R BASICS

1. GETTING R

R is available as part of the package repository for most Linux distributions. It is also available for MS Windows and Macs. There are many mirrors of the CRAN web site that provides downloadable R installations and R packages. One of these, e.g., is `http://archive.linux.duke.edu/cran/`.

2. INSTALLING THE VARPACK2019 PACKAGE

Once you have downloaded and unzipped the file containing the package, and assuming your working directory is the one into which you have placed the expanded VARpack2019 directory (use **`getwd`**`()` to check), you can install it with

```
install.packages('VARpack2019', repos=NULL)
```

The `repos=NULL` argument tells R not to look online for the package, but instead to look for it in a local directory.

3. GETTING DATA INTO R

There are many ways to get data from FRED, the St. Louis Fed data web site, into R, but what I usually do is download from FRED in the Excel format, open the Excel file and save it as a .csv file, then use R's **`read.csv`**`()` function. One can download directly in csv format, but this loses the header information describing the data.

If you've used **`read.csv`**`()`, the data will be in an R dataframe. You will want it as a time series object, which attaches dates and uses them in plots, etc. For this exercise, the reading in and converting to time series can be done via

```
gdpc1 <- read.csv('GDPC1.csv', skip=10)
ry <- ts(log(gdpc1$GDPC1), start=1947, freq=4)
```

Then you can get estimates of the exercise's 5th order AR model with `rfvar3()`, get posterior draws from the model with `postdraw()`, generate point forecasts with `fcast()`, and generate forecast error band plots with `fcastBand()`. The **`plot`**`()` function recognizes time series objects. To plot several point forecasts on one graph, **`plot`**`()`, followed by **`lines`**`()` (which plots onto the graph created by **`plot`**)) should work.

The best way to generate the initial conditions arguments for the forecasting functions is with the {**`window`**`()` function, e.g.

```
ry0 <- window(ry, start=c(1947,1), end=c(1948,1))
```

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