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

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Abstract

Severance pay is a vital part of employment protection legislation (EPL). 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 resulting from 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 employees' financial constraints.

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I. Introduction

Despite recent reforms, employment protection legislation (EPL) in Germany is still regarded as comparatively strict (see OECD 2004, World Bank 2006). However, employers can circumvent restrictive regulations by making a sufficiently high severance payment. Accordingly, the majority of such payments in Germany result from private agreements between firms and employees. Yet even if severance pay arises from a negotiation, EPL and its interpretation by labour courts can have a strong impact. This is because employees may initiate a court procedure to enforce the restrictions on dismissals which EPL constitutes. In this paper we investigate the impact of legal criteria as well as of the costs of enforcing EPL on severance payments (see, e. g., Bertola, Boeri, and Cazes 1999). The analysis can provide insights as to whether the legal rules – underlying, for example, the OECD's and World Bank's evaluations – are an adequate proxy for the actual extent of employment protection. In consequence, we also contribute to the debate on the distinction between the law in action and law on the books (Jolls 2004, 2007). Finally, our estimates enable us to calculate a lower bound of the expected costs of a dismissal. Knowing such costs can help in evaluating the strictness of EPL in Germany.

Subsequently, in Section II we describe the legal situation in Germany and survey the relevant empirical studies. In Section III, we present a theoretical model of severance pay determination which allows for all major observable consequences: namely, a dismissal without a severance payment, an agreement between firm and employee including a payment, and outcomes involving a labour court. We inquire how the prevalence and magnitude of severance payments are affected by variations in parameters which, first, are defined by law as determinants of EPL and, second, affect the costs of a legal dispute. In Section IV we describe the dataset, the German Socio-Economic Panel (SOEP), and the empirical specifications used. In Section V we put our theoretical hypotheses to an empirical test. We find that the probability of obtaining severance pay and its level are indeed affected by legal determinants. In addition, the probability increases with the employee's costs of losing a job and declines with those of a legal dispute. Our results indicate that the expected costs of a dismissal and, more generally, the strictness of EPL as a proxy for the law in action differ substantially from the law on the books. Therefore, indices of EPL based on the latter, such as that used by the OECD (1999, 2004), may misrepresent the actual extent and severity of EPL in Germany. To illustrate our results, we focus on a selection of "typical" employees. Our most common employee obtains a payment with a probability of 14% and its real expected level is about € 900. If this employee is a member of a trade union, the probability of obtaining a payment more than doubles, while the non-applicability of the central law regulating dismissals reduces it to less than 1%. In Section VI we conclude. An appendix contains some of the derivations and additional information on the data.

Our paper is related to analyses of EPL which explicitly incorporate the legal process and allow for an interaction between firms and workers, on the one hand, and courts on the other. Ichino, Polo and Rettore (2003), for example, present a model of the litigation process against the backdrop of the Italian legal situation. They investigate theoretically whether labour market conditions are reflected in court outcomes and find empirical evidence for such a relationship. Malo (2000) views bargaining about payments in the case of individual dismissals in the context of the Spanish legal situation as a game of incomplete information. He shows, inter alia, that the amount demanded increases with the expected award by the court and declines with the employee's costs of filing a suit. Malo and Pérez (2003) extend the model to enhance its applicability beyond the Spanish context. None of the approaches outlined above focuses on a distinctive feature of German EPL: severance pay can result from offers by firms and can also be court-induced, but there is no universal entitlement. Hence, the probability of obtaining a payment is determined endogenously and affected by employee- and match-specific features. While we investigate the impact of income taxes in a companion paper (Goerke and Pannenberg 2009), in the present contribution we analyse an extended model which explicitly allows for court verdicts and focuses on these employee- and match-specific effects, as well as the costs of enforcing EPL.

Our contribution is also associated with analyses assuming that a labour court may erroneously evaluate the cause of a dismissal (Galdón-Sánchez and Güell 2003, Stähler 2008, Huang, Chang and Lai 2009, Besancenot and Vranceanu 2009), and that a court can affect the incentives to undertake match-specific, productivity-enhancing investments (Deffains, Gabuthy and Lambert 2009). From a wider perspective, we touch upon the literature on litigation and settlement as recently surveyed, for example, by Spier (2007) and Daughety and Reinganum (2009).

II. Legal Background and Previous Evidence

II.1 Employment Protection Legislation in Germany

EPL in Germany stems from a multitude of sources.[1] First, the German Civil Code ("Bürgerliches Gesetzbuch", § 622) establishes notification periods for dismissals, except in cases of gross misconduct. These amount to at least four weeks for employees aged over 25 years and rise with tenure. Of particular importance is, secondly, the Protection against Dismissal Act (PADA, "Kündigungsschutzgesetz"). The PADA (§ 1) states that dismissal of an employee with more than six months tenure is invalid, unless there is (1) personal misconduct, (2) a lack of individual

[1] More extensive descriptions of EPL in Germany in English are provided, for example, by Bertola et al. (1999), and Eger (2003). Additional protection against dismissals - not discussed further below - may result from collective bargaining agreements. More restrictive rules also apply to apprentices. Moreover, members of the works council, expectant mothers, and employees on parental leave can essentially not be dismissed.

capabilities (including absenteeism due to sickness), or there are (3) compelling operational reasons, including redundancies. In the third case, the PADA requires that firms select workers or employees – terms we use interchangeably here – to be dismissed in accordance with criteria such as age, tenure, the extent of alimony duties, and individual disabilities.[2] The regulations of the PADA have generally applied to all firms with more than five permanent employees.[3]

Given applicability of the PADA, a worker – supposed to be male for simplicity – can file a labour court suit to contest the termination of his contract. In court, a conciliation procedure takes place initially. During the course of this the judge usually suggests a mutual agreement. If none is reached, the court procedure will eventually end with a verdict, unless a compromise is found beforehand. Each party bears its own costs of legal representation which is, however, not compulsory in labour courts until a verdict is contested. Only if a judgement is passed, will a comparatively small court fee be imposed. In Germany, about 200,000 dismissal disputes were brought to court in 2007, of which the overwhelming majority were settled by a mutual agreement or withdrawn by the litigant, most likely because a private settlement was found.[4]

In general, an unlawful dismissal does not result in a reinstatement to the previous job. This is the case since the PADA (§ 9) stipulates that the court can dissolve an employment contract if its continuation cannot be expected either of the worker or the firm. Only in such an instance must the court award a severance payment. The PADA provides no detailed rules for its amount, solely defining a ceiling of 12 monthly gross wages that increases up to 15 (18) monthly wages for workers of at least 50 (55) years of age *and* with a minimum of 15 (20) years of tenure. A survey of labour courts revealed that more than 75% utilise a specific formula according to which severance pay is related linearly to the product of tenure (in years) and the last monthly gross wage. The characteristics of each case are then incorporated by modifying the amount calculated in line with this severance pay formula. In particular, payments decrease with the re-employment probability and rise with age, the extent of pension entitlements forfeited due to the job loss, alimony payments, and also firm size.[5]

The Works Constitution Act (GWCA, "Betriebsverfassungsgesetz") represents a further important source of EPL. This Act stipulates that any dismissal of which a works council has not

[2] These criteria have been mentioned explicitly in the PADA only from 1996 to 1998, with the exception of disabilities, and again since 2004. However, labour courts have usually applied similar criteria.

[3] The threshold increased to ten permanent employees from October 1996 to January 1999, was reduced to five permanent employees afterwards, and has in principle been raised again to ten employees at the beginning of 2004. See Bauer, Bender and Bonin (2007) for an analysis of the effects of these changes on worker turnover.

[4] See http://www.bmas.de/coremedia/generator/29660/property=pdf/statistik_der_arbeitsgerichtsbarkeit_2007.pdf for this (in German).

[5] See, e. g., Hümmerich (1999), Spilger (2007, p. 565 ff), and Höland et al. (2007, p. 161). Since 2004 there is a passage (§ 1a) in the PADA which explicitly defines severance pay for particular cases of dismissals as the product of half the monthly gross wage and tenure.

been informed in advance is null and void. In addition, with the exception of cases of gross misconduct, a firm has to continue employing a worker whose dismissal has been opposed by the works council and who has filed a suit at the labour court until the case is settled (§ 102 GWCA). Moreover, § 112 GWCA defines specific rules for mass dismissals. In principle, employees can enforce a "social plan", usually including severance payments. Often, similar criteria determining the magnitude of severance pay apply as for individual dismissals. Note though that since works councils are not pervasive, in 2006 the regulations of the GWCA applied to about 46% (10%) of the employees (firms) in West Germany (Ellguth and Kohaut 2007). Finally, the Social Code IX (§§ 85 ff) will require the formal approval of a public agency if a worker with an officially ascertained degree of disability of, in general, at least 50% is to be dismissed.

II.2. Empirical Evidence

The relevant empirical investigations are based on three sources: the German Socio-Economic Panel (SOEP), studies conducted on behalf of trade unions, and a survey of labour courts. Grund (2006a, b), Jahn (2005, 2009) and Goerke and Pannenberg (2009) analyse SOEP data for different periods and samples. Grund (2006a, b) and Goerke and Pannenberg (2009) find that severance payments occur in about 25% of job terminations. The mean (median) amount ranges from € 9,200 to € 13,000 (€ 6,000 to € 7,000). The incidence of severance pay is higher for females and rises with firm size and tenure or the product of tenure and the wage. In addition, Goerke and Pannenberg (2009) observe a positive impact of the previous wage and a negative influence of income taxation on the incidence. With respect to the level, Goerke and Pannenberg (2009) and Grund (2006a) obtain positive effects of tenure and the wage, and Jahn (2005, 2009) of their product. Furthermore, payments rise with firm size (Jahn 2005, 2009, Goerke and Pannenberg 2009).

In representative surveys of the research institute of the German Trade Union Federation, between 11% and 15% of job terminations were found to result in a labour court suit (Pfarr et al. 2005, p. 58f, 71ff). The probability of obtaining severance pay will be higher if a labour court suit has been filed, whereas this will have no impact on its magnitude. The other descriptive results of Pfarr et al. (2005) are broadly consistent with the findings based on SOEP data reported above.

The survey among professional labour lawyers is restricted to dismissals for which a suit has been filed. It shows that in labour courts in the first instance in 2002, around two out of three suits were terminated by a mutual agreement (see Höland, Kahl and Zeibig 2007, p. 55 f), involving severance payments in about 80% of cases. The average (median) level of severance pay amounts to € 9,000 (€ 4,500) for courts in the first instance and € 14,000 (€ 6,000) for courts

in the second instance. In addition, not controlling for other determinants, payments are observed to rise with tenure, gross income, and firm size (Höland et al. 2007, p. 156 ff).

The studies based on the surveys undertaken on behalf of the German Trade Union Federation and among labour court lawyers do not contain a comprehensive set of employee- and firm-specific control variables and mostly report correlations but few regression results. In contrast, the SOEP data allow a host of individual-specific and some firm-level variables to be included. The analyses conducted by Grund (2006a, b) and Jahn (2005, 2009) do not differentiate between East and West Germany and/ or consider shorter time spans. These features are problematic since dismissals in East Germany were determined by considerably different factors than in West Germany, especially during the first decade after German unification. Furthermore, there is substantial variation in severance pay over time (see Grund 2006a and our results below). Finally, the investigations have mainly looked at selective determinants of severance pay as inspired by the legal debate, i.e. the law on the books, and have ignored the costs of enforcing EPL.

