Actualizacion de ecuacion V desconocida

2022-08-17

```
#A. Posterior en t=19
m19 <- c(8, 0.35, -0.27)
C19 <- matrix(c(0.00002, 0.00001, -0.00002, 0.00001, 0.00004, -0.00001
                -0.00001, 0.00005), ncol = 3)

#Valores conocidos de G20 y W20
G20 <- matrix(c(1.05, 0, 0, 0, 1.02, 0, 0, 0, 0.99), ncol=3)
W20 <- matrix(c(0.00001, 0, 0, 0, 0.0001, -0.00001, 0, -0.00001, 0.0000

#B. Priori de parámetros en t=20
a20 <- G20 %*% m19
R20 <- G20 %*% C19 %*% t(G20) + W20
a20
```

```
##         [,1]
## [1,]  8.4000
## [2,]  0.3570
## [3,] -0.2673
```

```
R20
```

```
##             [,1]       [,2]       [,3]
## [1,]  3.205e-05  1.071e-05 -2.079e-05
## [2,]  1.071e-05  1.416e-04 -2.010e-05
## [3,] -2.079e-05 -2.010e-05  9.901e-05
```

```
freeny[20,]
```

```
##          y lag.quarterly.revenue price.index income.level market.pot
## 1967 9.314                 9.284        4.51        6.061
```

```
F20 <- c(1, 6.06093, 4.51018) #Variables explicativas en t=20. El 1 es
                              #agregar el intercepto
S19 <- 0.002 # Estimación de V en T=19
n19 <- 19.5 # Grados de libertad
```

```r
#C. Pronóstico a un periodo.
f20 <- as.numeric(t(F20) %*% a20)
Q20 <- as.numeric(t(F20) %*% R20 %*% F20 + S19)
f20
```

```
## [1] 9.358
```

```r
Q20
```

```
## [1] 0.008092
```

```r
c(qst(0.025, nu = n19, mu = f20, sigma = sqrt(Q20)),
  qst(0.975, nu = n19, mu = f20, sigma = sqrt(Q20)))
```

```
## [1] 9.170 9.546
```

```r
#Valor observado de Y20:
Y20 <- 9.31378
#D. Posterior en t=20
A20 = R20 %*% F20 / Q20
e20 = Y20-f20
m20 = a20 + A20 %*% e20
n20 = n19 + 1
S20 = S19 + (S19/n20)*(e20^2/Q20-1)
C20 = (S20/S19)*(R20-A20 %*% t(A20) * Q20)
m20
```

```
##         [,1]
## [1,]  8.4000
## [2,]  0.3527
## [3,] -0.2690
```

```r
C20
```

```
##             [,1]        [,2]        [,3]
## [1,]  3.087e-05  1.002e-05 -2.014e-05
## [2,]  1.002e-05  6.428e-05 -4.751e-05
## [3,] -2.014e-05 -4.751e-05  8.436e-05
```