

Appendix: R-Code compiled by knitr

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# This script carries out single country adf unit root tests as well as panel data unit
# root tests for real effective exchange rate data retrieved from the IMF database.
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# Check for required packages and install if not available in library
packagesCran = c("data.table", "plm", "xtable", "scales", "CADFtest", "ggplot2")

if (length(setdiff(packagesCran, rownames(installed.packages()))) > 0) {
  install.packages(setdiff(packagesCran, rownames(installed.packages())))
}
lapply(packagesCran, require, character.only = T)

# load IMF data on REER and prepare: please check comma and separator settings
reerIMF = as.data.table(read.csv("~/reerIMF.csv"))
setnames(reerIMF, "X", "Time")
colnames(reerIMF) = gsub("..", " ", colnames(reerIMF), fixed = T)
colnames(reerIMF) = gsub(".", " ", colnames(reerIMF), fixed = T)

## PLOT
#set proper time format
reerIMF[, Time := seq(as.Date("1980/1/1"), as.Date("2013/12/24"), "months")]

# convert to long data format for usage in ggplot
reerIMFLong = melt(reerIMF, id.vars = 'Time',
                  variable.name = "Country", value.name = "reer")

#plot the time series
ggplot(reerIMFLong, aes(x = Time, y = reer)) +
  geom_line() +
  ylab("Real Effective Exchange Rate") + xlab("Time")+
  facet_wrap(~ Country, scales = 'free_y', ncol = 4)

## SINGLE COUNTRY UNIT ROOT TESTs
# perform ADF tests
adfTest = sapply(reerIMF[, -"Time", with = FALSE],
  function(x) {CADFtest(x,
                        max.lag.y = 7,
                        criterion = "AIC",
                        type = "drift")})

# perform kpss test
kpssTest = sapply(reerIMF[, -"Time", with = FALSE],
  function(x) {kpss.test(x, lshort = F)})

# extract inference parameters
unitRootTestTable = data.table(Country = names(reerIMF[, -"Time", with = FALSE]),
  ADFlag = adfTest["max.lag.y",],
  ADF = adfTest["statistic",],
  ADFpvalue = adfTest["p.value",],
  kpss = kpssTest["statistic",],
  kpssPvalue = kpssTest["p.value",]
)

# set keys accordingly
setkey(unitRootTestTable, Country)
```

```

# compile table to export to Latex
print(xtable(unitRootTestTable,
             digits = c(0, 0, 0, 4, 4, 4, 2)),
      include.rownames = FALSE)

## PANEL UNIT ROOT TESTS

panelUnitRootIPS = purtest(as.data.frame(reerIMF[, -"Time", with = FALSE]),
                           pmax = 20, exo = "intercept", test = "ips")
panelUnitRootMW = purtest(as.data.frame(reerIMF[, -"Time", with = FALSE]),
                           pmax = 20, exo = "intercept", test = "madwu")

#set up exportable data.table
panelUnitRootTests = data.table( test = c("IPS", "MW"),
                                 Statistic = as.data.table(
                                   unlist(c(panelUnitRootIPS$Statistic[1],
                                           panelUnitRootMW$Statistic[1]))),
                                 pvalue = as.data.table(
                                   unlist(c(panelUnitRootIPS$Statistic[6],
                                           panelUnitRootMW$Statistic[6]))))

# Export to Latex
print(xtable(panelUnitRootTests,
             digits = c(0,0,4,4),
             include.rownames = FALSE))

```