III. Theoretical Model

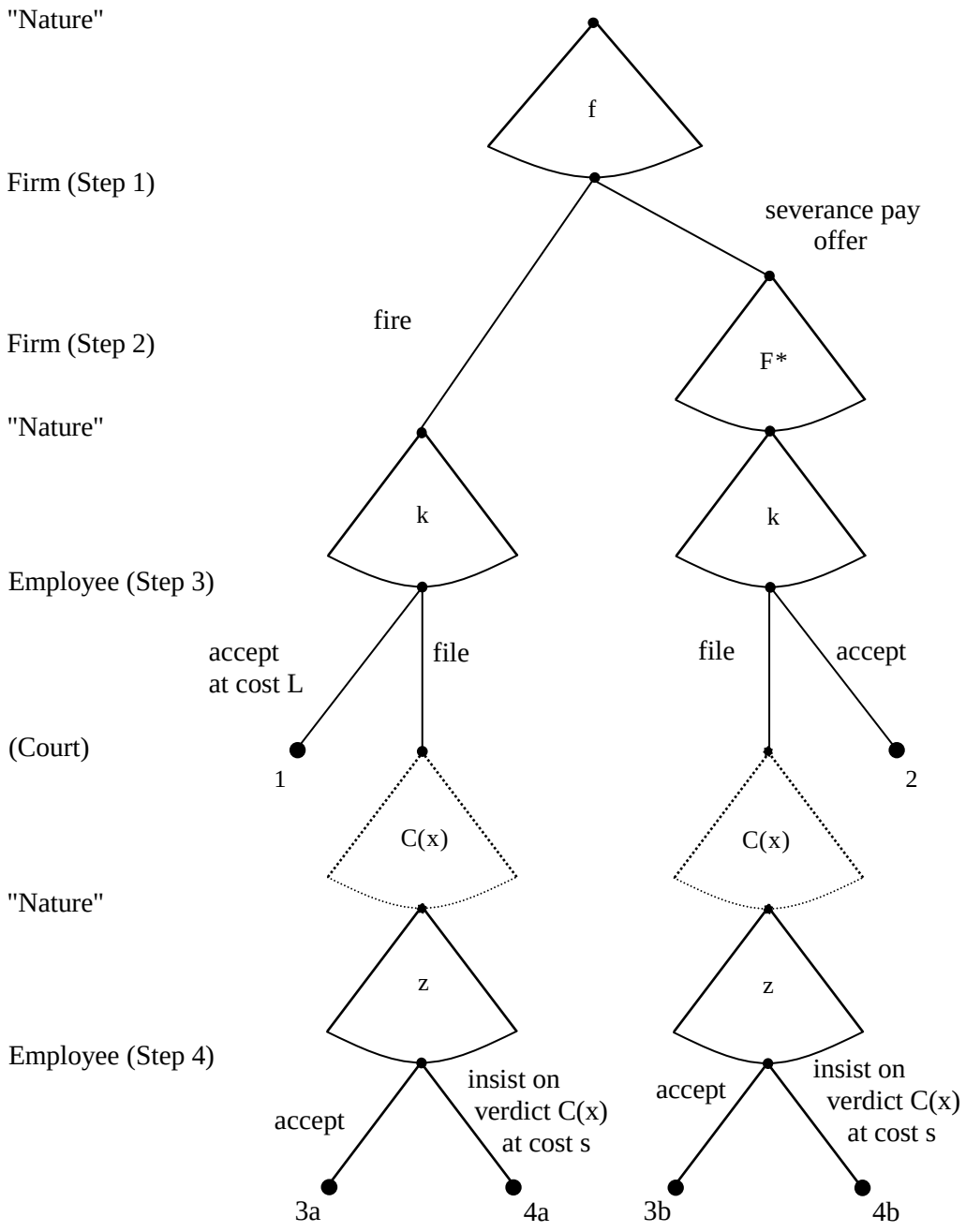
III.1 Framework

Suppose a firm decides to finish a particular employment contract. The employee may accept this decision and then obtains no severance payment. Alternatively, the employment relationship is terminated by a mutual agreement including a payment. As a third possibility, the employee may challenge the dismissal, file a lawsuit and the case will be settled by the conciliation proposal by the labour court or a mutual agreement. Finally, the court procedure can culminate in a verdict. In our subsequent theoretical analysis we assume that firms and employees – both risk-neutral – differ in the costs and gains of taking certain actions. Moreover, the firm is unaware of the employee's costs of filing a suit and of the gains from a verdict. This asymmetric information, inter alia, ensures that all four of the above situations can result as equilibrium outcomes. Furthermore, the employee will have better – or at least the same – information than the firm about personal features affecting the entitlement to severance pay. When investigating the impact of such personal characteristics, we hence distinguish between symmetric information and a situation of (additional) asymmetric information in which only the employee is aware of changes in such features.

The investigation is based on the following sequence of events: initially, the firm, after having dismissed an employee, chooses whether to offer a severance payment or not (see Figure 1). If it makes a positive severance pay offer F, $F > 0$, the firm will incur additional costs f, reducing its payoff but not enhancing the employee's income. Such costs f could arise because a severance payment today raises future payments, or supplementary legal expenditure arises, or severance

pay offers reduce the work effort of non-dismissed employees. Furthermore, it is often argued that making a severance payment offer weakens a firm's legal position in an ensuing labour court suit. The additional costs f can capture this effect as well. They stem from the interval $[0, \bar{f}]$, $\bar{f} > 0$, vary across firms, and ensure that firms characterised by a lower value of f make positive offers in equilibrium, whereas higher cost firms may refrain from doing so.

Figure 1: Sequence of Events



Summary of notation:

f – firm's costs of making a severance pay offer, $f \in [0, \bar{f}]$
F – firm's severance pay offer
k – employee's costs of filing a suit and court procedure, $k \in [\alpha, \bar{k} + \alpha]$

L – employee's loss due to acceptance of a dismissal without a severance pay offer
C(x) – severance pay proposal of the court
x – vector of personal characteristics of the dismissed employee
z – employee's utility from a court verdict, $z \in [0, \bar{z}]$
s – employee's cost of obtaining a court verdict

After the employee has been informed about the magnitude of a possible severance pay offer F, he learns about his costs k of filing a suit and of the ensuing court procedure. In addition to, for example, the monetary costs of legal advice and representation, k can include non-monetary opportunity costs and also subjective components. The costs k vary across employees, cannot be recovered (directly) from the firm, and stem from the interval $[\alpha, \bar{k} + \alpha]$, $\bar{k} > 0$. The parameter α captures systematic differences across employees. Its expected value is zero.[6] Accordingly, the impact of a rise in α on, for example, the incidence of severance pay indicates whether an employee who has above average costs of filing a suit is more or less likely to obtain a payment. While $\bar{k}$ is public information, the firm does not know the value of k relating to a particular employee when making a decision regarding severance payments.

If the employee accepts the dismissal without severance payment, he will incur a loss of L, $L > 0$. Otherwise $L = 0$ holds. Hence, the parameter L captures the (additional) costs of losing the job without being offered any monetary support. Particularly in the presence of credit market imperfections, these costs L can be substantial, as consumption cannot be smoothed over time.

The employee, when deciding whether to file a suit, and the firm, when determining whether to offer a severance payment and, if so, at what level, take into consideration the legal evaluation of the labour court. For simplicity, we presume that the court's conciliation proposal and a verdict coincide and can be forecasted correctly. While this assumption of predictability is clearly counter-factual,[7] we refrain from modelling a learning process about the court's legal evaluation of a case. This approach is consistent with our empirical application because we only observe the magnitude of a severance payment in our data but have no information on its formation. The severance pay proposal C of the court is assumed to be greater than zero and to depend positively on personal characteristics of the (former) employee and on features of the firm. We condense these match-specific legal determinants by (a vector) x, implying $C = C(x)$ and $C' > 0$. The above discussion of EPL suggests that x may, for example, include tenure and alimony obligations. We suppose that the value of x is known because information ultimately used by labour courts will also be available to both participants of the labour contract. Accordingly, given x, the court's

[6] To reduce notation, we normalise the (expected) lower bound of this and some other intervals to zero. This has no effect on subsequent findings unless noted otherwise (see, e. g., Appendix 4). Therefore, our model is general enough to allow for employees who derive benefits from filing a suit ($\alpha < 0$).

choice of C(x) is deterministic, as indicated by the dotted lines in Figure 1. Nevertheless, the court's involvement is depicted to clarify the full sequence of events.

Given the court proposal C(x), the employee can decide whether to accept it or to insist on a verdict. Obtaining a verdict raises the employee's costs of a court procedure by the amount s, $s > 0$, because, for example, a verdict gives rise to court fees. To generate court verdicts as equilibrium outcomes, various explanations have been proposed in the literature (see, e. g., Spier 2007): (1) parties can have systematically different perceptions about prevailing in a trial, (2) there is asymmetric information, for example, about the strength of a case, (3) the litigation object is indivisible, (4) at least one party involved in the trial appreciates a verdict beyond its monetary value, and (5) the monetary value of a given verdict differs for the parties involved.

Given that the court verdict C(x) is known in advance in our model, explanations (1) and (2) are not directly applicable. Instead, we assume that an employee derives a direct, non-monetary benefit z from obtaining a judgement. In a small fraction of cases, dismissal disputes in labour courts lead to the reinstatement of dismissed workers in Germany.[8] The gain from (and costs of) such a reinstatement are largely indivisible. Therefore, the third explanation above could be used to rationalise a positive value of z if a dismissed worker acquires more from a reinstatement than the firm will lose. Furthermore, it may be the case that dismissed workers gain utility from being supported by the court in his legal evaluation of the case or that obtaining a verdict satisfies the desire for revenge for being dismissed.[9] This would be compatible with the explanation (4). Finally, a verdict may be valuable for a trade union because it represents a precedent and can, hence, be used as a legal argument in the future. Any employee who partially internalises this union effect – an example of the fifth explanation – also derives a payoff from a verdict as such.

In conclusion, there are a number of cases in which there are benefits that result from obtaining a court verdict for a dismissed worker, relative to the costs incurred by the firm, for a given severance payment. These benefits z are assumed to vary across employees and to be distributed in the interval $[0, \bar{z}]$, $\bar{z} > 0$, where $\bar{z}$ is public information.[10] Their existence ensures that there are verdicts in equilibrium in our model. The firm does not know the actual value of z characterising a particular worker when making its decision. In addition, the employee only learns about the true magnitude of the benefits after he has filed a suit, for example, because z is

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[7] According to the proverb, "Coram iudice et in alto mare sumus in manu Dei" ("At sea and in court you are in the hands of God"), often quoted in Germany, court outcomes are perceived to be highly unpredictable.

[8] In 1978, a period of low unemployment, only 9% of all dismissal suits resulted in reinstatements (Falke, Höland, Rhode, and Zimmermann 1981). Höland et al. (2007, p. 202 ff) calculate a maximum probability of 15% for 2002.

[9] In a survey of dismissed German employees, more than 50% – particularly in small and medium-sized firms – gave as their prime motivation for filing the desire "to teach the employer a lesson" (Falke 1983, p. 30).

[10] Malo (2000) and Malo and Pérez (2003) presume asymmetric information to generate verdicts in equilibrium, while Ichino et al. (2003) combine aspects of asymmetric information and divergent payoffs, i. e. explanations (2), (4) and (5). Our model is, therefore, based more on the latter than on the former rationalisation.

affected by behaviour during the conciliation procedure. We finally assume that the firm does not incur any costs of legal proceedings since we have no information about these costs in our data. The distributions of z and k are independent. Once the decision on whether to obtain a verdict has been made, no further actions are feasible.

