

An Economic Analysis of Dismissal Legislation: Determinants of Severance Pay in West Germany

Laszlo Goerke (P 8)

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Vortrag auf dem 9. Arbeitstreffen des DFG_Schwerpunktprogramms
"Flexibilisierungspotenziale bei heterogenen Arbeitsmärkten"

"We investigate the incidence and level of severance pay for dismissed employees. Our theoretical model predicts that not only the law and its interpretation by labour courts but also the costs of a suit have an impact. Using West German panel data for 1991-2006, we find that the employees' costs of a suit and the legal determinants of such transfers affect the incidence of severance payments. In contrast, their level only varies with legal regulations. Our results imply that the strictness of EPL in Germany varies with extra-legal factors like financial constraints of employees."

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Our Question:

What determines the incidence and level of severance pay in Germany – only the legal situation or are there also extra-legal determinants?

→ Law on the books versus (?) law in action

→ Severance pay strongly determines dismissal costs

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Related Literature:

- EPL and legal process

(Ichino et al. 2003, Malo 2000, Malo/ Pérez 2003, Goerke/ Pannenberg 2008)

- EPL and legal error

(Galdón-Sánchez/ Güell 2003, Stähler 2008, Huang et al. 2008)

- Severance Pay in Germany

(Grund 2006a, b, Jahn 2005, Goerke/ Pannenberg 2008, Pfarr et al. 2005, Höland et al. 2007)

Overview of Presentation

1. (Legal Background)
2. Outline of Model
3. (Comparative Statics)
4. Data
5. Descriptive Evidence
6. Regression Results
7. Summary

1. Legal Background

- German Civil Code ('BGB', § 622)

→ notice periods increasing with **tenure**

- Protection Against Dismissal Act (PADA, 'Kündigungsschutzgesetz')

→ applies in all firms with basically more than 10 employees

→ dismissal is invalid unless there is/are

(1) personal misconduct,

(2) a lack of individual capabilities (including sickness),

(3) compelling operational reasons, including redundancies

In case (3), employees to be dismissed have to be selected in accordance with criteria such as **age**, **tenure**, the extent of **alimony duties**, and of **individual disabilities**.

→ Dismissed employees can contest dismissal at labour court.

- Protection Against Dismissal Act (ctd.)

- Courts can only award severance pay in special circumstances. In most cases, no verdict results, but the court tries to obtain a mutual agreement.
- There are **no court fees**, unless a judgement is passed. Each party bears own cost of legal representation, which is not obligatory.
- PADA establishes **ceilings** for severance payments due to a verdict:
 - general ceiling: 12 monthly wages
 - ceiling for employees with age ≥ 50 & tenure ≥ 15 yrs: 15 monthly wages
 - ceiling for employees with age ≥ 55 & tenure ≥ 20 yrs: 18 monthly wages
- Most courts use a **formula** for the calculation of severance pay:
Severance pay basically equals a multiple of **tenure** and the **monthly wage**.
Case-specific aspects are incorporated. In particular, severance payments decrease with the **reemployment probability** of a dismissed worker and rise with **age**, the extent of **pension entitlements forfeited** due to the job loss, **alimony payments**, and also **firm size**.

- Works Constitution Act ('Betriebsverfassungsgesetz')
→ requires involvement of works council (if it exists)

- Social Code IX

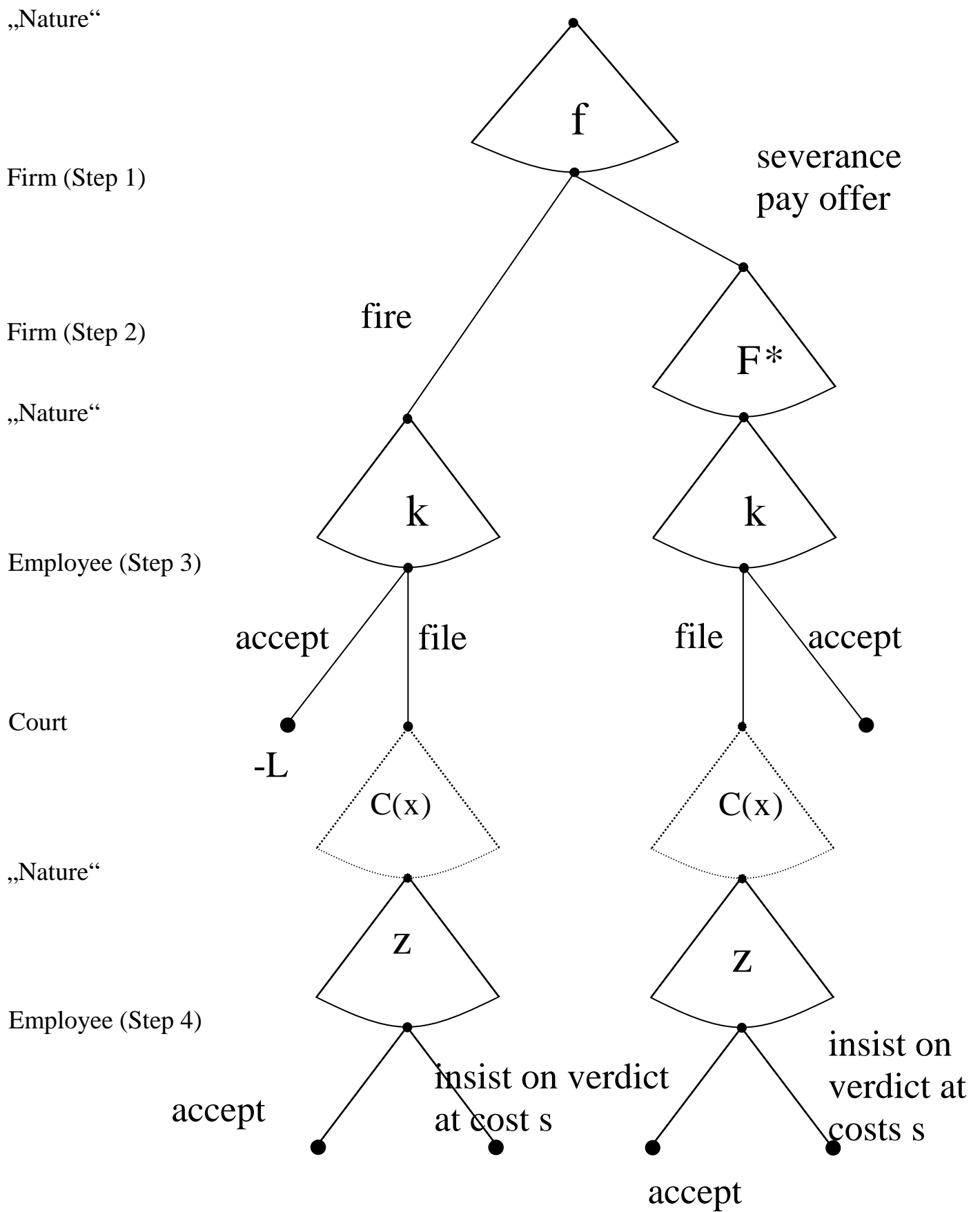
- establishes additional rights for disabled people

