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Judicial lawmaking in a civil law system: Evidence from German labor courts of appeal

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Institute of Labour Law and
Industrial Relations in the European
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(IAAEG)

IAAEG Discussion Paper Series

**Judicial Lawmaking in a Civil Law
System: Evidence from German Labor
Courts of Appeal**

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No. 2002/02

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Abstract

Judicial Lawmaking in a Civil Law System: Evidence from German Labor Courts of Appeal

According to economic analysis, common-law courts resolve individual legal disputes and create new, judge-made law. In this article, I study both functions in a civil-law context by analyzing data for nine German labor courts of appeal (Landesarbeitsgerichte) in the period 1980-1996. Output of these courts is measured by the number of resolved cases, settlements, and published opinions. Performance in each of these measures depends on judges' incentives and external factors, as behavioral production functions reveal: Firstly, output varies with judicial experience in a manner that suggests an impact of career concerns on effort and performance. Secondly, more change on the labor market gives rise to new legal problems and, therefore, leads to a larger number of published opinions. Since these are a proxy for judicial lawmaking, this finding suggests that judge-made law is an important ingredient of German labor law: It clarifies statutes and updates previous court opinions.

Keywords: civil law courts, economic analysis of law, behavioral production function, career concerns

JEL Classification: J45, K31, M12

Judicial Lawmaking in a Civil Law System: Evidence from German Labor Courts of Appeal

Martin Schneider*

1. Introduction: The “Unofficial Judge-made Law”

German labor law is distinctive for its lack of detailed codification. Many of the rules that govern the labor market result from judicial decisions. For example, since the legislator has refrained from passing a statute governing strikes, German courts have “developed an entire complex of laws (sic!) dealing with industrial action” (Weiss/Simitis/Rydzy 1989: 96). Here, as in other areas of German civil law, a remarkable stock of precedents has accumulated, which is sometimes referred to as the “unofficial judge-made law” (“*inoffizielles Richterrecht*”) (Bydlinksi 1985: 149; see also Picker 1988). It influences subsequent decision-making by judges, even though the dominant legal theory of the civil-law process maintains that every court decision must be derived anew from the statutes.

The importance of judge-made rules in German labor law is exploited here to study legal change in a civil-law regime. I argue that German labor law unfolds in a manner reminiscent of the Anglo-Saxon common law: When applying vague law to new cases, courts create precedents and thereby transform the law. Of course, it has long been argued that case law is an important ingredient of civil-law systems (Shapiro 1981: 126ff.), but this fact has been concealed by dominant legal theory in countries such as Germany and by an unwarranted emphasis on the differences between common law and civil law (Mattei/Pardolesi 1991: 267-269).

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The evolution of judge-made law may be thought of as depending on two sets of factors, which are discussed in section 2 of this paper. On the “demand-side”, new legal rules are called for when the employment relationship changes, giving rise to unprecedented legal problems. In what manner the judiciary responds to these demands, however, is mediated by the “supply-side” of adjudication, that is, the incentives and the resulting behavior of judges. Judicial incentives, in turn, are governed by a judicial employment system that is found in some civil-law judiciaries but seldom in common-law countries: Judges are hired when inexperienced and can be promoted to higher offices within the judiciary (see Ramseyer/Rasmusen 1997: 260f.). In this system, career prospects are the main incentive for judges. Hence, an empirical analysis in the spirit of Higgins/Rubin (1980), Cohen (1991, 1992) and Ramseyer/Rasmusen (1997) is likely to discern an impact of career concerns on court performance.

This empirical analysis follows in section 3. The study uses panel data for nine labor courts of appeal (*Landesarbeitsgerichte*) in the period 1980 to 1996. Each court’s contribution to rule-production is measured by the number of published decisions, and this figure is compared to additional measures of court performance. Behavioral production functions are estimated in order to assess the import of various factors in explaining differences in court output. The findings confirm behavioral influences on court performance and a systematic publication of precedents in response to changes in the labor market. Section 4 discusses whether the emergence of an unofficial judge-made law reduces or increases the overall costs of the legal process.

2. Theory: Determinants of Rule-production

2.1 Demand-side: From Standards to Rules

In Germany, a specialized branch of the judiciary deals with almost any legal dispute arising from the employment relationship. The labor court system comprises three tiers: All com-

plaints are initially filed with the local labor courts (*Arbeitsgerichte*), of which there exist 122 all over the country. Decisions of the first instance may be appealed against at one of the 19 labor courts of appeal (*Landesarbeitsgerichte*), which are usually organized at the state (*Bundesland*) level. These appeals can be based either on points of law and or on points of fact. By contrast, the Federal Labor Court (*Bundesarbeitsgericht*), the third instance, can only be appealed to on points of law.

Court systems perform two basic functions: the resolution of disputes and the creation of new, judge-made law (Landes/Posner 1979: 236-242). The lawmaking function is widely understood to apply to common-law courts only. “In civil law theory, ... courts simply apply the law announced by legislatures to resolve disputes.” (Kornhauser 2000: 28) Consistent with this theory, the decisions of the German courts for labor matters do not attain in theory the status of binding precedents, and the principle of *stare decisis* does not apply.¹

Nonetheless, deciding judges are guided by precedents and are strongly inclined to adopt the ways in which similar cases were resolved before. Conversely, since in practice precedents guide subsequent decision-making, the cases that are published also change the content of the law as it is applied in practice. Thus, judges engage in lawmaking, not by inventing new legal commands from scratch but by interpreting the statute law in particular ways and by applying this interpretation consistently in future cases. By doing so, judges reduce the vagueness inherent in the application of statutes and general legal principles to particular cases. This type of change is best described as an incessant move from standards, or principles, to rules.

