

How German Labor Courts Decide

—An Econometric Case Study—

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Abstract

Courts are an important element in the institutional framework of labor markets, often determining the actual degree of employment protection. German labor courts provide a vivid example in this regard. However, we know relatively little about actual court behavior. A unique data set on German labor court verdicts reveals that social and other criteria like employee characteristics, the type of job, local labor market conditions, and court composition influence court decisions. At least as striking is that workers' chances to win depend on where and when their cases are filed generating considerable ex-ante uncertainty about outcomes.

JEL: J41, J65, K31, K41

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1. Introduction

Labor courts are an important element in the institutional framework of labor markets. Most employment protection indicators focus on laws, but in many countries it is labor courts that determine the actual degree of employment protection. However, in contrast to legal norms which are relatively easily documented and verified (OECD 2004), relatively little is known about the behavior of labor courts.

German labor courts provide a vivid example for the importance of the judicial branch. Employment protection in Germany is rooted in a number of laws ranging from the Civil Code (*Bürgerliches Gesetzbuch*) to the Protection against Dismissal Act (*Kündigungsschutzgesetz*), and the Works Constitution Act (*Betriebsverfassungsgesetz*). However, these laws set out general principles rather than specific rules and in practice German labor courts determine the actual degree of employment protection by implementing, interpreting, and often developing the legal framework (Berger 1998, Grund 2006, Goerke and Pannenberg 2009). Contract disputes over dismissals are behind about half of all cases handled by labor courts, and estimates suggest that between about 11 and 27 percent of all dismissed workers go to court (see Pfarr et al. (2005), Höland et al. (2005) and Jahn and Schnabel (2003), respectively). Here judges rule, on a case-by-case basis, whether dismissals are justified on economic (i.e. operational) grounds and “socially justified” according to a number of law-anchored but mostly court-developed criteria. Among these criteria is the age of a worker disputing his or her dismissal, his or her tenure, and obligations to support dependents.¹ If found lacking along these lines, dismissals can be revoked or courts will determine employees should receive a severance payment from the firm.

The present paper provides an empirical case study of German labor court decisions and their determinants. It is based on a unique natural experiment illustrating the similarities and differences of court behavior across Germany. The data summarize the decisions and key

¹ On “social criteria”, see, inter alia, Hromadka and Maschmann (2002), Kittner and Zwanziger (2001), or Däubler, Hjort and Hummel (2009).

characteristics of 221 individual cases handled by 33 different lower-level labor courts (*Arbeitsgerichte*) in 12 German states between August 2003 and September 2006. For several reasons the data allow a consistent analysis of cross-court heterogeneity:² all cases were filed by employees of the same national electronics and media retail chain; the causes of dismissal are virtually identical across the sample; the retailer was represented by the same law firm and lead attorney throughout; and all cases occur within a rather short time interval, which makes it unlikely that results are driven by legislative changes.³

The results include a number of surprising facts. While social criteria anchored in the legal framework indeed play a role in explaining court decisions, other employee characteristics (such as gender or the presence of a union attorney), the nature of the job held by employees (including the salary level), and local labor market conditions (unemployment) also matter. While some of these results can be reconciled with the idea of social criteria in a broader sense, others cannot. This seems to point to a more discretionary side of labor court decision making, with outcomes that may not necessarily be intended by lawmakers. This certainly also holds for indications that the probability of winning a case seems to be influenced by the gender composition of labor courts. At least as striking is the very strong impact of fixed time and court effects, which suggest that workers' chances to win depend systematically on where and when their cases are filed. Finally, while these findings indicate a certain predictable regularity in court behavior, considerable *ex ante* uncertainty about outcomes remains.

Some of these findings reflect results reported in earlier studies of court behavior. For instance, Franz (1994) has argued that German labor courts have trended toward more employee-friendly decisions after the surge in unemployment rates in the late 1970s, implying that court decisions could be influenced by local labor market conditions. Bertola et

² Heterogeneity in the causes for dismissal complicates the analysis of regional differences in decision making in the only other systematic case-based study of labor court behavior we are aware of (Ichino et al. 2003).

³ A possible exception is the *Gesetz zu Reformen am Arbeitsmarkt* which came into effect on January 1st 2004. Econometrically, we will control for changes in the common legal framework of labor courts by introducing time fixed effects.

al. (1999) and Ichino et al. (2003) discuss international evidence pointing in a similar direction. Another strand of the literature stresses gender issues in court behavior because female judges might be more attuned to problems faced by female employees—see, for instance Boyd et al. (2009) on U.S. courts. In addition, it has been argued that court decisions could be subject to political influences. For instance, there is some evidence that U.S. and German judges react to societal preference swings or share certain biases with the politicians appointing them (Hanssen 2004, Berger and Neugart 2008). Finally, Hefeker and Neugart (2009) stress the link between the behavior of labor courts and labor market policies and show that the degree of court discretion (and the resulting uncertainty) influences regulatory activity in a panel of OECD countries.

There are reason to believe that labor court activity—and, by extension, the determinants of labor court activity—influences labor market performance. At a theoretical level, Stähler (2008) argues that it may particularly be uncertainty about labor court decisions which impacts employment. Developing the Pissarides (2000) matching model to allow for shirking along the lines of Shapiro and Stiglitz (1984), he shows that judicial mistakes can increase unemployment.⁴ For example, a firm might claim that the worker was dismissed for behavioral reasons although the dismissal was actually operational and the court, for whatever reason, wrongly denies severance payments. Judicial mistakes introduce additional income uncertainty into workers' income, which increases the wages a firm has to pay in order to avoid shirking and, ultimately, lowers employment.⁵ Empirically, there is some evidence that labor court decisions indeed influence labor markets outcomes. Autor (2003) and Autor et al. (2004, 2006) present results for the U.S., and Berger and Neugart (2008) report a significant positive relation between labor court activity and unemployment in Germany after controlling for the endogeneity of court activity.⁶

⁴ See Galdón-Sánchez and Güell (2003) for an earlier exploration of judicial mistakes in a shirking framework. Goerke (2002) discusses the advantages of severance pay over pure firing costs from an allocative perspective.

⁵ Huang et al. (2009) argue that, at least in part, the mistake made by courts could also have a deterministic component that could be correlated, for instance, with unemployment. This would open another feedback loop between court behavior and the real economy.

⁶ See also earlier findings by Berger (1998) and Berger and Danninger (2006).

