Severance Pay

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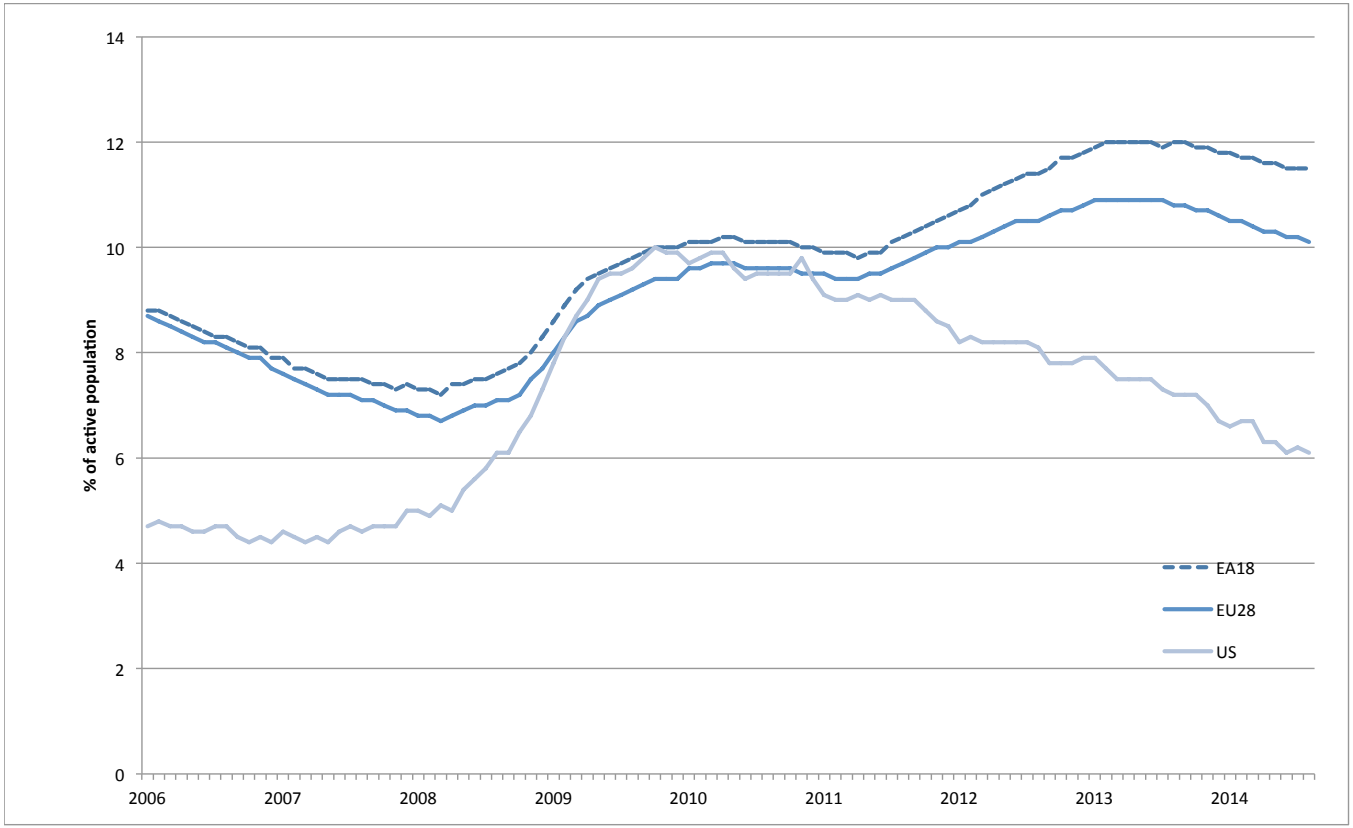
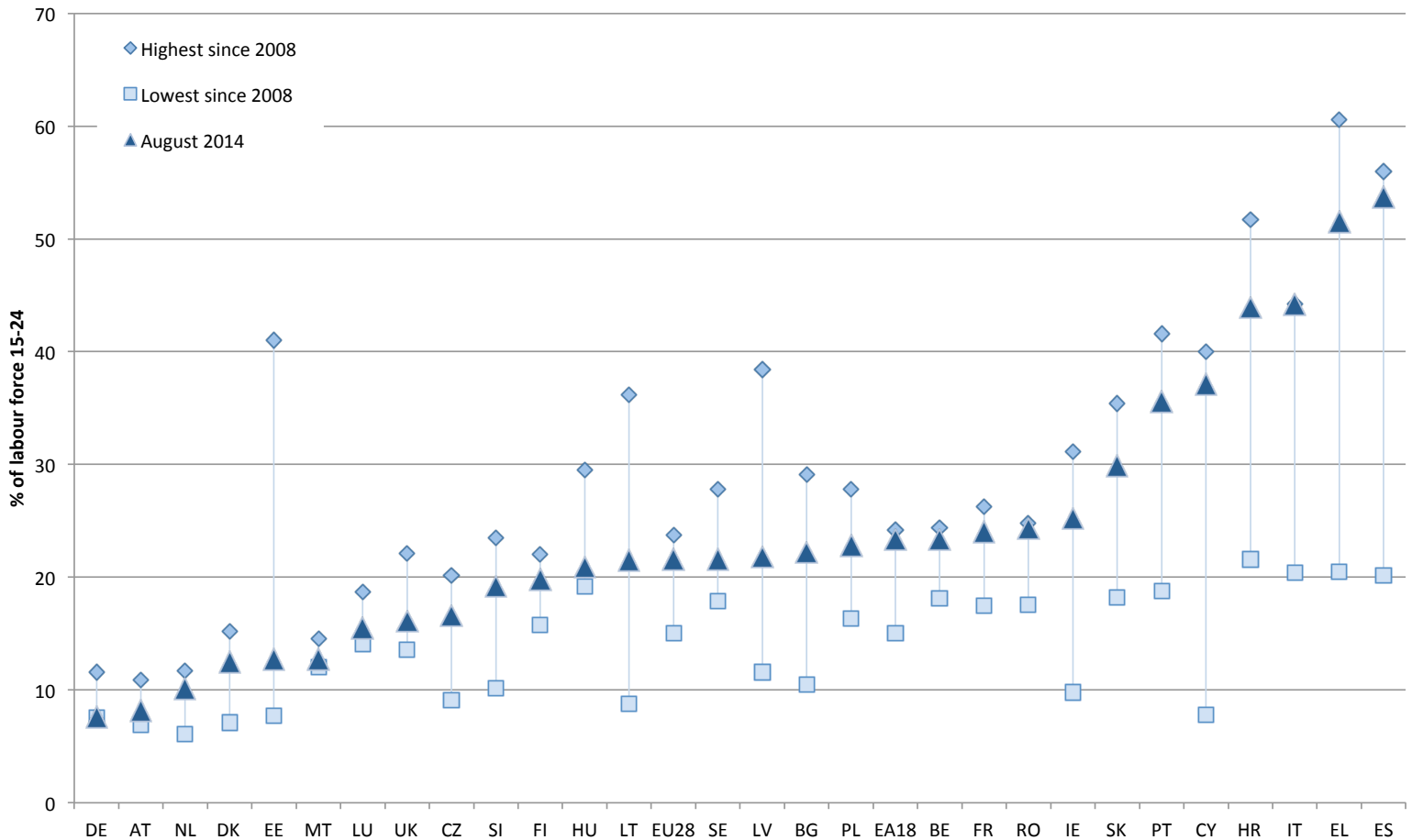
Outline

