

ANALYTICAL NOTE: THE RESOURCE EFFECTS OF INCREASED CONSISTENCY IN SENTENCING

1 EXECUTIVE SUMMARY

1.1 This note considers the potential resource impacts of one of the Council's key objectives: promoting consistency in sentencing.

1.2 Historical data shows that a wide range of different sentences lengths and disposal types are observed even within an offence type. This primarily reflects variation in the severity of offences and in the characteristics of the offenders being sentenced. Another source of this variation in sentences may be inconsistency of sentencing.

1.3 Disentangling the variation in sentencing that arises from consistency from the variation that arises from other factors such as the severity of the offences is not straightforward. As a result, the empirical nature of inconsistency in sentencing is not understood in great detail.

1.4 Since the precise nature of inconsistency is not known, work to consider the resource implications of increased consistency has involved exploring the resource implications of different scenarios.

1.5 An increase in consistency would involve upward and downward adjustments to some sentences. The scenario analysis showed that, depending on the nature of inconsistency, there may be differences in the balance of upward and downward adjustments

1.6 In many scenarios, the upwards adjustments would cancel out the downwards adjustments and the net effect would be neutral. A reasonable central estimate is therefore that increases in consistency have a negligible resource effect.

1.7 However, in some scenarios, these adjustments do not cancel one another out, and an increase in consistency leads to a resource effect. This resource effect may work in either direction, and there is no evidence to suggest one is more likely than the other.

1.8 This means that, in any resource assessment issued by the Council, increases in consistency of sentencing cause uncertainty about the potential resource effects of the guideline.

2 INTRODUCTION

2.1 A key aim of the Sentencing Council is to promote consistency of sentencing. This note considers the potential resource effects of realising this aim, and describes a model which has been used to explore the size of the potential effects.

2.2 It concludes that the resource effects of an increase in the consistency of sentencing may either be positive or negative. Therefore, a reasonable central estimate is that increases in consistency of sentencing have no resource effect.

3 BACKGROUND

3.1 There is no universally accepted definition of consistency in sentencing. The general concept is clear, however: similar offenders who commit similar offences in similar circumstances would be expected to receive similar sentencing outcomes.

3.2 Measuring consistency is difficult. Within any offence type, a wide range of sentencing outcomes would be expected due to variation in offenders' characteristics and the severity of offences. Data on the variability of sentencing outcomes alone is therefore not necessarily useful in assessing inconsistency in sentencing.

3.3 To measure consistency, it would be necessary to compare sentencing outcomes after controlling for the influence of all legally-relevant variables about the nature of the offender and the offence. However, data on many of these variables is not systematically collected. For example, no measure currently exists of the relative seriousness of offences. As a result, it is not possible to make good estimates of the degree of inconsistency in sentencing practice.

4 CHARACTERISATION OF AN 'INCREASE IN CONSISTENCY'

4.1 An increase in consistency of sentencing is conceptually straightforward – it involves a decrease in the variability of sentencing outcomes amongst similar cases.

4.2 However, to model possible resource effects, a more precise description of an increase in consistency is required. This will invoke the concept of the statistical distribution of inconsistency in sentencing.

4.3 The statistical distribution of inconsistency in sentencing is a hypothetical construct, and must be carefully distinguished from the statistical distribution of sentencing practice overall. The distribution of inconsistency is the distribution of sentencing practice that would occur amongst judges *holding the facts of the case and the characteristics of the offender constant*.

4.4 An intuitive way of thinking about it is to imagine how a sentencing outcomes may vary if different judges were assigned to a particular case on the same day in the same court. The various sentencing decisions made by the different judges would form the distribution of inconsistency in sentencing. This distribution is different from the statistical distribution of overall sentencing practice because it abstracts from all other factors which cause variation in sentencing, and just focuses on variation in sentencing that results from inconsistency.

4.5 Using this concept, it is possible to mathematically model increases in consistency: an increase in consistency can be thought of as a decrease in the variance of the distribution of inconsistency¹. This means that, holding constant the facts of the case and the characteristics of the offender, the variability of sentencing outcomes amongst judges decreases.

4.6 A decrease in the variance of the distribution of inconsistency is not sufficient to fully characterise an increase in consistency because it does not describe how the sentence lengths move along the x axis as the variance decreases².

4.7 A useful way of thinking about why the distribution may move is that if inconsistency in sentencing were to be entirely eliminated, the distribution of inconsistency would converge on a central point. This central point is the 'correct', or 'most appropriate' sentencing outcome, given the facts of the case. However, for non symmetrical distributions, it is not clear whether this point should be the mean, the median or the mode of the distribution of inconsistency (or some other point), which could be at different points along the x axis.