2. Outline of Model

Objectives:

- Capture all major outcomes of dismissal conflict as results of optimising behaviour.
- Generate insights about the impact of legal and extra-legal determinants of severance pay on its incidence and – conditional on a payment – on its level.

Figure 1: Sequence of Decisions



Variables:

f – firm's additional cost of making a severance pay offer F , $f \in [0, \bar{f}]$, $\bar{f} > 0$

k – employee's costs of filing a suit and of the ensuing court procedure,
 $k \in [\alpha, \bar{k} + \alpha]$, $\bar{k} > 0$, k becomes known after firm's decision, $E(\alpha) = 0$.

L – employee's cost of accepting a dismissal without severance pay, $L > 0$.

$C(x)$ – The severance pay proposal C of the court depends on the personal characteristics x of the employee and on firm features. $C'(x) > 0$
Court proposal during first phase of court procedure and final verdict coincide. $C(x)$ is public information.

z – employee's benefit from obtaining a verdict, $z \in [0, \bar{z}]$, $\bar{z} > 0$,
 z becomes known after the decision about filing a suit has been made.

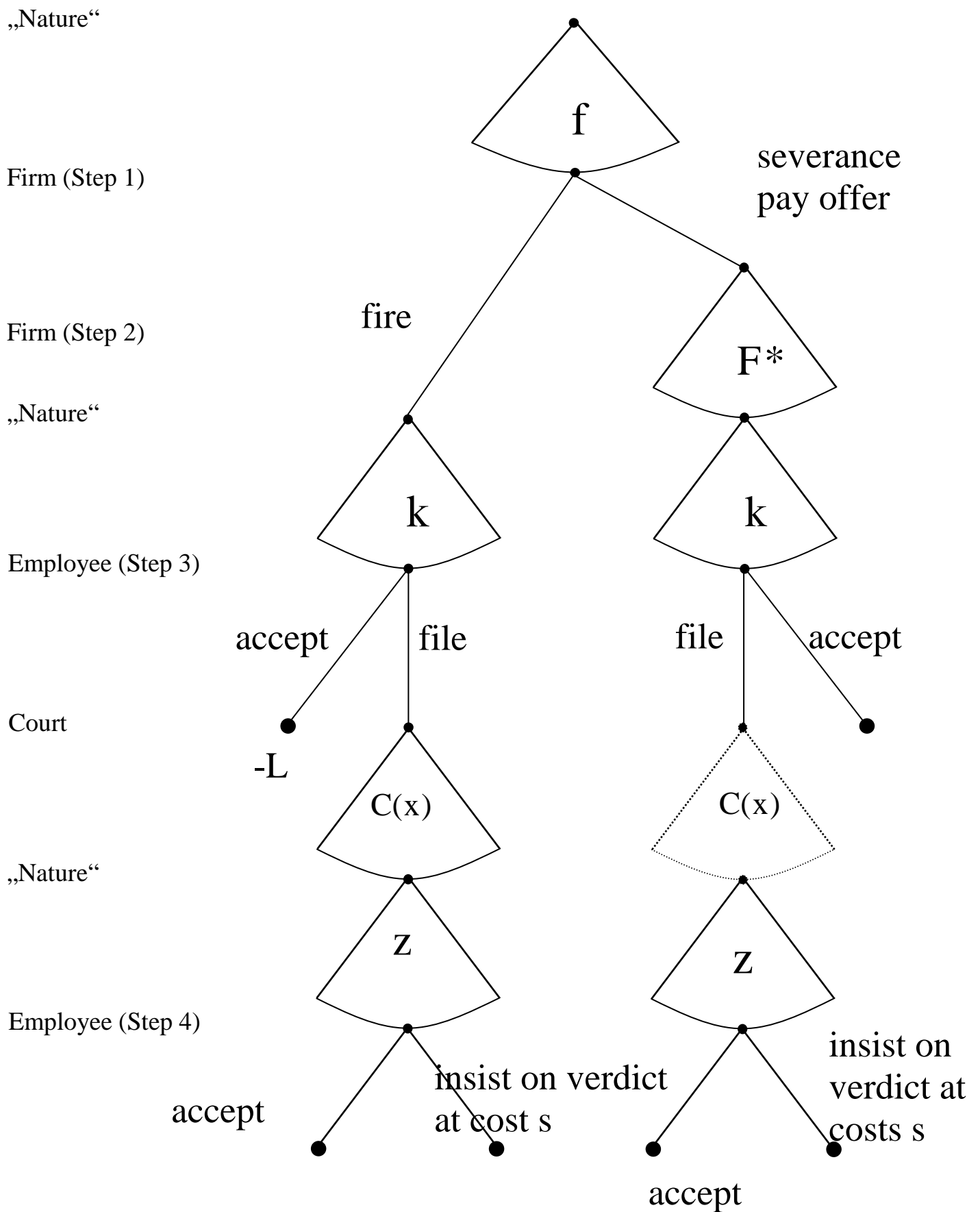
s – cost of insisting on verdict are the same for all employees