“Standards” give content to a law only after individuals act, whereas “rules” specify the content of the law before the action and hence before a legal dispute can arise (Kaplow 1992: 559-561). How much a legal command conforms to either type is a matter of degree. For example, a standard-like law may declare that a lock-out must be a “commensurable” means to

¹ There is one important exception. According to § 45 Labor Court Act, the Grand Senate (“*Großer Senat*“) of the Federal Labor Court can engage in rule-making in the rare instances in which an issue concerns the internal consistency of the law or the evolution of law (“*Rechtsfortbildung*”).

achieve its goal, leaving the decision of what may be commensurable in the specific case to the discretion of the adjudicating judge. A more rule-like version of this law may specify that the number of workers locked out must not exceed a predetermined share of the workforce on strike. A command similar to this example of a rule-like law is actually part of the German law on industrial action (see Schaub 2001: 118f., 139f.). It has not been established by the legislator but by the Federal Labor Court as the result of a series of rulings that have acquired the status of precedents. And these “may be seen as the (perhaps partial) conversion of a standard into a rule” (Kaplow 2000: 511).

By drawing on a number of detailed rules rather than vague standards, judges can adjudicate similar legal disputes more easily. Hence, the stock of precedents is a public good that economizes on judicial time and effort (Landes/Posner 1976; Bydlinski 1985). From judges’ point of view, it is more important to create a new precedent when the underlying dispute involves a difficult legal problem. Difficult cases, in turn, may confront the courts for a number of reasons. First, the issue may be unregulated by statutes or past case law. The codified German labor law is replete with vague legal concepts and outright gaps, and complaints about the reticent lawmaker (“*das Schweigen des Gesetzgebers*”) is a leitmotif in legal debate (e.g. Kissel 1998). Second, a case may be hard because the courts deal with it for the first time. For example, the underlying statute may have never been applied before, or the case at hand may diverge in a crucial detail from all past cases.

Since precedents are more valuable for hard cases, the judiciary will create more rules when the underlying economic conditions give more frequently rise to new disputes. But changes in the reality governed by labor law is mainly brought about by employer responses to new market conditions, for instance by “downsizing” or introducing non-standard forms of labor contracts. Hence, intensive rule-production will be associated with strong and widespread changes in the employment relationship; this is the demand-side of legal change.

2.2 Supply-side: Judicial Employment System

Judicial behavior, the supply-side of legal change, may inhibit an appropriate response of the judiciary to changing realities in the employment relationship. Judges may lack the necessary skills, proper incentives, or both. As public-choice accounts of judicial behavior acknowledge, judges like other public officials can be assumed to act in a self-interested way, and therefore, their behavior may reflect attempts to further their individual goals. These include monetary income, their reputation within the profession and the broad public, and leisure (e.g. Cooter 1983: 128f.; Posner 1993). For example, judges may be unwilling to create precedents. For one thing, the writing of new decisions may be time-consuming, hence making it difficult for judges to cope with their workload. For another, new, innovative decisions may also increase the risk of reversals, which are an embarrassment to judges.

Skill acquisition and incentives are governed by a peculiar employment system that the judges are exposed to. By virtue of the constitutional principle of judicial independence, judges are granted tenure after a probationary period in the first instance labor court. Moreover, their pay is regulated by statute law in analogy to public servants' salaries and strictly tied to the job, without any discretion held by the supervising ministries. Within the three-level court system, internal mobility chains prevail. Judges enter the first-instance labor courts as judges on probation and can reach tenure after this period. The judges in the labor courts of appeal are usually drafted from the local labor courts of the respective region, and they can be promoted further to the Federal Labor Court (for details, see Schmidt/Luczak 1994).

These internal mobility chains are conducive to *learning*. Even beginners in labor courts of appeal have worked as professional judges in the first instance for usually more than five years and are likely to have a sound knowledge of labor law. Judges also acquire by experience the tacit, implicit skills that are necessary to do the job: many standards of what makes for good judicial work cannot be expressed in simple rules and must be learned on the job (see Posner 1990: 108-112). Examples include: the feeling of when a fair settlement is feasible; the

appropriate length and style of a decision; and, crucially, the knowledge if an innovative decision rather than a conventional ruling is appropriate.

The internal judicial labor market also affects *incentives and motivation*. The German labor judiciary can be thought of as a professional bureaucracy: The judges share a specific professional background, and their work behavior cannot be observed, partly because of its tacit nature, partly because of judicial independence. Hence, like other professional bureaucracies, the judiciary “relies heavily on the ethos and sense of duty of its operators to control behavior” (Wilson 1989: 167). The organization presumably maintains this ethos or “mission” by selecting, through promotion, applicants with a suitable personality and by imparting the ethos to new members. Apart from such a “mission”, the only incentive mechanism operating on German judges is the chance of promotion to higher office (Fabel 1996) because promotion is a good way to gain reputation and the only way to increase monetary income. Before a judge is promoted to a prestigious office, formalized performance appraisals are conducted to assess the judge’s past performance and potential. The ability to cope with the caseload and to write sound decisions are central among the criteria rated in these appraisals (Schnellenbach 1999). For the labor courts of appeal, the court presidents evaluate their peer judges, and in order to do so, they can draw on quantitative performance data that is collected continuously within the courts: cases processed, backlogs, settlement rates, and so forth. This career incentive is complemented by a procedural detail: Cases within the courts are assigned randomly and in equal numbers to judges. Therefore, judges are charged with an identical workload, and case backlogs or high reversal rates will stick out in comparison.