III.2 Optimal Behaviour

Given the assumptions regarding the information sets and the decisions to be taken, the pertinent equilibrium concept is that of subgame perfectness. Accordingly, the model is solved by backward-induction. A dismissed employee will require a verdict in Step 4 if $C(x) + z - s > C(x)$ holds, i.e. if the payoff in outcome 4a (or 4b, respectively) exceeds that of outcome 3a (or 3b, respectively), see Figure 1. The relevant probability is denoted by $P(s) := \text{Prob}(z \geq s)$ and declines with the employee's costs s, since it becomes less likely that any given realisation of z is greater than s.

In Step 3, after having learned the costs k, the employee decides whether or not to file a suit. The payoff E(a) from accepting a dismissal without severance payment is –L and results in outcome 1. The expected payoff E(r) of objecting to it and filing a suit consists of the expected payoff of insisting on a verdict $C(x) + \tilde{z} - s$ and the payoff C(x) of (only) filing a suit, where the respective weights are given by the probabilities P(s) and (1 - P(s)). Note that the expected value $\tilde{z}$ exceeds s and, thus, stems from the interval $[s, \bar{z}]$. Irrespective of the outcome of a court procedure, the worker incurs the costs k. He will be indifferent with regard to accepting a dismissal without an offer of severance pay and filing a suit if the costs k equal a critical value κ_1 resulting from E(r) = E(a).

$$\kappa_1 := C(x) + P(s)\{\tilde{z} - s\} + L \tag{1}$$

The probability that $k < \kappa_1$ and the employee files a suit equals $Q(\kappa_1(x, s, L), \alpha)$ and is referred to as $Q(\kappa_1)$. It rises with κ_1 because it is more likely that a given value of k is less than the critical value κ_1 ($\partial Q/\partial \kappa_1 > 0$).

Given an offer by the firm, an employee will file a suit in Step 3 if E(r) > F, i.e. if k is less than a critical value κ_2 :

$$\kappa_2 := C(x) - F + P(s)(\tilde{z} - s) = \kappa_1 - L - F \tag{2}$$

The probability that $k < \kappa_2$ equals $Q(\kappa_2(x, F, s), \alpha)$ and is referred to as $Q(\kappa_2)$, where $\partial Q/\partial \kappa_2 > 0$, given $\kappa_2 \geq 0$. For $\kappa_2 \leq 0$, $Q(\kappa_2) = 0$ is assumed. A rise in the offer F reduces κ_2 and, thus, $Q(\kappa_2)$ for $\kappa_2 > 0$ ($\partial Q(\kappa_2)/\partial F = (\partial Q(\kappa_2)/\partial \kappa_2)(\partial \kappa_2/\partial F) < 0$). Since $\kappa_1 < \kappa_2$, the firm can lower the

probability that an employee files a suit by offering a severance payment. Therefore, the model adequately reflects the main incentive of firms for offering severance pay in Germany, namely to avoid cumbersome labour court procedures.

When deciding whether or not to make an offer F in Step 1, the firm compares the expected payoffs resulting from both courses of action. If the firm does not offer a payment and the employee refrains from filing a suit, the firm will incur no costs. If the employee files a suit with probability $Q(\kappa_1)$, the severance payment will have to be made, and the firm's expected payoff will equal $-Q(\kappa_1)C(x)$. For simplicity we presume that the firm's payment and the transfer received by the employee coincide.[11] The firm's expected payoff of offering a severance payment F is denoted by E(O(F)). Such an offer gives rise to costs f. If the employee refrains from filing a suit, the firm's costs will therefore be F + f. Otherwise, dismissal payments C(x) have to be made. The respective probability is $Q(\kappa_2)$. E(O(F)) is, thus, given by:

$$E(O(F)) = -Q(\kappa_2)C(x) - (1 - Q(\kappa_2))F - f \tag{3}$$

The optimal severance pay offer F* (in Step 2) results from the maximisation of E(O(F)):

$$\frac{\partial E(O(F))}{\partial F} = \frac{\partial Q(\kappa_2)}{\partial F}\left[F - C(x)\right] - (1 - Q(\kappa_2)) = 0 \tag{4}$$

Since $\partial Q(\kappa_2)/\partial F < 0$, the optimal offer F* falls short of the court-induced payment C(x) – given that the legal procedure involves no costs to the firm. The intuition for this is that there is a positive probability of the employee accepting F*. As a consequence, starting from F = C(x), the firm's payoff rises with a reduction in F. The optimal offer F* then balances the gains from a further decrease in F, due to a lower payment, with the costs in terms of a higher probability of rejection. Since κ_2 depends on x and s, F* is a function of match-specific legal characteristics x, and – if known to the firm – the costs of filing a suit s and the parameter α, F* = F*(x, s, α).

Suppose that equation (4) uniquely defines an optimal, positive severance pay offer F*. The firm will then offer F* if $-Q(\kappa_1)C(x) < E(O(F^*))$ applies, that is, if the costs f fall below a critical value θ:

$$\theta := (Q(\kappa_1) - Q(\kappa_2))C(x) - (1 - Q(\kappa_2))F^* \tag{5}$$

We label the probability that $f < \theta$ and a firm makes a severance pay offer R(θ). Given $\theta \geq 0$, R(θ) rises with the critical value θ of the costs of making an offer ($\partial R/\partial\theta > 0$). In addition, θ is affected by all observable determinants of $Q(\kappa_1)$ and $Q(\kappa_2)$. We subsequently assume $\theta > 0$.

[11] Goerke and Pannenberg (2009) investigate the impact of taxes on severance payments, i.e. of a discrepancy between the payment by the firm and the amount received by the employee. Assuming in the present model that

For particular values of f, k, and z, and given the employee's characteristics captured by the parameters x, L, s, and α, there will be a unique subgame-perfect equilibrium. If there are many different firms and employees, all possible equilibria can be observed and interpreted as events which occur with a certain probability. The various equilibria, the requirements for and probability of their existence and the resulting payoffs are summarised in Table 1.

Table 1: Equilibrium Outcomes

Equilibrium	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	$< \theta$	$< \kappa_2$	$\geq s$	$C(x) + z - k - s$	$-(C(x) + f)$	$R(\theta)Q(\kappa_2)P(s)$

While the above model is tailored to the German institutional set-up, its predictions may also be applicable to industrial relations settings in which severance payments are compulsory at least for particular types of dismissals. This will be the case if, despite being mandatory, there is uncertainty about the level of a payment eventually made. Furthermore, the model will be applicable if firms have an incentive to misclassify dismissals as, for example, being due to disciplinary reasons, because such dismissals generally entail no severance pay entitlement and, therefore, provide incentives for dismissed workers to seek a court's evaluation of the cause of a dismissal (see, e. g., Malo (2000), Galdón-Sánchez and Güell (2003), and Fraisse, Kramarz and Prost (2009)). In both of the above cases, even officially mandatory severance payments are only obtained with a certain probability, and variations in a worker's costs of and gains from filing a case and obtaining a verdict are likely to have comparable effects than in the German industrial relations environment.

III.3 Comparative Statics

In our data set there is information on whether an employee receives a severance payment and on its magnitude. Therefore, the data allow us to calculate the probability of a severance payment being made at all, i.e. the incidence I, and the average level A. In terms of Table 1, the incidence

all the employee's payoffs are monetary, a comprehensive linear income tax will not affect the decisions to file a suit or to insist on a verdict (cf. equations (1) and (2)). Therefore, we exclude taxes from this investigation.

$I(\theta, \kappa_1) := 1 - (1 - R(\theta))(1 - Q(\kappa_1))$ describes the probability that equilibria 2 to 4 arise. The average level of severance payments A results from the weighted sum of the payment F* offered by the firm and the court-induced transfer C(x). The respective weights are given by the probabilities of occurrence, as listed in the last column of Table 1.

$$A := F^* R(\theta)(1 - Q(\kappa_2)) + C(x)[(1 - R(\theta))Q(\kappa_1) + R(\theta)Q(\kappa_2)] \quad (6)$$

Subsequently, the impact of changes in the exogenous parameters x, L, s, and α on the incidence I and the average level A of severance payments will be investigated. A rise in the costs L of not obtaining an offer by the firm can be interpreted as comparing the probability and magnitude of severance pay for two employees who only differ in L. In analogy, higher values of α and s capture greater costs of filing a suit and of insisting on a verdict for otherwise identical employees, whereas a rise in x captures a more severance pay-prone set of publicly observable, match-specific characteristics. Empirically, it is not always certain whether the firm is aware of the variables s, L, and α. Suppose, for example, that an employee's costs (α) of filing a suit decline because he has insurance, covering the costs of a court procedure. The firm may not know of such insurance and, in addition, the employee may not be able to credibly convey this information to the firm. In our analysis we initially assume symmetric information with respect to variations in L, s, and α. Subsequently we consider a situation in which the firm does not know about these changes. Note, finally, that some of the comparative static results derived below require uniform distributions of k, z and f. In this case, the optimal severance pay offer F*, the probabilities $Q(\kappa_1)$ and $Q(\kappa_2)$ of filing a suit, and the critical value θ of making a positive offer can be calculated explicitly (see Appendix 1).[12]

Proposition 1: Changes in the Incidence I with Symmetric Information about s, L, and α

a) An increase in the costs L of not receiving a severance pay offer raises the incidence I.

b) An increase in the costs s of insisting on a verdict and in the costs α of filing a suit, as well as a fall in the match-specific determinants x of court-induced severance payments reduce the incidence I, given uniform distributions of k and z.

Proof: see Appendix 2

Remarks:

(L) A rise in the employee's costs L of not receiving a severance pay offer, ceteris paribus, raises the willingness to contest a dismissal without an offer. The firm responds to the increase in the

[12] Given uniform distributions for k and z, the optimal firm offer F* unambiguously rises with the court-induced payment C(x) (see Appendix 1, equation (A.1.4)). A corresponding prediction also results in the models by Malo (2000) and Malo and Pérez (2003).

probability $Q(\kappa_1)$ of a suit being filed by making an offer more often. The optimal offer F* remains unaffected (see equations (2) and (4)). Hence, the incidence I rises.

(s, α) If the costs s (α) of insisting on a verdict (filing a suit) rise, the employee will file less often. In response, the firm reduces its optimal offer F*. This, ceteris paribus, raises the incentives to offer a payment. In sum, an increased willingness by the employee to refrain from filing and a reduction in F* basically have an ambiguous effect on the firm's willingness to make an offer. However, given uniform distributions of k and z, this willingness decreases. As, furthermore, the employee files a suit with a lower probability, the incidence I falls.

(x) A rise in the indicator x of match-specific legal determinants of severance pay is equivalent to a higher expected payment. Once again, the firm's incentives to offer a payment vary in an uncertain manner, unless uniform distributions are presumed.

Assume next that the firm only has limited information on the employee's characteristics s, α, and L and cannot condition its severance pay offer F* on them. As a further consequence, the critical value θ of the firm's costs of making an offer cannot be affected by these variables because they are unknown to the firm. As the discussion of the symmetric information setting has clarified, any ambiguity with respect to the effects of s and α results from the effects via θ and F*. This yields:

Proposition 2: Changes in the Incidence I with Asymmetric Information about s, L, and α
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, a rise in s and α and a fall in L will reduce the incidence I.

Proof: see Appendix 3

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 predictions summarised in Proposition 1.

The average level A of severance payments is not only influenced by $R(\theta)$ and $\Omega(\kappa_1)$ – as is the incidence $I(\theta, \kappa_1)$ – but also by the probability $\Omega(\kappa_2)$ of an employee filing a suit subsequent to an offer by the firm, the optimal offer F*, and the court-induced severance payment C(x). The impact of variations in exogenous parameters can be summarised as:

Proposition 3: Changes in Average Severance Pay A
a) If information is symmetric, changes in the costs s of insisting on a verdict, the costs α of filing a suit, and the costs L of not receiving a severance pay offer will generally have indeterminate consequences for the average amount A. The same is true for a change in the match-specific determinants x of court-induced severance payments. Given uniform distributions for k, z, and f,

A will decline with s and α if R(θ) is less than C(x)/(2F*) > 0.5, and will rise with L if R(θ) < 0.5. b) If the firm does not know a particular 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 average severance payment A.

