

runif_non

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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_non.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')
```

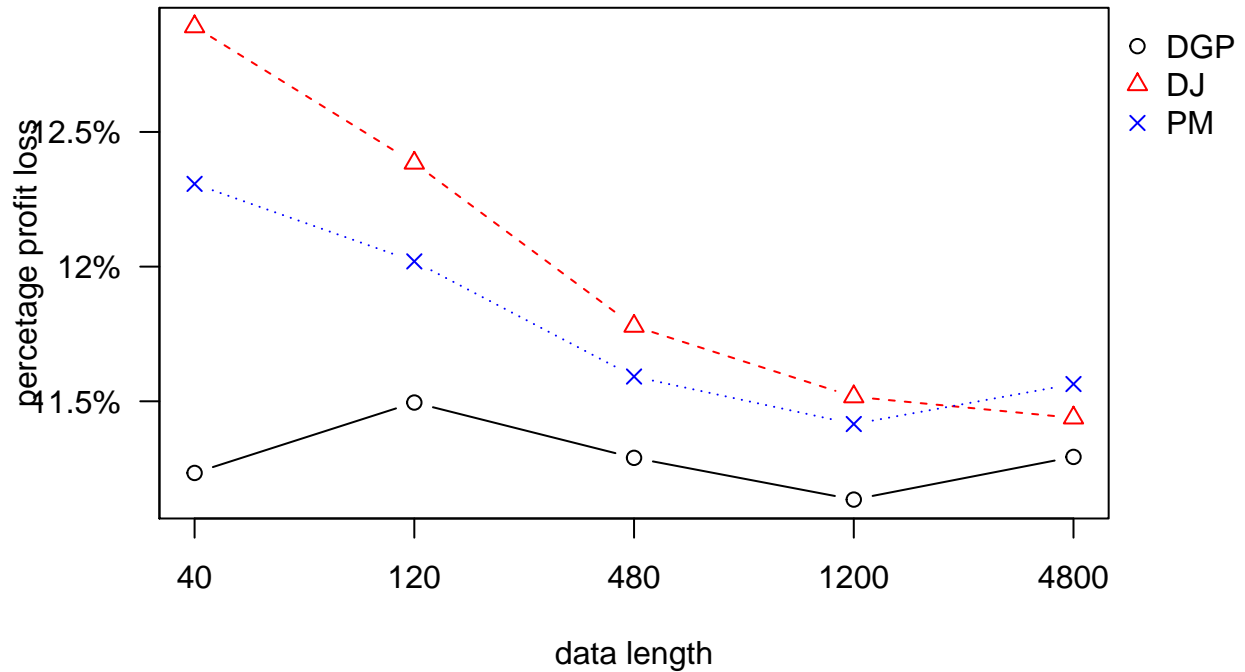
```
colnames(mac)<-c("DGP", "DJ", "CF")
mac
```

```
##           DGP           DJ           CF
## 40    0.1123396 0.1289092 0.1230724
## 120   0.1149538 0.1238461 0.1201943
## 480   0.1129005 0.1177897 0.1159192
## 1200  0.1113509 0.1151693 0.1141554
## 4800  0.1129349 0.1143847 0.1156404
```

```
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    0.1988646 0.1966034 0.1916336
## 120   0.5640410 0.5446015 0.5786472
## 480   0.1799046 0.1819744 0.1792974
## 1200  0.1619729 0.1639167 0.1631402
## 4800  0.2086529 0.2103163 0.2112503
```

```
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   0.56025 0.5146 0.56040
## 120  0.55720 0.5456 0.56150
## 480  0.56380 0.5809 0.57225
## 1200 0.55860 0.5844 0.56515
## 4800 0.56200 0.5936 0.56995
```

```
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    0.4963691 0.4997993 0.4963508
## 120   0.4967298 0.4979287 0.4962157
## 480   0.4959253 0.4934241 0.4947648
## 1200  0.4965666 0.4928375 0.4957497
## 4800  0.4961535 0.4911732 0.4950952

```

```

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')
abline(h=0.56,lty=2,col='black')
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))

```

