

**Sentencing in  
New Zealand:  
a statistical analysis**

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Ministry of Justice

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# Foreword

The Ministry undertakes research and evaluation on sentencing, so that future policy decisions can be underpinned by relevant information.

The research presented in this report examines for the first time the combined effects of a wide range of statistically-measurable factors on sentencing decisions. The factors included in this analysis range from the type and seriousness of the major offence committed, to the number of charges proved, the plea, and the demographic and previous criminal history characteristics of the offender.

Previous research by the Ministry of Justice has shown that very substantial changes have occurred in sentencing over the past two decades, especially following legislative changes, eg: a very substantial increase in the use of community-based sentences but in the past has been unclear what the real drivers in the changes were – the changed legislation or other factors.

The present research uses sophisticated statistical techniques to give a better understanding of the trends in sentencing that followed the implementation of the various legislative changes. Changes due to trends in statistical factors were separated from changes due to sentencing practice. For the most serious of the violent offences and offenders, the relative imprisonment rate has remained much the same between 1983 and 1995, and sentence lengths have increased. For the less serious offences and offenders, this report shows that there has been a decrease in the relative rate of imprisonment, but a far larger increase in the use of community-based sentences.

Colin Keating  
Secretary for Justice



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# Contents

<b>Foreword</b> .....	<b>3</b>
<b>Acknowledgements</b> .....	<b>5</b>
<b>Tables</b> .....	<b>11</b>
<b>Executive Summary</b> .....	<b>15</b>
<b>1 Introduction</b> .....	<b>21</b>
1.1 Statistical factors influencing sentencing.....	21
1.2 Changes in sentencing practice .....	22
1.3 Outline of the report .....	24
<b>2 Statistical methods</b> .....	<b>27</b>
2.1 Development of the data-sets .....	27
2.2 Selection of explanatory variables .....	28
2.2.1 Potential influences on sentencing .....	28
2.2.2 Description of explanatory variables .....	31
2.3 Fitting and testing of the logistic regression models .....	35
<b>3 Explanatory variables: trends and</b> .....	<b>39</b>
3.1 Relationships between selected explanatory variables .....	39
3.2 Trends in the explanatory variables .....	42
<b>4 Imprisonment</b> .....	<b>47</b>
4.1 Background .....	47
4.2 Single variable analysis of current factors influencing sentencing .....	47
4.3 Multivariate analysis of current factors influencing sentencing .....	50
4.3.1 The fit and accuracy of the 1995 model .....	50
4.3.2 Results of the 1995 model.....	51
4.4 Changes in the use of imprisonment .....	54
<b>5 Suspended prison sentences</b> .....	<b>61</b>
5.1 Background .....	61
5.2 Single variable analysis of current factors influencing sentencing .....	61
5.3 Multivariate analysis of current factors influencing sentencing .....	63
5.3.1 The fit and accuracy of the 1995 model .....	63
5.3.2 Results of the 1995 model.....	64
<b>6 Periodic detention</b> .....	<b>67</b>
6.1 Background .....	67
6.2 Single variable analysis of current factors influencing sentencing .....	67
6.3 Multivariate analysis of current factors influencing sentencing .....	69
6.3.1 The fit and accuracy of the 1995 model .....	69
6.3.2 Results of the 1995 model.....	70
6.4 Changes in the use of periodic detention .....	72

<b>7</b>	<b>Community service .....</b>	<b>79</b>
7.1	Background .....	79
7.2	Single variable analysis of current factors influencing sentencing .....	79
7.3	Multivariate analysis of current factors influencing sentencing .....	81
7.3.1	The fit and accuracy of the 1995 model .....	81
7.3.2	Results of the 1995 model.....	82
7.4	Changes in the use of community service .....	84
<b>8</b>	<b>Community programme .....</b>	<b>91</b>
8.1	Background .....	91
8.2	Single variable analysis of current factors influencing sentencing .....	91
8.3	Multivariate analysis of current factors influencing sentencing .....	93
8.3.1	The fit and accuracy of the 1995 model .....	93
8.3.2	Results of the 1995 model.....	94
8.4	Changes in the use of community programme .....	96
<b>9</b>	<b>Supervision .....</b>	<b>97</b>
9.1	Background .....	97
9.2	Single variable analysis of current factors influencing sentencing .....	97
9.3	Multivariate analysis of current factors influencing sentencing .....	99
9.3.1	The fit and accuracy of the 1995 model .....	99
9.3.2	Results of the 1995 model.....	100
9.4	Changes in the use of supervision .....	102
<b>10</b>	<b>Factors influencing monetary penalties .....</b>	<b>107</b>
10.1	Background .....	107
10.2	Single variable analysis of current factors influencing sentencing .....	107
10.3	Multivariate analysis of current factors influencing sentencing .....	109
10.3.1	The fit and accuracy of the 1995 model .....	109
10.3.2	Results of the 1995 model.....	110
10.4	Changes in the use of monetary penalties .....	112
<b>11</b>	<b>Summary and interaction effects .....</b>	<b>117</b>
11.1	Outline of methods and limitations .....	117
11.2	Overall changes in sentencing .....	118
11.3	Effects of each statistical variable .....	121
11.3.1	Effects of seriousness and number of charges .....	121
11.3.2	Effects of offence type .....	122
11.3.3	Effects of plea .....	123
11.3.4	Effects of gender .....	123
11.3.5	Effects of age .....	124
11.3.6	Effects of ethnicity .....	124
11.3.7	Effects of criminal history variables .....	125
11.3.8	Effects of previous sentences .....	126
11.4	Interaction effects .....	127
11.4.1	'Fast-tracking' or sentence escalation .....	127



11.4.2 Alternatives to imprisonment and ‘net-widening’ .....	128
<b>References .....</b>	<b>133</b>
<b>Appendix I: Factors influencing the ‘no sentence’ options .....</b>	<b>135</b>
<b>Appendix II: The effect of sentence type on recidivism rates .....</b>	<b>137</b>



# Tables

Table 3.1: Average values of selected variables by current offence and previous criminal history, 1995	41
Table 3.2: Average values of selected variables by demographic group, 1995	42
Table 3.3: Average values for selected variables and the percentage change in the average between 1983 and 1995	43
Table 4.1: Logistic regression model of the probability of imprisonment, 1995	52
Table 4.2: Actual percentage receiving imprisonment for each variable and year and predicted percentage based on 1995 sentencing practice	57
Table 5.1: Logistic regression model for suspended prison sentences, 1995	65
Table 6.1: Logistic regression model of the probability of periodic detention, 1995	71
Table 6.2: Actual percentage receiving periodic detention for each variable and year and predicted percentage based on 1995 sentencing practice	76
Table 7.1: Logistic regression model of the probability of community service, 1995	83
Table 7.2: Actual percentage receiving community service for each variable and year and predicted percentage based on 1995 sentencing practice	87
Table 8.1: Logistic regression model for community programme, 1995	95
Table 9.1: Logistic regression model of the probability of supervision, 1995	101
Table 9.2: Actual percentage receiving supervision for each variable and year and predicted percentage based on 1995 sentencing practice	104
Table 10.1: Logistic regression model for monetary penalties, 1995	111
Table 10.2: Actual percentage receiving a monetary penalty for each variable and year and predicted percentage based on 1995 sentencing practice	115
Table 11.1: Overall percentage of offenders receiving each sentence for each year, actual percentage and predicted percentage based on 1995 sentencing practice	119

# Figures

Figure 1.1: Percentage of prosecuted cases involving imprisonable offences resulting in each outcome, 1986-97	23
Figure 3.1: Relationship between the average seriousness score (on the y-axis) and selected variables, 1995	40
Figure 4.1: Percentage of offenders receiving a prison sentence in 1995 for selected variables	48
Figure 4.2: Plot of the predicted probability versus the actual proportion of offenders receiving a prison sentence, 1995 fitted and test data	50
Figure 4.3: The percentage of proved cases resulting in a prison sentence for imprisonable offences, 1982-1997	55
Figure 4.4: Comparison among years of the actual and predicted probabilities of imprisonment, with predictions made using the 1995 model	56
Figure 4.5: Actual percentage receiving imprisonment and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995	58
Figure 5.1: Percentage of offenders receiving a prison sentence in 1995 for selected variables	62
Figure 5.2: Plot of the predicted probability versus the actual proportion of offenders receiving a suspended sentence, 1995 fitted and test data	64
Figure 6.1: Percentage of offenders receiving a periodic detention sentence in 1995 for selected variables	68
Figure 6.2: Plot of the predicted probability versus the actual proportion of offenders receiving periodic detention, 1995 fitted and test data	70
Figure 6.3: The percentage of proved cases resulting in a periodic detention sentence for imprisonable offences, 1982-1997	73
Figure 6.4: Comparison among years of the actual and predicted probabilities of periodic detention, with predictions made using the 1995 model	74
Figure 6.5: Actual percentage receiving periodic detention and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995	77

Figure 7.1: Percentage of offenders receiving a community service sentence in 1995 for selected variables	80
Figure 7.2: Plot of the predicted probability versus the actual proportion of offenders receiving community service, 1995 fitted and test data	82
Figure 7.3: The percentage of proved cases resulting in a community service sentence for imprisonable offences, 1982-1997	85
Figure 7.4: Comparison among years of the actual and predicted probabilities of community service, with predictions made using the 1995 model	86
Figure 7.5: Actual percentage receiving community service and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995	88
Figure 8.1: Percentage of offenders receiving a community programme sentence in 1995 for selected variables	92
Figure 8.2: Plot of the predicted probability versus the actual proportion of offenders receiving community programme, 1995 fitted and test data	93
Figure 8.3: The percentage of proved cases resulting in community programme for imprisonable offences, 1982-1997	96
Figure 9.1: Percentage of offenders receiving a supervision sentence in 1995 for selected variables	98
Figure 9.2: Plot of the predicted probability versus the actual proportion of offenders receiving supervision, 1995 fitted and test data	100
Figure 9.3: The percentage of proved cases resulting in a supervision sentence for imprisonable offences, 1982-1997	102
Figure 9.4: Comparison among years of the actual and predicted probabilities of supervision, with predictions made using the 1995 model	103
Figure 9.5: Actual percentage receiving supervision and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995	105
Figure 10.1: Percentage of offenders receiving a monetary penalty in 1995 for selected variables	108

Figure 10.2: Plot of the predicted probability versus the actual proportion of offenders receiving a monetary penalty, 1995 fitted and test data	110
Figure 10.3: The percentage of proved cases resulting in a monetary penalty for imprisonable offences, 1982-1997	113
Figure 10.4: Comparison among years of the actual and predicted probabilities of receiving a monetary penalty, with predictions made using the 1995 model	114
Figure 10.5: Actual percentage receiving a monetary penalty and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995	116
Figure 11.1: Percentage of proved cases resulting in each type of sentence at five levels of offence seriousness, 1995	121
Figure 11.2: Plot of the predicted probability of receiving a prison sentence versus the actual proportion receiving a prison sentence and the number of offenders at each level of probability	130

# Executive Summary

## Aim

The aim of this research was to quantify the relative effect of various statistical factors on current and past sentencing practice in New Zealand. A particular objective was to identify factors influencing the use of community-based sentences, including the extent to which community-based sentences are being used as an alternative to imprisonment and the extent of changes in sentencing practice that have accompanied the very significant increase in the use of community-based sentences over the last decade and a half.

## Methods

A multivariate method (logistic regression modelling) was used to determine the independent effect of each statistical factor on the probability of receiving each sentence. Current sentencing practice was assessed using models based on all proved cases involving imprisonable offences finalised in 1995. These models were then used to predict the probability of each sentence for offenders sentenced in each of three other years (1983, 1987 and 1991). As these predicted probabilities take account of the differences in statistical characteristics of offenders in different years, a comparison of actual and predicted probabilities indicates the magnitude of changes in sentencing practice, independent of any statistical trends.

Only factors that could be quantified from the available statistical data were included in the analysis. These include the type and seriousness of the major offence committed, the number of charges proved in the current case, the plea, the previous criminal history of the offender (number and seriousness of previous proved cases, rate of conviction, the time since the last case, and previous sentences) and the sex, age and ethnicity of the offender. The total sample size was just under 300,000 cases.

While these are important variables in determining sentencing, this does not imply that other factors are not important, only that they could not be measured from the available data. Therefore, this analysis is not intended as a comment on sentencing with respect to specific cases (which always involve unique circumstances influencing the choice of sentence), but rather is intended as a broad overview of the combined effects of various statistical factors on overall sentencing practice at a national level.

## Trends and relationships for the statistical variables

Multivariate methods consider the effects of all variables together, so that the independent contribution of each statistical variable can be estimated. This is necessary as many of the variables are inter-related. For example, the seriousness of the current offence is higher on average for cases involving several charges, for offenders with a

more extensive previous criminal history, and for offenders who are male, of Māori or Pacific ethnicity, or aged under 17 years. Male, Māori and older offenders are also more likely, on average, to have an extensive history of previous offending.

Changes in the use of different sentence types may be due to changes in the type of offence or offender being dealt with by the criminal courts, rather than changes in sentencing practice. As the courts are now dealing with more serious cases than in the past, an increase in the use of more serious sentences would be expected. The key statistical trends between 1983 and 1995 are:

- The average seriousness of imprisonable offences for proved cases has increased by 53%, due to increases in the number of serious offences being dealt with by the Police and the increased use of diversion and warnings for less serious offences.
- The average number of previous cases per offender has almost doubled, due to diversion of first offenders and an increase in number of older offenders with longer criminal histories. Also, the average number of previous community-based and prison sentences per offender has increased.

## Changes in sentencing

Significant changes in the use of different sentences have occurred since the early 1980s. Some of these changes can be explained by changes in the type of offence and offender dealt with by the courts, as noted above. However, much of the change in sentencing patterns cannot be explained by these statistical trends. This suggests that changes in sentencing practice have occurred. That is, offenders with similar characteristics are now more or less likely to receive a specific sentence than they were in the 1980s.

The actual percentage of proved cases resulting in imprisonment has changed relatively little compared to changes in other sentence types. However, this lack of trend disguises a significant relative decrease in the use of imprisonment. Given the greater average seriousness of offences and offenders sentenced in 1995, the imprisonment rate should have been lower in 1983 than in 1995. Had 1995 sentencing practice been applied to the 1983 offenders, an estimated 6% would have received a prison sentence, compared the actual rate of imprisonment of 10% for 1983.

The relative use of imprisonment decreased particularly between 1983 and 1987, following the introduction of stricter guidelines on the use of imprisonment (Criminal Justice Act 1985) and between 1991 and 1995, following the introduction of the suspended prison sentence (Criminal Justice Amendment Act 1993). The relative use of imprisonment has decreased particularly for breaches of periodic detention, for offences of low to moderate seriousness, for offenders with several or many previous proved cases and for youth offenders.

The use of periodic detention has more than doubled in the last decade and a half. Trends in the type of offence and offender being sentenced explain around half of this increase, but there has also been a change in sentencing practice. The relative use of



periodic detention has increased particularly for the offences and offenders for whom the use of imprisonment has decreased, suggesting that the decrease in imprisonment has been balanced by the increase in periodic detention.

The use of community service has more than trebled since 1983. Almost all of this change appears to be due to changes in sentencing practice. The very significant increase in the use of community service for offences of low seriousness and for offenders with very few previous cases indicates that community service is now being used where previously (in the 1980s) a monetary penalty would have been imposed.

The use of supervision increased between 1991 and 1995. This change centres on the increased use of supervision for domestic violence and other violent offences between 1991 and 1995. The use of supervision has also increased for offenders with several or many previous cases.

Monetary penalties are now much less often imposed for imprisonable offences than they were in the 1980s. About a fifth of the total decrease can be accounted for by changes in the type of offenders and offences dealt with by the court and the rest appears to be due to changes in sentencing practice. The imposition of community service, where previously a monetary penalty would have been imposed, accounts for much of this trend. The relative increase in the number of proved cases where a sentence is not imposed, or a community-based sentence other than community service is imposed, also accounts for some of the decrease in the use of monetary penalties.

## **Effects of each statistical variable**

### **Effects of current case characteristics**

The offence seriousness and the number of charges proved in the current case are among the most significant variables in the logistic regression models for prison sentences and monetary penalties. As the seriousness of the major offence increases or the number of charges increases, the probability of imprisonment increases and the probability of a monetary penalty decreases.

Community service is more often imposed for offences of relatively low seriousness (offences with a seriousness score between 1 and 60), while the use of periodic detention peaks for offences of low to moderate seriousness (a seriousness score of 20-180). Supervision and community programme show less of a relationship with offence seriousness, other than having a low probability for offences of very low or very high seriousness. The use of suspended prison sentences peaks for offences of moderate to high seriousness (a seriousness score of around 150-365).

The probability of receiving a prison sentence is greater if the most serious offence in the current case is an offence against the person (most of these being violent offences). This is particularly so for the serious types of violent offences, but is also true for the relatively

less serious types such as assault and threats. This finding is consistent with the legal guidelines on the use of imprisonment for violent offences (Criminal Justice Act 1985).

Domestic violence is a key offence group for two other sentence types, supervision and community programme. Domestic violence is the most significant variable determining the probability of receiving these sentences. An offender is four to five times more likely to get supervision or community programme than another sentence if the current offence is domestic violence, compared to a statistically similar offender who has committed a property offence. Other offences against the person are also more likely to result in supervision or community programme.

If the current offence is a breach of periodic detention, then the odds of receiving a prison sentence or periodic detention are increased. Offenders who commit traffic offences have a higher probability of receiving community service, community programme, periodic detention or a monetary penalty, relative to property offenders.

A guilty plea appears to increase the probability of receiving community service, supervision or a monetary penalty, but decreases the probability of receiving a prison sentence or periodic detention.

### **Effects of gender, age and ethnicity**

The results of the multivariate modelling indicate that females are more likely than males to receive community service, supervision, community programme or no sentence. On the other hand, females are less likely to receive a prison sentence, periodic detention or a monetary penalty. Gender is one of the most significant variables influencing the probability of receiving a monetary penalty or a community service sentence.

Offenders aged under 17 have an extremely low relative risk of receiving any of the sentences considered here, but especially the more serious sentences of imprisonment and periodic detention. This finding was expected, given the special legislative guidance and rules relating to the sentencing of youth offenders and the availability of sentences specifically for youth offenders. Offenders aged 17-19 or 30 plus are less likely to receive a monetary penalty, but more likely to receive community service, supervision, or community programme than offenders aged 20 to 29 years.

Māori and Pacific offenders are more likely to receive periodic detention, community programme or community service than Pakeha/Other offenders, but less likely to receive a monetary penalty. The use of imprisonment did not differ between ethnic groups, once other factors had been taken into account (such as the differences between ethnic groups in the seriousness of offences committed and in the extent of previous offending).

### **Effects of criminal history variables**

Each of the criminal history variables shows some relationship to the probability of each type of sentence and various forms of these variables are significant in most of the

models. The greater the number, seriousness and frequency of previous cases, and the shorter the time since the previous case, the greater the probability of a prison sentence and the lower the probability of a monetary penalty.

Criminal history is a distinguishing factor between offenders sentenced to periodic detention compared to community service. As the number of previous cases increases, the probability of periodic detention increases, whereas the probability of community service decreases. However, at very high levels of previous offending the probability of periodic detention decreases again, as imprisonment becomes more likely. The probability of a supervision or community programme sentence also tends to be higher for offenders with a moderate to high level of previous offending, but the criminal history variables are of limited significance in the models for these sentences.

## **Effects of previous sentences**

The most recent sentence prior to the current case, and also other past sentences, have a significant influence on determining the current sentence. The previous sentence increases the risk of the same sentence or a more serious sentence, but decreases the risk of less serious sentences, all other factors being equal. For example, if the most recent sentence is a periodic detention sentence or the offender has had a periodic detention sentence in the past, there is an increased probability that the current sentence will be imprisonment, a suspended prison sentence or periodic detention, but a decreased probability of community service or a monetary penalty.

## **Interaction effects**

### **‘Fast-tracking’ or sentence escalation**

If having a previous community-based sentence decreases the probability of receiving a monetary penalty and increases the probability of receiving a further community-based sentence or prison sentence, then any increase in the use of community-based sentences may lead to a reinforcing cycle of sentence escalation, or ‘fast-tracking’ of offenders toward more serious sentences.

Therefore, the increased use of community service for offenders who would previously have received a monetary penalty may in turn have led to a greater use of community service and other community-based sentences for the same offenders when they are reconvicted. Following further reconvictions, the same process is repeated, increasing the use of more serious community-based sentences and ultimately putting pressure on the use of imprisonment.

With the increased use of community-based sentences a separate, but related, reinforcing effect is also likely. Increasing the number of people serving community-based sentences increases the number of people breaching these sentences. A breach of a community-based sentence, and especially a breach of periodic detention, puts the offender at higher

risk of a periodic detention or prison sentence, thereby further reinforcing increases in the use of these sentences.

This cycle of escalation will only occur if offenders serving community-based sentences have a similar or higher rate of reconviction than offenders who receive a monetary penalty (i.e. if community-based sentences reduce the rate of reconviction then there would be fewer re-offenders to whom sentence escalation could apply). However, analysis of reconviction rates indicates that the sentence imposed is not a major factor in determining the probability of reconviction and that, if anything, offenders sentenced to a monetary penalty have a lower reconviction rate than those sentenced to a community-based sentence.