3. Empirical Analysis: Lawmaking and Dispute Resolution by German Labor Courts of Appeal

3.1 Data and Measures of Court Output

In order to identify the import of the demand-side and the supply-side of rule-production, I exploit performance and personnel data for nine labor courts of appeal in the period 1980 to 1996. Details on data sources and definitions are given in table 7 in the appendix, summary statistics and correlations are reported in tables 8 and 9 in the appendix. For lack of comparable court-level data, five eastern German courts and five courts in Bavaria and Northrhine-Westfalia are excluded from the analysis.

Table 1: Selected court output indicators: Averages and relative size (1980-1996)

	Annual average per court	In percent of resolved cases
Resolved cases	1,237.23	100.00
Settlements	367.25	29.68
Published decisions	40.46	3.27

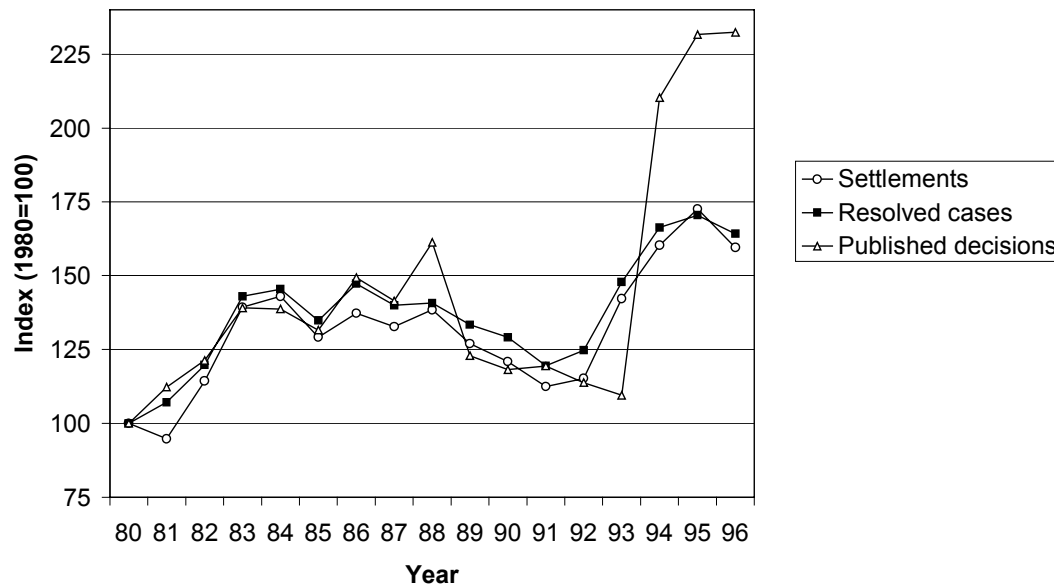
Three indicators of court output serve as dependent variables: “resolved cases”, “settlements”, and “published decisions” (see table 1 for averages and relative size). “Resolved cases” refer to those legal actions that were finished by the respective labor court of appeal during the year, no matter how, settlement, trial, or withdrawal. Among all cases resolved, nearly 30 percent were completed by “settlements”. Each court’s contribution to legal change through lawmaking is measured by the number of “published decisions”, that is, the number of those decisions that are published in JURIS, the most comprehensive legal database. These decisions account for some 3 percent of all resolved cases.

It is obvious that the variable “published decisions”, the measure of legal change through lawmaking, only covers a small fraction of all the decisions written by the courts. The sampling procedure is non-random: The courts suggest for publication their more important deci-

sions, those rulings with wider application, some new content, or dealing with a complicated matter. Posner (1999), among others, has recently advocated citation analysis as a means to evaluate the comparative performance of courts. The measure chosen in this paper is broadly in line with this approach. But for two reasons I count the published rather than the cited decisions. First, the labor courts of appeal, like civil-law courts in general, tend to follow precedent without necessarily citing the pertinent decisions in a rigorous manner, as they would have to in a common-law context. Second, only the important fraction of decisions are published at all. In this context, every decision published in JURIS potentially belongs to the sample of influential decisions because many of them will be discussed and reprinted in scholarly legal journals and hence disseminated among private parties, litigators, and the judiciary. The number of published decisions, therefore, approximates how strongly the labor court of appeal contributes to judicial lawmaking.

The three output indicators vary in their evolution over the sample period. In the time series in figure 1, the measures are depicted as indexes, normalized to 100 in the year 1980. The index for published decisions increases dramatically from 1993 to 1994. It seems that after 1993, information technology rendered the publication of decisions easier such that more decisions have since been included in the JURIS database. The step increase clearly produces a bias that must be accommodated in a time-series analysis. But there is no reason to believe that the different courts are affected to varying degrees by the change in publication practice.

Figure 1: The three output indicators over time



Finally, the data on court output allows to examine the product mix of courts and tradeoffs that may exist between different output dimensions. Table 2 reports correlations between four output dimensions: published decisions, settlements, published reversals by the Federal Labor Court, and appeals to the Federal Labor Court. All are expressed as shares of the number of resolved cases, in order to control for court size and productivity levels.

Table 2: Correlations among output dimensions

	Decision rate	Settlement rate	Appeal rate	Reversal rate
Decision rate	1.0000			
Settlement rate	-0.2706	1.0000		
Appeal rate	0.4127	-0.3387	1.0000	
Reversal rate	0.2508	-0.1078	0.1959	1.0000

Settlement rate: settlements divided by the number of resolved cases

All other rates: (absolute number +1) divided by the number of resolved cases (because in some observations, absolute values of appeals, reversals, and published decisions take on zero values)

Number of observations: 153 (pooled cross-section)

The decision rate, which depicts lawmaking, correlates positively with the appeal rate (0.41) and the reversal rate (0.25). Judges, when issuing new decisions, are apparently more likely to

face appeals and reversals. In particular the higher risk of reversal may be detrimental to career prospects, and therefore, judges may well be cautious not to engage too heavily in rule-making. In addition, the decision rate and the settlement rate are negatively correlated (-0.27), suggesting that there may be a tradeoff between swift dispute resolution via settlements and more time-consuming adjudication involving rule-production. Therefore, in order to save time and to avoid any reputational damages resulting from reversals, judges may neglect their function as rule-makers and may instead try to promote settlement or write more conventional decisions. At a first glance, the data reinforces the conjecture that incentive problems may affect court performance.

