Package ‘RDSsamplesize’

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Type Package
Title RDS Sample Size Estimation and Power Calculation
Version 0.5.0
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Description Provides functionality for carrying out sample size estimation and power calculation in Respondent-Driven Sampling.
License GPL-3
Depends R (>= 3.6.2)
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calSize  

Calculating the accumulated sample size distribution by each wave.

Description

Calculating the accumulated sample size distribution by each wave.

Usage

calSize(s, c, maxWave, rr, bruteMC, tol = 0.025)

Arguments

s scalar; Number of seeds to initiate the sampling process.
c scalar; Number of coupons issued to each participant.
maxWave scalar; Planned field period scaled by wave, which does not include the initial round of recruiting seeds.
rr scalar or vector; a (constant) recruitment rate or a vector of length maxWave, listing varying recruitment rates at each wave. The recruitment rate represents the average coupon use rate. For example, if rr is a vector, the wth element is the ratio of the number of successful recruits brought into the study at wave w by their recruiters (participants from wave w-1) to the total number of coupons issued to those recruiters, where w ranges from 1 to maxWave. Seeds are counted as participants at Wave 0.
bruteMC logical; If TRUE then use a brute force Monte Carlo approach to obtain empirical data and estimate sample size distribution; If FALSE then compute the theoretical results of sample size distribution using an approximation algorithm.
tol scalar; Accuracy loss limit control, which is set up for the approximation algorithm when bruteMC=FALSE, with default of 0.025. This parameter determines the acceptable level of accuracy loss in the approximate computation of the sample size distribution.

Value

a list consisting of the following elements:

Pr_Extinction_list vector; a vector of extinction probabilities, i.e., probability of not recruiting any new participants at each wave.

Pr_Size_by_Wave_w list; probability mass function and complementary cumulative distribution function of attaining a certain sample size (including seeds) by each wave, w=1,..,maxWave. The round of seed collection is counted as wave 0.
nprobw

References

Examples

```r
x <- calSize(s=10,c=3,maxWave=9,rr=0.3,bruteMC=FALSE,tol=0.025)
```

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nprobw  
*Summarizing the sample size estimation.*

Description
Summarizing the sample size estimation.

Usage

```r
nprobw(x, n)
```

Arguments

- `x`: an object class of "RDSamplesize", results of estimated sample size distribution of a call to 'calSize'.
- `n`: integer; target sample size.

Value

a table presenting the probability of the accumulated sample size (including seeds) reaching at least `n` by each wave, `w=1,...., maxWave`.

Examples

```r
x <- calSize(s=10,c=3,maxWave=9,rr=0.3,bruteMC=FALSE,tol=0.025)
nprobw(x,n=100)
```
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