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4.2. Mode PR

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$$\begin{aligned} \pi_A(PR) &= (1-\alpha) [\theta - + \gamma(-)] - F, \\ \pi_B(PR) &= [\theta - + \gamma(-)], \\ \pi_I(PR) &= \alpha [\theta - + \gamma(-)] \\ &\quad + (-) [\theta - + \gamma(-)] - F. \end{aligned}$$

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$$\begin{aligned} \pi_{PR} &= \frac{(1+\gamma)(2+3\gamma) - \alpha(1+2\gamma)\gamma}{2(1+\gamma)(2+4\gamma+\gamma^2)} \theta, \\ \pi_{PR} &= \frac{(4+9\gamma+3\gamma^2)(2+3\gamma) - \alpha(1+2\gamma)\gamma^2}{[4(1+\gamma)^2 - (1+\alpha)\gamma^2](4+8\gamma+2\gamma^2)} \theta, \\ \pi_{PR} &= \frac{(3+6\gamma+2\gamma^2)(2+3\gamma) + \alpha(1+\gamma-\gamma^2)\gamma}{[4(1+\gamma)^2 - (1+\alpha)\gamma^2](2+4\gamma+\gamma^2)} \theta, \\ \pi_{PR} &= \frac{(4+9\gamma+3\gamma^2)(1+\gamma)(2+3\gamma) - \alpha(1+\gamma)(1+2\gamma)\gamma^2}{[4(1+\gamma)^2 - (1+\alpha)\gamma^2](4+8\gamma+2\gamma^2)} \theta, \\ \pi_{PR} &= \frac{(1+\gamma)(2+3\gamma) - \alpha(1+2\gamma)\gamma}{2[4(1+\gamma)^2 - (1+\alpha)\gamma^2]} \theta, \end{aligned}$$

$$\begin{aligned} \pi_A^{PR} &= \\ (1-\alpha) &\frac{(1+\gamma)[(4+9\gamma+3\gamma^2)(2+3\gamma) - \alpha(1+2\gamma)\gamma^2]^2}{[4(1+\gamma)^2 - (1+\alpha)\gamma^2]^2(4+8\gamma+2\gamma^2)^2} \theta^2 - F, \\ \pi_B^{PR} &= \frac{[(1+\gamma)(2+3\gamma) - \alpha(1+2\gamma)\gamma]^2}{2(1+\gamma)[4(1+\gamma)^2 - (1+\alpha)\gamma^2](4+8\gamma+2\gamma^2)} \theta^2, \\ \pi_I^{PR} &= \alpha \frac{(1+\gamma)[(4+9\gamma+3\gamma^2)(2+3\gamma) - \alpha(1+2\gamma)\gamma^2]^2}{[4(1+\gamma)^2 - (1+\alpha)\gamma^2]^2(4+8\gamma+2\gamma^2)^2} \theta^2 \\ &\quad + \left[\frac{[(1+\gamma)(2+3\gamma) - \alpha(1+2\gamma)\gamma]}{2(1+\gamma)[4(1+\gamma)^2 - (1+\alpha)\gamma^2]^2(4+8\gamma+2\gamma^2)} \right] \end{aligned}$$

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$$w = \frac{f + a}{f} \left(w \right)$$

5.6. Variable vs. Fixed Order-Fulfillment Cost

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Notes

- ¹ <http://www.wiley.com/doi/10.1002/for.20160614006063/> (10, 2016).
- ² For more details, see Wang and Wu (1984):

$$(\theta, \psi) = \theta + \theta - \frac{(\phi^2 + 2\psi + \phi^2)^2}{2}, \quad \phi = \frac{1+\gamma}{1+2\gamma}$$

$$\psi = \frac{\gamma}{1+2\gamma}, \quad \theta = \frac{\gamma}{1+2\gamma}$$

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