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**Article**

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## ARE PAIN AND SUFFERING AWARDS (UN-)PREDICTABLE? EVIDENCE FROM GERMANY

Magdalena Flatscher-Thöni<sup>1</sup>, Andrea M. Leiter<sup>2</sup>, Hannes Winner<sup>3</sup>

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### Abstract

This paper assesses the widely held belief that damages for pain and suffering are random or arbitrary. In detail, we investigate whether damages for pain and suffering are systematically affected by individual-, injury- and procedural-specific characteristics and how important these factors are relative to each other. To uncover the predictability of these awards, we rely on a sample of German damages for pain and suffering awards including 2.244 verdicts. By estimating a standard regression model we observe that final awards are systematically influenced by the injury's conditions, by the court level the case is brought in and by the engagement of a lawyer. Our findings let us conclude that damages for pain and suffering and the respective assessment process within the German judicial system are largely reasonable and transparent rather than random.

### Keywords

Tort Law, Damages for Pain and Suffering, Civil Procedure, Predictability

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### I. Introduction

Damages for pain and suffering (DPS) represent monetary payments to compensate individuals for a physical and mental distress caused by the wrongdoing of other persons. In this way, DPS might be viewed as a monetary evaluation of a change in someone's life quality.

DPS are assigned by courts, and depend on the severity and intensity of the injury, the duration of pain and, more generally, the impairment of life quality. Hence, DPS are sensitive in two regards: They vary over the specific circumstances of the injury and the affected person's individual change in life quality, and they are crucially influenced by the courts' assessment of the harm inflicted upon the victim. In addition, the legal basis

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to evaluate DPS is often general and imprecise, leading to outcomes that are frequently perceived as unpredictable and random (see Zhou 2010, with further references). These perceptions have made DPS a contentious issue in many civil law countries, asking for differentiated empirical analyses. Our paper investigates whether DPS are systematically affected by individual-, injury- and procedural-specific characteristics and how important these factors are relative to each other.

To uncover the predictability of DPS awards, we rely on a sample of German DPS awards, including 2.244 verdicts over the period 1980 to 2006. The (un-)predictability of pain and suffering compensations is particularly discussed in Germany, which is well documented in anecdotal evidence<sup>4</sup> and also in the legal literature (see Schwintowski, Schah Sedi and Schah Sedi 2013). Drawing upon the legal framework of the German tort law, we derive expectations on the potential impact of each of these (groups of) variables on DPS awards and assess whether compensations deviate strongly from these predictions, i.e., whether variables or groups of them enter (in-) significantly in a multiple regression framework.

Our paper contributes to previous research in two important ways. First, we use DPS verdicts from Germany and thereby provide evidence for a civil law country not analyzed so far.<sup>5</sup> More importantly, we complement a narrow literature on asking how predictable legal outcomes are. Existing studies are less conclusive on this issue. They either show some randomness (e.g., Bovbjerg, Sloan and Blumstein 1989, on personal injuries) or a high predictability of compensations (e.g., Viscusi 1988, on product liability cases; and Zhou 2010, on medical malpractice). The German tort law is particularly interesting in this regard since the computation of compensations is mainly based on judges rather than on juries (as in common law countries), raising the question whether DPS awards are still predictable in such systems. Our evidence mainly corroborates the findings of Viscusi (1988) and Zhou (2010), which is at odds with the notion that DPS awards are mostly random or arbitrary.

The paper proceeds as follows. Section II derives some testable hypotheses based on a description of the legal background of the German tort law and the corresponding court system. Section III presents the data and some descriptive statistics. Section IV introduces the empirical specification to assess the differential impact of various determinants of DPS. We also present our empirical findings there. Section V concludes.

## **II. Legal Background and Hypotheses**

Damages are basically defined as the amount of money awarded by courts to compensate someone who has been harmed by others' wrongdoing or negligence. Hence, harm constitutes the first requirement for requesting damages, the others being causation and

<sup>4</sup> See, for example, popular media appearances in *Der Spiegel* (<http://www.spiegel.de/spiegel/print/d-165253-75.html>) or *Süddeutsche Zeitung* (<http://www.sueddeutsche.de/muenchen/streit-um-schmerzensgeld-wieviel-ein-toedlicher-behandlungsfehler-kostet-1.1663762>).

<sup>5</sup> In contrast to common law countries, for which determinants of DPS awards have been widely investigated so far (see Bjovberg, Sloan and Blumstein 1989, Leebron 1989, Sloan and Hsieh 1990, Geistfeld 1995, Diamond, Saks and Landsman 1998, Anderson, Kling and Stith 1999, Lott and Manning 2000 and Avraham 2003, 2006), empirical evidence on civil law countries is generally scarce. Notable exceptions are Amaral-Garcia (2011), Grembi and Garoupa (2013) and Chang et al. (2014).

breach of duty (see Koziol 2012). Generally, damages include pain and suffering, healing costs, present and future loss of earning capacities as well as payments for psychological and social damage. DPS only focus on the compensation of physical and mental distress suffered from an injury, including fractured body parts and internal ruptures as well as the pain, the temporary and permanent limitations on activity, the potential shortening of life and other forms of suffering (see Arlen 2000, Schäfer and Ott 2012).

In Germany, DPS are awarded for physical and mental distress suffered from a personal injury, aimed at compensating the experienced and future pain and the overall resulting loss of life quality. The German law of tort and damages tries to compensate damages primarily by restoring a person's previous state; only if this is impossible or inappropriate (as it is mostly the case for intangible damages such as DPS), an estimated monetary value should compensate damage (Art 249 German Civil Code, BGB).<sup>6</sup> Regarding such compensations, Art 253 BGB specifies that "... [m]oney may be demanded in compensation for any damage that is not pecuniary loss only in the cases stipulated by law."; this is complemented by paragraph 2 stating that "... [i]f damages are to be paid for an injury to body, health, freedom or sexual self-determination, reasonable compensation in money may also be demanded for any damage that is not pecuniary loss". Hence, Art 253 BGB represents the central statutory provision of German tort law regarding claims in case of DPS.<sup>7</sup>

As far as the specific assessment of DPS is concerned, the BGB does not provide a clear guidance for balancing intangible harm in money (see, e.g., Koziol 2012, for a detailed discussion). Accordingly, the German tort law passes the effective evaluation task implicitly to the jurisprudence. Hence, it is up to the civil courts (i.e., the judges as legal professionals) to decide on whether and which compensations an injured person receives. This is in sharp contrast to common law countries, where juries as a group of lay people assess the physical and mental distress suffered from a personal injury.

