Package 'SIVCMTest'

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Type Package

Title Model Checks on Single-index Varying Coefficient Models with Functional Responses

Version 1.0

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Description Model checking on single-index varying coefficient models with functional responses.

License GPL (>= 2)

Encoding UTF-8

Imports Rcpp (>= 1.0.6), MASS, stats, nleqslv

LinkingTo Rcpp, RcppEigen

NeedsCompilation yes

RoxygenNote 7.3.2

Contents

GenData.Sa 1
SIVCMTest 2

Index **4**

`GenData.Sa` *Function for generating data*

Description

Generate data for Example 1(a) in "Model Checks on Single-index Varying Coefficient Models with Functional Responses".

Usage

```
GenData.Sa(n, m, a)
```

Arguments

`n`	sample size
`m`	number of time points
`a`	distance away from the null

Value

A list of outputs

x	covariates (n*p matrix)
ally	response functions (n*m matrix)
tm	time points (m vector)
beta	true coefficient functions (p*m matrix)

Examples

```
##---- Generate data ----
n <- 30
m <- 15
a <- 0
GenData.Sa(n,m,a)
```

SIVCMTest *Model checking test for single-index varying coefficient models (SIVCM) with functional responses*

Description

test whether the SIVCM with functional responses is adequate or not

Usage

```
SIVCMTest(n, p, m, tm, x, ally, B)
```

Arguments

n	sample size
p	dimension of covariates x
m	number of time points
tm	time points
x	covariates (n*p matrix)
ally	response functions (n*m matrix)
B	number of bootstrap replications

Value

A list of outputs

TestStat	test statistic
Pvalue	p-value
Cri95	critical value at significance level 0.05

Examples

```
##---- Step 1: generate data ----
n <- 30
m <- 15
a <- 0
p <- 3
B <- 500

data <- GenData.Sa(n,m,a)
x <- data$x  # n*p
ally <- data$ally  # n*m
beta <- data$beta  # p*m
tm <- data$tm

##---- Step 2: model test ----
SIVCMTest(n,p,m,tm,x,ally,B)
```

Index

GenData.Sa, 1

SIVCMTest, 2