Proof: see Appendix 4

Remarks:

The evidence referred to in Section II.2 and our own estimates presented below indicate that about a quarter of all dismissed employees receive severance payments. Accordingly, the restriction for the probability R(θ) (R(θ) < 0.5) of a firm making a severance pay offer in Proposition 3 is likely to hold. Nevertheless, Proposition 3 clarifies that a change in an exogenous parameter which, for example, lowers the incidence I does not automatically reduce the average level A as well. The reasoning – assuming uniform distributions and symmetric information – is as follows: the firm will lower its offer F* in response to an increase in s and α or a fall in x. In addition, the composition of the average severance payment A changes. In particular, A may already rise if unchanged court-induced payments C(x) are obtained with a sufficiently higher probability, so that the potential decline in the level of F* is more than compensated. As in the case of the incidence I, all uncertain effects of variations in L, s, and α on the average level A arise because the firm adjusts its behaviour, as part b) of Proposition 3 clarifies.

IV. Data and Empirical Specifications

IV.1 Data

Our data stems from the German Socio-Economic Panel (SOEP), a nationally representative longitudinal data set for Germany (Wagner, Frick and Schupp 2007). We exploit data for the years 1991 to 2006 for West Germany, drawn from survey waves from 1991 to 2007. Our analysis is based on a pooled sample of employees who experienced one of the following types of separation from their employers: closure of the firm (a), layoff (b) or a mutual agreement (c).[13] We exclude employees who left voluntarily, for (early) retirement or due to the phasing-out of temporary employment as well as apprentices, civil servants ("Beamte") and self-employed persons from our sample, because the components of EPL described in Section II.1 are of no relevance to them. Our sample size is N = 2999 for the descriptive analysis. Since information on some personal characteristics (e. g. alimony pay) is not available for every year, the regression

[13] Note that the questionnaire does not include all types of separation in every single year of the survey. In 1991-1998 only data for the categories (a) and (b) was collected, in 1999-2000 only data for (b) and (c) and in 2001-2007 data for all categories. Multiple answers are allowed in some years, but are of no relevance in our sample.

analysis is based on N = 2138 observations (N = 494 if information on union membership is added).

Information on severance pay comes from a question on its prevalence and amount. Note that it is not possible to distinguish between severance payment resulting from a firm's offer (F*) or a labour court suit (C(x)) in the data. To capture the impact of EPL, we generate information according to the criteria derived from the PADA and used by labour courts, representing proxies for the match-specific legal determinants x in the theoretical model. The respective variables include the natural logarithm (ln) of the previous monthly real gross wage, tenure and tenure squared in the last job, age, and regional unemployment rates (at the level of the "Bundesländer", *federal states*) as a proxy for general job prospects, as well as a set of dummy variables indicating the existence of alimony duties, whether children live in the household, 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 $\geq$ 50 (55) years *and* tenure $\geq$ 15 (20) years, absenteeism due to sickness, firm size, subjective individual future job prospects, and the type of job termination.

We capture the costs L of a dismissal without obtaining a severance pay offer in two ways; firstly, by the amount of monthly credit obligations. We hypothesise that the costs of losing the major source of income will be particularly high for credit-constrained people who cannot smooth consumption over time. Secondly, we proxy L by whether the dismissed worker *rents* a flat or house (labelled "tenant"). The underlying idea is that, controlling for debts, a tenant has greater fixed financial obligations, and a higher value of L, than someone who owns his accommodation.[14]

The employee-specific costs of filing a suit α or of insisting on a verdict s will decline if the employee is a trade union member. This is the case because one of the direct benefits of trade union membership in Germany is free legal advice in all affairs relating to the job and, furthermore, support and representation by unions in labour court proceedings. This assumption is supported by evidence provided by the German Trade Union Federation. According to a survey, 12% of all union members have been represented by their union in court at least once during their membership.[15] In addition, the costs α and s are likely to be lower for employees who hold legal protection insurance, since it reduces the costs of a labour court procedure significantly. We use information on whether an employee has taken out life insurance as an indication of having legal protection insurance, since 63% of all people with life insurance also

[14] Dummy variables, for example relating to alimony pay, children in the household or job prospects, could also be viewed as proxies for L. Since these indicators are either mentioned explicitly in the PADA or used by labour courts (Hümmerich 1999), we interpret them as match-specific legal determinants x of severance pay.

have legal protection insurance (Allensbach 2007). Furthermore, a previous job termination is likely to have generated information on legal entitlements etc., implying lower costs of filing a suit. Finally, it can be conjectured that the subjective costs of filing a suit and of insisting on a verdict may be influenced by preferences for the Social Democratic Party (SPD), since the SPD tends to strengthen the rights of employees in dismissal conflicts. We therefore include a dummy, indicating whether the respondent has (fairly) strong preferences for the SPD.

In addition, we use a vector of control variables which have been found to explain the incidence and magnitude of severance payments. These control variables are dummy variables for gender, part-time work, nationality (labelled "foreigner" if the respondent has no German citizenship), being a white collar worker, and having performed unpaid overtime as well as sets of industry, regional ("Bundesländer") and time dummies. Descriptive statistics are provided in Appendix 5.

IV.2 Empirical Specifications

The main aim of our empirical work is to predict the impact of EPL and its judicial enforcement on expected severance payments. Taking advantage of a basic rule of probability, expected severance pay [E(SVP|X)] can be defined as the product of the propensity to receive a payment [P(SVP_I=1|X)] and the expected amount, conditional on positive outcomes [E(SVP|X, SVP_I=1)], i.e. $E(SVP|X) = P(SVP\_I=1|X) * E(SVP|X, SVP\_I=1)$. Proposition 3 demonstrates that a variation in exogenous parameters X, which influences the incidence of severance pay (SVP_I), does not automatically alter the average severance payment. Hence, from a theoretical point of view, it seems necessary to allow the determinants of (1) the likelihood of receiving severance pay and (2) the amount of (real) severance pay, conditional on its incidence, to vary.

Given that our focus is on the prediction of E(SVP|X), a suitable econometric approach to deal with the problem at hand is the two part model (for details see Jones 2000). Essentially, the estimation is split up into two parts. With respect to the determinants of the propensity of receiving severance pay, a probit model is used, i.e. we specify $P(SVP\_I=1|X) = \Phi(\beta' X)$, where $\Phi()$ is the cdf of the standard normal distribution. Considering the amount of severance pay, conditional on positive outcomes, we use a generalised linear model (GLM) with log-link and gamma distribution to take into account the skewed distribution of observed severance payments. In particular, we specify $g\{E(SVP|X, SVP\_I = 1)\} = \beta' X$, where $g\{\ \}$ is the natural log-function and SVP is distributed as gamma.[16] After estimating both parts of the model, predictions for

[15] This figure can be found at http://www.einblick.dgb.de/download/2008/einblick_08_08.pdf (in German).

[16] See Manning, Basu and Mullahy (2005) for a general discussion. We do not present OLS estimates with ln(SVP|X, SVP_I=1) as dependent variable, since retransforming the predicted log values of severance pay does not guarantee that consistent estimates of E(SVP|X) can be recovered.

typical employees can be obtained by using $E(SVP|X) = P(SVP\_I=1|X) * E(SVP|X, SVP\_I=1)$. Weighting factors delivered with the SOEP, which account for the sampling design of the different sub-samples of the SOEP as well as for panel attrition (cf. Pannenberg et al. 2004), are used in all specifications.

Since our empirical work is based on a sample of employees whose jobs were terminated, one might be concerned that (a) employees are selected non-randomly in our sample due to criteria defined by law or legal practice, or the expected severance payment to be made and (b) unobserved individual personality traits have an impact on the decision to terminate a contract and to offer severance pay. We address these issues by means of Heckman-type sample selection models, i.e. we use a probit model with sample selection when investigating the prevalence of severance pay and a Heckman sample selection model with respect to the amount of severance pay. Using Likelihood-Ratio Tests, we find some evidence for non-random selection into the sample only with respect to the probability of receiving severance pay for the full sample. However, in this case the estimated parameters do not change notably.

V. Results

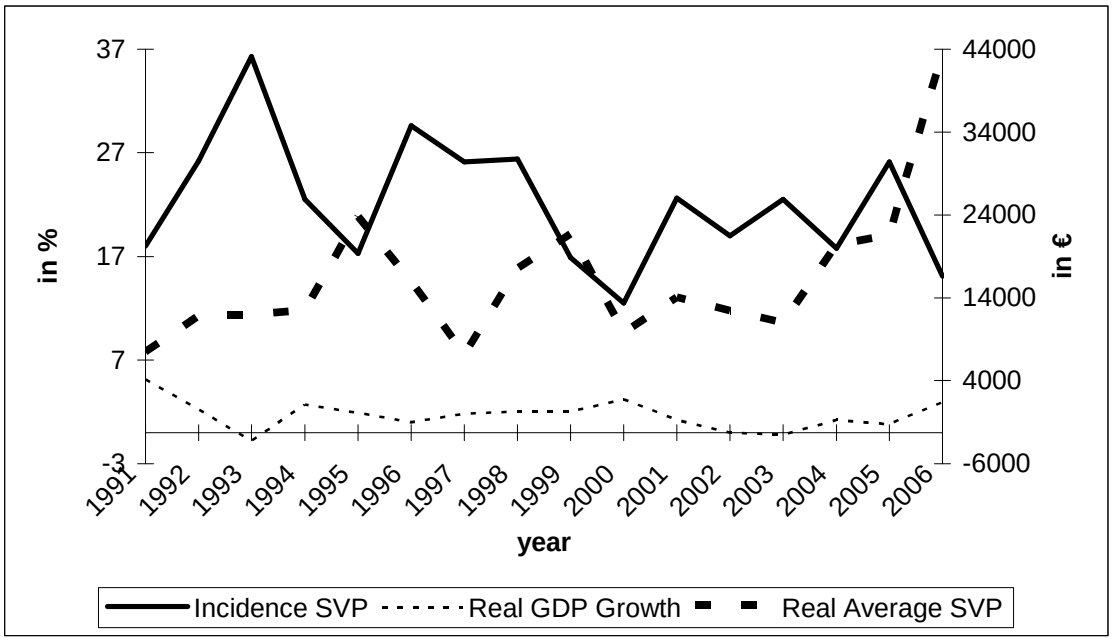
V.1 Descriptive Evidence

Figure 2 provides a plot of the incidence and level of severance payments over time. The fraction of job terminations with severance pay varies remarkably, with a minimum of 12.5 % in 2000 and a maximum of 36.3 % in 1993 (mean: 22.3%). The same is true for the average amount of real severance pay (min: € 7,186 (1997), max: € 43,546 (2006); mean: € 16,017).[17] Figure 2 reveals no obvious correlation patterns between the incidence or the average amount of real severance pay and real GDP growth. This is in line with the results of our regression analysis that the estimated parameters of the time dummies indicate no cyclical pattern.[18]

[17] The CPI is used to calculate real severance payments (base year 2000). The high value of real average severance pay in 2006 is due to two individuals who received more than € 200,000 as payments. Excluding these two individuals from subsequent calculations has no effects on our findings.

[18] Grund (2006a) finds a pro-cyclical pattern of the incidence in his raw data for 1991-2002. One explanation might be that he does not include "mutual agreements" and uses a pooled sample for West and East Germany.

