The Effects of Firing Costs on Employment and Hours per Employee

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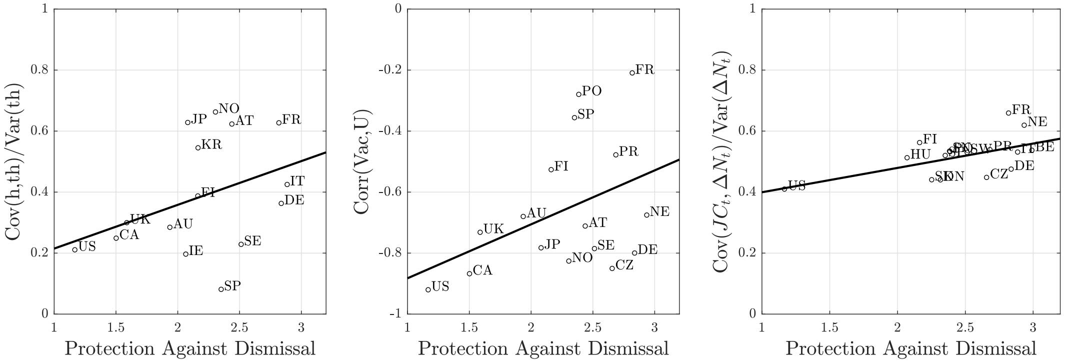
Research Question and Motivation

What is the short run effect of employment protection legislation (EPL) on labor market outcomes and welfare of an economy?

- Existing literature typically focuses on long run outcomes
  - *Examples*: Hopenhayn & Rogerson (JPE 1993), Pries & Rogerson (JPE 2005)
- Most work does not distinguish between intensive and extensive labor margin
  - Recent Exception: Llosa, Ohanian, Raffo & Rogerson (mimeo 2016)

Motivating Data



Our Contribution

1. Establish three empirical regularities between EPL and laber market dynamics with novel cross-country data sets
2. Provide a theoretical model for the analysis of EPL that replicates the empirical regularities.
3. Quantify the effect of EPL on labor market dynamics in a theoretical exercise
4. Analyze the impact of (i) omitting a flexible intensive margin and (ii) abstracting from distinct job creation and job destruction
   - see Llosa et al. for a similar analysis on a flexible intensive margin

Model - Overview

RBC model with

1. Matching friction on labor market (Merz JME 1995, Andolfatto AER 1996)
2. Hiring cost function (Yashiv AER 2000, Merz and Yashiv AER 2007)
3. Discount factor shocks (Hall AER 2017)
4. Job specific productivity shocks → Endogeneous firing decision
5. Dismissal protection: Wasteful tax on firing

Model - Household

Household problem:

$$\max_{c_t, b_t} \mathbb{E}_0 \left\{ \sum_{t=0}^{\infty} \exp(-d_t)\beta^t \left(\frac{c_t^{1-\sigma}}{1-\sigma} - \xi_h n_t \int_{\tilde{a}_t}^{\infty} \frac{h_t(a)^{1+\nu}}{1+\nu} \frac{g(a)}{1-G(\tilde{a}_t)} da - \xi_n n_t \right) \right\}$$

$$\text{s.t. } c_t + b_t \leq R_{t-1} b_{t-1} + n_t \int_{\tilde{a}_t}^{\infty} w_t(a) h_t(a) \frac{g(a)}{1-G(\tilde{a}_t)} da + \Pi_t$$

- Household consists of a continuum of workers $\rightarrow$ Share risk together
- $\xi_n n_t$ reflects fixed employment costs.
- Stochastic discount factor

Model

Aggregate law of motion of employment:

$$n_t = (1-\rho_t)(n_{t-1} + m_{t-1})$$

$$m_t = B u_t^{\mu} v_t^{1-\mu}, \; u_t = (1 - n_t)$$

$$q(\theta_t) = \frac{m_t}{v_t} = B\theta_t^{-\mu}, \; \theta_t = \frac{v_t}{u_t}$$

$$\rho_t = G(\tilde{a}_t)$$

$$\ln(a) \sim N(\mu_a, \sigma_a)$$

$$d_t = \rho_d d_{t-1} + \varepsilon_{dt}, \; \varepsilon_{d,t} \sim N(0, \sigma_d)$$