- **Premises and Introduction**
- Research on Severance Payments (SP): Results and Unexplored Dimensions
- Basic 2 periods model
- N periods: are efficient SP increasing in tenure?
- General equilibrium
- Burden of proof and endogenous court ruling
- Empirical Implications

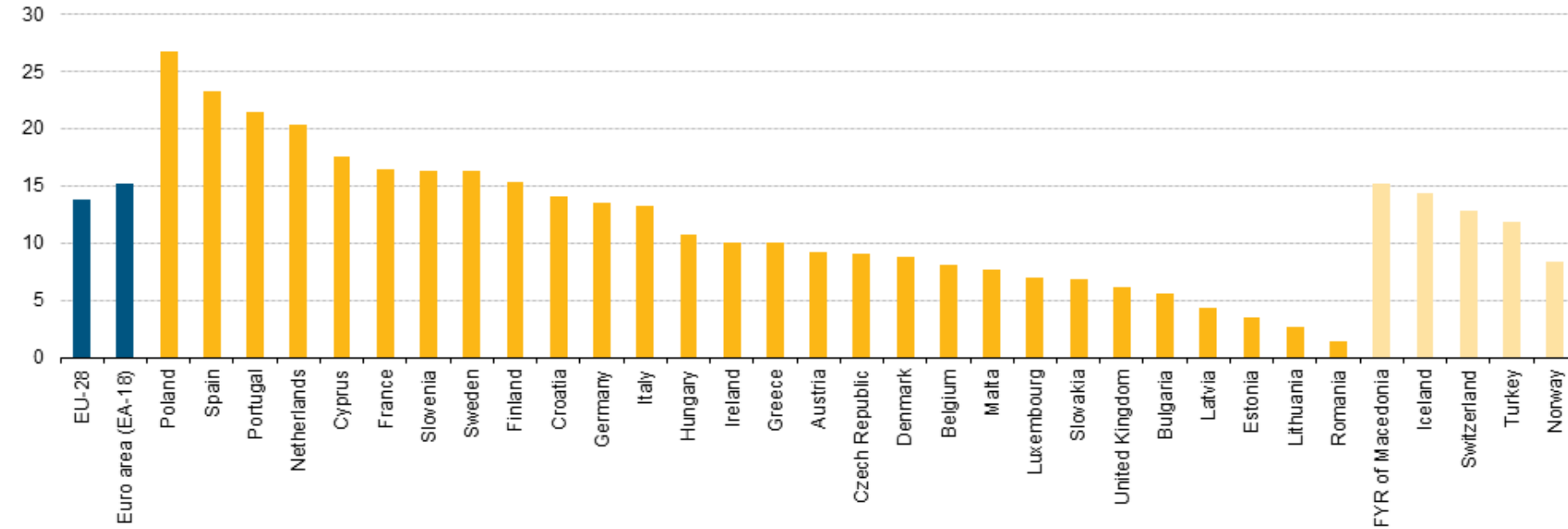
Premise I: The Plague of EU Unemployment



Premise II: Youth Unemploymetn: A Lost EU generation



Premise III: Employment Duality: Large Variety Across countries



Source: Eurostat (online data code: lfsa_etpga)

Research on Institutions needed to tackle duality

- EU unemployment will fall **only** if EU growth stagnation will be solved
- Zero EU growth is a much broader problem than ill functioning labour market institutions (EPL, collective bargaining, UB, *labour taxes*
- ....but labour market duality much to do with institutions
- research (as well as policy) needs to tackle the issue
- In various EU countries (Italy, France, Spain) discussion is under way on a long term contract with SP increasing with tenure to reduce duality.
- does it make sense?

