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An Empirical Analysis of Changing Guidelines for Health and Safety in Employment Sentences in New Zealand

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Abstract: Sentences for employers convicted of offences under NZ health and safety law have been subject to constraints from two main sources (i) legislation; and (ii) guideline judgment cases. Their effect is to effectively split sentencing into three distinct time periods, viz., the period following the introduction of the De Spa Guidelines to the implementation of the Sentencing Act 2002, the second following the joint implementation of the Sentencing Act and the Health and Safety in Employment Amendment Act to the Hanham & Philp Guideline judgment in December 2008, and the third is the post Hanham & Philp Guideline period. This article builds on previous work that analyses the various factors relevant to HSE sentencing, concentrating on the second and third periods. We find a difference in sentencing factors that matter at the single s 6 charge level versus the case level and also find that these factors differ across periods. In particular, although harm continues to play an important role in explaining sentences of reparation, its previous role in directly explaining levels of fines is replaced by various levels of employer culpability. The Hanham & Philp decisions incorporated harm in determining culpability and District Court judges appear to follow this judgment closely in this respect.

Keywords: Health & Safety Offences, Judicial Guidelines, Sentencing Determinants

JEL Classifications: K32

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1 Introduction

Sentences for employers convicted of offences under the Health and Safety in Employment ("HSE") Act 1992 in New Zealand ("NZ") have been subject to constraints from two main sources. The first are those imposed by the legislature, viz., the HSE Act and its amendments, and the Sentencing Act 2002. The second are the guideline judgments in two Full Bench High Court appeal cases; viz., *De Spa*[1] and *Hanham & Philp*[2], both of which involved successful appeals against sentences by the (then) NZ Department of Labour.[3] In *De Spa*, the convicted employer's fine was raised by 130 percent, and nine sentencing criteria to which frequent reference has been made in subsequent sentencing decisions were specified. The De Spa Guidelines were later codified with only minor changes in s 51(A) of the HSE Act following its amendment in 2002. *Hanham & Philp* involved appeals in three cases considered together, with fines substantially increased in all cases, in part a belated response to a five-fold increase in the maximum fines introduced in the HSE Amendment Act 2002. In addition, three ranges of substantial sentencing starting points for fines were established.

The De Spa Guidelines constituted a list of identified sentencing factors, including (1) the degree of culpability; (2) the degree of harm resulting; (3) the financial circumstances of the offender; (4) the attitude of the offender, including remorse, co-operation, and taking remedial action; (5) any guilty plea; (6) the need for deterrence, both particular and general; (7) compensation to the victim under s 28 Criminal Justice Act 1985; (8) the employer's safety record; and (9) the facts of the particular case.

In previous papers, Menclova and Woodfield (2011, 2013a) examined empirically the NZ District Courts' sentencing criteria and the associated financial liability in terms of fines and reparation awards for employers convicted of offences under the HSE Act between 23 March 1994 and 18 December 2008.[4] Those papers focused on s 6 offences that were by far the most common, and also examined the aggregation of sentences to the case level in order to be able to investigate all multiple-charge and/or multiple-victim situations. The data were also stratified into two time periods. The first ("period 1") applied prior to the implementation of the Sentencing Act on 30 June 2002. The second ("period 2") ran from 5 May 2003 through 18 December 2008 and covered cases sentenced after the date from which both the Sentencing Act and HSE Act amendments jointly applied through to the decision date for *Hanham & Philp*.

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[1] *Department of Labour v De Spa and Co Ltd*. [1994] 1 ERNZ 339.
[2] *Department of Labour v Hanham & Philp Contractors Limited & Ors* [2008] 6 NZELR 79.
[3] Incorporated in the Ministry of Business, Innovation and Employment on 1 July, 2012.
[4] The database for Menclova and Woodfield (2011) ended in June 2007.

A number of statistically significant results appear in this work. For example, financial liability for employers increased with the degrees of culpability and harm, and with the need for particular deterrence. The most significant mitigating factors seemed to be the defendant's financial limitations and small employer size. Other variables, such as a 'guilty' plea, cooperation, the employer's safety record, or the need for general deterrence did not seem to play a significant role. For the case-level estimations, the number of charges was a significant predictor of financial liability imposed for the periods 1 and 2 combined, and for the earlier period considered separately. Regarding period 1 versus period 2 estimates, the most obvious pattern was that the (absolute) sizes of the significant coefficients were much larger in the more recent period indicating that the monetary penalties or discounts associated with various case characteristics increased substantially over time. Notably, the estimated models exhibited quite high explanatory power.

During period 2, the De Spa Guidelines largely continued to apply except that fines could no longer be awarded to victims. Instead, the Sentencing Act 2002 introduced a requirement for (uncapped) reparations to be routinely awarded where applicable and that reparation awards should be determined prior to setting other aspects of sentences such as fines.[5] In *Department of Labour v Ferrier Woolscours (Canterbury) Ltd* [2005] DCR 356, Judge Abbott outlined a "two-step" approach to sentencing whereby the amount of reparation was fixed on a stand-alone basis and then any other aspect of sentence such as a fine would be determined, taking into consideration the need for the total penalty to be proportionate to the offending. Clark (2008) argued that DC judges initially applied the Sentencing Act and this two-step approach in a manner consistent with the Criminal Justice Act 1985. Section 28 of CJA had permitted all or part of a fine to be awarded as compensation to victims at the discretion of the court, but this section was repealed following the introduction of the Sentencing Act. Under the CJA, Clark (p. 437) argued that "the court set what it considered to be an appropriate total penalty, and then divided the total penalty between reparation and fine," the effect of which had led to a dollar-for-dollar discount in fines being given for reparation awards. Mason (2008) was critical of this procedure, and emphasized that the intent of reparations, unlike fines, is not penal in nature. It appeared that fines had become a residual, of limited quantitative importance in many major cases where employers were financially capable of meeting significant levels of liability, in some cases because they carried reparation insurance.

The High Court judgment in *Hanham & Philp* changed the above situation dramatically. As appellant, the main submission of the (then) Department of Labour ("DoL") was that the fines imposed at District Court ("DC") level in the three appealed cases were manifestly inadequate and failed to reflect the five-fold increase in the maximum fine for s 50 offences enacted in the amended HSE Act. Evidence showing that 90 percent of total financial liabilities since May 2003 had not exceeded $50,000 (just 20 percent of the maximum fine alone) was accepted by the Court. It was also argued that it was timely to

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[5] Note that it was not uncommon during period 2 to include accident compensation 'top-ups' in reparation awards. An early post Sentencing Act example is *Department of Labour v University of Otago*, DC Dunedin, CRN 3012510001, 24 November 2003.

review the sentencing principles embodied in *De Spa*. The Court was easily persuaded to conduct such a review, and the respondents offered no serious objections. According to Hughes (2009) in his case comment on *Hanham & Philp*, "For some five years, District Court Judges have been resisting invitations to substantially increase the level of fines in line with the 2002 amendment until structured guidance was available from the High Court." [6]

The Court emphasized the distinct statutory purposes of reparations and fines in line with DoL's submissions, arguing that each required independent attention in the sentencing process. Compared to the previous two-step approach to sentencing, the Court preferred an approach involving a third step along with a more systematic and transparent approach to setting the level of fines. Further, in order to meet the prime object of the HSE Act, viz., the prevention of workplace harms, sentencing would generally require sufficient weight being given to the purposes of denunciation, deterrence, and accountability for harms done in terms of s 7 Sentencing Act.

In its discussion of sentencing methodology, the Court considered that the logical first step would continue to fix the amount of reparation taking into account any amends offered or made. If made, reparation orders should be discounted dollar-for-dollar by the amount of payments made, whereas if unpaid offers had been made, the amounts should be included in the reparation award or sentencing adjourned until payment was made. Further, where employers were impecunious, the level of reparation should reflect the limited capacity to make payments. Absent from this discussion, however, was any mention of the criteria that might be used to fix the quantum of reparation.

The second step would continue to fix the amount of the fine with the proviso that the approach in *R v Taueki* [2005] 3 NZLR 372 be followed, requiring a starting point to be adopted based on the circumstances of the offending and adjusted for the offender's financial circumstances, any amends made, and relevant aggravating or mitigating factors considered. Prior to *Hanham & Philp*, starting points had not been mandatory.[7] Notably, and in contrast with prior practice, the process of determining the amount of a fine should be carried out independently of any reparation order made. The Court, however, rejected an 18 category hierarchy of starting points proposed by DoL, opting instead for three broad categories based on the level of the offender's culpability. The Court identified (at [54]) a set of criteria for assessing culpability (blameworthiness) and set starting points according to the following scale: for low culpability, a fine not exceeding $50,000; for medium culpability, a fine between $50,000 and $100,000; for high culpability, a fine between $100,000 and $175,000 (although higher starting points might be required in cases of "extremely high" culpability).[8] Finally, the Court included a third step, suggesting that judges should consider whether the

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[6] Cf., Hughes *Employment Law Bulletin* (2009) 36, No. 2.

[7] Starting points, however, were not uncommon in the period 5 May 2003 – 18 December 2008. For example, we identified starting points in 25 percent of successfully prosecuted s 6 offences during this period, and there may have been others that we could not identify due to lack of reporting, especially where judicial decisions or sentencing notes were unavailable.

[8] These three broad categories not only contrast sharply with the 18 categories recommended by DoL but even more sharply with the much finer approach adopted in 1987 in the United States' criminal Federal Sentencing Guidelines, involving a grid of 258 boxes in a sentencing table based only on a criminal's past record and offence severity. As a consequence, in HSE cases, NZ judges are still permitted considerable latitude for judicial sentencing variation.

resulting total financial liability – composed of reparation and fine set at steps 1 and 2, respectively - is proportionate to the circumstances of the offending and the offender.

The Court clearly supported a substantial increase in the level of fines and explicitly rejected the seemingly common District Court practice of dollar-for-dollar discounting fines that would have been imposed in the absence of reparation awards except in the case where offenders had a demonstrably limited financial capacity.[9] It was argued that an increase in the level of fines was necessary in order to reflect the five-fold increase in the maximum fine to account for inflation and the need for deterrence in light of the ongoing costs and the serious nature of workplace accidents. In general, s 8(c) and (d) Sentencing Act required penalties to be set at or close to the maximum for the most serious offending and District Court Judges had typically failed to come close to meeting this statutory requirement. The Court, however, continued to encourage the exercise of judicial discretion in that (at [60]) "Tailoring to the individual circumstances of the case remains essential, as is the need to avoid undue hardship." This left the issue of precisely what "taking into account" the amount of reparation ordered (or amends made) meant when setting fines somewhat unclear. At [69], however, and without wishing to set a precise range, the Court suggested that "a discount of up to 10 to 15 percent in the level of the fine is reasonable to recognize the order for reparation in the case of an offender of adequate means." If such an offender was insured against reparation orders, the Court argued (at [74]) that "some modest allowance may be justified to recognise the employer's responsible approach in securing insurance cover to provide for injured employees but we would see this as sufficiently allowed for in the discount of 10 to 15 percent already discussed at [69]."