Any analysis of court behavior needs to consider decisions by workers and firms taken prior to the filing of a case because they can, at least in principle, influence sample selection and empirical results. In the case study at hand, this includes the conduct of workers prior to the dismissal, the firm's decision to fire workers, and the decision by workers to take the case to court. Not all of these are equally problematic. The very nature of our sample virtually excludes a selection bias introduced by workers' conduct, simply because dismissals happened on a larger scale and for the same operational reason. Similarly, because the firm's decision was dictated by an overarching economic rationale across all outlets and not driven by individual worker-specific considerations, there seem to be little reason to suspect that a systematic selection bias on the firm's side shaped the sample. As to the question whether workers with case attributes making them more likely to win their argument in front of labor courts were also more likely to file their case, the answer depends. With respect to the personal characteristics, self selection would only be an issue to the extent that the composition of the workforce of the firing firm was systematically different across regions, which does not seem to be the case. This leaves the regional labor market conditions which indeed vary across the labor court locations. However, while this could potentially upward-bias the estimated impact of, say, regional unemployment rates on court outcomes, it will not distort the qualitative results.

The remainder of the paper is organized as follows. Section 2 describes the data in greater detail, and Section 3 illustrates some of its underlying patterns. Section 4 reports the results of a more extensive econometric analysis. Section 5 provides a discussion of the robustness and representativeness of results. Finally, Section 6 concludes.

2 Data

Our data set comprises 221 written decisions by lower level labor courts (*Arbeitsgerichte*) on dismissals. About $\frac{3}{4}$ of these claims have been filed by employees aiming to nullify an operational dismissal (*Beendigungskündigungen*) by the employer, and the remaining $\frac{1}{4}$ of

cases concerned employees seeking to cancel an operational dismissal that was combined with a conditional re-employment offer under a new contract (*Änderungskündigungen*), usually implying a significant downward change in job title, working conditions, and pay. While the underlying legal concepts differ, both types of dismissals turn out to be more or less equivalent in empirical terms.⁷ In what follows, we will present our findings based on the full sample of court decisions, but results are qualitatively very similar for a restricted sample focusing on straightforward dismissals alone.

Out of the full sample, about 62 percent were won by employees and no settlements occurred. A case is classified as “won by employee” if courts sided with workers and nullified a dismissal or change to a work contract, and as “not won by employee” otherwise. As Table 1 reveals, there is considerable regional variation with regard to cases won by workers. For example, in labor courts located in Freiburg and Mannheim courts went with employees 100 and 94 percent of all cases, respectively, while that ratio was about 54 percent in Berlin and Halle, and the courts in Dessau and Braunschweig decided against employees in every case they handled. The regional distribution involves a total of 33 courts in 12 (out of 16) German states. The average number of decisions is about 7, but the median is 2, and eleven courts, including, for instance, Chemnitz, Darmstadt, and Deggendorf, saw only 1 case. At the same time, the number of labor court cases decided in Ludwigshafen, Mannheim, or Berlin ranges from 18 to 67.

⁷ This is hardly surprising. Almost by definition, the employees taking their cases to the courts were also the ones that found the conditions attached to the offered re-employment unattractive. That is, from their perspective the dismissal combined with conditional reemployment was equivalent to a straightforward dismissal.

Table 1: Distribution of cases by labor court and winning employees

Location of labor court	Total number of cases	Cases won by workers	Percent
Bamberg	2	2	100.0
Bayreuth	2	2	100.0
Berlin	67	36	53.7
Brandenburg.a.d.H	3	1	33.3
Braunschweig	2	0	0.0
Bremen	3	2	66.7
Chemnitz	1	0	0.0
Darmstadt	1	1	100.0
Deggendorf	1	1	100.0
Dessau	4	0	0.0
Düsseldorf	1	1	100.0
Freiburg	16	15	93.8
Halberstadt	2	1	50.0
Halle	11	6	54.5
Heilbronn	8	1	12.5
Herne	1	1	100.0
Karlsruhe	6	6	100.0
Landshut	1	1	100.0
Leipzig	1	1	100.0
Ludwigshafen	18	2	11.1
Magdeburg	2	2	100.0
Mainz	6	3	50.0
Mannheim	29	29	100.0
München	6	2	33.3
Naumburg	1	1	100.0
Neubrandenburg	1	0	0.0
Nürnberg	5	3	60.0
Regensburg	6	4	66.7
Solingen	1	0	0.0
Stuttgart	2	1	50.0
Villingen-Schwenningen	5	5	100.0
Weiden	5	5	100.0
Zwickau	1	1	100.0
Total	221	136	61.5

Turning to the time domain, all court decisions were made within a fairly short period, but with some variation in frequency. The first labor court decision in the sample dates from August 20th, 2003 and the last from September 7th, 2006. The cumulative number of cases shows a steep increase early and then flattens before it increases again in early 2006 (see Figure 1). Only few cases were filed toward the end of the sample period. The ratio of cases

won by employees converges quickly to figures between 60 and 70 percent, with a mild downward movement toward the end of the sample (Figure 2).

Figure 1: Cumulative distribution of total cases over time

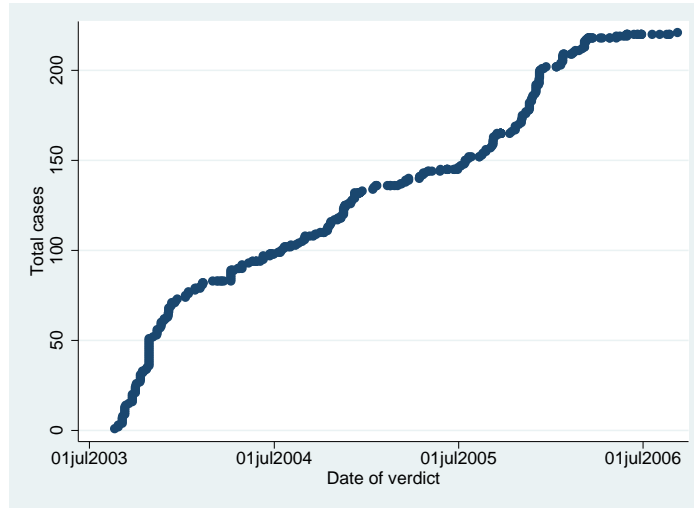
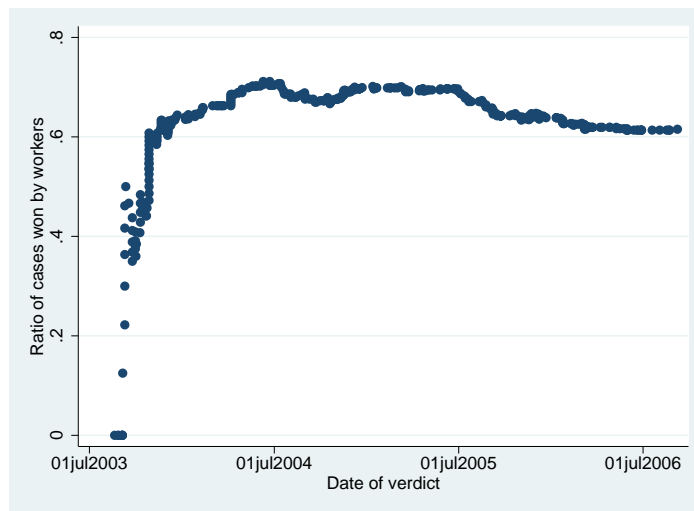


Figure 2: Ratio of cases won by workers over time



In addition to the outcome, the written court decisions include a wealth of further information (see Table 2). In terms of relevant socio-economic employee characteristics, the court documents list the job *tenure* of the employee. Average tenure is nine years, with the shortest reported tenure being 1 and the longest 39 years. Based on the information we have for *age*,

the average worker in the sample is about 40 years old, the youngest is 24, while the oldest is 62.⁸ As to *gender*, about 37 percent of workers are female. About 80 percent of workers were represented by *union attorneys* in front of the labor court. The latter two variables are coded as dummy variables, taking on the value of 1 if employees are female or have union-supported legal representation, respectively.