The legal system as well as the legal practice supports this judiciary assessment process by different means. First of all, judges are generally guided by the fundamental functions of (German) tort law, namely the compensation and the satisfaction function. While the former refers to the idea that the aggrieved party should be appropriately compensated for the damage, the latter intends to pander the experienced harm (see, e.g., Schäfer and Ott 2012).<sup>8</sup> Based on that, judges typically refer to precedents and specific pain and suffering guidelines extracted from German jurisdictions, which are systematically summarized

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<sup>6</sup> Art 249 BGB defines the nature and extent of damages as follows (official English translation of the corresponding Art 249 BGB): (1) A person who is liable in damages must restore the position that would exist if the circumstance obliging him to pay damages had not occurred. (2) If damages are payable for personal injuries or physical damages, the obligee may demand the required monetary amount in lieu of restoration. In case of physical damages, monetary payments according to (1) only include value added taxes if and to the extent that it is actually incurred.

<sup>7</sup> In 2002, the German tort law was reformed according to the "Zweites Gesetz zur Änderung schadensersatzrechtlicher Vorschriften". Since then, damages for pain and suffering can be based on tort as well as on the violation of contractual obligations (see Magnus 2003 and Koziol 2012, for a detailed discussion). In our empirical analysis below, we explicitly account for a possible impact of the change in tort law on DPS awards but do not find systematic evidence in this direction (see Section IV).

<sup>8</sup> Recent developments in the German jurisdiction and legislation let the satisfaction function almost losing its relevance, leading to a dominating role of the compensation function (see Müller 2006). Hence, the compensation

by the continuing legal practice of the German Federal Supreme Court (see BGH, Urt. V. 12.5.1998 – VI ZR 182/97, NZV 1998, 370 (371)). The respective criteria include pain, severity of the injury, injury specific suffering and the duration of pain as well as fault of the injurer. To evaluate these injury-specific characteristics, judges are supported by experts (mainly physicians) who qualitatively assess an individual's (change in) health status, especially focusing on the description of the severity of the injury, the resulting pain and its duration. After all, we would expect that the compensations a victim receives are higher the more severe an injury is, the longer the corresponding pain and suffering is, and the more injuries a victim suffers from. Furthermore, the German Federal Supreme Court leaves it open whether (the degree of) the injurer's fault has to be considered in determining compensations (see BGH, Urt. V. 29.09.1952 – III ZR 340/51). Contributory negligence of the victim (Art 254 BGB), in contrast, should be accounted for when evaluating DPS (see Jaeger and Luckey 2009, 579).

Apart from injury-specific characteristics, the German Federal Supreme Court also mentioned personal characteristics to evaluate DPS, particularly age and gender. Accordingly, age as such should not determine the compensations as young and old people alike suffer from pain (Jaeger and Luckey 2009, 1044); also gender should be not decisive as courts have to follow a gender-neutral line of reasoning (see Danzl 2008). For similar reasons, a victim's income, wealth, as well as social and economic status should not be of judicial interest when assessing pain and suffering. This, in turn, let us conclude that individual-specific circumstances should not exert a systematic impact on DPS compensations.

The German judicial power in civil matters is based on four different court types: District Courts (Amtsgericht), Regional Courts (Landesgericht), Province Courts (Oberlandesgericht), and the Federal Supreme Court (Bundesgerichtshof). The legal process either starts at the District Court or at the Regional Court, depending on the amount of the claim for relief (first instance). Accordingly, claims higher than EUR 5.000 are only allowed to be brought in at the Regional Court (see Article 23 Gerichtsverfassungsgesetz). If the first instance is the District (Regional) Court, the appeal may go up to the Regional (Province) Court as the second instance and, as the third and final instance, to the Supreme Court. From this, we firstly would expect higher payments in the first instance Regional Court than in the first instance District Court. Second, as long as there is a positive probability of an appeal being successful, we would predict increased average compensations at second instance (Regional and Province) Courts as compared to the first instance (District and Regional) Courts. Apart from this, DPS should not be influenced by other court-related characteristics, especially a court's geographical location.

With the exemption of the District Court, it is obligatory to adduct a legal representative when filing a lawsuit (see Article 78 German Code of Civil Procedure). It is, therefore, interesting to see whether and to what extent compensations are higher if a lawyer is involved at these first-level appeals. Although this should not be the case from a procedural point of view, there is ample evidence from previous research that legal representation at courts matters. In particular, Sandefur (2012), drawing on a sociological theory of

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award should counter-balance the negative feelings that were suffered, putting the victim in a position to procure conveniences and relief to compensate his suffering and the loss of enjoyment of life (Kozioł 2012, 299).

professionalism, distinguishes between substantive and relational expertise to explain why lawyer representation should affect the outcome of ordinary litigation in a systematic way. The former points to a lawyer's specific knowledge in the content of law and the use of legal procedures (including the translation of a plaintiff's real-world problems into legal terms), the latter expertise includes professional relationships with judges, court staff, clients and other attorneys. Empirical studies outside the tort law seem to confirm these advantages of legal representation,<sup>9</sup> letting us expect a positive impact of lawyers on DPS awards.