4.8 Figure 1 on the following page gives an example of how increases in consistency may affect sentences with a positively skewed distribution of inconsistency. Before any increase in consistency takes place, the position of the

¹ In what follows a further simplifying assumption will be made. It will be assumed that only the variance of the distribution changes, leaving other characteristics such as the skew constant. This rules out the possibility that, for instance, the skew may be positive prior to the increase in consistency, but negative afterwards. This assumption will not affect the general conclusion that the 'more symmetric' the distribution of uncertainty is, the lower the resource effects of the new guideline.

² The term 'variance' here is used in the sense of the second moment about the mean rather than as a variance parameter of a specific statistical distribution.

distribution along the x axis is fixed, whether the mean or the mode is chosen as the convergence point. This is shown in the leftmost chart. As consistency increases the shape of the two distributions might remain the same but their relative positions along the x axis will start to diverge. This is shown in the central two charts. When the distribution of inconsistency has almost collapsed, (in the rightmost charts), the relative position of the two distributions are quite different. Convergence has occurred at a lesser sentence length if the mode is chosen than if the mean is chosen.

4.9 In the remainder of this document, the sentence around which the distribution of inconsistency converges as inconsistency is eliminated will be called the 'convergence point'. As can be seen, the choice of the convergence point will be important when considering the resource effects of an increase in consistency. In the example shown in Figure 1, in which the distribution of inconsistency has a positive skew, choosing the mode would result in a fall in average sentence lengths as consistency increased.

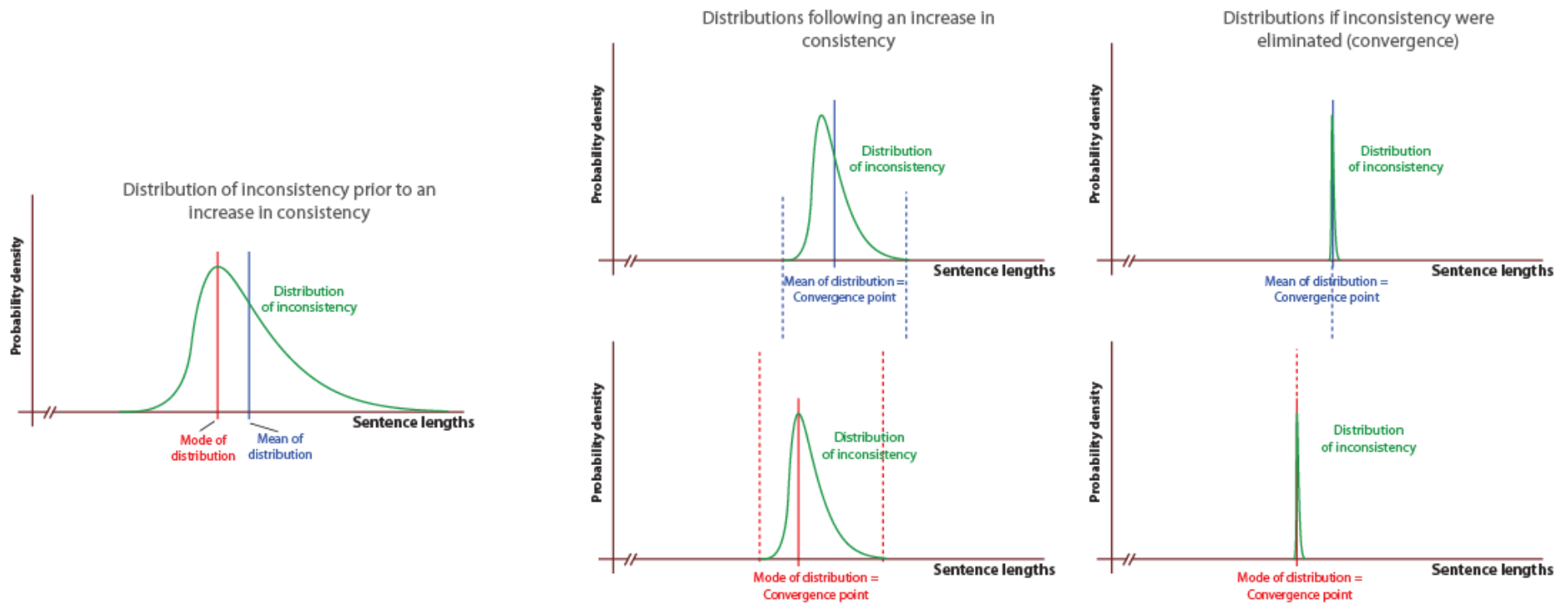


Figure 1

Notes: as the variance decreases, the area under the distribution should stay constant. The height of the distribution would thus increase as variance decreased. This is not depicted for the sake of simplicity.