Table 2: Summary statistics of explanatory variables

Variable	Obs.	Mean	Median	Min	Max
Tenure (years)	216	8.62	7	1	39
Age (years)	176	40.5	40	24	62
Children ^a (dummy)	221	0.29	.	.	.
Married ^a (dummy)	221	0.41	.	.	.
Gender (dummy)	221	0.37	.	.	.
Citizenship ^a (dummy)	221	0.95	.	.	.
Union attorney (dummy)	221	0.80	.	.	.
Gross monthly wage (Euro)	207	2,220	1,950	825	12,867
Majority female (dummy)	216	0.17	.	.	.
Same gender (dummy)	216	0.65	.	.	.
Regional unemployment rate (percent)	221	13.7	11.2	6.6	22.0

^a Proxy variables, see main text.

While the socio-economic information discussed so far is available in most cases and quite straightforward to use, the court documents are slightly less complete in other regards. For instance, the nationality of workers is not explicitly identified, forcing us to construct a very rough proxy variable for German *citizenship* (computed as a dummy variable) based on the family names noted in the court decisions. Based on this proxy measure, about 95 percent of workers in the sample could have been German citizens. There is also a lack of information regarding the marriage or family status of workers. Here, too, we constructed proxy indicators based on the assumption that the court documents would have included this information if it had ultimately been relevant for the court decision. Consequently, we generate dummy variables taking the value of 1 if the court document explicitly reports that the worker has one or more children or is married, respectively. Based on this procedure,

⁸ Not all court decisions document all social-economic information. For instance, out of a possible 211 cases, we have 176 observations on *age* and 216 on *tenure*.

about 41 percent of all employees are classified as *married* and about 28 percent as having *children*.⁹

The data also include information on the jobs held by the workers going to court and their salaries. The *gross monthly wages* cover a range from 825 Euro to (an exceptional) 12,867 Euro, with a mean of 2,250 Euro and a median of 1,950 Euros. To capture the type of *job* held by workers before the dismissal under dispute, we construct a set of dummy variables indicating the five professional categories occurring in the sample. These categories include: (1) sales and technical support, (2) cashiers, assistants, and accountants, (3) storage workers, (4) managerial positions in sales or accounting, (5) other managerial positions (see Table 11 in the Appendix for details).

In addition, the data set also contains information on the gender composition of labor courts. Each court comprises three judges, one principal judge and two secondary lay judges. The dummy variable *majority female* indicates when at least two of the three judges of a particular labor court were female, which is the case in about 17 percent of the cases in the sample. Moreover, to capture any interaction between the gender composition of courts and plaintiffs, the dummy variable *same gender* indicates whenever worker and the majority of judges were either female or male. This holds in about 65 percent of all observations.

Finally we are interested in a measure of the regional labor market performance. Since cases get assigned to specific labor courts based on the location of the workplace, we can match court location and county-level (*Kreis*) regional unemployment rates taken from the records of the German Employment Agency (*Bundesagentur für Arbeit*). The variable *regional unemployment rate* averages 13.7 percent over the regions and time periods covered, with a low of 6.6 and a maximum of 22 percent.

⁹ This procedure increases the number of usable information to 211 from just 109 and 143 for *children* and *married*, respectively. It also reduces the share of non-zero observations from about 63 to 41 percent for *married* and from about 58 to 29 percent for *children*. We will discuss the robustness of results with regard to these changes below.

3 Legal outcomes and case characteristics: some simple statistics

Providing a first glance at the relation between case characteristics and legal outcomes, Table 3 tabulates court results conditional on certain values of the explanatory variables.

Specifically, for each explanatory variable, we show the overall number of labor court cases and the number (and percentage) of cases won by workers under the condition that a particular explanatory variable is either above or below its median value or, in case of a dummy variable, if the variable takes the value of 1 or 0.¹⁰

The findings indicate a certain amount of covariation with interesting implications.¹¹ For instance, we find that some social criteria seem to make a difference with court rulings. In particular having *children* changes the likelihood for workers to win in front of labor courts: workers for which the court documents indicate the presence of children won about 70 percent of their cases, while those without won only 58 percent of theirs. The bivariate impact of *age* and *tenure*, however, seems to be more modest. Among the other variables, *married* workers also tend to be associated with substantially higher winning ratios.¹² Similarly, workers with a higher *gross monthly wage* seemed to have won markedly more cases. This also holds for *citizenship*, with non-citizens tending to win more frequently, and *same gender*, which seems to have been associated with a higher percentage of won cases for workers. Finally, somewhat counter-intuitively, the conditional winning share for workers in regions with a *regional unemployment rate* below the median was substantially higher than for workers in regions suffering from higher unemployment. However, it remains to be seen whether this as well as the other results are statistically meaningful and robust in a

¹⁰ Cases with explanatory variables equal to the median are treated as above.

¹¹ We postpone the analysis of the statistical significance of these relations until the multivariate analysis in the next section.

¹² Results are less pronounced but broadly similar for those cases for which explicit information on the marriage and family status are available (see above), with no-children/children and no-married/married winning percentages for workers of 58.7/61.9 and 58.5/66.3, respectively.

multivariate environment that, among other things, controls for court- and time-specific fixed effects.