Solution

All agents are risk-neutral and maximise expected payoff.

Model is solved by backward induction.

Figure 1: Sequence of Decisions



Solution

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Model is solved by backward induction.

Step 4: Employee's decision about verdict:

Gain of insisting on verdict:

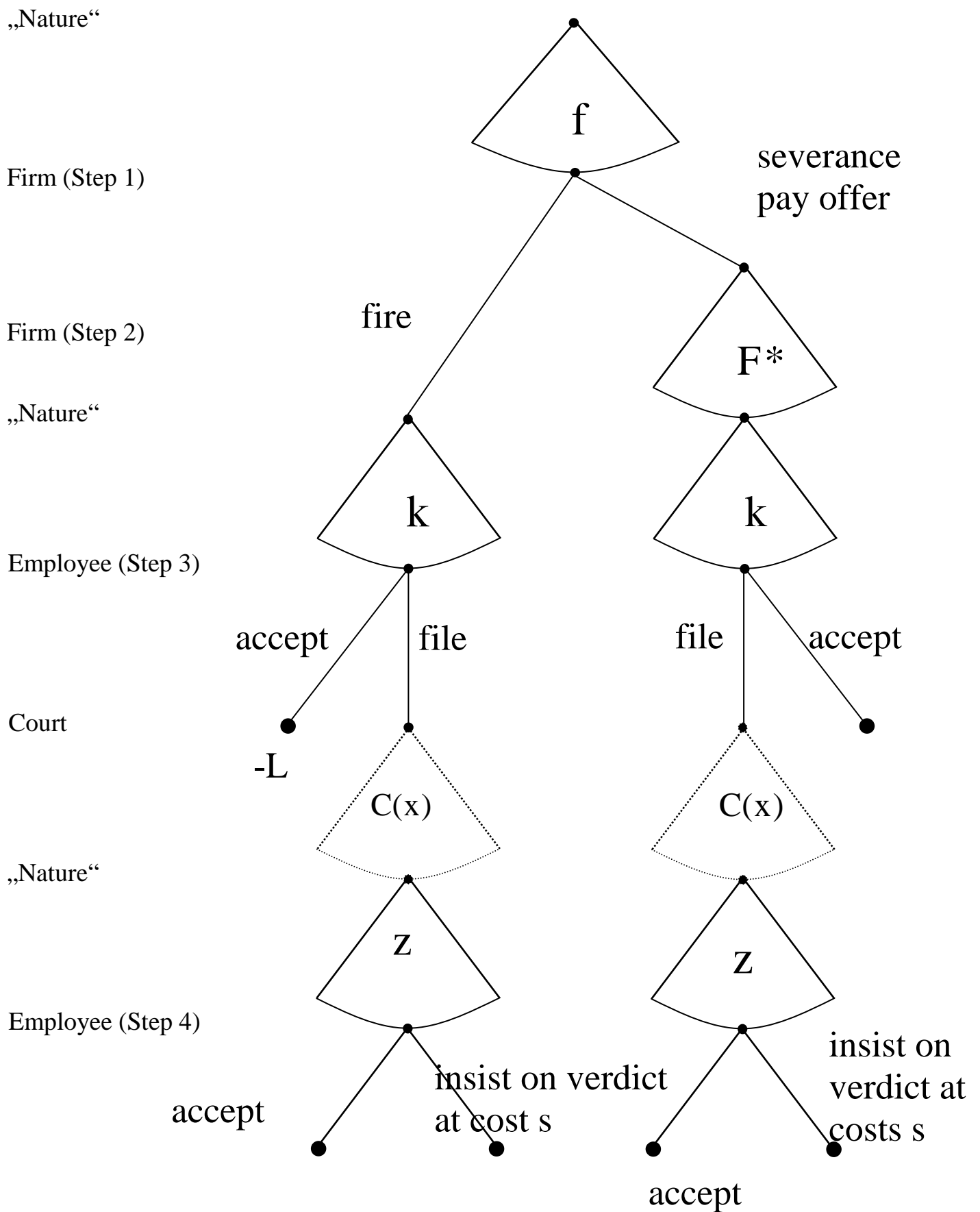
$$\boxed{C(x) - s + z}$$

Gain of accepting severance pay proposal by court:

$$\boxed{C(x)}$$

$P(s)$ denotes probability that $z \geq s$, $P(s) := \text{Prob}(z \geq s)$

Figure 1: Sequence of Decisions



Step 3 (Employee's decision about going to court, given no offer):