Figure 2: Incidence and Real Average Severance Pay (SVP) in West Germany 1991-2006



Source: SOEP 1991-2007, Statistisches Bundesamt.

In Table 2 the means of some determinants of severance pay across groups and the results of the respective Wald-tests are displayed. The table provides some initial insights into the relationship between legal characteristics and the employee's costs, on the one hand, and severance pay on the other. Starting with the match-specific legal determinants x, rows 1 and 2 in Table 2 indicate that the two main ingredients of the severance pay formula, i.e. the last monthly real wage and tenure, may also affect the incidence. The same holds for age at job termination, which is used by labour courts as an additional criterion. Alimony duties might have a significant impact on the incidence but none on the amount of severance pay. Disabled workers, who are covered by additional employment protection rules, might exhibit a higher incidence and receive a greater amount.

Table 2: Severance Pay for various Characteristics in West Germany 1991-2006

Variable	Incidence (no: 0)	Incidence (yes: 1)	Real amount for respective characteristics (0/1)	
Last monthly real wage in €	3597.4**	5007.2**	--	--
Tenure	5.17**	12.44**	--	--
Age	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*	--	--
Tenant	0.70^{+}	0.62^{+}	24872.64**	10991.89**

Source: SOEP 1991-2007. N = 2999. Significance levels: **(0.01); *(0.05); $^{+}$(0.1).
Wald-test, H_0: estimates are equal across groups.

Turning to the proxies for employee-specific costs of a legal conflict, α and s, we can note from Table 2 that union members as well as workers preferring the SPD might receive severance pay more often, though there seems to be no effect on the amount. In addition, having taken out a life insurance is positively correlated with having legal protection insurance (Allensbach 2007), which often covers the costs of dismissal suits. People with insurance exhibit a higher chance of receiving severance pay and obtain higher payments in our simple cross-group comparison. Finally, turning to the proxies for L, our descriptive analysis indicates that workers with greater credit obligations (tenants) tend to exhibit a higher (lower) chance of receiving severance pay and receive a larger (smaller) amount. With the exception of the tenant variable, the above differences in the incidence and magnitude of severance pay are in line with Propositions 1 and 2 of our theoretical model and are also commensurate with Proposition 3.

V.2 Regression Results

Incidence of Severance Pay

Table 3 presents the results for the two probit specifications. The first two columns show the parameter estimates based on the full sample, while columns 3 and 4 are based on the reduced sample for which information on union status is available.

- Table 3 about here -

Match-specific legal determinants (x)

We observe that the wage and tenure – the two ingredients of the severance pay formula regularly used by labour courts – have a significantly positive impact on the likelihood of receiving a payment. Note though that the tenure impact is non-linear. The court-induced payment C(x) rises with the wage in line with the severance pay formula described above. In terms of our theoretical model, the gain from filing a suit increases. Accordingly, the firm will make a higher offer more often,[19] and the incidence of severance pay can be predicted to rise with the wage.[20]

Workers with alimony duties have a higher probability of receiving severance pay, indicating that criteria used by labour courts do indeed have an impact on the overall incidence of severance pay. This conclusion also holds for firm size. Most prominently, workers in firms in which the PADA has never applied (i.e., with fewer than five employees), have a dramatically lower chance of receiving severance pay. For workers aged 55 years or older, who have stayed with the firm for at

[19] This finding will be unambiguous if k and z are distributed uniformly and can be obtained from (A.1.4) and the definition of θ prior to equation (A.1.5) in Appendix 1 by calculating the impact of a rise in C(x) on F* and θ.

[20] As a check of robustness we additionally included the log of "other household income" in all regressions. The estimated parameters of the wage variable did not change and those of the "other household income" variable were never significantly different from zero.

least 20 years, the PADA defines a higher ceiling for court-awarded severance payments. The estimated parameters in columns 1 and 2 indicate that workers of this particular group have a higher likelihood of receiving severance pay. We find some evidence in the case of the union sample that a higher regional unemployment rate raises the incidence. This is consistent with the evidence from the survey of labour courts indicating that judges take re-employment opportunities into account.[21] As regards our theoretical model, all these empirical results are in line with Propositions 1 and 2, i.e. that match-specific legal determinants x of court-induced severance payments C(x) have a positive impact on their overall incidence.

The estimated parameter for the dummy variable "being (continuously) off sick for more than six weeks" is significantly positive in the full sample. Though a prolonged illness can justify a dismissal according to the PADA and would, thus, indicate a fall in x, our finding might be explained by the fact that the costs of an income loss are especially harsh for an employee who is severely ill, i.e. we observe a rise in L, the costs of not receiving any payment.

Costs to employee of filing a suit and obtaining a verdict (α, s)

We find a significant positive parameter estimate for the life insurance dummy, our proxy for having legal protection insurance. Furthermore, in the reduced sample the parameter estimate for union membership is significantly positive, while the life insurance variable becomes insignificant. A third proxy for reduced costs of filing a law suit is the repeated occurrence of a dismissal. The respective parameter estimate is significantly positive in both samples.[22] These findings are consistent with Propositions 1 and 2, suggesting that the incidence of severance pay declines with the costs α and s of filing a suit and of insisting on a verdict. Finally, it can be noted that the Social Democratic Party (SPD) usually emphasises the rights of employees in dismissal conflicts. If this attitude is indicative of the preferences of the SPD's voters, strong supporters of the Social Democrats may be more likely to gain from a court verdict than employees who favour other political parties. Our estimates are consistent with this view.[23]

Cost of dismissal without severance pay offer (L)

According to Propositions 1 and 2, an increase in the employee's costs of losing the job without a severance pay offer raises the incidence of severance pay. The costs L are presumably higher for

[21] Ichino et al. (2003) and Huang et al. (2008) derive predictions in their respective theoretical models that unemployment strengthens EPL via alterations in court decisions. Ichino et al. (2003) present corresponding evidence for Italy, while Marinescu (2007) observes that a worker's probability of prevailing in cases brought before UK Employment Tribunals will rise with the unemployment rate only if the worker is still unemployed.

[22] However, the parameter estimate is not significantly different from zero when we take sample selection into account. Therefore, we do not elaborate on the repeated occurrence of a dismissal in our predictions below.

[23] Obviously, a similar case can be made for the positive union membership dummy. However, since the life insurance dummy loses its significance in the reduced sample and the estimated parameter of preferring the SPD increases in size, the union dummy at least partly captures the effect of variations in the costs L.

a worker with credit obligations. In line with this conjecture we find that the parameter estimate for the amount of credit obligations is significantly positive. Moreover, tenants have higher monthly financial obligations, ceteris paribus, and are, therefore, likely to have higher costs L. The estimated parameter for the full sample is consistent with this surmise.

To summarise: all significant determinants of the incidence of severance pay in West Germany are either direct proxies for legal regulations and corresponding interpretations of labour courts or can be viewed as indicators of the costs of being dismissed. The only exception is the well-established, significantly negative estimate of being male. These findings have two major implications: (1) the incidence of severance pay in Germany is largely determined by legal and economic considerations; (2) the strictness of employment protection, as measured by the probability of being compensated for a job loss, is strongly influenced by the employee's costs of fighting the firm's dismissal decision. This effect of extra-legal determinants is surprising, given the relatively low costs of a legal dispute in a dismissal case in Germany.

Comparing our findings to those contributions mentioned in Section II.2, it can be noted that our results of positive effects of firm size, the last monthly real wage, being female or a white collar worker are in line with the empirical literature. Since the samples and the set of explanatory variables used by Grund (2006a, b), Jahn (2005, 2009) and Goerke and Pannenberg (2009) differ substantially, the extensive concurrence of these findings indicates that the main determinants of the probability of receiving severance payments in Germany are well identified. However, our additional findings relating to the costs of a labour court suit and, more generally, the costs of being dismissed, clarify that important determinants have not found sufficient attention yet.

Amount of Severance Pay

The results of the GLM-specification are presented in Table 4. Since only about 20% of the employees are union members, we solely present the findings for the full sample. The parameter estimate for the natural log of the last real gross wage is significantly positive and the significant parameter estimates of the two "tenure" variables indicate a concave tenure profile. Hence, the two ingredients of the linear severance pay formula for court-awarded severance pay have a significantly positive impact on the average amount of severance payments in West Germany. This is in line with Proposition 3. Note, that if severance payments are determined linearly by the product of tenure and the last monthly gross wage, the elasticity of severance pay with respect to the wage and also tenure will be unity. Our point estimate for the last gross monthly wage indicates an elasticity of 1.145. The 95% confidence interval indeed includes the value of unity. Considering the tenure elasticity of severance pay, we find evidence for a nonlinear relationship. Using the sample mean of tenure to calculate the elasticity yields a value of 1.01. However, if we

evaluate the tenure elasticity of severance pay at the median of tenure, the point estimate of the elasticity will only be 0.57.

- Table 4 about here -

Disabled persons generally receive higher severance pay, though we observe no difference regarding the threshold level of disability of at least 50%, which establishes further employment protection rules. This finding might reflect an employer's strategy to generally circumvent costly legal conflicts by offering higher severance pay to disabled workers, irrespective of the degree of disability. Finally, the amount of severance pay is significantly lower in small firms and is dramatically less in firms in which the PADA does not apply.

All of the above findings regarding the amount of severance pay relate to match-specific legal determinants. It is striking that none of the parameter estimates of our proxies for the employee's costs of a suit and for being dismissed without offer is significantly different from zero. Therefore, the amount of severance pay, as a further indicator of the strictness of EPL in Germany, is unaffected by proxies for such extra-legal determinants. Accordingly, the empirical exercise provides support for Proposition 3 only with respect to match-specific determinants. Positive tenure and wage effects have also been obtained in earlier empirical contributions, whereas no point estimates of the respective elasticities have been presented. Moreover, positive firm size consequences have generally been found.

V.3 Expected Severance Pay for Typical Employees

The main aim of our empirical work is to illustrate the impact of EPL and its judicial enforcement on expected severance pay. Therefore, we calculate (a) the probability of receiving severance pay [P(SVP_I = 1|X)], (b) the expected amount of severance pay [E(SVP|X, SVP_I = 1)], conditional on its incidence, and (c) the expected severance payment as the product of (a) and (b), for three "typical employees". We define our exemplary employees 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") must, therefore, have an age of 50 (55) or more years *and* a tenure of more than 15 (20) years, whereas anyone else is an "E_12" employee. Given these characteristics, the other covariates equal the relevant group means (in the case of a continuous variable) or describe the majority characteristic (in the case of dummy variables).[24] We additionally demonstrate the impact of some covariates of particular interest within our theoretical model. Our predictions provide information on the average amount of severance pay a typical employee has received in the years 1991-2006 in West Germany and,

[24] See Appendix 5 for a detailed description of the covariate values for the three typical employees.

thereby, represent an estimate of a lower bound for the expected costs of a dismissal. Our predictions will also indicate which workers are most strongly protected by EPL in Germany, if the workers with the highest expected costs of a dismissal are those who have the lowest probability of being dismissed.

- Table 5 about here -

Table 5 illustrates that expected severance payments for the full sample vary substantially between the three typical employees. Employees for whom a labour court can award a maximum severance payment of 12 monthly wages obtain an expected severance pay of only € 910, while workers with a maximum severance pay entitlement of 18 monthly wages can expect about € 22,530. If these typical employees work in a firm with less than five employees, where the PADA has never applied, the expected payment will decrease radically by at least 93%.