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Severance Payments and EPL

- Most countries have legally mandated Severance Payments (SP). Pure transfers for *employer initiated* separation
- SP account for 50 % of cross-country variation in the OECD index of EPL and up to 90 per cent of costs of dismissals
- When transfers are not specified by the law, collective bargaining specifies transfers for *individual dismissals*

Why severance payments?

Many papers deal with the consequences of SP, but a few rationalize their existence

- Under *flexible wages*, SP are neutral on employment and prepaid by workers (Lazear, 1990)
- Under *rigid wages*, SP increase unemployment (Garibaldi-Violante, 2005)
- Under *risk aversion*, SP are less efficient to provide insurance than other instruments e.g. experience-rated UI (Blanchard Tirole 2008)

This paper

When do we need Severance Payments

- General result. If wages are deferred, firms will have too strong inentives to fire senior workers
- If so, SP can improve efficiency even if wages are flexible and workers are risk neutral
- Analyze this in a specific model where
  - workers need to invest in job specific training
  - firms can not commit "not to fire" when productivity is low

Key Definitions

- Severance Payments (SP) are mandatory **transfers** for firm initiated job separation.
- **Disciplinary dismissals** are related to worker misconduct.
- **Economic dismissals** refer to technological or productivity related issues.
- Each type of dismissal can be defined as *fair* or *unfair* with different compensation schemes
- It is very difficult to distinguish between "fair" or "unfair" dismissal. Ultimately, it is a court ruling

Measures

Costs of **unfair dismissals (T_U):**

$$T_U = N + S + \pi(d + S) \tag{1}$$

where N is statutory notice period, S is pure mandatory severance, π is the probability that a reinstatement is actually granted (OECD assessment) and d is average length of trial period.

Compensation in fair/unfair dismissals

Table: Severance,nature of dismissal and discretion of judges

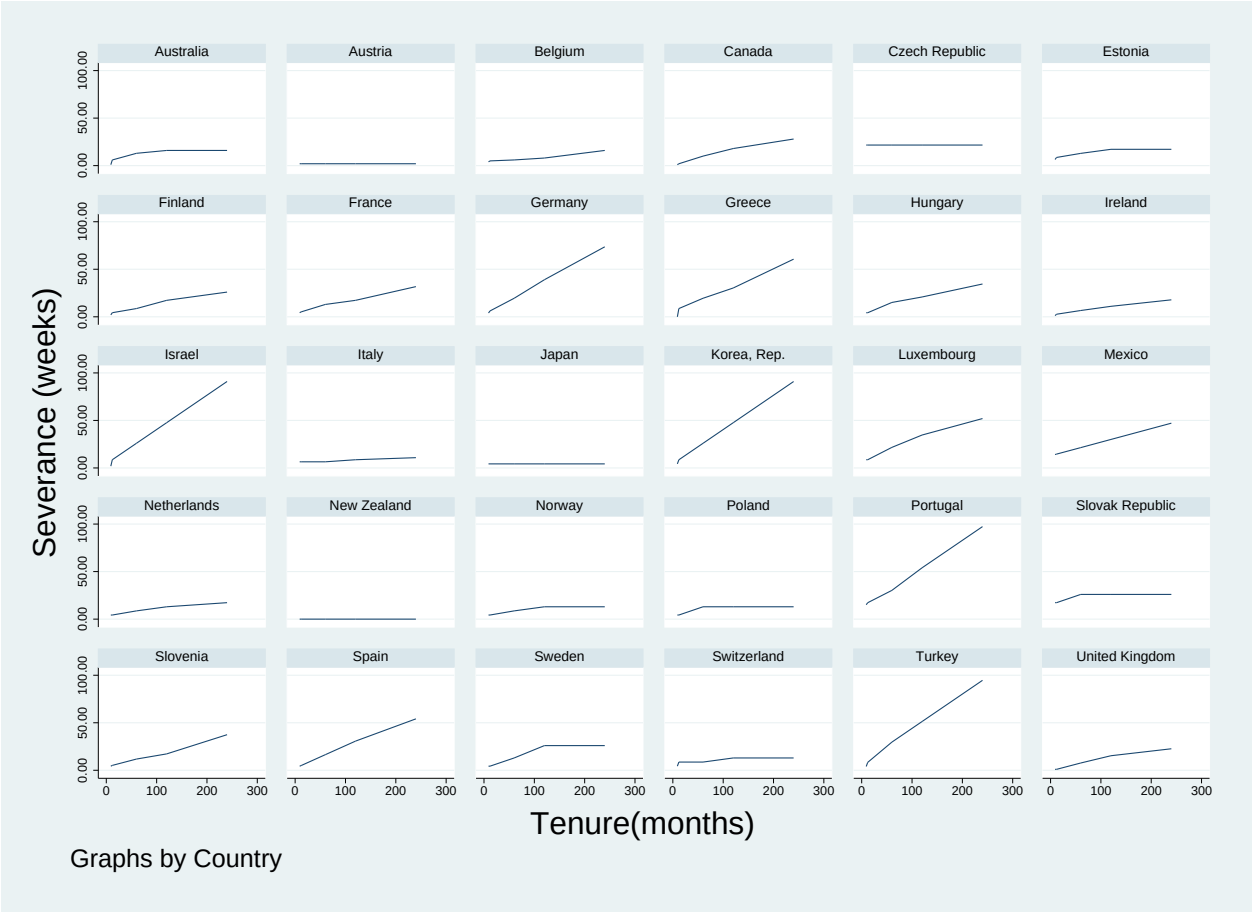
Country	T_U	T_F^E	T_F^D	$T_U - T_F^E$	$T_F^E - T_F^D$	st.dev	Σ
Australia	13.90	3.80	1.00	10.10	2.80	4.71	0.41
Austria	20.29	4.00	4.00	16.29	0.00	7.06	0.44
CzechRepublic	19.99	3.50	2.00	16.49	1.50	7.65	6.58
Finland	20.00	6.00	6.00	14.00	0.00	6.06	1.28
France	27.67	7.40	2.00	20.27	5.40	10.72	6.68
Germany	43.58	17.00	7.00	26.58	10.00	12.77	2.49
Hungary	27.16	9.00	3.00	18.16	6.00	10.07	4.99
Italy	40.14	6.00	6.00	34.14	0.00	14.78	8.00
Japan	10.16	1.00	1.00	9.16	0.00	4.58	0.91
Luxembourg	18.20	12.00	6.00	6.20	6.00	3.58	1.75
NewZealand	12.49	0.50	0.50	11.99	0.00	5.19	0.62
Portugal	62.85	14.50	2.50	48.35	12.00	22.39	9.21
SlovakRepublic	27.79	7.00	3.00	20.79	4.00	10.41	6.64
Spain	36.50	12.50	0.50	24.00	12.00	11.98	6.71
Switzerland	9.00	3.00	3.00	6.00	0.00	2.60	0.84
UnitedKingdom	17.67	7.60	3.00	10.07	4.60	4.96	1.16