One effect of sentence escalation is increased pressure on the use of imprisonment, as offenders are 'fast-tracked' up the penalty scale to imprisonment sentences. However, the effect of this has been countered in practice by the change in the use of imprisonment relative to community-based sentences. In particular, the use of imprisonment has significantly decreased since the 1980s for offenders who have breached a periodic detention sentence, for offenders whose most recent sentence was periodic detention or community service, and for offenders with several previous convictions.

### **Alternatives to imprisonment and 'net-widening'**

The original aims of extending the range of community-based sentences available and promoting the use of these sentences were to reduce the use of imprisonment and to encourage community involvement. Thus, community-based sentences were originally viewed as an alternative to imprisonment. Suspended prison sentences were also intended as an alternative to imprisonment.

Although imprisonment rates for many offences and offenders have decreased, these decreases have been very much smaller than the overall increases in the use of community-based sentences and suspended sentences. The widespread application of sentences intended as an alternative to imprisonment to offenders who would not otherwise have received a prison sentence is known as 'net-widening'.

One of the reasons it is so difficult to avoid net-widening is that there are a large number of offenders who have a moderate risk of imprisonment. As most offenders in this group receive a non-custodial sentence, it is possible to target the right general group of offenders, yet not actually impose the alternative sentence on the specific offenders who would otherwise have received a prison sentence. This is particularly so if, as for community service, the sentence is targeted at the lower end of the range, where the greatest numbers of offenders are.

# 1 Introduction

## 1.1 Statistical factors influencing sentencing

The aim of this research was to quantify the relative effect of various statistical factors on current and past sentencing practice in New Zealand. The research examines the individual and combined impact on sentencing of statistically-measurable variables, such as the seriousness of the offence committed and the previous criminal history of the offender. These factors are known to influence individual sentencing decisions (Hall 1998), but their overall contribution to sentencing across all criminal cases has never been quantified.

The two legal sources of guidance on sentencing are legislation and appellate decisions. Legislation limits sentencing discretion by setting a maximum penalty for each offence, in terms of the maximum fine or maximum term of imprisonment that can be imposed. In addition there are a limited number of mandatory and minimum penalties, such as life imprisonment for murder and driving disqualification for serious traffic offences.

However, for all but the most serious offences, the majority of convictions do not result in a prison sentence and, if they do, the sentence imposed is usually considerably less than the maximum penalty. For example, the maximum penalty for burglary is 10 years in prison, whereas the average prison term for burglary is less than one year and two-thirds of offenders receive a non-custodial sentence (Spier 1998).

Legislation offers less guidance on the use of the various community-based sentences (periodic detention, community service, community programme, and supervision) than it does on the use of imprisonment. Therefore, one objective of this research was to examine the use of community-based sentences, to determine what types of offence or offender are most likely to receive each community-based sentence and to compare the characteristics of offenders sentenced to community-based sentences with those sentenced to imprisonment.

The Criminal Justice Act 1985 also gives guidance on the use of imprisonment for violent offences and limitations on the use of imprisonment for young offenders and property offences. Less guidance is given on the relevance of factors other than offence type and seriousness, such as the characteristics of the offender (prior offending history, personal circumstances, ethnicity) and the particular circumstances of the case. The role of these factors in sentencing is discussed in detail in *Hall's Sentencing* (Hall 1998) and outlined briefly in section 2.2.1.

Therefore a further objective of this research was to quantify the effect of some of these variables. Two issues of particular interest are the influence of an offender's previous criminal history (such as the number of previous convictions) on the choice of sentence

and the extent of sentencing differences between offenders of different age, sex and ethnicity.

A multivariate method (logistic regression) was used so as to take account of the interactions among the variables. For example, imprisonment rates are lower for women than men. However, a difference in imprisonment rates would be expected given the lower average seriousness of offences committed by women and their less extensive prior offending history on average. The use of multivariate modelling allows the effects of all variables – seriousness, criminal history and gender - to be assessed together, so that the independent contribution of each variable can be determined.

The main limitation of this research is that it incorporates only the effects of those variables currently collected in statistical databases. Therefore, the effect of many of the aggravating and mitigating factors relevant to specific cases (such as the unique characteristics of the crime and the personal circumstances of the offender) cannot be included in the analysis.

The sentences examined in this study are imprisonment, suspended prison sentences, periodic detention, supervision, community service, community programme, and monetary penalties (fines and reparation). The sentence of driving disqualification was not included in the analysis as it is used only for traffic-related offences. The factors influencing the probability of receiving no sentence (e.g. a discharge with or without conviction) are summarised in Appendix I.

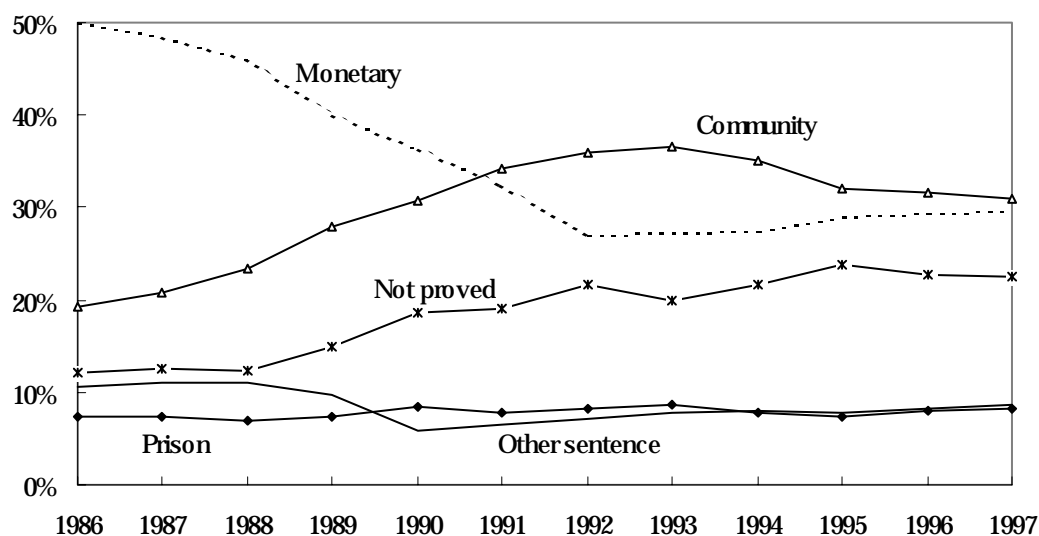
## **1.2 Changes in sentencing practice**

A further objective of this research was to determine whether sentencing practice has changed in recent years. A previous report (Triggs 1998) documented the very substantial changes in the use of different sentences over the 1986-1996 period. The key trends for imprisonable offences (Figure 1.1) are a substantial decline in the use of monetary penalties, compared to a large increase in the use of community-based sentences and in the percentage of cases that are not proved (especially those withdrawn following Police Diversion).

Such substantial changes in the use of different sentences indicates that either the type of offence or offender being dealt with by the courts has changed or sentencing practice has changed or both.

The previous study (Triggs 1998) found that these trends in sentencing have been influenced by a significant increase in the average seriousness of the cases being dealt with by the courts. However, at the time of writing of the previous report, detailed information was not available on the individual criminal histories of the offenders being sentenced. Therefore, the potential effect of changing offender characteristics could not be incorporated into the previous analysis.

**Figure 1.1: Percentage of prosecuted cases involving imprisonable offences resulting in each outcome, 1986-97**



Analysis of offender trends in the present report (section 3.2) indicates that the courts are not only dealing with more serious offences, but also with more persistent offenders. Therefore, at least some of the decrease in the use of monetary penalties and the increase in use of community-based sentences can be explained by these changes in the type of offence and offender being sentenced by the courts.

In addition, some changes in sentencing practice would be expected, given the legislative changes enacted over the last decade and a half. The Report of the Penal Policy Review Committee of 1981 (published in 1982) was influential in directing sentencing policy changes. Many of the recommendations of this committee were enacted by the Criminal Justice Act 1985. The terms of reference for the review included, amongst others, the following aims (page 10):

- (ii) To consider the means by which the incidence of imprisonment can be reduced to the greatest degree consistent with the maintaining of public safety.
- (iv) To investigate means of increasing the availability of sanctions that keep the offender in the community.’

Thus the aims were to promote the use of community-based sentences as an alternative to imprisonment and to restrict the use of imprisonment as far as possible to the most serious, violent and persistent offenders. Two new community-based sentences were introduced in the early 1980s; community service in 1981 and community programme in 1985.

The promotion of community-based sentences would appear to have been successful, as indicated by the rapid growth of the use of these sentences in the latter half of the 1980s

(Figure 1.1). However, the overall rate of imprisonment has not decreased by nearly as much as the use of community-based sentences increased, although imprisonment rates have decreased for many less serious offences (Triggs 1998).

In the present report, the causes of the recent significant changes in sentence use are re-examined, taking a greater range of factors into account and using multivariate analysis to examine the relative contribution of the various statistical factors. In particular, the focus was on estimating what proportion of the change cannot be explained by trends in statistical factors, which may indicate the extent to which sentencing practice has changed (i.e. the extent to which a person with the same statistical characteristics is now more or less likely to receive a given sentence than in previous years).

As the main objective of this analysis was to examine the shift in sentencing practice towards community-based sentences, only imprisonable offences were included in the analysis, as community-based sentences cannot be imposed for non-imprisonable offences. As sentences can only be imposed when the court case is proved, and criminal history data is only available for proved cases, this study is restricted to the analysis of proved cases.

The period covered by this analysis was also extended from the previous report, so that the legislative changes introduced by the Criminal Justice Act 1985 could be examined. Because it was not logistically feasible to examine criminal history information from every offender in every year, four evenly-spaced years were chosen for the analysis – 1983 (before the Criminal Justice Act 1985), 1987 (before the Children, Young Persons, and Their Families Act 1989), 1991 (before the Criminal Justice Amendment Act 1993), and 1995.

An additional objective of this research was to examine to what extent sentencing decisions are influenced by previous sentences or breaches of previous sentences. This issue is of interest as there is some concern that the rapid rise in the use of community-based sentences may be ‘fast-tracking’ offenders to more serious community-based sentences and prison sentences. This could be argued to have occurred if an offender who would previously have received a monetary penalty, but who now receives a community-based sentence, is more likely to receive a prison term if he or she breaches the community-based sentence or is reconvicted on another charge.

As the impact of fast-tracking can be affected by differences in reconviction rates between offenders who have served different sentence types, a brief analysis of reconviction rates by sentence type is included as an Appendix to this report.

### **1.3 Outline of the report**

The statistical methods used in this analysis are presented in Chapter 2, including a summary of the explanatory variables examined and their relevance to sentencing. Chapter 3 presents an analysis of the interrelationships between the explanatory variables and documents recent trends in these variables. Chapters 4-10 present the results of the



analysis for each sentence type, using both single-variable and multivariate analysis to assess the statistical factors influencing current and past sentencing practice. The factors influencing the probability of receiving no sentence are summarised in Appendix I.

The final chapter summarises the findings of the previous chapters, comparing the characteristics of offenders receiving each sentence and examining the changes in sentencing practice over the last decade and a half. The final chapter also looks in more depth at some of the interaction effects between different sentences, including the potential for net-widening effects for sentences introduced as alternatives to imprisonment and the potential effects of 'fast-tracking'.

A brief analysis of reconviction rates is included as Appendix II.



## 2 Statistical methods

### 2.1 Development of the data-sets

The two major aims of this research were to determine the statistical variables that influence sentencing decisions and to examine whether changes in sentencing practice have occurred since the Report of the Penal Policy Review Committee was published in 1982. Therefore, information was needed for a large sample of court cases from several years, including data on the offence(s) committed, the sentence imposed, and the demographics and previous criminal history of the offender.

Due to the large size of criminal history data-sets, not all years could be studied. Four evenly-spaced years were chosen for the analysis – 1983 (before the Criminal Justice Act 1985), 1987 (before the Children, Young Persons, and Their Families Act 1989), 1991 (before the Criminal Justice Amendment Act 1993), and 1995. 1995 was selected rather than the most recent year so that analysis could also be conducted (as part of a separate research project) on recidivism rates with a two-year follow-up period. The trends in sentencing have been relatively stable since 1995 (Figure 1.1), so 1995 should be indicative of current sentencing practice.

Every offender who had one or more proved cases involving an imprisonable offence in the selected years (1983, 1987, 1991, 1995) was included in the data-set. The analysis was restricted to imprisonable offences, as the aim was to compare sentencing for offences for which the full range of sentences are available. This excludes offences for which the maximum penalty is a fine (the majority of these being minor traffic and minor disorder offences). A few other offences which have undergone major changes since 1983 were also excluded (mainly minor traffic offences and offences against a variety of Acts relating to dog control, broadcasting, tax etc).

The relevant cases for each offender were selected using the charge-based data-sets developed by the Ministry of Justice from the Case-Monitoring sub-system of the Law Enforcement System computer (see Spier 1998 for more information on this database). Cases were formed from the charge-based data by selecting the most serious sentence imposed for all charges finalised on the same day. This sentence and the offence that led to it are termed the ‘current sentence’ and ‘current offence’ for each offender in each year. The number of charges finalised in the current case, the seriousness of the current offence, the plea, and the demographic details of the offender were also taken from this data source.

The criminal and traffic histories were then requested for each offender, as identified by the personal identifier code recorded in the charge-based data. The histories include records for any known aliases linked to this identifier. The criminal and traffic histories identify all past proved charges for each offender, including the details of the sentence

imposed, the offence, and the date the charge was finalised. These data were summarised into the required criminal history variables, as set out in section 2.2.2, and merged with the data on the current case.

The final data-sets, with one summary record per offender for each separate case in each year, represent a very large sample of offenders (63,011 in 1983, 76,467 in 1987, 77,278 in 1991 and 81,651 in 1995).

## **2.2 Selection of explanatory variables**

Explanatory variables are the statistical variables tested in the logistic regression models to see which factors best explain the variation in sentences imposed between individual offenders. The explanatory variables were chosen from the factors known to influence sentencing, as detailed in Hall (1998), but excluding those factors which could not be measured using the available computerised statistics. The potential influences on sentencing are outlined in section 2.2.1. The statistical variables available for this research are listed in section 2.2.2, along with the sub-categories selected for each variable.

### **2.2.1 Potential influences on sentencing**

#### **Seriousness and type of offence**

According to Hall (1998, page B/111): ‘The most significant factor in sentencing involves an assessment of the “gravity of the offence”... meaning both ‘the gravity of the particular crime’ (e.g. sexual violation is more serious than indecent assault) and ‘the particular set of acts or omissions proved against the offender in the particular case’ (e.g. the use of violence or a weapon, the degree of injury done or risked, the culpability of the offender, whether there was premeditation or provocation, and the vulnerability of and the degree of impact on the victim).

The seriousness of the offence can be included in the statistical analysis using the average seriousness score for each offence type, as measured by the Ministry of Justice seriousness scale. The specific circumstances of the case cannot be included in the statistical model.

The number of separate charges proved against the offender is also likely to be important. For example, a person being sentenced for ten burglaries, prosecuted as one case, is likely to receive a greater sentence than a person convicted of one burglary.

The specific type of offence may also be relevant, given the following Criminal Justice Act 1985 guidelines on sentencing:

- violent offenders should be imprisoned except in special circumstances (violent offenders are those convicted of an offence punishable by two or more years of imprisonment and who either (i) used serious violence or caused serious danger to the safety of another person, or (ii) used violence or caused danger and have a

- previous conviction within the previous two years for a similar offence punishable by two or more years imprisonment) (s5)
- people convicted of property offences punishable by seven years imprisonment or less should not be imprisoned, except in special circumstances (s6)
- custodial sentences may be imposed where the offender is unlikely to comply with other sentences (s9). [Therefore, if the current offence is a breach of another sentence, imprisonment may be more likely.]

As having a previous conviction for a violent offence can influence the sentencing decision, this was also included in the model.

### **Previous offending**

The relevance of previous offending to sentencing is summarised in *Sentencing Policy and Guidance: A Discussion Paper* (page 100; Ministry of Justice 1997):

‘In New Zealand case law there are two distinct yet related concepts regarding previous offending. New Zealand courts have clearly considered the absence of a criminal record as a mitigating factor, particularly where the person can demonstrate living in the community for many years with a ‘blameless record’, thus justifying a reduction in sentence. There are two sorts of reasons suggested for this approach. One is that persons who have not previously offended may be acting ‘out of character’ and that such people have built up credit (by establishing good character) which reduces their blameworthiness for offending. It follows that as convictions accumulate the credit diminishes. Where there has been earlier offending, credit may still be given (is built up again) for a subsequent significant period of law-abiding behaviour by way of reducing the effect of those previous convictions. The second is that someone offending for the first time may not have been fully aware of the seriousness of what they were doing, and is unlikely to infringe again in the same way if given a second chance in the form of a lesser sentence.’

‘The converse of the above is that New Zealand courts deal with previous offending as a potentially aggravating factor at sentencing. In so doing, the courts have been careful to stipulate that this should not amount to punishing the offender again for previous convictions, and that the sentence must remain in proportion to the seriousness of the current offence(s). The Court of Appeal has stated that previous convictions may be taken into consideration in determining the character of the offender, as part of the process of fixing the sentence for a particular offence committed by a person of that character. Previous offending has also been held to be relevant to determining how offenders may respond to a particular sentence.’

As Hall (1998, page B/195) notes: ‘A further aggravating factor is reoffending within a short time of previous offending...’.

Previous offending was included in the statistical models in a number of ways in an attempt to separate the potentially different effects of the number, seriousness, and

frequency of past offences and the offender's response to the sentences imposed. Variables tested in the model included the total number of previous proved cases, the accumulated seriousness of the previous cases, the rate of conviction, the gap between the current and most recent offence, the number and type of previous sentences imposed, the most recent sentence, and previous convictions for a breach of a sentence. As noted above, previous convictions for a violent offence were also included in the model.

### **Circumstances of the offender**

Hall (1998) sets out a number of characteristics that may be taken into account. Many of these could not be included in the analysis as they are not collected in the statistical data. Such factors include 'medical problems, personality disorders, emotional difficulties, financial difficulties, depression, overwork, marital and family problems' (Hall, 1998 page B/161) and the behaviour and circumstances of the offender subsequent to the offence (page B/199-2).

Of the behavioural characteristics, only the offender's plea could be taken into account. A plea of guilty may reduce the sentence depending on the circumstances of the case (Hall, 1998 page B/223-6). Personal characteristics that can be included in the statistical analysis are the age, sex and ethnicity of the offender.

Age is considered important as an indicator of rehabilitative potential (Hall 1998; page B/165-1). A youthful offender may therefore receive a lesser sentence than a more mature offender and, in particular, imprisonment sentences are to be avoided for young offenders where possible. The Criminal Justice Act 1985 states that prison sentences should not be imposed on a person under the age of 16, except for a purely indictable offence (s8). Periodic detention cannot be imposed on offenders aged under 15 years. The Youth Court cannot impose prison or community-based sentences.

In contrast, gender is not a factor in sentencing (Hall 1998, page B173-4):

'Difference in gender is not in and of itself a justification for discriminating between offenders; a female offender should not expect to be treated more favourably than a male.'

Likewise, people of different ethnic or cultural groups must be treated equally, although as Hall notes (Hall 1998, page B/172-173):

'the Court should impose the penalty which reflects matters of mitigation arising from the offender's background and personal situation, and which recognises the structure and operation of the society within which he or she lives, in particular the degree to which the offender's cultural or ethnic heritage predominates and any problems of a cross-cultural nature that may have been experienced' ... 'alternative means of rehabilitation which appropriately take account of different cultural or ethnic values should be utilised.'

## 2.2.2 Description of explanatory variables

Logistic regression models determine which statistical factors (explanatory variables) best explain the probability of an event. For the sentencing logistic models this corresponds to the probability of receiving a given sentence. In each case the sentence is coded as a dichotomous variable. For example, when examining the probability of imprisonment, the sentence is coded as either '1' (prison sentence) or '0' (any other sentence).

The explanatory variables, or factors tested for their influence on sentencing decisions, were also coded into dichotomous variables or discrete groups, even though continuous variables may be tested in logistic models. This was done to allow for the expected non-linear effects of the continuous variables on the intermediate sanctions. For example, while it is reasonable to expect the probability of imprisonment to increase as the seriousness of the offence increases, the same would not be expected for community-based sentences like periodic detention. Instead, the probability of periodic detention is likely to be lower for both low and high seriousness offences than for offences of moderate seriousness, as a monetary penalty is more likely for offences of very low seriousness and imprisonment for those of very high seriousness.

Some variables, such as the previous offending history, can be quantified in a number of ways. For example, the number of previous proved cases, the time that has passed since the last case, the rate of offending (convictions per year), and the seriousness of previous cases may all be important factors in determining an appropriate sentence.