Similar results would be found if a negatively skewed distribution were used, but the effect would be in the opposite direction.

5 THE RESOURCE EFFECTS OF INCREASES IN CONSISTENCY

5.1 Since the nature and extent of inconsistency in sentencing is unknown, making accurate predictions about the effects of an increase in consistency is not possible.

5.2 Nonetheless, progress can be made by considering various scenarios, and tracing out their implications. It is thus possible to get a sense of the scale of the possible resource implications of increases in consistency.

5.3 It turns out that the most important determinant of the resource effects of an increase in consistency is the underlying shape of the distribution of inconsistency in sentencing. Heavily skewed distributions result in greater resource impacts than distributions which are more symmetrical³. The following diagrams explain why.

5.4 Consider Figure 2, below, which depicts a symmetrical distribution of inconsistency. What would happen if consistency increases in these circumstances? Some lower-end sentences become longer as they move towards point x, and some higher-end sentences become shorter. However, these influences cancel one another out in the sense that the total custodial time sentenced does not change. The increase in consistency therefore has a negligible resource impact.

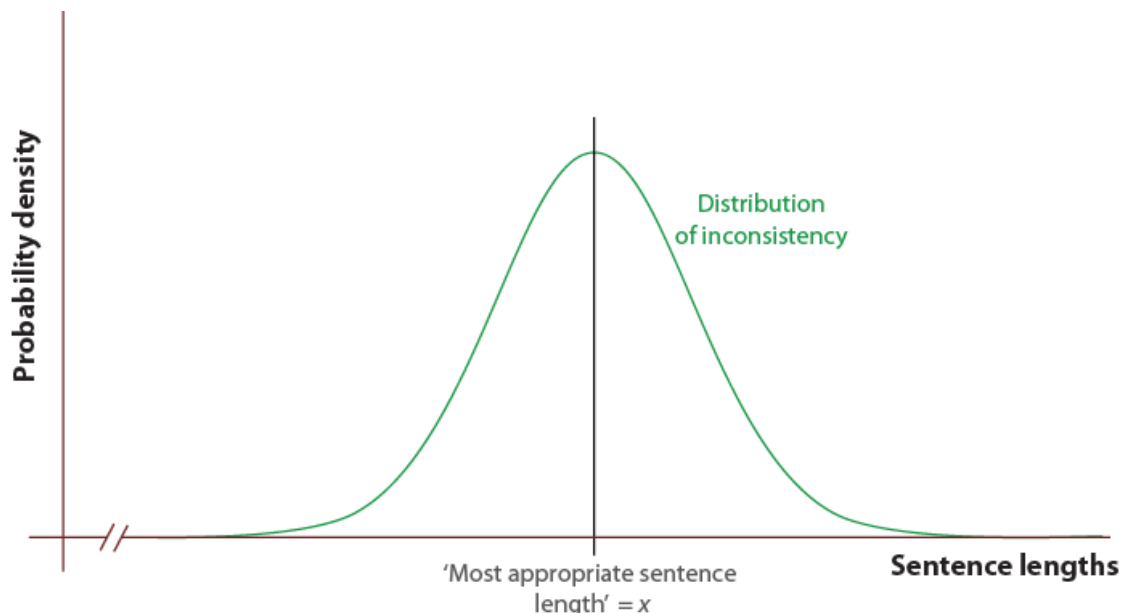


Figure 2

³ See footnote 1

5.5 However, consider what would happen if the distribution of inconsistency were skewed. This is depicted in Figure 3, below. It will be assumed that the mode of the distribution should be considered to be the convergence point, since this will result in a substantial resource effect⁴.