Model - Firm

Firms Problem:

$$\max_{v_t, n_t, \tilde{a}_t} \mathbb{E}_0 \left\{ \sum_{t=0}^{\infty} \exp(-d_t)\beta^t \lambda_t \dots \right.$$

$$\left. \left(y_t - n_t \int_{\tilde{a}_t}^{\infty} w_t(a) h_t(a) \frac{g(a)}{1-\rho_t} da - \psi \Gamma(v_t, u_t, \bar{y}_t) - n_t \frac{\rho_t}{1-\rho_t} F \right) \right\}$$

$$\text{s.t. } y_t = n_t \int_{\tilde{a}_t}^{\infty} Z_t h_t(a) a \frac{g(a)}{1-\rho_t} da$$

$$\psi \Gamma(v_t, u_t, \bar{y}_t) = \psi \frac{(\phi v_t + (1-\phi) q(\theta_t) v_t)^{1+\gamma}}{1+\gamma} \bar{y}_t$$

$$n_t = (1-\rho_t)(n_{t-1} + q(\theta_{t-1}) v_{t-1})$$

Model - Firm

Job creation condition:

$$\overbrace{\frac{\psi\Gamma'_{t,v}}{q(\theta_t)}}^{(1)} = \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\left[\overbrace{(1-\rho_{t+1})}^{(2)}\left(\overbrace{\frac{y_{t+1}}{n_{t+1}}}^{(3)}\ldots\right.\right.\right.$$

$$\left.\left.\left.-\underbrace{\int_{\tilde{a}_{t+1}}^{\infty} w_{t+1}(a)h_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da}_{(4)}+\underbrace{\frac{\psi\Gamma'_{t+1,v}}{q(\theta_{t+1})}}_{(5)}\right)-\underbrace{\rho_{t+1}F}_{(6)}\right]\right\}$$

Model - Firm

Job destruction condition:

$$\underbrace{w_t(\tilde{a}_t)h_t(\tilde{a}_t)}_{(1)} = \underbrace{\frac{\psi\Gamma'_{t,v}}{q(\theta_t)}}_{(2)} + \underbrace{Z_t h_t(\tilde{a}_t)\tilde{a}_t}_{(3)} + \underbrace{F}_{(4)}$$

Model - Bargaining

Each firm-worker match generates a rent $\mathcal{S}_t(a) = \mathcal{S}_t^W(a) + \mathcal{S}_t^F(a) + F$, which is split in individual Nash Bargaining. Note that the firing cost is part of the bargaining as it reduces the firm's threat point.

- Firm and Worker simultaneously bargain over hourly wage payment and hours worked

$$[w_t(a), h_t(a)] = \text{argmax} \left(\mathcal{S}_t^W(a)\right)^{\zeta} \left(\mathcal{S}_t^F(a) + F\right)^{1-\zeta}$$

$\mathcal{S}_t^W(a)$ $\mathcal{S}_t^F(a)$

Model - Bargaining

Hours:

$$h_t(a) = \left(\frac{\lambda_t Z_t a}{\xi_h}\right)^{\frac{1}{\nu}}$$

Wage:

$$w_t(a)h_t(a) = \frac{(1-\zeta)}{\lambda_t}\left(\xi_h \frac{h_t(a)^{1+\nu}}{1+\nu} + \xi_n\right) + \zeta\theta_t\psi\Gamma'_{t,v} + \zeta Z_t h_t(a) a$$
$$+\zeta\left(1-(1-\theta_t q(\theta_t))\beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\right\}\right)F$$

Model - Productivity Threshold

Productivity of the marginal worker:

$$\tilde{a}_t = \left(\frac{\frac{\xi_n}{\lambda_t} + \frac{\zeta}{1-\zeta}\theta_t \psi \Gamma'_{t,v} - \frac{1}{1-\zeta}\frac{\psi\Gamma'_{t,v}}{q(\theta_t)} - \left(1 + \frac{\zeta}{1-\zeta}(1-\theta_t q(\theta_t))\beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\right\}\right)F}{Z_t^{\frac{1+\nu}{\nu}}\left(\frac{\lambda_t}{\xi_h}\right)^{\frac{1}{\nu}}\frac{\nu}{1+\nu}} \right)^{\frac{\nu}{1+\nu}}$$

- Higher Firing costs reduce the productivity level of the marginal worker. Firms become less willing to fire an unproductive employee.

