Package 'GofKmt'

July 8, 2017

Title Khmaladze Martingale Transformation Goodness-of-Fit Test

Version 2.0

Description Consider a goodness-of-fit(GOF) problem of testing whether a random sample comes from one sample location-scale model where location and scale parameters are unknown. It is well known that Khmaladze martingale transformation method provides asymptotic distribution free test for the GOF problem. This package contains one function: KhmaladzeTrans(). In this version, KhmaladzeTrans() provides test statistic and critical value of GOF test for normal, Cauchy, logistic, Gamma, Weibull, Gumbel, and Rayleigh distributions.

Depends R (>= 3.2.2)

License GPL-2

LazyData true

Imports Rsolnp

NeedsCompilation no

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R topics documented:

`KhmaladzeTrans` *Performs goodness-of-fit test through Khmaladze matringale transformation*

Description

Performs goodness-of-fit test through Khmaladze matringale transformation

Usage

```
KhmaladzeTrans(X, F0, Shape = 2)
```

Arguments

X	- Random sample of n observations
F0	- Name of null distribution: Normal, Cauchy, Logistic, Gamma, Gumbel, Weibull, or Rayleigh
Shape	- The shape parameter used for Gamma and Weibull. The value should be even.

Value

TestStat - Test statistic obtained through Khmaladze martingale transformation

CritValue - Vector of critical values for the level of 0.01, 0.025, 0.05, and 0.10

Mu - Maximum likelihood estimator of location parameter mu

Sigma - Maximum likelihood estimator of scale parameter sigma

References

[1] E.V. Khmaladze, H.L. Koul (2004). Martingale Transforms Goodness-of-fit tests in regression models. Ann. Statist., 32. 995-1034

[2] E.V. Khmaladze, H.L. Koul (2009). Goodness-of-fit problem for errors in nonparametric regression: Distribution free approach. Ann. Statist., 37(6A) 3165-3185. #'

[2] H.L. Koul, L. Sakhanenko (2005). Goodness of fit testing in regression: A finite sample comparison of bootstrap methodology and Khmaladze transformation. Stat. Probab. Lett, 74 290-302.

Examples

```
####################
n = 10
Sample = rnorm(n, 1,3)    # Generate a random sample of n observations from N(1,3)
KMT_Result = KhmaladzeTrans(Sample, "Normal", Shape=2)
KMT_TestStat = KMT_Result$TestStat
KMT_CriticalValue = KMT_Result$CritValue
KMT_Muhat = KMT_Result$Mu
KMT_Sigmahat = KMT_Result$Sigma
####################

####################
n = 10
Sample = rlogis(n, location=2, scale=3)  # Generate a random sample from logistic distribution
KMT_Result = KhmaladzeTrans(Sample, "Logistic", Shape=2)
KMT_TestStat = KMT_Result$TestStat
KMT_CriticalValue = KMT_Result$CritValue
KMT_Muhat = KMT_Result$Mu
KMT_Sigmahat = KMT_Result$Sigma
####################
```

Index