3.2 Hypotheses and Main Independent Variables

In what follows, I summarize how the main influencing factors are measured empirically and how these predetermined variables are expected to influence each of the dependent variables, given the institutional background sketched in section 2.2.

Demand side (changing employment relationship): The demand-side of judicial lawmaking depends crucially on employer-led changes in the employment relationship. When many employers resort, for instance, to downsizing, deflating pay levels, or introducing contractual work, new types of disputes become frequent before the courts and call for the issuance of rules. These changes in the labor contract tend to concentrate on downturns of the economy, when companies need to restructure in order to restore competitiveness. Downturns are accompanied and therefore conveniently measured by the extent to which workers enter the corps of the unemployed. Hence, the job loss rate, defined as the annual sum of inflow into unemployment standardized by the number of employees, is included as explanatory variable. A higher job loss rate is expected to lead to a higher number of published decisions by the courts. By contrast, the number of resolved cases or the number of settlements should not be connected with the job loss rate, after controlling for other factors, because these dimensions of court output capture cases that deal with more conventional, “run-of-the-mill” legal issues.

Judicial workload: Judicial workload will be measured as the number of cases filed during the year per judge employed. Courts can be expected to respond to a higher caseload by trying to economize on time. Hence, the analysis should reveal a positive relationship between the average number of new cases per judge and the number of settlements as well as resolved cases. Conversely, rule-production, as it involves the time-consuming writing of new, well-researched decisions, is likely to be reduced in relative terms when the judicial workload increases. Therefore, the judicial workload is expected not to be linked positively with the number of published decisions.

Experience: Empirical links between experience and court output reflect the overall effect of learning and career incentives. Drawing on Posner (1999: 21f.), an analogy to human capital theory is adopted to model the relationship between experience and output. Since high productivity, in rule-production as well as other output dimensions, is likely to enhance the judges' career prospects, productivity can be argued to track the promotional value of individual judges. The promotional value, in turn, usually rises for some time with tenure as judges gain in skills. But after judges have missed out on various promotion rounds, further career steps become less likely and the promotional value and hence performance may decline. Therefore, in the regression analysis experience, defined as tenure, and experience squared are included with the expectations that the response parameter is positive for the first and negative for the latter, together producing a hump-shaped relationship between experience and output (see also Landes/Lessig/Solimine 1998).

Academic publications: New judicial opinions are debated in legal journals they are adopted as part of the leading opinion and cited in commentaries (see Blankenburg 1996: 265). Hence, legal scholars are important in shaping the evolution of labor law. Therefore, it is tested here whether courts' output patterns vary systematically with the "scholarship" of their judges. The per capita number of publications, in books, *Festschriften*, and law journals, is therefore included as a right-hand side variable. In particular, it is conjectured that courts with more

scholarly judges will engage more heavily in rule-making, because writing new decisions is similar to writing a scientific paper and “academic” judges may have a preference for extending the limits of the law through rule-production.

The theoretical expectations are summarized in table 3, which contains the predicted signs of the main response parameters. In addition to these variables, some controls are included in the estimations. The per capita number of pending cases at the beginning of the year, that is, the case backlog, is controlled for, because a high backlog indicates a large number of cases that are near completion. Not including this control could inflate productivity estimates in observations with a high case backlog. In order to correct for possible drops in productivity when a large number of judges have entered the court during the year, the number of newly hired judges is also controlled for. Average age and average age squared are included alongside the equivalent variables for average experience. The share of judges holding a PhD. is included as an observable control for the type of judge. Finally, since the dependent variables are inserted as logs of absolute figures, the size of the courts – the number of judges – is also accounted for.

Table 3: Expected signs of response parameters in regression analyses

Theoretical concept	Independent variable	Dependent variable		
		Published decisions	Resolved cases	Settlements
Demand side	(Lagged) job loss rate	+	0	0
Judicial workload	New cases per judge	0	+	+
Promotional value	Experience	+	+	+
	Experience squared	-	-	-
Academic publications	Publications per judge	+	0	0

+ positive sign of response parameter expected

- negative sign of response parameter expected

0 insignificant response parameter expected

3.3 Empirical Model and Estimation Results

In order to model court output as a function of supply-side and demand-side factors, it is convenient to view the court as a production unit. Courts employ judges to supply an input, the

output of which can be captured in various dimensions, such as resolved cases, settlements, and published decisions. Since it can be assumed that judges enjoy some discretion in shaping their behavior to serve their interests (income, reputation, and leisure), the input-output-relationship should account for such behavioral influences. Therefore, the assumed production function includes behavioral factors as explanatory variables. The following behavioral production function is assumed:

$$\text{output} = A \cdot u \cdot \text{judges employed}^{\beta} \cdot \prod_{k=1}^m e^{\lambda_k \cdot \text{explanatory variable}_k}$$

with

$k = 1, \dots, m$ explanatory variables

u : disturbance term

In the above framework, court output can be either published decisions, resolved cases, or settlements. Each of these is modeled as a function of a technology parameter A , an error term u , the number of “judges employed” as the only input, and a set of m explanatory variables that capture behavioral influences. Parameter β gives the production elasticity because the number of judges is the only input included.²

By taking logs, the production function can be estimated linearly. The observations are pooled by including court-dummy variables in the vector of m explanatory variables in order to control for court-level intercept effects, while all response parameters are assumed to be equal across courts and time periods. Hence, fixed effects models are estimated throughout. This is consistent with the non-random sample used here, for a fixed effects model does not generalize statistically beyond the panels included in the study.

