The Economics of Tenure Related Severance Pay

Tito Boeri
based on joint research with Pietro Garibaldi and Espen R. Moen

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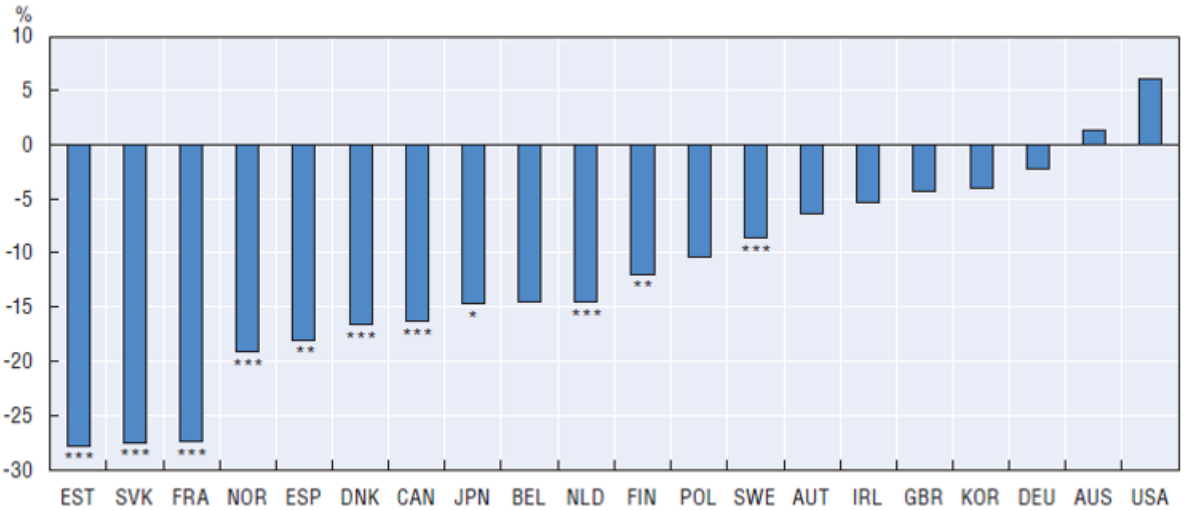
Outline

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

Temporary Contracts and On-the-job Training

Figure 4.14. **Temporary workers and employer-sponsored training**

Estimated percentage effect of temporary contract status on the probability of receiving employer-sponsored training, 2012



Note: Estimated percentage difference between temporary and permanent workers in the probability of having received training paid for or organised by the employer in the year preceding the survey, obtained by controlling for literacy and numeracy scores and dummies for gender, being native, nine age classes, nine occupations, nine job tenure classes and five firm size classes. Data are based only on Flanders in the case of Belgium and England and Northern Ireland in the case of the United Kingdom.

