Introduction to Open Data Science: About the Project

Teemu Pekkarinen - Student number: 014451658

Introduction to Open Data Science. Happy to learn to connect Git and R even though the content of data analysis is *familiar* to me. I've used R MarkDown before and found it useful. In addition I've used Git before on Tietokantojen Perusteet course However, it's been a long time so recalling things is needed. Here's the link to my GitHub repository.

Today is the following day.

```
## [1] "Tue Oct 27 15:04:12 2020"
```

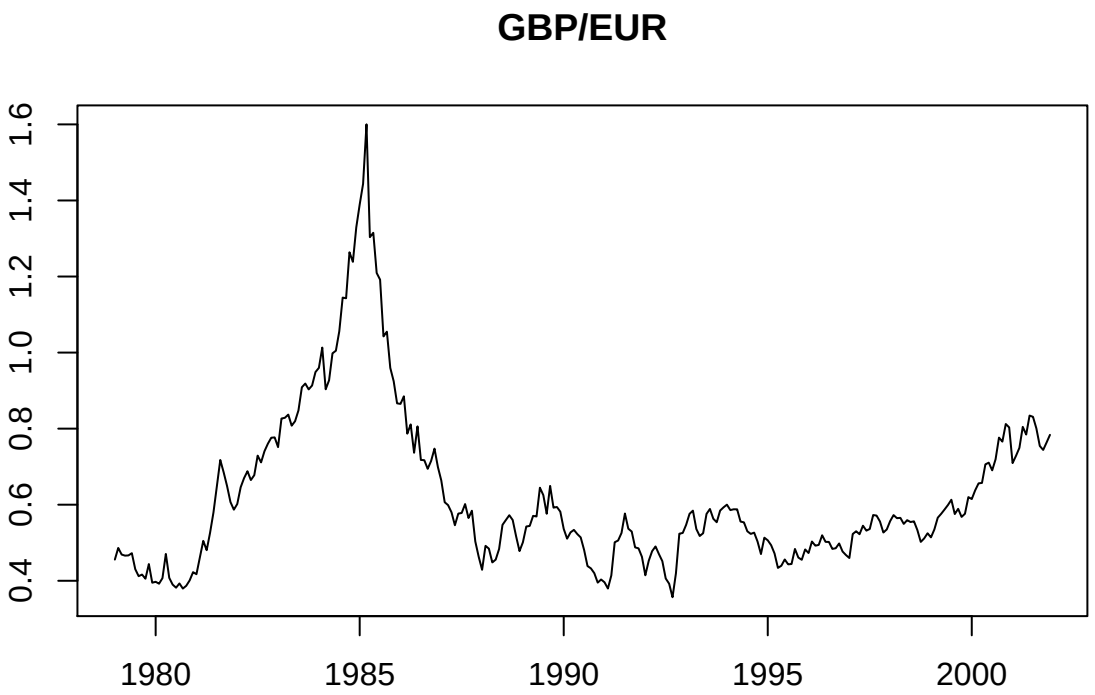
Reminders

I wanted to remind me what I've done last time with R MarkDown. I found a nice data on **exchange and forward rates**. I make a table and a graph of Sterling/EUR exchange rate. I uploaded `forward2.dat` to git repository and I call my data set from there in order to plot the rate.

Table of the exchange and forward rates

EXUSBP	EXUSEUR	EXEURBP	F1USBP	F1USEUR	F1EURBP	F3USBP
Min. :1.073	Min. :0.5827	Min. :0.3567	Min. :1.067	Min. :0.5873	Min. :0.3588	Min. :1.061
1st Qu.:1.507	1st Qu.:0.8876	1st Qu.:0.4855	1st Qu.:1.504	1st Qu.:0.8885	1st Qu.:0.4845	1st Qu.:1.501
Median :1.617	Median :1.0738	Median :0.5598	Median :1.616	Median :1.0774	Median :0.5589	Median :1.609
Mean :1.665	Mean :1.0416	Mean :0.6213	Mean :1.663	Mean :1.0447	Mean :0.6203	Mean :1.658
3rd Qu.:1.756	3rd Qu.:1.1741	3rd Qu.:0.7107	3rd Qu.:1.753	3rd Qu.:1.1778	3rd Qu.:0.7091	3rd Qu.:1.748
Max. :2.443	Max. :1.4222	Max. :1.6002	Max. :2.441	Max. :1.4240	Max. :1.5954	Max. :2.433

Graph of the GBP/EUR exchange rate.



Latex

I'm happy to see that R MarkDown is linked to LaTeX syntax! Here's a maximization problem from my current research on the optimal mechanism design with enforcement:

$$\max_{r(\cdot),t(\cdot),m(\cdot)} \mathbb{E}\left[t(\theta) - Km(\theta)\right] \tag{MAX}$$

subject to

$$t(\theta) = \theta r(\theta) - V(\underline{\theta}) - \int_{\underline{\theta}}^{\theta} \mathcal{I}(s|s)ds \tag{TAX}$$

$$\mathcal{I}(\theta|\theta) \qquad \text{is nondecreasing} \tag{IC}$$

$$\mathcal{I}(\theta|\theta) \geq 0 \tag{IR}$$

for all $\theta \in \Theta$ with $\mathcal{I}(\theta|\theta) := r(\theta) - m(\theta)\varphi$.