

1. Motivation
2. Relating literature / methods
3. Empl. application for stats / finance (!)
4. Formalize, pro's and con's
5. Data description / simulation settings
6. Results of empirical
7. Conclusion
8. Appendix

Focus on Application !!

Note to myself: Accuracy, speed, complexity

Bootstrapping

Why? e.g. Pharma, Medicine

- Moments and Quantiles - regression coefficients
- t-test(s)
- Other tests

Pro's:

- Overcome small sample sizes
- no distributional assumptions
- asymptotic properties (frequentistic love)

Cons:

- Biased for bad samples (which is more likely for small samples)

- optimal noob?
- In some cases can be inferior to analytic/parametric solutions

Simulation settings: (samples from)

- Normal dist.
- Binomial dist
- $\exp(x)$ dist
- censored normal
- χ^2 dist
- cars data (reg.) ?

Empirical analysis:

Everything for different bootstraps (wild, ...)
for each dist:

- type 1 error
- type 2 error
- accuracy of β compared to OLS (!?)

For each problem:

- computation time dependent of nboot

Appendix:

$$\text{proof} \quad \overset{n}{F_n} \xrightarrow{\text{a.s.}} F$$