Model - Market Clearing

Market clearing:

$$y_t = c_t + \psi \Gamma_t + n_t \frac{\rho_t}{1-\rho_t} F$$

Calibration - Standard Parameters

Parameter	Value	Source
		Preferences
β	0.99	$\approx$ 4% annual real rate
σ	0.5	-
ν	1.8	$\approx$ 2 Chetty, Guren, Manoli and Weber (2011)
		Matching, Bargaining, Separation, Hiring and Firing costs
B	0.94	$q \approx 0.9$ Merz (1995), Andolfatto (1996)
μ	0.4	Blanchard and Diamond (1989)
ζ	0.4	Hosios Condition
F	0	-

Calibration - Further Parameters

Parameter	Value	Parameter	Value	Parameter	Value
First Moments: $\rho = 0.1,\ h = 0.33,\ U = 0.1$					
ψ	1.69	ξ_h	13.36	ξ_n	0.30
Second Moments:					
ϕ	0.15	γ	0.90	σ_a	0.33
Shock Processes:					
z_{SS}	1	σ_z	0.0144	ρ_z	0.95
d_{SS}	0	σ_d	0.3434	ρ_d	0.75

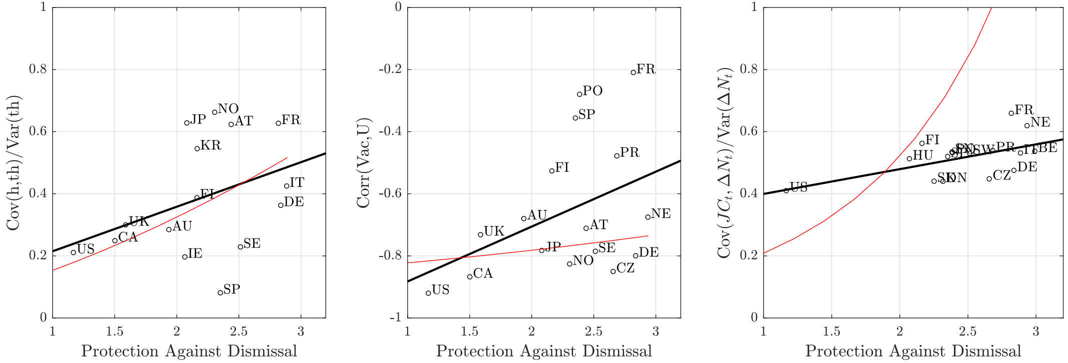
Calibration: Second Moments

- Calibrate the parameters to match the second moments
- Compare the labour market variables in the benchmark setting to the extensive labour margin

	US Data	**Benchmark Model**
$\sigma(v)/\sigma(n)$	10.96	9.01
$\sigma(u)/\sigma(n)$	11.90	16.84
$\sigma(h)/\sigma(n)$	0.38	0.37
$\text{Corr}(u, v)$	-0.92	-0.82

Note: The standard deviations (std.) are based on HP-filtered simulations.

Results: Motivating Data



Results: Effect of firing costs

	(a) Steady state			(b) Relative std.			(c) Absolute std.[i]		
	F=0%	F=5%	F=10%	F=0%	F=5%	F=10%	F=0%	F=5%	F=10%
y	0.327	0.328	0.330	2.628	2.529	2.449	0.860	0.830	0.807
n	0.900	0.916	0.933	0.862	0.575	0.345	0.775	0.527	0.321
h	0.330	0.328	0.326	0.319	0.333	0.362	0.105	0.109	0.118
ρ	0.100	0.079	0.059	6.328	6.089	5.901	0.633	0.484	0.350
v	0.111	0.084	0.060	14.511	14.153	13.810	1.609	1.189	0.823
f	0.100	0.079	0.059	7.363	6.924	6.522	0.736	0.547	0.384
m	0.100	0.079	0.059	6.403	6.716	7.004	0.640	0.531	0.412
Welf. cost[i]	-	0.569%	1.017%	-	0.574%	1.020%			