Regarding the three cases appealed, the Court (at [81]) noted a reluctance to increase rather than reduce sentences and would only increase a sentence if it were convinced that it had been manifestly inadequate. The sentence would also be increased by the minimum necessary to prevent it being continued to be so considered. In its conclusions (at [164]), the Court noted that while their approach should generate greater consistency of starting points for fines, endpoints could easily show considerable variation since final results may be affected by financial capacity and/or reparation amounts (and also variations in mitigating and aggravating factors for that matter). The decisions were as follows.

Hanham & Philp Contractors Ltd. A fine of $5,000 was quashed and a fine of $50,000 (an increase by a factor) was substituted once a starting point of $125,000 was reduced by 55 percent reflecting a number of substantial mitigating factors. The DC reparation order of $12,000 was unchallenged.

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[9] This discounting would presumably have had little impact on the fines that would otherwise have been set if reparation awards had been relatively small in magnitude. For example, among a sample of reported views appearing in Safeguard: Health & Safety News (2006), employment lawyer Tim Rainey was reported as claiming that reparation awards were far in excess of anything that could be justified except for physical harm (to which reparations do not apply) and that only nominal payments (not exceeding $2000-$3000) were intended by the legislation. No justification of this reasoning was given, however, and, unlike the amended HSE Act, reparation awards are uncapped. As it transpired, reparation awards were not trivial. Between 5 May 2003 and 18 December 2008, reparation awards were made in 93 percent of successfully prosecuted cases and averaged $15,065 in amount.

Cookie Time Ltd. A fine of $15,000 was quashed and substituted by a fine of $40,000 (i.e., an increase of 167%), which together with the initial unchallenged reparation of $5,000 was held to be not disproportionate. The amount of the reparation, however, was described (at [141]) as "barely adequate."

Black Reef Mine Ltd. The defendant's liability for $30,000 reparation to the widow of a deceased worker was increased to $55,000 (i.e., nearly doubled), while the fine of $10,000 was doubled to $20,000. The Court noted that the fine would have been substantially higher (at $70,000) had the company not faced difficult financial circumstances.

The present article empirically examines the extent to which specified potential determinants of HSE sentencing apply to total financial liability and its division between fines and reparation awards in periods 2 and 3, respectively. In particular, we consider whether the Hanham & Philp Guidelines induced substantial fine-increasing behavior by District Court judges in accordance with the new starting point ranges and the extent to which other important determinants of fines were thereby affected. The article is organised as follows. In section 2, we briefly summarize the general role of guideline judgments. Section 3 discusses the database used in this study, while section 4 outlines the models used in estimating the determinants of employer financial liability and its components and applies these models to the data for periods 2 and 3. Section 4 concludes with a summary of our estimation results that may be useful for readers less interested in the full details. Section 5 summarizes some issues that we believe are important for the design of future estimation work in this field, and a brief conclusion discussing possible policy uses for our estimation analysis is contained in Section 6.

2   The Role of Guideline Judgments

While a major purpose of sentencing guidelines is the promotion of sentencing consistency for similar offending,[10] it has been argued that little attempt is made in NZ guideline judgments to analyse, categorise, and weigh the various factors deemed to be relevant to sentencing.[11] In this respect, the De Spa Guidelines were fairly typical in that they merely constituted a list of sentencing factors seen to be relevant. No direct indication was given as to whether these factors were listed in any particular order of importance, nor whether different weights should have been applied to the various criteria. Not even the signs of the effects of the various criteria on penalties were provided, although these may be implicit in general NZ sentencing principles.[12]

While guideline judgments typically establish sentencing ranges for particular offences, the judgment in *De Spa* did not do so (although an indication of what was

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[10] Cf., Sentencing – Courts of New Zealand, http://www.courtsofnz.govt.nz/about/system/role/sentencing.html, accessed 18_02_2009, and s 8 Sentencing Act 2002.
[11] Cf., Hall (2009 at I.2.2(c)).
[12] Cf., Hall (2009, section I).

considered a likely appeal-proof upper bound for the penalty was provided).[13] By contrast, *Hanham & Philp* gives clear primacy to the assessment and role of employer blameworthiness in determining starting points for fines within specific ranges that exhibit considerable bite. The Full Bench in *De Spa* denied that sentencing is a mathematical exercise and emphasized the importance of the circumstances of the individual case. Similar, if somewhat less emphatic sentiments are expressed (at [57]) in *Hanham & Philp*. Although a number of judges continue to support this view of sentencing for HSE offences, others, for example Judge Blackie in *Department of Labour v George Grant Engineering Limited*, DC Papakura, CRI-2009-055-003473, 28 April 2010, argues (at [27]) that "the starting point for the fine …. has become in recent times a mathematical exercise." Further related "mathematical exercises" have been encouraged by the recent appeal judgments in *Raymond Everest Hessell v R,* SC 102/2009, [2010] NZSC 135 (relating to the rate of discount for an early plea of guilty and the separation of discounts for such a plea and for demonstrated remorse and assistance to the authorities) and in *Ballard v Department of Labour* [2010] 7 NZELR 301 in respect of assessing detailed percentage discounts for the full range of mitigating factors. The evolution of HSE sentencing guidelines (along with the subsequent appeal decisions above) appears consistent with the view of the general development of sentencing guidelines as expressed in *R v AM* [2010] NZLR 750 (at [13]) in their "emphasis on structured sentencing." In this article, we empirically test the extent to which DC judges conform with the De Spa Guidelines (as codified) and the Hanham & Philp Guidelines (together with relevant appeal judgments not constituting guidelines) when making decisions on levels of fines.

3   HSE Offence Data[14]

Our main dataset consists of coded charge-level information. The major source, provided by the (then) Department of Labour, contains a largely comprehensive list of successful prosecutions for HSE offences since inception of the HSE Act.[15] This database includes, *inter alia*, the amounts of any fines imposed and reparations awarded, along with case decisions and sentencing notes where available. Cases by judge were also identified.[16] The Department was also particularly helpful in tracking down and supplying copies of summaries of facts, judicial decisions, sentencing notes, and returns on prosecutions that were otherwise unavailable to us. In addition, the Safeguard CourtBase provided succinct summaries of each accident and returns on prosecutions for post-2002 cases (however, only since 2004/5 did the Returns on Prosecutions begin to include information on the sentencing factors). Returns on Prosecutions were very useful where no decision/sentencing note was available for a particular case.

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[13] Since *De Spa* was a relatively early case in terms of administration of the HSE Act, the High Court judges may have had few similar cases to which reference might have been made in order to establish sentencing ranges. Starting points in health and safety sentencing, however, were considered to be potentially misleading. In their view, the sole merit of a starting point was to indicate the magnitude of any discount for a plea of guilty.

[14] Our discussion in this section closely follows section 5 in Menclova and Woodfield (2011) which frequently elaborates many points to which the reader is referred for details.

[15] Department of Labour, *HSE.xls* (unpublished), Wellington.

[16] Department of Labour, *Cases by Judge.xls* (unpublished), Wellington.

As in Menclova and Woodfield (2011, 2013), we measure an employer's total financial liability by the sum of all fines imposed and reparations awarded in each charge/case.[17]

Our master dataset (beginning in 1993) includes 2,438 charges. Out of those, we initially focus on s 6 offences that are by far the most common. Section 6 of the HSE Act states that "Every employer shall take all practicable steps to ensure the safety of employees while at work" and section 2A of the HSE Amendment Act qualifies "all practicable steps" as "all reasonably practicable steps." As such, a s 6 offence is a relatively general offence (unlike most criminal offences in NZ). We examine s 6 offences in order to limit ourselves to a reasonably coherent set of charges for which similar sentencing criteria might be expected. We only examine charges for an injury, limit ourselves to DC cases, and study convictions without a discharge. The above restrictions leave us with 242 s 6 charge-level observations in period 2 and 123 in period 3 (the most recent sentencing date for which is 7 March 2012).

To examine how our model performs in multiple-charge and/or multiple-victim cases (including those without a s 6 offence), we also examine the aggregation of sentences to the case level. This analysis can address the concern that sentencing variability regarding s 6 charges arises in part because judges may attach the whole sentence to a single (often s 6) charge. Our inclusion criteria in the case-level analysis are similar to the charge-level analysis. For each case, we aggregate all charges on which the defendant was convicted. The resulting case-level sample contains 318 observations for period 2 and 178 for period 3.

Table 1: Mean Levels of Fines, Reparations and Total Liability

	S 6 charges		Case level	
	Period 2	**Period 3**	**Period 2**	**Period 3**
Fines	$13,312	$33,961	$12,756	$32,567
Reparations	$13,283	$23,480	$14,786	$22,982
Total liability	$26,595	$57,360	$28,742	$56,551

In Table 1, we illustrate some broad changes in sentencing policy post *Hanham & Philp* in terms of the mean levels of fines, reparations, and total financial liability between the two periods. In period 2, mean fines and reparations were similar in magnitude, particularly for s 6 charges. In period 3, however, although mean reparations increased by 77 percent for s

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[17] We do not include court costs in our measure of total financial liability for two reasons. Although we have comprehensive data on fines and reparations, there are many cases with missing information on cost awards. Also, there is no indication in HSE sentencing guidelines that court costs should in a systematic manner depend on the characteristics of the case or the defendant.

6 charges and 55 percent at the case level, the corresponding increases for fines were 155 percent in each sample. Total liability increased by 116 percent for s 6 offences and 97 percent at the case level. The major driving force for the increases in total liability was clearly the expansion in the level of fines.

With respect to sentencing criteria, the data we code contains detailed information on the characteristics of each charge/case (such as the degrees of harm and culpability, employee breach of duty, and the presence of remedial action) and the defendant (such as the employer's safety record, need for particular deterrence, and financial limitations and size).[18] Using this information (where available), we create proxies for the case characteristics specified in the (codified) De Spa Guidelines and Hanham & Philp Guidelines that most closely resemble the categories typically used in case decisions and/or sentencing notes as follows, together with additional dummy variables that attempt to capture the effects of several recent appeal decisions relevant to HSE sentencing as follows.