The categories or sub-groupings of each variable were chosen on the basis of the approximate turning points in the relationships between the variables and the probability of each sentence type, as highlighted in the single-variable analyses in Chapters 4-10. For example, offences with seriousness scores of less than 20 are much more likely to receive a monetary penalty than more serious offences (section 10.2), while offence with a seriousness score of over 365 are more often associated with prison sentences (section 4.2).

For each variable, one category was excluded from the model to act as a reference level to compare other categories to. For example, for the ethnicity variable, the Māori and Pacific categories were entered into the model, with a combination group of all other ethnic groups (Pakeha/Other) serving as the reference group. For the continuous variables (e.g. offence seriousness), the category least likely to result in imprisonment (e.g. the lowest seriousness level) was selected as the reference level.

The explanatory variables tested in the models cover a range of potential influences on sentencing, as discussed in the previous section:

- **Current seriousness** – the seriousness score of the major offence in the current case (i.e. the seriousness score of the offence resulting in the most serious penalty), coded into five groups: >0-1 (reference level), >1-20, >20-180, >180-365, >365. The seriousness score does not measure the actual seriousness of the specific case, but

rather the average seriousness for the type of offence. As explained in Spier (1998, p10):

‘The seriousness score assigned to each offence is the average number of days of imprisonment imposed on every offender convicted of that offence between 1990 and 1994, where the average is taken over both imprisoned and non-imprisoned offenders. Suppose, for example, that between 1990 and 1994 there were 100 cases of offenders convicted of a particular offence. Of these cases, 50 resulted in a custodial sentence, and the average length of the custodial sentences imposed on these offenders was 30 days. The seriousness score for this offence is  $(30 * 50/100)$ , or 15.’

The reference group for the seriousness variable comprises offences of very low seriousness (>0-1), which are mainly minor traffic offences, with some property damage offences and other minor offences such as disorderly behaviour. Offences with a seriousness score of >1-20 include offences such as theft, cannabis use, common assault and breach of periodic detention. Offences with a seriousness score of >20-180 include offences such as driving while disqualified, burglary, fraud, and male assaults female (‘domestic violence’). Offences with a seriousness score of >180-365 include some more serious assaults and indecent assault, robbery and some drug dealing and serious property offences. Offences with a seriousness score of over 365 (i.e. offences resulting in average prison sentences of more than a year) are mainly serious types of violent offences such as aggravated robbery, sexual violation and assaults causing injury.

- **Current offence type** – the offence receiving the most serious sentence in the current case (imprisonable offences only), coded into nine groups, with property offences acting as the reference group:
  - ◆ Serious offences against the person: homicide, kidnapping, serious assaults, sexual offences, robbery, and threats to kill or cause grievous harm. Note that ‘offences against the person’ are mainly violent offences, but also include some offences not necessarily involving violence (e.g. incest). Serious offences against the person were separated out as serious types of violent offences are given special recognition in the legislation (see section 2.2.1). Not all the offences in this group are in the ‘Serious Violent’ category given special recognition for parole purposes.
  - ◆ ‘Domestic violence’: this offence group includes the offence categories most often linked with domestic violence (i.e. male assaults female, assault on a child, common assault - domestic), but excludes any domestic violence offences that are charged under other codes (e.g. grievous assault). Domestic violence was separated out as the growth of prosecutions for this offence are strongly associated with the increased use of supervision in recent years.
  - ◆ Minor offences against the person: less serious offences against the person such as common assault and threats or intimidation.
  - ◆ Property offences: burglary, theft, vehicle conversion, receiving stolen goods, fraud and property damage.
  - ◆ Drug offences.
  - ◆ Breach of periodic detention: this groups covers all breaches of community-based sentences, but the name of the group reflects the fact that 95% of the imprisonable offences in this group are breach of periodic detention, with the



remainder being breach of parole. Other breaches of community-based sentences are either non-imprisonable (breach of community service and supervision) or are not offences (community programme). Breaching a community-based sentence may influence the likelihood of receiving a further community-based or prison sentence.

- ◆ Other offences against justice: breach of bail (i.e. failure to appear), escaping custody, breach of a non-molestation or protection order, and other offences against the administration of justice.
- ◆ Disorder/other offences: a wide definition of offences against good order, including disorderly behaviour, trespassing, resisting or obstructing an officer, unlawful assembly, possession of a weapon, offences under the Arms Act, and any miscellaneous offences not covered by other categories.
- ◆ Traffic offences: all imprisonable traffic offences, including driving causing death or injury, driving while disqualified, and driving under the influence of alcohol or drugs.
- **Current charges** - the number of charges proved in the current case, coded into three groups: 1 charge (the reference group), 2-4 charges, 5+ charges.
- **Plea** – recorded guilty pleas (coded as 1) were compared to all other pleas (coded 0). The recording of the plea variable is imperfect as changes of plea from not guilty to guilty during the course of the case may not always be recorded. Therefore, this variable measures the minimum effect of a guilty plea.
- **Previous cases** - the number of previous cases proved against the offender, coded into four groups: no previous cases (first offender) and 1-3, 4-10, 11+ previous cases. First offenders were the reference group. Only proved cases are recorded in the criminal history data. A ‘first offender’ by this definition may have had previous contacts with the Police (e.g. they may have received a caution or warning) or other court cases where the offender admits guilt but the case is not formally proved (e.g. offenders who successfully complete Police Diversion and youth offenders dealt with by a Family Group Conference). All previous proved cases are included (both imprisonable and non-imprisonable offences).
- **Accumulated seriousness of previous cases** – a weighted sum of the seriousness scores of the most recent previous cases (up to a maximum of seven previous cases), with the seriousness of the most recent cases weighted most heavily (the seriousness of the most recent case plus 0.9 times the seriousness of the next most recent case plus 0.8 times the seriousness of the third most recent case and so on).<sup>1</sup> If a person has no previous cases this variable is set at zero. Coded into four groups: 0-10 (the reference group), >10-60, >60-180, >180.

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<sup>1</sup> The specification of this variable came from research on recidivism by the Psychological Service, Department of Corrections. I am grateful to Leon Bakker for sharing the findings of this research.

The seriousness of the most recent case was also tested separately, but was not found to add significantly to the analysis.

- **Time since the most recent case** – this was included in the analysis as a long gap between offences can be considered as a mitigating factor. The time was measured between the current and last conviction date or the estimated date of release if the last sentence was a prison sentence. For people with no previous convictions this variable is set to the total number of years in which a conviction could have occurred (current age in years minus 13 years). For a person convicted while already serving a prison sentence, the variable is set at zero. Coded into four groups: one month or less, more than a month to one year, >1-4 years, >4 years (the reference group).
- **Rate of conviction** – the total number of charges ever proved against the offender divided by the number of years over which proved offending has occurred (the time between the first proved case and the current case). For an offender with court cases only within a single year this variable is equal to the total number of proved charges in that year. Coded into three groups: 2 or fewer charges per year (the reference group), >2-8 charges per year, >8 charges per year.
- **Previous offence types** – the offence type of the most recent case prior to the current case, coded into six groups: offence against the person, property offence, drug offence, offence against justice, traffic offence, other offence. These variables were not found to add significantly to the analysis during initial tests, so were dropped from the final analysis. Two previous violent offence variables were also tested (any previous violent offence and any previous serious violent offence), but these were also dropped from the final analysis.
- **Previous breach** – whether the offender has ever breached any community-based sentence (periodic detention, community service, supervision, parole) prior to the current case.
- **Most recent sentence** – the sentence received in the most recent case prior to the current case, coded into seven groups: prison, periodic detention, community programme, community service, supervision, monetary penalty (the reference group) and other sentences (including no sentence).
- **Previous sentences** – whether the offender has ever received a previous sentence of each of seven types: prison, periodic detention, community programme, community service, supervision, monetary penalty (the reference group) and other sentences (including no sentence). To avoid overlap between variables, the most recent sentence is excluded. For example, if the most recent sentence was a prison sentence, the previous prison sentence variable indicates whether there have also been other prison sentences in the past.
- **Age** – age in years on the date the current case was finalised, in four groups: <17, 17-19, 20-29, 30+. The small number of offenders with an unknown date of birth were excluded from the data. The 20-29 age group was chosen as the reference group as

special consideration may be given to both younger and older offenders. Children aged under 10 years cannot be prosecuted and children aged 10-13 can only be prosecuted for murder or manslaughter. Most offenders aged under 17 years are dealt with by Family Group Conferences rather than by the courts, and so do not appear in the data used in this study. Of those who do go to court, many are dealt with solely by the Youth Court, which cannot impose prison or community-based sentences.

- **Sex** – females were coded as 1, males (and the 0.1% of people of unrecorded sex) were coded as 0.
- **Ethnicity** – coded into three groups: Māori, Pacific and any other ethnic group (the reference group). The 22% of people of unknown ethnicity were included in the reference group. Coding unknowns (some of whom will be Māori or Pacific peoples) this way means that any ethnicity-related effects will be slightly less significant than they would otherwise have been. This was seen as preferable to excluding all unknowns from the data, as this would have significantly biased the offence distribution, given that 95% of the people with an unrecorded ethnicity are traffic offenders.

This variable list is by no means exhaustive of the potential factors influencing sentencing. Factors that could not be quantified from the current statistical data collections could not be included. For example, many of the aggravating and mitigating factors outlined in the previous section could not be quantified. Also, better results may have been achieved by more extensive testing of different transformations of the variables given above. In particular, the interaction effects of different combinations of these variables were not extensively tested. (A potentially key interaction - that between previous cases and current seriousness - was tested, but was not found to add a great deal to the significance of the models.)

## 2.3 Fitting and testing of the logistic regression models

Logistic regression models determine which statistical factors (explanatory variables) best explain the probability of an event. For the sentencing logistic models this corresponds to the probability (statistical risk) of receiving a given sentence. Separate models were developed for each of the sentences examined: imprisonment, suspended prison sentences, periodic detention, community service, community programme, supervision and monetary penalties. In each case the outcome is coded as a dichotomous variable. For example, when examining the probability of imprisonment, the sentence is coded as either '1' (prison sentence) or '0' (any other sentence).

The statistical software procedure SAS-Logistic<sup>1</sup> was used to fit all the models. The variables that had a significant influence on predicting the probability of each sentence type were determined by a stepwise elimination procedure, with the entry and exit criteria set at a significance level of 0.05. That is, only variables which had a significant effect at the 95% confidence level were included in the final model. The significance of each model was estimated using the log likelihood ratio statistic, which tests the internal fit, or closeness of fit of the model to the data used to construct the model. The significance of the residuals (the error terms) was also tested.

Because a good fit may be achieved by chance if enough variables are tested, the models were also tested on unseen data. That is, each model was developed on one set of data and the fit of the model was tested on another equivalent set of data. In this initial test phase, models were fitted for each sentence type to half of the 1995 data (the ‘fitted data’) and tested on the other half of the 1995 data (the ‘test data’). These data-sets were selected by taking cases finalised in alternate months, so that any change in sentencing practice within 1995 would not bias the results.

The general predictive accuracy of each model over the range of predicted probabilities was then tested by plotting the actual proportion of offenders receiving each sentence against the predicted proportion at different levels of predicted sentence use. Good general predictive accuracy is achieved if the actual values are close to the predicted values for different levels of probability. For example, if a group of offenders has a 50% predicted probability of imprisonment according to the model, do close to half of them actually receive a prison sentence? The accuracy of predictions was also tested by checking the predicted probability against the actual percentage of people receiving each sentence across the full range of each variable.

If the fit to the test data was reasonable, a final 1995 model was estimated for each sentence type using all the 1995 data. The most significant explanatory variables in this model (those with the highest Chi-square value) indicate the statistical factors most strongly influencing current sentencing practice. The magnitude of the independent effect of each variable is given by the odds ratio, the ‘relative risk’ or amount by which that variable increases or decreases the probability of receiving the sentence being examined relative to the reference group.

If sentencing practice with respect to these statistical variables has not changed over time, the model derived from the 1995 data should fit the data from other years equally well. That is, a person with similar statistical characteristics should have a similar probability of receiving any given sentence in different years if sentencing practice has not changed (assuming there have not been major changes in the average value within sub-categories of continuous variables)

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<sup>1</sup> SAS is an integrated system of software providing data management, analysis and presentation tools from the SAS Institute, Cary, NC, USA.

The 1995 model was used to calculate the probability of receiving each sentence in each of the other years (1983, 1987, 1991) and this predicted probability was compared to the actual proportion of offenders receiving each sentence in these years. The fit of the 1995 model to each year was compared graphically by plotting the actual probability against the predicted probability for each year. In addition, the effect of specific variables on changes in sentencing practice were assessed by comparing the actual and predicted probabilities for 1995 with each of the other years for each variable.

The same methods were used to analyse the probability of receiving no sentence (Appendix I) and the probability of reconviction (Appendix II).



## 3 Explanatory variables: trends and relationships

### 3.1 Relationships between selected explanatory variables

An understanding of the interrelationships between explanatory variables is required to assist with interpreting the relationships between these variables and the use of different sentences.

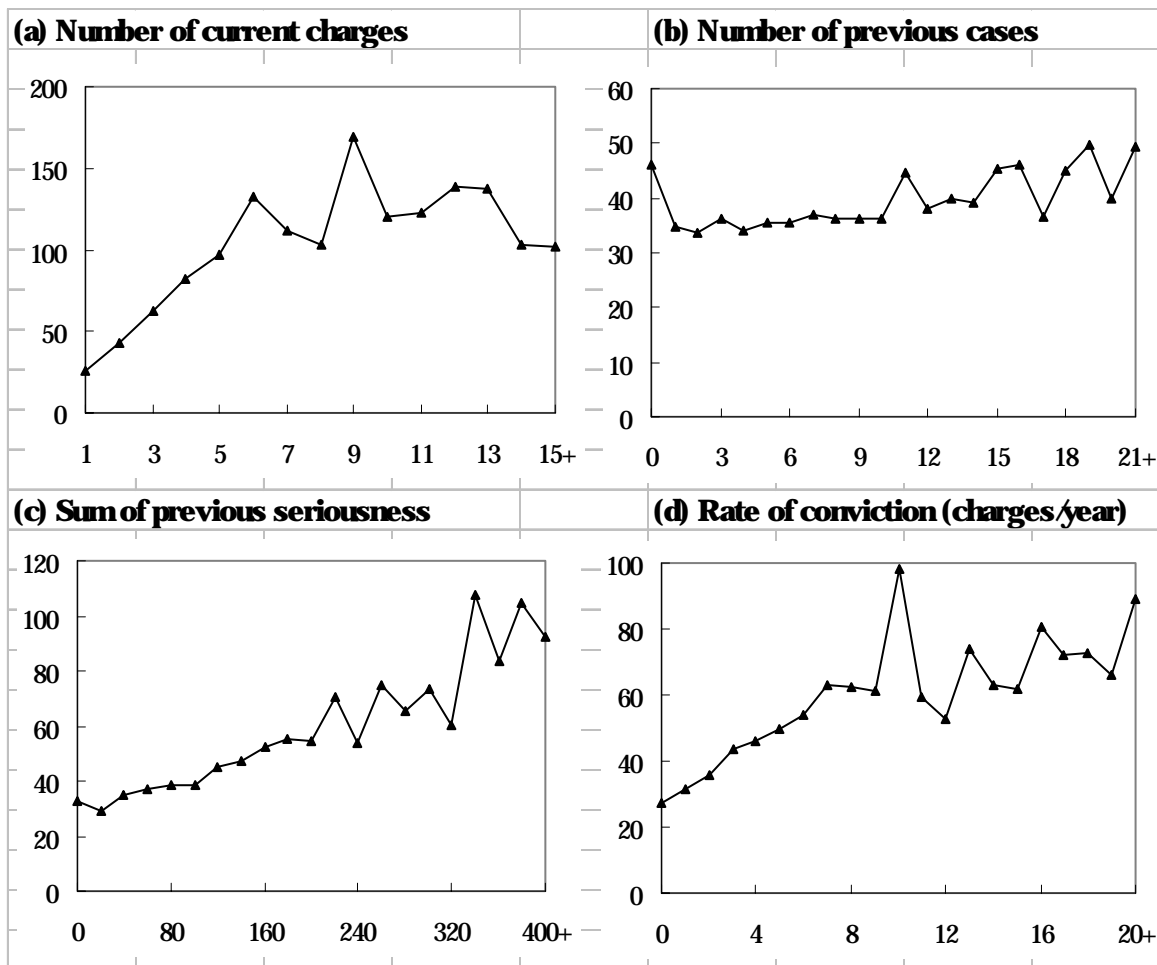
For example, the choice of sentence is likely to be influenced to a significant extent by the seriousness of the offence committed. Very serious offences will almost always result in imprisonment, while minor offences will more often result in a fine. Therefore, any other variable that is correlated with seriousness will also be correlated with the probability of receiving a prison sentence. The independent effect of that variable may actually be less once the effect of seriousness is taken into account. Conversely, some of the apparent effect of seriousness may be due to other factors.

Most of the variables used in this study show some relationship with the seriousness of the current major offence (Figure 3.1). The average seriousness tends to increase as the number of charges in the current case increases, at least over the range from one to about six charges. People convicted on several charges in their current case also tend to have a more extensive past criminal history (Table 3.1).

The average seriousness also increases with the weighted sum of previous seriousness scores, the rate of conviction (i.e. the frequency of offending or number of charges proved per year) and the number of previous proved cases, although the difference in the average seriousness score is not great between offenders with a few and those with many previous cases.

The average seriousness score for first offenders is anomalous in that it is higher (at 46) than the average for offenders with one previous case (35). This result is almost certainly due to the diversion of many first offenders who have committed offences of relatively low seriousness, as offenders successfully diverted through the Police Adult Diversion Scheme do not have their outcome recorded as a proved case (and therefore they do not appear in the data used for this study). Hence, first offenders who do appear in the data tend to have committed more serious offences.

Figure 3.1: Relationship between the average seriousness score (on the y-axis) and selected variables, 1995



The offence categories used in this analysis have very different average seriousness scores, the highest average being for serious offences against the person (homicide, serious assault, kidnapping, robbery and sexual offences). Traffic offenders are notable for their low values for all the criminal history variables (Table 3.1). In particular, people convicted for the less serious types of traffic offences form a very large proportion of first offenders.

If the most recent case prior to the current case resulted in one of the more serious sentences, especially imprisonment, the current case also tends to be more serious and the offender is more likely to have an extensive previous criminal history.



**Table 3.1: Average values of selected variables by current offence and previous criminal history, 1995**

Variable	Category	Current seriousness	Current charges	Previous seriousness <sup>2</sup>	Previous cases	
Rate of conviction <sup>1</sup>		Average value for each variable				
Current charges	1	26.3	1.0	7.0	2.1	73.5
	2-4	51.4	2.4	8.7	3.3	94.5
	5+	115.0	10.3	9.8	8.3	133.7
Current offence	Serious against person	504.0	2.9	7.7	3.5	147.6
	Domestic violence	26.3	1.5	7.7	1.8	84.5
	Minor against person	7.0	1.6	7.4	2.4	75.0
	Property	33.0	3.2	8.2	4.4	106.3
	Drugs	36.0	1.7	8.7	2.3	88.1
	Breach pd	11.8	1.9	10.6	4.3	129.2
	Other against justice	22.5	2.2	9.6	3.9	129.3
	Disorder/other	6.3	1.4	9.2	3.0	96.8
Traffic	9.3	1.5	6.5	2.0	52.9	
Previous cases	0	46.1	2.0	0.0	2.0	0.0
	1-3	34.7	1.9	1.9	2.5	41.9
	4-10	35.7	1.9	6.5	2.9	105.2
	11+	44.9	2.4	20.4	3.9	157.9
Previous seriousness	0-10	33.1	1.7	2.3	1.8	1.5
	>10-60	32.6	1.9	9.3	2.7	33.2
	>60-180	42.0	2.4	13.5	4.1	104.6
	>180	76.5	2.7	13.4	5.3	494.7
Rate of conviction	<= 2 charges per year	31.7	1.4	4.5	1.0	49.5
	2-8 charges per year	46.6	2.4	12.3	4.0	125.2
	>8 charges per year	71.2	6.2	10.5	13.8	165.2
Time since previous case	1 month or less	45.9	2.1	12.3	5.3	166.3
	>1 month-1 year	38.1	2.3	10.7	4.1	111.0
	>1-4 years	44.8	2.0	8.0	2.0	85.6
	>4 years	35.0	1.7	1.9	1.3	19.5
Most recent sentence	Prison	82.0	2.9	15.6	5.7	309.8
	Periodic detention	37.9	2.2	11.7	3.7	121.0
	Comm. service	45.7	2.5	11.6	4.2	156.4
	Comm. programme	30.4	1.8	6.9	2.4	69.2
	Supervision	41.5	2.3	9.4	3.8	122.0

<sup>1</sup> Proved charges per year between the date of the first and current proved case.

<sup>2</sup> Weighted sum of the seriousness score of the seven previous cases.

Most youth offenders (those aged less than 17) are diverted from the formal court process, leaving only the most serious offenders to be dealt with by the courts. Hence those young people who do have a proved case recorded in the data-base tend to have

committed a very serious offence (Table 3.1). They also most often appear as ‘first offenders’ (or more accurately as offenders with no previous recorded proved case). For adult offenders the main trend is an increase in the number of previous cases through the late teens and twenties.