Note: The standard deviations (std.) are based on HP-filtered simulations. (i) The welfare cost is measured as proportion of consumption the representative agent would sacrifice to avoid the increase in firing costs (compared to $F = 0$)

Results: Role of the Intensive Margins

Fixed Hours

	(a) Δ% St. state		(b) Δ% Rel. std.		(c) Δ% Abs. std.	
	Flexible	Fixed	Flexible	Fixed	Flexible	Fixed
y	0.70%	1.08%	-6.81%	-8.76%	-6.16%	-7.78%
n	3.61%	2.71%	-59.99%	-42.61%	-58.55%	-41.06%
h	-1.36%	-	13.61%	-	12.07%	-
ρ	-40.61%	-34.37%	-6.75%	-4.49%	-44.61%	-37.32%
v	-46.23%	-41.43%	-4.84%	-2.99%	-48.83%	-43.18%
f	-41.12%	-35.09%	-11.42%	-8.32%	-47.84%	-40.49%
m	-41.12%	-35.09%	9.39%	5.71%	-35.59%	-31.39%
Welf. cost	1.017%	1.144%	1.020%	1.149%		

Note: The standard deviations (std.) are based on HP-filtered simulations. (i): The values correspond to the percentage change in steady state between F=10% and F=0 for two different models: *flexible*' corresponds to the benchmark model; *fixed* corresponds to the adjusted benchmark with fixed hours.

Further - To be done

- Severance payments instead of wasteful dismissal costs. Model
- Allow for a different matching behaviour
  - Newly made matches can be dismissed at no cost.
- Quantify the different effect of EPL when distinguishing between firing costs on job destruction versus on changes in employment.

Conclusion

- Intensive margin plays an important role when analyzing the effect of employment protection legislations.
- Firms make use of the hiring margin to avoid firing cost.
  - Welfare cost is about 13% higher if we don't consider the hiring margin.
- Firing costs can explain a large part of the observed data
  - The model is overestimating the impact of the hiring margin on the variation in labour growth.

Thank you!

Bargaining Back

Surplus Worker: $\mathcal{S}_t^W = \mathcal{E}_t(a) - \mathcal{U}_t$

$$\begin{aligned}\mathcal{E}_t(a) =& w_t(a)h_t(a) - \frac{1}{\lambda_t}\left(\xi_h \frac{h_t(a)^{1+\nu}}{1+\nu} + \xi_n\right) + \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\dots\right.\\ &\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{E}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}\mathcal{U}_{t+1}\right)\right\}\\ \mathcal{U}_t =& \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda t}\left[\theta_t q(\theta_t)\dots\right.\right.\\ &\left.\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{E}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}\mathcal{U}_{t+1}\right) + (1-\theta_t q(\theta_t))\mathcal{U}_{t+1}\right]\right\}\end{aligned}$$

Model - Bargaining Back

Surplus Firm: $\mathcal{S}_t^F = \mathcal{J}_t(a) - \mathcal{V}_t$

$$\mathcal{J}_t(a) = Z_t h_t(a)a - w_t(a)h_t(a) + \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\ldots\right.$$

$$\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{J}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}(\mathcal{V}_{t+1} - F)\right)\right\}$$

$$\mathcal{V}_t = -\psi\Gamma'_{t,v} + \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda t}\left[q(\theta_t)\ldots\right.\right.$$

$$\left.\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{J}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}(\mathcal{V}_{t+1} - F)\right) + (1-q(\theta_t))\mathcal{V}_{t+1}\right]\right\}$$

Fixed Hours - Household

Back

Household problem:

$$\max_{c_t, b_t} \mathbb{E}_0 \left\{ \sum_{t=0}^{\infty} \exp(-d_t)\beta^t \left(\frac{c_t^{1-\sigma}}{1-\sigma} - \xi_h n_t \frac{\bar{h}^{1+\nu}}{1+\nu} - \xi_n n_t \right) \right\}$$

$$\text{s.t. } c_t + b_t \leq R_{t-1} b_{t-1} + n_t \bar{h} \int_{\tilde{a}_t}^{\infty} w_t(a) \frac{g(a)}{1 - G(\tilde{a}_t)} da$$

