Appendix

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In equilibrium, the flow of agents into searching for a house (agents who start searchingn) needs to be equal to the flow out of searching for a house (agents who stop searching.) The number of agents who start searching is the probability η of becoming unhappy times the number of happy guys, which is equal to number of owners h minus the unhappy guys μ_U :

$$\eta\,(h-\mu_U) \tag{1}$$

The number of agents who stop searching is equal to the number of buyers that are matched

$$M = m\mu_B^{\alpha}\mu_S^{1-\alpha} \tag{2}$$

In steady state, the renters search for a house and the unhappy sell

$$\begin{aligned}\mu_B &= 1-h \\ \mu_S &= \mu_U\end{aligned}$$

so that

$$M = m\,(1-h)^{\alpha}\,\mu_U^{1-\alpha}$$

The equilibrium condition equates (1) and (2)

$$\eta\,(h-\mu_U) = m\,(1-h)^{\alpha}\,\mu_U^{1-\alpha}$$

The sellers are matched at rate

$$\frac{M}{\mu_S} = m\mu_B^\alpha \mu_S^{-\alpha}$$

because there are M matches and μ_S sellers. In steady state, we choose parameters such that

$$\mu_B = \mu_S = 1 - h$$

and so

$$\begin{aligned} \frac{M}{\mu_S} &= m \\ M &= m(1-h) \end{aligned}$$

The sellers pay search costs c and when they get matched, they receive the value of the house V_H plus the value of a renter (which is zero), so the value V_S for sellers satisfies

$$rV_S = -c + \frac{M}{\mu_S}(V_H - V_S)$$

Happy guys get their dividends and with some probability η they become unhappy with their house and sell:

$$rV_H = v + \eta(V_S - V_H) = v - \eta(V_H - V_S)$$

The value of a buyer is zero. The surplus is

$$\begin{aligned} r\left(V_H - V_S\right) &= v + c - \frac{M}{\mu_S}\left(V_H - V_S\right) - \eta\left(V_H - V_S\right) \\ &= v + c - \left(\frac{M}{\mu_S} + \eta\right)\left(V_H - V_S\right) \\ &= v + c - \left(m + \eta\right)\left(V_H - V_S\right) \\ V_H - V_S &= \frac{v + c}{r + m + \eta} \end{aligned}$$

$$\begin{aligned} rV_H &= v + \eta\left(V_S - V_H\right) = v - \eta\frac{v + c}{r + m + \eta} \\ &= v - \frac{\eta}{r + m + \eta}\left(v + c\right) \\ V_H &= \frac{v}{r} - \frac{\eta}{r + m + \eta}\frac{v + c}{r} \end{aligned}$$

The house price

$$\begin{aligned} p &= V_S + \text{surplus} \\ &= V_S + V_H - V_S \\ &= V_H \end{aligned}$$