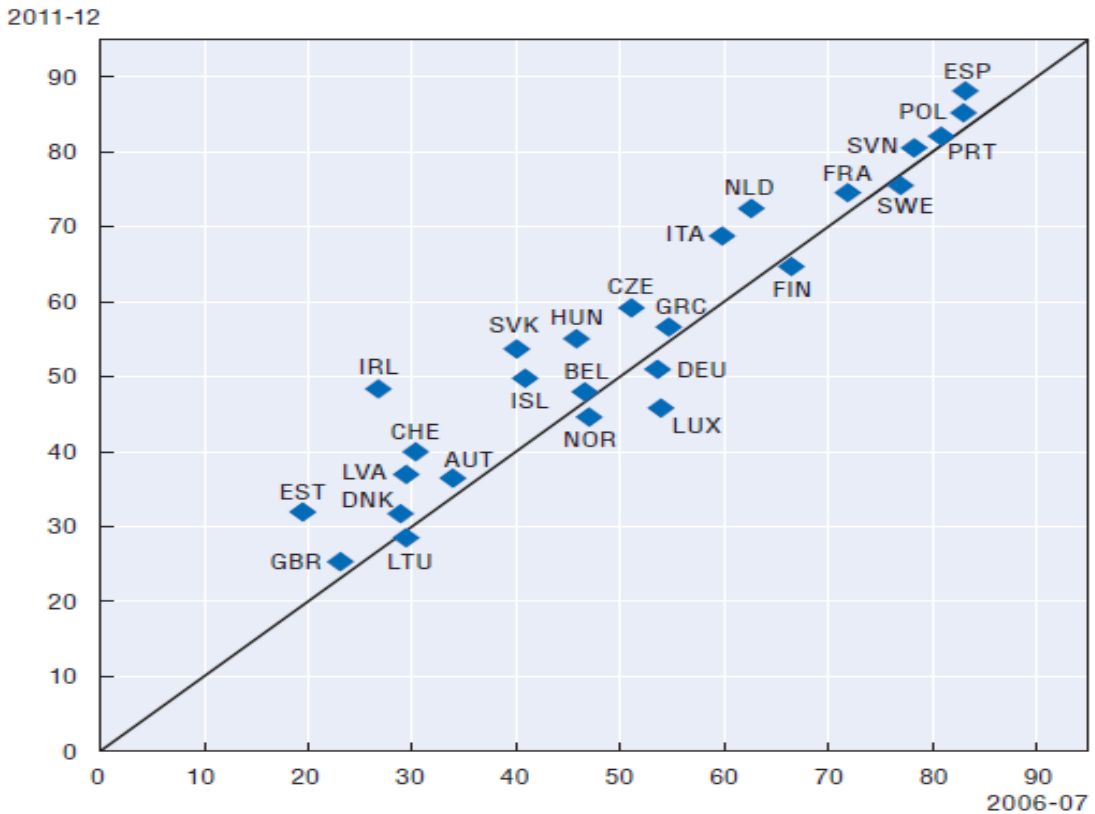
***, **, *: significant at the 1%, 5%, 10% level, respectively – based on robust standard errors.

Source: OECD Survey of Adult Skills (PIAAC) 2013, *http://dx.doi.org/10.1787/9789264204256-en*.

Increasing Contractual Dualism

Figure 4.1. **Fixed-term contracts among new hires, 2006-07 and 2011-12**

Percentage of employees with no more than three months of tenure



Source: OECD calculations based on microdata from the European Union Labour Force Survey (EU-LFS).

The lobby of the (labour) economists

- Economists proposing long term contract with SP increasing with tenure to reduce duality
- France: Cahuc and Kramarz; Blanchard and Tirole; Spain: Bentolila, Garicano and other 30 economists
- *(Boeri-Garibaldi, Un Nuovo Contratto per Tutti, Chiarelettere, 2008).*
- Parliament/Governments considering them seriously (Italian delegation law approved by lower Chamber explicitly envisages a new open-ended "contract with graded security")
- What is the economics of these proposals? Do they make economic sense?

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Severance Payments and Employment Protection Legislation (EPL)

- Most countries have legally mandated Severance Pay (SP). Pure transfers for *employer initiated* separation
- SP accounts 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 mandatory transfers for *individual dismissals* binding for all employers in that industry

Do Severance Payments Matter?

Large literature on EPL. Mostly treated as a firing tax (Bentolila-Bertola, 1990) rather than as a transfer. No rationalization of SP

- Under *flexible wages*, SP are **neutral** on employment and prepaid by workers (Lazear, 1990)
- Under downward *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 Research

When do we need Severance Pay?

- General result. If wages are deferred, firms will have too strong incentives 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
- Ask whether efficient SP should be increasing with tenure

Key Definitions: Economics, Disciplinary, Fair and Unfair

- Severance Payments are mandatory **transfers** for *firm initiated* job separation.
- **Disciplinary dismissals** are related to workers 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. Third party involvement is unavoidable

Measures across countries

Institutional details on severance (and notice) for fair dismissals. Problem in estimating costs of **unfair dismissals (T_U):** when reintegration is involved

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

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

- Based on various sources, we calculate T_U , T_F^E (Fair Economic) and T_F^D (Fair Disciplinary)
- Large standard deviation across the three measures (stochastic nature SP)
- T_U is the largest, and $(T_U - T_F^E) \geq 0$ and $(T_F^E - T_F^D) \geq 0$

