	list of identifiers of non-aggregatable territories to other centers but they can attract other territories and become centers or otherwise isolated clusters.

Details

The ttwa is an adaptation of the algorithm used by the INSEE zoning, Anabel. For each iteration, we search for the strongest link between the two areas which meet the parameters of aggregation (contiguity and center size). Then, it is aggregated to the lines of the data.frame associated with the two areas. Thus, the area's name formed is the name of the destination area of the stream. It repeats the process until we can find areas with a sufficient nexus. The link between area i to j is defined as $flow\_ij/total\_outflow\_i$. The constraint of contiguity provides a related zoning. It may be appropriated to add zeros to the flow variable between contiguous areas without flow to allow the construction of aggregation areas. Quality zoning is measured by the rate of steady flow in commuting area.

Value

An object of class "zoning" is a list containing at least the following components:

zoning	data frame contains the initial area and their commuting area of attachment
log	data frame containing the log of the greedy processus
data	data frame containing the aggregated flow between commuting area
statistic	data frame containing the statistics area by zone (the total outflow, rate stable at origin, number of primary territories)

Author(s)

The Anabel-Mirabel algorithm has been developped by Christophe Terrier, french statistician. The implementation of the algorithm by Francois Semecurbe and Joachim Timoteo. <francoisseme-curbe@gmail.com> and <joachim.timoteo@gmail.com>

References

Christophe Terrier web site is a reference to the method Anabel-Mirabel: www.christophe-terrier.com

See Also

reunion_ttw

Examples

```
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  list_center=c("97411","97415","97416","97410"))
center_emploi$statistic
```

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