Table 3: Workers winning by single explanatory variables

Variable			Total number of cases	Cases won by workers
<i>Tenure</i>	Below median	Cases	89	56
		<i>Shares (in percent)</i>		62.9
	Above median	Cases	127	77
		<i>Shares (in percent)</i>		60.6
<i>Age</i>	Below median	Cases	77	48
		<i>Shares (in percent)</i>		62.3
	Above Median	Cases	99	63
		<i>Shares (in percent)</i>		63.6
<i>Children</i>	No children	Cases	158	92
		<i>Shares (in percent)</i>		58.2
	Children	Cases	63	44
		<i>Shares (in percent)</i>		69.8
<i>Married</i>	Not married	Cases	131	75
		<i>Shares (in percent)</i>		57.2
	Married	Cases	90	61
		<i>Shares (in percent)</i>		67.8
<i>Gender</i>	Male	Cases	139	89
		<i>Shares (in percent)</i>		64.0
	Female	Cases	82	47
		<i>Shares (in percent)</i>		57.3
<i>Citizenship</i>	Non-citizen	Cases	11	9
		<i>Shares (in percent)</i>		81.8
	Citizen	Cases	210	127
		<i>Shares (in percent)</i>		60.5
<i>Union attorney</i>	No union attorney	Cases	43	26
		<i>Shares (in percent)</i>		60.5
	Union attorney	Cases	178	110
		<i>Shares (in percent)</i>		61.8
<i>Gross monthly wage</i>	Below median	Cases	113	66
		<i>Shares (in percent)</i>		58.4
	Above median	Cases	94	63
		<i>Shares (in percent)</i>		67.0
<i>Majority female</i>	No female majority	Cases	179	110
		<i>Shares (in percent)</i>		61.4
	Female majority	Cases	37	22
		<i>Shares (in percent)</i>		59.5
<i>Same gender</i>	Not same gender	Cases	76	40
		<i>Shares (in percent)</i>		52.6
	Same gender	Cases	140	92
		<i>Shares (in percent)</i>		65.7
<i>Regional unemployment rate</i>	Below median	Cases	108	75
		<i>Shares (in percent)</i>		69.4
	Above median	Cases	113	61
		<i>Shares (in percent)</i>		54.0

4 Econometric Analysis

In what follows, we will take a more systematic look at the determinants of the labor court decisions contained in our case study. Our empirical strategy stresses robustness. We start by investigating a model that incorporates only spatial and time fixed effects. Economically, the fixed effects model answers the question whether labor court decision-making differs between courts or whether there is common time variation across courts. Econometrically, the fixed effects approach will help to control for omitted variables or the potential impact of changes in the legal environment, which is why we will carry the fixed effects along as a baseline specification as we systematically add other sets of determinants of court behavior. The final model will take a comprehensive look at the full set of explanatory variables.

4.1 Fixed effect models

Table 4 presents the results from three separate probit models explaining the likelihood of workers to win their cases in front of labor courts. Thus throughout the analysis our dependent variable is defined as a binary variable being 1 if the worker has won the case and 0 if the worker lost.¹³ Column (1) shows that court-fixed effects yield jointly significant coefficients, indicating a fair amount of court-specific variation in workers' probability of winning or regional bias. This mirrors the findings in Table 1 that already pointed at sizable differences between workers' winning shares at different courts. Note that including court fixed effects reduces the number of usable observations to just above 150 because for a number of labor courts with only few cases the fixed effects completely explain the outcome and these observations were subsequently dropped from the sample. Here as well as in all following regressions, we compute standard errors and p-values allowing for possible clustering of errors at the court level.

¹³ Recall the definitions outlined in the previous section.

But there is also evidence that there is common time variation in addition to cross-court fixed effects. Model (2) introduces quarterly time fixed effects to test for the presence of common time variation and finds them significant. And model (3) incorporates both labor court fixed effects and time fixed effects, showing both types of fixed effects to be jointly significant.

Table 4: Probit regressions using court and time fixed effects

	Dependent variable: Employee winning		
	(1)	(2)	(3)
Court location dummies	Yes (0.000)	.	Yes (0.000)
Quarterly time dummies	.	Yes (0.000)	Yes (0.000)
Number of observations	153	218	149
Log (pseudo)likelihood	-88.62	-124.10	-80.28
Pseudo R ²	0.16	0.14	0.22
Goodness-of-fit			
Overall	100 (153)	156 (218)	109 (149)
Worker winning	71 (77)	110 (135)	55 (75)
Firm winning	29 (76)	46 (83)	54 (74)

Note: Numbers in parenthesis in the upper half of the table report p-values for Wald tests of joined significance.

Note that the pseudo-R² measure for model (3) is notably higher than that for either of the other models in Table 4. While direct comparisons are difficult in probit models (e.g., Greene 2000), this seems to suggest that the joint model is preferable if compared to an intercept only model. Another way of illustrating the degree to which the full model can explain the labor court decisions in our sample is to calculate the percent of correctly predicted cases (Wooldridge 2006). Suppose employers or workers were to use the model presented in Table 4 to predict the outcomes of trials, how many cases would be predicted correctly? For that purpose we define a binary variable which takes the value of 1 if the predicted probability is larger or equal a threshold and zero otherwise.¹⁴ Applying a threshold of 0.5 (the robustness of the threshold is discussed further below), the last three rows of Table 4 report the number of correctly predicted outcomes in relation to the overall cases given in parentheses, and for

¹⁴ There are four possible combinations of actual and predicted court outcomes. If actual and predicted outcomes are the same, the prediction is correct. For the cases where the actual outcome is one and the predicted outcome is zero and vice versa, the prediction is wrong.

the subsets of worker or firms winning.¹⁵ In the full sample as well as in the subsamples more than 2/3 of the outcomes are correctly predicted by model (3).

4.2 Social criteria

In Table 5 we ask to which extent social criteria influence court decisions in a multivariate setting. We first present a series of models that include, in addition to court fixed and time effects, a single additional variable and then combine all variables in the final column of the table.

Despite the fact that *tenure* is seen as relevant among social criteria in the legal literature (see Section 1), our results find tenure to be only weakly associated with court decisions (column (1)). While an increase in tenure seems to be linked to a higher probability of winning, the effect is not significant at conventional levels. As to *age*, column (2) reports a significant negative impact on the probability of employees winning, suggesting that—on balance—the courts in our sample tended to view older workers less eligible to social protection than younger workers. In contrast, there is some evidence that the presence of *children* significantly increased the probability of a worker winning his or her case against a dismissal, while the estimated positive coefficient for *married* remains insignificant (columns (3) and (4), respectively).¹⁶

Finally, column (5) presents the results for a regression model including all potential social criteria variables simultaneously. In addition to showing the largest pseudo-R², the results are notable for the fact that the coefficients for *children* is individually insignificant after the inclusion of additional control variables. At the same time, *age* continues to have a

¹⁵ Looking at subsamples is advisable as goodness-of-fit measures may be misleading if there is a distorted distribution of cases. But this does not seem to be the case here.

¹⁶ We find broadly similar results when using only those courts cases for which explicit information on the marriage and family status are available (see the discussion above).

significantly negative impact on the winning probability of employees, and the effects of *tenure* and *married* change little.