### III. Data

#### Data Description

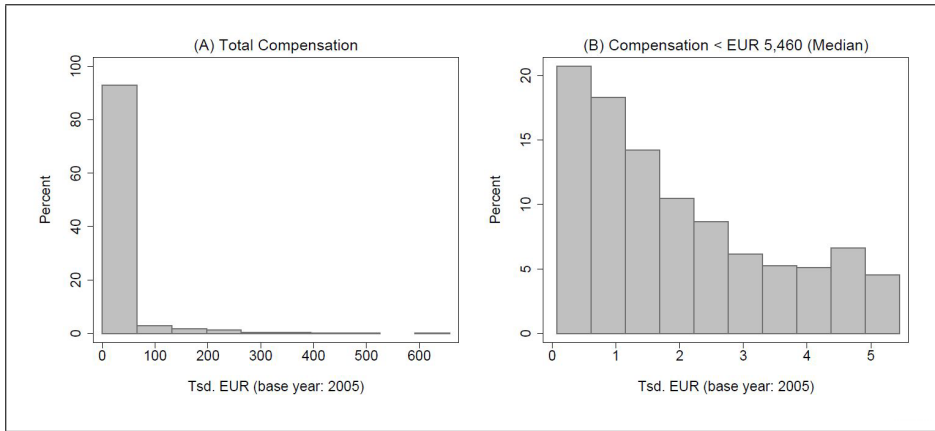
To analyse the differential impact of personal-, injury- and procedural-specific determinants of DPS awards we extract information from the German verdict collection Hacks, Ring and Böhm (2006, 2007). This dataset exclusively covers DPS proceedings from courts of the first and second instance. It only focuses on DPS and leaves out any other related compensations, notably changes in earning capacities. Originally, our sample includes around 2.839 proceedings on DPS between 1980 and 2006 (about 15 percent of all cases are disputed after the year of the change in German tort law in 2002; see Table 1). It contains individual information on the victims' gender and age, on the number of injuries and on the amount of compensations. In addition, it includes information on the court type as well as the instance and location where the decision took place, on the rate of contributory negligence (measured in percentages) and on details of the injury (i.e., duration, intensity and severity of the injury). Further, the dataset comprises sentences from the District, Regional and Province Courts, thereby fully covering the first two instances of civil proceedings in Germany (sentences from the level of the Supreme Court are not covered in the dataset). We also have information whether a plaintiff was represented by a lawyer in the first instance District Court.

#### Descriptive Statistics

Table 1 provides a descriptive overview over the data. As can be seen from the table, our sample contains 2.244 observations where full information on victim-, injury- and procedural-specific characteristics of DPS is available. The average DPS, measured in 2005 EUR, amounts to about EUR 22.303, with a minimum of EUR 69 and a maximum of EUR 657.701. The median compensation is around EUR 5.460 (not reported in the table). Generally, the whole distribution of DPS awards is skewed to the left (see Panel A of Figure 1). Panel B of Figure 1 further shows that more than 60 percent of all DPS below the median is lying within a range of EUR 0 to 2.500. In the econometric analysis below, we account for this pattern taking the logarithm of compensations when defining the dependent variable (the resulting variable is close to a log-normal distribution).

<sup>9</sup> See, for example, Greiner and Pattanayak (2011) and Shanahan, Carpenter and Mark (2014) on unemployment compensation proceedings, Anderson and Heaton (2012) on criminal law, or Gilson and Mnookin (1994) and Halla (2007) on divorce processes. Most of this research used randomized experiments or instrumental variable approaches to identify a causal relationship between lawyer representation and legal outcomes.

**Figure 1: Distribution of DPS awards**



Notes: Panel A plots the whole distribution of DPS awards, while Panel B focuses on compensations below the median (= EUR 5.460).

Around 42 percent of the victims in the dataset are females. Regarding the age of the victims, our sample includes exact information on this variable only for 883 individuals. For the remaining observations, however, we are able to assign each individual to one of four age cohorts: “child” (victims below 14 years), “young” (between 15 and 18 years), “adult” (between 19 and 65 years) and “retired” (older than 65). As can be seen from Table 1, adults are the most represented group in our sample (around 65 percent of all observations). For those 883 individuals where we have exact information on age, we have a mean age of around 30 years, with minimum and maximum values of 0,5 and 85 years.

**Table 1: Descriptive statistics**

	Mean	S.d.	Min.	Max.
<i>Dependent variable</i>				
Compensation in 2005 EUR (Thsd.)	22,303	54,025	0,069	657,70
Log Compensation	8,614	1,690	4,228	13,397
<i>A. Victim-specific characteristics</i>				
Female [D]	0,419	0,493	0,000	1,000
Age	30,326	18,582	0,500	85,000
Child <sup>a)</sup> [D]	0,187	0,390	0,000	1,000
Young [D]	0,117	0,321	0,000	1,000
Adult [D]	0,649	0,478	0,000	1,000
Retired [D]	0,048	0,213	0,000	1,000