2 The unusual assumption of only a single input seems warranted because adjudication is a labor-intensive input that hardly allows for substitution by capital. The number of non-judicial employers, another possible input factor, correlates highly in this dataset with the number of judges and would therefore give rise to collinearity in the estimations.

Table 4: Determinants of Rule-production: Regression Results

Independent variables	Dependent variable: Log of published decisions				
	(1) All courts	(2) Until 1993	(3) All courts	(4) Small courts	(5) Large courts
Constant	10.0694 (0.69)	3.9805 (0.19)	-2.1544 (2.89)***	-5.1869 (5.37)***	-2.5697 (1.98)**
Schleswig-Holstein	(constant)	(constant)	(constant)	(constant)	
Hamburg	-0.0453 (0.09)	-0.2646 (0.52)	-0.1833 (0.41)	-0.1206 (0.25)	
Lower Saxony	-1.7694 (3.01)***	-1.6295 (2.53)**	-1.8819 (3.42)***		(constant)
Bremen	0.0844 (0.15)	0.0723 (0.10)	0.1719 (0.44)	0.4436 (1.29)	
Hesse	1.0751 (1.42)	1.2797 (1.56)	0.8998 (1.31)		2.7912 (9.46)***
Rhineland-Palatinate	-0.0699 (0.16)	-0.1260 (0.26)	-0.0489 (0.11)		1.8732 (6.09)***
Baden-Wuerttemberg	0.2611 (0.34)	0.2011 (0.24)	0.0535 (0.08)		1.9607 (6.20)***
Saarland	-0.3221 (0.55)	-0.5510 (0.87)	-0.3294 (0.65)	0.5862 (1.24)	
Berlin	-0.2795 (0.50)	-0.2868 (0.49)	-0.2804 (0.53)		1.5172 (5.62)***
Log of judges employed	1.2602 (2.52)**	1.0631 (1.91)*	1.3303 (3.30)***	2.0835 (4.16)***	1.5094 (2.86)***
New cases per judge	-0.0010 (0.56)	-0.0011 (0.53)			
Pending cases per judge	0.0087 (2.88)***	0.0078 (2.28)**	0.0088 (3.10)***	0.0092 (2.85)***	0.0052 (1.48)
Average experience	0.1189 (1.04)	0.0809 (0.63)	0.0853 (0.86)	0.2208 (2.77)***	-0.2849 (1.49)
Average experience squared	-0.0071 (1.26)	-0.0046 (0.68)	-0.0054 (1.11)	-0.0107 (2.90)***	0.0126 (1.14)
Average age	-0.4598 (0.82)	-0.1755 (0.22)			
Average age squared	0.0043 (0.80)	0.0014 (0.18)			
Share of PhD judges	0.0699 (0.17)	0.1739 (0.38)			
Publications per judge	0.0278 (0.51)	0.0744 (1.19)			
Newly hired judges	0.0038 (0.11)	0.0148 (0.35)			
Regional job loss rate	0.2471 (0.07)	0.1159 (0.03)			
Lagged regional job loss rate	10.9817 (3.04)***	8.2619 (2.76)***	10.5211 (3.41)***	15.1940 (3.98)***	10.8804 (3.72)***
Observations	153	126	153	68	85
Number of courts (panels)	9	9	9	4	5
R-square	0.75	0.80	0.72	0.79	0.72
Wald shi-square	1200.46	1355.40	819.57	307.97	178.48
Rho	0.37	0.31	0.42	0.13	0.42

Het-corrected z-statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
“(constant)” indicates that the court is reference unit in the set of court dummies
Calculations with Stata 7.0, xtpcse, options correlation (ar1)

Table 5: Determinants of Resolved Cases: Regression Results

Independent variables	Dependent variable: Log of resolved cases			
	(1) All courts	(2) All courts	(3) Small courts	(4) Large courts
Constant	6.1654 (1.57)	3.7061 (16.57)***	3.1180 (7.99)***	3.7751 (14.83)***
Schleswig-Holstein	(constant)	(constant)	(constant)	
Hamburg	0.0808 (0.85)	0.0363 (0.37)	0.1050 (0.74)	
Lower Saxony	0.0568 (0.44)	0.0025 (0.02)		(constant)
Bremen	-0.2769 (2.20)**	-0.1824 (1.47)	-0.0670 (0.44)	
Hesse	0.0625 (0.38)	-0.0376 (0.22)		-0.0480 (1.24)
Rhineland-Palatinate	0.0958 (1.11)	0.0874 (0.92)		0.1511 (2.74)***
Baden-Wuerttemberg	0.2692 (1.65)*	0.1770 (1.05)		0.1210 (2.52)**
Saarland	0.0898 (0.73)	0.0687 (0.48)	0.2515 (1.31)	
Berlin	0.1690 (1.39)	0.1236 (0.94)		0.1335 (3.22)***
Log of judges employed	0.9192 (7.54)***	0.9954 (7.66)***	1.0967 (5.68)***	1.0758 (10.73)***
New cases per judge	0.0033 (8.43)***	0.0033 (8.52)***	0.0034 (6.23)***	0.0043 (10.86)***
Pending cases per judge	0.0051 (7.47)***	0.0056 (8.00)***	0.0055 (6.13)***	0.0051 (8.37)***
Average experience	0.0577 (2.05)**	0.0319 (1.02)	0.0598 (1.94)*	0.0035 (0.10)
Average experience squared	-0.0027 (2.00)**	-0.0018 (1.17)	-0.0028 (1.91)*	-0.0015 (0.73)
Average age	-0.0776 (0.51)			
Average age squared	0.0006 (0.39)			
Share of PhD judges	0.1624 (1.83)*	0.1810 (1.85)*	0.2608 (2.16)**	0.0522 (0.65)
Publications per judge	0.0008 (0.08)			
Newly hired judges	0.0084 (1.18)			
Regional job loss rate	-0.5427 (0.77)			
Lagged regional job loss rate	1.5191 (2.00)**	0.6873 (0.99)	1.5435 (1.36)	0.0518 (0.10)
Observations	153	153	68	85
Number of courts (panels)	9	9	4	5
R-square	0.98	0.98	0.94	0.98
Wald chi-square	10309.66	7277.30	1143.00	1373.88
Rho	0.23	0.34	0.20	0.22