1.   The degree of culpability: we assign each charge/case into one of the following six culpability categories: 'low', 'low-medium', 'medium', 'medium-high', 'high', and 'unknown';
2.   The degree of harm resulting: we use four mutually-exclusive categories of harm: 'low or medium', 'high', 'fatal', and 'unknown';
3.   The financial circumstances of the offender: we use a binary variable to indicate the presence of a defendant's financial limitations;
4.   The attitude of the offender: the presence of remorse, cooperation, and remedial action is indicated by three separate binary variables – one for each of the expressions of the offender's attitude;
5.   Any early guilty plea: indicated by a binary variable;
6.   The need for deterrence: the need for deterrence is expressed by two binary variables indicating separately the 'need for particular deterrence' and the 'need for general deterrence';
7.   The employer's safety record: we use six categories of the defendant's safety record: 'poor', 'previous convictions', 'no previous convictions', 'good', 'great', and 'unknown';
8.   The facts of the particular case: in our full models we include additional characteristics of each case. Namely, we create separate binary variables for the presence of a voluntary payment, employer attendance at a restorative justice conference, an employee breach of duty, and the presence of employer reparation insurance. We also express the size of the employer as: 'small', 'medium', 'large', or 'unknown'.[19] The number of physically harmed accident victims in each case is also included along with the number of 'related defendants', i.e., the number of co-defendants in a case plus any other defendants obliged to

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[18] The detail of information available to us varies somewhat, being more detailed for judicial decisions and sentencing notes than for the summary information prepared in DoL's Returns on Prosecutions.
[19] As expected, smaller employers are more likely to be subject to financial limitations but the correlation is far from perfect. While only one of the employers identified as 'large' is recorded as having financial limitations, 36 percent of 'small' and 'medium' employers have financial limitations recorded. Data on employer size, however, is limited.

share in making reparation payments when there are multiple defendants. We also indicate in which year the offence took place in order to account for a national trend in HSE sentencing.

9.   Post *Street Smart* case time period: indicated by a binary variable, and relates to an appeal allowed by the High Court in *Department of Labour v Street Smart Ltd*, 8 August 2008, (2008) 5 NZELR 587 (BC200862161). In her judgment, Duffy J agreed with DoL that a dollar-for-dollar discount of fines for reparations awarded should not automatically be applied, and argued (at [40]) that it was "enough if a judge gives consideration to any reparation payment that has been made." Further, the judge reasoned that the presence of reparation insurance would have the effect of reducing the financial impact of the reparation order on the offender, and, as a consequence, must also affect the size of the fine. This variable is applicable to period 2 only (since all period 3 sentencing decisions are subject to *Street Smart*).

10.   ACC Top up time period: indicated by a binary variable, and which relates to a decision of the Supreme Court in *Peter Miles Davies v New Zealand Police*, 25 May 2009, SC 83/2007, [2009] NZSC 47 to disallow a loss of earnings consequential on physical harm ('ACC top ups') from being the subject of reparation under s 32(1) of the Sentencing Act. This variable is applicable to period 3 only.

11.   Guilty plea discount: indicated by a binary variable that interacts the presence of an early guilty plea with a time dummy for a decision of the Court of Appeal ("CA") in *R v Hessell*, 2 October 2009, [2009] NZCA 450, and which also relates to an appeal dismissed by the Supreme Court ("SC") in *Raymond Everest Hessell v R*, SC 102/2009 [2010] NZSC 135. Here, the decision in the CA was upheld but the SC considered that the CA had departed from the requirements of the Sentencing Act when setting a sliding scale of percentage discounts for a plea of guilty, depending on timing. For an earliest possible plea, the CA guideline indicated a 33 percent discount, but the SC disagreed, instead settling for a maximum 25 percent reduction given that the mitigating factors of remorse and assistance to the authorities should properly be dealt with independently. This variable is applicable to period 3 only.

4   Estimation Results

4.1   The Estimation Framework

To examine the effect of various sentencing criteria and other case characteristics on HSE sentencing variability, we estimate OLS versions of a single-equation 'baseline' linear model where total financial liability and its two components are separately regressed on a vector of specific sentencing factors from the Guidelines as interpreted by District Court judges, year binary variables, the Consumer Price Index and the number of physically-harmed victims, and include a normally distributed error term. In a second model, called the 'full' model, we add several other 'facts of the particular cases' (viz., the presence of a voluntary payment, employer attendance at a restorative justice conference, employee breach

of duty, employer size, the number of related defendants and, for case-level analysis, the number of charges laid).[20]

Estimated OLS coefficients for s 6 sentences are reported in Tables 2-4 while those for case level sentences are reported in Tables 5-7. Tables 2-7 along with Table 8 are displayed at the end of this article. The notation ***, **, and * denotes statistical significance at the 99%, 95%, and 90% confidence levels, respectively, while standard errors corrected for heteroskedasticity are reported in parentheses. Previous work suggested that Tobit regressions added little additional information. Hence, OLS estimates (which are easier to interpret) are reported below. We focus our discussion on the composition of total financial liability between fines and reparations and produce results for total liability for completeness and comparison with our earlier work.

4.2 Results for Section 6 Offences

4.2.1 Fines

[TABLE 2 APPROXIMATELY HERE]

Inspection of Table 2 shows that in period 2, 'high' culpability (compared to 'medium') attracted a (highly significant) premium of $24,671 in the baseline model ($27,428 in the full model) while 'low-medium' culpability yielded a (significant) discount of $4,657 in the baseline model only. Other levels of culpability were not significant in explaining variations in the level of fines imposed for either model. In period 3, however, with sentences now subject to the Hanham & Philp Guidelines, all levels of culpability are significant, typically at relatively high levels, and the signs of the coefficients are as we would expect with discounts for 'low' and 'low-medium' culpability and premiums for 'medium-high' and high culpability. For the baseline model, compared to period 2, the premium for high culpability falls by 37.5 percent to $15,419. The (significant) premium for medium-high culpability, however, is $8,864 which is similar in magnitude to the (highly significant) discount of $8,620 for low-medium culpability. Further, low culpability now attracts a (highly significant) large discount of $22,301. For the full model, results are similar. The (significant) premium for high culpability falls by 31.6 percent to $18,750. The (significant) premium for medium-high culpability is $9,987 and the (highly significant) discount for low-medium culpability is $7,454. Low culpability now attracts a (highly significant) discount of $21,963. The period 3 results for fines imposed are robust to both model specifications and clearly accord with the primacy given to culpability in *Hanham & Philp* in assessing starting points for fines within specific guideline ranges even when all other determinants of fines imposed are accounted for.

A 'fatal' degree of harm (compared to 'high') is highly significant both in the baseline and full models in period 2, the respective coefficients being $17,683 and $9,187. In contrast,

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fatal harm is not a significant determinant of fines in either model in period 3. This is not entirely surprising given the shift to setting starting points for fines on the basis of levels of culpability.[21] The "realised risk" of harm, however, was included in the *Hanham & Philp* judgment (at [54])) among seven suggested determinants of culpability. In determining the starting point for the revised fine in *Hanham & Philp Contractors*, both the actual harm and potential for greater harm was argued [(at 156]) as one of three reasons influencing the assessment of culpability at towards the lower end of the high band. Actual harm also appears in the discussions of culpability in the other two cases in *Hanham &* Philp. It was, however, acknowledged [(at [52]), that "both the HSE Act and the Sentencing Act oblige the court to have regard to the degree of harm that has occurred." Further, the *Hanham & Philp* judgment, when assessing relevant aggravating factors under s 9 Sentencing Act, did not include "the extent of any loss, damage, or harm resulting from the offence" as required under s 9(d) of the Act. Thus, actual harm as a separate sentencing factor instead appears to have been subsumed in the assessment of culpability.

A defendant's financial limitations attracted a sentencing discount in both models for both periods, the estimated coefficients for this variable all being highly significant. The discounts amount to $8,555 for the baseline model and $9,312 for the full model in period 2. These discounts (which depend on the Courts' assessment of financial capacity) are greater in magnitude by 57.9 percent for the baseline model and 27.3 percent for the full model in period 3.

In period 2, discounts amounting to approximately $12,000 apply in the presence of an early plea of guilty for both models, although the estimated coefficient is only weakly significant in the case of the baseline model. In period 3, 'Guilty plea' and 'Guilty plea discount' must be seen together. A guilty plea discount equals 1 if there is both a guilty plea at the outset and the time period is post the Supreme Court decision in *Hessell*. Neither of these variables appear to make any systematic difference in the setting of fines in period 3, an unexpected result. Two points, however, should be noted. First, the early HSE decisions following *Hessell* CA tended to adopt the 33 percent maximum discount for an early guilty plea, which mistakenly included an allowance for remorse. The *Hessell* SC decision unbundled discounts for a guilty plea and for remorse, with a maximum discount of 25 percent for an early plea. Secondly, and of likely importance, the *Hessell* plea discounts are applied as percentages of sentencing endpoints, i.e., after adjustments are made for any aggravating and mitigating factors. Further, the bundling of mitigating factors when calculating endpoints has come under challenge, in particular following the appeal decision in *Ballard v Department of Labour*, (2010) 7 NZELR 301 where percentage reductions in the fine (from the starting point) for each of a range of mitigating factors listed in *Hanham & Philp* were made. Percentage discounting implies that the absolute values of plea discounts can differ markedly across cases depending on starting points chosen for fines as well as the treatment of aggravating and mitigating factors.

The Courts also appear to take only modest systematic notice of a defendant's safety record in period 3 with no discount of the fine for positive aspects of an employer's safety

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[21] The emphasis given to culpability in *Hanham & Philp* seems consistent with the amendment to the HSE Act making for uniform maximum fines independently of whether harm was suffered or not.

record but impose a (weakly significant) penalty of $6,637 in the baseline model and a (significant) penalty of $8,253 in the full model for a record exhibiting previous convictions. This contrasts sharply with period 2, where, although a positive record appears to do little to assist employers, both models yield a premium of at least $10,000 for a record containing previous convictions, and a very large premium well in excess of $60,000 for a poor record, the relevant estimated coefficients all being highly significant. Interestingly, in some recent cases, the presence of previous convictions is considered to be consistent with a good safety record if the convictions are distant in time or the employer has a large workforce, the rationale being that the probability of serious-harm accidents is greater than for smaller employers in spite of the strict liability nature of HSE provisions.[22]

The remaining mitigating factors do not seem to go far in explaining the variability of fines in either period. The coefficients of remorse are negative for both models in period 3 but are not significantly different from zero, and are only weakly significant for the baseline model in period 2 (but with a "wrong" positive sign).[23] There is no evidence that 'Cooperation with the authorities' offers a significant discount in either period. An employer's remedial action and the need for either specific or general deterrence also appear to have little systematic effect on the level of fines in either period, for either model. For other 'facts specific to the individual case,' there is some weak evidence that an increase in the number of physically harmed victims raises a fine, but the evidence is not uniform across either models or periods. In period 3, both models surprisingly predict that a discount is offered. And although the coefficient of the presence of voluntary payments by employers is highly significant for the full model in period 2, its positive sign is unexpected, as is also the case in period 3.

Overall, the baseline (full) model explains 51 percent (57 percent) of the variation in period 2 fines and 56 percent (58 percent) of the variation in period 3 fines.