Females are more likely than males to be convicted for offences of low seriousness, to have fewer previous cases and to have a lower past seriousness score (Table 3.2). Māori and Pacific offenders have a higher average seriousness score for the current major offence than Pakeha/Other offenders (i.e. all non-Māori, non-Pacific ethnic groups combined). Māori offenders are also more likely to have several previous cases and a higher past seriousness score.

**Table 3.2: Average values of selected variables by demographic group, 1995**

Variable	Category	Current seriousness		Current charges		Previous cases
		Rate of conviction <sup>1</sup>	Previous seriousness <sup>2</sup>			
Average value for each variable						
Total	All variables	39.5	2.0	7.7	2.9	83.6
Age	<17	202.7	5.1	0.8	7.9	80.6
	17-19	38.2	2.1	2.5	5.0	67.2
	20-29	34.8	2.0	8.0	2.9	91.7
	30+	40.5	1.9	10.3	1.6	81.7
Gender	Female	23.9	2.3	4.2	2.5	41.9
	Male	42.2	2.0	8.3	3.0	90.8
Ethnicity	Māori	46.3	2.2	9.7	3.3	121.0
	Pacific	60.5	2.0	5.6	2.8	90.8
	Pakeha/Other	39.1	2.0	7.8	2.9	69.8

<sup>1</sup> Proved charges per year between the date of the first and current proved case.

<sup>2</sup> Weighted sum of the seriousness score of the seven previous cases.

## 3.2 Trends in the explanatory variables

The recent trends in sentence use have been influenced by changes in the type of offences dealt with by the courts, as documented in a previous report (Triggs 1998). In particular, the criminal courts are dealing with more serious offences on average now than a decade ago. Between 1983 and 1995, the average seriousness of offences in this analysis increased by over 50% (Table 3.3). This is due to a combination of factors:

- The number of serious offences (especially violent offences and offences against justice) recorded by the Police has increased more rapidly than the number of less serious offences (such as property offences).
- An increase in the use of alternatives to court prosecution and sentencing, including a greater use of warnings and cautions for less serious offences, the diversion of adult first offenders through the Police Adult Diversion Scheme from the late 1980s, and

the use of Family Group Conferences for most youth offenders (aged under 17) following the introduction of the Children, Young Persons, and Their Families Act 1989.

- The decriminalisation of a number of less serious offences, notably minor traffic offences (although this has had most effect on non-imprisonable offences, which are excluded from the present analysis).

**Table 3.3: Average values for selected variables and the percentage change in the average between 1983 and 1995**

	1983	1987	1991	1995	Percent change
Current seriousness	25.9	30.8	31.9	39.6	53.0
Current charges	1.8	1.9	1.9	2.0	11.9
Previous cases	3.9	4.7	6.8	7.7	96.4
Previous seriousness	54.2	62.4	68.0	83.7	54.6
Rate of conviction	2.7	2.7	2.6	2.9	5.6
Time since previous case	5.4	4.7	4.2	3.8	-28.4
Previous prison sentences	0.65	0.71	0.89	1.05	61.8
Previous pd sentences	0.42	0.63	1.16	1.57	272.6
Previous comm. programme/care	-	0.02	0.04	0.06	-
Previous comm. service	0.03	0.05	0.12	0.25	709.2
Previous supervision/probation	0.30	0.28	0.32	0.36	19.3

A new finding is the extent of the increase in the average number of previous court cases per offender (Table 3.3). This has almost doubled, from an average of under four previous cases per offender in 1983 to almost eight previous cases in 1995. The average past seriousness (the weighted sum of the previous seven seriousness scores) has also increased significantly, with a shorter average time since the most recent past case.

Although the average number of previous cases has increased, the overall rate of conviction (the number of proved charges per year) has changed relatively little. Thus, while the average number of proved charges per year has hardly changed, the average number of previous cases has still increased due to an increase in the average number of years over which convictions have accumulated, as discussed below, as well as a slight increase in the number of proved charges per case.

The average number of previous prison and community-based sentences has also increased between 1983 and 1995, especially for periodic detention and community service. As community service was only introduced in 1981 and has increased in use greatly since then, the marked increase in the number of previous community service sentences per person is not surprising. Community programme (formerly community care) was not introduced until 1985, so no percentage change over the 1983-95 period is shown.

These trends have been strongly influenced by the decreasing number of first offenders whose court cases result in a proved outcome. For example, just under half of the total increase in the average number of previous cases per offender is due to a reduction in the number of first offenders. The number of proved, imprisonable cases involving first offenders has decreased by 35% between 1983 and 1995. Far fewer first offenders appear in the proved case statistics in 1991 and 1995 compared to 1983 and 1987, due to the large number of first offenders who go through the Police Adult Diversion Scheme (who have their cases withdrawn) and due to the processing of most youth offenders aged under 17 through Family Group Conferences.

The first offenders who do appear in the proved case statistics by 1995 had also committed more serious offences (an average seriousness of 46) compared to 1983 (average seriousness 17), as the less serious cases are more likely to be diverted. By 1995, a number of people who appear to be 'first offenders' according to their official criminal histories may in fact have made an appearance at a Family Group Conference or have been diverted as adults.

However, even if first offenders are excluded from the analysis, there is still a significant increase in the average number and seriousness of previous cases. There were almost twice as many offenders in 1995 than in 1983 who had six to ten previous proved cases and over three times as many offenders who had more than ten previous proved cases. In contrast, the number of offenders with one previous proved case showed a small decrease and the number of offenders with two to five previous cases showed only a small increase.

The increasing number of offenders with a large number of previous cases is largely a reflection of the growing number of older offenders (especially offenders aged 30 or more) and their increasing average length of 'criminal career', with an associated increase in their number of previous convictions. Between 1983 and 1995 the number of proved, imprisonable cases involving people aged 30 or more doubled, while the number of older offenders with more than ten previous cases increased by over five times. The average number of years between the first and last recorded case (the current 'criminal career' length) increased from 7.5 years in 1983 to 14.3 years in 1995 for offenders aged 30 or over.

The number of proved cases involving people aged 25-29 has also increased significantly (by 79%), while the number of these offenders with more than ten previous cases increased by over three times. The average 'criminal career' length for 25-29 year olds increased from 6.4 years to 8.6 years over the 1983 to 1995 period.

In comparison, the number of proved cases involving people aged 20-24 showed a smaller overall increase (18%), although the number with more than ten past cases increased by 64%. The number of proved cases involving people aged 17-19 decreased slightly between 1983 and 1995 and there are seven times fewer proved court cases involving youth offenders (aged less than 17), mainly due to diversion of youth offenders from the formal court process following the introduction of the Children, Young Persons, and Their Families Act 1989.

Thus, there have been significant changes since 1983 in both the type of offences and the type of offenders dealt with by the courts. These changes would be expected to have a significant impact on the type of sentence imposed, even if sentencing practice on a case-by-case basis has not changed. In this report, each sentence is examined to quantify the extent of the changes and to assess whether sentencing practice has also changed.



# 4 Imprisonment

## 4.1 Background

Imprisonment is the most serious sentence available in New Zealand. This analysis groups all types of prison sentences together, including corrective training, life imprisonment and preventive detention. Corrective training is a short prison sentence for 16-19 year old offenders. Life imprisonment and preventive detention are sentences of indeterminate length (for which a minimum of 10 years must be served), used respectively mainly for murder and serious repeat sex offences. Suspended prison sentences are not included as a prison sentence (see Chapter 5).

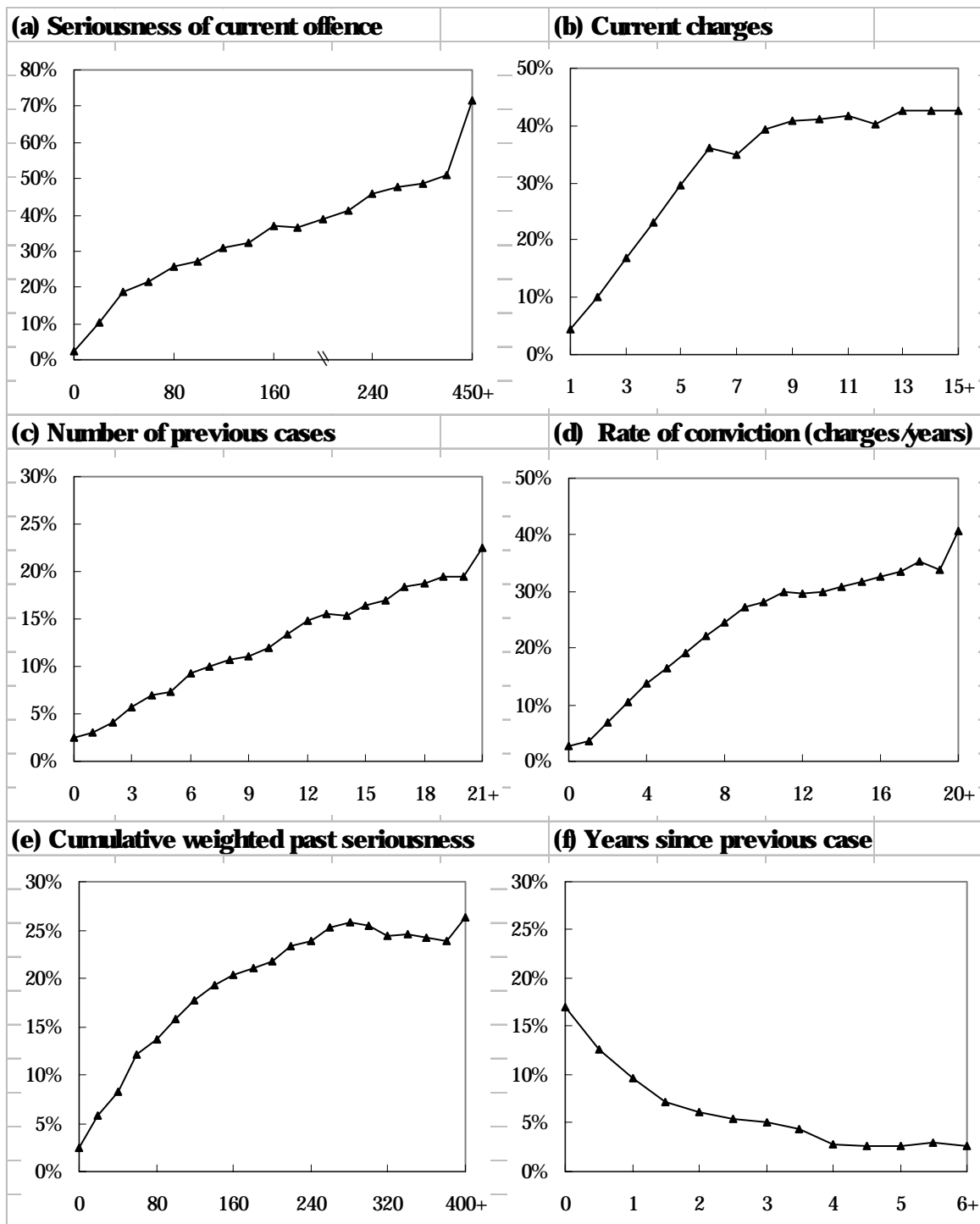
The Report of the Penal Policy Review Committee (1982, page 42) made it clear that imprisonment should be considered the sanction of last resort, to be used only for offenders who represent a serious threat to the life or personal security of others, or who commit serious property crimes, or whose behaviour violates fundamental values, or who wilfully fail in carrying out the obligations imposed under other types of sentences. These principles were enacted by the Criminal Justice Act 1985.

This chapter examines which statistical factors most influence the use of imprisonment sentences, looking first at the variables individually and then at their combined effects using multivariate modelling techniques. Changes in the use of imprisonment are analysed in the final section of this chapter.

## 4.2 Single variable analysis of current factors influencing sentencing

The probability of receiving a prison sentence is associated with a range of factors, from the seriousness of the current offence and the past history of the offender (Figure 4.1) to the type of offence and offender. Overall, 9% of the offenders who had a proved case in 1995 received a prison sentence. The probability of imprisonment increases from almost zero for offences with a low seriousness score to over 70% for offences with a seriousness of 450 or more (Figure 4.1a). Given that the offence seriousness is measured by the average (over a large number of cases) of the number of days of imprisonment imposed for each offence type, the very strong relationship between the seriousness score and the probability of receiving a prison sentence is to be expected. The probability of imprisonment tends to be between 70-90% even for offences that are, in general, considered to be extremely serious (such as offences with an average seriousness score of over 1000), indicating that the individual circumstances of the case or offender have an influence even for very serious offences.

Figure 4.1: Percentage of offenders receiving a prison sentence in 1995 for selected variables



Notes: Current seriousness (seriousness score of current offence) is rounded to the nearest 20 up to 200; then to nearest 60. Rate of offending is rounded to the nearest 1 charge per year. Cumulative weighted past seriousness is rounded to the nearest 20. Years since previous offence (or since end of previous prison sentence) is rounded to the nearest 0.5 years. Trends smoothed where number of people in group is low.

Although all the other variables examined are also strongly associated with the probability of receiving a prison sentence, no single value of any other factor alone predicts much more than a 40% probability of imprisonment. Also, some of the relationship between



these variables and the use of imprisonment may be due to interaction effects between the offence seriousness and other variables.

For example, the probability of receiving a prison sentence rises sharply with the number of current charges proved against the offender, mainly for the first six charges (Figure 4.1b). Thus, only 4% of offenders convicted on one charge received a prison sentence, compared to 36% of offenders convicted on six charges (i.e. six separate offences prosecuted as one court case). However, the average seriousness score of a case and the number of current charges are correlated, such that people with a smaller number of charges also have a lower average seriousness score. Therefore, some of the relationship between the number of charges and the probability of a prison sentence is likely to be due to the higher average seriousness of the current major offence in cases involving multiple charges.

Most other variables are also correlated with offence seriousness (section 3.1). The combined effect of all variables can be taken into account using multivariate modelling, as discussed in the following section.

The criminal history of the offender is also important. The more previous cases an offender has, the more likely the outcome of the current case will be a prison sentence (Figure 4.1c). Beyond about 20 previous cases the trend levels out at around 20-25% of offenders receiving a prison sentence. A history of serious offending is also more likely to result in a prison sentence. People with a high rate of conviction (i.e. frequent offenders) also have a higher probability of imprisonment, while people who have not been convicted for a number of years are less likely to be sent to prison.

The percentage of offenders receiving a prison sentence is higher if the most recent sentence prior to the current case is also a prison sentence (38%), than if the previous sentence was periodic detention (14%), community programme (13%), supervision (10%), community service (4%) or a monetary penalty (4%).

A smaller proportion of proved cases with a female defendant result in a prison sentence (3%) than for males (10%). Māori have a higher proportion of cases resulting in a prison sentence (12%) than either Pacific peoples (10%) or Pakeha/Other (8%). Teenagers have a lower rate of imprisonment (7%) than adults of all ages (8-10%). However, all of these groups have very different profiles in terms of both the type and seriousness of offending and in terms of their criminal history (section 3.1). The multivariate model (see following section) takes account of these differences, so that the independent effect of demographic variables can be assessed.

By offence group, serious offences against the person have by far the highest imprisonment rates. For this offence group (which includes homicide, serious assault, robbery, and sexual offences), 46% of proved cases result in a prison sentence. Imprisonment rates per proved case for other offence groups are 16% for breach of periodic detention, 14% for other offences against justice, 10% for domestic violence and property offences, 7% for drug offences, and 4-5% for minor offences against the person, disorder offences and traffic offences (imprisonable offences only).

## 4.3 Multivariate analysis of current factors influencing sentencing

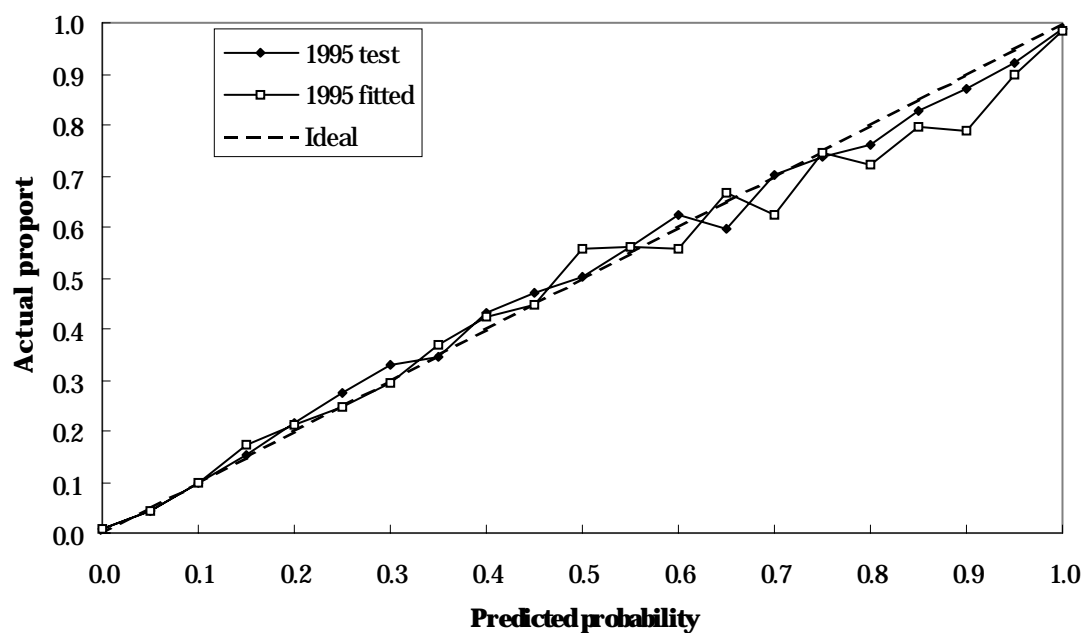
### 4.3.1 The fit and accuracy of the 1995 model

The logistic regression models of the probability of imprisonment achieved a significant overall fit to both the full and half 1995 data, as indicated by log likelihood ratios significant at the 0.0001 level of probability and a non-significant residual (unexplained variation) term.

The results of the test phase (Figure 4.2) indicate that the prison model achieves a good general predictive accuracy. That is, when the actual imprisonment rates are plotted against the probability of imprisonment predicted by the model, the results are close to the ideal line (the ideal line being where the actual probability is equal to predicted probability).

One of the potential problems of developing the regression models is that a good fit to the data may be achieved by chance by testing a large number of variables. To check whether this is a problem, the model was tested on unseen data. The outcome of this test showed that the results were equally good when the model developed using one half of the 1995 data (the 'fitted data') was used to predict probabilities on the other, unseen half of the 1995 data (the 'test data').

**Figure 4.2: Plot of the predicted probability versus the actual proportion of offenders receiving a prison sentence, 1995 fitted and test data**



Not only was the fit good, but the model was able to discriminate over the full range of probability. Thus, certain combinations of factors identified offenders with close to a 100% probability of imprisonment, while other offenders had nearly a zero risk of imprisonment. However, only a small number of offenders have a high risk of imprisonment, while the vast majority have a very low risk. This skewed distribution of the numbers in each risk group (i.e. at each level of predicted probability) has significant implications for the introduction of sentences that act as alternatives to prison. These implications are discussed in more detail in section 11.4.2.

### 4.3.2 Results of the 1995 model

The results of the 1995 logistic regression model show the factors that are most important in determining the likelihood of a prison sentence (Table 4.1). Combining all variables into one model allows the relative importance of the various factors to be accounted for. The table is ordered by variable type to assist with the comparison between categories. The 'rank' column indicates the approximate relative significance of each variable in the model, with the most significant category (the highest Chi-square value) ranked '1'. Variables that are not significant are shown as '-'. A large number of variables have an effect on the probability of imprisonment and most are significant at a probability of 0.0001. As a whole the model is highly significant, with a probability value for the log likelihood ratio of less than 0.0001.

The odds ratio is a measure of the relative risk of imprisonment. An odds ratio of less than 1.0 means that offenders with that characteristic are less likely to receive a prison sentence relative to the reference group, if all other factors are equal. Conversely, odds ratios of more than 1.0 indicate a greater probability of imprisonment. For example, an offender charged with five or more offences, who is in every other way statistically the same as someone charged with one offence, is much more likely to receive a prison sentence (the odds ratio or relative risk is 6.2).

The results indicate that the seriousness of the major offence and the number of proved charges in the current case are major contributors to the probability of imprisonment. In particular, people who have committed offences of high seriousness or who have committed several offences have a high risk of imprisonment relative to the reference groups (i.e. offences of very low seriousness and one charge).<sup>3</sup>

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<sup>3</sup> The very low seriousness (reference) group (seriousness scores of >0-1) are mainly minor traffic offences and other minor offences such as property damage and disorderly behaviour. The >1-20 group includes offences such as theft, cannabis use, common assault and breach of periodic detention; the >20-180 group include driving while disqualified, burglary, fraud, and male assaults female; the >180-365 group include some more serious assaults, robbery and serious property offences; the high seriousness group (>365) is mainly serious types of violent offences (e.g. aggravated robbery, sexual violation and assaults causing injury) or Class A drug dealing.