Het-corrected z-statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
“(constant)” indicates that the court is reference unit in the set of court dummies
Calculations with Stata 7.0, xtpecse, options correlation (ar1)

Table 6: Determinants of Settlements: Regression Results

Independent variables	Dependent variable: Log of settlements			
	(1) All courts	(2) All courts	(3) Small courts	(4) Large courts
Constant	1.4006 (0.22)	2.0420 (6.42)***	1.5694 (2.50)**	2.0015 (3.41)***
Schleswig-Holstein	(constant)	(constant)	(constant)	
Hamburg	0.6059 (4.29)***	0.4578 (3.46)***	0.5463 (2.71)***	
Lower Saxony	0.4770 (2.22)**	0.3510 (1.62)		(constant)
Bremen	-0.0222 (0.12)	-0.0212 (0.11)	0.0623 (0.26)	
Hesse	0.2956 (1.11)	0.0991 (0.38)		-0.2927 (3.73)***
Rhineland-Palatinate	0.4396 (3.14)***	0.4702 (3.26)***		0.1978 (1.82)*
Baden-Wuerttemberg	0.6772 (2.47)**	0.4670 (1.76)*		0.0190 (0.21)
Saarland	0.8948 (4.90)***	0.7299 (3.63)***	0.8515 (2.76)***	
Berlin	0.3644 (1.73)*	0.3851 (1.74)*		0.0356 (0.43)
Log of judges employed	0.9530 (4.78)***	1.0313 (4.98)***	1.0913 (3.35)***	1.2272 (5.45)***
New cases per judge	0.0022 (2.63)***	0.0025 (3.13)***	0.0022 (1.99)**	0.0044 (5.59)***
Pending cases per judge	0.0076 (7.58)***	0.0085 (7.98)***	0.0086 (6.30)***	0.0074 (6.04)***
Average experience	0.0252 (0.87)	-0.0004 (0.01)	0.0179 (0.54)	0.0006 (0.01)
Average experience squared	-0.0007 (0.53)	-0.0002 (0.13)	-0.0008 (0.50)	-0.0016 (0.40)
Average age	0.0481 (0.20)			
Average age squared	-0.0008 (0.33)			
Share of PhD judges	0.4142 (3.21)***	0.3465 (2.35)**	0.4034 (2.07)**	0.3578 (2.27)**
Publications per judge	0.0341 (1.54)			
Newly hired judges	0.0049 (0.39)			
Regional job loss rate	-0.2002 (0.18)			
Lagged regional job loss rate	1.9430 (1.85)*	1.2055 (1.31)	2.3204 (1.45)	0.1333 (0.14)
Observations	153	153	68	85
Number of courts (panels)	9	9	4	5
R-square	0.95	0.94	0.86	0.92
Wald chi-square	2415.93	1820.29	505.48	706.89
Rho	0.35	0.40	0.37	0.28

Het-corrected z-statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%
“(constant)” indicates that the court is reference unit in the set of court dummies
Calculations with Stata 7.0, xtpecse, options correlation (ar1)

On account of heteroskedasticity and serial correlation, an OLS estimator would produce invaluable estimations of parameters and errors. But as Beck/Katz (1995) show, some widespread feasible generalized least square estimators may produce overconfident estimates in small time-series cross-section datasets. Instead, the authors propose to correct for autocorrelation and then calculate panel-corrected standard errors (pcse), that is, errors correcting for panel-level heteroskedasticity of the disturbances and contemporaneous correlation of errors across panels. This pcse procedure is adopted here. A Prais-Winsten estimator is employed, transforming the data so as to eliminate serial correlation, estimated under the assumption of a common rather than panel-specific parameter (Beck/Katz 1995: 639f.).

The results are reported in tables 4 to 6. In addition to the main equation, which for each variable is reported in model (1), alternative specifications were estimated to check for the robustness of results. These either restrict the set of variables included or run estimations for small and large courts separately. In all estimations, the parameter of the Wald chi-square test is highly significant and the R-squared is between 0.72 and almost 0.98. The rho parameters confirm serial correlation as a problem in the data.

