Online Appendix

It is also possible to examine the impact of immigration on wages in the long-run where the price of capital is fixed but the capital stock can change. Taking the natural log of equations (7) and (8) gives:

$$ln\, w = \ln(1-\alpha) + \eta lnC + (1-\eta)[\alpha lnK + (1-\alpha)lnL] - lnL$$

and

$$ln\, r = \ln(\alpha) + \eta lnC + (1-\eta)[\alpha lnK + (1-\alpha)lnL] - lnK$$

Rearranging the latter equation and differentiating leads to the following immigration-induced change in the capital stock (where it is assumed that in the long-run $dr = 0$):

$$\frac{dln\, K}{dln\, L} = \frac{\eta\varphi + (1-\eta)(1-\alpha)}{1-(1-\eta)\alpha} > 0$$

Not surprisingly, this term is positive which indicates that as the workforce increases due to immigration, the capital stock will increase as well. With product market neutrality ($\varphi = 1$), this equation equals one which indicates that the capital stock will grow at the same rate as the immigration-induced change in labor supply.

Differentiating the $ln\, w$ equation, using the immigration-induced change in the capital stock equation, generates the following long-run relationship between immigration and wages:

$$\frac{dln\, w}{dln\, L} = \eta\varphi + (1-\eta)\alpha\left[\frac{\eta\varphi + (1-\eta)(1-\alpha)}{1-(1-\eta)\alpha}\right] + (1-\eta)(1-\alpha) - 1$$

or

$$\frac{d\ln w}{d\ln L} = \frac{\eta(\varphi - 1)}{1 - (1 - \eta)\alpha}.$$

With product market neutrality ($\varphi = 1$), this model generates the standard result that immigration has no impact on wages in the long-run. The capital stock increases by the same proportion as the immigration-induced increase in the workforce which leaves the capital to labor ratio constant and thus wages do not change. However, if $\varphi > 1$, then immigration has a positive impact on wages in the long-run and if $\varphi < 1$, then immigration has a negative impact on wages in the long-run.