A Addendum

A.1 The derivation of the labor demand functions

In this section, for notational simplicity, we shall use H instead of H_P to denote the amount of skilled labor used in productive activities. Given A1, profit maximization yields

$$Y = kK$$

and

$$Y = [(A_L L)^\rho + (A_H H)^\rho]^{1/\rho},$$

where L, H are chosen so as to solve the following problem

$$\begin{aligned} &\min_{L,H} w_L L + w_H H \\ Y^\rho &= (A_L L)^\rho + (A_H H)^\rho. \end{aligned}$$

The Lagrangean is:

$$\Lambda\,(L, H, \lambda) = w_L L + w_H H + \lambda[Y^\rho - (A_L L)^\rho + (A_H H)^\rho].$$

The first order conditions are:

$$w_H = \lambda \rho A_H^\rho H^{\rho-1}, \quad (30)$$

$$w_L = \lambda \rho A_L^\rho L^{\rho-1}, \quad (31)$$

$$Y^\rho = (A_L L)^\rho + (A_H H)^\rho. \quad (32)$$

From equations (30) and (31), it follows that

$$\frac{H}{L} = \left(\frac{w_H}{w_L}\right)^{\frac{1}{\rho-1}} \left(\frac{A_H}{A_L}\right)^{-\frac{\rho}{\rho-1}}. \tag{33}$$

Then, by A2, we have $A_H = \mu A_L$, and equation (33) becomes

$$\frac{H}{L} = \left(\frac{w_H}{w_L}\right)^{\frac{1}{\rho-1}} (\mu)^{-\frac{\rho}{\rho-1}} \tag{34}$$

Then, equation (32) can be written as

$$Y^\rho = L^\rho \left[(A_L)^\rho + (A_H H/L)^\rho\right] = L^\rho \left[(A_L)^\rho + (A_H)^\rho \left(\frac{w_H}{w_L}\right)^{\frac{\rho}{\rho-1}} (\mu)^{-\frac{\rho^2}{\rho-1}}\right]$$

or, given A2, and using $Y = kK$

$$L = \frac{kK}{A_L \left[1 + \left(\frac{w_H}{w_L}\right)^{\frac{\rho}{\rho-1}} (\mu)^{-\frac{\rho}{\rho-1}}\right]^{\frac{1}{\rho}}}$$

Similarly, using equation (34),

$$H = \frac{kK}{A_L \left[1 + \left(\frac{w_H}{w_L}\right)^{\frac{\rho}{\rho-1}} (\mu)^{-\frac{\rho}{\rho-1}}\right]^{\frac{1}{\rho}}} \left(\frac{w_H}{w_L}\right)^{\frac{1}{\rho-1}} (\mu)^{-\frac{\rho}{\rho-1}}$$

or

$$H = \frac{kK}{A_L \mu \left[1 + \left(\frac{w_H}{w_L}\right)^{-\frac{\rho}{\rho-1}} (\mu)^{\frac{\rho}{\rho-1}}\right]^{\frac{1}{\rho}}}$$

Equations (3) and (4) follow by substituting $\sigma = (w_H/w_L)$.