Compensation in fair/unfair dismissals

Table: Severance,nature of dismissal and discretion of judges

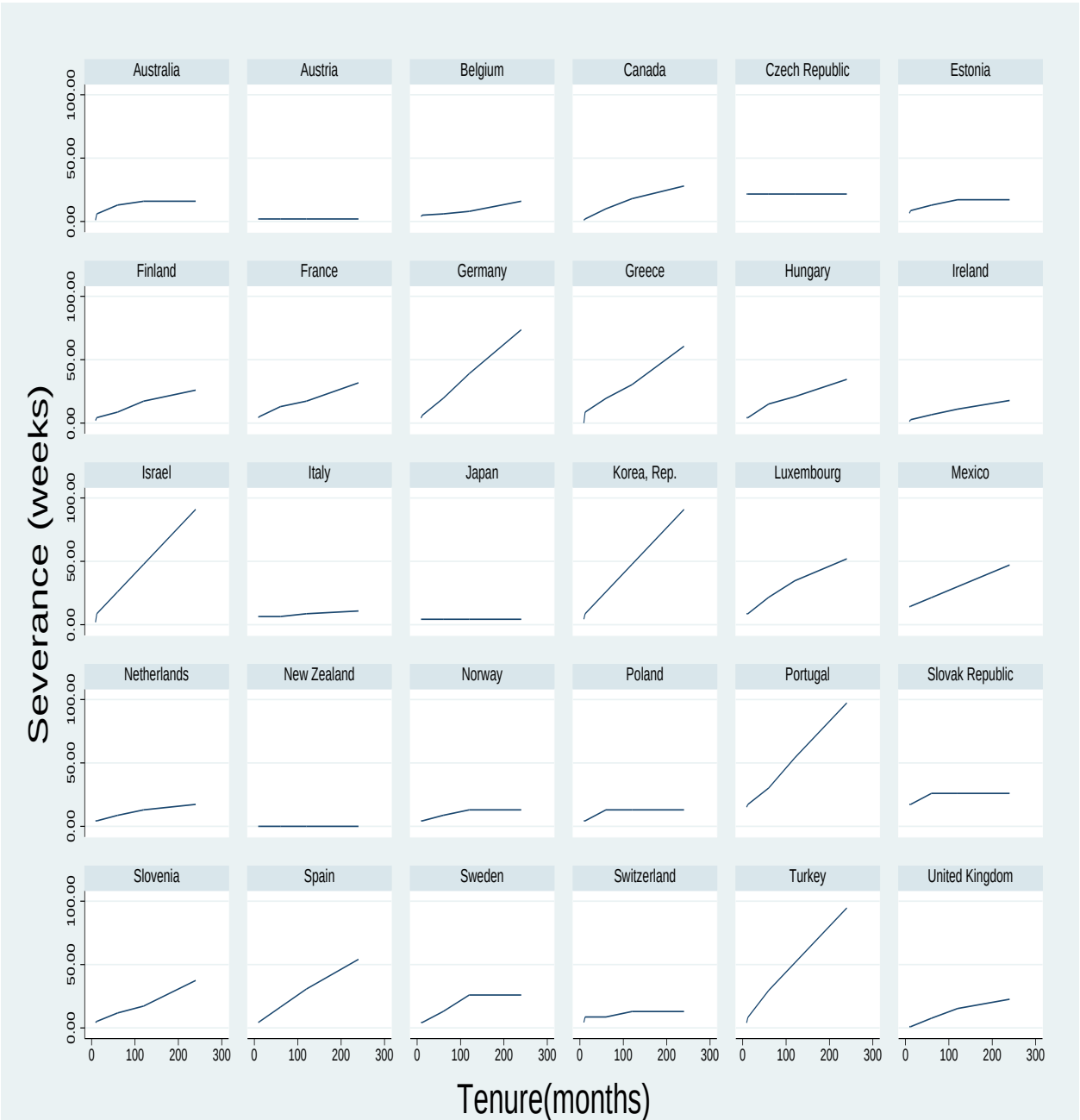
Country	T_U	T_F^E	T_F^D	$T_U - T_F^E$	$T_F^E - T_F^D$	st.dev	Σ
Australia	13.90	3.80	1.00	10.10	2.80	4.71	0.41
Austria	20.29	4.00	4.00	16.29	0.00	7.06	0.44
CzechRepublic	19.99	3.50	2.00	16.49	1.50	7.65	6.58
Finland	20.00	6.00	6.00	14.00	0.00	6.06	1.28
France	27.67	7.40	2.00	20.27	5.40	10.72	6.68
Germany	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 Pay and Tenure