- hours is fixed at steady state value
- $\xi_n n_t$ reflects fixed employment costs.
- Stochastic discount factor

Fixed Hours - Firm Back

Firms Problem:

$$\max_{v_t, n_t, \tilde{a}_t} \mathbb{E}_0 \left\{ \sum_{t=0}^{\infty} \exp(-d_t) \beta^t \lambda_t \dots \right.$$

$$\left. \left(y_t - n_t \bar{h} \int_{\tilde{a}_t}^{\infty} w_t(a) \frac{g(a)}{1-\rho_t} da - \psi \Gamma(v_t, u_t, y_t) - n_t \frac{\rho_t}{1-\rho_t} F \right) \right\}$$

$$\text{s.t. } y_t = n_t \bar{h} \int_{\tilde{a}_t}^{\infty} Z_t(a) a \frac{g(a)}{1-\rho_t} da$$

$$\psi \Gamma(v_t, u_t, y_t) = \psi \frac{(\phi v_t + (1-\phi) q(\theta_t) v_t)^{1+\gamma}}{1+\gamma} y_t$$

$$n_t = (1-\rho_t)(n_{t-1} + q(\theta_{t-1}) v_{t-1})$$

Fixed Hours - Bargaining

Back

Each firm-worker match generates a rent $\mathcal{S}_t(a) = \mathcal{S}_t^W(a) + \mathcal{S}_t^F(a) + F$, which is split in individual Nash Bargaining. Note that the firing cost is part of the bargaining as it reduces the firm's threat point.

- Firm and Worker bargain over hourly wage payment

$$w_t(a) = \text{argmax} \left(\mathcal{S}_t^W(a)\right)^{\zeta} \left(\mathcal{S}_t^F(a) + F\right)^{1-\zeta}$$

Fixed Hours - Worker Surplus Back

Surplus Worker: $\mathcal{S}_t^W = \mathcal{E}_t(a) - \mathcal{U}_t$

$$\mathcal{E}_t(a) = w_t(a)\bar{h} - \frac{1}{\lambda_t}\left(\xi_h \frac{\bar{h}^{1+\nu}}{1+\nu} + \xi_n\right) + \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\dots\right.$$

$$\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{E}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}\mathcal{U}_{t+1}\right)\right\}$$

$$\mathcal{U}_t = \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda t}\left[\theta_t q(\theta_t)\dots\right.\right.$$

$$\left.\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{E}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}\mathcal{U}_{t+1}\right) + (1-\theta_t q(\theta_t))\mathcal{U}_{t+1}\right]\right\}$$

Fixed Hours - Firm Surplus Back

Surplus Firm: $\mathcal{S}_t^F = \mathcal{J}_t(a) - \mathcal{V}_t$

$$\mathcal{J}_t(a) = Z_t \bar{h} a - w_t(a)\bar{h} + \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\dots\right.$$

$$\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{J}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}(\mathcal{V}_{t+1} - F)\right)\right\}$$

$$\mathcal{V}_t = -\psi\Gamma'_{t,v} + \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda t}\left[q(\theta_t)\dots\right.\right.$$

$$\left.\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{J}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}(\mathcal{V}_{t+1} - F)\right) + (1-q(\theta_t))\mathcal{V}_{t+1}\right]\right\}$$

Model - Bargaining Back

Each firm-worker match generates a rent $\mathcal{S}_t(a) = \mathcal{S}_t^W(a) + \mathcal{S}_t^F(a)$, which is split in individual Nash Bargaining. Note that the firing cost is no longer part of the surplus because it is not wasteful.