Given a conditional severance payment for an "E_18" employee of about € 35,000, a monthly wage of about € 4,800 (ln(wage) = 8.48) and a tenure of more than 30 years (see Appendix 5), the expected severance payment is around 30 weekly wages. This figure is substantially lower than that of 43 weeks of salary used by the World Bank (2007) for an employee having a tenure of 20 years. Since severance pay rises strongly with age and tenure in the relevant age range in our sample, the World Bank number may grossly overestimate dismissal costs.

If the typical employee is characterised by twice the standard deviation of the observed credit obligations in his particular group, the expected severance payment will increase by 15% ("E_18") to 79% ("E_12"). Moreover, being the owner of a house or flat, instead of renting it, leads to a decrease in expected severance pay by 26% ("E_18") to 50% ("E_12"). Not having a life insurance reduces the expected payment by 14% to 35%. Alternatively, if the typical employee prefers the Social Democrats, his expected severance pay will rise by 24% ("E_18") and may even double ("E_12"). If a typical employee has to make alimony payments, his expected severance pay will increase by roughly 15% to 57%. Finally, a dismissed employee who is disabled and has (continuously) been off sick for more than six weeks can expect a payment which is higher than that of an otherwise identical employee without these characteristics by about 70% to 131%.

The results in Table 6 for the smaller sample in which there is information on union membership reveal that the likelihood of receiving severance pay will increase substantially if a typical employee belongs to a trade union. In particular, an "E_12" employee who exhibits a ceiling of court-awarded severance pay of 12 monthly gross wages and is not a union member receives a severance payment with a probability of 15%, whereas the same employee who belongs to a trade union obtains a payment with a probability of 38%. This represents an increase in the likelihood

of receiving severance pay by about 150%. For an "E_15" ("E_18") employee, the respective probabilities rise by 41% (50%). In addition, the last column in Table 6 clarifies that a rise in the regional unemployment rate by twice the standard deviation above the mean rate raises the probability of obtaining severance pay by at least 53% and more than triples the likelihood of receiving a payment from 15% to 55% for an "E_12" employee. In sum, Tables 5 and 6 indicate that expected and conditional severance payments vary strongly with age and tenure, but also with extra-legal factors.

Table 6: Estimated Probabilities of Receiving Severance Pay in West Germany 1991-2006
- union sample -

	P(SVP_I=1| X)		
	Typical employee	*Typical employee + union=1*	*Typical employee + alq=2*Stdv.*
"E_12"	0.15	0.38	0.55
"E_18"	0.58	0.82	0.89
"E_15"	0.52	0.78	0.84

Source: SOEP 1991-2007

VI. Conclusion

There is no universal entitlement to severance pay in Germany. We have developed a model which allows severance payments to be rationalised as the outcome of a labour court procedure and the employer's desire to prevent such a conflict. Our model predicts that severance payments offered by firms in order to avoid a verdict rise with the level of expected court-awarded payments. As a consequence, the incidence and expected level of severance pay increase with the determinants of such payments (implicitly) laid down by employment protection legislation. More importantly, our model predicts that the incidence of severance pay declines with the employee's cost of a court procedure and that the average payment is also affected by such extra-legal characteristics. This suggests that the extent of employment protection – as captured by the expected amount of severance pay – varies with personal characteristics of employees, such as the ability to afford a dispute, which employment protection legislation in Germany deems irrelevant.

In our empirical exercise we use data from the German Socio Economic Panel (SOEP) for 1991-2006 and West Germany. We find descriptive evidence for the impact of rules, either explicitly mentioned in employment protection legislation or applied by labour courts, on the incidence and level of severance pay. Our regression analyses confirm these findings. For the incidence we also find substantial effects of the costs of a court procedure and of a dismissal without a severance pay offer. As a consequence, employment protection legislation does indeed affect who obtains severance pay in (West) Germany and how much a dismissed employee receives. Perhaps more

importantly, our findings suggest that extra-legal factors capturing the costs of a dismissal and of fighting a dismissal in a labour court have a strong impact on the probability of obtaining severance pay and, hence, the strictness of employment protection legislation.

In terms of magnitudes, we calculate that a typical employee without tenure and age restrictions receives severance payments in only 14% of all dismissals, but that this probability increases by about a factor of five for older employees with substantial tenure (cf. Table 5, column 1). The payment a typical employee receives, if he obtains a transfer, is about € 6,500 (in 2000 prices) and increases sixfold for older employees with very high tenure.

It is plausible to assume that observed severance payments represent a lower bound for the costs of a dismissal because, for example, firms face notice periods and have to bear administrative and further legal costs of dismissals (World Bank 2007). Focussing on a typical employee without age and tenure limits and assuming that these additional costs amount to twice the expected severance pay indicates that dismissing a typical employee will cost a firm about 85% ($3 * € 910 = € 2,730$) of this employee's previous monthly gross wage of about € 3,200. Our calculations also show that the costs of a dismissal are substantially higher for older employees with higher tenure, union members and those particularly protected by employment protection legislation.

In summary, our investigation of employment protection legislation in Germany indicates that the law on the books is indeed an important determinant of the law in action, but simultaneously reveals a substantial discrepancy between the two. As a consequence, intertemporal or international comparisons of the impact of employment protection legislation should aim to use consistent information on the law in action, whereas the use of data on the law on the books may seriously distort policy conclusions.

Table 3: Determinants of the Incidence of Severance Pay in West Germany 1991-2006

	Full sample		*Union sample*	
Row	1	2	3	4
Variable	*Coeff.*	*SE*	*Coeff.*	*SE*
	Match-specific legal determinants (x)			
Last monthly real wage (ln)	0.421**	0.138	0.643*	0.291
Tenure	0.121**	0.017	0.141**	0.035
Tenure (sqrd)	-0.003**	0.001	-0.003**	0.0012
Alimony	0.298^{+}	0.164	0.660*	0.305
Children 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 degree of disability≥50%	-0.265	0.327	-0.550	0.703
Age	0.002	0.006	0.009	0.011
Age ≥ 50 and tenure ≥ 15	-0.105	0.317	0.537	0.558
Age ≥ 55 and tenure ≥ 20	0.791*	0.334	0.261	0.697
Firm size: X < 5 employees	-1.703**	0.256	-0.974^{+}	0.525
Firm size: 5 ≤ X < 200 employees	-0.410**	0.133	-0.005	0.250
Firm size: 200 ≤ X < 2000 empl.	0.248^{+}	0.147	0.319	0.285
Off sick for more than six weeks	0.303^{+}	0.158	-0.103	0.249
Regional unemployment 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
	Costs of not receiving a severance pay offer (L)			
Credit obligations /(100)	0.028**	0.008	0.039*	0.017
Tenant	0.433**	0.125	0.315	0.235
	Employee-specific costs of a lawsuit (α, s)			
Life insurance	0.248*	0.105	0.250	0.188
Union membership	--	--	0.721**	0.271
More than one job termination	0.250*	0.111	0.567*	0.271
"Prefers Social Democrats" (SPD)	0.488*	0.204	1.388**	0.406
	Further covariates			
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	-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 of last job: closure	0.093	0.153	-0.253	0.285
Termination of last job: layoff	0.207	0.142	0.219	0.235
Dummy variables: Regions	*yes*		*yes*	
Dummy variables: Industry	*yes*		*yes*	
Dummy variables: Years	*yes*		*yes*	
Wald_X (df)	313.5** (57)		95.41**(47)	
Number of observations	2138		494	

Source: SOEP 1991-2007. Probit estimator. Dependent variable: dummy variable "incidence of severance pay". Weights are used. Robust standard errors (SE) allowing for clustering by person are reported.
Wald_X: H_0: no joint significance of all regressors. Significance levels: **(0.01); *(0.05); $^{+}$(0.1).

Table 4: Determinants of the Amount of Real Severance Pay in West Germany 1991-2006

Variable	*Coeff.*	*SE*
	Match-specific legal determinants (x)	
Last monthly real wage (ln)	1.145**	0.159
Tenure	0.128**	0.018
Tenure (sqrd)	-0.002**	0.000
Alimony	-0.076	0.534
Children in the household	0.125	0.081
Disabled person (D_P)	0.465*	0.157
D_P with degree of disability ≥ 50%	0.166	0.345
Age	-0.005	0.007
Age ≥ 50 and tenure ≥ 15	-0.325	0.213
Age ≥ 55 and tenure ≥ 20	-0.149	0.201
Firm Size: X < 5 employees	-0.712*	0.332
Firm size: 5 ≤ X < 200 employees	-0.420**	0.124
Firm size: 200 ≤ X < 2000 employees	-0.119	0.111
Off sick for more than six weeks	-0.194	0.134
Regional unemployment rate	0.016	0.015
"Hard to find a job"	-0.094	0.122
"Impossible to find a job"	-0.066	0.157
	Costs of not receiving a severance pay offer (L)	
Credit obligations/(100)	0.007	0.005
Tenant	0.023	0.115
	Employee-specific costs of a lawsuit (α, s)	
Life insurance	-0.001	0.084
More than one job termination	0.024	0.117
"Prefers Social Democrats (SPD)"	0.006	0.117
	Further covariates	
Male	0.052	0.105
White collar worker	0.098	0.133
Foreigner	0.275*	0.140
Part-time work	0.371*	0.178
Apprenticeship	0.042	0.118
University degree	0.282	0.195
Unpaid overtime	0.119	0.105
Termination of last job: closure	-0.085	0.156
Termination of last job: layoff	-0.237+	0.126
Dummy Variables: Regions	*yes*	
Dummy Variables: Industry	*yes*	
Dummy Variables: Years	*yes*	
Wald_X (df)	1064.6** (57)	
Number of observations	434	

Source: SOEP 1991-2007. Generalised linear model with log-link and gamma distribution.
Dependent variable: real severance pay. Full sample only. Weights are used.
Robust standard errors (SE) allowing for clustering by person are reported.
Wald_X: H_0: no joint significance of all regressors. Significance levels: **(0.01); *(0.05); +(0.1).

Table 5: Expected Severance Pay for Typical Employees in West Germany 1991-2006

- Full Sample -

	P(SVP_I=1|X) (a)	E(SVP|X,SVP_I=1) in € (b)	Expected Severance Pay in € [(a) ∗ (b)]
	Typical employee		
"E_12"	0.14	6502.4	910.3
"E_18"	0.65	34661.8	22530.2
"E_15"	0.38	28414.7	10797.6
	Typical employee + Firm size: X < 5 employees *=1*		
"E_12"	0.003	3114.6	9.3
"E_18"	0.09	16602.8	1494.3
"E_15"	0.02	13610.5	272.2
	*Typical employee + Credit=2*Stdv*		
"E_12"	0.25	6502.4	1625.6
"E_18"	0.75	34661.8	25996.4
"E_15"	0.59	28414.7	16764.7
	Typical employee + Tenant=0		
"E_12"	0.07	6502.4	455.2
"E_18"	0.48	34661.8	16637.7
"E_15"	0.23	28414.7	6535.4
	Typical employee + lifeI=0		
"E_12"	0.09	6502.4	585.2
"E_18"	0.56	34661.8	19410.6
"E_15"	0.29	28414.7	8240.3
	Typical employee + (SPD=1)		
"E_12"	0.28	6502.4	1820.7
"E_18"	0.81	34661.8	28076.1
"E_15"	0.57	28414.7	16196.4
	Typical employee + Alimony=1		
"E_12"	0.22	6502.4	1430.5
"E_18"	0.75	34661.8	25996.4
"E_15"	0.50	28414.7	14207.4
	Typical employee + (disabled=1, sickL6=1)		
"E_12"	0.22	9547.5	2100.5
"E_18"	0.75	50894.1	38170.6
"E_15"	0.50	41721.5	20860.7

Source: SOEP 1991-2007.