Table 5: Probit regressions with social criteria

	Dependent variable: Employee winning				
	(1)	(2)	(3)	(4)	(5)
Tenure	0.03 (0.360)	.	.	.	0.04 (0.273)
Age	.	-0.03 (0.014)	.	.	-0.03 (0.000)
Children	.	.	0.34 (0.027)	.	0.20 (0.243)
Married	.	.	.	0.16 (0.304)	0.18 (0.412)
Court location dummies	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)
Quarterly time dummies	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)
Number of observations	144	116	149	149	114
Log pseudolikelihood	-75.96	-62.40	-79.59	-80.10	-59.72
Pseudo R ²	0.24	0.22	0.23	0.22	0.24
Goodness-of-fit					
Overall					82 (114)
Worker winning					46 (59)
Firm Winning					36 (55)

Note: Numbers in parenthesis in the upper half of the table report the p-values for individual coefficients or for Wald tests of joined significance. See Section 4.1 for a discussion of the goodness-of-fit measures. All regressions use the STATA clustering option based on court location.

A final issue is whether the social criteria variables are significant as a group. The question is meaningful because these employee characteristics tend to be correlated. For instance, older workers will, in general at least, have higher tenure and be more likely to be married and have children. This type of collinearity could also be behind the changing levels of significance in the various models in Table 5. And indeed, a joint significance test reveals that the social criteria variables are significant as a group.¹⁷ This supports the view that social criteria do play a role for labor court decisions, and suggests their impact is best viewed jointly rather than individually, perhaps reflecting some of the ambiguities discussed in the

¹⁷ The hypothesis of *tenure*, *age*, *children*, and *married* being jointly zero is rejected with a p-value < 0.01.

legal literature (see, e.g., Hromadka and Maschmann (2002), Kittner and Zwanziger (2001), or Däubler, Hjort and Hummel (2009)).

4.3 Other employee characteristics

Compared to social criteria, the reasons for other employee-related case characteristics to influence labor court decisions are a little less clear. The underlying legal framework does not, for instance, suggest that the *gender* of the employee or its *citizenship* should play a role—quite to the contrary an argument could be made that court proceedings should be “blind” to such factors. At the same time, we would expect the presence of a *union attorney* to matter simply because good representation will generally boost the chances of winning court proceedings in front of a labor court.

Table 6 shows our results, following the now familiar pattern of variable-specific regressions followed by a joint model in the last column, with all models including a full set of court and time fixed effects. Somewhat surprisingly, the other employee-related case characteristics seem to matter to a significant degree. For example, we find that the proxy variable for German *citizenship* has a significant negative impact in the probit regressions in models (2) and (4), even though it is important to keep in mind that the variable offers only a very crude proxy for citizenship. *Gender* has (at least a marginally¹⁸) significant positive impact throughout in Table 6, suggesting female employees stood a better chance of winning their court cases than their male colleagues.¹⁹ The results for representation by a *union attorney*, while going in the expected direction, are somewhat weaker. Column (3) shows a non-significant coefficient and column (4) an only marginally significant positive impact of the variable on the probability of employees winning.

¹⁸ Following conventions, we use the term “marginally significant” for results with a p-value ≤ 0.1 .

¹⁹ Various attempts to link *gender* to social criteria variables did not yield robust results. For example, interacting *gender* in models (1) and (4) with either *children* or *married* produces little additional insight, implying that the impact of *gender* is not driven solely by a higher relative propensity of the sampled women (as opposed to men) to be married or to have children.

Table 6: Probit regression including other employee characteristics

	Dependent variable: Employee winning			
	(1)	(2)	(3)	(4)
Gender	0.32 (0.085)	.	.	0.44 (0.043)
Citizenship	.	-1.05 (0.015)	.	-1.44 (0.020)
Union attorney	.	.	0.83 (0.135)	0.99 (0.055)
Court location dummies	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)
Quarterly time dummies	Yes (0.000)	Yes (0.000)	Yes (0.000)	Yes (0.000)
Number of observations	149	149	149	149
Log pseudolikelihood	-79.53	-79.44	-78.59	-76.23
Pseudo R ²	0.23	0.23	0.24	0.26
Goodness-of-fit				
Overall				112 (149)
Employee winning				56 (75)
Firm winning				56 (74)

Note: Numbers in parenthesis in the upper half of the table report the p-values for individual coefficients or for Wald tests of joined significance. See Section 4.1 for a discussion of the goodness-of-fit measures. All regressions use the STATA clustering option based on court location.

4.4 Job related variables

Turning to job specific variables, the legal framework provides little or no help in formulating expectations on their impact on labor court decisions. We can speculate that a higher pre-dismissal *gross monthly salary* or having held a *job* falling into a particular category might be associated with the ability to obtain better legal counseling. At the same time, courts that had a social agenda might take their cues from these case characteristics. Table 7 shows that the estimated parameter on *gross monthly salaries* is neither significant in the single nor in the full specification, even though the level of significance seems to improve once the *job* category variables are included in the regression model (column (3)). In contrast, the *job* variables are jointly significant in column (2) and in column (3). Among the different dummy variables, the one indicating that an employee held a job in the category dubbed “other managerial-type positions” has the most significant individual impact, with the

positive estimated coefficient suggesting that workers somewhat higher up the firm's hierarchy may have held an advantage when going to court.

Table 7: Probit regression including job related variables

	Dependent variable: Employee winning		
	(1)	(2)	(3)
Gross monthly salary	0.00 (0.923)	.	-0.00 (0.206)
Job dummies	.	Yes (0.001))	Yes (0.001)
Court location dummies	Yes (0.000)	Yes (0.000)	Yes (0.000)
Quarterly time dummies	Yes (0.000)	Yes (0.001)	Yes (0.001)
Number of observations	136	147	134
Log pseudolikelihood	-71.53	-75.81	-65.92
Pseudo R ²	0.24	0.25	0.29
Goodness-of-fit			
Overall			105(134)
Worker winning			55(68)
Firm winning			50(66)

Note: Numbers in parenthesis in the upper half of the table report the p-values for individual coefficients or for Wald tests of joint significance. See Section 4.1 for a discussion of the goodness-of-fit measures. All regressions use the STATA clustering option based on court location.

4.5 Court related variables

Certain court characteristics might also influence outcomes. As discussed, in addition to any court specific variation captured by fixed effects, our data also allows us to take a look at the gender composition of labor courts and possible interaction effects with the *gender* variable. Column (1) of Table 8, shows that *majority of female judges* has a positive but insignificant effect on the winning probability of employees. However, column (2) also shows that the interaction variable *same gender*—a variable that is 1 whenever the both worker and the majority of judges are either female or male—has a significant positive impact on the winning probability of workers. The result suggests, for instance, that labor courts operating under a majority of female judges are more likely to decide in favor of employees when the

employee is female than when the employee is male. Similarly, a majority of male judges will be more inclined to decide in favor of a male than of the female worker.²⁰

Table 8: Probit regression including court related variables

	Dependent variable: Employee winning	
	(1)	(2)
Majority of female judges	0.19 (0.468)	0.21 (0.331)
Gender	.	0.53 (0.017)
Same gender	.	0.34 (0.013)
Court location dummies	Yes (0.000)	Yes (0.000)
Quarterly time dummies	Yes (0.000)	Yes (0.000)
Number of observations	148	148
Log pseudolikelihood	-79.95	-78.53
Pseudo R ²	0.22	0.23
Goodness-of-fit		
Overall		111 (148)
Worker winning		60 (75)
Firm winning		51 (73)

Note: Numbers in parenthesis in the upper half of the table report the p-values for individual coefficients or for Wald tests of joined significance. See Section 4.1 for a discussion of the goodness-of-fit measures. All regressions use the STATA clustering option based on court location.