Notes: data are expressed in monthly wages.
Sources: EPLex; OECD (2013);

Severance Payments and Tenure

- Mandatory Severance Payments (SP) vary with tenure.
- We calculate the elasticity of SP to tenure at different periods
- The elasticity of SP to tenure varies across countries.

Severance Payments and Tenure



Exemptions for Small Firms

Most countries allow for lower severance for small firms in case of unfair dismissals.

- Italy: art.18 does not apply in firms with less than 15 employees.
- Germany: reinstatement in case of unfair dismissal cannot be imposed by the judge in firms with less than 5 employees
- Australia: no redundancy has to be paid by enterprises with fewer than 15 employees
- Luxembourg: firms with less than 15 employees can choose additional notice in lieu of severance payments

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Basic model setup

- Partial equilibrium: One worker and one firm (risk neutral) with a two periods job. No discounting
- In the beginning of period 1, the firm proposes a wage contract (w_1, w_2), and the worker accepts or rejects
- In period 1 the worker faces a specific investment opportunity at costs C.
- Without investment, output per period is y.
- With investment, productivity in the second period will be $y_2 = y + \varepsilon$, with ε stochastic from $F(\varepsilon)$; support $\varepsilon \in [\varepsilon_l, \varepsilon^u]$ with $\varepsilon_l < 0$.
- The worker's outside option is $b > y$.
- Only the firm observes y_2, and only the worker observes investments

Disciplinary versus Economic Dismissal

- **Disciplinary Dismissal**. Dismissal of a shirking worker that did not invest. Must be proved in Court
  - With probability $1 - q$ the court observes shirking, no severance payment is due
  - With probability q a shirking worker "gets away with it" and receives T.
- **Economic Dismissal**. The worker did invest, but is fired due to low productivity (bad luck). Receives severance T with probability 1
- The severance T is set by the government and is a pure transfer. The firm can not commit to a severance payment.

Why firms cannot contract over T

Unmodelled problem of *adverse selection*. Suppose there are 2 types of workers; ordinary workers and shirkers, with $C = \infty$. The fraction of "shirkers" is strictly positive. The firms cannot distinguish between shirkers and ordinary workers. If all firms offer (w_1, w_2, T), where $T > 0$, there can be a firm deviating and offering $(w_1, w_2', T' - \epsilon)$, where $w_2' > w_2$ for any ϵ arbitrarily small there is w_2' so that ordinary workers strictly prefer the new contract and shirkers strictly prefer the old contract.