The estimated response parameters for the log of judges, though not of interest theoretically, are of reasonable size. For settlements and resolved cases, the estimated production elasticity is scattered around a value of 1, which implies constant returns to scale. For published decisions, the estimates are well above 1, indicating that the intensity of publishing decisions rises with court size. Only specification (4) in table 4, including only the smaller courts, gives an estimated production elasticity of 2.08 that is somewhat out of range.³

Most importantly, the regression results support the view that rule-production strongly responds to the demand-side, the extent of change in the employment relationship. In the esti-

³ The unusual assumption of only a single input seems warranted by the data. In addition to the estimates reported, each of the specifications (1) were run with time as an additional right-hand side variable that proxies technical progress. For published decisions, the estimated response parameter was insignificant, for resolved cases and settlements, the parameters even had negative signs and were statistically significant at the

mates for the number of published decisions given in table 4, the job loss rate, lagged by one year, is the most important explanatory factor apart from the number of judges. The higher the job loss rate in the year before, the more decisions with some new content will be published in JURIS, other things equal. The number of published decisions is the only among the three output indicators that is influenced in a statistically significant and consistent way by the job loss rate.⁴ Furthermore, results in table 4 suggest a strong reaction of rule-production to changes in the lagged job loss rate. For a hypothetical average inflow rate of 0.19, the estimates imply an elasticity of rule-production between 1.56 in specification (2) and 2.09 in specification (1).⁵ It is also a reasonable result that the lagged job loss rate rather than the contemporaneous variable influences the number of published decisions. Labor courts of appeal are the second instance, and it takes time before a case filters through a first-instance labor court trial and the appeal court procedure.

Behavioral variables that capture the supply-side of rule-making also affect court output in a systematic way. The number of new cases filed per judge is positively linked to the number of cases resolved (table 5) and the number of settlements (table 6). Hence, other things being equal, a higher caseload fuels performance in dispute resolution and appears to induce judges to engage more vigorously in attempts to bring about a settlement. The size of this effect can be appraised by the elasticity at the mean of the variable “new cases per judge”. In specification (1) in table 5, for instance, this elasticity amounts to 0.44. Some of this effect may be attributed to the courts’ exogenous workload: Courts may be underemployed in some periods but overly charged with cases in others. But the courts usually administer a high backlog of

5 percent level. Hence, inputs that were omitted from the analysis, such as computers and other technology, have apparently not enhanced court productivity over the sample period.

- 4 In order to check this finding, I ran an additional series of regressions that relate the number of published decisions in percent of all resolved cases as dependent variable to the same set of variables as included in tables 4 to 6 above. These estimations with the relative incidence of rule-production produce large response parameters for the lagged job loss rate and these are highly significant in three out of four specifications. By contrast, all the behavioral variables turn insignificant. Hence, when the employment relationship changes, the courts’ product mix changes toward more rule-production.
- 5 The log-linear specification means that the elasticity changes along the estimated function and can be calculated by multiplying the value of the predetermined variable with the estimated response parameter. Here, the reported elasticities were derived for the value 0.19, the mean of the lagged job loss rate.

cases, which amounts in the mean to 64 cases per judge. Moreover, as table 4 shows, published decisions are apparently not linked to the judicial workload (new cases per judge), while influenced positively by the case backlog (pending cases per judge), just as the other two dependent variables. Therefore, the relationship between new cases per judge on the one hand and resolved cases and settlement on the other is likely to reflect to some degree behavioral responses to differing workloads.

There is some evidence that the experience of judges influences court output in the way expected. The conjectured hump-shaped relationship between experience and output variables is found in 7 out of 9 specifications. The findings suggest for specification (1) in table 5 that court output in terms of resolved peaks at some 11 years of average judicial experience. Only 3 out of 9 specifications, however, are significant at least at the 10 percent level. Apparently, the consolidated court-level data hazes a relationship that exists between experience and output at the individual level. This consolidation is less severe in the estimates for the smaller courts. These specifications, accordingly, more likely reveal a significant result (specification (4) in table 4 and specification (3) in table 5).

Contrary to expectations, the estimation results for the number of scholarly publications are not statistically significant. Hence, courts employing judges who reveal some proximity to academic research do not have a product mix different from other courts.

4. Summary and Discussion

In this paper, I present data on German labor courts of appeal in order to enhance our knowledge of judicial lawmaking in civil-law countries. The analysis has brought forth some impact on court output of what I called the supply-side of legal change, that is, the behavior of judges. Faced with a high workload, judges seem to economize on time by favoring settlements and other methods of a rash case resolution. Moreover, the observed link between experience and court output lends some support to the idea that career concerns are an important

incentive for tenured judges. Hence, judges in career judiciaries may be comparable in their incentives and behavior to professionals in public administrations (see Dewatripont/Jewitt/Tirole 1999).

On the demand-side of judicial lawmaking, changes in the employment relationship that give rise to new legal problems are estimated to lead to an increasing number of published decisions, after controlling for other explanatory factors. Hence, judicial lawmaking responds strongly to a changing reality. This confirms indirectly the view that case law is an important feature of civil-law systems that helps to complete and update the law (e.g. Shapiro 1981: 126ff.).

The unofficial case law reduces the costs on the part of judges to interpret and apply the law. A further issue must be discussed, however: How does the accumulation of precedents change legal costs born by private parties? On the one hand, a transformation of vague standards to more detailed rules reduces legal uncertainty for potential litigants (Kaplow 2000: 513). This is because parties can access published opinions of similar cases and can trust that judges will tend to apply these precedents in the future. By doing so, they can anticipate the likely outcome of their case and may resolve the conflict short of a trial (Ogus 1992: 417f.).

On the other hand, it has been argued that the accumulation of precedents may increase the complexity of the law such that private parties are less able to interpret the law and predict reliably the outcome of their case (Ehrlich/Posner 1974: 271). This argument is not convincing. First, it is not the statute but rather its likely application in court that private parties seek to be informed about. In this respect, an applied statute may be as complex as an applied judicial rule and, if an identical level of complexity is assumed, the judicial rule carries the advantage of being known *ex ante*. Hence, information about how the statute is applied in court also incurs legal costs of interpretation, and these tend to be higher than for information about judicial rules (Ogus 1992: 416f.). Second, precedents afford guidance to the parties only in an indirect way. How the many new published opinions relate to the existing body of law is dis-

cussed in scholarly journals, before authoritative commentaries, often co-authored by academics and practicing judges, synthesize what evolves as the leading opinion (see Blankenburg 1996: 265). It is these commentaries rather than the original opinions which private parties consult in order to assess how the law applies to their case.