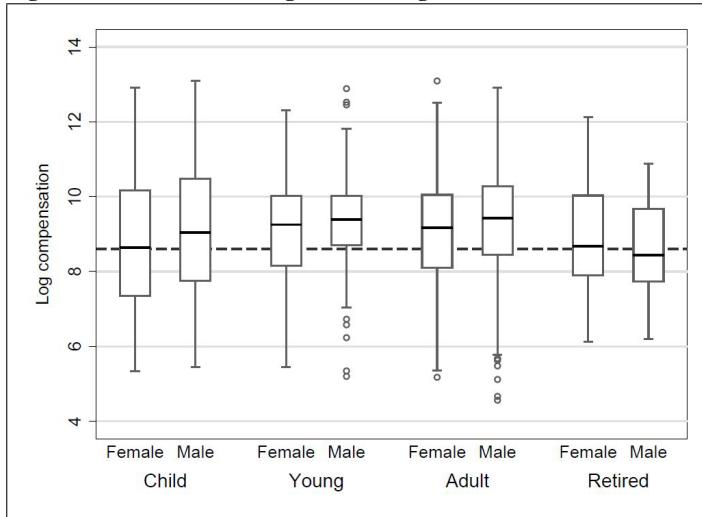
*Continued on next page*

	<b>Mean</b>	<b>S.d.</b>	<b>Min.</b>	<b>Max.</b>
<i>B. Injury-specific characteristics</i>				
Contributory negligence (in %)	4,844	13,676	0,000	80,000
More injuries [D]	0,580	0,494	0,000	1,000
Emotional injury [D]	0,065	0,247	0,000	1,000
Temporary insignificant <sup>a)</sup> [D]	0,297	0,457	0,000	1,000
Temporary minor [D]	0,396	0,489	0,000	1,000
Temporary major [D]	0,088	0,283	0,000	1,000
Permanent minor [D]	0,097	0,296	0,000	1,000
Permanent significant [D]	0,042	0,201	0,000	1,000
Permanent major <sup>b)</sup> [D]	0,001	0,030	0,000	1,000
Permanent grave <sup>c)</sup> [D]	0,000	0,021	0,000	1,000
Death [D]	0,013	0,115	0,000	1,000
<i>C. Procedural-specific determinants</i>				
First instance District Court <sup>a)</sup> [D]	0,242	0,429	0,000	1,000
First instance Regional Court [D]	0,389	0,488	0,000	1,000
Second instance Regional Court [D]	0,040	0,195	0,000	1,000
Second instance Province Court [D]	0,329	0,470	0,000	1,000
Case disputed in Eastern Germany [D]	0,100	0,300	0,000	1,000
Case disputed in Northern Germany [D]	0,180	0,384	0,000	1,000
Case disputed in Southern Germany [D]	0,320	0,467	0,000	1,000
Case disputed in Western Germany <sup>a)</sup> [D]	0,406	0,491	0,000	1,000
Lawyer <sup>d)</sup> [D]	0,831	0,375	0,000	1,000
Sentence after year 2002 [D]	0,146	0,353	0,000	1,000

Notes: 2.244 observations for all variables, except the female dummy (2.127 observations) and the ones of the age groups (1.278). a) Reference groups (not included in the regression analysis). b) Two observations. c) One observation. d) Entries rely to the first instance District Court only. [D] indicates a dummy variable.

Figure 2 shows the distribution of (log) compensations over gender and age cohorts. Overall, we observe higher payments for males than for females (the unconditional gender difference is around EUR 4.422 which is significant at the five percent level). Further, we can see a weak hump-shaped pattern in payments over age classes, with children and retired people receiving on average the lowest compensations while young ones and adults obtaining the highest DPS. Children and adults exhibit the largest variations in compensations.



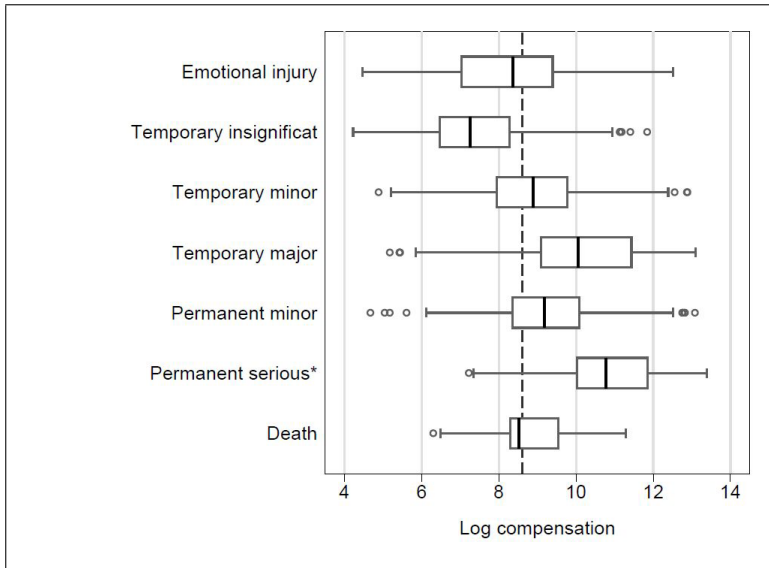
**Figure 2: DPS awards over gender and age**

Notes: Bold lines within the boxes represent the median of (log) compensations. The boundaries of the boxes indicate the interquartile range, i.e., the two quartiles at the center of the distribution. The whiskers in the plots have a length of 1,5 times the interquartile range. Entries outside the whiskers refer to observations in the upper or lower tails of the distribution. The dashed line represents the overall median (=8,605), which is close to the mean reported in Table 1.

With respect to the injury characteristics we distinguish between the severity of the injury and the number of injuries. Accordingly, 58 percent experienced more than one injury. We are able to describe the severity of personal injuries and the impairment of the quality of life by a nine-point scale adopted from the US National Association of Insurance Commissioners (NAIC). This scale ranges from emotional injuries only to death (see Table A.1 in the Appendix for further details). Table 1 shows that the majority of the individual injuries can be classified as minor temporary damages (around 40 percent), followed by temporary insignificant damages with a share of about 30 percent; about 10 percent belong to minor permanent or major temporary injuries. The remaining five categories are less of importance; for permanent major and permanent grave injuries we have only one and two observations in our sample (see notes in Table 1). For this reason, we summarize these injuries with permanent significant ones, obtaining a sample size in this new class of injuries of 98 observations (henceforth, we refer to this class as “permanent serious”).

The distribution of DPS over the severity of pain is illustrated in Figure 3. The lowest compensations can be observed for temporary insignificant damages (in absolute numbers EUR 4.860, on average), while the highest ones are paid for permanent serious ones (EUR 96.800). Within the classes of temporary and permanent damages we find that compensations increase with the severity of pain. This pattern is broadly in line with the German tort law, suggesting higher payments for more intensive pain.