**Table 4.1: Logistic regression model of the probability of imprisonment, 1995**

Variable	Category	Odds ratio	Chi-square	P	Rank
Current seriousness	>1-20	1.157	4.0	0.0444	37
	>20-180	4.006	479.2	0.0001	6
	>180-365	17.027	803.2	0.0001	3
	>365	52.918	1379.4	0.0001	2
Current charges	2-4	2.324	608.4	0.0001	5
	5+	6.240	1458.8	0.0001	1
Current offence	Serious against person	3.298	334.8	0.0001	7
	Domestic violence	1.344	20.3	0.0001	22
	Minor against person	1.594	28.9	0.0001	20
	Drugs	1.415	28.7	0.0001	21
	Breach pd	2.820	242.8	0.0001	9
	Other against justice	1.730	32.4	0.0001	19
	Disorder/other	-	-	-	-
	Traffic	0.887	7.4	0.0065	30
Plea	Guilty	0.813	17.8	0.0001	24
Gender	Female	0.518	112.1	0.0001	14
Age group	<17	0.158	151.2	0.0001	10
	17-19	-	-	-	-
	30+	1.090	5.7	0.0165	33
Ethnicity	Māori	-	-	-	-
	Pacific	-	-	-	-
Most recent sentence	Prison	4.088	788.0	0.0001	4
	Periodic detention	1.631	120.1	0.0001	13
	Comm. programme	1.391	5.0	0.0252	34
	Comm. service	0.785	7.3	0.0067	31
	Supervision	1.276	9.5	0.0021	28
Previous sentence	Prison	1.616	120.9	0.0001	12
	Periodic detention	1.159	8.6	0.0034	29
	Comm. programme	1.137	6.2	0.0129	32
	Comm. service	-	-	-	-
	Supervision	1.080	4.8	0.0292	35
Previous offence	Breach cbs	1.189	18.8	0.0001	23
Previous proved cases	1-3	0.832	12.1	0.0005	27
	4-10	-	-	-	-
	11+	1.097	4.4	0.0363	36
Previous seriousness	>10-60	1.578	55.4	0.0001	18
	>60-180	1.863	97.0	0.0001	17
	>180	2.010	104.6	0.0001	16
Time since previous case	1 month or less	3.933	334.4	0.0001	8
	>1 month-1 year	1.987	104.7	0.0001	15
	>1-4 years	1.279	12.4	0.0004	26
Rate of conviction	2-8 charges per year	-	-	-	-
	>8 charges per year	1.650	122.0	0.0001	11

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

The type of offence committed is also important, even when the average seriousness is also taken into account. Serious offences against the person (homicide, serious assault, robbery and sexual offences) have a disproportionately high rate of imprisonment, as expected given the clear directions regarding serious violence in the Criminal Justice Act 1985 and its later amendments. Other types of offences against the person and drug offences are also more likely to result in a prison term, all other things being equal. Traffic offences are the only offence group with a lower relative risk of imprisonment than the reference group (property offences).

A prison sentence is also more likely if the offender is being sentenced for a breach of periodic detention or another offence against justice (e.g. breach of bail, escaping custody, obstructing justice) or has ever breached any community-based sentence in the past. Presumably this is because the offender has shown an inability to comply with the conditions of other sentences. Similarly, if the offender has already served a serious sentence (prison or periodic detention), especially as the most recent sentence prior to the current conviction, the likelihood of imprisonment is increased.

Other factors relating to the past behaviour of the offender are significant, but account for a much smaller percentage of the variation explained by the model. Higher relative risks of imprisonment are associated with very high rates of conviction (i.e. frequent offenders), a very large number of previous cases, a high accumulated seriousness of previous offending and a short time since the most recent previous case.

The age of the offender is also of some relevance. The very low odds ratio for offenders aged under 17 (0.158) relative to adult (20-29 year old) offenders, indicates that they have a very low relative probability of receiving a prison sentence once other factors have been taken into account. This result reflects the strong guidance on the use of non-custodial sanctions for youth offenders, as enacted by the Criminal Justice Act 1985 and the Children, Young Persons, and Their Families Act 1989.

The fact that the actual percentage of offenders aged under 17 years old receiving imprisonment is only slightly lower (at 7%) than for adult offenders (8-10%) is explained by the very different characteristics of youth offenders who have their case proved. In particular, the average seriousness score for youth offenders is six times the average for adult offenders (section 3.1), as in general only the more serious cases involving youth offenders are dealt with by the courts.

So far all the factors presented have had an effect in the expected direction. The one apparently counter-intuitive result in the model is the lower probability of a prison sentence for people with one to three previous cases, compared to first offenders, all other things being equal. Given that this variable is one of the less significant in the 1995 model and did not occur in models for other years, this may indicate an error due to chance.

However, there is another possible explanation of this result. The Police Diversion Scheme, introduced in the late 1980s and recently expanded, diverts a large number of first offenders who have committed less serious offences, including many offences that

are considered quite serious, but where the particular circumstances of the offence are at the lower end of the average for the offence. Diverted offenders do not receive a conviction and therefore do not appear in data used for this study. Therefore, by 1995, first offenders who do get convicted not only have a much higher average seriousness score (46 in 1995 compared to 17 in 1983), but may also have committed offences that are more serious relative to the average for the particular offence types on which the average seriousness score is based.

The low relative probability of imprisonment for women is another interesting finding. The low imprisonment rate for women compared to men is well documented (3% of cases involving imprisonable offences result in imprisonment compared to 10% for men), but this difference can be partly explained by the different characteristics of female offenders. For example, women tend to commit offences of lower seriousness (the average seriousness score for cases involving women is 23 compared to 42 for men), women are less likely to commit violent offences, and women have fewer previous convictions on average than men (4.2 previous cases compared to 8.3 for men). The results of the logistic modelling indicate that even after taking these differences into account, women are less likely to receive a prison sentence than men.

Neither Māori nor Pacific peoples were more likely to receive a prison sentence than Pakeha/Other offenders. The higher rate of imprisonment for Māori offenders (12% of cases involving imprisonable offences result in imprisonment for Māori compared to 10% for Pacific and 8% for Pakeha/Other ethnic groups) is therefore explained by differences in the seriousness of offending and the criminal histories of Māori offenders. For example the average seriousness score was 46 for Māori offenders, 61 for Pacific peoples and 39 for Pakeha/Other offenders, while the average number of previous cases was 9.7 for Māori, 5.6 for Pacific peoples and 7.8 for Pakeha/Other offenders.

#### **4.4 Changes in the use of imprisonment**

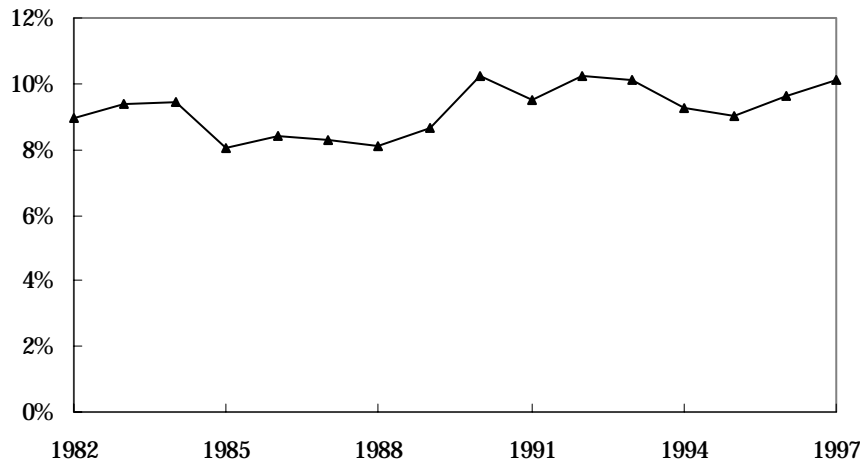
The percentage of all proved cases that result in a prison sentence for imprisonable offences has fluctuated between 8% and 10% between 1982 and 1997, with little overall change (Figure 4.3).

However, the significant increases in the average seriousness of offences and in the proportion of persistent offenders being dealt with by the courts over this period (section 3.2) should have led to an increase in the percentage of offenders imprisoned, if sentencing practice has not changed over time.

The effect of these trends can be accounted for by using the logistic model developed using 1995 data to predict the probability of imprisonment for the offenders in earlier years. For example, an offender in 1983 who has the same criminal history and current case characteristics as a person in 1995, as measured by the variables used in this study, would have the same predicted probability of imprisonment. The predicted probabilities can then be compared to the actual proportion of people receiving a prison sentence in

each year. Any difference between the actual and predicted probability is therefore due to changes in sentencing practice, at least with respect to the statistical variables used in this study.

**Figure 4.3: The percentage of proved cases resulting in a prison sentence for imprisonable offences, 1982-1997**

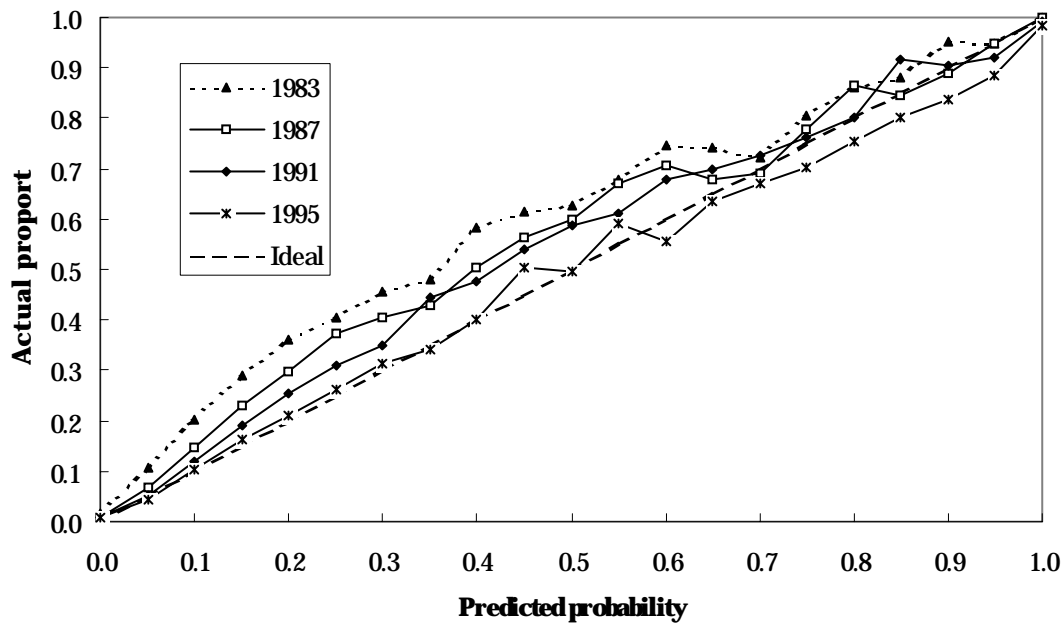


The results suggest that there has been a change in sentencing practice. Estimated changes in sentencing practice over the range of imprisonment probabilities are illustrated in Figure 4.4. The data points in the 1983 line all lie considerably above the dotted line (at which the actual equals the predicted probability). This indicates that a statistically equivalent offender would have had a higher probability of receiving a prison sentence in 1983 than in 1995. For example, 63% of offenders whose predicted (1995) probability of imprisonment is 50% actually received a prison sentence in 1983. Offenders were also slightly more likely to receive a prison sentence in 1987 and 1991 compared to 1995.

Some changes in sentencing practice would be expected, given the legislative changes since 1983. For example, the decrease in the use of imprisonment in the mid 1980s reflects the introduction of presumptions against the use of imprisonment for less serious property offences and youth offenders in the Criminal Justice Act 1985. The introduction of the suspended prison sentence in 1993 is partly responsible for the decrease between 1993 and 1994. Further information on changes in imprisonment rates by offence type is given in Triggs (1998, page 80).

Overall, an estimated 5.8% of offenders would have been expected to receive a prison sentence in 1983 if 1995 sentencing practices had been applied in 1983, compared to the actual figure of 9.5% (Table 4.2). As expected, given the Criminal Justice Act 1985 changes, the actual imprisonment rate decreased between 1983 and 1987 even though the statistical trends would have predicted an increase.

Figure 4.4: Comparison among years of the actual and predicted probabilities of imprisonment, with predictions made using the 1995 model



Similarly, there was a slight drop in the actual imprisonment rate between 1991 and 1995, whereas a significant increase would have been predicted. It is possible that the change in sentencing practice may also have been influenced by trends in other factors (such as the prevalence of aggravating or mitigating circumstances in individual cases) that could not be quantified in this study.

Actual imprisonment rates for offences of the same seriousness are similar for 1983 and 1995 (Figure 4.5-1a). However, the predicted values for 1983 are below the actual values for offences up to a seriousness score of about 300, indicating that these offences were more likely to receive a prison sentence in 1983 than they would have been in 1995 (Figure 4.5-1b, Table 4.2). Offences with a seriousness score of 180 or less (that is, most offences other than the more serious violent, sexual and drug dealing offences) were almost twice as likely to receive a prison sentence in 1983 than they would have been had 1995 sentencing practices applied.

The reason that the predicted line for 1983 is lower than the predicted line for 1995 is that people convicted of offences of low to moderate seriousness in 1983 had other characteristics that made them less likely to receive a prison sentence than the average offender in 1995. For example, offenders whose major offence was in the seriousness range 100-200 had an average of 5.2 previous cases and 1.1 previous prison sentences in 1983 compared to 8.7 previous cases and 1.6 previous prison sentences in 1995.

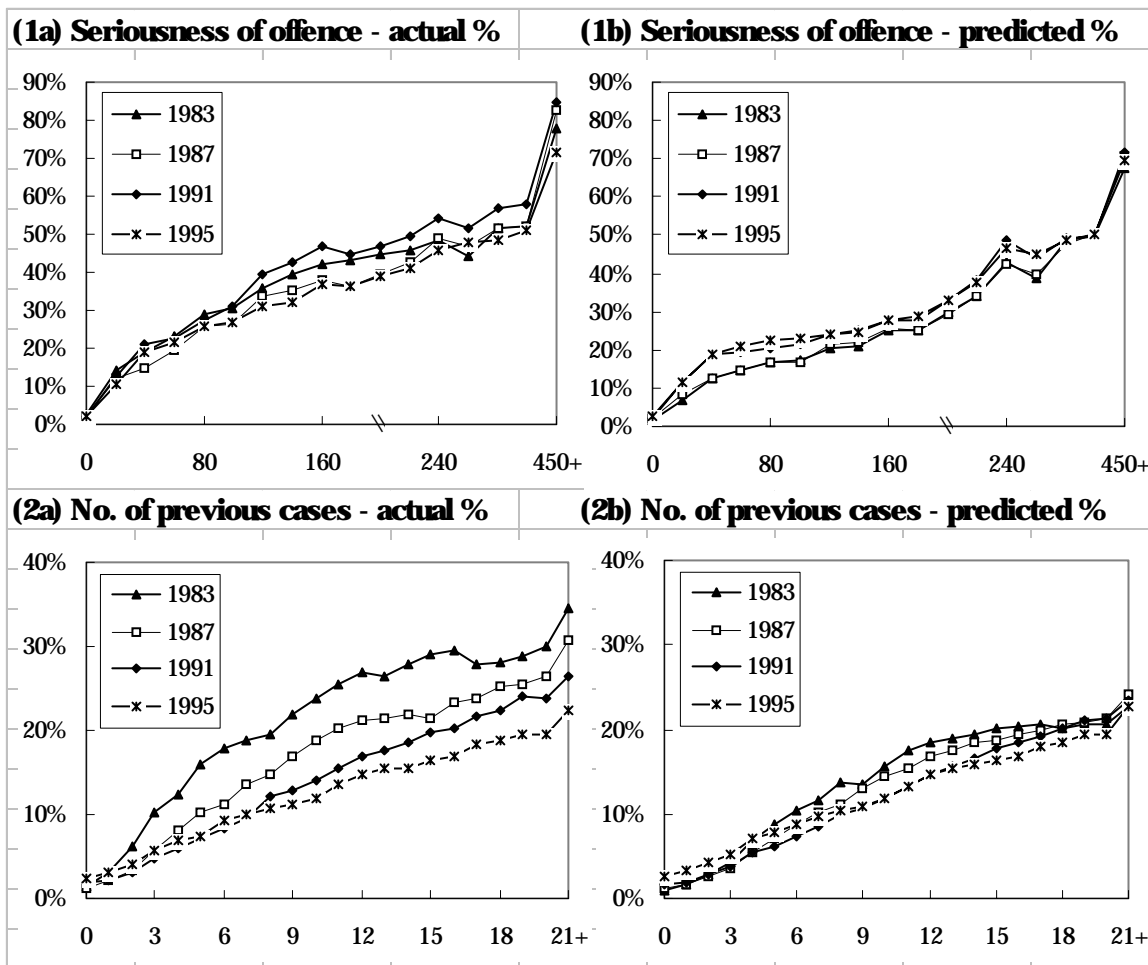


**Table 4.2: Actual percentage receiving imprisonment for each variable and year and predicted percentage based on 1995 sentencing practice**

Variable	Category	Actual %				Predicted %			
		1983	1987	1991	1995	1983	1987	1991	1995
Total	All variables	9.5	8.0	9.0	9.1	5.8	6.2	7.8	9.1
Current seriousness	>0-1	1.8	1.1	0.8	1.3	1.6	1.6	1.0	1.3
	>1-20	4.7	3.6	4.6	5.3	2.4	2.5	3.7	5.3
	>20-180	22.2	18.6	19.2	17.1	13.6	14.2	16.9	17.1
	>180-365	42.0	44.3	48.0	45.9	37.4	39.3	43.0	45.9
	>365	75.6	77.8	82.0	67.6	68.0	70.0	70.6	67.6
Current offence	Serious against person	48.8	54.6	58.4	46.2	42.8	47.3	49.9	46.2
	Domestic violence	10.1	10.5	15.9	9.5	6.3	7.6	10.5	9.5
	Minor against person	8.5	6.5	5.8	4.9	4.4	4.4	5.1	4.9
	Property	11.3	8.4	10.9	11.0	6.8	6.8	9.6	10.9
	Drugs	4.7	5.3	7.7	7.3	3.6	4.2	6.2	7.3
	Breach pd	32.4	27.2	21.0	15.6	11.8	12.5	14.6	15.6
	Other against justice	26.8	20.0	19.6	13.9	16.8	14.6	15.5	13.9
	Disorder/other	4.6	3.5	4.5	3.9	3.1	3.2	4.2	4.1
Traffic	4.7	4.5	4.5	4.6	2.8	3.4	4.5	4.6	
Previous cases	0	1.4	1.3	1.9	2.4	0.9	1.1	1.7	2.5
	1-3	5.6	3.3	3.2	4.1	2.6	2.4	2.7	4.1
	4-10	17.2	12.2	9.2	9.1	10.5	9.0	7.9	9.0
	11+	29.2	24.6	21.5	18.7	20.0	19.8	19.1	18.7
Most recent sentence	Prison	37.8	37.1	39.2	37.6	30.9	33.5	36.2	37.6
	Periodic detention	25.7	18.5	15.0	13.6	12.6	12.2	12.9	13.6
	Comm. programme	0.0	16.6	16.3	12.6	0.0	14.2	13.4	12.6
	Comm. service	13.7	8.1	5.5	4.2	4.5	4.8	4.4	4.2
Supervision	11.9	9.9	8.9	10.1	6.4	7.3	7.9	10.1	
Age	<17	6.7	3.3	7.3	7.4	1.7	1.2	4.5	7.4
	17-19	11.8	8.4	8.9	8.4	7.4	6.8	7.7	8.6
	20-29	10.3	9.4	9.7	9.8	6.6	7.3	8.6	9.7
	30+	7.0	7.1	8.0	8.5	4.7	5.7	6.7	8.5
Gender	Female	4.4	2.9	3.2	3.4	1.8	2.2	2.6	3.4
	Male	10.3	8.9	9.9	10.0	6.4	6.9	8.7	10.0
Ethnicity	Māori	15.0	11.6	13.0	12.2	8.6	8.9	11.4	12.2
	Pacific	9.1	8.0	10.7	9.1	5.8	6.1	9.2	9.6
	Pakeha/Other	9.0	7.8	9.3	8.4	6.1	6.2	8.0	8.3

Note: The predicted percentage is the percentage of offenders who would have received the sentence had the sentencing practices of 1995 been applied, as predicted by the 1995 logistic model. The difference between the predicted percentage for 1995 and other years indicates the proportion of the total change due to changes in statistical factors (e.g. the increase in average seriousness) while the difference between the actual and predicted percentage for each year indicates the proportion of total change due to changes in sentencing practice with respect to the statistical variables.

Figure 4.5: Actual percentage receiving imprisonment and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995



Offenders with one or more previous proved cases had lower actual imprisonment rates in 1995 than offenders with the same number of previous cases in 1983 (Figure 4.5-2a). The decreased use of imprisonment for all but first offenders appears to be due to changes in sentencing practice, as the difference in predicted probabilities of imprisonment are much less significant (Figure 4.5-2b). The relatively high rate of imprisonment for first offenders in the 1990s compared to the 1980s is likely to be due to the introduction of Police Diversion for less serious first offences, as explained in section 3.1.

