Package 'curvetest'

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Type Package

Version 1.1

Title Test the equality of two curves, or one curve with 0.

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Depends locfit

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Description To test if two curves defined by two data sets are equal,or if one curve is equal to 0.

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LazyLoad yes

Repository CRAN

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R topics documented:

curvetest *Test equality of two curves or one curve with a constant.*

Description

Curvetest is used when two smoothing curves with either homogeneous or heterogeneous error are equal or not using Tube theory to obtain the tail probability.

Usage

```
curvetest(XX1, YY, XX2 = NULL, ZZ = NULL, kernel = c("Trio", "Gaussian", "Uniform", "Triweight", "Tri
       "Epanechnikov", "Quartic"), equal.var = TRUE, hh = 0.5,plotit = FALSE, conf.level = 0.05, nn =
```

Arguments

XX1, YY	Data that defines the first curve. YY=response, XX1=predictors. Required.
XX2, ZZ	Data that defines the second curve. Optional. If missing, the test is to test curve one to 0.
kernel	The kernel function when smoothing the data.
equal.var	logical value. If TRUE, equal variances are assumed.
hh	Window width for smoothing the data. Can be specified through visually checking the fitting by setting plotit=TRUE.
plotit	Logical value. if TRUE, a scatter plot and smoothing curves will be produced.
conf.level	The alpha value.
nn	The number of points equally spaced in the test domain so fitting will calculate the values at these points.

Details

The package will first try to using smoothing technique to calculate the values of the curves. Then using the Tube formula to calculate the tail probability that the two curves are not equal, under null hypothesis that they are equal; In one curve case, it calculate the tail probability that the curve is not equal to 0, under the null hypothesis that it is 0 in the whole test domain.

Value

If plotit is true, the scatter plot of data points with smoothing curves will be produced, and the test summarization will be printed out. Otherwise, only the latter is printed out.

Note

First try a window width hh equal to one fourth of the whole length of test interval, specify the plotit=TRUE to check the fitting of curves to the points. Then choose a suitable hh by visually checking the plot. This may need a few times.

Author(s)

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References

Test Equality of Curves, Statistic Sinica,2008, to appear.

See Also

locfit, t.test, test

Examples

```
n1=50; n2=55
x1=seq(0,1, length=n1); x2=seq(0, 1, length=n2);
y1=x1*(1-x1)+rnorm(n1, 0, 0.02)
y2=x2*(1-x2)+rnorm(n2, 0, 0.01)
curvetest(x1, y1, x2, y2, equal.var=FALSE, plotit=TRUE)
#choose hh by checking the fitting of curves.
curvetest(x1, y1, x2, y2, equal.var=FALSE, hh=0.2,  plotit=TRUE)
```

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