4.2.2 Reparations

Unlike setting fines for HSE offences, no guidelines exist for fixing the quantum of reparation awards to victims.[24] In these circumstances, we considered it interesting to examine the extent to which the variables that we used to explain variations in the level of fines were also capable of explaining variations in reparation orders. Prior to examining the composition of HSE sentences, our view was that it would be surprising if many variables other than the level of harm transpired to be statistically significant determinants of variability in reparation awards. The more likely candidates for inclusion seemed to be the number of (physically harmed) victims and the number of related defendants. It might have

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[22] Examples include *Department of Labour v Transfield Services (New Zealand) Limited*, CRI- 2010-03203227, Lower Hutt DC, 16 December 2010, where no uplift was applied to a large employer with two previous convictions, and *Department of Labour v Graham Harris (2000) Limited*, CRI-2011-043-003018, New Plymouth DC, 25 November 2011, where a 5 percent discount was given for a good safety record in spite of a previous conviction.
[23] Menclova and Woodfield (2011) also find positive signs for the coefficients of the remorse variable and make some attempt to explain this result by interacting remorse with harm and culpability variables.
[24] The sentencing criteria outlined by Harrison J. in *Police v Ferrier*, CRI 2003-404-000195, Auckland HC, 18 November 2003 in respect of reparations do not provide guidance as to how the amount of reparation should be set.

been thought, however, that the magnitudes of any positive significant coefficients would be larger (or, at least no smaller) for period 3, given that there had been a substantial increase in the High Court award of reparation to the family of the deceased victim in *Black Reef Mine* and that the award to the victim in *Cookie Time* was described as being barely adequate. Against this, however, the decision to substantially raise the reparation award in *Black Reef Mine* followed from the determination that the financial capacity of the company was considered to be greater than that assessed by the trial judge and that no adjustment of reparation was made in the other two cases for which the financial capacity of the respective companies was not an issue.

[TABLE 3 APPROXIMATELY HERE]

Estimation results for reparations are reported in Table 3. Our *a priori* expectations of the role of the level of harm in determining reparation awards were clearly realised both for period 2 and period 3 for both models. The coefficients for low-medium harm (relative to high) are all negative and are generally highly significant for both models. Discounts for low-medium harm are considerably greater in period 3 than in period 2, more than double for baseline estimates and more than 230 percent for the full model estimates. For fatal harm, the estimated coefficients are all positive, relatively large and highly significant for both models in both periods. They are, however, of very similar magnitudes for each model in each period, viz., $27,995 (period 2) and $27,228 (period 3) for the baseline model, and $30,557 (period 2) and $30,130 (period 3) for the full model. The coefficients are uniformly somewhat smaller for period 3. These results seem consistent with the view of their Honours in *Hanham & Philp* (at [4]) that the three appeals "are concerned solely with fines imposed under s 50 HSE Act." There appears to be no evidence that DC judges at large interpreted the increased reparation award in *Black Reef Mine* as signalling a need to increase such awards generally.[25]

Regarding the number of victims, our estimates for period 2 produce surprising results, viz., both models predict a significant discount of approximately $2,500 for each additional accident victim. The results for period 3, however, are much more intuitively appealing, with the models predicting significant and substantial sentencing premiums in the range of $14,484 - $18,933 for each additional victim. As for the number of related defendants, although the full model indicates that some discounting of reparations is suggested, the estimated coefficient is only weakly significant for period 2.[26]

The level of culpability appears to explain little of the variation in the reparation awards paid to victims in period 3 although there is some weak evidence in the baseline model that high culpability attracts a sentencing premium. This contrasts with the results for period 2, where both low-medium and medium-high levels of culpability are (at least weakly) significant determinants of reparations in both models, the relevant coefficients being in excess of $12,600 and of similar magnitude. The result for period 3 seems less surprising than for period 2 since it is not evident that compensating for the level of emotional harm (the dominating element of most awards) has anything much to do with employer culpability.

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[25] Period 3 cases, however, may be less representative than those for period 2 in part because of the smaller sample size for the former.

[26] The number of cases involving multiple related defendants, however, is relatively small in both periods.

From the s 6 results, it appears that an impact of *Hanham & Philp* may have been to shift a systematic use of some levels of culpability away from reparations and on to fines.

Remedial action is not significant in period 2 but is so in period 3 for both models, being highly significant for the baseline model. The coefficients are positive and substantial, being greater than $18,800 in each case. Such action is cold comfort for accident victims and their dependants, and recent judgments may reflect a view that easily avoidable accidents should have been avoided and that victims should be compensated accordingly.[27] Remorse is weakly significant in period 2 for both models, although its sign is positive. The sign switches for period 3 estimates for both models, but the coefficient estimates are not significant. A poor safety record generates a (weakly significant) reparations premium in period 2 only, and then only in the baseline model.

The positive and significant coefficient for a guilty plea must be taken in conjunction with the guilty plea discount dummy that applies after *Hessell* for period 3. The guilty plea discount coefficient is significant in both the baseline and full models and the sign is negative. The combined effect is that courts appear to recognise the presence of an early plea with a discount in reparations. Interestingly, we do not find evidence of this discount for fines where it would be expected.

The existence of voluntary payments made continues to attract a (significant) discount which is nearly three times as large for period 3 than period 2.

Employer presence at a restorative justice conference is highly significant in period 3 and attracts a large sentencing premium. These conferences, however, are rare and we have little confidence in these particular estimates. The result is difficult to explain but could be similar to remedial action in acting as an indicator of the degree of culpability. There is no evidence of any systematic effect of attendance at such conferences for period 2.

The presence of reparation insurance has a (weakly significant) substantial positive effect on reparation awards but only in period 3. Interestingly, the coefficient on the *Street Smart* dummy is positive, substantial, significant for both models in period 2. This implies that reparation awards were systematically higher in response to the appeal court's ruling that put paid to the common practice of more or less automatic dollar-for-dollar discounting of fines for reparations and argues that the presence of reparation insurance must also affect the size of the fine. We find no evidence, however, that courts systematically raised fines in response to the *Street Smart* decision. At the time of this decision, however, it appears to have been common knowledge that *Hanham & Philp* was awaiting consideration by a Full Bench of the High Court, in which case these, and other issues, would be further addressed. In the meantime, DC judges seemed reluctant to move on the matter of raising fines.

Finally, an increase in the consumer price index has a (significant) negative impact on reparation awards in period 3 but has no systematic effect in period 2. The logic of this result is mystifying.

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[27] Interestingly, in two recent cases, Judge Farish refused to give a discount for remedial action when assessing the fine on the grounds that the measures should have already been taken. See *Department of Labour v Goodman Fielder New Zealand Limited*, CRN 10009503489, Christchurch DC, 10 August 2011, and *Department of Labour v Tegel Foods Limited*, CRN 110095000749, Rangiora DC, 27 September 2011.

Given the paucity of guidelines for setting amounts of reparation, it is interesting that a number of factors other than harm appear to significantly influence reparation awards. It must be noted, however, that the sentencing guideline factors augmented by subsequent appeal rulings as adopted in this article were hardly designed as a set of determinants of reparation awards. As a consequence, for assessing compensation for emotional harm, it is common for judges to quote Hammond J in *Sargent v Police* (1997) 15 CRNZ 454, 458, whereby "The quantification of loss of this kind is inherently intractable," or make similar caveats themselves. It is also common, however, for counsel to recommend reparation awards on the basis of those awarded in similar cases, for which guidance judges occasionally express their gratitude before typically taking some middle ground between prosecution and defence submissions on the matter.

Overall, the baseline (full) model explains 52 percent (55 percent) of the variation in period 2 reparation awards and 61 percent (72 percent) of the variation in period 3 awards.

4.2.3 Total Financial Liability

[TABLE 4 APPROXIMATELY HERE]

Total financial liability is defined as the sum of fines and reparation awards and, apart from occasional minor awards of court-related costs, represents the financial cost to an employer of a successfully prosecuted workplace accident. Estimation results are reported in Table 4. What is important in determining the levels of fines and reparation awards to victims is also likely to be important here. Hence, we find significant sentencing discounts for low-medium culpability and financial limitations, and premiums for high levels of culpability for both models in both periods. We also find significant discounts for low culpability, low-medium harm, being a medium-sized employer, and for qualifying for a guilty plea discount for both models in period 3, as well as significant premiums in respect of the number of victims and carrying reparation insurance in this period. Significant premiums for the presence of remedial action and attendance at a restorative justice conference are counter-intuitive. Compared to period 2, the defendant's safety record does not appear to contribute much to the explanation of the variation in sentencing. Similar to the component estimates, a number of variables have significant coefficients but their effects are patchy and their signs are sometimes counter-intuitive.

Overall, the baseline (full) model explains 63 percent (65 percent) of the variation in period 2 total financial liability and 66 percent (74 percent) of the variation in period 3 total liability. In both periods our models do better in explaining the variation in total liability than in either of their respective components.

4.3   Case-Level Results

In what follows, we emphasize broad similarities and differences with s 6 results reported in section 4.2 above. Readers are referred to Tables 5-7 for detailed estimates.

4.3.1   Fines

[TABLE 5 APPROXIMATELY HERE]

Results for case-level fines are reported in Table 5. The general nature of the s 6 results for the impacts of culpability and harm on fines are similar at the case level. High culpability and fatal harm are highly significant determinants of the variation in fines for both models in period 2, the relevant coefficients being suggestive of substantial sentencing premiums. Low-medium harm generates discounts in fines in period 2. For period 3, however, all levels of culpability are highly significant in all but one instance and the coefficient signs are as expected. In this period, fatal harm is no longer a significant determinant of fines. Low-medium harm, however, offers a significant and quite substantial discount for both models. The case-level results provide a useful robustness test in that the strong result in respect of the switch away from a very important direct role for fatal harm as a determinant of fines in the pre *Hanham & Philp* period carry over from the s 6 results. An important difference, however, is that while low-medium harm exhibits no significant influence on fines in period 2, a significant discount emerges in both models for period 3. Thus, to the extent that harm diirectly influences sentences of fines post *Hanham & Philp*, the effect is to reduce the level of fines.

As with s 6 results, a defendant's financial limitations attracted a sentencing discount in both models for both periods, the estimated coefficients for this variable all being highly significant. Again, these discounts are considerably larger for period 3 than for period 2. A substantial significant discount for an early guilty plea emerges for both models at the case level, but only for period 2. The s 6 result of significant positive coefficients for a guilty plea in period 3 does not carry over to case-level analysis. Section 6 results in respect of a sub-par safety record carry over but for fewer aspects of inadequacy and at lower levels of significance. Possessing a 'great' safety record produces a discount for both periods for the full model. A significant premium in respect of the number of victims emerges for both models for period 2. For period 3, however, the odd result of (at least weakly) significant discounts in the s 6 results is not reproduced at the case level. The odd s 6 results suggesting a premium for voluntary payments in the full model, however, do carry over. There is some weak evidence of a discount for being a small employer in the case-level estimates for period 2.

Overall, the baseline (full) model explains 48 percent (55 percent) of the variation in period 2 fines and 52 percent (55 percent) of the variation in period 3 fines at the case level.