The offence group with the largest change is breach of periodic detention, which was significantly less likely to result in a prison sentence in 1995 than in earlier years, in spite of the statistical factors that would have predicted an increase (Table 4.2). Similarly, a prison sentence is now less likely to follow a periodic detention or community service sentence than in the past.

A decrease in the use of imprisonment was also found for other offences against justice, minor offences against the person (mainly common assault) and disorder offences. Serious offences against the person were more likely to receive a prison sentence after the Criminal Justice Act 1985 had been implemented (i.e. in 1987 compared with 1983), but the imprisonment rate for this offence decreased again between 1991 and 1995, perhaps due to the frequent use of suspended sentences for this group (section 5.2).

The apparent increase in the imprisonment rate for offenders aged under 17 years old is related to a significant increase in the average seriousness of prosecuted offences for this group, as less serious offences are generally dealt with by Family Group Conferences (section 3.2). In reality, young offenders are less likely to get a prison sentence now than in previous years, once statistical factors such as average seriousness are taken into account, as indicated by the large difference between the actual and predicted values for 1983 and also 1987. The decreased relative use of imprisonment for young offenders between 1983 and 1987 and between 1987 and 1991 is likely to reflect legislative changes restricting the use of imprisonment for youth offenders (the Criminal Justice Act 1985 and the Children, Young Persons, and Their Families Act 1989).



# 5 Suspended prison sentences

## 5.1 Background

The suspended prison sentence was introduced as a new sentencing option by the Criminal Justice Amendment Act 1993. Prison sentences of not less than six months and not more than two years can be suspended for a period not exceeding two years. If the offender is convicted of another imprisonable offence within the suspension period the suspended sentence can be activated.

The use of suspended sentences has been analysed in some detail in other reports due to concern over its widespread use (Spier 1995-1998, Triggs 1998). Around 3000 cases a year result in a suspended sentence, but the expected equivalent drop in the number of offenders sentenced to prison has not occurred. Therefore, it appears that a significant proportion of suspended sentences are replacing (or more often being added to) community-based sentences, rather than replacing prison sentences as intended.

In this chapter, the factors influencing the use of suspended sentences are examined. The implications of the findings are discussed in more detail in section 11.4.2. Because suspended sentences were only introduced in 1993, no analysis of changes over time is presented. This analysis includes all cases resulting in a suspended sentence, regardless of whether the suspended sentence was imposed alone or in combination with a community-based sentence or monetary penalty.

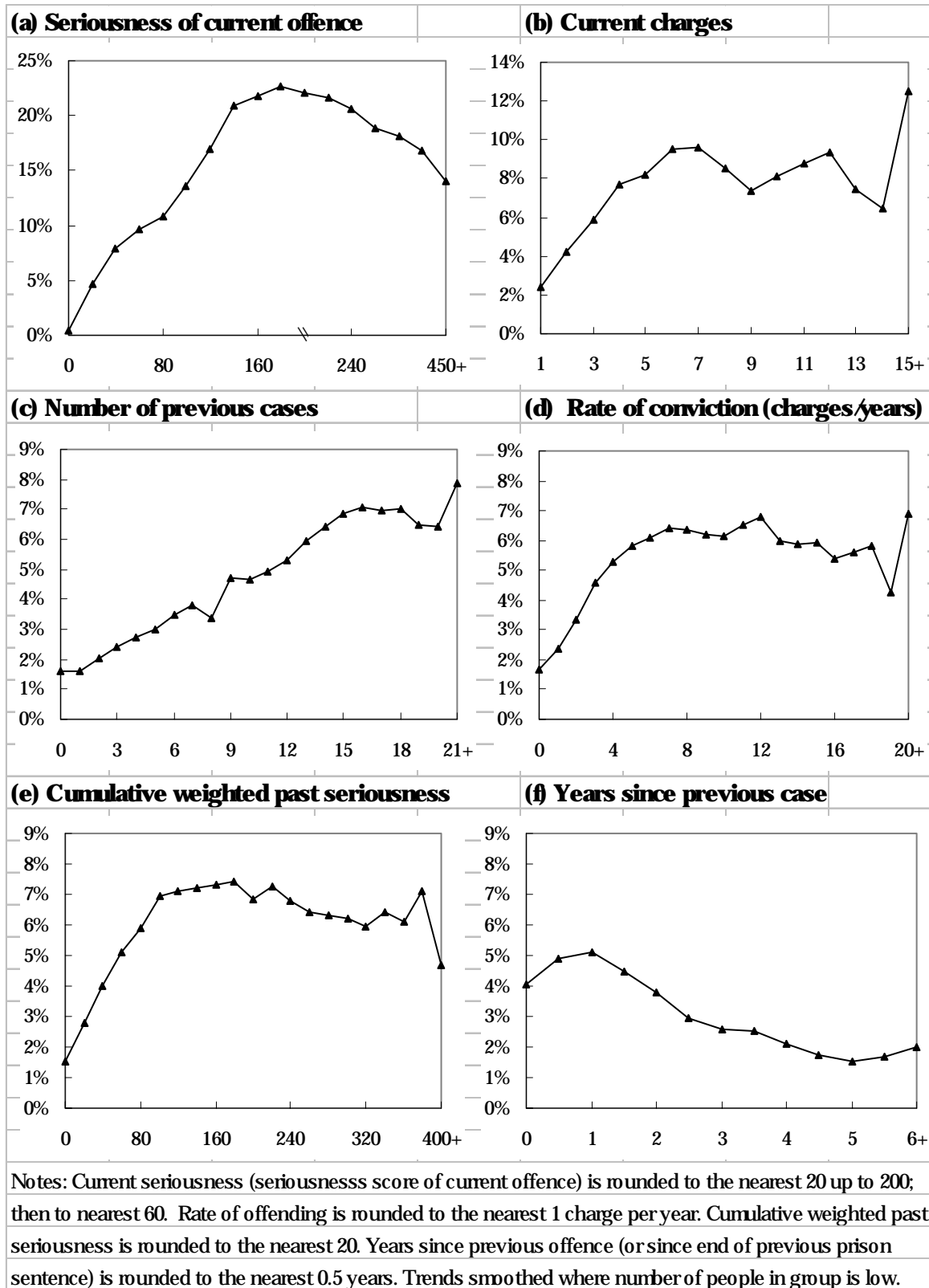
## 5.2 Single variable analysis of current factors influencing sentencing

Overall, 3.6% of offenders who had a proved case in 1995 received a suspended sentence, either alone or in combination with another sentence.

The single factor most strongly predictive of a suspended sentence was the seriousness of the offence (Figure 5.1). Over 20% of offences in the seriousness range 150 to 300 resulted in a suspended sentence (that is, offences where the average length of imprisonment is 150-300 days).

Suspended sentences also tend to be more often used for offenders convicted on several charges and offenders with a considerable past history of offending, although no single value of any criminal history characteristic on its own resulted in more than an 8% probability of a suspended sentence.

Figure 5.1: Percentage of offenders receiving a suspended prison sentence in 1995 for selected variables



A higher percentage of men (3.8%) than women (2.6%) received a suspended sentence, but this difference is much less than for prison sentences (the imprisonment rate of 10% for men compares to a rate of 3% for women). Slightly more Māori (4.8%) and Pacific peoples (4.2%) than Pakeha/Other offenders (3.4%) received a suspended sentence. People aged 25-29 (4.0%) or 30-34 (3.9%) were more likely to receive a suspended sentence than younger age groups.

By offence group, serious offences against the person had the highest percentage of proved cases resulting in a suspended sentence (15.0%), although suspended sentences were used mainly for the less serious offences in this group, such as serious assault. For other offence groups, 8.4% of proved cases resulted in a suspended sentence for domestic violence, 5.3% for drug offences, 4.3% for property offences, 2.1% for traffic offences, 1.6% for minor offences against the person, 1.4% for offences against justice (excluding breaches of periodic detention at 0.2%), and 0.9% for disorder offences.

## **5.3 Multivariate analysis of current factors influencing sentencing**

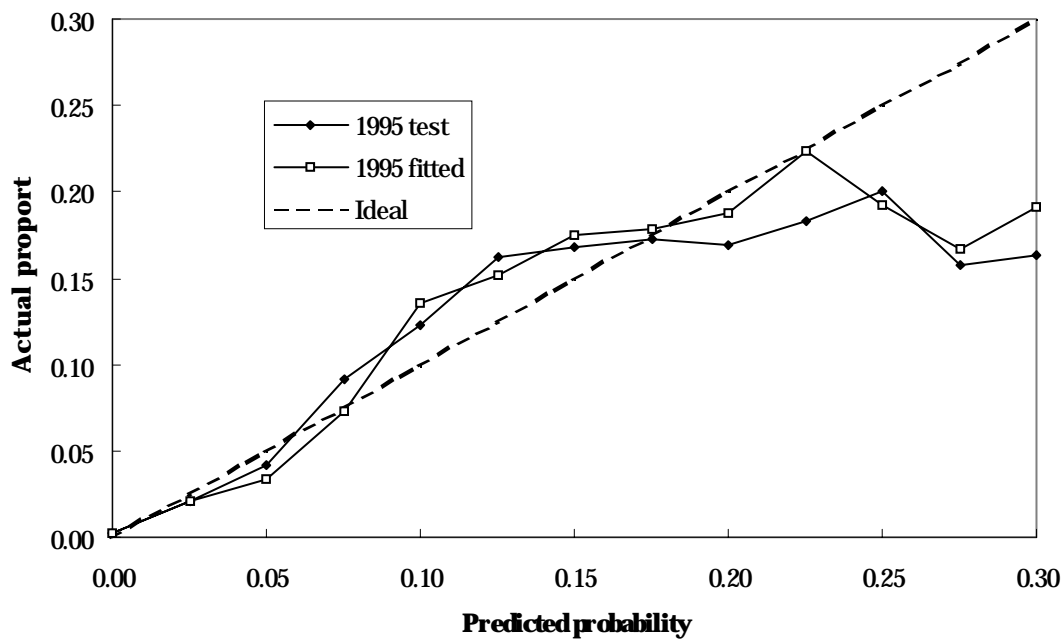
### **5.3.1 The fit and accuracy of the 1995 model**

The logistic regression models for suspended sentences achieved a significant overall fit to both the full and half 1995 data, as indicated by a log likelihood ratios significant at the 0.0001 level of probability. The results of the test phase (Figure 5.2) show a similar fit for the model developed using one half of the 1995 data (the ‘fitted data’) compared to the other, unseen half of the 1995 data (the ‘test data’).

However, neither set of data achieved a close fit to the ideal line and the residual (unexplained variation) term was significant. At a probability level of 10-15% the actual percentage of people receiving a suspended sentence was above the predicted probability, while the opposite occurred at probabilities over 25%. This indicates that there is some systematic bias in the error term of the model. Therefore the following results must be interpreted with caution.

Also, the suspended sentence model differs from the prison model in that it does not predict over the full range of probabilities. Very few offenders scored a predicted probability of more than 0.3 (a 30% probability of a suspended sentence). Thus, there were no factors or combination of statistical factors that predicted a high probability of receiving this sentence.

Figure 5.2: Plot of the predicted probability versus the actual proportion of offenders receiving a suspended sentence, 1995 fitted and test data



### 5.3.2 Results of the 1995 model

When all statistical factors are considered together, the most important factors in determining the use of suspended prison sentences appear to be the seriousness and type of offence (Table 5.1). The model suggests that offences of moderate to high seriousness (seriousness scores of 180-365) have the highest relative risk of resulting in a suspended sentence, although offences in the low to moderate seriousness range (>20-180) and high seriousness range (>365) also have a high risk of receiving a suspended sentence relative to the low seriousness reference group.

All types of violent offences and drug offences also have odds ratios of more than 1.0 and therefore increase the probability of receiving a suspended sentence, once the effect of other factors are accounted for. Relative to the reference group (property offences), breach of periodic detention, other offences against justice, and traffic offences are less likely to result in a suspended sentence.

Offenders who have already accumulated a history of convictions of moderate seriousness and those who have already served the more serious community-based sentences or a prison term are also relatively more likely to receive a suspended sentence than offenders without these characteristics.



**Table 5.1: Logistic regression model for suspended prison sentences, 1995**

Variable	Category	Odds ratio	Chi-square	P	Rank
Current seriousness	>1-20	10.395	70.8	0.0001	6
	>20-180	111.398	304.7	0.0001	2
	>180-365	180.506	337.2	0.0001	1
	>365	130.392	289.5	0.0001	3
Current charges	2-4	1.231	22.3	0.0001	15
	5+	1.316	19.5	0.0001	18
Current offence	Serious against person	1.888	76.0	0.0001	5
	Domestic violence	1.286	13.3	0.0003	20
	Minor against person	2.071	27.1	0.0001	11
	Drugs	2.612	169.0	0.0001	4
	Breach pd	0.133	27.6	0.0001	10
	Other against justice	0.577	5.8	0.0156	23
	Disorder/other	-	-	-	-
	Traffic	0.793	16.8	0.0001	19
Plea	Guilty	-	-	-	-
Gender	Female	-	-	-	-
Age group	<17	0.190	36.8	0.0001	8
	17-19	0.743	20.2	0.0001	17
	30+	-	-	-	-
Ethnicity	Māori	-	-	-	-
	Pacific	-	-	-	-
Most recent sentence	Prison	-	-	-	-
	Periodic detention	1.247	22.5	0.0001	14
	Comm. programme	-	-	-	-
	Comm. service	-	-	-	-
	Supervision	1.525	25.6	0.0001	12
Previous sentence	Prison	1.299	23.6	0.0001	13
	Periodic detention	1.500	52.0	0.0001	7
	Comm. programme	1.266	11.6	0.0006	21
	Comm. service	-	-	-	-
	Supervision	-	-	-	-
Previous offence	Breach cbs	-	-	-	-
Previous proved cases	1-3	-	-	-	-
	4-10	-	-	-	-
	11+	1.159	6.6	0.0102	22
Previous seriousness	>10-60	-	-	-	-
	>60-180	1.303	36.3	0.0001	9
	>180	-	-	-	-
Time since previous case	1 month or less	0.714	21.6	0.0001	16
	>1 month-1 year	-	-	-	-
	>1-4 years	-	-	-	-
Rate of conviction	2-8 charges per year	-	-	-	-
	>8 charges per year	-	-	-	-

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

Offenders aged under 20, and especially those under 17, are less likely to receive a suspended sentence. Unlike prison sentences, females are as likely to receive a suspended sentence as males. As for imprisonment, ethnicity was not a significant factor in determining the use of suspended sentences. Not was the type of plea significant.

In summary, these are similar characteristics to those that indicate a moderate level of risk of imprisonment, with the exception of the lack of a gender effect. The implications of these results are discussed in section 11.4.2, especially in relation to the known net-widening effects associated with the use of suspended sentences.

# 6 Periodic detention

## 6.1 Background

Periodic detention was introduced in 1962, originally as a residential sentence for 15-20 year old offenders. In 1966, periodic detention was extended to become a non-residential sentence for any offender aged 15 or over convicted of an imprisonable offence. Periodic detention may also be imposed for non-payment of a fine, although such cases are not included in the data used for this study. As this sentence involves attendance at a work centre to undertake supervised work, the sentence can only be imposed if there is a periodic detention centre within a reasonable distance of the offender's home.

This chapter examines which statistical factors most influence the use of periodic detention sentences, looking first at the variables individually and then at their combined effects using multivariate modelling techniques. Changes in the use of periodic detention are analysed in the final section of this chapter.

## 6.2 Single variable analysis of current factors influencing sentencing

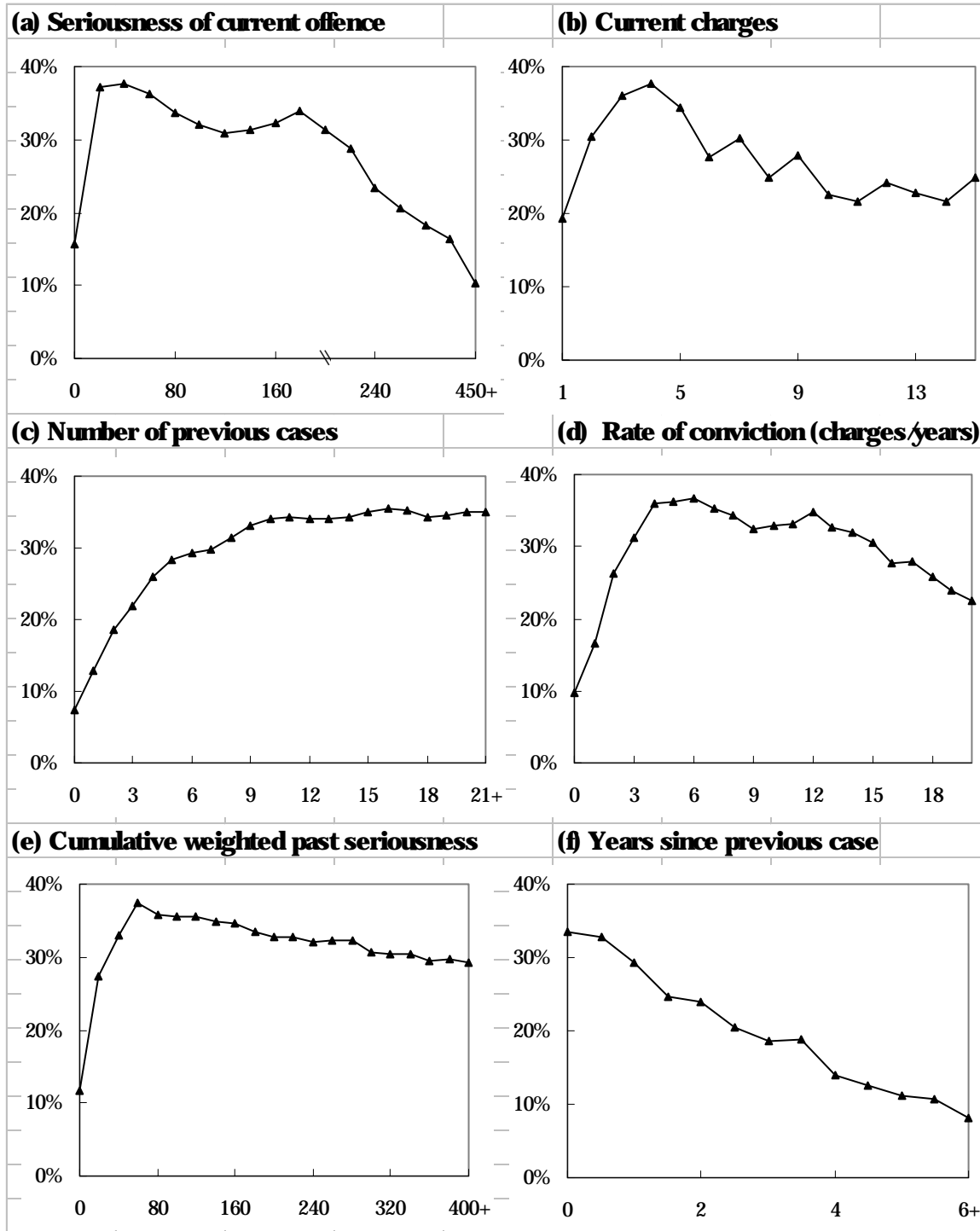
Overall, 24% of the offenders who had a proved case in 1995 received a periodic detention sentence.

The relationship between the seriousness of offending and the use of periodic detention is not as sharply defined as it is for imprisonment (Figure 6.1). The proportion of offenders sentenced to periodic detention is highest for offences of low to moderate seriousness (20-180 on the seriousness scale). Around a third of cases involving offences in this seriousness range result in a periodic detention sentence. This seriousness group includes offences such as aggravated assault, domestic assault, burglary, vehicle conversion, fraud and driving while disqualified. The probability of periodic detention is still significant for offences of moderate to high seriousness (180-365).

Offences of low seriousness (20 or lower; e.g. common assault, cannabis use, disorder, theft, and drink driving), as well as very high seriousness offences (more than 365; e.g. aggravated robbery, grievous assault, sexual violation) are much less likely to result in periodic detention than moderately serious offences.

Similarly, the use of periodic detention peaks for offenders with a few charges in the current case, but is not much lower for higher numbers of charges.

Figure 6.1: Percentage of offenders receiving a periodic detention sentence in 1995 for selected variables



Notes: Current seriousness (seriousness score of current offence) is rounded to the nearest 20 up to 200; then to nearest 60. Rate of offending is rounded to the nearest 1 charge per year. Cumulative weighted past seriousness is rounded to the nearest 20. Years since previous offence (or since end of previous prison sentence) is rounded to the nearest 0.5 years. Trends smoothed where number of people in group is low.

The criminal history variables also show a significant relationship with the use of periodic detention. Offenders with several or many previous cases have a higher probability of a periodic detention sentence than those with no or a few previous cases. Offenders with moderate to high rates of conviction (5-10 proved charges per year) and a moderate to high cumulative past seriousness, and offenders who have been convicted within the past year also have a relatively high probability of receiving a periodic detention sentence.

The percentage of offenders receiving a periodic detention sentence is higher if the most recent sentence prior to the current case is also periodic detention (46%), than if the most recent sentence was a prison sentence (26%), community programme (24%), supervision (26%), community service (27%) or a monetary penalty (16%).