- Mandatory Severance Pay varies with tenure.
- We calculate the elasticity of SP to tenure at different periods
- The elasticity of SP to tenure varies across countries.
- In 25/30 countries, SP increases with tenure
- Including advance notice into SP, only two countries pay same compensations at all tenure levels.

Severance Pay 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
- At 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 **risky** investment opportunity at costs C.
- Without investment, output per period is y.
- The worker's outside option is $b > y$.
- 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 $\varepsilon_l < 0$.
- **Asymmetric Information**: Only the firm observes y_2, and only the worker observes investment

Disciplinary versus Economic Dismissal

- **Disciplinary Dismissal**. Dismissal of a shirking worker that did not invest. Must be proved in Court
  - With probability q a shirking worker "gets away with it" and
  - With probability $1-q$ the court observes shirking, no severance payment is due 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.

Separation at $t = 2$

- A shirking worker is always fired ($b > y$)
- At given wage w_2, the (ex post) profit-maximizing firing rule: fire if

$$y_2 - w_2 \leq -T$$

$$Net\ Profit\ \leq SP$$

Or choose a reservation productivity $\varepsilon \leq \varepsilon_d$ given by

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

- Efficiency requires that any job with positive surplus ($y_2 - b > 0$) be kept in place.
- Efficient separation : fire if $y_2 < b$, or equivalently, if $\varepsilon \leq \varepsilon^*$ given by

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

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

w_2 and w_1 in the optimal contract

- Incentive compatibility through w_2: Worker invests iff

$$\textit{Expected Utility from working} \geq \textit{Expected Utility if fired}$$

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

- Incentive compatibility thus requires that

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

- w_2 solves the incentive problem! Can not solve also the inefficient separation
- 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

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

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

Why firms cannot contract over T?

- With workers' heterogeneity there is an adverse selection probelm
- Unmodelled problem of *adverse selection*. 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.
- We need a coordination device across firms (State, Collective agreements)

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 considered easier in small firms; thus, getting away with it is may be easier in large firm ($q_{small\ firms} < q_{large\ firms}$)
- Countries with a more efficient judicial systems should have a lower q and lower SP.

Hence, SP should

- larger in larger firms,
- lower in countries with a reliable judicial system

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Extension to n periods

- Per period investment cost C_{t-1}, probability of getting away with it q_t. They change every period.
- The job lasts n periods
- The model can be solved backward. Last period identical to the 2 periods model
- All earlier periods...math is more complicated...but

Severance and tenure

$$R_t = T_t = \frac{C_{t-1}/\beta}{1 - q_t} \tag{2}$$

where β is the discount factor

Proposition

The optimal severance pay is increasing in the investment cost in the previous period C_{t-1}, and in the probability of getting away with it if shirking q_t. It does not depend on investment costs and probability of being caught in any other periods.

Hence optimal SP increasing with tenure if any of the following holds

- C_t is increasing with tenure (marginal cost of effort increases with tenure)
- q_t is increasing with tenure (higher leniency toward senior workers)
- 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.

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General Equilibrium

- Endogenous outside option, b
- Labor market with search frictions (Mortensen and Pissarides, 1994), with a constant return to scale matching function $x(u, v)$, u is unemployment and v vacancies
- Firms advertize wages (Rents) as in Moen (1997). Post vacancies and wages attached to them.
- Firms post wages/rents/contract at time 0.

$$b = z + p(\theta)\beta R_0 \tag{3}$$

where z denotes the income during unemployment (home production or unemployment benefits), and $p(\theta)$ is the job finding probability

General Equilibrium II

- A firm chooses the contract so as to maximize profits given the incentive compatibility constraint of the worker.