Separation

- A shirking worker is always fired
- The (ex post) profit-maximizing firing rule: fire if $y_2 < w_2 - T$, or equivalently, if $\varepsilon \leq \varepsilon_d$ given by

$$\varepsilon_d = w_2 - y - T$$

- The optimal firing rule that maximizes joint income (worker and firm): fire if $y_2 < b$, or equivalently, if $\varepsilon \leq \varepsilon^*$ given by

$$\varepsilon^* = b - y$$

- Optimal firing requires that $\varepsilon_d = \varepsilon^*$, which holds iff $T = w_2 - b$

Optimal contract

- Incentive compatibility

$$(1 - F(\varepsilon_d))w_2 + F(\varepsilon_d)(b + T) - C \geq b + qT$$

- Incentive compatibility thus requires that

$$w_2 = b + \frac{C + [q - F(\varepsilon_d)]T}{1 - F(\varepsilon_d)}$$

- The worker's participation constraint pins down w_1

Optimal severance pay

- Without severance pay, $w_2 > b$, and we have too much firing
- Optimal separation requires that $T = w_2 - b$, which inserted into the icc gives

$$T^* = \frac{C}{1-q} \qquad\qquad q < 1$$

- The easier it is to get away with shirking, the higher the period 2 wage and the higher the severance pay has to be

To Sum Up on Efficiency:

Proposition

1. *With no severance pay, workers are laid off too frequently*
2. *If $q = 1$ (shirkers always get severance pay) the optimal severance pay is undefined and there is no welfare loss of setting $T = 0$.*
3. *For all other values of q, the optimal severance pay is strictly positive and given by*

$$T^* = \frac{C}{1-q} > 0$$

Firm Size, Judicial Systems and Severance Payment

- Monitoring workers behavior is easier in small firms; thus, getting away with it is easier in large firm ($q_{small\ firms} < q_{large\ firms}$)
- Larger q requires larger severance payments
- Countries with a more efficient legal systems should have a higher q

Hence, SP should be larger in larger firms, and lower in countries with a reliable legislative system

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Extension to n periods

- Per period investment cost C_{t-1}, probability of getting away with it q_t
- Let W_t, B_t and S_t be the expected NPV of non-shirker, outside option and match surplus (function of ε_t), ε_t^* the optimal threshold at t. Efficient separation requires for the last period,

$$\begin{aligned} \varepsilon_n^* &= b_n - y \\ ES_n^* &= \int_{\epsilon_n^*}^{\varepsilon^u} (y + \varepsilon_n - b_t) f(\varepsilon_t) d\varepsilon_t \end{aligned}$$

All earlier periods

$$\begin{aligned} \varepsilon_t^* &= b_t - y + C_t - \beta ES_{t+1}^* \qquad (2) \\ ES_t^* &= \int_{\epsilon_t^*}^{\varepsilon^u} (y + \varepsilon_t - b_t - C_t) f(\varepsilon_t) d\varepsilon_t + (1 - F(\varepsilon_t^*)) \beta ES_{t+1} \end{aligned}$$

Let ER_t be expected rent of continuing the relationship for the worker in period t. It follows that $ER_t = EW_t - B_t$. Efficient time profile of severance implies

$$R_t = T_t = \frac{C_{t-1}/\beta}{1 - q_t} \qquad (3)$$

Severance and tenure

Proposition

The optimal severance pay in period t is given by (3). It is increasing in the investment cost in the previous period, and in the probability of getting away with it if shirking. It does not depend on investment costs and probability of being caught in any other periods.

Hence optimal severance increasing with tenure if q_t is increasing with tenure or C_t is increasing with tenure. Both reasonable.

Wage profiles

Suppose $C_t = C_0 + t\Delta$
The wage is given by

$$w_0 = b_0 - C_0 \frac{q}{1-q}$$

$$w_t = b_t + C_0 + (t-1)\Delta - \frac{q}{1-q}\Delta$$

$$w_n = b_n + \frac{C_0 + (n-1)\Delta}{1-q}$$

Hence wages increasing over tenure with the same amount as increase in per period investment costs. In the last period, the worker gets a large bonus, and this drags down wages in all earlier periods. Alternatively, costs constant but q increasing.

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Burden of Proof and Endogenous "q"

- Court observes productivity at time 2 and knows distribution of y with and without investment
- Investment in period 1 shifts y distribution by Δ.
- distribution of y in period 2 for a *shirking* worker is uniform between α and β so that

