

runif

Joshua

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```
knitr::opts_chunk$set(echo = TRUE)
rm(list=ls())
library('forecast')
```

```
## Warning: package 'forecast' was built under R version 3.5.2
```

```
library('smooth')
```

```
## Warning: package 'smooth' was built under R version 3.5.2
```

```
## Loading required package: greybox
```

```
## Warning: package 'greybox' was built under R version 3.5.2
```

```
## Package "greybox", v0.5.8 loaded.
```

```
## This is package "smooth", v2.5.5
```

```
library('beanplot')
library('pastecs')
library('scales')
library('ggplot2')
```

```
load('runif.Rdata')
```

```
iter<-20000
```

ppl vs length

```
x_axis<-c(40,120,480,1200,4800)
y_40<-c(mean(sapply(re_40[[1]], "[", 1)),mean(sapply(re_40[[2]], "[", 1)),
        mean(sapply(re_40[[3]], "[", 1)))
y_120<-c(mean(sapply(re_120[[1]], "[", 1)),mean(sapply(re_120[[2]], "[", 1)),
        mean(sapply(re_120[[3]], "[", 1)))
y_480<-c(mean(sapply(re_480[[1]], "[", 1)),mean(sapply(re_480[[2]], "[", 1)),
        mean(sapply(re_480[[3]], "[", 1)))
y_1200<-c(mean(sapply(re_1200[[1]], "[", 1)),mean(sapply(re_1200[[2]], "[", 1)),
        mean(sapply(re_1200[[3]], "[", 1)))
y_4800<-c(mean(sapply(re_4800[[1]], "[", 1)),mean(sapply(re_4800[[2]], "[", 1)),
        mean(sapply(re_4800[[3]], "[", 1)))
y_axis<-c(y_40,y_120,y_480,y_1200,y_4800)
mac<-matrix(y_axis,nrow = 3,ncol = 5)
mac<-t(mac)
rownames(mac)<-c('40','120','480','1200','4800')
```

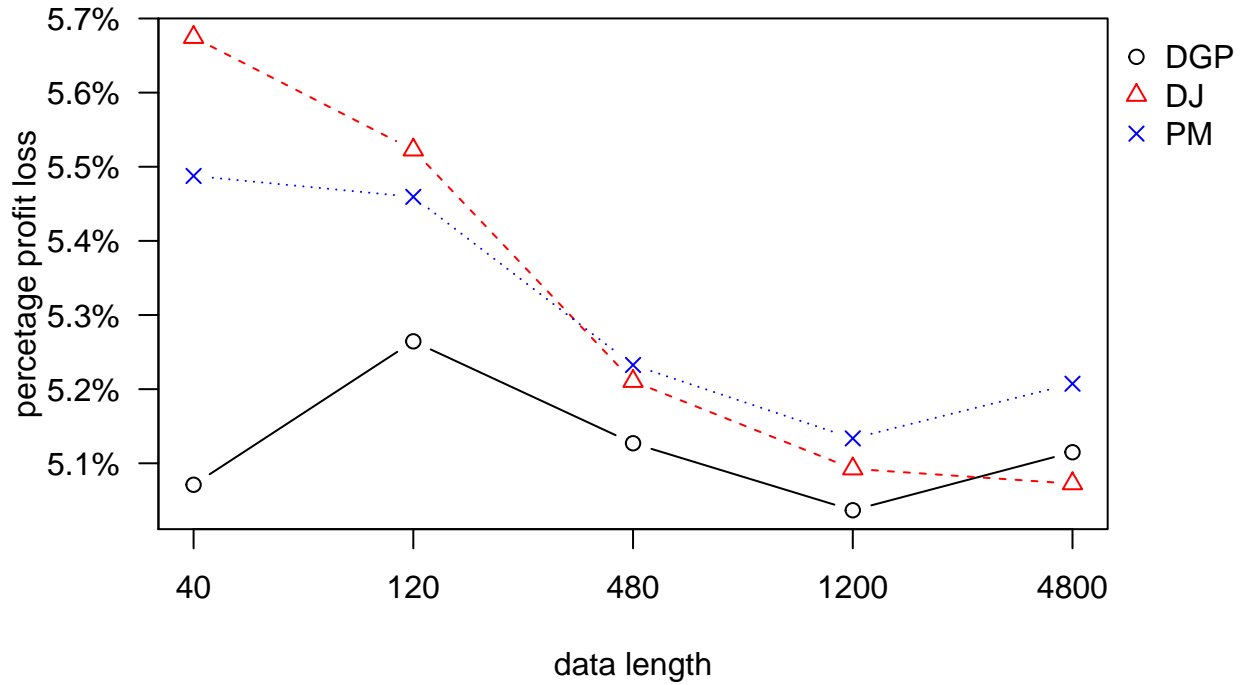
```
colnames(mac)<-c("DGP", "DJ", "CF")
mac
```

