spINAR: : **CHEAT SHEET**

Installation

Development version

devtools::install_github("Mfaymon/spINAR")
library(spINAR)

What is spINAR?

The spINAR package was generated to work with count data for Autoregressive Integer Models.

Vignettes

tutorial for spINAR

help(package = "spINAR")


Vignette spINAR
Introduction to spINAR

Arguments

- `n` : simple size
- `p` : model order
- `alpha` : INAR coefficient(s)
- `pmf`: probability mass function of the
- `x` : data

Main Functions

Sintaxis

Simulation INAR(p)

spinar_sim() simulate INAR data given n, p, alpha and pmf
output: simulated INAR data

```
spinar_sim(n, p, alpha, pmf, prerun)
```

Estimation INAR(p)

spinar_est() estimates semi-parametrically an INAR model of given x and p
output: estimated parameters alpha and pmf

```
spinar_est(x, p)
```

Boostrap INAR(p)

spinar_boot() performs the semiparametric INAR bootstrap procedure given x, p and for a given number of replications (B)
output: boostrap estimated parameters, alpha and pmf

```
inar_sp_boot(x, p, B)
```

Fully parametric estimation of INAR(p)

spinar_est_param() estimates parametrically (moment based for now and maximum likelihood later) an INAR model, for a given x, p, a estimation type (type) a parametric family of distribution (distr).
output: estimated parameters: alpha, parameters of input distribution

```
spinar_est_param(x, p, type, distr)
```

estimation type

Poison
Geometric
Neg. Binomial

Penalized semiparametric estimation of INAR(p)

spinar_penal() estimates semiparametrically and penalized an INAR model of given order p on x and for a given penalization parameters (penal1, penal2)
output: estimated parameters (alpha, pmf)

```
spinar_penal(x, p, penal1, penal2)
```

spinar_penal_val() estimates semiparametrically and penalized an INAR model for a given p, x, and allows for validation of both or only one penalization parameter, which can be adjusted by the number of folds and init1 init2.
output: estimated parameters((alpha, pmf) and validated penalization parameter(s)

```
spinar_penal_val(x, p, valid,
                 penal1, penal2,
                 over,folds,
                 init1, init2)
```

initial values for the penalized parameters

Additional functions

R script	description
helper	Contains the functions constrmat and .constrvec
llspinar	Contains a list of the two semiparametric log-likelihood functions
llspinar-penal	Contains a list of the two penalized semiparametric log likelihood functions

YOUR LOGO
(optional)