It is fair to conclude, therefore, that the unofficial judge-made law reduces legal costs both for the judiciary and private parties: It contains legal uncertainty without increasing the complexity of the law.

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Table 7: Sources and definition of variables

Variable	Source	Definition
Resolved cases	1	Number of cases processed (per decision, settlement etc.) during the year; cases refer to two types of hearings: first, <i>Urteilsverfahren</i> , and second, <i>Beschwerdeverfahren</i> according to article 87, 98 Labor Court Act
Published decision	2	Number of decisions published in the decision file of JURIS
Decision rate	1, 2	Published decisions plus 1 in percent of resolved cases ^{a)}
Settlements	1	Number of cases finished by settlements during the year
Appeals	1	Number of appeals filed at the Federal Labor Court during the year
Published reversals	2	Number of reversals (remand, partial or complete reversal) by the Federal Labor Court published in JURIS referring to cases that the labor court of appeal decided during the year
Judges employed	3	Number of judges employed on average during the year; gross figures are corrected for temporary vacancies and part-time work
New cases per judge	1	Number of cases filed during the year per judge employed
Pending cases per judge	1	Number of cases unfinished at the beginning of the current year per judge employed
Newly hired judges	4	Number of judges hired during the current year
Average experience	4	Average tenure at the labor court of appeal of judges in the current year; gross figures for the number of judges are used as denominator
Average age	4	Average age of judges; gross figures for the number of judges are used as denominator
Rate of PhD. judges	4	Share of judges holding a PhD.; gross figures for the number of judges are used as denominator
Publications per judge	2	Number of scholarly publications (journal articles, <i>Festschriften</i> papers, books, commentaries) per judge; gross figures for the number of judges are used as denominator
Job loss rate	5	Annual sum of inflows into unemployment divided by average number of employees eligible to social security contributions (<i>sozialversicherungspflichtig Beschäftigte</i>)

a) For some observations, “published decisions” takes zero values. Therefore, all observations were transformed by adding 1.

Sources of the data:

- 1 Statistics by the Federal Ministry of Labor on the workings of the courts for labor cases, published annually in the journal *Bundesarbeitsblatt*.
- 2 JURIS files referencing scholarly legal publications and decisions by courts for labor matters in all three instances.
- 3 Statistics compiled annually by the Bavarian Ministry of Labor (“*Bayernstatistik*”)
- 4 Inferred from the *Handbuch der Justiz*, a biannual compilation of judges employed in German courts, issued by the *Deutscher Richterbund*, the most important professional organization of judges.
- 5 Official bulletin (*Amtliche Nachrichten*) of the Federal Labor Office (*Bundesanstalt für Arbeit*), various issues.

Table 8: Summary statistics for variables

variable	mean	minimum	maximum	standard deviation
Resolved cases	1237.23	141.00	2620.00	708.65
Published decisions	40.46	0.00	172.00	40.52
Decision rate	3.46	0.35	14.42	2.76
Settlements	367.25	49.00	888.00	219.39
Appeals	46.07	0.00	130.00	31.53
Published reversals	3.61	0.00	23.00	4.25
Judges employed	9.35	1.92	17.83	4.92
New cases per judge	132.57	53.09	283.60	29.86
Pending cases per judge	64.09	23.08	167.42	25.20
Newly hired judges	0.53	0.00	4.00	0.78
Average experience	8.49	1.00	21.00	2.79
Average age	52.09	44.67	61.00	2.74
Share of PhD. judges	0.34	0.00	0.86	0.22
Publications per judge	1.93	0.00	7.00	1.76
Job loss rate	0.19	0.11	0.28	0.04

153 observations (9 courts over the period 1980-1996)

Variables are explained and their sources are given above in table 7

Table 9: Correlations between variables

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Resolved cases	1.00														
2. Published decisions	0.49	1.00													
3. Decision rate	0.97	0.39	1.00												
4. Settlements	0.80	0.51	0.75	1.00											
5. Appeals	0.32	0.35	0.30	0.23	1.00										
6. Published reversals	0.95	0.53	0.90	0.77	0.40										
7. Judges employed	0.37	0.10	0.35	0.29	-0.06	0.24									
8. New cases per judge	0.07	0.16	0.10	0.12	-0.12	0.04	0.26	1.00							
9. Pending cases per judge	0.42	0.22	0.40	0.33	0.19	0.36	0.09	0.03	1.00						
10. Newly hired judges	-0.05	-0.04	-0.05	-0.11	-0.08	-0.04	-0.08	0.09	0.02	1.00					
11. Average experience	-0.13	-0.05	-0.12	-0.15	-0.09	-0.11	-0.12	-0.31	-0.04	0.44	1.00				
12. Average age	-0.07	0.11	-0.09	-0.04	-0.12	0.00	0.27	-0.32	-0.13	-0.33	0.14	1.00			
13. Share of PhD. judges	0.19	0.12	0.18	0.11	0.28	0.12	0.03	-0.33	0.11	0.05	0.00	0.15	1.00		
14. Publications per judge	-0.17	-0.17	-0.10	-0.24	-0.21	-0.27	0.13	0.07	-0.14	0.04	0.04	0.26	0.33	1.00	
15. Job loss rate	-0.20	-0.17	-0.12	-0.25	-0.23	-0.27	0.10	0.08	-0.14	0.03	0.03	0.25	0.32	0.95	1.00