Appendix

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In equilibrium, the flow of agents into searching for a house (agents who start searching) 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 $\eta$ of becoming unhappy times the number of happy guys, which is equal to number of owners $h$ minus the unhappy guys $\mu_U$:

$$\eta (h - \mu_U)$$  \hspace{1cm} (1)

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

$$M = m \mu_B^{\alpha} \mu_S^{1-\alpha}$$  \hspace{1cm} (2)

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

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

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

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

because there are \( M \) matches and \( \mu_S \) sellers. In steady state, we choose parameters such that

\[
\mu_B = \mu_S = 1 - h
\]

and so

\[
\frac{M}{\mu_S} = m
\]

\[
M = m (1 - h)
\]

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 \( \eta \) 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

\[ r (V_H - V_S) = v + c - \frac{M}{\mu_S} (V_H - V_S) - \eta (V_H - V_S) \]

\[ = v + c - \left( \frac{M}{\mu_S} + \eta \right) (V_H - V_S) \]

\[ = v + c - (m + \eta) (V_H - V_S) \]

\[ V_H - V_S = \frac{v + c}{r + m + \eta} \]

\[ rV_H = v + \eta (V_S - V_H) = v - \eta \frac{v + c}{r + m + \eta} \]

\[ = v - \frac{\eta}{r + m + \eta} (v + c) \]

\[ V_H = \frac{v}{r} - \frac{\eta}{r + m + \eta} \frac{v + c}{r} \]

The house price

\[ p = V_S + \text{surplus} \]

\[ = V_S + V_H - V_S \]

\[ = V_H \]