

## 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, 0.00001), ncol=3)
```

*#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.po
```

```
## 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
```

```
#C. Pronóstico a un periodo.
```

```
f20 <- as.numeric(t(F20) %*% a20)
```

```
Q20 <- as.numeric(t(F20) %*% R20 %*% F20 + S19)
```

```
f20
```

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

```
Q20
```

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

```
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
```

```
#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
```

```
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
```

Distribuciones filtradas

```

B19 <- C19 %*% t(G20) %*% solve(R20)
a20_menos_1 <- m19 + B19 %*% (m20 - a20)
R20_menos_1 <- C19 - B19 %*% (C20 - R20) %*% solve(B19)

```

```

a20_menos_1

```

```

##           [,1]
## [1,]  8.0000
## [2,]  0.3488
## [3,] -0.2708

```

```

S20/S19 * R20_menos_1

```

```

##           [,1]      [,2]      [,3]
## [1,]  1.936e-05  8.966e-06 -2.144e-05
## [2,] -1.216e-05  1.147e-04  2.533e-06
## [3,] -2.960e-05  3.510e-05  6.162e-05

```

```

freeny[19,]

```

```

##           y lag.quarterly.revenue price.index income.level market
## 1966.75 9.284           9.265           4.54           6.056

```

```

F19 <- c(1, 6.05563 , 4.53957) #Variables explicativas en t=19. El 1 es el intercepto

```

```

t(F19) %*% a20_menos_1

```

```

##           [,1]
## [1,]  8.883

```

```

S20/S19 * t(F19) %*% R20_menos_1 %*% F19

```

```

##           [,1]
## [1,] 0.006278

```