4.3.2 Reparations

[TABLE 6 APPROXIMATELY HERE]

Results for reparations are reported in Table 6. As with s 6 results, our expectations of the role of the level of harm in determining reparation awards were again clearly realised for both models. The coefficients for low-medium harm (relative to high) are all negative and significant. Discounts for low-medium harm are again considerably greater in period 3 than in period 2. For fatal harm, the estimated coefficients are again all positive, relatively large and highly significant for both models in both periods. They are, however, of much less

similar magnitudes for each model, viz., $27,296 (period 2) and $21,007 (period 3) for the baseline model, and $30,589 (period 2) and $21,619 (period 3) for the full model. The coefficients are uniformly substantially smaller for period 3. These results strengthen our s 6 conclusion that there is little by way of evidence in support of a general increase in reparations embodied in the appeal decision in *Black Reef Mine*.

Regarding the number of victims, our estimates produce more appealing intuitive results than for s 6 alone. In contrast to s6 results (where both models predict a significant discount for each additional accident victim in period 2), both models predict a very small discount that is totally without significance for this period. The results for period 3, however, affirm the s 6 results with the models predicting highly significant and substantial sentencing premiums (of $18,739 in the baseline model and $16,615 in the full model). As for the number of related defendants, the full model continues to indicate some discounting of reparations, but the estimated coefficient is only significant for period 3 (whereas it is weakly significant for period 2 in the s 6 results).

The level of culpability continues to explain a modest amount of the variation in the reparations awarded to victims in period 3 although both models suggest a significant and substantial premium of approximately $30,000 for high culpability, possibly because assessments of high culpability are more likely to arise where realised harm is very serious. In contrast, for period 2, both models predict a (weakly significant) discount of approximately $8,000 for low culpability and highly significant premiums in excess of $14,000 for medium-high culpability. The expected role of culpability in determining reparations is unclear to us, although it seems less likely in period 2 given that culpability and harm are separate sentencing factors in this period.

The various aspects of a defendant's safety record follow the s 6 results and have limited explanatory power although there is now also a (weakly significant) reparations discount for a great record in period 2, but only in the baseline model. We continue to find a (net) discount for an early guilty plea in both models for period 3, along with a voluntary payments discount that is substantially greater in period 3. The presence of reparation insurance continues to have a (weakly) significant if substantial positive effect on reparation awards in period 3, and the coefficient on the *Street Smart* dummy is positive, substantial, and significant for both models in (the relevant) period 2. Thus, both the s 6 and case-level results support the view that the decision in *Street Smart* (as affirmed in *Hanham & Philp*) induced DC judges to substantially increase their reparation awards when dollar-for-dollar discounting of fines for reparation awards was no longer to be regular practice. Counter-intuitive results for remedial action, remorse, and attendance at a restorative justice conference also carry over from the s 6 results.

Overall, the baseline (full) model explains 40 percent (42 percent) of the variation in period 2 reparation awards and 60 percent (68 percent) of the variation in period 3 awards at case level.

4.3.3 Total Financial Liability

[TABLE 7 APPROXIMATELY HERE]

Estimation results are reported in Table 7. The case-level results are a little different from their s 6 counterparts, although not in a fundamental way. We find significant sentencing discounts for low culpability, low-medium harm and financial limitations, and premiums for high levels of culpability for both models in both periods. Both premiums and discounts are of substantially greater magnitudes in period 3 in all cases. We also find significant discounts in period 2 for being a small employer, for a guilty plea (for both models), and for a great safety record (for both models). Highly significant and substantial premiums for the number of victims are found for both models in period 3. Highly significant premiums for the presence of remedial action and a significant premium for attendance at a restorative justice conference in period 3 continue to be counter-intuitive. Although aspects of a defendant's safety record do not appear to contribute much to the explanation of the variation in sentencing in period 2, the effects are even more limited in period 3. Similar to the component estimates, a number of other variables have significant coefficients but their effects are patchy and their signs are sometimes counter-intuitive.

Overall, the baseline (full) model explains 53 percent (55 percent) of the variation in period 2 total financial liability and 63 percent (70 percent) of the variation in period 3 total liability. In both periods our models do better in explaining the variation in total liability than in either of their respective components.

4.4   Summary of Estimation Results

Table 8 provides a summary of results for coefficient estimates that we consider to be reasonably robust in that they are at least weakly significant for estimates in both the baseline and full models. The estimated coefficients (in thousands of dollars) refer to the full model and have been broadly rounded. Their significance levels are indicated in each instance. We cannot be too confident about the robustness of these results, however, since while some coefficients are significant, their signs are unexpected. Examples include the presence of remorse, remedial action, attendance at a restorative justice conference and the impact of CPI changes.

[TABLE 8 APPROXIMATELY HERE]

Inspection of Table 8 shows a number of important empirical results discussed in detail in the previous section. First and foremost, the switch in the importance of the culpability variables from a low level (except for high culpability) in the explanation of period 2 fines to a high level of importance in explaining fines following the introduction of the Hanham & Philp Guidelines in period 3 is evident. That all culpability levels become significant determinants of fines in period 3 confirms the strong influence of the Guidelines on sentencing policy adopted by DC judges. In addition, we felt confident to assign DC judges' assessments of employer culpability to five categories rather than the three broad categories specified by the Guidelines. In *Hanham & Philp* (at [53]), DoL's proposal of 18 categories of culpability was rejected on the grounds of "its complexity and level of refinement that would make it difficult to apply in practice." District Court judges bound by the Guidelines, however, appear to have adopted some level of refinement when setting starting points. Second, although the culpability variables have some role in explaining the variation in reparation awards in period 2, they have only a very limited impact in period 3.

The culpability variables, however, are quite important in explaining the variation in total liability in both periods, largely resulting from the dominating impact of either fines or reparations in each period.

The fatal harm variable is a highly important determinant of fines in period 2 but is not significant at all in period 3, while low-medium harm is only significant in period 3. In comparison, fatal harm is a highly important determinant of reparations in both periods and low-medium harm is also an important determinant in both periods. For total liability, both fatal harm and to a lesser extent low-medium harm are important in explaining variations in total liability in both periods. The combination of substantial discounts for fines of lower levels of culpability and the removal of a direct role for harm in determining fines is likely to explain much of why period 3 mean fines, while substantially increased over those for period 2, continue to remain dramatically below their statutory caps. This outcome may be an unintended by-product of the decision in *Hanham & Philp* to subsume realised harm in the assessment of culpability.

For the remaining De Spa variables, the evidence is quite patchy. A weak safety record of some form or other yields premiums for fines that sometimes carry over into total liability, but have no systematic effect on reparations. There is little evidence that an above average record offers much by way of sentencing discounts. The signs on the guilty plea coefficients are sometimes wrong, but when combined with the guilty plea discount dummy in period 3 make intuitive sense. The positive coefficients for remedial action for reparations and total liability in period 3 possibly suggest that many judges compensate accident victims more highly when employers shut their stable doors after their horses have bolted notwithstanding frequent judicial statements to the contrary. Occasional positive coefficients for remorse are puzzling, although some explanation is offered in our earlier work by interacting remorse with culpability and harm variables.

The remaining De Spa variables do poorly as prospective determinants of sentencing variability in either period. These include co-operation and the need for deterrence, either specific or general. Judges often state that a discount is offered for co-operation, but this is often bundled with other mitigating factors and the individual contribution of such factors may get lost in the process. Regarding deterrence, there are two issues that may help to explain its poor performance. First, when coding deterrence, we have relied on statements specifically made in judicial decisions and sentencing notes. It may be that some judges give consideration to deterrence variables (and others for that matter) without making direct reference to them in their judgments. This may be particularly relevant for period 3, given that in *Hanham & Philp* (at [47]) their Honours included both elements of deterrence (*inter alia*) as statutory purposes that would generally justify imposing fines in addition to making reparation awards. Also, in the absence of decisions or sentencing notes, we have made widespread use of DoL's Returns on Prosecutions which do not distinguish between specific and general deterrence when indicating whether DC judges made specific reference to deterrence in their judgments. Consequently, where "deterrence" is positively signalled in the

return, we have interpreted this as applying to both aspects of deterrence and our coding may be in error on occasions as a result.

Regarding variables representing 'other facts of the case', the number of charges has little systematic impact on sentencing at the case level. The number of physically harmed accident victims, however, makes much more of a contribution although the occasional negative signs appear 'wrong' but most coefficients are positive as expected. Making a voluntary payment yields discounts for reparations generally, but these are countered by offsetting increases to the level of fines. Attendance at a restorative justice conference strangely yields a large premium in reparation in period 3, but the observations on this variable are highly limited. There is little evidence that a breach of employee duty systematically affects sentencing, although a discount for reparations is offered at the case level in period 2. Being a small employer provides a small discount for both fines and reparations in period 2, but not otherwise. Carrying reparation insurance produces a hefty increase in the sentence of reparations in period 3 and also for the few cases for which the post *Street Smart* case dummy applies in period 2. The ACC top-up dummy clearly has little explanatory power, but the guilty plea discounts offer substantial discounts for period 3 reparations. When combined with the positive guilty plea coefficients, the evidence suggests that judges do reduce the severity of sentences for those employers subject to the guilty plea discount, i.e., those convicted and sentenced after 2 October, 2009. A guilty plea usually results in compensation being paid at an earlier date, an outcome applauded by many DC judges. The coefficients on the number of related defendants are uniformly negative indicating that sentence sharing for reparations occurs when there are multiple defendants.

5   Estimation Design Issues

The model estimates produced in this article are based on a reasonably comprehensive specification of the sentencing process. Considerable sentencing variation, however, remains unexplained by our analysis. There are a number of reasons for this which could be addressed in a quest to provide more accurate statistical results than we have achieved.

One design issue that is a subject of our current research is a change in the specification of the model, replacing the values of certain variables by their natural logarithms. A major reason to investigate this issue arises from a common (if not uniform) sentencing procedure, viz., to set values of many mitigating factors (say) as percentages of starting points for fines rather than as values that are independent of starting points. For example, ignoring other sentencing factors, there is a considerable difference between awarding a 10 percent discount for a given mitigating factor when the starting point is $150,000 than where it is $50,000. The discount is $15,000 in the first example and $5,000 in the second. Compare to an example where a judge instead awards $10,000 for the mitigating factor in either case. It appears to be becoming much more common to allow percentage rather than absolute discounts, and the absolute discounts stated may simply reflect a percentage amount contemplated by the judges in any case.

