1. Guess L^F.

   (a) Guess g.

      i. Guess $w(q,m,n), F(q,n)$. Compute $\pi(q)$ from L^F. Solve for optimal policies and value functions:

         A. **Incumbents:** Solve for $A(q,m,n)$ and policies $z_I^A(q,m,n)$ using Moll's iterative method. Will take as given innovation intensity by entrants, $\overline{z}_E(q,m,n) = \xi \min(m, F(q,n))$ (and hence $\overline{z}_E^0(q) = \xi F(q)$). HJBs are

$$
\begin{aligned}
(r+\theta-g)A(q,m,n) \quad &= \quad \max_z \pi(q) + \theta B(q) \\
&\quad +\chi_I z\phi(z+\overline{z}_E(q,m,n))\big(A((1+\lambda)q,0,0) - A(q,m,n)\big) \\
&\quad -\chi_E \overline{z}_E \phi(z+\overline{z}_E(q,m,n))A(q,m,n) \\
&\quad +\nu(\overline{z}_E(q,m,n)+z)A_m(q,m,n) \\
&\quad -gqA_q(q,m,n)
\end{aligned}
$$

and

$$
\begin{aligned}
(r+\theta-g)B(q) \quad &= \quad \max_z \pi(q) + \chi_I z\phi(z+\xi F(q))\big(A((1+\lambda)q,0,0) - B(q)\big) \\
&\quad -\chi_E \xi F(q)\phi(z+\xi F(q))B(q) \\
&\quad -gqB'(q)
\end{aligned}
$$

         B. **Entrants:** Solve for $W^{NC}(q,m,n), W^F(q,m,n)$ and $F^*(q)$ using Moll's iterative method. Define $\tau(q,m,n) = (\chi_I z_I(q,m,n) + \chi_E \overline{z}_E(q,m,n))\phi(z_I(q,m,n)+\overline{z}_E(q,m,n))$ and $L(q,m,n) = z_I(q,m,n) + \overline{z}_E(q,m,n)$. HJBs are

$$
\begin{aligned}
(r+\theta+\tau(q,m,n)-g)W^F(q,m,n) \quad &= \quad \max_z \chi_E z\phi(z_I(q,m)+\overline{z}_E(q,m))\big(A((1+\lambda)q,0,0) - W^F(q,m,n) \\
&\quad -w(q,m)z - gqW_q^F(q,m) + \nu L(q,m)W_m^F(q,m)
\end{aligned}
$$

and

$$
\begin{aligned}
(r+\theta+\tau(q,m)-g+v)W^{NC}(q,m) \quad &= \quad vW^F(q,m) - gqW_q^{NC}(q,m) \\
&\quad +\nu L(q,m)W_m^{NC}(q,m)
\end{aligned}
$$

Really, it comes down to setting

$$F^*(q,n) = \sup\{m : \chi_E \phi(z_I(q,m,n)+\overline{z}_E(q,m,n))(A((1+\lambda)q,0,0) - W^F(q,m,n)) \geq w(q,m,n)\}$$

      ii. Check consistency

         A. Check $w(q,m) + \nu W^{NC}(q,m) = w$.

         B. Check $F^*(q,n) = F(q,n)$. If these things do not hold, update guesses for $w(q,m), F(q)$ using some rule to be determined, and go back to (1ai).

   (b) Check consistency: compute stationary distributions and integrate to compute growth rate g^*. If not converged, update guess for g and go back to (1a).

2. Finally, check labor market clearing: make sure that $L^F + L^I(L^F) + L^{RD}(L^F) = 1$. If too high, lower L^F guess and go back to step 1.