These results are interesting but not easily explained. A simplistic approach would assume that judges are given to a form of intrinsic bias, which would lead them to giving preferred treatment of their own gender. Other rationales discussed at some length in U.S. studies of court behavior include that female judges might seize opportunities to undo (and, by extension, prevent) gender discrimination in the labor market or simply may bring to bear shared professional expertise and experience with female workers (e.g., Boyd et al. 2009).²¹

²⁰ Because *same gender* is an interaction variable, model (2) also includes *majority of female judges* and *gender* as additional controls. All three variables are jointly significant with a p-value < 0.01. Note that an interaction variable that focuses on the simultaneity of female court majorities and a female workers yields similar results (the only difference being that in this case the alternative constellation of a male majorities and male workers is part of the model's constant).

²¹ As Boyd et al. (2009) report, empirical results in the U.S. literature are ambivalent, with some studies finding evidence of gender-specific behavior, others reporting mixed results, and some no effects. See, for instance, Brudney et al. (1999), Davis et al. (1993), Giles et al. (2001), Segal (2000), Sunstein et al. (2004), or Peresie (2005).

However, it is difficult to discriminate between these or other explanations based on the available information.

4.6 Regional unemployment rate

Finally, we explore the possibility that regional economic conditions might influence labor court decisions. According to Table 9, the *regional unemployment rate* has a significant positive effect on the winning probability of employees.²² This supports results reported by Ichino et al. (2003) that labor courts' decisions in Italy systematically vary with regional labor market conditions, perhaps because judges see a heightened need to protect workers when alternative employment opportunities are less.

Table 9: Probit regression including regional unemployment rate

	Dependent variable: Employee winning
Regional unemployment rate	1.06 (0.011)
Court location dummies	Yes (0.000)
Quarterly time dummies	Yes (0.000)
Number of observations	149
Log pseudolikelihood	-77.18
Pseudo R ²	0.25
Goodness-of-fit	
Overall	108 (149)
Worker winning	58 (75)
Firm winning	50 (74)

Note: Numbers in parenthesis in the upper half of the table report the p-values for individual coefficients or for Wald tests of joined significance. See Section 4.1 for a discussion of the goodness-of-fit measures. All regressions use the STATA clustering option based on court location.

²² The significance of the effect support the view that courts do take labor market conditions into account in a qualitatively sense. As discussed earlier, we cannot however completely exclude the possibility of self selection (i.e., that workers were more inclined to sue the firm when facing bad labor market prospects or vice versa). This could potentially upward-bias the quantitative size of the estimated effect.

4.7 Comprehensive model

We now move to add the complete set of explanatory variables to the baseline fixed effect model. As Table 10 reveals, data restrictions reduce the available sample by about one-third compared to the partial models discussed so far, making a direct comparison of the results difficult. But the overall impression is that the findings are generally very robust. For instance, we can still not reject the joined significance of the social criteria variables, other employee characteristics remain relevant, and so do other job related variables and those modeling gender issues and labor market influences.²³ If anything, the results presented in Table 10 are showing statistically stronger relations of the explanatory variables with the winning probability of employees. The model explains 92 out of 104 decisions overall.

How large are these effects in economic terms? To answer this question, the last column in Table 10 reports the marginal impact of each variable evaluated at sample means. A number of the computed quantitative effects are quite small. Somewhat surprisingly, this holds particularly for some of variables associated with social criteria and other employee characteristics. For instance, increasing *tenure* or *age* by one year from their mean values decreases the probability of a winning worker by as little as one and two percentage points, respectively. Similarly, being *married* has only a minimal effect on winning (a married worker's winning probability is about 3 percentage points higher than an unmarried worker's), and an increase of the *gross monthly salary* by 1,000 euro increases the likelihood of winning by as little as 0.1 percentage points.

Other variables have stronger effects. Among the social criteria variables, this holds true for the dummy variable *children*, where a childless worker has a 20 percentage points lower probability of winning than a worker where the court documents indicate that children are present. As to other characteristics, the presence of a *union attorney* improves the probability

²³ The joined p-value of the social criteria variables is ≤ 0.01 , and so is the joined p-value for other employee characteristics. Due to a lack of observations, we cannot run the full model for only those cases for which we have explicit information on the marriage and family status. We note, however, that excluding *married* and *children* from the comprehensive model does leave the other results virtually unaffected.

of winning by as much as 55 percentage points, and the effect of *citizenship* is even more pronounced, with workers indicated by the proxy variable to having a non-German background having a 70 percentage point larger likelihood of winning. The marginal effects of *gender*, *majority of female judges*, and *same gender* are more difficult to calculate because of the interaction terms.²⁴ However, a rough linear approximation adding up the marginal effects suggests that, as a group, these case characteristics matter quantitatively, with the marginal effect of *gender* being in the order of 20 percentage points when the majority of judges is male, and the marginal effect of the *majority of female judges* variable being in the order of -50 percentage points for male claimants. Finally, the marginal effect for the regional unemployment rate indicates that the slope of the probit function is larger than one at sample means. An increase in the unemployment rate by 1 percentage point would raise the likelihood of a worker winning by about 150 percentage points—a very strong impact

Overall, three results are particularly worthwhile stressing. First, social criteria do matter, statistically and economically (if not all to the same extent), for court decision even in a comprehensive model that includes a number of additional controls. This should be welcome on normative grounds in the sense that it provides confirmation that labor court decisions reflect the legal framework stressing these criteria.

Second, there are several other case characteristics that labor courts seem to be taking into account in addition. This group of variables includes, among others, court- and time-fixed effects, regional labor market conditions and the gender composition of the court, which influences outcomes in conjunction with the gender of the worker. In general these regularities are harder to square with the legal framework that one would expect labor courts to operate within. This could raise questions about the desirability of the apparent discretion labor courts enjoy in their decision making.

²⁴ See Ai and Norton (2003) and Norton et al. (2004), among others, for a general discussion of the involved difficulties.