A second design issue of importance lies in the hands of the courts, viz., the frequent absence of information on the proportion of an endpoint fine that would be imposed were the defendant financially capable of paying it but which cannot be met by a given defendant due to financial limitations. Where a claim of financial limitations is made and accepted by the court it would be very helpful to know the judge's assessment of the seriousness of these limitations. An example is that of the *Black Reef Mine* appeal case. There, the HC judges revealed that the defendant would have faced a fine of $70,000 had they been financially capable of paying this amount. They were not capable of doing so, and the actual fine of $20,000 (revised upwards from the DC fine of $10,000 when it became evident that a larger fine was payable) is only 29 percent of the endpoint fine, indicating substantial financial limitations in spite of the raised fine. In the interests of systematic and transparent sentencing procedures, it would not seem a difficult matter for courts to routinely report this index of incapacity for relevant cases. The problem is exacerbated in that where researchers do not have convenient access to all judicial decisions and sentencing notes, resort is made to what is available. In DoL's Returns on Prosecutions, an offender is indicated as either having financial limitations or not. For these reasons, and because decisions and sentencing notes do not always record relevant information on endpoint fines, we have been forced to code financial limitations by a binary variable.

We would strongly recommend that Returns on Prosecutions indicate endpoint fines in cases involving financial limitations, and that the courts make these available at trial so that they may be recorded.[28] A major benefit should be the reduction in the number of seriously under-predicted fines where, typically, serious financial limitations are paramount. It would also be desirable if legal counsel for the informant completing Returns on Prosecutions routinely listed starting points for fines and specific increases/reductions for aggravating/mitigating factors along with the stage of proceedings at which any plea of guilty is made, including any specific or percentage discount allowed for such plea.

We are surprised by the general unimportance seemingly given to deterrence factors by District Courts in respect of our statistical explanations of variations in fines. Where Returns on Prosecutions are our only source of coding information, it is unfortunate that these returns do not distinguish between general and specific deterrence in their Sentencing Criteria. We recommend that future Returns on Prosecutions include this important information. Further, judges subject to relevant guideline cases and statutes may implicitly be accounting for deterrence factors in their sentencing. If so, we strongly recommend that they make such accounting transparent and reported in court, and that the informant's counsel record any such information in their returns. Further revisions of maximum fines for HSE sentencing are not usefully guided if there is little confidence that courts take notice of either or both deterrence factors when sentencing or that courts may or may not take systematic account of these factors but are not recorded as doing so in many circumstances.

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[28] Returns on Prosecutions typically record starting points for fines although a completely consistent treatment of this (and other) issues would be helpful.

We would also argue for a finer gradation of harm than we recorded in our database. We felt uncomfortable about assigning other than three broad bands including fatal, high, and low-moderate harm for the judicial assessment of harm when coding data. The 'high' harm level seems to be excessively represented; for example, of the 2,438 charges listed in our master database, nearly eighty percent are coded as involving a high level of harm. We believe it would be very helpful if judges would routinely report their assessment of harm levels within five bands, viz., fatal, very high, serious, moderate, and low harm.

We disagree with the decision in *Hanham & Philp* to reject a finer gradation of culpability assessment than the three broad bands adopted. The reasons given for rejecting DoL's proposal of 18 bands are less than compelling. An examination of post *Hanham & Philp* DC decisions reveals that this judiciary generally appears quite comfortable with describing culpability levels more precisely than just low, medium, or high. This is to be expected, since each level of assessed culpability must be assigned a specific dollar amount as the chosen starting point. By way of example, Moore J. in *Department of Labour v APN Print NZ Limited*, CRN 10070503485, DC Tauranga, 16 January 2012 was reported in the Return on Prosecution for the case as assessing culpability "slightly below the mid-point of the medium range." While we have rejected inferring culpability from the starting point chosen, it is arguable that it could be done in that if a starting point chosen implies an assessment of culpability outside the band reported by a judge, the chosen fine might be either manifestly excessive or inadequate if the case came to appeal. If other sentencing factors also served to directly determine starting points, however, this process becomes more complicated to evaluate unless these factors operate solely through their impact on the assessment of culpability. In present circumstances we recommend that a 10 point scale for culpability should be adopted, each point being associated with a corresponding narrower range of starting points than adopted in *Hanham & Philp*. Point 10 could represent extremely high culpability (as proposed by the informant in *Mobile Refrigeration*, but rejected by Judge Spear on the grounds that the offender's actions did not constitute a "callous disregard for safety"). The remaining points could provide uniform bands from the bottom of band 10 to a specified minimum, possibly zero.

Finally, there are surely lessons to be learned from the analysis of sentencing policy in periods 2 and 3 for legislative drafting itself. It is granted that the transaction costs of specifying every set of circumstances are prohibitive and that it is the responsibility of the courts to interpret legislation in specific circumstances. Under Sentencing Act s 40(4A)(a) courts must take into account the amount of reparation payable when setting a fine. For HSE sentencing, we fully agree with their Honours in *Hanham & Philp* (at [47]) that given absence of financial limitations, "the imposition of a fine in addition to reparation will generally be required to address the separate statutory purposes of denunciation, deterrence (both general and specific) and holding the offender accountable for the harm done." It would seem difficult to believe that these purposes could ever be fully achieved under the dollar-for-dollar discounting process adopted by the courts during period 2. For the early part of this period, the levels of total financial liability seemed little different from "business as usual" in spite of the changes enacted by HSE Amendment Act 2002, while, for the latter part of period

2, "business" still hardly approached what we consider the legislators had in mind when the HSE Act was amended. What seems difficult for us to understand is why such a situation lasted as long as it did, and whether the legislation needed to be quite so delightfully vague in the first place.

6   Concluding Remarks

Using fairly comprehensive empirical models of sentencing factors, this article has attempted to explain the determinants of HSE sentencing in NZ in the period following the joint implementation of the Sentencing Act 2002 and the HSE Amendment Act 2002 through to the introduction of the Hanham & Philp Guidelines in December 2008, and in the following period through to March 2012. Overall, there is quite strong evidence in support of the continued use of HSE sentencing guidelines to induce District Court judges to change their sentencing behaviour, particularly where the guidelines (and subsequent appeal cases) provide a more structured approach.

Such a conclusion, however, should be tempered by the fact that there remains considerable unexplained variation in HSE sentencing. Our view is that if it is wished to take this type of analysis further, it may be necessary to further refine the specification of our model and for some modifications to be made to the available data. The latter will require a slightly more systematic and transparent treatment of sentencing factors by the judiciary, along with a slightly more consistent and detailed reporting by counsel for the informant of many judicial decisions in Returns on Prosecutions. Easy access to a comprehensive electronic database of judicial decisions and sentencing notes would, of course, be superior and may allow the investigation of the determinants of assessments of culpability. While these changes are likely to improve the explanatory ability of our models, there will inevitably be some residual variation in sentencing given the broad categories of HSE offences. For those wishing to attempt to distinguish between "warranted" and "unwarranted" sentencing variation, the analysis of idiosyncratic features of individual cases appears inevitable. In Woodfield, Hickson and Menclova (2013), we have illustrated some features of a number of cases that appear to us to be obvious outliers in terms of their estimated forecast errors.

At the time of writing, the Government will shortly receive a report from the Independent Taskforce on Workplace Health and Safety the major terms of reference for which include the provision of an assessment of the current performance of the system of workplace health and safety, and to recommend a package of practical measures that have the objective of reducing fatalities and serious injuries by at least 25 percent by 2020. One issue that may loom large is whether or not the severity of HSE sentences should be increased in order to provide greater incentives for workplace health and safety precautions. Our present contribution provides no direct input into this debate. Nevertheless, a number of our results may be interesting in this context. First, it is clearly evident that the judiciary is willing to impose more severe sentences if provided with clearly structured criteria by higher courts. It is also evident that mean HSE fines imposed still lie well below what many commentators

would regard as adequate for widespread sufficient deterrence. The major contribution of the level of harm in directly determining fines in earlier periods is no longer evident. This seems to particularly affect fines imposed on employers convicted in cases involving multiple victims suffering serious injuries. To the extent that harm currently affects fines, the channel mainly appears to be the *Hanham & Philp* requirement that DC judges adjust their assessments of culpability to reflect harm, yet harm is essentially an outcome of blameworthy conduct rather than a determinant of it. Judges also appear to have the capacity to treat harm as a separate sentencing factor, or to include it as an aggravating factor once starting points are determined, but may find themselves in difficulty with the Hanham & Philp Guidelines if they exercise these options. If fines are to be raised generally and if judges only embody harm in their culpability assessments, however, in our opinion either culpability assessments will have to be raised substantially or else maximum fines will have to be increased substantially.

In addition, the magnitude of discounts for the many permissible mitigating factors makes endpoint fines very much smaller than typical starting points. There is a good argument for removing the discount for 'prompt remedial action' and imposing additional penalties if such action is less than prompt, although this requires monitoring from health and safety inspectors that are allegedly under-resourced. Further, since a major argument for offering 'early guilty plea discounts' involves a saving in court costs, perhaps these discounts could be more closely related to estimates of the savings rather than offering a percentage discount based on starting points for fines. A careful examination of other examples could prove fruitful.

Finally, for offenders found to have financial limitations, the effect is to drive many fines to be a small proportion of their endpoints, let alone their starting points. For example, in period 2, we coded 26 percent of defendants as facing financial limitations, and this increases to 36 percent in period 3. Discounts for financial limitations are also much greater in the later period. We have suggested measures that might be considered to provide better levels of emotional harm reparation for victims and their dependants while leaving financially limited employers in a better position to pay fines.

