2

Firms: $\text{Max} \int [p g(\ell(p)) - w^e(p)\ell(p) - w^u(p)(m - \ell(p))] f(p)\,dp$

s.t. $\int \left[\frac{\ell(p)}{m} U(w^e(p)) + \left(1 - \frac{\ell(p)}{m}\right) U(y + w^u(p))\right] f(p)\,dp \geq U(V)$

$m \geq \ell(p)$

(i) See PS7 (Haltiwanger's part)

$$L = \int_0^\infty [p g(\ell(p)) - w^e(p)\ell(p) - w^u(p)(m - \ell(p))] f(p)\,dp$$
$$+ \lambda \left[\int_0^\infty \left[\frac{\ell(p)}{m} U(w^e(p)) + \left(1 - \frac{\ell(p)}{m}\right) U(w^u(p) + y)\right] f(p)\,dp - U(V)\right]$$
$$+ \int_0^\infty \mu(p)(m - \ell(p)) f(p)\,dp \qquad (1)$$

FOC:

$w^e(p)$: $\quad -\ell(p) + \lambda \frac{\ell(p)}{m} U'(w^e(p)) = 0 \qquad (2)$

$w^u(p)$: $\quad -(m - \ell(p)) + \lambda \left(1 - \frac{\ell(p)}{m}\right) U'(w^u(p) + y) = 0 \qquad (3)$

$\mapsto (4)$

$$l(p): \quad p g'(l(p)) - w^e(p) + w^u(p) + \lambda\left(\frac{U(w^e(p))}{m} - \frac{U(w^u(p)+y)}{m}\right) = \mu(p)$$

$$m: \quad -\int_0^{\infty} w^u(p) f(p)\,dp - \frac{\lambda}{m^2}\left[\int_0^{\infty} \left(l(p)\,U(w^e(p)) - l(p)\,U(w^u(p)+y)\right) f(p)\,dp\right]$$
$$+ \int_0^{\infty} \mu(p) f(p)\,dp = 0 \qquad (5)$$

$$\mu(p)\,(m - l(p)) = 0 \qquad (6)$$

$$(2), (3) \Rightarrow \quad u'(w^e(p)) = m\lambda^{-1} \qquad (2')$$
$$U'(w^u(p)+y) = m\lambda^{-1} \qquad (3')$$

m and λ are not state dependent $\Rightarrow$ (2'), (3') $\Rightarrow$ $\bar{w}^e, \bar{w}^u$
(wage stickiness)

Moreover, $u'(\bar{w}^e) = U'(\bar{w}^u + y)$ (7) $\Leftrightarrow$ $\bar{w}^e = \bar{w}^u + y$ (8)

$$(7), (8), (4) \rightarrow \quad p g'(l(p)) = y + \mu(p) \qquad (9)$$

(9), (5): $\quad -\int_0^{\infty} \bar{w}^u f(p)\,dp + \int \mu(p) f(p)\,dp = 0$

$\hookrightarrow \quad E[\mu(p)] = \bar{w}^u \quad (10)$

$\hookrightarrow$ The firm will contract (not employ!) workers up to the point where the expected Mg value of relaxing the cap. constraint is equal to unemp. benefits

- First-best:

  Mg product of labor (expected)
  = opp. cost of worker.

  $E[p g'(\ell(p))] = E[y + \mu(p)] = y + \bar{w}^u$

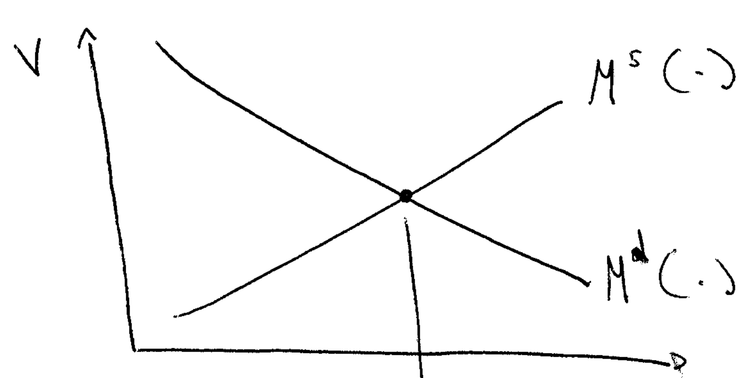
- Wage rigidity:

  Not "nominal" Keynesian type.

(ii)

M^d: Demand for contract

M^s: Supply-side (long-run labor supply considerations)



$\hookrightarrow$ Eq. determination of V

(iii) In the contex of risk-neutrality (firms), complete and optimal risk-shifting takes place ($u(.)$ is constant and firm bears all the risk). So private info produces no effect.

↳ To generate departures we would need: (i) risk-aversion by the firm or (ii) two-sided private info
(see Rosen pg 1169)

(iv) Firm Max

$$\int [p\, g(\phi\, l(p)) - w^e(p)\, l(p) - w^u(p)\,(m - l(p))]\, f(p)\, dp$$

s.t. $\phi = \begin{cases} 0 \\ 1 \end{cases}$

$$\int \left[\frac{l(p)}{m} U(w^e(p), \phi) + \left(1 - \frac{l(p)}{m}\right) U(Y + w^u(p), 0) \right] f(p)\, dp \geq U(Y$$

$$\int U(w^e(p), 1)\, f(p)\, dp \geq \int U(w^e(p), 0)\, f(p)\, dp$$