**Figure 3: DPS awards and severity of pain**



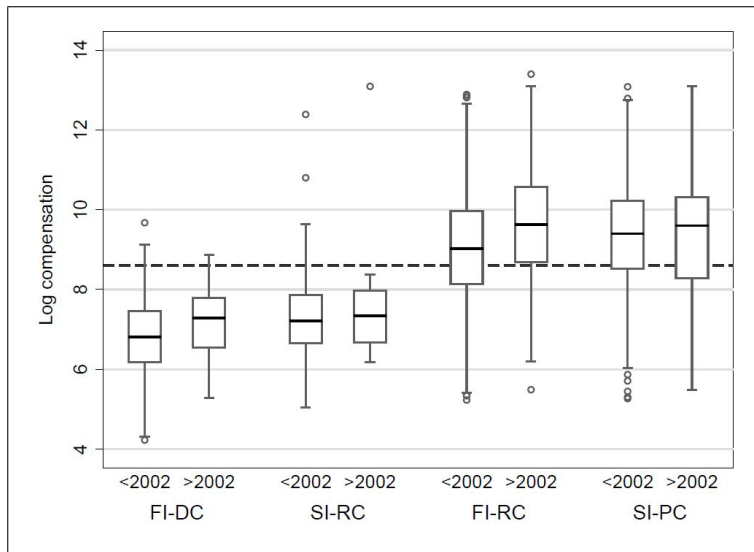
Notes: See notes to Figure 2. \*Includes 98 observations and collects the ones of permanent major (2 observations), permanent grave (1) and permanent significant injuries (95).

Most of the verdicts were disputed at South and West German courts (about 32 and 41 percent; see Table 1). Further, about two thirds of the proceedings can be assigned to the first instance (District or Regional Courts), while one third reflects the second instance (Regional and Province Courts). Around 83 percent of all 544 cases disputed at the first level District Court draw upon a lawyer. The average compensation at this level is around EUR 1.422, and the difference for cases with/without legal representation is about EUR 284 (not reported in Table 1), which is significant at the 5 percent level.

Figure 4 plots the distribution of DPS awards over court types and years before/after the change in the German tort law in 2002 (see footnote 7). Three aspects are worth noting. First, payments are insignificantly higher in years after 2002 than before. This suggests that the change in tort law does not have any systematic impact on DPS. Second, and in line with the legal background described above, we can see a strong difference in compensations within the first instance (i.e., the District and the Regional Courts), which, in absolute numbers and unconditional on other factors, amounts to about EUR 27.873, on average. Third, this gap becomes much smaller when comparing payments between the first and the second instance. The corresponding absolute differences are, on average, EUR 9.146 between the first instance District Court and the second instance Regional Court, and EUR 1.541 for the one between the first instance Regional Court and the second instance Province Court. In other words, if a victim decides to appeal a sentence from the first instance, we might expect considerable additional payments. However, it also appears that variation in payments is lower in the first (second) instance District (Regional) Courts than

in the other courts. In addition, we also observe a number of outlying observations which might be influential, and, therefore, should be addressed appropriately in the subsequent empirical analysis.

**Figure 4: DPS awards over court type and years before/after the change in German tort law**



Notes: See notes to Figure 2. FI and SI denote the first and second instances; DC, RC and PC represent the District, Regional and Province Court, respectively. Years before/after the change in German tort law are indicated as “<2002/>2002”.

Generally, Figures 2 to 4 suggest substantial differences in DPS over individual-, pain- and procedural-specific characteristics. However, the underlying descriptive statistics do not allow drawing any conclusions on the relative importance of these determinants and whether they are systematically associated with compensations. These questions are addressed in the next section, providing an econometric analysis on determinants of DPS awards.

#### IV. Empirical Analysis

##### Specification and Estimation

To study the role of individual-, injury- and procedural-specific characteristics of and their relative importance on DPS awards we estimate a standard regression model, which reads as:

$$y_i = \alpha + X_i^V \beta_V + X_i^I \beta_I + X_i^P \beta_P + t + \varepsilon_i. \tag{1}$$

The variable  $y$  is the log of compensation awarded to victim  $i$ ,  $X$  denotes a vector of explanatory variables, where superscripts  $V$ ,  $I$  and  $P$  indicate the group of variables belonging to victim-, injury- and procedural-specific variables, respectively. The variable  $t$

refers to a time trend informing about the average change in DPS over the whole time period between 1980 and 2006.<sup>10</sup> Then,  $\alpha$  represents the constant,  $\beta$  are parameters to be estimated and  $\varepsilon$  is the remainder error term.

Our variables of interest might be assigned to three broad groups: Vector  $X^V$  includes the victim-specific characteristics gender and age. Since the victims' exact age is not entirely available in our sample, we estimate three versions of (1): In Model A we leave out any age information, in Model B we include the above mentioned age categories, and in Model C we use a victim's exact age if available. Then, our sample includes 2,126 observations in Model A, 1,207 in Model B and 855 in Model C.

The variable  $X^I$  covers injury-specific characteristics, i.e., (i) six indicator variables for the intensity and severity of pain as measured by the above-mentioned nine-point NAIC-scale (the reference category is temporary insignificant injuries), (ii) one on whether the plaintiff is exposed to more than one injury, and (iii) one on whether she is at least partially guilty. Further, to investigate whether there are age and gender specific differences in the impact of injury-specific determinants on DPS awards, we estimate a more saturated Model D where we interact each of the variables in (i), (ii) and (iii) separately with gender and age (i.e., we include eight interaction terms for gender and eight ones for age; in sum, we have 16 additional variables as compared to Model C).

Finally,  $X^P$  accounts for procedural-specific variables. In particular, we incorporate a set of indicator variables indicating at which region, instance and court type the case was disputed. To capture that victims are free to choose a lawyer as legal representation at the first level District Court (only), we add a dummy variable indicating whether a lawyer was hired at this stage.

Equation (1) is estimated with ordinary least squares. To avoid that our estimation results are driven by outlying observations (as suggested by Figures 2 to 4), we exclude the upper and lower end percentile of the remainder error term, losing 44 (Model A), 26 (Model B) and 22 (Models C and D) observations, respectively.<sup>11</sup> Based on our estimation results, we further carry out an analysis of variance (ANOVA), which allows to disentangle the relative importance of (a group of) variables on the total variation in DPS awards.