```
##           DGP           DJ           CF
## 40  0.05071017 0.05674556 0.05487598
## 120 0.05264503 0.05522725 0.05459381
## 480 0.05126987 0.05210573 0.05232594
## 1200 0.05036650 0.05092532 0.05133562
## 4800 0.05114886 0.05072515 0.05207339
```

```
v_40<-c(sd(sapply(re_40[[1]], "[", 1)),sd(sapply(re_40[[2]], "[", 1)),
        sd(sapply(re_40[[3]], "[", 1)))
v_120<-c(sd(sapply(re_120[[1]], "[", 1)),sd(sapply(re_120[[2]], "[", 1)),
        sd(sapply(re_120[[3]], "[", 1)))
v_480<-c(sd(sapply(re_480[[1]], "[", 1)),sd(sapply(re_480[[2]], "[", 1)),
        sd(sapply(re_480[[3]], "[", 1)))
v_1200<-c(sd(sapply(re_1200[[1]], "[", 1)),sd(sapply(re_1200[[2]], "[", 1)),
        sd(sapply(re_1200[[3]], "[", 1)))
v_4800<-c(sd(sapply(re_4800[[1]], "[", 1)),sd(sapply(re_4800[[2]], "[", 1)),
        sd(sapply(re_4800[[3]], "[", 1)))
v_axis<-c(v_40,v_120,v_480,v_1200,v_4800)
var<-matrix(v_axis,nrow = 3,ncol = 5)
var<-t(var)
rownames(var)<-c('40','120','480','1200','4800')
colnames(var)<-c("DGP", "DJ", "CF")
var
```

```
##           DGP           DJ           CF
## 40  0.1191546 0.10274906 0.11283842
## 120 0.3675784 0.32875865 0.37323695
## 480 0.1055148 0.09856165 0.10551952
## 1200 0.0930046 0.08688317 0.09365235
## 4800 0.1264409 0.12001730 0.12841088
```

```
par(mar=c(par('mar')[1:3], 0))
plot.new()
l <- legend(0, 0, bty='n',c("DGP", "DJ","PM"),plot=FALSE, pch=1:3,col=1:3)
w <- grconvertX(l$rect$w, to='ndc') - grconvertX(0, to='ndc')
par(omd=c(0, 1-w, 0, 1))
matplot(mac, type = c("b"),pch=c(1,2,4),col = c(1,2,4),xaxt = "n",yaxt = "n"
        ,xlab = 'data length',ylab = 'percetage profit loss')
axis(1, at=1:5, labels=x_axis)
axis(2, at=pretty(y_axis), lab=paste0(pretty(y_axis) * 100, "%"), las=TRUE)
legend(par('usr')[2], par('usr')[4], bty='n', xpd=NA
        ,c("DGP", "DJ","PM"), pch=c(1,2,4),col=c(1,2,4))
```



sl vs length