Appendix:

1. Uniform Distribution of k and z

Given a uniform distribution of z on [0, $\bar{z}$], the probability P(s) equals P(s) = ($\bar{z}$ - s)/$\bar{z}$, and $\tilde{z}$:= E(z | z > s) = ($\bar{z}$ + s)/2. Using equation (1), the critical value κ_1 can be calculated as:

$$\kappa_1 = C(x) + P(s)\{\tilde{z} - s\} + L = C(x) + (\bar{z} - s)^2/(2\bar{z}) + L \qquad (A.1.1)$$

Given the uniform distribution of k, substituting for κ_1 according to (A.1.1.) in $Q(\kappa_1)$ = $(\kappa_1 - \alpha)/(\bar{k} + \alpha - \alpha)$, yields the first part of equation (A.1.2):

$$Q(\kappa_1(s,x,L),\alpha) = \frac{2\bar{z}(C(x)+L) + (\bar{z}-s)^2 - 2\bar{z}\alpha}{2\bar{z}\bar{k}} = 2Q(\kappa_2(s,x,F(\alpha,s,x)),\alpha) + \frac{C(x)+L}{\bar{k}} - 1 \qquad (A.1.2)$$

For $\kappa_2 := C(x) - F^* + P(s)(\tilde{z} - s) = C(x) - F^* + (\bar{z} - s)^2/(2\bar{z})$, we have:

$$Q(\kappa_2) = \frac{\kappa_2 - \alpha}{\bar{k}} = \frac{2\bar{z}(C(x) - F^*) + (\bar{z}-s)^2 - 2\bar{z}\alpha}{2\bar{z}\bar{k}} \qquad (A.1.3)$$

Hence, the optimal severance pay offer F* resulting from equation (4) equals:

$$F^* = C(x) - \frac{2\bar{z}(\bar{k}+\alpha) - (\bar{z}-s)}{4\bar{z}} \qquad (A.1.4)$$

From equation (4), the term in square brackets in (A.1.4) is positive for F* > 0, implying F* < C(x). Substituting F* into (A.1.3) yields the second part of (A.1.2). The critical value θ is defined by (cf. equation (5)) $\theta\bar{k} = (L + F^*)C(x) + (C(x) - F^*)F^*$. Using F* from (A.1.4) generates:

$$\theta = \frac{LC(x)}{\bar{k}} + \frac{(C(x))^2}{\bar{k}} - C(x)\frac{2\bar{z}(\bar{k}+\alpha) - (\bar{z}-s)^2}{2\bar{z}\bar{k}} + \frac{1}{\bar{k}}\left(\frac{2\bar{z}(\bar{k}+\alpha) - (\bar{z}-s)^2}{4\bar{z}}\right)^2 \qquad (A.1.5)$$

2. Proposition 1: Changes in the Incidence I with Symmetric Information about s, L, and α

The effect of a rise in an arbitrary parameter h on the incidence $I(\theta, \kappa_1) = 1 - (1 - R(\theta))(1 - Q(\kappa_1))$ of severance payments is given by:

$$\frac{\partial I}{\partial h} = \left[\frac{\partial Q(\kappa_1)}{\partial h} + \frac{\partial Q(\kappa_1)}{\partial \kappa_1}\frac{\partial \kappa_1}{\partial h}\right](1-R) + R'(\theta)\frac{\partial \theta}{\partial h}(1 - Q(\kappa_1)) \qquad (A.2.1)$$

Note that $\partial Q(\kappa_1)/\partial\kappa_1$, $R'(\theta) > 0$. The impact of an increase in s, assuming a uniform distribution of z, using h = s, (A.1.1), (A.1.4), and (A.1.5) and $\partial Q(\kappa_1)/\partial s = 0$, can be derived as:

$$\frac{\partial I}{\partial s} = -\frac{\bar{z}-s}{\bar{z}\bar{k}}\left[1 - R + R'(\theta)F^*(1 - Q(\kappa_1))\right] < 0 \qquad (A.2.2)$$

Taking into account $\partial Q(\kappa_1)/\partial L = 0$ and (A.1.1) and (A.1.5), it can be seen that signing $\partial I/\partial L$ does not require distributional assumptions for k and z.

$$\frac{\partial I}{\partial L} = \frac{1}{\bar{k}}(1-R) + R'(\theta)\frac{C(x)}{\bar{k}}(1 - Q(\kappa_1)) > 0 \qquad (A.2.3)$$

Utilising $\partial\kappa_1/\partial\alpha = 0$, the definition of $Q(\kappa_1)$, and equations (A.1.1), (A.1.4), and (A.1.5), the effect of a rise in α on I (h = α) is found to be:

$$\frac{\partial I}{\partial \alpha} = -\frac{1}{\bar{k}}(1-R) - R'(\theta)\frac{F^*}{\bar{k}}(1-Q(\kappa_1)) = \frac{\partial I}{\partial s}\frac{\bar{z}}{\bar{z}-s} < 0 \qquad \text{(A.2.4)}$$

The impact of a rise in x (h = x), once again taking into account (A.1.1), (A.1.4), and (A.1.5), is:

$$\frac{\partial I}{\partial x} = \frac{1}{\bar{k}}C'(x)(1-R) + R'(\theta)\frac{C'(x)}{\bar{k}}(2F^*+L)(1-Q(\kappa_1)) > 0 \qquad \text{(A.2.5)}$$

3. Proposition 2: Changes in the Incidence I with Asymmetric Information about s, L, and α

If the firm has no information on the employee's characteristics s, L, α, it cannot condition F* on them. Moreover, the critical value θ is independent of s, L, α. Therefore, in equations (A.2.2) to (A.2.4) the derivatives of θ with respect to s, L, α drop out. In addition, the probability $Q(\kappa_2)$ is no longer a function of s, L, α via F*. Taking these effects into account, the changes in the incidence I can be signed without restricting the distributions of k and z.

$$\frac{\partial I}{\partial s}\Big|_{dF^*=d\theta=0} = \frac{1}{\bar{k}}\frac{\bar{z}-s}{\bar{z}}(1-R) = -\frac{\partial I}{\partial L}\Big|_{dF^*=d\theta=0}\frac{\bar{z}-s}{\bar{z}} < 0 \qquad \text{(A.3.1)}$$

$$\frac{\partial I}{\partial \alpha}\Big|_{dF^*=d\theta=0} = -\frac{1}{\bar{k}}(1-R) < 0 \qquad \text{(A.3.2)}$$

4. Proposition 3: Changes in the Average Amount of Severance Pay A

The average level A of severance payments, given a payment at all, as defined in equation (6), can be rewritten, to express the impact of a change of an arbitrary parameter h on A as:

$$\frac{\partial A}{\partial h} = \left(\frac{\partial F^*}{\partial h} - \frac{\partial C(x)}{\partial h}\right)R(\theta)(1-Q(\kappa_2)) + (F^*-C(x))R'(\theta)\frac{\partial \theta}{\partial h}(1-Q(\kappa_2))$$

$$-(F^*-C(x))R(\theta)\left[\frac{\partial Q(\kappa_2)}{\partial h} + \frac{\partial Q(\kappa_2)}{\partial \kappa_2}\frac{\partial \kappa_2}{\partial h}\right] + \frac{\partial C(x)}{\partial h}I + C(x)\frac{\partial I}{\partial h} \qquad \text{(A.4.1)}$$

Assuming uniform distributions for k and z, and taking into account (A.1.4), $\partial\theta/\partial s = -(\bar{z} - s)F^*/(\bar{z}\bar{k})$ and $\partial\kappa_2/\partial s = -(\bar{z} - s)/\bar{z}$, the change in A owing to a rise in s (h = s) can be calculated as:

$$\frac{\partial A}{\partial s} = \frac{\partial F^*}{\partial s}R(\theta)(1-Q(\kappa_2)) + (F^*-C(x))\left(R'(\theta)\frac{\partial \theta}{\partial s}(1-Q(\kappa_2)) - R(\theta)\frac{\partial Q(\kappa_2)}{\partial \kappa_2}\frac{\partial \kappa_2}{\partial s}\right) + C(x)\frac{\partial I}{\partial s}$$

$$= -\frac{\bar{z}-s}{2\bar{z}\bar{k}}\left[R(\theta)\left(\bar{k}(1-Q(\kappa_2)) - F^*-C(x)\right) + 2C(x)\right]$$

$$+\frac{\bar{z}-s}{2\bar{z}\bar{k}}\left[2R'(\theta)F^*\left(C(x)(Q(\kappa_1)-Q(\kappa_2)) - F^*(1-Q(\kappa_2))\right)\right] \qquad \text{(A.4.2)}$$

Using equation (5), the derivative (A.4.2) can be simplified:

$$\frac{\partial A}{\partial s} = \frac{\bar{z}-s}{2\bar{z}\bar{k}}\left[R(\theta)\left(F^*+C(x) - \bar{k}(1-Q(\kappa_2))\right) - 2C(x) + 2R'(\theta)F^*\theta\right] \qquad \text{(A.4.3)}$$

Note from equation (4) that $C(x) - F^* = (1 - Q(\kappa_2))\bar{k}$ holds, because $\partial Q(\kappa_2)/\partial F = -1/\bar{k}$. Assuming a uniform distribution of f in the interval $[0, \bar{f}]$, $R'(\theta)\theta = R(\theta)$ applies, because the lower bound of the interval from which f stems is zero. Accordingly, (A.4.3) can be rewritten as:

$$\frac{\partial A}{\partial s} = \frac{\bar{z}-s}{\bar{z}\bar{k}}\left[2F^*R(\theta) - C(x)\right] \tag{A.4.4}$$

If $R(\theta) < C(x)/(2F^*)$, where $F^* < C(x)$ and, hence, $C(x)/(2F^*) > 0.5$, the expected level of severance pay A declines with s.

The change in A, owing to a rise in α (h = α), can be derived in the same manner as the effect of s:

$$\frac{\partial A}{\partial \alpha} = \frac{1}{2\bar{k}}\left[-\bar{k}R(\theta)(1-Q(\kappa_2)) - (F^*-C(x))\left(2R'(\theta)F^*(1-Q(\kappa_2)) - R(\theta)\right)\right]$$

$$-\frac{1}{2\bar{k}}2C(x)\left[1-R(\theta)+R'(\theta)F^*(1-Q(\kappa_1))\right]$$

$$= \frac{1}{\bar{k}}\left[F^*R(\theta) - C(x) + R'(\theta)F^*\theta\right] = \frac{\partial A}{\partial s}\frac{\bar{z}}{\bar{z}-s} \tag{A.4.5}$$

The change in A, owing to a rise in L (h = L), is given, again making use of equation (5), by:

$$\frac{\partial A}{\partial L} = \frac{(F^*-C(x))R'(\theta)C(x)(1-Q(\kappa_2))}{\bar{k}} + \frac{C(x)}{\bar{k}}\left[(1-R(\theta)) + R'(\theta)C(x)(1-Q(\kappa_1))\right]$$

$$= \frac{C(x)}{\bar{k}}\left[1-R(\theta)-R'(\theta)\theta\right] \tag{A.4.6}$$

The relation between A and x can, utilising equation (5), be calculated as:

$$\frac{\partial A}{\partial x} = \left(C'(x)-C'(x)\right)R(\theta)(1-Q(\kappa_2)) + (F^*-C(x))\frac{\partial R(\theta)}{\partial x}(1-Q(\kappa_2)) + C'(x)I + C(x)\frac{\partial I}{\partial x}$$

$$= \frac{C'(x)}{\bar{k}}\left[C(x)(1-R(\theta)) + \bar{k}\Omega - R'(\theta)(2F^*+L)\theta\right] \tag{A.4.7}$$

Turning to the changes in average severance pay A in the presence of asymmetric information about s, L, and α, it must be taken into account that neither the optimal offer F* nor the critical value θ of the firm making an offer can vary with s, L, and α. Accordingly, the effects of changes in these parameters can be derived without restrictions on the distributions of k, z, and f.

$$\frac{\partial A}{\partial s}\Big|_{dF^*=d\theta=0} = \frac{\bar{z}-s}{\bar{z}}(F^*R(\theta)-C(x)) = \frac{\bar{z}}{\bar{z}-s}\frac{\partial A}{\partial \alpha}\Big|_{dF^*=d\theta=0} < 0 \tag{A.4.8}$$

$$\frac{\partial A}{\partial L}\Big|_{dF^*=d\theta=0} = \frac{C(x)(1-R(\theta))}{\bar{k}} > 0 \tag{A.4.9}$$

5. Characteristics of Typical Employees and Descriptive Statistics

Mr. "E_12": ln(last wage) = 8.08, (age ≥ 50 & tenure ≥ 15) = 0, (age ≥ 55 & tenure ≥ 20) = 0, age = 38.4, tenure = 4.9, male = 1, children in the household = 1, monthly credit obligations = 366€, hard to find a job = 1, impossible to find a job = 0.

