Package ‘nopp’

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Type Package

Title Nash Optimal Party Positions

Version 1.1.2

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Description Estimation of party/candidate ideological positions that correspond to a Nash equilibrium along a one-dimensional space.

License GPL (>= 2)

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Description

Estimation of party/candidate ideological positions that correspond to a Nash equilibrium along a one-dimensional space

Details

Package: nopp
Type: Package
Version: 1.0
Date: 2012-06-26
License: GPL (>= 2)

nopp is a package for R which enables to compute party/candidate ideological positions that correspond to a Nash Equilibrium along a one-dimensional space. It accommodates alternative motivations in (each) party strategy while allowing to estimate the uncertainty around their optimal positions through two different procedures (bootstrap and MC).

Author(s)

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References

Merrill, Samuel III, and James Adams (2001), Computing Nash Equilibria in Probabilistic, Multi-party Spatial Models with Nonpolicy Components, Political Analysis, 9, 347–61
equilibrium

Usage

equilibrium(start, model, data, tolerance = 1e-05, max.iter = 100,
col = 0, alpha = 0, margin = NULL, fixed = NULL, gamma = 0,
boot = 0, MC = 0, self.var = "self", prox.var="prox",
position=NULL, votes=NULL, quadratic=TRUE, conf.level = 0.95)

Arguments

model the mlogit model analysis
data the data set
tolerance tolerance in the convergence of Nash equilibrium. Default 1e-5
max.iter max iteration to convergence in Nash equilibrium. Default 100
col a list specifying electoral coalitions. See Details.
alpha the weight of coalition vote-share in party utility function. Default = 0. See Details.
margin a list specifying the vote share margin to be maximized of a party/coalition against other party/coalition. See Details.
fixed a list of fixed party positions. See Details.
gamma the weight among nash and fixedarty position. Default=0. See Details.
boot number of bootstrap replications. See Details.
MC number of Monte Carlo replications. See Details.
self.var character: name of self-placement of respondent. See Details.
prox.var character: name of party-placement variable. See Details.
position a named list: of perceived position of parties. See Details.
votes a named list: of actual vote share at election. See Details.
quadratic a logical value: if FALSE the linear utility function is used to calculate the prox- imity. See Details.
conf.level significant level for empirical Monte Carlo or bootstrap confidence intervals.

Details

See vignette.

Value

an object of class nash.eq

Note

See the vignette for detailed explanations and other working examples.

Author(s)

Luigi Curini, Stefano M. Iacus
References


Merrill, Samuel III, and James Adams (2001), Computing Nash Equilibria in Probabilistic, Multi-party Spatial Models with Nonpolicy Components, Political Analysis, 9, 347–61


See Also

See Also as plot.nash.eq

Examples

## Not run:
data(italy2006)
str(italy2006)
italy2006[1:2,1:14]
election <- set.data(italy2006, shape="wide", choice="vote", varying=c(5:14), sep="_")
str(election)

m <- mlogit(vote~prox+partyID | gov_perf+sex+age+education, election, reflevel = "UL")
summary(m)

true.pos <- list(FI=7.59, UL=3.50, RC=1.95, AN=8.08, UDC=5.66)
true.votes <- list(FI=.24, UL=.40, RC=.10, AN=.18, UDC=.08)
# model 1: comparison against true votes and party positions
nash.eq <- equilibrium(model=m, data=election, pos=true.pos, votes=true.votes)

par(mfrow=c(3,1))
plot(nash.eq)
par(mfrow=c(1,1))

# model 2: colation behaviours
coal1 <- list(FI=1, UL=2, RC=2, AN=1, UDC=1)
alp1 <- list(FI=0.5, UL=0.5, RC=0.5, AN=0.5, UDC=0.5)
nash.eq <- equilibrium(model=m, data=election, coal=coal1, alpha=alp1)
nash.eq

# model 3: colation behaviours
coal1 <- list(FI=1, UL=2, RC=2, AN=1, UDC=1)
alp1 <- list(FI=0.7, UL=0.8, RC=0.1, AN=0.5, UDC=0.9)
nash.eq <- equilibrium(model=m, data=election, coal=coal1, alpha=alp1)
italy2006 2006 Italian General Election survey

Description

2006 Italian General Election survey, with quadratic ideological proximity.

Usage

data(italy2006)
Format

A data frame with 438 observations on the following 18 variables.

country  country name
id       id of respondent
vote     a factor with levels FI UL AN UDC RC for each party voted
self     self-placement of respondent on a 0 to 10 left-right scale
prox_FI  see Details.
prox_UL  see Details.
prox_AN  see Details.
prox_UDC see Details.
prox_RC  see Details.
partyID_FI see Details.
partyID_UL see Details.
partyID_AN see Details.
partyID_UDC see Details.
partyID_RC see Details.
sex      gender variable 1 = female
age      see Details.
education see Details.
gov_perf see Details.