## Estimation Results

Table 2 reports our estimation results. First of all, we can see that the four models do not vary considerably with regard to the sign and the magnitude of the estimated parameters as well as their significance. Therefore, and to draw further conclusions on the age-related variables, we concentrate on Models B to D when discussing our estimation results.

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<sup>10</sup> To rule out that DPS awards are not systematically influenced by the change in German tort law (see footnote 7) we additionally included a dummy variable for sentences after the year 2002. The corresponding parameter estimate turned out to be insignificant, suggesting that there is no structural break around this time period. For this reason, we suppressed the year 2002 dummy in all of the regressions.

<sup>11</sup> It turns out that both versions, the original one and the outlier-corrected one, come to very similar qualitative conclusions with regard to all variables in the model. Therefore, we only present the results of the outlier-corrected models here. The ones of the original model are available from the authors upon request.

Table 2: Estimation results

	Model A		Model B		Model C		Model D	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
<i>A. Victim-specific characteristics</i>								
Female	0,009	0,044	-0,034	0,057	0,016	0,065	0,192	0,174
Young			0,068	0,108				
Adult			-0,023	0,086				
Retired			-0,181	0,142				
Age in years					-0,004	0,002**	-0,005	0,004
<i>B. Injury-specific characteristics</i>								
Contributory negligence	-0,010	0,002***	-0,009	0,002***	-0,008	0,003***	-0,011	0,006*
More injuries	0,732	0,048***	0,763	0,062***	0,854	0,075***	1,029	0,162***
Emotional injury	0,562	0,089***	0,600	0,119***	0,513	0,158***	0,411	0,183
Temporary minor	0,679	0,057***	0,617	0,077***	0,559	0,091***	0,435	0,183**
Temporary major	1,675	0,106***	1,653	0,122***	1,599	0,131***	1,765	0,241***
Permanent minor	0,946	0,089***	0,934	0,115***	0,993	0,136***	0,843	0,300***
Permanent serious a)	2,248	0,129***	2,169	0,143***	1,986	0,154***	2,281	0,372***
Death	1,001	0,226***	1,192	0,306***	1,123	0,342***	1,263	0,731*
<i>C. Procedural-specific determinants</i>								
First instance Regional Court	2,122	0,106***	2,406	0,169***	2,694	0,225***	2,640	0,222***
Second instance Regional Court	0,725	0,142***	1,148	0,261***	1,129	0,301***	1,041	0,304***
Second instance Province Court	2,275	0,108***	2,497	0,170***	2,667	0,222***	2,616	0,221***

Continued on next page

	Model A		Model B		Model C		Model D	
	Coef.	SE	Coef.	SE	Coef.	SE	Coef.	SE
Case disputed in Eastern Germany	-0,052	0,074	-0,104	0,093	-0,066	0,118	-0,069	0,121
Case disputed in Northern Germany	-0,029	0,059	0,048	0,078	0,080	0,091	0,093	0,092
Case disputed in Southern Germany	0,025	0,053	0,114	0,068	0,101	0,079	0,098	0,081
Lawyer First instance District Court	0,419	0,103***	0,451	0,171***	0,465	0,230***	0,410	0,228*
Time trend	0,039	0,004***	0,048	0,005***	0,049	0,006***	0,051	0,006***
<i>D. Interaction terms</i>								
Female x injury-specific char. (8 interactions)	No		No		No		Yes <sup>b)</sup>	
Age x injury-specific char. (8 interactions)	No		No		No		Yes <sup>c)</sup>	
Observations	2,082		1,181		833		833	
R <sup>2</sup>	0,626		0,628		0,636		0,640	

Notes: SE . . . Robust Standard error. \*\*\*, \*\*, \* . . . Significant at 1-, 5- and 10-percent level, respectively. Constant not reported;  
 a) Includes injuries with permanent significant, major and grave pain; b), c) All of the (eight) interactions are insignificant  
 (estimation results are available upon request).

Panel A of Table 2 informs about the impact of individual-specific characteristics on DPS. First, the victim's gender turns out insignificant throughout. Second, age is insignificant in Model B ("child" is the reference category), but exerts a significantly negative impact on compensations when using the victim's exact age (Model C). The marginal effect is rather low, however, indicating that a victim may obtain about 0,4 percent [ $\approx 100(\exp(-0,004) - 1)$ ] lower compensations than people one year younger, all else equal. The (main) effect of age changes to insignificant when incorporating interaction terms between age and the injury-specific characteristics (Model D). The interaction effects themselves are insignificant throughout, which is also the case for the interactions between gender and the injury-specific characteristics.<sup>12</sup> Overall, it seems that victim-specific effects do not contribute significantly to explain the variation in the DPS, which is consistent with the German tort law and also the existing empirical evidence (e.g., Amaral-Garcia 2011). This finding implies that courts do not discriminate against any individual-specific characteristics when assigning such awards.

Panel B of the table reports the estimated parameters for injury-specific effects. In line with the German tort law and most of previous research, we generally observe significantly increased payments with the intensity and severity of pain (see, e.g., Amaral-Garcia 2011, for similar evidence from Spain; Bovbjerg, Sloan and Blumstein 1989, Viscusi 1988 and Geistfeld 1995, on common law countries). Starting with contributory negligence, we find a significant negative coefficient, which is in line with the legal framework described above. The parameter estimate is around  $-0,01$ , translating into a marginal reduction in compensations of about one percent per one percentage point increase in contributory negligence. Second, the parameter estimate of more injuries is significantly positive. A marginal effect of around 180 percent (Model D) suggests that people with more injuries are assigned with more than twice of compensations than persons with only single violations. We further find that individuals suffering from emotional injuries obtain about 50 percent more compensation than victims experiencing temporary insignificant injuries (forming the reference category). Relying on Model D, we can see that victims with minor (major) temporary injuries may expect about 54 (484) percent higher compensations than people in the reference category (i.e., ones with temporary insignificant injuries). Payments for minor (serious) permanent injuries are about 132 (879) percent higher than payments for insignificant temporary injuries. In case of death, we estimate a significant positive parameter estimate with a marginal effect of 254 percent.<sup>13</sup>

Regarding the procedural-specific variables reported in Panel C of Table 2, we firstly can see that it does not really matter at which location the cases are disputed. The corresponding regional dummies are insignificant throughout.<sup>14</sup> Next, we turn to the stages of appeal,

<sup>12</sup> For the sake of brevity, we do not report the parameter estimates of these 16 interaction terms in Table 2, but the corresponding estimation results are available from the authors upon request.