```
x_axis<-c(40,120,480,1200,4800)
y_40<-c(mean(sapply(re_40[[1]], "[[", 2)),mean(sapply(re_40[[2]], "[[", 2)),
        mean(sapply(re_40[[3]], "[[", 2)))
y_120<-c(mean(sapply(re_120[[1]], "[[", 2)),mean(sapply(re_120[[2]], "[[", 2)),
        mean(sapply(re_120[[3]], "[[", 2)))
y_480<-c(mean(sapply(re_480[[1]], "[[", 2)),mean(sapply(re_480[[2]], "[[", 2)),
        mean(sapply(re_480[[3]], "[[", 2)))
y_1200<-c(mean(sapply(re_1200[[1]], "[[", 2)),mean(sapply(re_1200[[2]], "[[", 2)),
        mean(sapply(re_1200[[3]], "[[", 2)))
y_4800<-c(mean(sapply(re_4800[[1]], "[[", 2)),mean(sapply(re_4800[[2]], "[[", 2)),
        mean(sapply(re_4800[[3]], "[[", 2)))
y_axis<-c(y_40,y_120,y_480,y_1200,y_4800)
mac<-matrix(y_axis,nrow = 3,ncol = 5)
mac<-t(mac)
rownames(mac)<-c('40','120','480','1200','4800')
colnames(mac)<-c("DGP", "DJ", "CF")
mac
```

```
##          DGP      DJ      CF
## 40    0.29770 0.19405 0.31435
## 120    0.29490 0.21725 0.30110
## 480    0.30185 0.24350 0.30675
## 1200   0.29620 0.23920 0.29980
## 4800   0.30070 0.23880 0.30235
```

```
v_40<-c(sd(sapply(re_40[[1]], "[[", 2)),sd(sapply(re_40[[2]], "[[", 2)),
        sd(sapply(re_40[[3]], "[[", 2)))
v_120<-c(sd(sapply(re_120[[1]], "[[", 2)),sd(sapply(re_120[[2]], "[[", 2)),
        sd(sapply(re_120[[3]], "[[", 2)))
v_480<-c(sd(sapply(re_480[[1]], "[[", 2)),sd(sapply(re_480[[2]], "[[", 2)),
```

```

sd(sapply(re_480[[3]], "[", 2))
v_1200<-c(sd(sapply(re_1200[[1]], "[", 2)),sd(sapply(re_1200[[2]], "[", 2)),
sd(sapply(re_1200[[3]], "[", 2)))
v_4800<-c(sd(sapply(re_4800[[1]], "[", 2)),sd(sapply(re_4800[[2]], "[", 2)),
sd(sapply(re_4800[[3]], "[", 2)))
v_axis<-c(v_40,v_120,v_480,v_1200,v_4800)
var<-matrix(v_axis,nrow = 3,ncol = 5)
var<-t(var)
rownames(var)<-c('40','120','480','1200','4800')
colnames(var)<-c("DGP", "DJ", "CF")
var

```

```

##          DGP          DJ          CF
## 40  0.4572583 0.3954775 0.4642681
## 120 0.4560092 0.4123845 0.4587475
## 480 0.4590720 0.4292050 0.4611562
## 1200 0.4565917 0.4266057 0.4581817
## 4800 0.4585739 0.4263609 0.4592875

```

```

par(mar=c(par('mar')[1:3], 0))
plot.new()
l <- legend(0, 0, bty='n',c("DGP", "DJ","PM"),plot=FALSE, pch=1:3,col=1:3)
w <- grconvertX(l$rect$w, to='ndc') - grconvertX(0, to='ndc')
par(omd=c(0, 1-w, 0, 1))
matplot(mac, type = c("b"),pch=c(1,2,4),col = c(1,2,4),xaxt = "n"
,xlab = 'data length',ylab = 'service level')
axis(1, at=1:5, labels=x_axis)
legend(par('usr')[2], par('usr')[4], bty='n', xpd=NA
,c("DGP", "DJ", "PM"), pch=c(1,2,4),col=c(1,2,4))

```