Mr "E_18": ln(last wage)= 8.48, (age ≥ 50 & tenure ≥ 15) = 0, (age ≥ 55 & tenure ≥ 20) = 1, age = 58.8, tenure = 30.7, male = 1, children in the household = 0, monthly credit obligations = 184€, hard to find a job = 0, impossible to find a job = 1.

Mr. "E_15": ln(last wage) = 8.40, (age ≥ 50 & tenure ≥ 15) = 1, (age ≥ 55 & tenure ≥ 20) = 0, age = 53.9, tenure = 22.5, male = 1, children in the household = 1, monthly credit obligations = 395€, hard to find a job = 1, impossible to find a job = 0.

Characteristics set identical for all typical employees:
0: foreigner, part-time work, alimony duties, repeated dismissal, firm size: X < 5 employees, firm size: X < 2,000 employees, university degree, disabled, disabled person with degree of disability ≥ 50%, off sick for more than six weeks, unpaid overtime, closure, prefers SPD.
1: male, life insurance, firm size: 5 ≤ X < 200 employees, white collar worker, apprenticeship, layoff, tenant.

Characteristics set to overall means:
Unemployment rate at the state level and sets of year, industry and regional dummies.

Table A1: Descriptive Statistics for Full Sample

Variable	*Mean*	*SE*
Severance Pay Incidence (SVP_I)	0.22	--
Severance Pay Amount (SVP|SVP_I=1)	16017.17	1468.87
Termination of last job: closure	0.24	--
Termination of last job: layoff	0.60	--
	Match-specific legal determinants (x)	
Last monthly real wage (ln)	8.12	0.61
Tenure	6.47	8.27
Alimony	0.11	--
Children in the household	0.50	--
Disabled person (D_P)	0.06	--
D_P with degree of disability ≥ 50%	0.03	--
Age	40.40	11.33
Age ≥ 50 and tenure ≥ 15	0.04	--
Age ≥ 55 and tenure ≥ 20	0.05	--
Firm size: X < 5 employees	0.14	--
Firm size: 5 ≤ X < 200 employees	0.54	--
Firm size: 200 ≤ X < 2000 employees	0.15	--
Off sick for more than 6 weeks	0.13	--
Regional unemployment rate	9.95	3.10
"Hard to find a job"	0.56	--
"Impossible to find a job"	0.18	--
	Costs of not receiving a severance pay offer (L)	
Credit obligations/(100)	3.86	9.02
Tenant	0.67	--
	Employee-specific costs of a lawsuit (α, s)	
Life insurance	0.58	--
More than one job termination	0.30	--
"Prefers Social Democrats (SPD)"	0.06	--
	Further covariates	
Male	0.56	--
White collar worker	0.56	--
Foreigner	0.14	--
Part-time work	0.19	--
Apprenticeship	0.70	--
University degree	0.08	--

Unpaid overtime	0.16	--

Source: SOEP 1991-2007. Number of observations N = 2999 (2138).

References

Allensbach (2007), Analysis of the "Allensbacher Markt- und Werbeträgeranalysen" (AWA).

Bauer, Thomas, Bender, Stefan, Bonin, Holger (2007), Dismissal Protection and Worker Flows in Small Establishments, Economica, Vol. 74, 804-821.

Bertola, Guiseppe, Boeri, Tito, Cazes, Sandrine (1999), Employment Protection and Labour Market Adjustment in OECD Countries: Evolving Institutions and Variable Enforcement, ILO Employment and Training Papers No. 48.

Besancenot, Damien, Vranceanu, Radu (2009), Multiple Equilibria in a Firing Game with Impartial Justice, Labour Economics, Vol. 16(3), 262-271.

Daughety, Andrew F., Reinganum, Jennifer F. (2009), Settlement, forthcoming in: Sanchirico, Chris W. (ed), Encyclopedia of Law and Economics (2nd ed.), Vol. 10 – Procedural Law and Economics, Edward Elgar: Cheltenham.

Deffains, Bruno, Gabuthy, Yannick, Lambert, Eve-Angéline (2009), Labour Disputes, Investment Decisions and the Judiciary, forthcoming: Labour Economics.

Eger, Thomas (2003), Opportunistic Termination of Employment Contracts and Legal Protection Against Dismissals in Germany and the USA, International Review of Law and Economics, Vol. 23, 381-403.

Ellguth, Peter, Kohaut, Susanne (2007), Tarifbindung und betriebliche Interessenvertretung – Aktuelle Ergebnisse aus dem IAB-Betriebspanel 2006, WSI-Mitteilungen 9, 511-514.

Falke, Josef, Höland, Armin, Rhode, Barbara, Zimmermann, Gabriele (1981), Kündigungspraxis und Kündigungsschutz in der Bundesrepublik Deutschland. Bonn.

Falke, Josef (1983), Kündigungspraxis und Kündigungsschutz, 13-43, in: Ellermann-Witt, Rolf, Rottleuther, Hubert and Harald Russig (eds), Kündigungspraxis, Kündigungsschutz und Problem der Arbeitsgerichtsbarkeit, Westdeutscher Verlag: Opladen.

Fraisse, Henri, Kramarz, Francis, Prost, Corinne (2009), Labor Markt Outcomes and the Enforcement of the Employment Protection Legislation, Mimeo.

Galdón-Sánchez, Josè E., Güell, Maia (2003), Dismissal Conflicts and Unemployment, European Economic Review, Vol. 47(2), 127-139.

Goerke, Laszlo, Pannenberg, Markus (2009), The Effects of Income Taxation on Severance Pay, Labour Economics, Vol. 16(1), 107-118.

Grund, Christian (2006a), Severance Payments for Dismissed Employees in Germany, European Journal of Law and Economics, Vol. 22, 49-71.

Grund, Christian (2006b), Overcompensation by Severance Payments, Applied Economics, Vol. 38(8), 925-930.

Höland, Armin, Kahl, Ute, Zeibig, Nadine (2007), Kündigungspraxis und Kündigungsschutz im Arbeitsverhältnis, Nomos Verlagsgesellschaft and Rainer Hampp Verlag: Baden-Baden.

Huang, Chun-chieh, Chang, Juin-jen, Lai, Ching-chong (2009), Employment Effect of Dismissal Pay in the Presence of Judicial Mistakes, International Review of Law and Economics, Vol. 29(1), 38-45.

Hümmerich, K. (1999), Die arbeitsgerichtliche Abfindung – Ein Beitrag zur Abfindungspraxis und zur gesetzlichen Neuregelung, Neue Zeitschrift für Arbeitsrecht, 342-358.

Ichino, Andrea, Polo, Michele, Rettore, Enrico (2003), Are Judges Biased by Labour Market Conditions?, European Economic Review, Vol. 47, 913-944.

Jahn, Elke J. (2005), Wie wirkt der Kündigungsschutz?, Zeitschrift für Arbeitsmarktforschung, 2-3/2005, 284-304.

Jahn, Elke J. (2009), Do Firms Obey the Law When They Fire Workers? – Social Criteria and Severance Payments in Germany, forthcoming: International Journal of Manpower.

Jolls, Christine (2004), The Role and Functioning of Public-Interest Legal Organizations in the Enforcement of the Employment Laws, 141-176, in: Freeman, Richard B., Hersch, Joni, Mishel, Lawrence (eds), Emerging Labor Market Institutions for the 21st Century, The University of Chicago Press: Chicago.

Jolls, Christine (2007), Employment Law, 1349-1386, in: Polinsky, Mitchell A. and Steven Shavell (eds), Handbook of Law and Economics 2, North-Holland: Amsterdam et al.

Jones, Andrew M. (2000), Health Econometrics, 265-344, in: Culyer, Anthony J., Newhouse, Joseph P. (eds.), Handbook of Health Economics 1A, North-Holland: Amsterdam et al.

Manning, Willard G., Basu, Anirban, Mullahy, John (2005), Generalized Modeling Approaches to Risk Adjustment of Skewed Outcomes Data, Journal of Health Economics, Vol. 24, 465-488.

Malo, Miguel Á. (2000), A Simple Model of Severance Pay Determination: The Case of Individual Dismissals in Spain, Labour, Vol. 14(2), 269-290.

Malo, Miguel Á., Pérez, Joaquin (2003), Individual Dismissals in Europe and the United States: A Model of the Influence of the Legal Framework on Firing Costs, European Journal of Law and Economics, Vol. 15(1), 47-63.

Marinescu, Ioana (2007), Are Judges Sensitive to Economic Conditions? Evidence from UK Employment Tribunals, Mimeo.

OECD (1999b), Employment Outlook, Chapter 2: Employment Protection and Labour Market Performance, 47-132, Paris.

OECD (2004), Employment Outlook, Chapter 2: Employment Protection Regulation and Labour Market Performance, 61-125, Paris.

Pannenberg, Markus, Pischner, Rainer, Rendtel, Ulrich, Spieß, Martin, Wagner, Gerd (2004), Sampling and Weighting. In J. Haisken-DeNew, John, Frick, Bernd (eds.), Desktop Companion to the SOEP. Berlin.

Pfarr, Heide, Ullmann, Karen, Bradtke, Marcus, Schneider, Julia, Kimmich, Martin, Bothfeld, Silke (2005), Der Kündigungsschutz zwischen Wahrnehmung und Wirklichkeit, Rainer Hampp Verlag: Mering.

Spier, Kathryn E. (2007), Litigation, 259-342, in: Polinsky, Mitchell A. and Steven Shavell (eds), Handbook of Law and Economics, Vol. 1, North-Holland: Amsterdam et al.

Spilger, Andreas M. (2007), § 10 Höhe der Abfindung, in: Etzel, Gerhard et al. (eds), Gemeinschaftskommentar, 8th ed., Luchterhand-Verlag: Köln.

Stähler, Nikolai (2008), Firing Costs, Severance Payments, Judicial Mistakes and Unemployment, Labour Economics, Vol. 15, 1162-1178.

Wagner, Gerd G., Frick, Joachim R., Schupp, Jürgen (2007), The German Socio-Economic Panel Study (SOEP) – Scope, Evolution, and Enhancements, Schmollers Jahrbuch, Vol. 127 (1), 139-169.

World Bank (2006), Doing Business in 2006 – Creating Jobs, Washington.

World Bank (2007), Doing Business in 2008, Washington, plus additional information available under: http://www.doingbusiness.org/ExploreTopics/EmployingWorkers/Details.aspx?economyid=75.

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