$$X^S \sim U[\alpha; \beta], \tag{4}$$

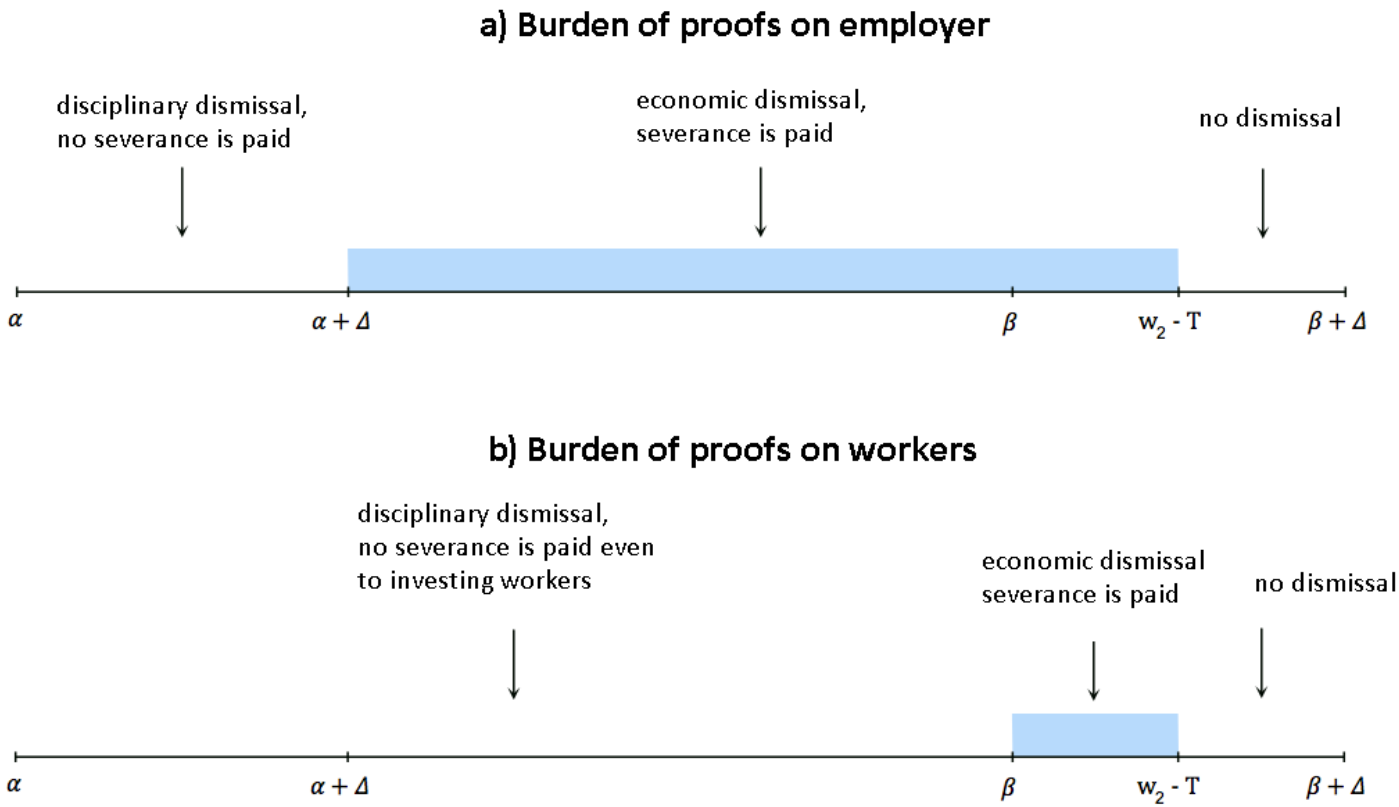
  where X^S is actual productivity in period 2 for a shirker.
- productivity in period 2 for an *investment* worker is shifted to the right by a factor Δ so that

$$X^I \sim U[\alpha + \Delta; \beta + \Delta], \tag{5}$$

- we assume that support of the 2 distributions has an area of overlap so that

$$\Delta < \beta - \alpha \tag{6}$$

Court decisions



Endogenous q and Optimal Severance

- Efficient severance payment requires

$$T = \frac{C}{1-q} = \frac{C(\beta - \alpha)}{\Delta} \tag{7}$$

- from which it follows that $q = 1 - \frac{\Delta}{\beta - \alpha}$
- this corresponds exactly to the probability that a shirking worker gets away with it, either because he is fired with severance payments or because he is retained in period 2

