Package 'dhh'

July 31, 2018

Title A Heavy-Headed Distribution

Version 0.0.1

Description The density, cumulative distribution, quantiles,
and i.i.d random variables of a heavy-headed distribution.
For more information, please see the vignette.

Depends R (>= 3.5.0)

License GPL (>= 2)

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Suggests knitr, rmarkdown

VignetteBuilder knitr

NeedsCompilation no

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R topics documented:

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dhh   *Density Function Of The Heavy-Headed Distribution*

Description

This function gives the values of the density of the heavy-headed distribution.

Usage

```
dhh(x, a=0, b=1, alpha=0.1)
```

Arguments

x	x is a vector of real values, at which the values of the density will be calculated.
a,b	The interval (a,b) is the support of the distribution. The default values for a and b are 0 and 1, respectively.
alpha	It is a positive parameter of the distribution. Its default value is set to be 0.1. When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.

Details

See the references.

Value

It returns the values of the density at x.

Author(s)

Runlong Tang

References

Runlong Tang (2018) A Note On Finite Moments, Rediscovery Of The Pareto Distribution and Distributions With Heavy Tails and Heads (v1) https://sites.google.com/site/tangrunlong/notes-on-finance

See Also

phh qhh rhh

Examples

```
dhh(0.5)

dhh(0.5, 0, 1, 0.1)

dhh(c(0.5, 0.7))

curve(dhh, -1, 2)

curve(dhh(x, a=0, b=1, alpha=0.1), -1, 2)

curve(dhh(x, a=0, b=10, alpha=0.1), -1, 11)
```

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phh	*Cumulative Distribution Function (CDF) Of The Heavy-Headed Distribution*

Description

This function gives the values of the CDF of the heavy-headed distribution.

Usage

```
phh(x, a = 0, b = 1, alpha = 0.1)
```

Arguments

x	x is a vector of real values, at which the values of the CDF will be calculated.
a,b	The interval (a,b) is the support of the distribution. The default values for a and b are 0 and 1, respectively.
alpha	It is a positive parameter of the distribution. Its default value is set to be 0.1. When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.

Details

See the references.

Value

It returns the values of the CDF at x.

Author(s)

Runlong Tang

References

Runlong Tang (2018) A Note On Finite Moments, Rediscovery Of The Pareto Distribution and Distributions With Heavy Tails and Heads (v1) https://sites.google.com/site/tangrunlong/notes-on-finance

See Also

dhh qhh rhh

Examples

```
phh(0)

phh(1)

phh(0.5)

phh(0.5, 0, 1, 0.1)

phh(c(0.5, 0.7))

curve(phh, from = -1, to = 2)

curve(phh(x, a=0, b=1, alpha=0.1), -1, 2)

curve(phh(x, a=0, b=10, alpha=0.1), -1, 11)

curve(phh(x, a=0, b=100, alpha=0.1), -1, 11)
```

---

qhh   *Quantiels of Of The Heavy-Headed Distribution*

Description

This function gives the quantiles of the heavy-headed distribution.

Usage

```
qhh(p, a = 0, b = 1, alpha = 0.1)
```

Arguments

p	p is a vector of probabilities, at which the quantiles of the CDF will be calculated.
a,b	The interval (a,b) is the support of the distribution. The default values for a and b are 0 and 1, respectively.
alpha	It is a positive parameter of the distribution. Its default value is set to be 0.1. When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.

Details

See the references.

Value

It returns the quantiles of the CDF at p.

Author(s)

Runlong Tang

References

Runlong Tang (2018) A Note On Finite Moments, Rediscovery Of The Pareto Distribution and Distributions With Heavy Tails and Heads (v1) https://sites.google.com/site/tangrunlong/notes-on-finance

See Also

[dhh phh rhh](#)

Examples

```
qhh(0.9)

qhh(0.9, a=0, b=1, alpha=0.1)

qhh(0.9, a=0, b=10, alpha=0.1)

qhh((1:9)/10)

curve(qhh, from = 0.1, to = 0.9)

curve(qhh(x, 0, 1, 0.1), from = 0.1, to = 0.9)
curve(qhh(x, a=10, b=100, alpha = 0.1), from = 0.1, to = 0.9)
```

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rhh   *Random Variables of Of The Heavy-Headed Distribution*

Description

This function generate i.i.d. random variables following the heavy-headed distribution.

Usage

```
rhh(n, a = 0, b = 1, alpha = 0.1)
```

Arguments

n	It is the number of the random variables.
a,b	The interval (a,b) is the support of the distribution. The default values for a and b are 0 and 1, respectively.
alpha	It is a positive parameter of the distribution. Its default value is set to be 0.1. When alpha = 1, the distribution is uniform. When alpha > 1, the density at a is zero.

Details

See the references.

Value

It returns a vector of n random varialbes following the heavy-headed distribution.

Author(s)

Runlong Tang

References

Runlong Tang (2018) A Note On Finite Moments, Rediscovery Of The Pareto Distribution and Distributions With Heavy Tails and Heads (v1) https://sites.google.com/site/tangrunlong/notes-on-finance

See Also

dhh phh qhh

Examples

```
rhh(1)

rhh(2)

hist(rhh(10000), freq=FALSE)

curve(dhh, add = TRUE, col = 2)

dhh(c(0.1, 0.01, 0.001, 0.0001, 0.00001))
```

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