Expected payoff from accepting dismissal without offer: $-L$

Expected payoff from contesting dismissal without offer: $C(x) - k + P(s)(\tilde{z} - s)$

where $\tilde{z} := E(z | z > s)$.

If $k < \kappa_1$, contesting a dismissal without offer raises the expected payoff.

Probability that $k < \kappa_1$ & employee goes to court: $Q(\kappa_1(x, s, L), \alpha)$; $\partial Q / \partial \kappa_1 > 0$

Step 3 (Employee's decision about going to court, given no offer):

Expected payoff from accepting dismissal without offer: $-L$

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If $k < \kappa_1$, contesting a dismissal without offer raises the expected payoff.

Probability that $k < \kappa_1$ & employee goes to court: $Q(\kappa_1(x, s, L), \alpha)$; $\partial Q / \partial \kappa_1 > 0$

Step 3 (Employee's decision about going to court, given an offer):

Expected payoff from accepting dismissal with offer F^* : F^*

Expected payoff from contesting dismissal without offer: $C(x) - k + P(s)(\tilde{z} - s)$

If $k < \kappa_2$, contesting a dismissal, given an offer, raises the expected payoff.

Probability that $k < \kappa_2$ & employee goes to court: $Q(\kappa_2(x, F, s), \alpha)$; $\partial Q / \partial \kappa_2 > 0$

Step 2 (Firm's decision about optimal offer)

Optimal offer F^* by the firm trades off the higher costs of an offer with the fall in the probability of facing a suit ($Q(\kappa_2)$).

Step 1 (Firm's decision about making an offer):

Offer F^* will be made if additional costs of offer f are sufficiently low, i. e. fall below a critical value θ .

The probability that $f < \theta$ and a firm makes an offer is denoted by $R(\theta)$.

Table 1: Equilibrium Outcomes

	Condition			Payoff		Probability
	for f	for k	for z	for Worker	for Firm	
1	$\geq \theta$	$\geq \kappa_1$		-L	0	$(1 - R(\theta))(1 - Q(\kappa_1))$
2	$< \theta$	$\geq \kappa_2$		F^*	$-(F^* + f)$	$R(\theta)(1 - Q(\kappa_2))$
3a	$\geq \theta$	$< \kappa_1$	$< s$	$C(x) - k$	$-C(x)$	$(1 - R(\theta))Q(\kappa_1)(1 - P(s))$
3b	$< \theta$	$< \kappa_2$	$< s$	$C(x) - k$	$-(C(x) + f)$	$R(\theta)Q(\kappa_2)(1 - P(s))$
4a	$\geq \theta$	$< \kappa_1$	$\geq s$	$C(x) + z - k - s$	$-C(x)$	$(1 - R(\theta))Q(\kappa_1)P(s)$
4b	$< \theta$	$< \kappa_2$	$\geq s$	$C(x) + z - k - s$	$-(C(x) + f)$	$R(\theta)Q(\kappa_2)P(s)$

3. Comparative Statics

Incidence of Severance Pay I: Probability that any payment is made.

Expected Amount of Severance Pay A:

F^* 'times' probability of payment $F^* + C(x)$ 'times' probability of payment $C(x)$

3. Comparative Statics

Incidence of Severance Pay I: Probability that any payment is made.

$$I(\theta, \kappa_1) := 1 - (1 - R(\theta))(1 - Q(\kappa_1))$$

Expected Amount of Severance Pay A:

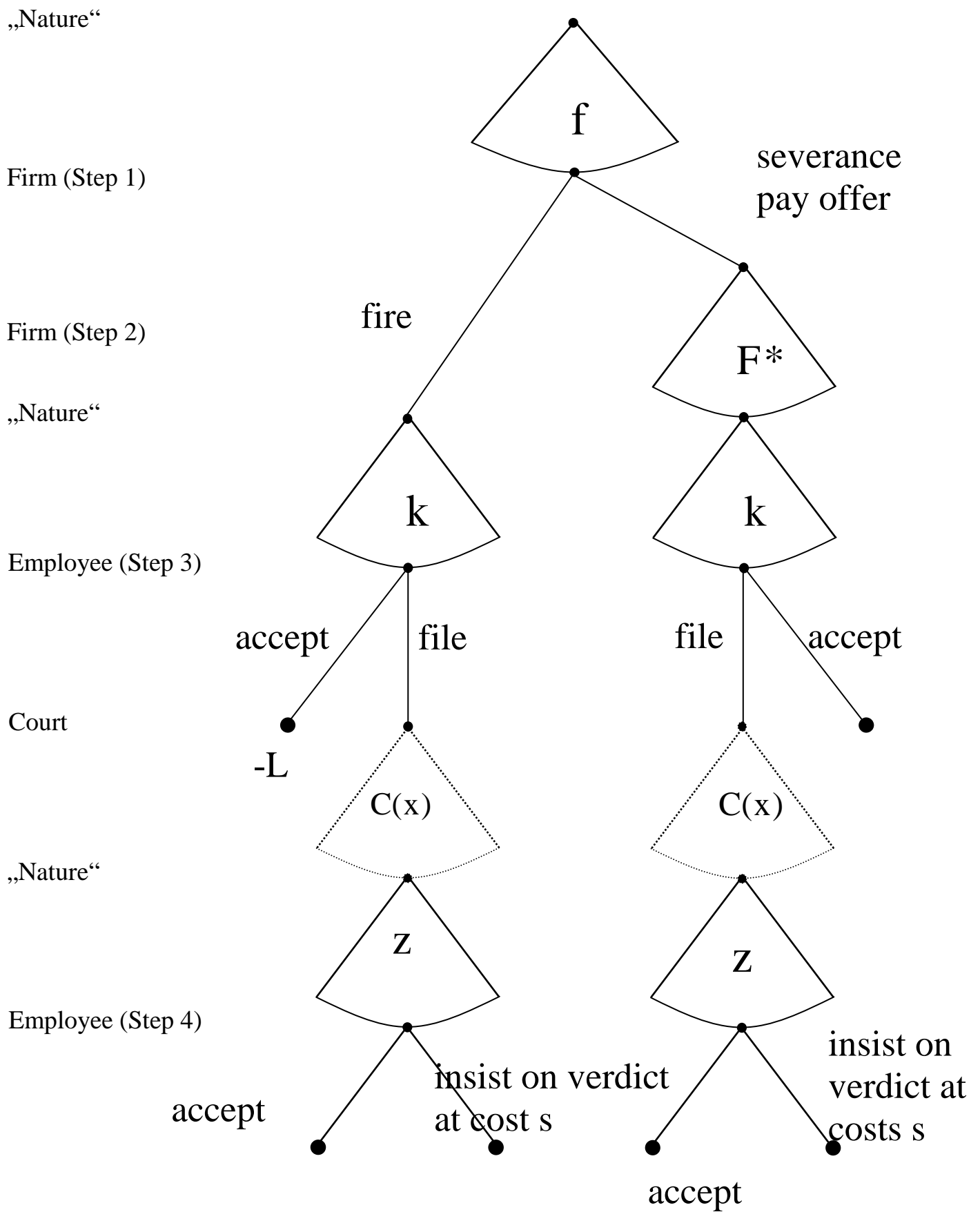
F^* 'times' probability of payment $F^* + C(x)$ 'times' probability of payment $C(x)$

$$A := F^* R(\theta)(1 - Q(\kappa_2)) + C(x)[(1 - R(\theta))Q(\kappa_1) + R(\theta)Q(\kappa_2)]$$

Proposition 1: Changes in the Incidence I in the Presence of Full Information

- a) An increase in the costs L of not receiving an offer raises the incidence I .
- b) An increase in the costs s of insisting on a verdict, in the employee-specific costs α of filing a suit, and a fall in the match-specific determinants x of court-induced severance payments reduce the incidence I , given uniform distributions of k and z .

Figure 1: Sequence of Decisions



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Intuition (for a selection of the results):

(L) A rise in the costs L of not receiving an offer c. p. raises the willingness to contest a dismissal without an offer. The firm responds to the rise in the probability of filing a suit $Q(\kappa_1)$ by making an offer more often. The optimal offer F^* is unaffected. Hence, the incidence I rises.

(s) A rise in the costs s of insisting on a verdict lowers the expected value of filing. The firm reduces its offer F^* . A higher willingness by the employee to accept a dismissal and a fall in F^* have an ambiguous effect on the firm's willingness to offer F^* . Given uniform distributions of k and z , the incentive to offer F^* shrinks. Since the employee files less often, the incidence I falls.

Proposition 2: Changes in I in the Presence of Asymmetric Information

If the firm is unaware of the employee's costs of not receiving a severance pay offer L , of filing a suit α , or of insisting on a verdict s , an increase in s and α , and a fall in L will reduce the incidence I .

Proposition 2: Changes in I in the Presence of Asymmetric Information

If the firm is unaware of the employee's costs of not receiving a severance pay offer L , of filing a suit α , or of insisting on a verdict s , an increase in s and α , and a fall in L will reduce the incidence I .

Intuition:

Limited information of the firm implies that it cannot condition its behaviour – captured in particular by F^* – on the relevant variables. Any ambiguity with respect to the effects of s and α results from repercussions on the firm's willingness to make a severance pay offer and, possibly, from repercussions on its magnitude, i. e., from the effects via F^* .

Proposition 2 is highly relevant for our empirical work as it indicates that inferior knowledge of the firm does not invalidate, but rather strengthens the comparative static predictions of Proposition 1.

Proposition 3: Changes in Average Severance Pay A

a) In the presence of full information, changes s , α , x , and L generally have indeterminate consequences for the average amount A .

(Conditions can be derived for average severance pay A to decline with s and α and to rise with L).

b) If the firm does not know the employee's costs of not receiving a severance pay offer L , of filing a suit k , or of insisting on a verdict s , an increase in s and α , and a fall in L will reduce the average severance payment A .