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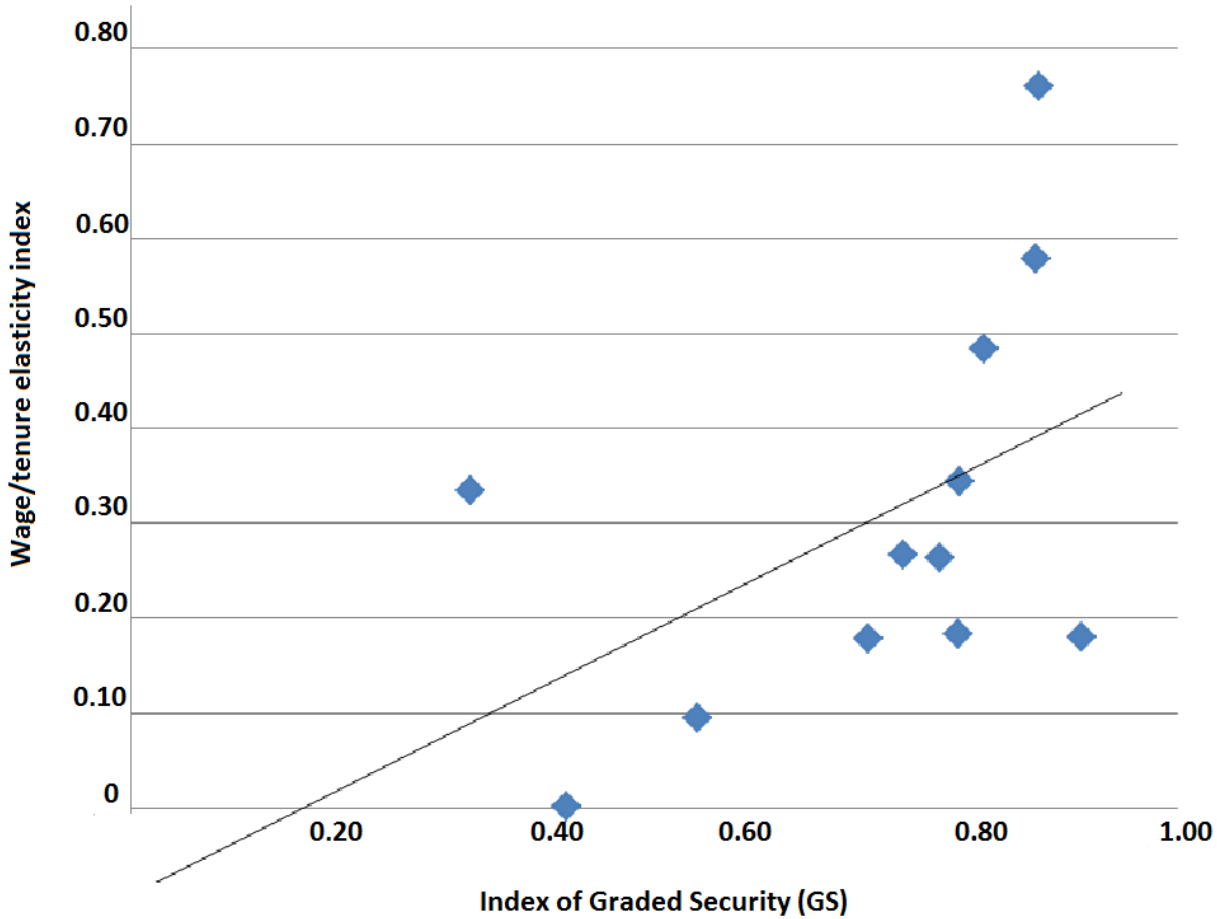
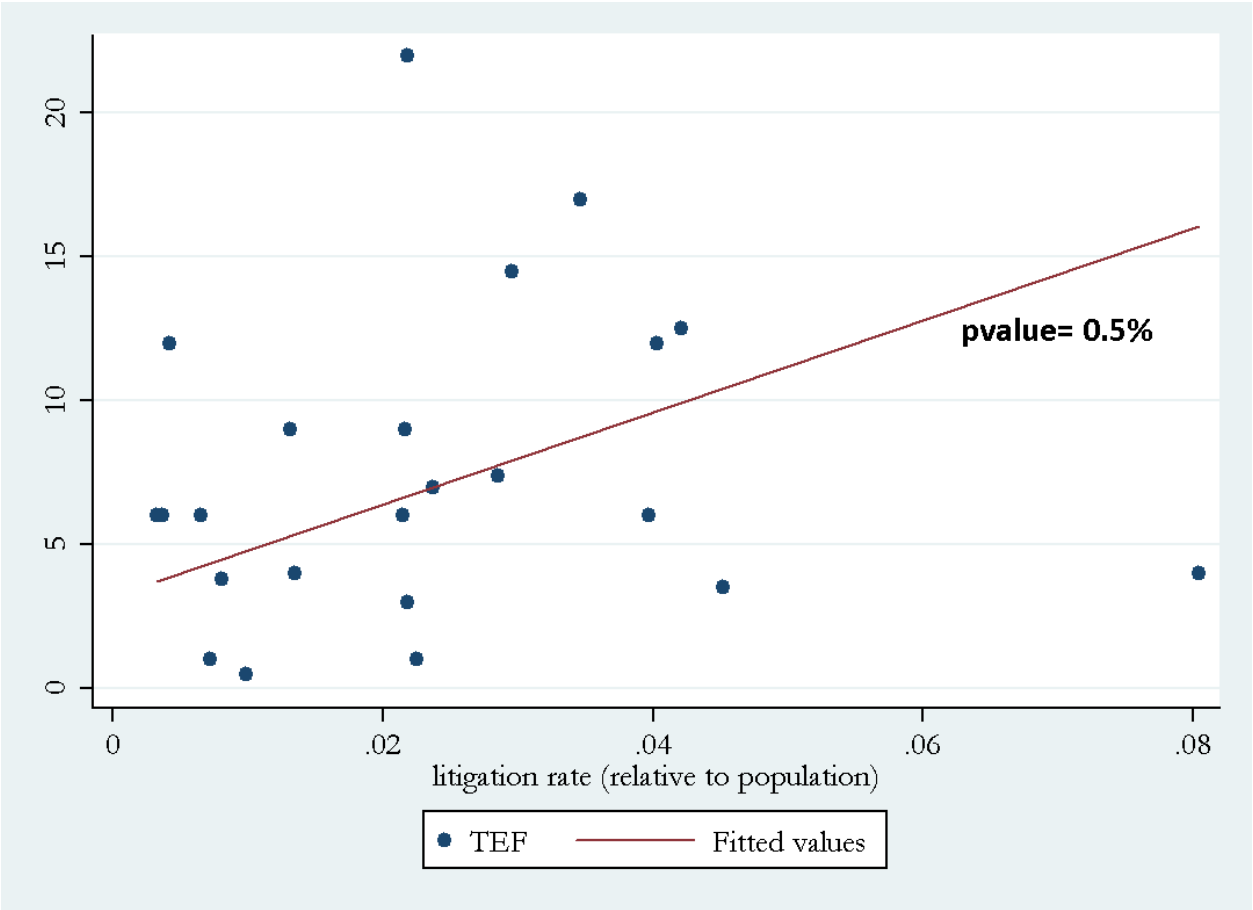
Implications

