

AN INTRODUCTION TO THE R PROGRAMMING LANGUAGE WITH APPLICATIONS IN FINANCE AND ECONOMETRICS

PART ONE: BASICS ON R

INTRODUCTION

What is R?
How to obtain R?
Help and documentation in R
Default system and R settings
Working directory. Saving the session and variables
Packages manipulation

WORKING WITH DATA

Basic manipulation: importing data from different platforms, exporting data, etc
Vectors, arrays, matrices, dataframes, lists, S3 class, S4 class
Working with different objects and dates
Accessing variables and managing subsets of data
Simple functions: apply, lapply, sapply commands

PLOTTING WITH R

The R function plot
Multiple plots in one graph (one axis, both axis)
Useful graphics: box plot, pie graphs, etc
Multiple graphs in one panel
Time series plot
R colors
Saving plots: postscript, pdf, jpeg

PROGRAMMING WITH R

General programming (looping, conditional statements , etc)
Programming functions

REGRESSION IN R

OLS/GLS/WLS
Interpreting the results
Heterocedasticity tests
Residual tests
Quantile regression
Non linear LS
Robust regression
Two stage LS

NUMERICAL OPTIMIZATION

Built-in functions
Linear programming
Integration

EXPLORING RStudio INTERFACE

Dealing with packages

Writing LATEX document within RStudio

Working with project in RStudio

Updating LATEX document from RStudio

Other facilities

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