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Tables 2 – 8

Table 2. Determinants of Fines; S6 Charges

		Period 2		Period 3	
		Base Model	**Full Model**	**Base Model**	**Full Model**
Degree of culpability (compared to medium)	Low	5,823 (5,420)	-5,728 (6,852)	-22,301*** (3,843)	-21,963*** (3,977)
	Low-medium	-4,657** (2,256)	-3,441 (2,339)	-8,620*** (2,320)	-7,454*** (2,458)
	Medium-high	1,052 (2,135)	950 (2216)	8,864** (4,133)	9,987** (4,002)
	High	24,671*** (9,385)	27,428*** (9,108)	15,419** (7,738)	18,750** (8,373)
Degree of harm (compared to high)	Low/Medium	-1,012 (2,292)	-552 (2,140)	-787 (2,143)	-2,255 (2,455)
	Fatal	17,683*** (4,842)	9,187*** (3,047)	7,236 (4,389)	6,822 (4,352)
Defendant's financial limitations		-8,555*** (2,827)	-9,312*** (2,821)	-13,506*** (3,045)	-11,850*** (3,157)
Remorse		6,807* (4,018)	4,990 (3,050)	-2,441 (3,218)	-1,264 (3,584)
Co-operation		-5,797 (5,324)	-5,229 (4,895)	2,722 (5,139)	4,575 (5,903)
Remedial action		1,982 (4,349)	2,127 (4,394)	3,379 (3,457)	1,419 (3,283)
Guilty plea		-12,025* (6,590)	-11,794** (5,726)	-3,262 (5,514)	-3,572 (5,376)
Need for particular deterrence		552 (2219)	1,084 (2,108)	-4,497 (3,584)	-1,712 (3,618)
Need for general deterrence		-2,455 (2,232)	-3,991 (2,497)	-1,927 (3,408)	-4,790 (3,643)
Safety record (compared to no previous convictions)	Poor	68,461*** (24,030)	62,212*** (20,813)	3,588 (10,267)	11,145 (11,748)
	Previous convictions	10,033*** (1,762)	10,920*** (1,852)	6,637* (3,639)	8,253** (3,900)
	Good	-656 (2,708)	-995 (2,791)	3,432 (3,780)	4,066 (3,760)
	Great	1,637 (2,853)	1,632 (2,180)	-9,561 (10,732)	-9,541 (80,181)
Number of victims		2,030 (1,900)	3,140* (1,765)	-2,010** (918)	-1,756* (969)
Voluntary payment made		-	10,305*** (3,420)	-	4,867* (3,890)
Restorative justice conference		-	17,190 (12,109)	-	-53 (6761)
Employee breach of duty		-	-469 (2,035)	-	838 (2254)
Size of employer (compared to large)	Small	-	-1,575 (3,085)	-	-2,785 (4,477)
	Medium	-	-1,035 (5,283)	-	-6,490 (6,332)
Consumer Price Index		36 (93)	6 (102)	-137 (167)	-151 (160)
Reparation insurance		-	-816 (4,730)	-	3,605 (7,600)
ACC Top up		-	-	9,295* (5,117)	8,003 (5,109)
Post *Street Smart* time period		4,963 (4,959)	3,086 (5,335)	-	-
Guilty plea discount		-	-	-4,230 (5,971)	-2,569 (5,979)
Number of related defendants		-	-3,822 (3,435)	-	-2,334 (2,728)
Constant		-27,569 (85,638)	3,886 (95,432)	182,861 (176,665)	189,357 (169,737)
R-squared		0.51	0.57	0.56	0.58

Table 3. Determinants of Reparations; S6 Charges

		Period 2		Period 3	
		Base Model	Full Model	Base Model	Full Model
Degree of culpability (compared to medium)	Low	-4,596 (6,139)	-2,571 (4,787)	1,038 (10,253)	4,221 (8,703)
	Low-medium	-4,543** (2,128)	-5,437*** (2,054)	-7,649 (7,557)	-6,980 (6,040)
	Medium-high	12,608** (5,298)	12,777** (5,416)	-4,624 (5,907)	-8,292 (6,069)
	High	4,365 (3,289)	4,649 (3,252)	22,414 (14,663)	18,760 (13,781)
Degree of harm (compared to high)	Low/Medium	-5,263*** (1,704)	-4,561** (1,977)	-11,359** (5,348)	-15,117*** (4,853)
	Fatal	27,995*** (4,254)	30,557*** (4,403)	27,228*** (9,472)	30,130*** (9,284)
Defendant's financial limitations		-910 (2,224)	394 (2508)	-2,458 (5,085)	-3,594 (4,739)
Remorse		5,298* (2,883)	5,215* (3,008)	-4,487 (7,897)	-6,198 (6,055)
Co-operation		-858 (3,461)	236 (3822)	-16,139* (8,927)	-8,066 (9,034)
Remedial action		480 (2684)	-69 (2625)	23,088*** (8,069)	18,837** (7,728)
Guilty plea		2,093 (2,202)	1,685 (2,145)	28,681*** (10,854)	19,037** (8,489)
Need for particular deterrence		4,222 (2,702)	4,187 (2,905)	5,592 (6,813)	-5,297 (6,397)
Need for general deterrence		695 (2407)	1,282 (2,395)	-9,377 (7,126)	-3,167 (6,603)
Safety record (compared to no previous convictions)	Poor	6,517* (3,663)	8,152 (4,985)	-21,836 (15,966)	8,078 (15,204)
	Previous convictions	-1,358 (2,066)	-1,795 (2,111)	-1,392 (6,004)	-7,404 (5,858)
	Good	-1,484 (3,017)	-375 (3,171)	3,041 (6,292)	-822 (5,669)
	Great	747 (4313)	2,008 (4,315)	-11,487 (7,979)	-13,866 (11,229)
Number of victims		-2,497** (1,028)	-2,538** (1,005)	18,933** (8,078)	14,484** (6,031)
Voluntary payment made		-	-5,721** (2,831)	-	-16,128** (6,273)
Restorative justice conference		-	-3,167 (6,901)	-	51,864*** (15,928)
Employee breach of duty		-	-2,921 (3,236)	-	8,026 (4,919)
Size of employer (compared to large)	Small	-	-3,564 (3,296)	-	-6,325 (10,307)
	Medium	-	-807 (2,849)	-	-16,536 (11,412)
Consumer Price Index		-117 (111)	-99 (107)	-726** (327)	-676** (311)
Reparation insurance		-	-11,700 (8,316)	-	28,240* (15,065)
ACC Top up		-	-	3,584 (10,876)	1,899 (9,690)
Post *Street Smart* time period		18,669*** (7,101)	17,087** (7,108)	-	-
Guilty plea discount		-	-	-52,060*** (18,127)	-34,670*** (12,577)
Number of related defendants		-	-7,892* (4,138)	-	-2,922 (8,154)
Constant		105,560 (102,944)	99,599 (97,843)	768,496** (345,122)	730,821** (327,987)
R-squared		0.52	0.55	0.61	0.72

Table 4. Determinants of Total Financial Liability; S6 Charges

		Period 2		Period 3	
		Base Model	Full Model	Base Model	Full Model
Degree of culpability (compared to medium)	Low	1,226 (4,649)	-8,299 (9,870)	-21,411** (10,501)	-17,959** (8,600)
	Low-medium	-9,201** (3,048)	-8,878*** (3,102)	-16,350** (7,326)	-14,483** (5,854)
	Medium-high	13,661*** (5,506)	13,727** (5,818)	4,226 (7,722)	1,836 (7,540)
	High	29,036*** (9,498)	32,078*** (9,545)	36,974*** (13,670)	36,927** (14,460)
Degree of harm (compared to high)	Low/Medium	-6,274* (3,372)	-5,113 (3,266)	-12,115** (5,306)	-17,251*** (4,703)
	Fatal	45,679*** (5,814)	39,744*** (5,141)	34,290*** (9,597)	36,802*** (9,503)
Defendant's financial limitations		-9,465** (3,688)	-8,918** (3,678)	-15,881** (6,196)	-15,191** (5,898)
Remorse		12,104** (4,729)	10,205** (4,281)	-6,783 (8,732)	-7,445 (7,477)
Co-operation		-6,655 (5,842)	-4,993 (5,728)	-13,529 (9,925)	-3,096 (9,429)
Remedial action		2,462 (4,918)	2,058 (4,676)	26,393*** (8,660)	19,992** (8,370)
Guilty plea		-9,932 (6,451)	-10,109* (5,816)	25,444** (11,390)	15,210* (9,029)
Need for particular deterrence		4,774 (3,285)	5,271 (3,412)	1,052 (7,701)	-7,299 (7,249)
Need for general deterrence		-1,760 (3,238)	-2,710 (3,481)	-11,329 (7,740)	-7,846 (7,391)
Safety record (compared to no previous convictions)	Poor	74,978*** (26,184)	70,365*** (24,488)	-18,093 (17,601)	19,021 (17,240)
	Previous convictions	8,676*** (2,604)	9,125*** (2,649)	5,461 (6,323)	1,032 (6,117)
	Good	-2,140 (3,997)	-1,370 (4,392)	6,724 (2,638)	3,561 (5,552)
	Great	2,384 (5,619)	3,640 (9,421)	-20,852 (14,763)	-22,822 (18,729)
Number of victims		-466 (2,497)	603 (2230)	16,990** (7,486)	12,720** (5,463)
Voluntary payment made		-	4,583 (4,123)	-	-11,449* (6,018)
Restorative justice conference		-	14,023 (12,432)	-	52,721*** (18,892)
Employee breach of duty		-	-3,391 (3,162)	-	9,018* (4,644)
Size of employer (compared to large)	Small	-	-5,138 (4,106)	-	-9,048 (10,966)
	Medium	-	-1,842 (6,212)	-	-22,272** (10,674)
Consumer Price Index		-82 (148)	-92 (150)	-859** (363)	-819** (352)
Reparation insurance		-	-12,517 (9,094)	-	33,140** (16,466)
ACC Top up		-	-	12,770 (12,386)	9,707 (11,137)
Post *Street Smart* time period		23,632*** (7,506)	20,173*** (7,668)	-	-
Guilty plea discount		-	-	-56,646*** (17,583)	-37,194*** (12,554)
Number of related defendants		-	-11,714** (5,366)	-	-4,960 (9,273)
Constant		77,991 (136,146)	103,485 (137,501)	947,085** (384,755)	910,402** (370,728)
R-squared		0.63	0.65	0.66	0.74

Table 5. Determinants of Fines; Case-Level

		Period 2		Period 3	
		Base Model	**Full Model**	**Base Model**	**Full Model**
Degree of culpability (compared to medium)	Low	-3,036 (2,169)	-3,100 (2,779)	-17,475*** (3,799)	-15,745*** (3,873)
	Low-medium	-4,874** (2,123)	-4,231** (2,112)	-6,514*** (2,392)	-4,777* (2,484)
	Medium-high	584 (2316)	-304 (2,274)	11,106*** (3,720)	12,008*** (3,609)
	High	21,104*** (7,491)	22,734*** (7,220)	20,608*** (7,879)	21,943*** (8,068)
Degree of harm (compared to high)	Low/Medium	-2,685 (1,816)	-2,587 (1,900)	-4,696** (2,277)	-5,605** (2,368)
	Fatal	11,056*** (3,211)	6,202*** (2,343)	2,281 (3,661)	1,123 (3,613)
Defendant's financial limitations		-9,077*** (2,030)	-8,246*** (1,842)	-13,672*** (2,953)	-12,295*** (3,071)
Remorse		1,850 (3,372)	985 (2950)	-4,971* (2,791)	-4,988 (3,252)
Co-operation		-6,328 (5,604)	-5,620 (5,027)	2,399 (4,203)	5,065 (4,348)
Remedial action		3,399 (3,253)	2,508 (2,719)	7,196* (3,726)	5,520 (3,367)
Guilty plea		-13,925** (6,945)	-16,139** (6,957)	-2,912 (5,330)	-3,531 (5,273)
Need for particular deterrence		2,609 (2,541)	2,586 (2,334)	-3,263 (3,457)	-2,198 (3,756)
Need for general deterrence		1,153 (1,674)	541 (1708)	-2,464 (3,482)	-4,127 (3,633)
Safety record (compared to no previous convictions)	Poor	34,035 (23,515)	28,427 (20,507)	32,081*** (11,974)	35,024** (13,723)
	Previous convictions	4,499** (2,238)	4,658** (2,212)	5,199* (2,948)	5,039 (3,160)
	Good	-951 (2,155)	-1,966 (2,318)	1,723 (3,168)	899 (3121)
	Great	-3,852 (2,456)	-4,928** (2,350)	-12,444 (7,577)	-13,056* (7,215)
Number of victims		3,477* (2,006)	4,154** (1,797)	-1,429 (1,048)	-1,085 (1,260)
Number of charges		1,635 (2,094)	1,128 (2,090)	7,064 (4,396)	7,555* (4,069)
Voluntary payment made		-	11,925*** (3,095)	-	4,425* (2,623)
Restorative justice conference		-	4,012 (5,381)	-	6,410 (8,875)
Employee breach of duty		-	-70 (2216)	-	-2,072 (2,065)
Size of employer (compared to large)	Small	-	-3,839* (2,241)	-	-4,672 (4,293)
	Medium	-	-3,839 (5,113)	-	-3,434 (6,487)
Consumer Price Index		9 (89)	-11 (94)	-212 (177)	-216 (174)
Reparation insurance		-	5,658 (4,900)	-	888 (6467)
ACC Top up		-	-	6,656 (4,720)	6,273 (4,550)
Post *Street Smart* time period		-254 (4,314)	-4,942 (4,529)	-	-
Guilty plea discount		-	-	5,610 (6,080)	6,027 (5,661)
Number of related defendants		-	-5,223 (3,321)	-	-2,646 (1,861)
Constant		1,326 (86,063)	22,049 (91,808)	258,273 (190,445)	257,249 (187,272)
R-squared		0.48	0.55	0.52	0.55