<sup>13</sup> As the German law of tort and damages does not know wrongful death cases, DPS are used to compensate for the pain and suffering after accident and before death. Hence, death does not lead to the highest pain and suffering damages in Germany.

<sup>14</sup> As a robustness check, we also include interactions with the courts' geographical location and a period dummy controlling for DPS awards before the German reunification in 1990 (results are available from the authors upon request). While the direct location dummies remain still insignificant, the period dummy indicates significantly

represented by the first instance Regional Court and the second instances' Regional and Province Courts (the first instance District Court serves as the reference group). We observe significantly positive coefficients for all three courts, implying higher payments than in the reference category (first instance District Court). As expected, and also in line with the descriptive evidence provided in Figure 4, we find that compensations at the first instance are about 10 times higher in Regional Courts than in District Courts. However, it is perhaps more interesting to compare payment awards at first instance District Courts and second instance Regional Courts as well as between first instance Regional Courts and second instance Province Courts. Both effects can be traced back to the fact that the “subsequent” courts deal with appeals in second instances. For the former comparison, we obtain a significant parameter estimate of 1,041 (Model D), translating into a marginal effect of around 183 percent [ $\approx 100(\exp(1,041) - 1)$ ]. For the latter, we observe a statistically insignificant difference in parameter estimates of  $-0,024$  in Model D ( $= 2,616 - 2,640$ ). In other words, while it seems that appeals pay significantly higher compensations between the first instance District Court and the second instance Regional Court, this is not the case between the first instance Regional Court and the second instance Province Court.<sup>15</sup> Generally, these findings also corroborate to the ones from our descriptive Figure 4. Panel C of the table further informs about the importance of legal representation at courts. As outlined before, victims are not obliged to be legally represented on the level at the District Court (first instance), whereas all other courts (instances) ask mandatorily for a legal representation. Hence, it seems interesting to see if the existence of a lawyer within a District Court proceeding shows a systematic impact on the outcome conditional on a certain configuration of personal-, injury- and (other) procedural-specific characteristics. The corresponding interaction term enters significantly positive with a marginal effect between 50 to 60 percent. Given average compensations of about EUR 1.422 at this court level, this difference translates into additional payments between EUR 710 and 850, on average (notice that this difference is substantially higher than the unconditional difference reported in Section Descriptive Statistics). Interestingly, the average lawyer fees for the average compensation of EUR 1.420 on this court level are lying around EUR 315 to 525<sup>16</sup>, implying that paid compensations via legal representation outweigh the corresponding lawyers' costs. In other words, given the data at hand it is worth investing in lawyers as lawyers can be helpful to receive higher awards at the District Court. It also confirms our expectation and previous evidence on the role of legal representation (see Shanahan, Carpenter and Mark 2014, for a comprehensive overview). With regard to the time pattern of DPS awards, we observe an annual average increase of about four to five percent.

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higher DPS awards (in Model A only) after 1990. Furthermore, the interaction terms reveal significantly lower payments in Eastern and Northern Germany (Models C and D) before the reunification compared to the payments in Western Germany.

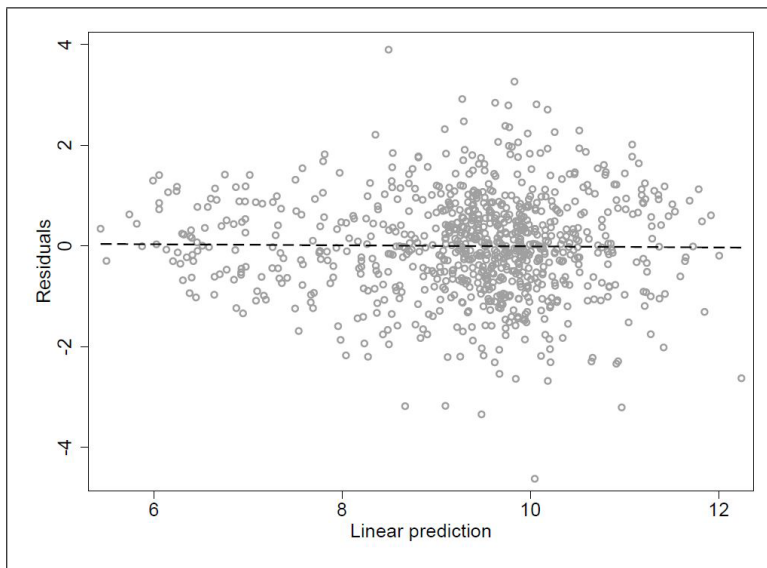
<sup>15</sup> As the data does not provide information about who is appealing, the victim or the tortfeasor, the respective insignificance could be traced back to this missing information.

<sup>16</sup> For detailed information on calculating lawyer fees in DPS cases, see <http://www.ratgeber-schmerzengeld.de>.



Overall, we notice that about two thirds of the total variation in DPS awards is explained by the explanatory variables included in our empirical model. Most of the explanatory variables in Table 2 take the expected sign following the legal framework of the German tort law. From this, we firmly may conclude that DPS are reasonable and, from this perspective, widely transparent. Moreover, Figure 5 shows that predicted DPS awards are uncorrelated with the residuals from the regressions in equation (1) (Model D), suggesting that unobserved characteristics of victims, injuries and the jurisprudence do not systematically affect our predicted values of DPS awards.