Table 10: Probit regression including all explanatory variables

Dependent variable: Employee winning		
		Marginal effect
Tenure	-0.06 (0.088)	-0.02
Age	-0.02 (0.128)	-0.01
Children	0.52 (0.030)	0.20
Married	-0.07 (0.760)	-0.03
Gender	2.39 (0.000)	0.76
Citizenship	-5.65 (0.000)	-0.70
Union attorney	2.05 (0.002)	0.55
Gross monthly salary	-3×10^{-4} (0.018)	-10^{-4}
Job dummies	Yes (0.000)	.
Majority of female judges	0.22 (0.467)	0.09
Same gender	1.65 (0.000)	0.58
Regional unemployment rate	3.91 (0.006)	1.56
Court location dummies	Yes (0.000)	.
Quarterly time dummies	Yes (0.000)	.
Number of observations	104	
Log pseudolikelihood	-35.39	
Pseudo R ²	0.51	
Goodness-of-fit		
Overall	92 (104)	
Worker winning	49 (55)	
Firm winning	43 (49)	

Note: Numbers in parenthesis in the upper half of the table report the p-values for individual coefficients or for Wald tests of joined significance. See Section 4.1 for a discussion of the goodness-of-fit measures. All regressions use the STATA clustering option based on court location.

Finally, there seems to be considerable uncertainty about court outcomes from an ex ante perspective. A number of considerations come into play. Looking at the pseudo-R² and goodness-of-fit measures, the comprehensive model in Table 10 clearly has larger explanatory power than the partial models discussed earlier. However, at 88 percent of outcomes predicted correctly, there still seems to be a considerable unexplained variation.

Moreover, the goodness of fit looks not dramatically higher than simple models including only time-fixed and court-fixed effects, which correctly predict 75 out of 104 cases or 72 percent, or a model only including time-fixed effects which predicts 69 out of 104 cases or 66 percent. Arguably, even if workers had been able to perfectly anticipate the court-based fixed effects (that is, if they had known their exogenous biases to rule in their favor), they would have had a hard time to anticipate the trend of winning probabilities across courts captured by the time-fixed effects. This also holds for some of the other explanatory variables such as the courts' composition, which are not necessarily known *ex ante*.²⁵ Therefore, while the econometric results reveal a fair amount of predictable regularity in court behavior, considerable outcome uncertainty remains.

5. Robustness and representativeness of results

Our findings are robust along a number of important dimensions. For instance, as already noted, our results are robust with regard to the approximations underlying the variables *children* and *married*. Also, the pooling of dismissal data for cases with and without an associated offer of re-employment does not seem to impact results. Running the same set of models excluding dismissals with re-employment offer, we find qualitatively similar results. Lastly, changing the threshold values used to calculate the goodness of fit measures within the plausible interval between 0.4 to 0.6 does not alter outcomes by much.

Another issue is the representativeness of our econometric case study. As any other case study, the results characterize the empirical regularities of the underlying sample, which opens up the question whether the workers who's court cases we are following are indeed a random sample of all workers dismissed or indeed the larger population of workers overall. For example, it may be that workers that feel they rank particularly high in terms of social criteria are more likely to dispute a dismissal in front of labor courts, which could bias our

²⁵ Court composition can change. And, where there are multiple lower-level courts at one location, cases are allocated randomly.

sample of court decisions toward a significant impact of variables such as *age*, *tenure*, or *children*. As argued earlier (see Section 1), the very nature of our sample makes self-selection along these lines unlikely to be problematic. At the same time, we cannot completely exclude the possibility that the point estimates for the effects of regional labor market conditions on court decisions might be upward-biased. Technically, a way to rectify any issue along these lines would be to explicitly control for the endogeneity of workers' decisions to go to court by making use of information about the larger sample of dismissed workers in a Heckman (1976)-type correction model. However, while we know that there were about 2,000 dismissed workers (with and without re-employment offer) overall, we only have information about the 221 workers that went to court, which prevents us from exploring this route.

Returning to the question to which extent our case study paints a broader picture of labor court behavior, there are reasons to believe that it does. Evidence pointing broadly in this direction is provided by Goerke and Pannenberg (2009), who look at occurrences of severance pay in a sample of almost 3,000 layoffs in a large and widely used West German panel data set (*Soziooekonomisches Panel*) between 1991 and 2006. Reassuringly, their sample characteristics are almost identical to ours along a number of dimensions.²⁶ It is also worthwhile noting that, using a Heckman procedure to control for the possible self-selection of workers going to court, they report little or no evidence of an endogeneity bias. This further suggests that self-selection is not necessarily a problematic feature in empirical applications such as ours.

6. Conclusion

Courts are an important element in the institutional framework of labor markets across the world, often determining the actual degree of employment protection through their

²⁶ Looking only at West German cases, the average age of workers in our sample (in the Goerke and Pannenberg (2009) sample) is 40.4 (40.4), 92 (86) percent are German citizens, and the average regional unemployment rate is 9.9 (10.0).

interpretation and development of the law. German labor courts, which act in a legal framework putting some but not too many restrictions on their behavior, are an interesting example in this regard. Yet, surprisingly little is known about their behavior. A new data set helps to fill some of this gap. The data include decisions and detailed information about 221 labor court cases handled by 33 different labor courts in 12 German states between 2003 and 2006. All cases were filed by employees of the same national electronics and media retail chain and, on the firm's side, were handled by the same law firm. The data document a unique natural case study illuminating differences and similarities of labor court behavior across Germany.

A number of noteworthy results emerge. Somewhat reassuringly, the labor court decisions captured in the sample reflect some of the more specific elements of the legal framework. Specifically, courts take into account so-called social criteria (such as age, tenure, or the presence of children) stipulated by law. However, at the same time, courts also show significant discretion in their decision making by systematically reacting to other case characteristics. This group of variables includes, for instance, job types, regional unemployment conditions, and time- and court-fixed effects. The fixed effects suggest that workers' chances to win depend systematically on where and when their cases are filed. In addition, there are indications that court decisions are influenced by the courts' gender composition and the gender of the worker who filed the case. Some of these findings are surprising and could raise questions about the desirability of the discretion enjoyed by labor courts. Lastly, there is some uncertainty about court outcomes from an *ex ante* perspective. While the econometric results suggest a fair amount of predictable regularity in court behavior, considerable ambiguity remains. Uncertainty of this type has been linked to the real economy in the theoretical literature.

The results should be taken with a bit of salt because of the case-study nature of the empirical approach although there is reason to believe that the information captured in the study is representative for the wider worker and courts population. To the extent that our findings can be generalized, they seem to imply that German labor market courts could influence labor market outcomes through the discretionary nature of some of their decision making and

limitations to their predictability. Thus, a discussion about labor court behavior may be worthwhile having.