Details

In this survey respondents were asked to indicate which party they voted for in the 2006 Election. The data concerns 5 parties: UL (Ulivo), RC (Communist Refoundation party), FI (Forza Italia), AN (National Alliance) and UDC (Union of Christian Democrats).

prox_* quadratic ideological distance between the respondent and a party * placement

partyID_* binary variable equals to 1 if the respondent declares to feel herself close to party *

age : 1 = "18-24 years", 2 = "25-34", 3 = "35-44", 4 = "45-54", 5 = "55-64", 6 = "65 +"
education : 0 = "up to primary school", 1 = "incomplete secondary", 2 = "secondary completed", 3 = "post-secondary trade", 4 = "university undergraduate degree inc", 5 = "university undergraduate degree comp"
gov_perf : 1 = "very good job", 2 = "good job", 3 = "bad job", 4 = "very bad job"

Source


Examples

data(italy2006)
head(italy2006)
Description

2006 Italian General Election survey, with linear ideological proximity.

Usage

data(italy2006.lin)

Format

A data frame with 438 observations on the following 18 variables.

country  country name
id   id of respondent
vote  a factor with levels FI  UL  AN  UDC  RC for each party voted
self  self-placement of respondent on a 0 to 10 left-right scale
proxlin_FI  see Details.
proxlin_UL  see Details.
proxlin_AN  see Details.
proxlin_UDC  see Details.
proxlin_RC  see Details.
partyID_FI  see Details.
partyID_UL  see Details.
partyID_AN  see Details.
partyID_UDC  see Details.
partyID_RC  see Details.
sex   gender variable 1 = female
age   see Details.
education  see Details.
gov_perf  see Details.

Details

In this survey respondents were asked to indicate which party they voted for in the 2006 Election. The data concerns 5 parties: UL (Ulivo), RC (Communist Refoundation party), FI (Forza Italia), AN (National Alliance) and UDC (Union of Christian Democrats).

prox_* linear ideological distance between the respondent and a party * placement

partyID_* binary variable equals to 1 if the respondent declares to feel herself close to party *
age: 1 = "18-24 years", 2 = "25-34", 3 = "35-44", 4 = "45-54", 5 = "55-64", 6 = "65 +"
education: 0 = "up to primary school", 1 = "incomplete secondary", 2 = "secondary completed", 3 = "post-secondary trade", 4 = "university undergraduate degree inc", 5 = "university undergraduate degree comp"
gov_perf: 1 = "very good job", 2 = "good job", 3 = "bad job", 4 = "very bad job"

Source


Examples

data(italy2006.lin)
head(italy2006.lin)
## maybe str(italy2006.lin) ; plot(italy2006.lin) ...

italy2006.wide

2006 Italian General Election survey

Description

2006 Italian General Election survey - wide format

Usage

data(italy2006.wide)

Format

A data frame with 524 observations on the following 15 variables.
country country name
id id of respondent
vote a factor with levels FI UL AN UDC RC for each party voted
self self-placement of respondent on a 0 to 10 left-right scale
FI see Details.
DS see Details.
AN see Details.
DL see Details.
UDC see Details.
RC see Details.
pID see Details.
sex gender variable 1 = female
age see Details.
education see Details.
gov_perf see Details.
Details

In this survey respondents were asked to indicate which party they voted for in the 2006 Election. The data concerns 5 parties: UL (Ulivo), RC (Communist Refoundation party), FI (Forza Italia), AN (National Alliance) and UDC (Union of Christian Democrats). The dataset is in wide format. The variable from FI to RC identify the placement of those parties, on a 0 to 10 left-right scale, as perceived by the respondent.

