Package ‘visaOTR’

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Title Valid Improved Sparsity A-Learning for Optimal Treatment Decision
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R topics documented:

visa.est .......................... 2
visa_SimuData .......................... 3

Index 4
**visa.est**

*Valid Improved Sparsity A-Learning for Optimal Treatment Decision*

**Description**

Valid Improved Sparsity A-Learning for Optimal Treatment Decision

**Usage**

```r
visa.est(
  y,
  x,
  a,
  IC = c("BIC", "CIC", "VIC"),
  kap = NULL,
  lambda.list = exp(seq(-3.5, 2, 0.1)),
  refit = TRUE
)
```

**Arguments**

- **y**: Vector of response (the larger the better)
- **x**: Matrix of model covariates.
- **a**: Vector of treatment received. It is a 0/1 index vector representing the subject is in control/treatment group. For details see Example section.
- **IC**: Information criterion used in determining the regularization parameter. Users can choose among BIC, CIC and VIC.
- **kap**: The model complexity penalty used in the information criteria. By default, kappa = 1 if BIC or CIC is used and kap = 4 if VIC is used.
- **lambda.list**: A list of regularization parameter values. Default is exp(seq(-3.5, 2, 0.1))
- **refit**: logical. If TRUE, the coefficients should be refitted using A-learning estimating equation. Default is TRUE.

**Details**

See the paper provided in Reference section.

**Value**

an object of class "visa" is a list containing at least the following components:

- **beta.est**: A vector of coefficients of optimal treatment regime.
- **pi.est**: A vector of estimated propensity score.
- **h.est**: A vector of estimated baseline function.
References


Examples

```r
data(visa_SimuData)
y = visa_SimuData$y
a = visa_SimuData$a
x = visa_SimuData$x
# estimation
result <- visa.est(y, x, a, IC = "BIC", lambda.list = c(0.1, 0.5))
result$beta.est
result$pi.est
result$h.est
```

Description

An Example of Simulated Data for visa

Usage

`visa_SimuData`

Format

The dataset `visa_SimuData` contains n = 50 samples with p = 10 covariates and treatment variable

- `y` the response
- `x` the covariates
- `a` the treatment received
Index

* datasets
  visa_SimuData, 3

visa.est, 2
visa_SimuData, 3