- Firm and Worker simultaneously bargain over hourly wage payment and hours worked

$$[w_t(a), h_t(a)] = \text{argmax} \left(\mathcal{S}_t^W(a) - F\right)^{\zeta} \left(\mathcal{S}_t^F(a) + F\right)^{1-\zeta}$$

Severance Payment - Worker Surplus Back

Surplus Worker: $\mathcal{S}_t^W = \mathcal{E}_t(a) - \mathcal{U}_t$

$$\mathcal{E}_t(a) = w_t(a)h_t(a) - \frac{1}{\lambda_t}\left(\xi_h \frac{h_t(a)^{1+\nu}}{1+\nu} + \xi_n\right) + \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\dots\right.$$
$$\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{E}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}\left(\mathcal{U}_{t+1}+F\right)\right)\right\}$$

$$\mathcal{U}_t = \beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda t}\left[\theta_t q(\theta_t)\dots\right.\right.$$
$$\left.\left.\left((1-\rho_{t+1})\int_{\tilde{a}_{t+1}}^{\infty}\mathcal{E}_{t+1}(a)\frac{g(a)}{1-\rho_{t+1}}da + \rho_{t+1}\left(\mathcal{U}_{t+1}+F\right)\right) + (1-\theta_t q(\theta_t))\mathcal{U}_{t+1}\right]\right\}$$

Severance Payment - Firm Surplus Back

Surplus Firm: $\mathcal{S}_t^F = \mathcal{J}_t(a) - \mathcal{V}_t$

$$\begin{aligned}\mathcal{J}_t(a) =& Z_t h_t(a) a - w_t(a) h_t(a) + \beta\,\mathbb{E}_t \left\{ \frac{\exp(-d_{t+1})}{\exp(-d_t)} \frac{\lambda_{t+1}}{\lambda_t} \dots \right. \\ & \left. \left((1-\rho_{t+1}) \int_{\tilde{a}_{t+1}}^{\infty} \mathcal{J}_{t+1}(a) \frac{g(a)}{1-\rho_{t+1}} da + \rho_{t+1}(\mathcal{V}_{t+1} - F) \right) \right\} \\ \mathcal{V}_t =& -\psi \Gamma'_{t,v} + \beta\,\mathbb{E}_t \left\{ \frac{\exp(-d_{t+1})}{\exp(-d_t)} \frac{\lambda_{t+1}}{\lambda t} \left[q(\theta_t) \dots \right. \right. \\ & \left. \left. \left((1-\rho_{t+1}) \int_{\tilde{a}_{t+1}}^{\infty} \mathcal{J}_{t+1}(a) \frac{g(a)}{1-\rho_{t+1}} da + \rho_{t+1}(\mathcal{V}_{t+1} - F) \right) + (1 - q(\theta_t)) \mathcal{V}_{t+1} \right] \right\}\end{aligned}$$

Severance Payment - Bargaining

Back

Hours:

$$h_t(a) = \left(\frac{\lambda_t Z_t a}{\xi_h}\right)^{\frac{1}{\nu}}$$

Wage:

$$w_t(a)h_t(a) = \frac{(1-\zeta)}{\lambda_t}\left(\xi_h \frac{h_t(a)^{1+\nu}}{1+\nu} + \xi_n\right) + \zeta\theta_t\psi\Gamma'_{t,v} + \zeta Z_t h_t(a)a$$
$$+ \left(1 - (1-\theta_t q(\theta_t))\beta\,\mathbb{E}_t\left\{\frac{\exp(-d_{t+1})}{\exp(-d_t)}\frac{\lambda_{t+1}}{\lambda_t}\right\}\right)F$$

Severance Payment - Productivity Threshold Back

Productivity of the marginal worker:

$$\tilde{a}_t = \left(\frac{\frac{\xi_n}{\lambda_t} + \frac{\zeta}{1-\zeta}\theta_t \psi \Gamma'_{t,v} - \frac{1}{1-\zeta}\frac{\psi \Gamma'_{t,v}}{q(\theta_t)} - \frac{1}{1-\zeta}(1 - \theta_t q(\theta_t))\beta \mathbb{E}_t \left\{ \frac{\exp(-d_{t+1})}{\exp(-d_t)} \frac{\lambda_{t+1}}{\lambda_t} \right\} F}{Z_t^{\frac{\nu}{1+\nu}} \left(\frac{\lambda_t}{\xi_h} \right)^{\frac{1}{\nu}} \frac{\nu}{1+\nu}} \right)^{\frac{\nu}{1+\nu}}$$

- Higher Firing costs reduce the productivity level of the marginal worker. Firms become less willing to fire an unproductive employee.