Proposition

Suppose that the severance pay is given by the partial equilibrium result with n periods. Suppose further that z reflects both the private and the social flow value of being unemployed. Then the general equilibrium allocation is efficient, independently of z and of matching efficiency

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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

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

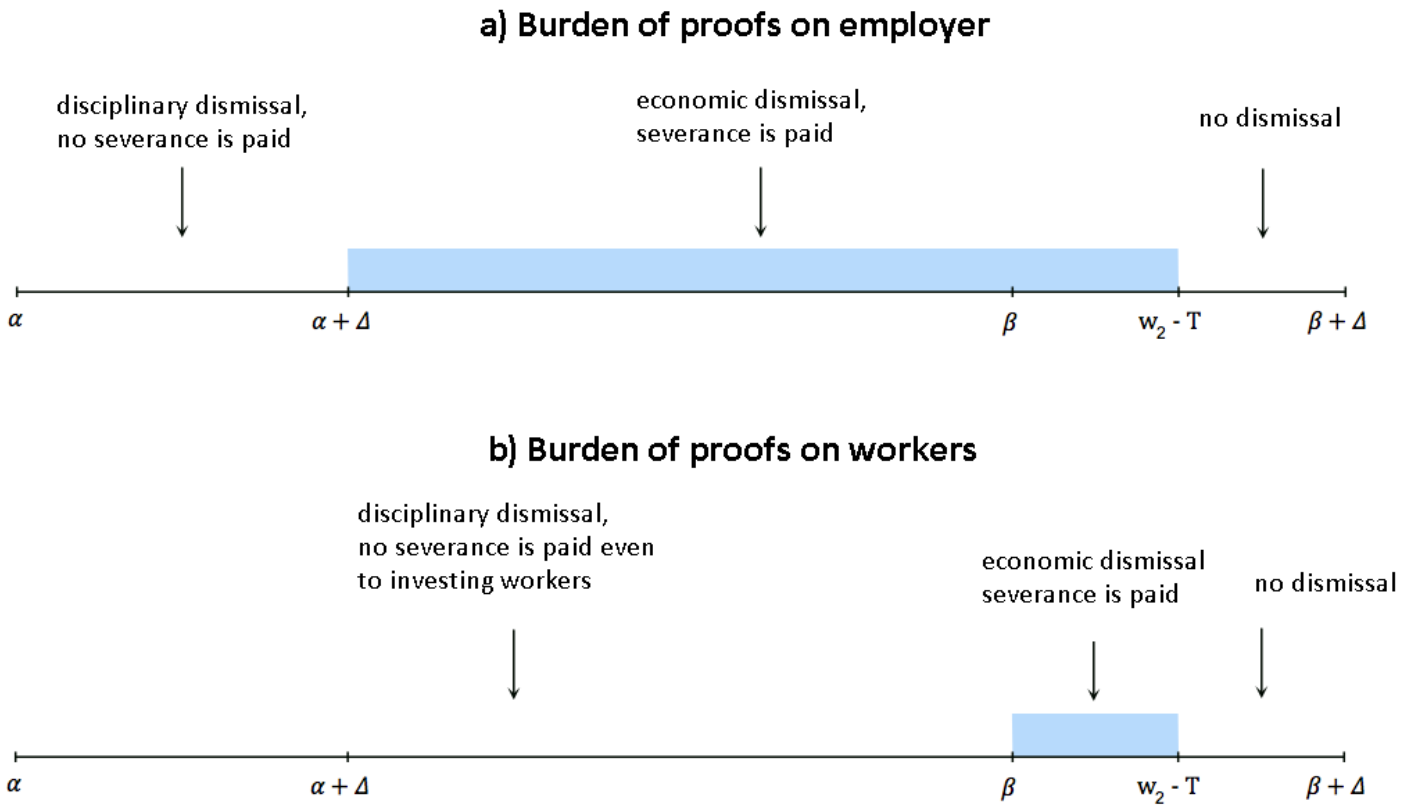
  where X^S is actual productivity in period 2 for a shirker.
- productivity in period 2 for an *investment* worker is shifted to the right by a factor Δ so that