4. Data

- German Socio-Economic Panel (SOEP) for 1991 to 2006 for West Germany
- Pooled sample of employees who experienced closure of the firm, a layoff or terminated the employment contract by a mutual agreement.
- We exclude employees who quit, left their jobs for (early) retirement or due to the phasing-out of temporary employment as well as apprentices, civil servants (“Beamte”) and self-employed.
- Sample size: $N = 2999$ (2138) for the descriptive (regression) analysis. ($N = 494$ if information on union membership is added).
- It is not possible to distinguish between F^* and $C(x)$ in the data.

Match-specific control variables (x)

natural logarithm (ln) of the previous monthly gross real wage
tenure and tenure squared in the last job
age

set of dummy variables indicating

- whether children are living in the household,
- the existence of alimony duties,
- officially ascertained disability, the interaction of disability and an officially determined degree of disability of at least 50%,
- two age/tenure thresholds defined by the PADA,
i.e. age ≥ 50 (55) years *and* tenure in the last job ≥ 15 (20) years,
- absenteeism due to sickness,
- firm size,
- subjective individual future job prospects,
- regional unemployment rates
(at federal state level) as a proxy for general job prospects.

Costs L are proxied by

- the amount of monthly credit obligations,
- being a tenant (of a flat/ house).

Employee-specific costs of filing a suit α or of insisting on a verdict s

decline with

- trade union membership
- ownership of a legal protection insurance
(proxied by ownership of life insurance)
- existence of previous job termination
- preferences for the Social Democratic Party (SPD)

Further control variables (dummy variables for)

gender, part-time work, being a foreigner, a white collar worker, and having performed unpaid overtime, type of job termination, educational status, as well as sets of industry, regional ('Bundesländer') and time dummies.

