Fuente: Control 2 de Econometría II (Soluciones propuestas) 2024

2. (50 puntos) Tenemos:

$$\begin{aligned} Y_\tau &= \Phi_1 Y_{\tau-1} + u_\tau \\ u &= B_0^{-1} v \\ \Phi_1 &= B_0^{-1} B_1 \\ \Sigma &= B_0^{-1} D B_0^{-1\prime} \end{aligned}$$

donde:

$$B_0^{-1} = \begin{pmatrix} 1 & \frac{\gamma}{\gamma+\delta} & \frac{\gamma}{\gamma+\delta} \\ 0 & \frac{1}{\gamma+\delta} & \frac{\delta}{\gamma+\delta} \\ 0 & 0 & 1 \end{pmatrix}$$

$$\Phi_1 = \begin{pmatrix} \frac{\gamma}{\gamma+\delta} & \frac{\gamma}{\gamma+\delta} & 0 \\ \frac{1}{\gamma+\delta} & -\frac{1}{\gamma+\delta} & 0 \\ 0 & 0 & 1 \end{pmatrix} \begin{pmatrix} \beta_{11} & \beta_{12} & \beta_{13} \\ \beta_{21} & \beta_{22} & \beta_{23} \\ 0 & 0 & \beta_{33} \end{pmatrix} = \begin{pmatrix} \frac{\gamma\beta_{21}}{\gamma+\delta} + \frac{\delta\beta_{11}}{\gamma+\delta} & \frac{\gamma\beta_{22}}{\gamma+\delta} + \frac{\delta\beta_{12}}{\gamma+\delta} & \frac{\gamma\beta_{23}}{\gamma+\delta} + \frac{\delta\beta_{13}}{\gamma+\delta} \\ \frac{\beta_{11}}{\gamma+\delta} - \frac{\beta_{21}}{\gamma+\delta} & \frac{\beta_{12}}{\gamma+\delta} - \frac{\beta_{22}}{\gamma+\delta} & \frac{\beta_{13}}{\gamma+\delta} - \frac{\beta_{23}}{\gamma+\delta} \\ 0 & 0 & \beta_{33} \end{pmatrix}$$