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

- 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 $q = 1 - \frac{\Delta}{\beta - \alpha}$
- When the burden of proof is on the employer, this corresponds exactly to the probability that a shirking worker gets away with it, either because i) he is fired with severance payments or because ii) he is retained in period 2

Firm's Moral Hazard and T_U (Unfair Dismissal)

- When burden of proof is on the worker, the firm has incentive to ''pretend" that most firings are due to workers' misconduct, so as to avoid severance payment for economic reasons
- There is a moral hazard on the part of the firm
- If the court monitors at rate λ and imposes a fine T_U to unfair dismissals, incentive compatibility implies

$$T_U = \frac{T}{\lambda} > T$$

- Severance for unfair dismissal should be larger than for economic (fair) dismissals and disciplinary dismissals.

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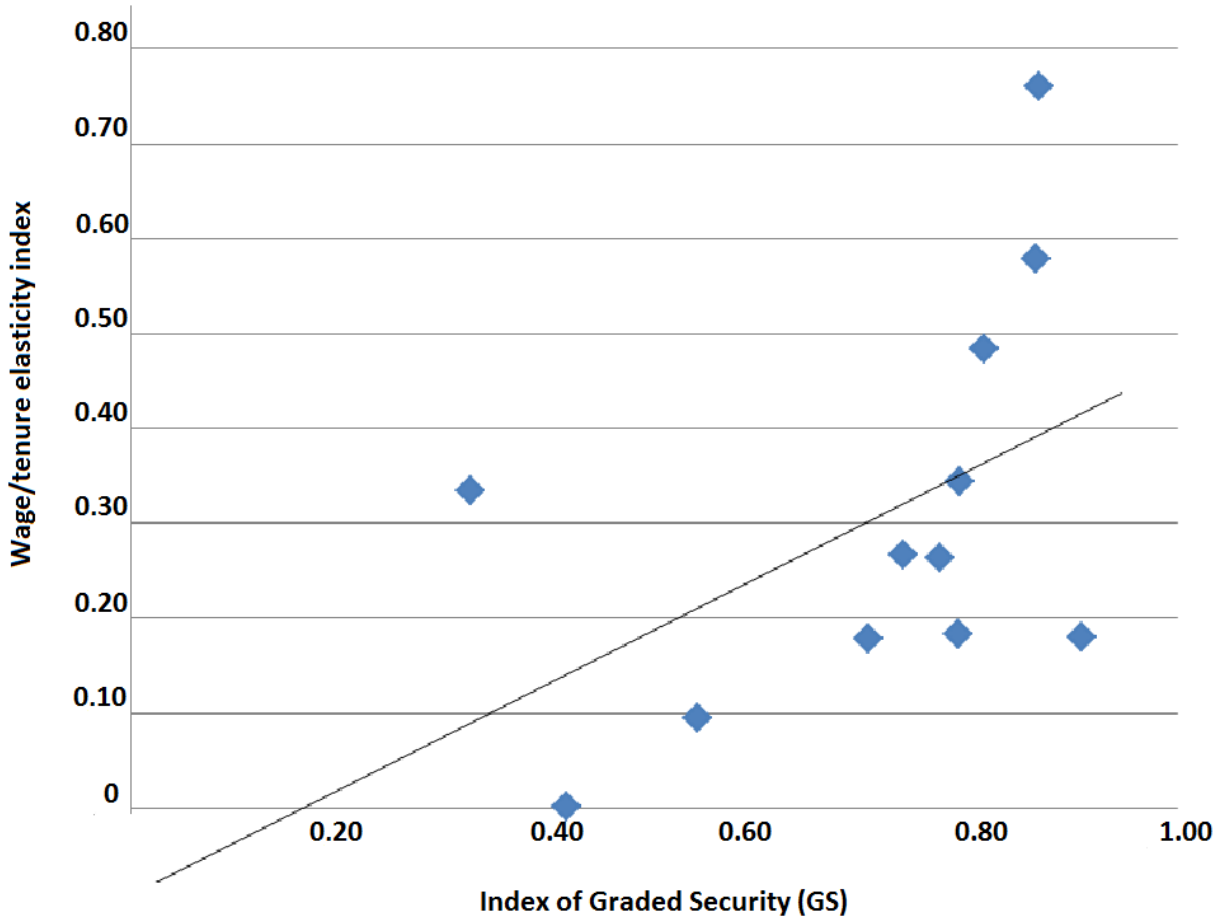
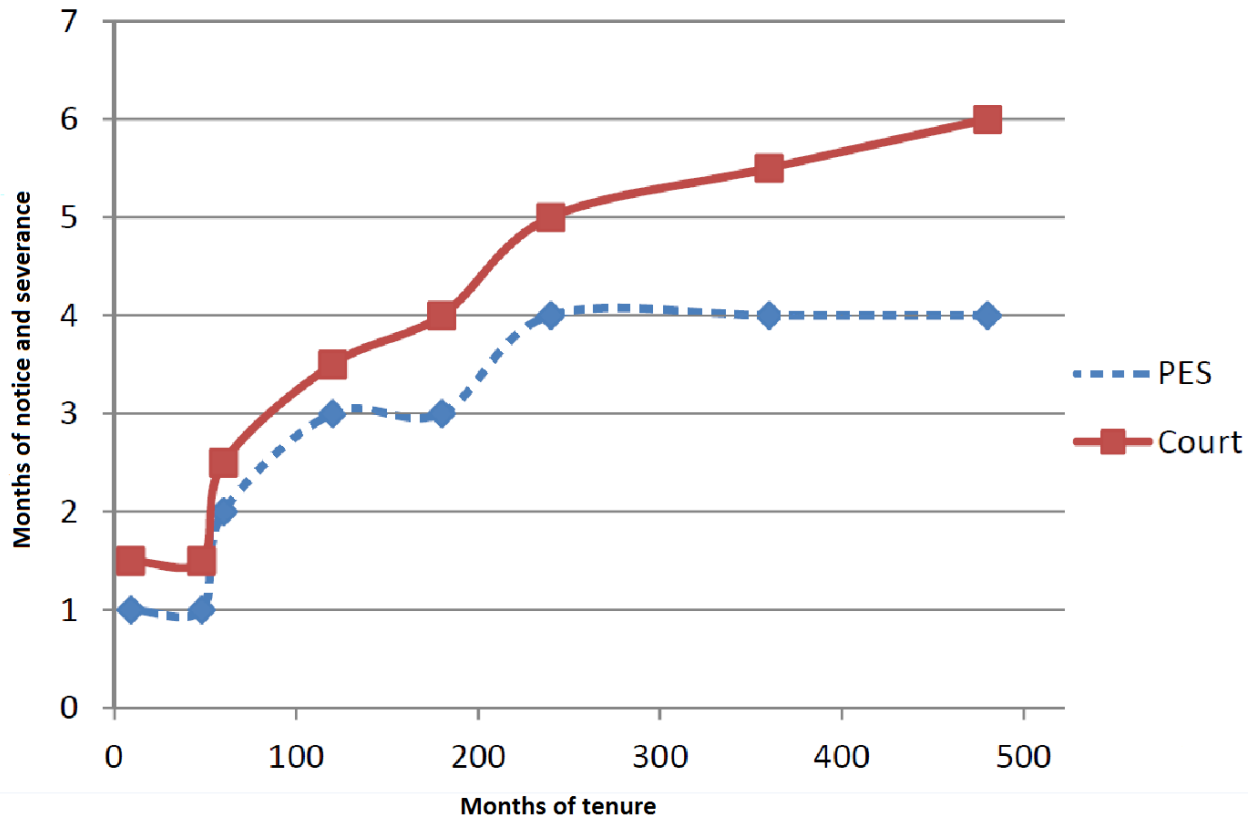
Implications

- In countries with steeper wage tenure profiles (increasing C), SP should be more correlated with tenure
- In countries with less efficient judicial system (higher q), SP should be higher