5. Descriptive Evidence

Figure 2: Incidence & Real Amount of Severance Pay in West Germany 91-06

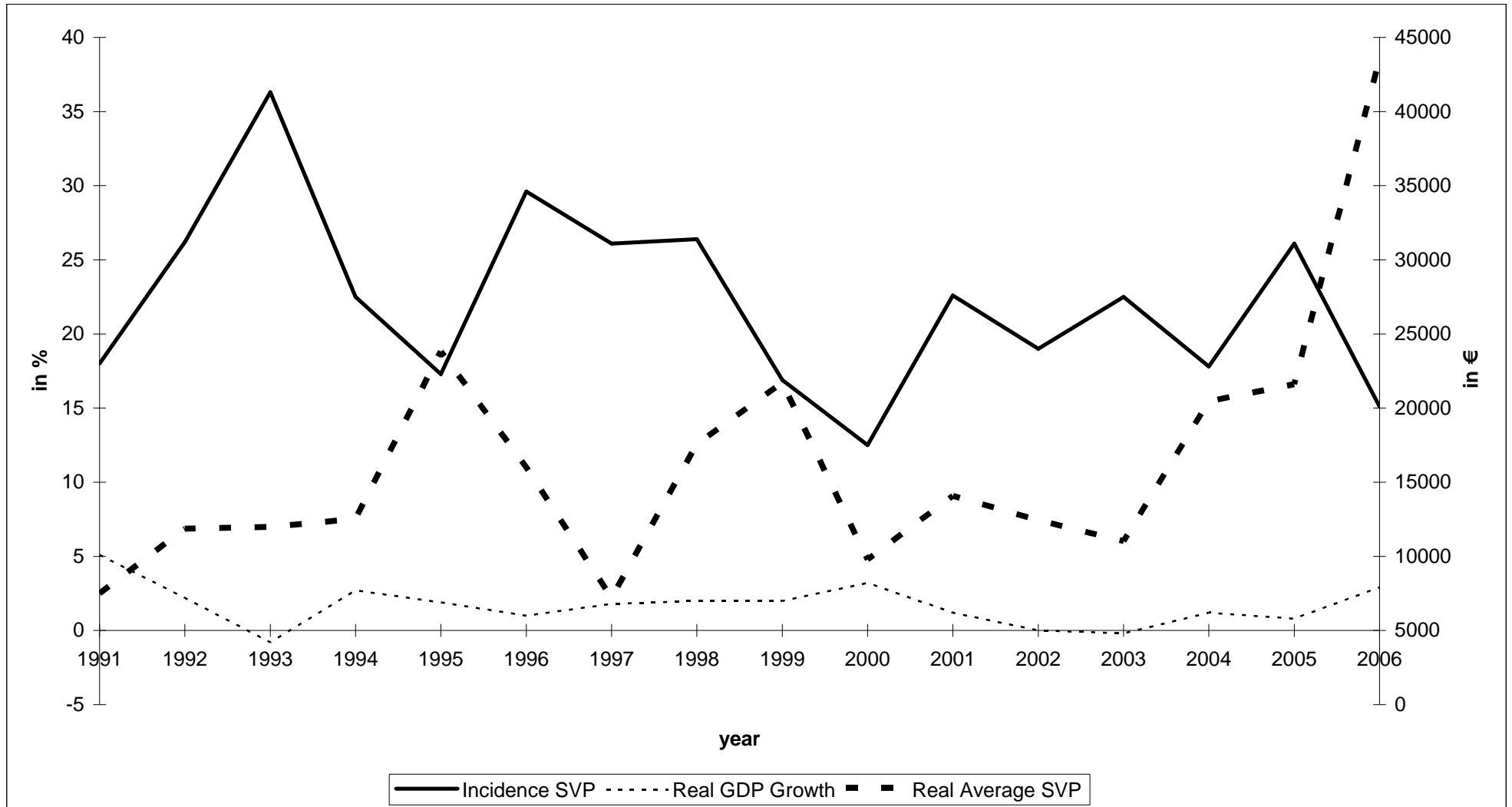


Table 2: Severance Pay in West Germany 1991-2006

Variable	Incidence		Real amount for respective characteristics (0/1)	
	(no: 0)	(yes: 1)		
Last real wage in €	3597.4**	5007.2**	--	--
Tenure last job	5.17**	12.44**	--	--
Age at job termination	38.96**	44.26**	--	--
Alimony	0.09*	0.13*	16145.11	15136.40
Disabled Person	0.05 ⁺	0.09 ⁺	15460.75 ⁺	21867.10 ⁺
Prefers Social Democrats	0.05**	0.10**	15607.12	19683.79
Trade union member	0.13*	0.29*	16079.31	15620.16
Life insurance	0.55*	0.64*	11376.06**	18617.53**
Real monthly credit obligations in €	285.54*	554.48*	13142.49*	19952.41*
Tenant	0.46 ⁺	0.37 ⁺	24872.64**	10991.89**

Significance levels: ** (0.01); * (0.05); ⁺(0.1).

6. Regression Results

Incidence: Weighted probit model

Average Amount: Weighted OLS

The weighting factors account for the sampling design of the different subsamples of the SOEP as well as for panel attrition.

- Original weights are used for the probit specification.
- Inverse probability weighting approach employed for OLS.

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The weighting factors account for the sampling design of the different subsamples of the SOEP as well as for panel attrition.

- Original weights are used for the probit specification.
- Inverse probability weighting approach employed for OLS.

Based on the parameter estimates, we calculate

- (a) the probability of receiving severance pay (SVP) [$P(SVP = 1|X)$],
 - (b) the expected average amount of severance pay conditional on its incidence $E(SVP|X, SVP = 1)$ and
 - (c) the expected payment as the product of (a) and (b)
- for three “typical employees” to illustrate the main results.

Table 3: Incidence of Severance Pay

<i>Variable</i>	<i>Full sample</i>		<i>Union sample</i>	
	<i>Coeff.</i>	<i>SE</i>	<i>Coeff.</i>	<i>SE</i>
	<i>Match-specific legal determinants (x)</i>			
Last real wage (ln)	0.421**	0.138	0.643*	0.291
Tenure last job	0.121**	0.017	0.141**	0.035
Tenure last job (sqrd)	-0.003**	0.001	-0.003**	0.0012
Alimony	0.298 ⁺	0.164	0.660*	0.305
Kids in the household	-0.046	0.104	-0.074	0.208
Disabled person (D_P)	0.214	0.216	-0.145	0.584
D_P with disability ≥ 50%	-0.265	0.327	-0.550	0.703
Age ≥ 50 & Tenure ≥ 15	-0.105	0.317	0.537	0.558
Age ≥ 55 & Tenure ≥ 20	0.791*	0.334	0.261	0.697
Firm Size: X < 5 employ.	-1.703**	0.256	-0.974 ⁺	0.525
Firm Size: 5 ≤ X < 200	-0.410**	0.133	-0.005	0.250
Firm S.: 200 ≤ X < 2000	0.248 ⁺	0.147	0.319	0.285
Sick longer than 6 weeks	0.303 ⁺	0.158	-0.103	0.249
Regional unemploy. rate	0.030	0.031	0.297*	0.146
“Hard to find a job”	0.092	0.128	-0.132	0.233
“Impossible to find a job”	-0.064	0.192	-0.075	0.336
	<i>Costs of not receiving a offer (L)</i>			
Credit obligations /(100)	0.028**	0.008	0.039*	0.017
Tenant	0.433**	0.125	0.315	0.235
	<i>Employee-specific costs of suit (α, s)</i>			
Life Insurance	0.248*	0.105	0.250	0.188
Union membership	--	--	0.721**	0.271
More than one job term.	0.250*	0.111	0.567*	0.271
“Prefers SPD”	0.488*	0.204	1.388**	0.406

Further covariates

Age	0.002	0.006	0.009	0.011
Male	-0.354**	0.123	-0.479 ⁺	0.253
White collar worker	0.167	0.125	0.508*	0.240
Foreigner	-0.122	0.175	-0.311	0.329
Part-time work last job	-0.135	0.182	-0.242	0.307
Apprenticeship	-0.093	0.139	0.015	0.245
University degree	-0.099	0.139	-0.266	0.410
Unpaid overtime	0.217	0.162	0.323	0.303
Termination last job: Closure	0.093	0.153	-0.253	0.285
Termination last job: Layoff	0.207	0.142	0.219	0.235
Dummy-Variables: Regions		<i>yes</i>		<i>yes</i>
Dummy-Variables: Industry		<i>yes</i>		<i>yes</i>
Dummy-Variables: Years		<i>yes</i>		<i>yes</i>
Wald_X (df)		313.5** (57)		95.41**(47)
Number of observations		2138		494