pID is a variable that identifies the partisanship of the respondent (where 0=stands for no partyID, 1 = FI partyID, 23 = UL partyID, 3 = AN partyID, 4 = UDC partyID, 6 = RC partyID)

age : 1 = "18-24 years", 2 = "25-34", 3 = "35-44", 4 = "45-54", 5 = "55-64", 6 = "65 +"

education : 0 = "up to primary school", 1 = "incomplete secondary", 2 = "secondary completed", 3 = "post-secondary trade", 4 = "university undergraduate degree inc", 5 = "university undergraduate degree comp"

gov_perf : 1 = "very good job", 2 = "good job", 3 = "bad job", 4 = "very bad job"

Source


Examples

data(italy2006.wide)
head(italy2006.wide)
## maybe str(italy2006.wide) ; plot(italy2006.wide) ...

noppNews

Show the NEWS file

Description

Show the NEWS file of the nopp package.

Usage

noppNews()

Value

None.
plot.nash.eq  

Plot function for Nash equilibrium object

Description

Plot function for Nash equilibrium object

Usage

## S3 method for class 'nash.eq'
plot(x,...)

Arguments

x  a nash.eq object

... additional arguments passed to the inner plot function

Details

See vignette.

Author(s)

Luigi Curini, Stefano M. Iacus

References


See Also

See Also as equilibrium

Examples

## Not run:
data(italy2006)
election <- set.data(italy2006 , shape="wide", choice="vote", varying=c(5:14), sep="_")
m <- mlogit(vote~prox+partyID | gov_perf+sex+age+education, election, reflevel = "UL")

true.pos <- list(FI=7.59, UL=3.50, RC=1.95, AN=8.08, UDC=5.66)
true.votes <- list(FI=.24, UL=.40, RC=.10, AN=.18, UDC=.08)

# comparison against true votes and party positions
nash.eq <- equilibrium(model=m, data=election, pos=true.pos, votes=true.votes)
nash.eq
par(mfrow=c(3,1))
plot(nash.eq)
# bootstrap confidence intervals
nash.eq <- equilibrium(model=m, data=election, boot=10)
nash.eq
plot(nash.eq)

par(mfrow=c(1,1))

## End(Not run)

---

**set.data**  
*Prepares data for Nash equilibrium*

**Description**

Prepares data for Nash equilibrium

**Usage**

```r
set.data(data, shape="wide", choice, varying, sep="_")
```

**Arguments**

- **data**: the data set
- **shape**: either wide or long. Default wide. See Details.
- **choice**: the variable indicating the choice made: it can be either a logical vector, a numerical vector with 0 where the alternative is not chosen, a factor with level 'yes' when the alternative is chosen.
- **varying**: the indexes of the variables that are alternative specific. See Details.
- **sep**: the separator of the variable name and the alternative name (only relevant for a wide data.frame). See Details.

**Details**

For general examples see the vignette. The arguments `shape`, `choice`, `varying` and `sep` as as in the `mlogit.data` function.

**Value**

A `mlogit.data` object, which is a `data.frame` in long format, i.e. one line for each alternative. It has a index attribute, which is a `data.frame` that contains the index of the choice made (`chid`), the index of the alternative (`alt`) and, if any, the index of the individual (`id`). The choice variable is a boolean which indicates the choice made. This function use `reshape` if the data.frame is in wide format. It also has the attribute `call` for further data manipulation in the bootstrap task of `equilibrium`.
Note

See the vignette for detailed explanations and other working examples.

Author(s)

Luigi Curini, Stefano M. Iacus

References


Examples

```r
## Not run:
data(italy2006)

str(italy2006)
italy2006[1:2,1:14]

election <- set.data(italy2006 , shape="wide", choice="vote",
varying=c(5:14), sep="_")
str(election)

m <- mlogit(vote~prox+partyID | gov_perf+sex+age+education,
election, reflevel = "UL")
summary(m)

true.pos <- list(FI=7.59, UL=3.50, RC=1.95, AN=8.08, UDC=5.66)
true.votes <- list(FI=.24, UL=.40, RC=.10, AN=.18, UDC=.08)
# model: comparison against true votes and party positions
nash.eq <- equilibrium(model=m, data=election, pos=true.pos,
votes=true.votes)
nash.eq

## End(Not run)
```
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