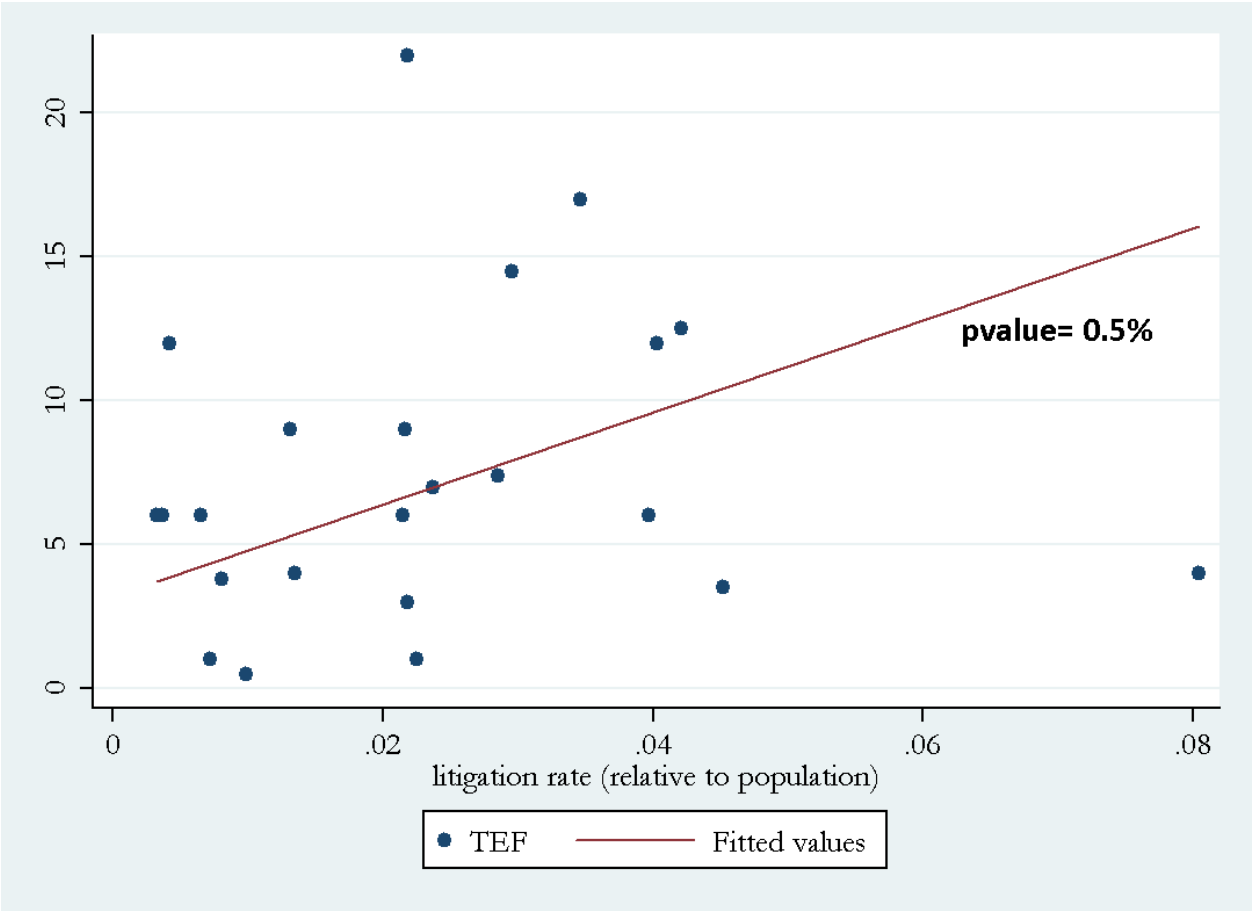
Implication I: Severance-Tenure and Wage-Tenure Profile



Implication I: SP-tenure profile and q Dutch case



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 without distorting workers' investment decisions.
- 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 (*contratto a tutele crescenti*) should be taken seriously!

Furthermore

- Model rationalizes why SP should be smaller in smaller firms
- Burden of proof important. With burden on the firm, shirkers can "'get away with it"'
- Beyond the blackbox of judicial systems
- Optimal severance is increasing in inefficiency of judicial systems; reforming justice is reform of the labor market!
- Evidence on cross-country variation of SP and efficiency judiciary (according to OECD) in line with the model