As for imprisonment, women are less likely than men to be sentenced to periodic detention; 15% of proved cases involving an imprisonable offence result in periodic detention for females compared to 25% for men. By ethnicity, 30% of Māori, 27% of Pacific peoples and 22% of Pakeha/Other offenders receive a periodic detention sentence. A smaller proportion of young offenders receive periodic detention than offenders in their 20s and early 30s (2% of under 17 year olds who have a proved case<sup>4</sup>, 23% of 17-19 year olds, 27% of people aged 20-29 and 21% of people aged 30 or over).

By offence type, 51% of breaches of periodic detention result in periodic detention, while all other offence types fall in the range 21-27%, except disorder offences at 14% of proved cases.

## **6.3 Multivariate analysis of current factors influencing sentencing**

### **6.3.1 The fit and accuracy of the 1995 model**

The logistic regression models for periodic detention achieved a significant overall fit to both the full and half 1995 data, as indicated by log likelihood ratios significant at the 0.0001 level of probability and a non-significant residual (unexplained variation) term. The model not only fits the data it was developed on, but fits equally well to other data. Thus, the results of the test phase (Figure 6.2) show that the model developed using one half of the 1995 data (the 'fitted data') fits equally well to the other, unseen half of the 1995 data (the 'test data').

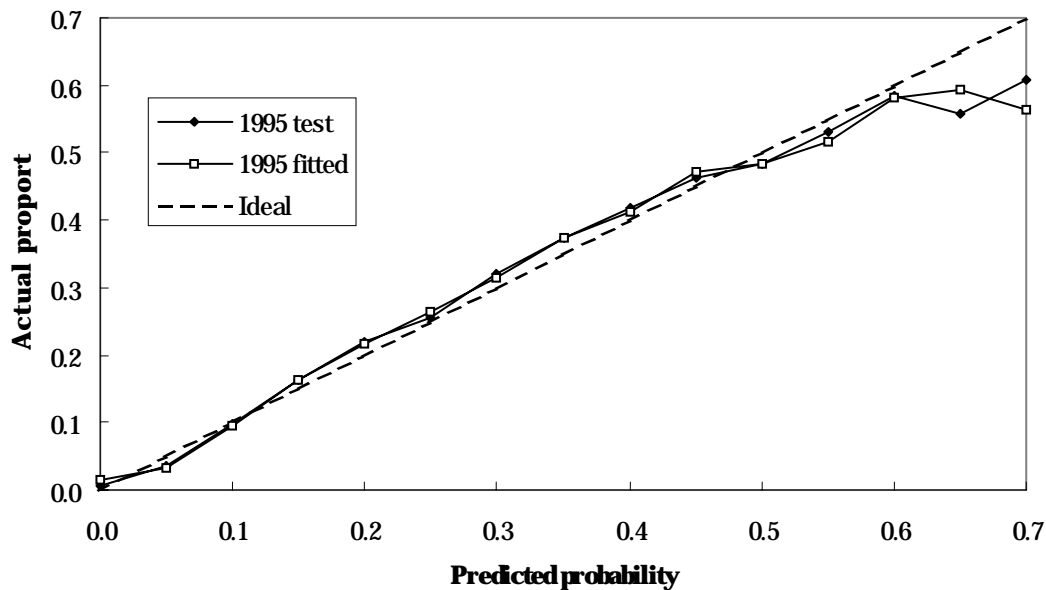
The periodic detention model differs from the prison model in that the results are only close to the ideal line up to a probability of about 0.6. Beyond a probability of 0.6 the predicted probabilities are lower than the actual probability. There were relatively few offenders whose probability of receiving a periodic detention sentence was greater than

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<sup>4</sup> Offenders aged under 15 are cannot be sentenced to periodic detention.

0.7. Thus, there were no factors or combination of statistical factors that adequately predicted a very high probability of receiving a periodic detention sentence. This is perhaps not surprising, given that community-based sentences are targeted at an intermediate group of offenders (those who have neither a high probability of imprisonment nor a high probability of receiving a fine or no sentence).

**Figure 6.2: Plot of the predicted probability versus the actual proportion of offenders receiving periodic detention, 1995 fitted and test data**



### 6.3.2 Results of the 1995 model

The results of the 1995 logistic model for periodic detention indicate that the most significant factors increasing the statistical probability of receiving a periodic detention sentence are (Table 6.1):

- An offence with a moderate seriousness score (seriousness scores in the range >20-180) and also offences of low to moderate seriousness (>1-20) or moderate to high seriousness (>180-365)
- a moderate number of current charges (2-4 charges)
- a current offence of breaching a periodic detention sentence
- at least one previous sentence of periodic detention
- a previous criminal history.

**Table 6.1: Logistic regression model of the probability of periodic detention, 1995**

Variable	Category	Odds ratio	Chi-square	P	Rank
Current seriousness	>1-20	1.598	248.4	0.0001	4
	>20-180	2.583	1230.4	0.0001	1
	>180-365	1.949	70.4	0.0001	18
	>365	-	-	-	-
Current charges	2-4	1.514	473.5	0.0001	3
	5+	-	-	-	-
Current offence	Serious against person	0.812	17.0	0.0001	30
	Domestic violence	0.853	15.1	0.0001	31
	Minor against person	-	-	-	-
	Drugs	0.816	31.4	0.0001	26
	Breach pd	1.832	215.0	0.0001	7
	Other against justice	-	-	-	-
	Disorder/other	0.562	173.4	0.0001	10
	Traffic	1.234	67.4	0.0001	19
Plea	Guilty	0.859	21.1	0.0001	28
Gender	Female	0.649	200.6	0.0001	8
Age group	<17	0.078	136.5	0.0001	14
	17-19	-	-	-	-
	30+	0.902	21.6	0.0001	27
Ethnicity	Māori	1.268	143.5	0.0001	12
	Pacific	1.361	77.2	0.0001	16
Most recent sentence	Prison	0.765	52.0	0.0001	20
	Periodic detention	1.885	682.3	0.0001	2
	Comm. programme	0.764	7.3	0.0070	34
	Comm. service	1.271	38.4	0.0001	23
	Supervision	-	-	-	-
Previous sentence	Prison	0.932	6.1	0.0132	35
	Periodic detention	1.527	230.0	0.0001	6
	Comm. programme	0.845	18.6	0.0001	29
	Comm. service	1.143	31.9	0.0001	25
	Supervision	-	-	-	-
Previous offence	Breach cbs	0.849	38.8	0.0001	22
Previous proved cases	1-3	-	-	-	-
	4-10	1.208	44.2	0.0001	21
	11+	1.112	7.8	0.0053	33
Previous seriousness	>10-60	1.480	182.1	0.0001	9
	>60-180	1.386	98.7	0.0001	15
	>180	1.279	38.3	0.0001	24
Time since previous case	1 month or less	1.445	72.6	0.0001	17
	>1 month-1 year	1.689	246.8	0.0001	5
	>1-4 years	1.511	153.1	0.0001	11
Rate of conviction	2-8 charges per year	1.323	138.6	0.0001	13
	>8 charges per year	1.163	13.5	0.0002	32

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

Thus, if the most recent previous sentence served or any other previous sentence was periodic detention, especially if the recent sentence resulted in a breach of the sentence conditions, then the probability of a further periodic detention sentence is increased. There is also an increased probability of receiving periodic detention if the most recent previous sentence was community service.

In contrast, offenders who have previously served a prison or community programme sentence are less likely to receive a periodic detention sentence, as are those whose current offence is a disorder offence, a drugs offence, domestic violence, or an offence against the person (i.e. a violent offence). A guilty plea also appears to reduce the probability of receiving a periodic detention sentence.

Gender, age and ethnicity are all significant variables in the periodic detention model. Women are much less likely than men to receive a periodic detention sentence, even after differences in offence type and criminal history are taken into account. To some extent this may reflect practical issues of the available periodic detention facilities and the type of work undertaken. Also, it is not known to what extent the particular circumstances of the average case involving a woman may differ from the average for men, even when the statistically measurable variables are equal.

Youth offenders (aged under 17) have an extremely low relative risk of receiving periodic detention. This is not surprising, considering offenders aged under 15 cannot receive periodic detention and given the availability of youth supervision and community work orders as alternative sentences.

Both Māori and Pacific peoples are more likely to receive a periodic detention sentence than Pakeha/Other offenders. As for the gender difference, it is not possible to determine why this should be so without examining the particular circumstances of the average case for different ethnic groups (i.e. differences not captured by the statistical variables measured in this analysis).

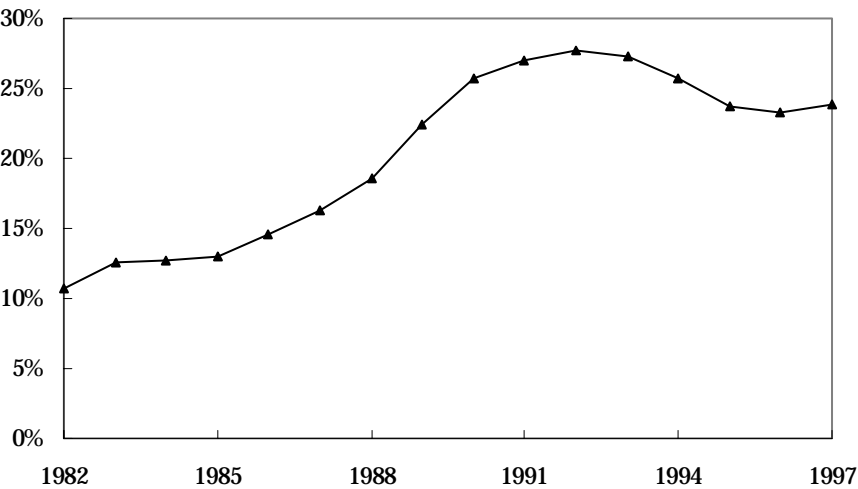
Moderate levels of previous offending also significantly increase the probability of a periodic detention sentence. Rates of conviction of more than 2 charges per year, a weighted sum of previous seriousness of more than 10 (especially >10-60), not more than 4 years gap since the last conviction, and more than four previous cases are all significant predictors of a periodic detention sentence.

## **6.4 Changes in the use of periodic detention**

In contrast to the relatively small changes in the actual percentage of proven cases resulting in imprisonment, there have been very substantial changes in the use of periodic detention between 1982 and 1997 (Figure 6.3). In 1982, 11% of all proved cases for imprisonable offences resulted in a periodic detention sentence, compared to 24% in 1997. The use of periodic detention peaked in 1991 at 28%. The total number of offenders receiving a periodic detention sentence has increased by 180% between 1982 and 1997.



Figure 6.3: The percentage of proved cases resulting in a periodic detention sentence for imprisonable offences, 1982-1997



A change in the use of a particular sentence may be due to one or both of the following: (i) a change in the type of offence or offender being dealt with by the courts or (ii) a change in sentencing practice (such that offenders with the same characteristics are now more or less likely to receive a particular sentence than in the past).

Significant changes in the use of different sentences would be expected over the 1983-95 period, given the changes in the type and seriousness of offence and the type of offender, as measured by the statistical variables used in this study (section 3.2). Specifically, the significant increases in the average seriousness of offences and the number of persistent offenders dealt with by the courts would be expected to result in an increase in the use of serious sentences such as imprisonment and periodic detention.

The aim of this research is to determine the extent of change expected from these statistical trends and then to examine whether there has been any additional change in sentence use that could be explained by changes in sentencing practice.

To test whether sentencing practice has changed with respect to periodic detention, the logistic model developed using 1995 data was used to predict the probability of receiving a periodic detention sentence for offenders in earlier years. This means that an offender in 1983 who has the same criminal history and current case characteristics as a person in 1995 would have the same predicted probability of periodic detention. The predicted probabilities are then compared to the actual proportion of people receiving a periodic detention sentence in each year. If no change in sentencing practice has occurred, then the predicted probability should be the same as the actual proportion receiving periodic detention.

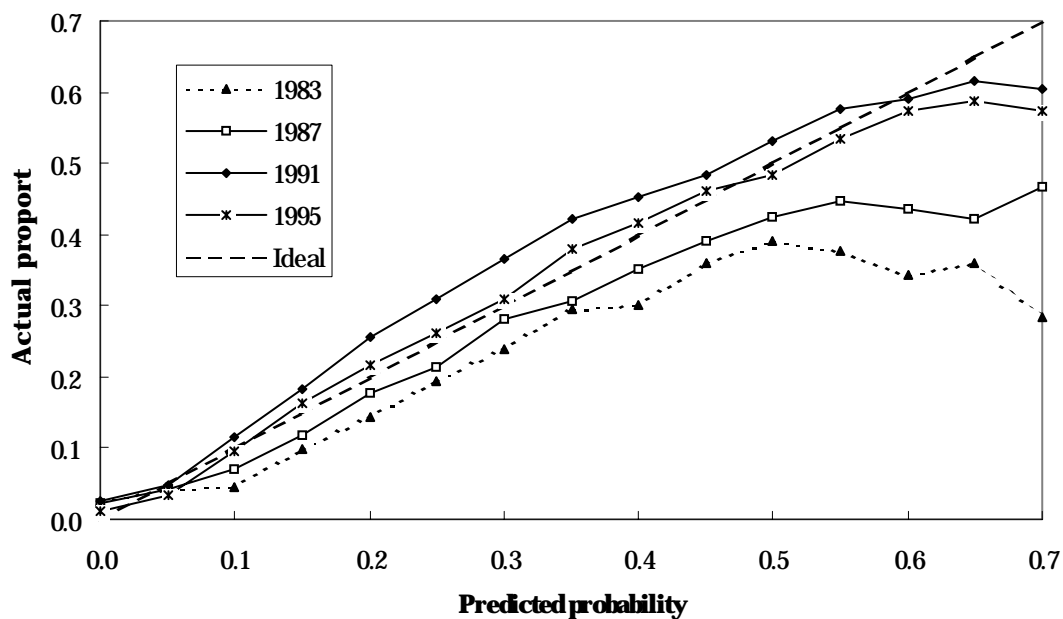
The results indicate that there has been a change in sentencing practice, but also that much of the increase in the use of periodic detention can be explained by changes in statistical factors. Overall, 12.8% of offenders in 1983 received periodic detention,

compared to 16.2% in 1987, 26.6% in 1991 and 23.8% in 1995 (Table 6.2). Had there been no change in sentencing practice with respect to statistical factors, the predicted probability of periodic detention would still have been lower in 1983 (17.8%) than in 1995 (23.8%), due to statistical factors such as the lower average seriousness of cases proved in 1983 and the lower percentage of persistent offenders.

The estimated increase in the use of periodic detention due to changes in sentencing practice is the difference between the actual percentage in 1983 (12.8%) and the predicted percentage (17.8%). In other words, approximately half of the overall change is due to changes in the type of offences and offenders coming before the courts, with the other half or so apparently due to changes in sentencing practice.

Changes in sentencing practice over the range of probabilities are shown in Figure 6.4. At the point of peak use, 1991, an offender was more likely to get periodic detention than a person with the same statistical characteristics in 1995 (i.e. the data points in the 1991 line all lie considerably above the 1995 line). Conversely, a statistically equivalent offender would have been less likely to get periodic detention in 1987 and 1983.

**Figure 6.4: Comparison among years of the actual and predicted probabilities of periodic detention, with predictions made using the 1995 model**



An indication of the extent to which different factors have influenced the changes in sentence practice between 1983 and 1995 is given in Table 6.2 and Figure 6.5. The comparison between the actual and predicted percentages for each year indicates the extent of changes in sentencing practice, once the effects of changes in statistical factors have been accounted for.

The greater actual use of periodic detention in the 1990s compared to the 1980s is most notable for offences of low to moderate seriousness (Table 6.2 and Figure 6.5.). At the lower end of the seriousness scale (>1-20) the actual probability of receiving a periodic detention sentence has increased from 9% in 1983 to 25% in 1995. At a moderate seriousness (>20-180) the increase has been from 25% to 36%.

However, much of this change, especially for offences of moderate seriousness, appears to be due to changes in other characteristics of offenders, as the predicted percentage for 1983 is not much higher than the actual percentage. Thus, offenders in 1983 had other characteristics that would be expected to lead to a lower use of periodic detention. For example, offenders convicted of offences in the 20 to 180 seriousness range in 1983 had just half the average number of previous cases of offenders in 1995 (5.3 compared to 9.7).

In contrast, the far greater usage of periodic detention for persistent offenders in the 1990s compared to the 1980s cannot be explained by changes in other characteristics, but rather appears to be a real change in sentencing practice (Figure 6.5-2a,b). At the same time, the use of imprisonment for persistent offenders has decreased (section 4.4). Therefore, the increases in the use of periodic detention are likely to have resulted, at least in part, from the decreased use of imprisonment following policy changes promoting the use of alternatives to prison.

The probability of receiving a periodic detention sentence was higher in 1995 than in 1983 for all offences, but the increase was greatest for breaches of periodic detention and other offences against justice, and for drug offences, less serious violent offences and disorder offences. These were also the offence groups that appear to have been most subject to a change in sentencing practice as opposed to a change in the statistical characteristics of the average offender. The increase in periodic detention for these offences has been paralleled by a decrease in the use of imprisonment.

In addition to the increase for breaches of a periodic detention sentence, offenders were also more likely to receive a periodic detention sentence in 1995 compared to 1983 if their most recent previous sentence was periodic detention, community service or imprisonment. These factors introduce an element of circularity into the distinction between changes due to the type of offender/offence and changes due to sentencing practice.

This circularity arises because the probability of a periodic detention sentence is increased if the current offence is a breach of a periodic detention sentence, or if the most recent or other previous sentences were periodic detention or community service. Therefore, any increase in the use of periodic detention or community service will lead to a further increase in periodic detention due to the greater number of offenders who have either breached or served these sentences. The 1995 model counts previous sentence history as a statistical characteristic of the offender to be used in calculating 'predicted probability' rather than as an outcome of changes in sentencing practice. Therefore the overall effect of changes in sentencing practice may be underestimated. The implications of these findings are discussed further in section 11.4.1.

