PC 5. Coûts de catalogue et arbitrage produit-inflation [Remarks by Mehdi Senouci, 2021-22]

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Question 3: alternative method and answer We've seen at question 2) that optimal pricing is $P_i^*/P = P^*/P = \eta/(\eta-1) * W/P$. Consequently, at firm i's optimum, demand for good i is at:

$$Y_i^* = Y\left(\frac{\eta}{\eta-1}\frac{W}{P}\right)^{-\eta}$$

which is also the demand for labor from firm i. Consequently, aggregate labor demand is at:

$$L^d = \int_i L_i^d = Y\left(\frac{\eta}{\eta-1}\frac{W}{P}\right)^{-\eta}$$

So, in logs:

$$l^d = y - \eta\left(\ln\left(\frac{\eta}{\eta-1}\right) + w - p\right)$$

Like in the solution pdf, labor supply is at:

$$l^o = \xi \ln\left(\frac{\eta}{\eta-1} + w - p\right)$$

So labor market equilibrium implies:

$$y = (\xi+\eta)\left(\ln\left(\frac{\eta}{\eta-1}\right) + w - p\right) \tag{1}$$

Finally, combining equation (1) with optimal pricing equation $p^* = \ln\left(\frac{\eta}{\eta-1}\right) + w$, we get:

$$p^* - p = \frac{y}{\xi+\eta} \tag{2}$$