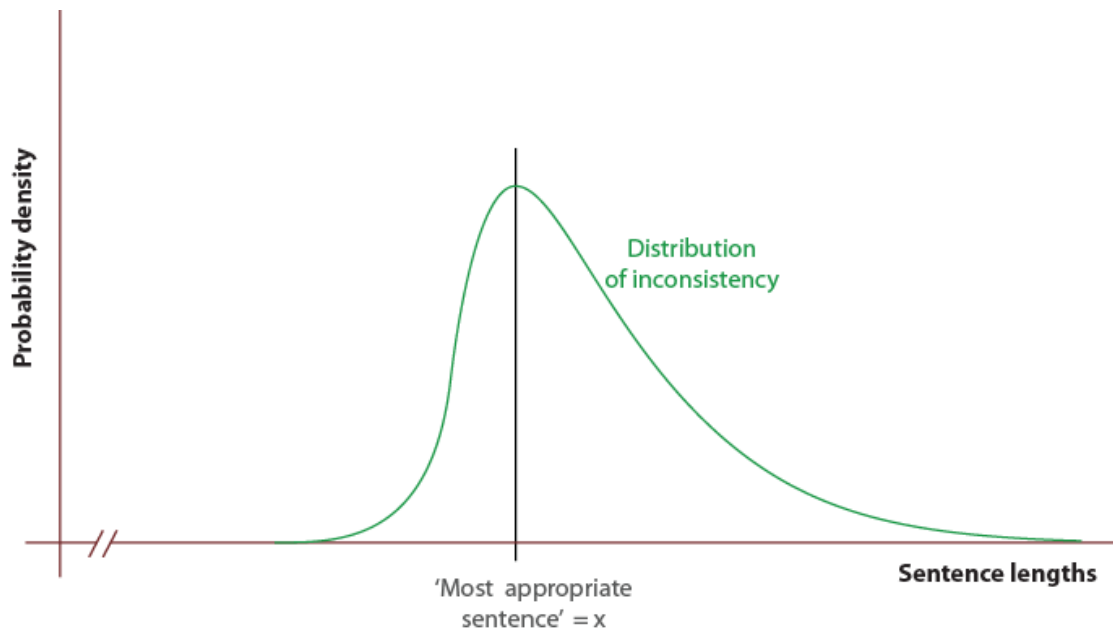


Figure 3

5.6 Suppose there is an increase in consistency under this distribution. This means that the spread of sentences around the mode decreases, with sentences moving towards the modal point, x . To preserve the mode at point x , higher end sentences decrease in length by greater amounts and in greater numbers than lower end sentences, which increase in length. These effects do not cancel each other out, and the result is a decrease in average custodial sentence lengths. An increase in consistency in this scenario causes a reduction in the resources required to provide prison places.

6 SCALE OF RESOURCE EFFECTS

6.1 Modelling work has been conducted to help understand the factors that cause increases in consistency to have a resource impact. This work involved considering the consequences of increased consistency under a variety of scenarios.

⁴ Of the three measure of central tendency, the mean the median and the mode, choosing the mode will result in the largest resource effect.

6.2 The modelling work involved choosing various statistical distributions, making the assumption that they represented the true distribution of inconsistency in sentencing, and simulating the effects of an increase in consistency of sentencing.

6.3 This work concluded that:

- A symmetric distribution of inconsistency means that the resource effects of increased consistency are close to zero. This conclusion is unaffected by changes in many of the other assumptions.
- Skewed distributions of inconsistency will generally result in resource effects if inconsistency increases. The greater the skew in the distribution of inconsistency, the greater the resource effect.
 - A negative (left) skewed distribution results in a positive resource effect (an increase in costs). Conversely, a positive skew results in a negative resource effect.
- The greater the increase in consistency, the greater the potential resource effect.
- The greater inconsistency in current sentencing practice, the greater the potential resource effects of increased consistency.
- Results are sensitive to the assumption made about the convergence point of the distribution of inconsistency.
 - If the convergence point is the mean of the distribution of inconsistency, the resource effect of an increase in consistency is always zero.
 - If the convergence point is the mode or the median, the resource effect is non-zero. The mode results in a larger resource effect than the median.

7 **EXAMPLE**

7.1 An estimate of the resource effects of an increase in consistency under one set of assumptions are reported below. The assumptions were chosen to create a scenario in which the resource effects of an increase in consistency would be substantial. Since there is no way of verifying these assumptions empirically, it is not possible to say how plausible such a scenario is in practice.

7.2 Assumptions:

- A halving of the variance of the distribution of inconsistency. This would reflect a 'doubling' in the consistency of sentencing.
- A pronounced skew. The gamma distribution was used chosen⁵ with a shape parameter of 5 and a scale parameter of 0.12. This leads to a skew of 0.9.
- The choice of the mode as the convergence point of the distribution.
- Inconsistency in sentences is rarely greater than $\pm 30\%$ of the 'most appropriate' or 'convergence point' sentence.

7.3 Under these assumptions, the model estimates that increased consistency of sentencing would have a resource effect of around 3% of the total cost of sentencing.

8 CONCLUSION

8.1 There is no strong reason to believe that the distribution of inconsistency in sentencing is skewed, either positively or negatively. The central estimate is therefore that increased consistency of sentencing will have no resource effect.

8.2 However, it is not possible to rule out the possibility that increases in the consistency of sentencing may have a resource effect.

⁵ In fact, a linear transformation of the Gamma distribution was used so that it was positioned at a sensible place along the x axis.