Table 4: Amount of Real Severance Pay

<i>Variable</i>	<i>Coeff.</i>	<i>SE</i>
<i>Match-specific legal determinants (x)</i>		
Last real wage (ln)	1.170**	0.170
Tenure last job	0.149**	0.022
Tenure last job (sqrd)	-0.003**	0.001
Alimony	-0.206	0.153
Kids in the household	0.079	0.091
Disabled person (D_P)	0.495*	0.197
D_P with degree of disability $\geq 50\%$	-0.107	0.372
Age ≥ 50 and Tenure in last job ≥ 15	-0.568*	0.227
Age ≥ 55 and Tenure in last job ≥ 20	-0.127	0.287
Firm Size: $X < 5$ employees	-0.550*	0.223
Firm Size: $5 \leq X < 200$ employees	-0.325*	0.130
Firm Size: $X < 2000$ employees	-0.174	0.142
Sick longer than 6 weeks	-0.034	0.159
Regional unemployment rate	-0.006	0.017
“Hard to find a job”	0.042	0.117
“Impossible to find a job”	0.003	0.138
<i>Costs of not receiving a severance pay offer (L)</i>		
Credit obligations/(100)	0.007	0.005
Tenant	0.103	0.105
<i>Employee-specific costs of a lawsuit (α, s)</i>		
Life Insurance	-0.109	0.098
More than one job termination	0.036	0.102
“Prefers Social Democrats (SPD)”	0.179	0.116

	<i>Further covariates</i>	
Age	0.008	0.007
Male	0.116	0.136
White collar worker	0.238*	0.120
Foreigner	0.359*	0.149
Part-time work last job	0.256	0.177
Apprenticeship	-0.023	0.136
University degree	-0.130	0.199
Unpaid overtime	0.222*	0.109
Termination last job: Closure	-0.250+	0.151
Termination last job: Layoff	-0.398**	0.137
Dummy-Variables: Industry	<i>yes</i>	
Dummy-Variables: Years	<i>yes</i>	
Wald_X (df)	7326 ** (50)	
R-squared	0.879	
Number of observations	434	

Typical Employees

are defined along the thresholds defined by the PADA.

The employee “E_12” (“E_15”, “E_18”) exhibits a ceiling of court-awarded severance pay of 12 (15, 18) monthly gross wages.

An employee “E_15” (“E_18”) has an age of 50 (55) or more years *and* a tenure of more than 15 (20) years.

Table 5: Expected Severance Pay for Typical Employees - full sample -

	$P(SVP=1 X)$	$E(SVP X,SVP=1)$	Expected SevPay
	<i>Typical employee</i>		
“E_12”	0.14	4492.3	628.9
“E_18”	0.65	28080.9	18252.6
“E_15”	0.38	19199.8	7295.9

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“E_12”	0.14	4492.3	628.9
“E_18”	0.65	28080.9	18252.6
“E_15”	0.38	19199.8	7295.9
	<i>Typical employee + Size05=1</i>		
“E_12”	0.003	2590.7	13.5
“E_18”	0.09	16193.9	1475.4
“E_15”	0.02	11072.3	221.4
	<i>Typical employee + Credit=2*Stdv</i>		
“E_12”	0.15	4758.1	713.7
“E_18”	0.62	28861.9	17894.3
“E_15”	0.37	19158.5	7088.6
	<i>Typical employee + Tenant=0</i>		
“E_12”	0.07	4492.3	314.5
“E_18”	0.48	28080.9	13478.8
“E_15”	0.23	19199.8	4416.0
	<i>Typical employee + lifeI=0</i>		
“E_12”	0.09	4492.3	404.3
“E_18”	0.56	28080.9	15725.3
“E_15”	0.29	19199.8	5567.9
	<i>Typical employee + (countD=1, spd=1)</i>		
“E_12”	0.34	4492.3	1527.4
“E_18”	0.90	28080.9	25272.8
“E_15”	0.67	19199.8	12863.9
	<i>Typical employee + Alimony=1</i>		
“E_12”	0.22	4492.3	988.3
“E_18”	0.75	28080.9	21060.7
“E_15”	0.50	19199.8	9599.9

	<i>Typical employee + (disabled=1, sickL6=1)</i>		
“E_12”	0.22	7367.9	1620.9
“E_18”	0.75	46055.5	34541.6
“E_15”	0.50	31489.5	15744.8

Table 6: Estimated Probabilities of Receiving
Severance Pay - union sample

	P(SVP=1 X)		
	<i>Typical employee</i>	<i>Typical employee + union=1</i>	<i>Typical employee + alq=2*Stdv.</i>
“E_12”	0.15	0.38	0.55
“E_18”	0.58	0.82	0.89
“E_15”	0.52	0.78	0.84

7. Summary

- Legal determinants of severance pay actually have an impact on its incidence (wage, tenure, firm size, [PADA thresholds, unemployment rate]) and on its level (wage, tenure, firm size, disability, [PADA thresholds,]). This is evidence for the impact of the law in the books.
- Extra-legal determinants only affect the incidence of severance pay (credit obligations, tenant, life insurance, union membership, more than one job loss, SPD preferences). The impact of these effects can be sizeable.
- Indices of EPL based on the law in the books may grossly overestimate the true costs of a dismissal in (West) Germany.