**Figure 5: Residual plot**



*Notes: Linear prediction is based on the linear regression of Model D in Table 2. The slope parameter (standard error) of the dashed line (regression of predicted values on residuals) amounts to about  $-0,010$  ( $0,026$ ), being highly insignificant.*

In Table 3, we further decompose the variation in compensations into two major components: one explained by the independent variables (i.e., the “model”) and one by the remaining determinants (the “residual”).<sup>17</sup> As in Table 2 the model distinguishes between four major groups of variables: victim-specific (Panel A), injury-specific (Panel B) and procedural-specific characteristics (Panel C) as well as other determinants (time trend and constant).

<sup>17</sup> Since the interaction terms between age/gender and the injury-specific variables enter insignificantly in our regressions (Model D in Table 2), the analysis of variance is related to Model C from above.

**Table 3: Analysis of variance**

	<b>Absolute</b>	<b>in %</b>	<b>d.f.</b>	<b>MSE</b>	<b>Share<sup>a)</sup></b>
Model	1.200,33	63,6	18	66,69	
<i>A. Victim-specific characteristics</i>					0,2 [0,3]
Female	0,05	0,0	1	0,05	
Age in years	3,82	0,2	1	3,82	
<i>B. Injury-specific characteristics</i>					28,9 [45,5]
Contributory negligence	9,40	0,5	1	9,40	
More injuries	115,32	6,1	1	115,32	
Emotional injury	7,93	0,4	1	7,93	
Temporary minor	32,27	1,7	1	32,27	
Temporary major	151,24	8,0	1	151,24	
Perminent minor	55,20	2,9	1	55,20	
Perminent serious <sup>b)</sup>	161,13	8,5	1	161,13	
Death	13,66	0,7	1	13,66	
<i>C. Procedural-specific determinants</i>					11,4 [18,0]
First instance Regional Court	100,46	5,3	1	100,46	
Second instance Regional Court	11,02	0,6	1	11,02	
Second instance Province Court	99,67	5,3	1	99,67	
Case disputed in Eastern Germany	0,29	0,0	1	0,29	
Case disputed in Northern Germany	0,61	0,0	1	0,61	
Case disputed in Southern Germany	1,37	0,0	1	1,37	
Lawyer First instance District Court	2,70	0,1	1	2,70	
Time trend	62,29	3,3	1	62,29	3,3 [5,2]
Overall mean (constant)	371,39	19,7	1	371,89	19,7 [31,0]
Residual	688,39	36,4			
Total	1.888,72	100,0			100,0

Notes: ANOVA is based on Model C in Table 2. a) Share of variation of each variable group on the total variation (column 1), in %. Entries in brackets relate to the share of variation of each variable group on the model's explanation (row 1). b) Includes injuries with permanent significant, major and grave pain; d.f. . . . degrees of freedom, MSE . . . Mean squared error.

The first two columns of Table 3 reflect the variance in absolute and in relative terms. The latter is the variance due to each effect in percent of the total variance. Similarly, the last column of the table reports the relative importance of each variable group, calculated as the sum over the variables' shares (column 2) within a group of characteristics. From this,

we can see which determinants actually account for the lion's share in the variation of compensations. Obviously, these are not variables belonging to personal- or procedural-specific characteristics (with a share of 0,2 and 11,4 percent), but the ones of determinants on the severity and intensity of pain, contributing to about one third in total variation of DPS awards. Again, this finding seems consistent with the legal basis of the German tort law, which, together with our results from the regression analysis, indicates that German DPS awards are mostly predictable rather than purely random.

## V. Conclusion

This paper contributes to recent research dealing with the predictability of legal outcomes. For this purpose, we focus on damages for pain and suffering (DPS) and assess the impact and the relative importance of personal-, injury- and procedural-specific characteristics on the corresponding compensations. Our sample includes 2.244 German verdicts between 1980 and 2006, and we rely on the legal framework of the German tort law to derive hypotheses on the potential impact of each of these (groups of) variables on DPS awards. Whether compensations deviate starkly from these predictions is assessed within a multiple regression framework.

In sum, our empirical results reveal that DPS awards at German courts are mainly driven by injury-specific characteristics, especially by the intensity and severity of the injury, and, to a lesser extent, by the victim's contributory negligence. Our evidence also points to the importance of procedural-specific characteristics, especially at which court a case is disputed and whether a legal representative (lawyer) is hired by the plaintiff or not. Finally, we show that individual-specific effects such as gender and age are less decisive in explaining DPS awards.

Our empirical results help to uncover the predictability of DPS awards in Germany. In particular, we observe systematic and influential factors behind such compensations, either based on the legal framework or on precedents as well as on specific pain and suffering guidelines. Hence, we can conclude that DPS and the respective assessment process within the judicial system are largely reasonable and transparent. Further, since victim-related variables only have a negligible impact on DPS awards one might suspect whether this is also the case for other, from a societal perspective perhaps more important characteristics such as income, education or occupation. Unfortunately, our sample does not include such variables, but the ever increasing attempts to establish comprehensive datasets on DPS may allow addressing this and related questions in the near future.

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## Appendix

**Table A.1: Injury severity levels according to NAIC-classification**

Severity of the injury	Description
Emotional injury	Fright, no physical damage
Temporary Insignificant	Temporary lacerations, contusions, minor scars, rash; no delay in recovery
Temporary Minor	Infections, misset fracture, fall in hospital; recovery delayed
Temporary Major	Burns, surgical material left, drug side effect, brain damage; recovery delayed
Permanent Minor	Loss of fingers, loss or damage to organs; includes non-disabling injuries
Permanent Significant	Deafness, loss of limb, loss of eye, loss of one kidney or lung
Permanent Major	Paraplegia, blindness, loss of two limbs, brain damage
Permanent Grave	Quadriplegia, severe brain damage, lifelong care or fatal prognosis
Death	

Notes: See the websites of the NAIC for further information: <http://www.naic.org>.