Table 6. Determinants of Reparations; Case-Level

		Period 2		Period 3	
		Base Model	**Full Model**	**Base Model**	**Full Model**
Degree of culpability (compared to medium)	Low	-8,798* (4,547)	-7,895* (4,292)	-1,618 (7,312)	2,434 (6,887)
	Low-medium	1,482 (2,765)	283 (2730)	-3,771 (5,693)	-2,676 (4,929)
	Medium-high	15,549*** (5,006)	14,000*** (4,927)	-2,360 (4,942)	-3,196 (4,674)
	High	-1,156 (3,813)	-1,505 (3,959)	30,707** (12,497)	29,626** (11,828)
Degree of harm (compared to high)	Low/Medium	-4,465** (1,769)	-3,780** (1,862)	-13,137*** (3,765)	-14,759*** (3,631)
	Fatal	27,296*** (4,413)	30,589*** (5,258)	21,007*** (7,282)	21,619*** (7,028)
Defendant's financial limitations		-2,447 (1,967)	-2,264 (1,937)	-5,545 (3,804)	-6,023 (4,083)
Remorse		5,029* (2,557)	4,676* (2,627)	428 (5374)	928 (4821)
Co-operation		-2,718 (3,056)	-1,541 (3,121)	-15,739** (6,851)	-9,304 (6,155)
Remedial action		2,142 (2,383)	1,780 (2,332)	20,620*** (6,618)	13,984*** (5,083)
Guilty plea		-800 (3,271)	-824 (3,169)	21,095** (8,422)	12,082* (7,242)
Need for particular deterrence		2,998 (2,429)	4,402* (2,547)	9,386 (6,582)	-155 (5,726)
Need for general deterrence		-325 (2,371)	-636 (2,453)	-13,533* (7,077)	-6,692 (6,209)
Safety record (compared to no previous convictions)	Poor	12,202* (7,310)	12,243 (8,242)	-20,962 (14,309)	-10,181 (13,434)
	Previous convictions	-3,057 (2,292)	-3,268 (2,242)	760 (4578)	-7,166 (4,702)
	Good	-2,123 (3,166)	-1,619 (3,298)	5,558 (5,117)	516 (4967)
	Great	-5,565* (3,291)	-4,597 (3,211)	-2,701 (6,139)	-6,854 (6,748)
Number of victims		-374 (1,486)	-209 (1,568)	18,739*** (6,957)	16,615*** (5,664)
Number of charges		612 (1860)	304 (1937)	8,780 (6,679)	9,350 (6,258)
Voluntary payment made		-	-5,908* (3,420)	-	-9,864** (4,624)
Restorative justice conference		-	-1,259 (6,001)	-	34,550** (14,514)
Employee breach of duty		-	-4,412* (2,417)	-	1,788 (3,318)
Size of employer (compared to large)	Small	-	-5,465** (2,627)	-	-11,888 (8,009)
	Medium	-	4,903 (5,324)	-	-5,053 (9,852)
Consumer Price Index		-31 (109)	-69 (103)	-470* (243)	-331 (226)
Reparation insurance		-	-5,297 (6,579)	-	18,843* (11,095)
ACC Top up		-	-	2,324 (10,832)	2,103 (10,005)
Post *Street Smart* time period		15,016** (6,594)	13,926** (6,745)	-	-
Guilty plea discount		-	-	-34,569** (14,056)	-23,689** (11,735)
Number of related defendants		-	-3,842 (2,596)	-	-8,290** (3,759)
Constant		31,879 (100,036)	74,045 (93,984)	484,073* (260,464)	347,349 (239,801)
R-squared		0.40	0.42	0.60	0.68

Table 7. Determinants of Total Financial Liability; Case-Level

		Period 2		Period 3	
		Base Model	**Full Model**	**Base Model**	**Full Model**
Degree of culpability (compared to medium)	Low	-11,835** (5,483)	-10,995** (4,431)	-19,204** (8,440)	-13,453* (8,068)
	Low-medium	-3,392 (3,397)	-3,948 (3,537)	-10,340* (6,025)	-7,475 (5,576)
	Medium-high	16,133*** (5,363)	13,696** (5,421)	8,755 (6,564)	8,938 (6,452)
	High	19,947** (7,998)	21,230*** (8,079)	50,677*** (15,299)	51,011*** (15,084)
Degree of harm (compared to high)	Low/Medium	-7,150** (2,864)	-6,367** (2,948)	-17,845*** (4,352)	-20,360*** (4,183)
	Fatal	38,351*** (5,171)	36,791*** (5,695)	23,173*** (8,192)	22,575*** (8,163)
Defendant's financial limitations		-11,523*** (2,882)	-10,509*** (2,675)	-19,135*** (5,252)	-18,179*** (5,796)
Remorse		6,879* (4,088)	5,662 (3,924)	-4,445 (6,457)	-3,972 (6,143)
Co-operation		-9,047 (5,770)	-7,162 (5,352)	-13,397 (8,339)	-4,091 (7,690)
Remedial action		5,540 (4,184)	4,288 (3,674)	27,757*** (8,155)	19,342*** (6,304)
Guilty plea		-14,724** (7,453)	-16,964** (7,274)	18,199* (10,361)	8,390 (9,123)
Need for particular deterrence		5,607 (3,399)	6,988** (3,339)	6,081 (7,944)	-2,568 (7,160)
Need for general deterrence		829 (2783)	-95 (2845)	-16,077* (8,461)	-10,728 (7,390)
Safety record (compared to no previous convictions)	Poor	46,237** (23,189)	40,670* (21,434)	11,140 (13,942)	24,601* (14,379)
	Previous convictions	1,442 (3,119)	1,390 (3,140)	6,116 (5,491)	-2,031 (5,432)
	Good	-3,074 (3,677)	-3,585 (3,903)	7,445 (5,516)	1,602 (5,297)
	Great	-9,417** (3,955)	-9,525** (3,917)	-14,966 (10,333)	-19,743* (11,507)
Number of victims		3,103 (3,230)	3,945 (2,951)	17,349*** (6,551)	15,543*** (5,107)
Number of charges		2,246 (3,242)	1,433 (3,164)	15,962* (8,096)	16,954** (7,512)
Voluntary payment made		-	6,017 (4,414)	-	-5,567 (5,284)
Restorative justice conference		-	2,753 (7,447)	-	41,444** (19,429)
Employee breach of duty		-	-4,482 (3,071)	-	-179 (3,740)
Size of employer (compared to large)	Small	-	-9,304*** (3,482)		-16,520* (9,857)
	Medium	-	1,063 (8,139)	-	-7,961 (9,937)
Consumer Price Index		-22 (142)	-80 (143)	-678** (326)	-537* (310)
Reparation insurance		-	361 (9129)	-	20,801 (12,671)
ACC Top up		-	-	8,990 (12,508)	8,230 (11,384)
Post *Street Smart* time period		14,762* (7,658)	8,984 (7,626)	-	-
Guilty plea discount		-	-	-29,176* (15,053)	-17,696 (12,611)
Number of related defendants		-	-9,065* (4,893)	-	-10,743** (4,258)
Constant		33,205 (132354)	96,094 (133979)	737,505** (349,355)	593,736* (331,139)
R-squared		0.53	0.55	0.63	0.70

Table 8. Overview of Section 6 and Case-Level Estimation Results

		Fines				Reparations				Total Liability			
		Period 2	Period 3	Period 2	Period 3	Period 2	Period 3	Period 2	Period 3	Period 2	Period 3	Period 2	Period 3
		S6	S6	Case	Case	S6	S6	Case	Case	S6	S6	Case	Case
Degree of culpability (compared to medium)	Low		-22		-16			-8			-18	-11	-13
	Low-medium		-7	-4	-5	-5				-9	-14		
	Medium-High		10		12	13		14		14		14	
	High	27	19	23	22				30	32	37	21	51
Degree of harm (compared to high)	Low/Medium				-6	-5	-15	-4	-15		-17	-6	-20
	Fatal	9		6		31	30	31	22	40	37	37	23
Defendant's Financial Limitations		-9	-12	-8	-12					-9	-15	-11	-18
Remorse						5		5		10			
Co-operation													
Remedial Action							19		14		20		19
Guilty plea		-12		-16			19		12		15	-17	
Need for particular deterrence													
Need for general deterrence													
Safety record (compared to no previous convictions)	Poor	62			35					70		41	
	Previous convictions	11	8	5						9			
	Good												
	Great												-10
Number of victims			-2	4		-3	14		17		13		16
Number of charges													17
Voluntary payment made		10	5	12	4	-6	-16	-6	-10		-11		
Restorative justice conference							52		35		53		41
Employee breach of duty								-4			9		
Size of employer (compared to large)	Small			-4				-5				-9	-17
	Medium										-22		
Consumer Price Index							-1				-1		-1
Reparation Insurance							28		19		33		
ACC Top up													
Post *Street Smart* time period						17		14		20			
Guilty plea discount							-35		-24		-37		
Number of related defendants						-8			-8	-12		-9	-11
Constant							731				910		594
R-squared		0.57	0.58	0.55	0.55	0.55	0.72	0.42	0.68	0.65	0.74	0.55	0.7

For full model variables (underlined):

significant at 5% or 10% level in both models — significant at 10% level

significant at 1% level in one model and 5% in the other — *significant at 5% level*

significant at 1% level in both models — **significant at 1% level**