- In countries with steeper wage tenure profile, SP should be more correlated with tenure
- In countries with less efficient legal system (higher q), SP should be higher

Implication I: Severance-Tenure and Wage-Tenure Profile



Implication II: Compensation for Dismissal and Judicial Efficiency



Summary of Results

- When there are wage deferrals, severance payments can prevent inefficient firing for senior workers
- In the baseline model with moral hazard in disciplinary dismissals, firing is ex-post too high vis-a-vis efficient separations
- Severance Payments are not neutral, can reduce firing and induce workers investment.
- Extension to n periods:
  - If workers need to repeatedly invest on the job
  - Severance payments increasing over time are efficient
- Policy proposals increasing SP with tenure should be taken seriously!

- Extension to n periods:
  - If workers need to repeatedly invest on the job
  - Severance payments increasing over time are efficient
- Policy proposals increasing SP with tenure should be taken seriously!
- Endogenous probability that a shirker can "'get away with it"' receiving severance or even being retained

Appendix I

Apparent Elasticities at different tenure lenghts

	Apparent Elasticities					GS Index
	at 9 months	at 12 months	at 60 months	at 120 months	at 240 months	
Australia	1.00	3.33	0.67	0.38	0.00	0.31
Canada	1.00	2.00	1.00	0.89	0.71	0.84
Czech Republic	0.60	0.00	0.00	0.00	0.00	0.02
Finland	1.00	2.15	0.63	1.00	0.67	0.77
Germany	0.00	1.41	0.85	1.00	0.94	0.91
Greece	*	4.00	0.69	0.71	1.00	-
Hungary	0.00	0.00	0.90	0.55	0.79	0.71
Italy	0.00	0.00	0.00	0.50	0.40	0.33
Luxembourg	0.00	0.00	0.75	0.75	0.67	0.67
Poland	0.01	0.00	0.83	0.00	0.00	0.17
Portugal	1.00	0.50	0.54	0.88	0.89	0.82
Slovak Republic	0.50	0.00	0.42	0.00	0.00	0.10
Spain	0.51	0.57	0.87	0.93	0.87	0.87
Switzerland	1.00	2.00	0.00	0.67	0.00	0.23
United Kingdom	0.00	0.00	1.09	1.00	0.65	0.79

Appendix II

Compensation for dismissal

Country	Severance Economic at20y,Fair	Severance Disciplinary at20y,Fair	Typical Compensation at20y,Unfair	Maximum Notice
Australia	2.8	0	6	1
Canada(Federal)	2.3	0	Court	2
CzechRepublic	1.5	0	6	2
Finland	0	0	14	6
Germany	10	0	15.5	7
Hungary	6	0	12	3
Italy	0	0	21	6
Luxembourg	6	0	6	6
Poland	3	0	3	3
Portugal	12	0	20	2.5
SlovakRepublic	4	0	6	3
Spain	12	0	24	0.5
Switzerland	0	0	6	3
UnitedKingdom	4.6	0	5.5	3
United States	0	0	Court	0

Sources: EPLex; OECD (2013)

Appendix III

	Judicial System			
Country	Reinstatement Option	Appeal rate (per 100 citizens)	lenght of trial, first instance, months	Burden of Proof
Australia	1	0.77	6.42	e
Canada(Federal)	1	-	-	e
CzechRepublic	3	74.02	4.49	w
Finland	0	4.47	7.31	e
Germany	1.5	3.81	6.65	e
Greece	2	38.49	5.17	e
Hungary	1	24.55	6.67	w
Italy	1	29.31	18.81	e
Luxembourg	0	23.89	8.75	e
Poland	1	28.86	5.55	e
Portugal	2.5	16.93	14.15	e
SlovakRepublic	2.5	40.75	11.81	w
Spain	0	31.38	9.07	e
Switzerland	0	10.43	4.36	w
UnitedKingdom	1	5.47	8.34	e
United States	0.5	-	-	e

Sources: EPLex; OECD (2013); [b]CEPEJ (2012)

Appendix IV Baseline Value Functions

- PDV Worker who does *not* invest

$$W_{(s=0)} = w_1 + b + qT$$

- PDV Worker who invests

$$W_{(s=1)} = w_1 - C + (1 - F(\varepsilon_d))w_2 + F(\varepsilon_d)[b + T]$$

where $F(\varepsilon_d)$ is the dismissal probability

- Firm's expected profits if the worker invests are

$$\Pi_{1(s=1)} = y - w_1 + \int_x Max[y + x - w_2; -T]dF(x)$$

Reservation Productivity

$$\Pi_2(\varepsilon) = Max[y + \varepsilon - w_2; -T].$$

$$\varepsilon_d = w_2 - y - T \tag{8}$$

Firing increases with wages while it decreases with productivity and severance payment