Appendix

Table 11. Job categories

Category	Examples (job titles in German)
(1) Sales, Technicians	Fachberater(in), Verkäufer(in), Radio- und Fernsehtechniker(in)
(2) Cashiers, Assistants, Accountants	Verkäufer(in) mit Kassentätigkeit, Kassierer(in), Sekretärin, Personalbearbeiter(in), Sachbearbeiter(in)
(3) Storage Workers	Lagerarbeiter(in)
(4) Manager Sales or Accounting	Verkaufsleiter(in), Leiter(in) Controlling
(5) Other Managerial Positions	Revisor, Disponent, Personalentwickler, Assistent der Betriebsleitung, Aktionsmanager

References

- Ai, C. and E. C. Norton (2003), Interaction Terms in Logit and Probit Models, *Economics Letters* 80, 123-129.
- Autor, D. (2003), Outsourcing at Will: The Contribution of Unjust Dismissal Doctrine to the Growth of Employment Outsourcing, *Journal of Labor Economics*, 21(1), 1-42.
- Autor, D., J. J. Donohue, and S. J. Schwab (2006), The Costs of Wrongful-Discharge Laws, *The Review of Economics and Statistics*, 88(2), 211-231.
- Autor, D., J. J. Donohue, and S. J. Schwab (2004), The Employment Consequences of Wrongful-Discharge Laws: Large, Small, or None at All?, *American Economic Review (Papers and Proceedings)*, 94(2), 440-446.
- Berger, H. (1998), Regulation in Germany: Some Stylized Facts About Its Time Path, Causes and Consequences, *Zeitschrift für Wirtschafts- und Sozialwissenschaften* 34, 185-220.
- Berger, H. and M. Neugart (2008), Labor Courts, Nomination Bias, and Unemployment in Germany, *Manuscript*, November.
- Berger, H. and S. Danninger (2006), Does Excessive Regulation Impede Growth In Germany?, *IMF Country Report*, 06/17, 106-133.
- Bertola, G., T. Boeri, and S. Cazes (1999), Employment Protection and Labor Market Adjustment in OECD Countries: Evolving Institutions and Variable Enforcement, *ILO Employment and Training Papers*, 49.
- Boyd, C. L., L. Epstein, and A. D. Martin (2009), Untangling the Causal Effects of Sex on Judging, *Manuscript*, Northwestern University.
- Brudney, J. J., S. Schiavoni, and D. J. Merrit (1999) Judicial Hostility Toward Labor Unions? Applying the Social Background Model to a Celebrated Concern, *Ohio State Law Journal*, 60, 1675-1766.
- Däubler, W., J. P. Hjort and D. Hummel (2009), *Arbeitsrecht, Kommentar*. Nomos Verlag.
- Davis, S., S. Haire, and D. R. Songer (1993), Voting Behavior and Gender on the U.S. Courts of Appeals, *Judicature*, 77, 129-133.
- Franz, W. (1994), Chancen und Risiken einer Flexibilisierung des Arbeitsrechts aus ökonomischer Sicht, *Zeitschrift für Arbeitsrecht*, 25, 439-462.
- Galdón-Sánchez, J. E. and M. Güell (2003), Dismissal Conflicts and Unemployment, *European Economic Review* 47, 323-335.
- Giles, M. W., V. A. Hettinger, and T. Peppers (2001), Picking Federal Judges: A Note on Policy and Partisan Selection Agendas, *Political Research Quarterly*, 54(3), 623-641.
- Goerke, L. (2002), On Dismissal Pay, *Labour Economics*, 9, 497-512.
- Goerke, L. and M. Pannenberg (2009), An Economic Analysis of Dismissal Legislation: Determinants of Severance Pay in West Germany, *International Review of Law and Economics*, forthcoming..
- Greene, W. H. (2000), *Econometric Analysis*. Englewood Cliffs, NJ: Prentice Hall, 4th edition.
- Grund, C. (2006), Severance Payments for Dismissed Employees in Germany, *European Journal of Law and Economics*, 22, 49-71.
- Hanssen, F. A. (2004), Is There a Politically Optimal Level of Judicial Independence?, *American Economic Review*, 94, 712-729.

- Heckman, J.J. (1976), The Common Structure of Statistical Models of Truncation, Sample Selection, and Limited Dependent Variables and a Simple Estimator for Such Models, *Annals of Economic and Social Measurement* 5, 475-492.
- Hefeker, C. and M. Neugart (2009), Labor Market Regulation and the Legal System, mimeo.
- Höland, A., U. Kahl and N. Zeibig (2005), Wirklichkeit und Wahrnehmung des Kündigungsschutzes in den Arbeitsgerichten, WSI-Mitteilungen 10/2005.
- Hromadka, W. and F. Maschmann (2002), Arbeitsrecht Band 1, Individualarbeitsrecht. Springer-Verlag, 2. Auflage.
- Huang, C., H. Chang and C. Lai (2009), Employment Effect of Dismissal Pay in the Presence of Judicial Mistakes, *International Review of Law and Economics* 29, 38-45.
- Ichino, A., M. Polo, and E. Rettore (2003), Are Judges Biased By Labor Market Conditions?, *European Economic Review*, 47, 913-944.
- Jahn, E. and C. Schnabel (2003), Kündigungsschutz: Reform in Trippelschritten oder besser im großen Sprung, IAB-Kurzbericht Nr. 21 vom 12.12.2003
- Kittner, M. and B. Zwanziger (eds.) (2001), Arbeitsrecht, Handbuch für die Praxis. Bundes-Verlag.
- Norton, E. C., H. Wang, and C. Ai (2004), Computing Interaction Effects and Standard Errors in Logit and Probit Models, *The Stata Journal* 4, 2, 154-167.
- OECD (2004), The OECD Jobs Study, OECD: Paris.
- Peresie, J. L (2005), Female Judges Matter: Gender and Collegial Decision Making in the Federal Appellate Courts, *Yale Law Journal*, 114, 1759-1790.
- Pfarr, H., K Ullmann, M. Bradtke, J. Schneider, M. Kimmich, and S. Bothfeld (2005), Der Kündigungsschutz zwischen Wahrnehmung und Wirklichkeit: Betriebliche Erfahrungen mit der Beendigung von Arbeitsverhältnissen. München, Rainer Hampp Verlag.
- Pissarides, C. (2000), Equilibrium Unemployment Theory. MIT Press, Cambridge USA.
- Segal, J. A. (2000), Representative Decision Making on the Federal Bench: Clinton's District Court Appointees, *Political Research Quarterly*, 53, 137-150.
- Shapiro, C. and J. M. Stiglitz (1984), Equilibrium Unemployment as a Worker Discipline Device, *American Economic Review* 74, 433-444.
- Stähler, N. (2008), Firing Costs, Severance Payments, Judicial Mistakes, and Unemployment, *Labour Economics* 15, 1162-1178.
- Sunstein, C. R., D. Schkade, and L. Ellman (2004), Ideological Voting on Federal Courts of Appeals: A Preliminary Investigation, *Virginia Law Review*, 90, 301-354.
- Wooldridge, J. M. (2006), Introductory Econometrics, A Modern Approach. Thomson, South-Western, 3rd edition.