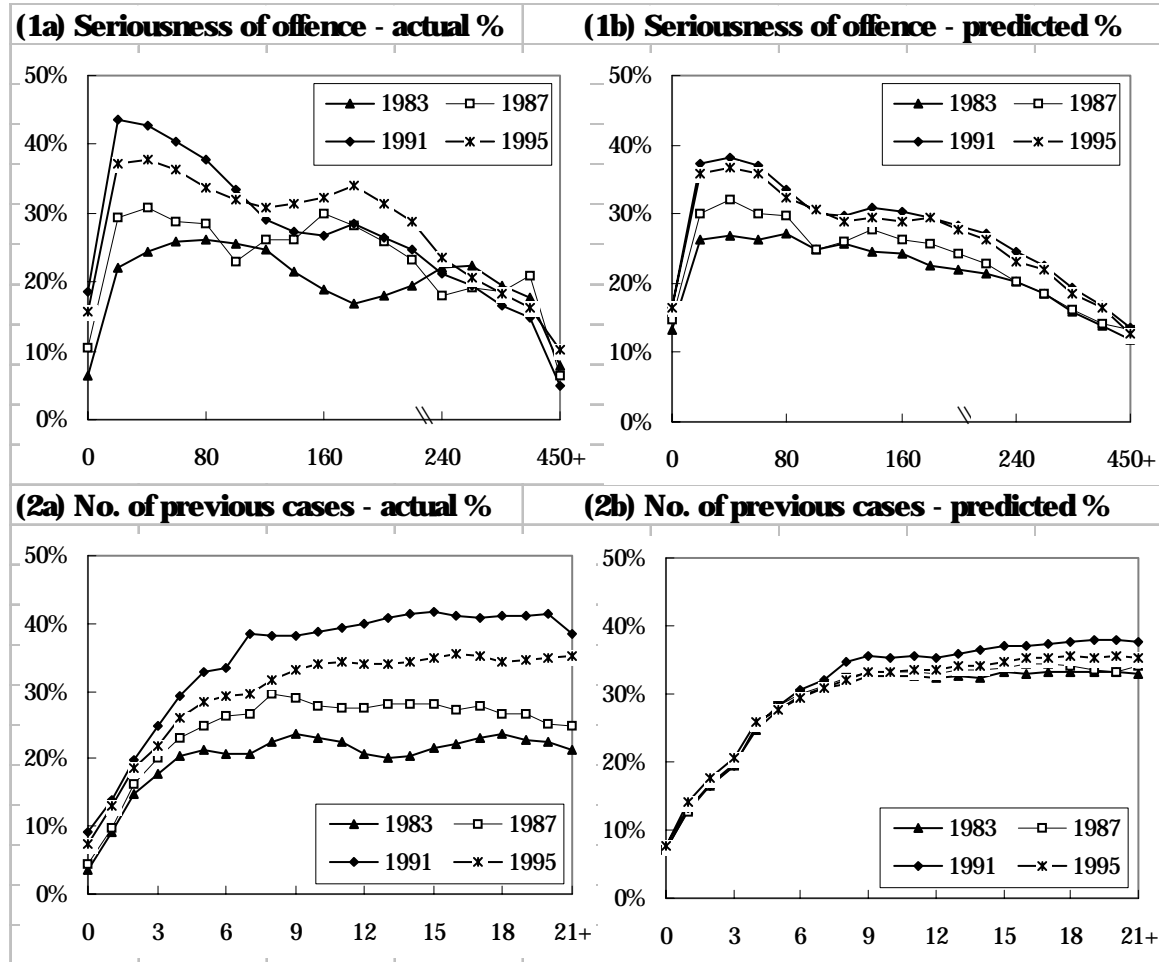
**Table 6.2: Actual percentage receiving periodic detention for each variable and year and predicted percentage based on 1995 sentencing practice**

Variable	Category	Actual %				Predicted %			
		1983	1987	1991	1995	1983	1987	1991	1995
Total	All variables	12.8	16.2	26.6	23.8	17.8	19.3	23.6	23.8
Current seriousness	>0-1	2.9	6.4	12.3	12.7	8.9	9.9	10.8	12.6
	>1-20	9.4	13.8	26.3	24.5	15.9	17.4	22.3	24.5
	>20-180	25.4	27.6	41.5	36.1	26.6	29.1	38.2	36.1
	>180-365	21.5	21.1	21.4	22.7	18.1	19.5	22.9	22.7
	>365	8.9	9.4	6.3	11.7	11.9	13.3	13.8	12.7
Current offence	Serious against person	18.3	18.4	17.2	21.2	19.0	19.4	20.9	21.2
	Domestic violence	17.9	22.7	34.3	26.5	19.5	21.4	27.0	26.5
	Minor against person	11.6	16.7	27.2	21.7	19.2	19.3	21.9	21.8
	Property	15.9	17.7	30.1	25.7	18.0	18.7	25.3	25.5
	Drugs	6.8	11.6	22.8	21.1	14.2	15.7	19.5	21.1
	Breach pd	29.3	39.8	52.5	51.3	44.3	47.4	49.5	51.3
	Other against justice	8.4	13.3	25.3	24.5	19.5	21.6	25.6	26.4
	Disorder/other	5.4	9.9	18.9	13.7	10.4	11.3	14.2	13.7
Traffic	10.7	15.4	24.7	22.0	17.6	20.8	22.8	22.0	
Previous cases	0	3.5	4.3	9.2	7.4	7.0	7.0	7.7	7.5
	1-3	12.8	14.1	18.6	17.1	15.5	15.4	15.8	17.0
	4-10	21.5	26.0	34.6	29.7	29.0	29.6	30.8	29.7
	11+	21.5	26.8	40.1	34.8	32.9	33.7	36.8	34.8
Most recent sentence	Prison	17.1	20.0	28.2	25.8	23.9	24.7	26.9	25.8
	Periodic detention	28.4	35.3	51.0	45.6	43.6	44.1	47.2	45.6
	Comm. programme	0.0	20.5	25.0	24.0	0.0	24.4	25.1	24.0
	Comm. service	14.7	23.3	30.8	27.3	27.8	27.1	30.1	27.3
Supervision	17.0	22.5	28.1	25.0	21.1	21.9	23.8	25.6	
Age	<17	6.7	4.7	4.4	2.1	2.3	2.1	2.4	2.1
	17-19	15.5	18.4	27.0	22.4	22.1	21.7	23.8	22.5
	20-29	14.3	18.9	30.3	27.1	21.2	23.2	26.9	27.1
	30+	9.9	13.7	21.5	20.9	14.6	16.6	19.2	20.9
Gender	Female	2.5	10.0	16.6	14.9	9.2	10.9	14.1	14.9
	Male	14.3	17.3	28.3	25.3	19.1	20.7	25.2	25.3
Ethnicity	Māori	15.6	20.9	34.4	29.7	22.3	23.9	31.1	29.7
	Pacific	16.3	16.1	30.2	27.3	18.9	19.6	27.7	27.3
	Pakeha/Other	12.9	15.6	27.2	21.8	17.2	18.1	23.1	21.5

Note: The predicted percentage is the percentage of offenders who would have received the sentence had the sentencing practices of 1995 been applied, as predicted by the 1995 logistic model. The difference between the predicted percentage for 1995 and other years indicates the proportion of the total change due to changes in statistical factors (e.g. the increase in average seriousness) while the difference between the actual and predicted percentage for each year indicates the proportion of total change due to changes in sentencing practice.

Periodic detention is used much less frequently for women than men, although women showed a greater relative increase in periodic detention over the 1983 to 1995 period. Youth offenders (aged under 17) are the only group for whom the use of periodic detention has actually decreased since 1983 (Table 6.2).

**Figure 6.5: Actual percentage receiving periodic detention and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995**





# 7 Community service

## 7.1 Background

Community service was introduced in 1981. An offender convicted of an imprisonable offence may be sentenced to between 20 and 200 hours of community service, if the offender consents and if a sponsor is available to supervise the offender and provide appropriate work.

As the offender is not as closely supervised by Community Probation staff as they are for periodic detention or supervision, community service is appropriate for a different type of offender and is (with community programme) considered the community-based sentence of first resort for suitable offenders.

This chapter examines which statistical factors most influence the use of community service sentences, looking first at the variables individually and then at their combined effects using multivariate modelling techniques. Changes in the use of community service are analysed in the final section of this chapter.

## 7.2 Single variable analysis of current factors influencing sentencing

Overall, 10% of the offenders who had a proved case in 1995 received a community service sentence.

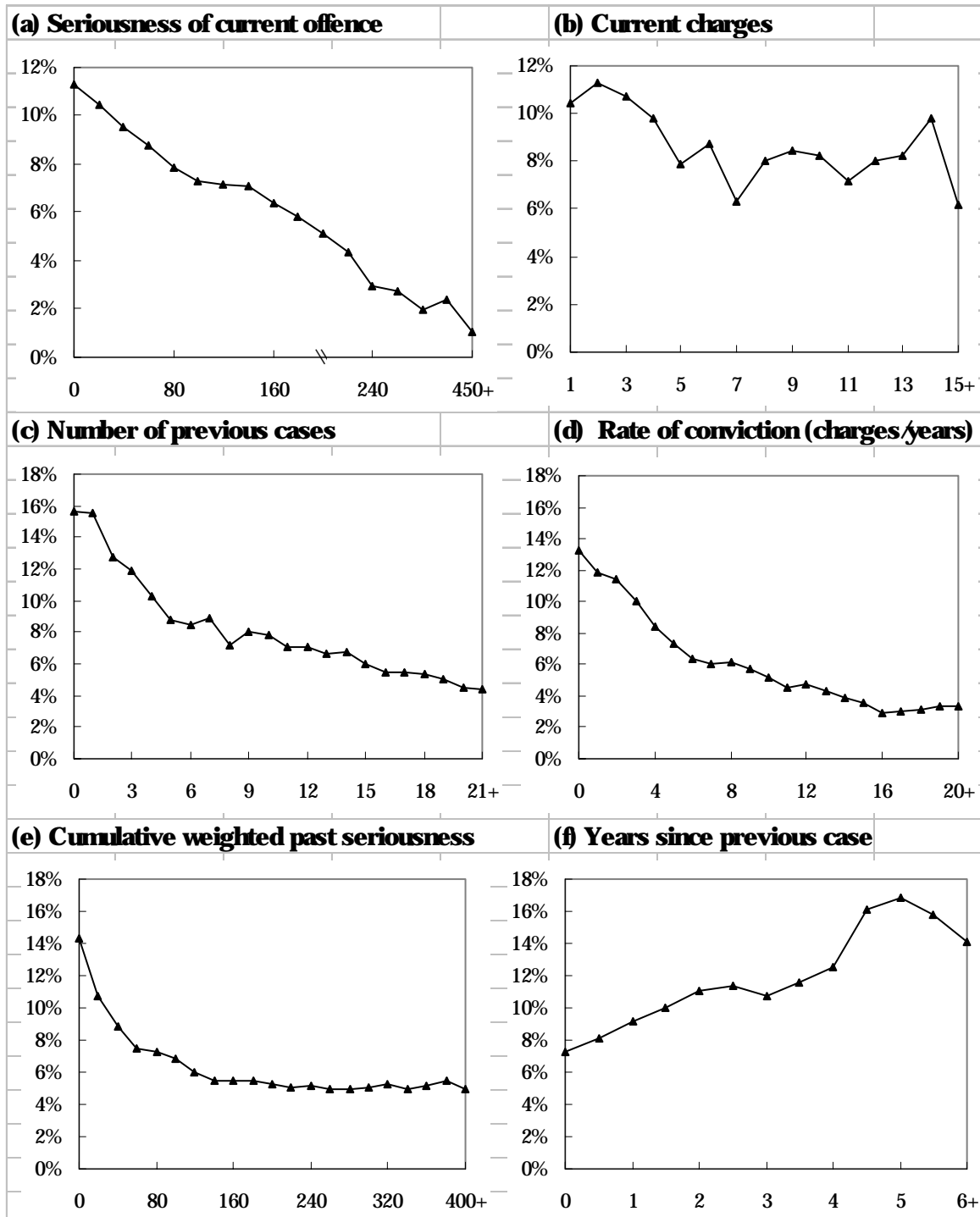
Despite being a potential alternative to imprisonment, the community service sentence is most used for offences of relatively low seriousness, which rarely result in imprisonment (Figure 7.1a). Community service is rarely imposed for offences with a high seriousness score. This accords with Hall's comments on community service (Hall 1998, page D/468):

'The sentence of community service would appear most appropriate where the gravity of the offence and the public interest do not require a custodial sentence and where there is no apparent need for continued supervision by a probation officer.'

'The sentence is also appropriate in cases where the offender lacks the means to pay a fine.'

There is relatively little relationship between the number of charges proved in the current case and the probability of a community service sentence, although offenders with a small number of charges have a slightly higher probability.

Figure 7.1: Percentage of offenders receiving a community service sentence in 1995 for selected variables



Notes: Current seriousness (seriousness score of current offence) is rounded to the nearest 20 up to 200; then to nearest 60. Rate of offending is rounded to the nearest 1 charge per year. Cumulative weighted past seriousness is rounded to the nearest 20. Years since previous offence (or since end of previous prison sentence) is rounded to the nearest 0.5 years. Trends smoothed where number of people in group is low.

Criminal history characteristics also show the opposite relationship with community service to that found for imprisonment and periodic detention. A higher probability of community service is associated with offenders who have a small number of previous



cases, especially where the past offences are not serious and the rate of conviction has been low or the most recent offence is several years ago.

No single value of any statistical factor led to a high probability of a community service sentence. The highest percentage use of community service was found for females. Twenty two percent of proved cases involving a female defendant resulted in a community service sentence, compared to 8% for males.

Youth offenders have a low probability of receiving a community service sentence (<1%). Community service is more often imposed on 17-19 year olds (14%) than people in their 20s (9%). A higher proportion (11%) of Māori and Pacific peoples receive a community service sentence than Pakeha/ Other offenders (9%).

The percentage of offenders receiving a community service sentence is higher if the most recent sentence prior to the current case was also community service (23%), than if the previous sentence was a prison sentence (3%), periodic detention (4%), community programme (12%), supervision (10%) or a monetary penalty (10%).

The offence types most likely to result in a community service sentence are property offences (12% of proved cases), traffic offences (14%), drug offences (9%), minor offences against the person (9%), and other offences against justice (6%). All other offence groups have a less than a 5% probability of receiving community service.

## **7.3 Multivariate analysis of current factors influencing sentencing**

### **7.3.1 The fit and accuracy of the 1995 model**

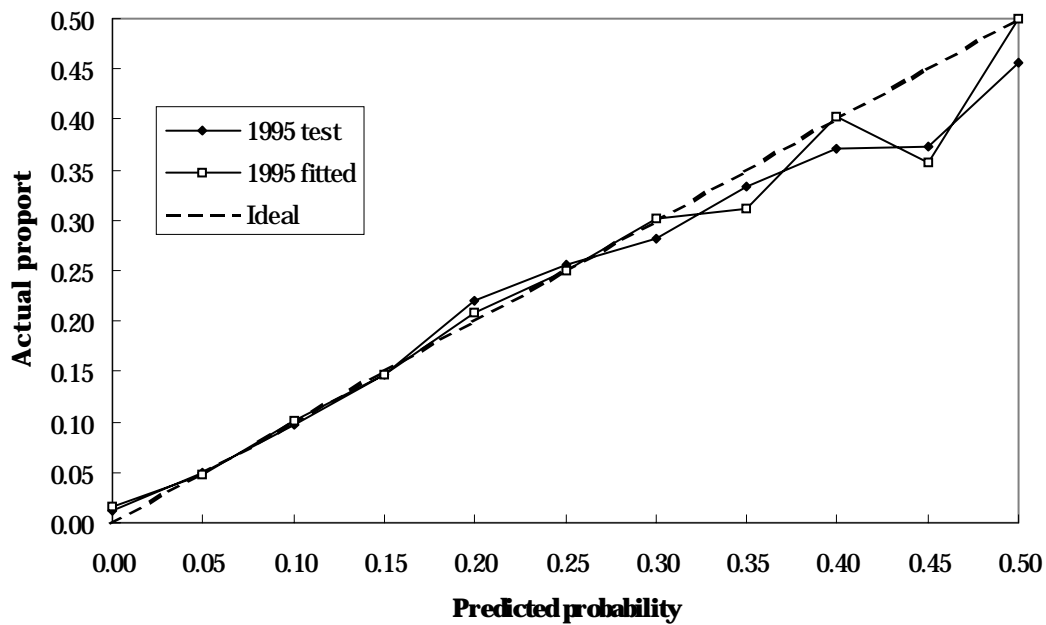
The logistic regression models for community service achieved a significant overall fit to both the full and half 1995 data, as indicated by log likelihood ratios significant at the 0.0001 level of probability and a non-significant residual (unexplained variation) term. The model not only fits the data it was developed on, but fits equally well to other data. Thus, the results of the test phase (Figure 7.2) show that the model developed using one half of the 1995 data (the 'fitted data') fits equally well to the other, unseen half of the 1995 data (the 'test data').

The community service model differs from the prison model in that the results are only close to the ideal line up to a probability of about 0.4 and there were very few offenders whose probability of receiving a community service sentence was greater than 0.5. Thus, there were no factors or combination of statistical factors that adequately predicted a very high probability of receiving a community service sentence. This is perhaps not surprising, given that community-based sentences are targeted at an intermediate group of offenders (those who have neither a high probability of imprisonment nor a high probability of receiving a fine or no sentence).

Also, contextual factors relevant to the specific offence and offender, but not measured by the statistical factors available for this study, presumably make a substantial contribution to the sentencing decision. Hall (1998, page D/468) makes the following comment on community service:

‘The nature of the sentence is such that the criteria for determining the suitability of the sentence arise from the person of the offender and his or her circumstances, with rather less emphasis on the seriousness of the offending.’

**Figure 7.2: Plot of the predicted probability versus the actual proportion of offenders receiving community service, 1995 fitted and test data**



### 7.3.2 Results of the 1995 model

The gender and ethnicity of the offender are amongst the most significant variables in the logistic regression model for community service (Table 7.1). Women are more than twice as likely as men to get a community service sentence, once the effects of other factors have been accounted for. Māori and Pacific offenders both have a higher probability of receiving a community service sentence than Pakeha/Other offenders with similar current offence and criminal history characteristics.

**Table 7.1: Logistic regression model of the probability of community service, 1995**

<b>Variable</b>	<b>Category</b>	<b>Odds ratio</b>	<b>Chi-square</b>	<b>P</b>	<b>Rank</b>
Current seriousness	>1-20	1.388	76.0	0.0001	11
	>20-180	1.517	130.4	0.0001	6
	>180-365	-	-	-	-
	>365	0.318	20.7	0.0001	25
Current charges	2-4	1.189	42.9	0.0001	19
	5+	-	-	-	-
Current offence	Serious against person	0.452	62.7	0.0001	15
	Domestic violence	0.358	175.0	0.0001	5
	Minor against person	0.666	42.3	0.0001	20
	Drugs	0.721	38.3	0.0001	21
	Breach pd	0.434	60.8	0.0001	16
	Other against justice	0.554	25.9	0.0001	23
	Disorder/other	0.479	117.4	0.0001	8
	Traffic	1.468	121.3	0.0001	7
Plea	Guilty	1.180	9.6	0.0019	29
Gender	Female	2.263	825.8	0.0001	1
Age group	<17	0.037	54.0	0.0001	17
	17-19	1.337	74.5	0.0001	12
	30+	1.105	12.8	0.0003	27
Ethnicity	Māori	1.462	201.5	0.0001	4
	Pacific	1.457	64.6	0.0001	13
Most recent sentence	Prison	0.476	88.5	0.0001	10
	Periodic detention	0.500	221.1	0.0001	3
	Comm. programme	-	-	-	-
	Comm. service	1.988	268.5	0.0001	2
	Supervision	-	-	-	-
Previous sentence	Prison	0.850	12.6	0.0004	28
	Periodic detention	0.668	97.5	0.0001	9
	Comm. programme	-	-	-	-
	Comm. service	1.209	25.6	0.0001	24
	Supervision	-	-	-	-
Previous offence	Breach cbs	0.863	9.1	0.0026	30
Previous proved cases	1-3	1.141	19.3	0.0001	26
	4-10	-	-	-	-
	11+	-	-	-	-
Previous seriousness	>10-60	-	-	-	-
	>60-180	-	-	-	-
	>180	-	-	-	-
Time since previous case	1 month or less	0.729	31.4	0.0001	22
	>1 month-1 year	0.783	64.4	0.0001	14
	>1-4 years	-	-	-	-
Rate of conviction	2-8 charges per year	-	-	-	-
	>8 charges per year	0.594	50.6	0.0001	18

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

The reasons for the disproportionate use of community service for these groups cannot be determined using the available statistical data. The circumstances of offending may differ systematically by gender and ethnicity, or the perceived benefits of a community-based sentence may differ. If, as is argued in section 7.4, the community service sentence has increasingly become an alternative to a fine rather than an alternative to imprisonment, its disproportionate use for women, Māori and Pacific peoples may also reflect the ability of these groups to pay fines.

Offenders aged 17-19 and 30 plus have a slightly higher probability of community service than 20-29 year olds, but, as for other sentence types, youth offenders have an extremely low relative probability of community service. The lower use of community-based sentences for youth offenders is not surprising, given the availability of youth supervision and community work orders as alternative sentences.

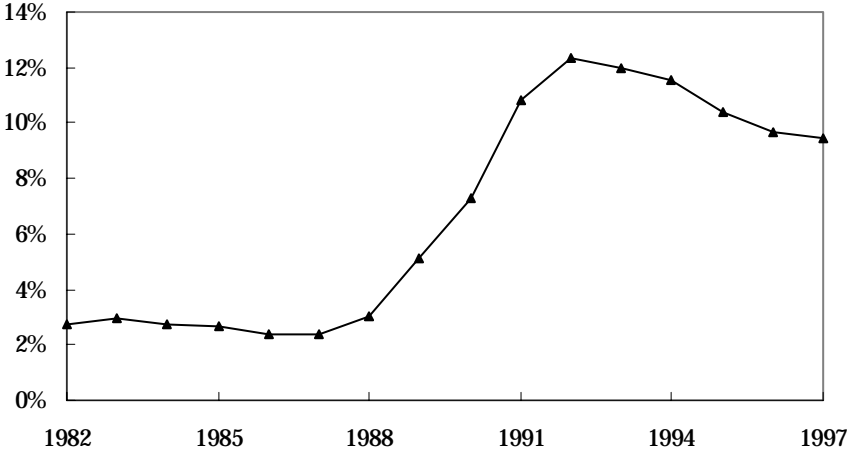
The current offence type and the most recent sentence served are also very significant factors in the model. Traffic offenders have a high probability of receiving a community service sentence relative to property offences, but all other offence types an odds ratio less than one. Previous community service sentences increase the probability of a community service sentence, whereas previous periodic detention and prison sentences have the opposite effect. A previous breach of any community-based sentence also lowers the odds of receiving community service.

Low to moderate levels of current and previous offending increase the probability of a community service sentence, but these are generally amongst the less significant variables in the model. The relative likelihood of a community service sentence is increased by having 2-4 current charges or an offence seriousness in the low to moderate seriousness range (>1-20 or >20-180), but decreased by having a high seriousness offence, a high rate of conviction, or a short gap between the previous and the current offence. A guilty plea appears to increase the probability of receiving community service.

## **7.4 Changes in the use of community service**

In contrast to the relatively small changes in the percentage of proven cases resulting in imprisonment, there have been very substantial changes in the use of community service over the last decade and a half (Figure 7.3). In 1982, 2.8% of all proved cases involving imprisonable offences resulted in a community service sentence, compared to 9.4% in 1997. The increased use of community service occurred over a relatively short time period (1988-1992), with a peak use at 12.4% of cases in 1992. More than four times as many offenders received a community service sentence in 1997 as in 1982.

Figure 7.3: The percentage of proved cases resulting in a community service sentence for imprisonable offences, 1982-1997



A change in the use of a particular sentence may be due to one or both of the following: (i) a change in the type of offence or offender being dealt with by the courts or (ii) a change in sentencing practice (such that offenders with the same characteristics are now more or less likely to receive a particular sentence than in the past).

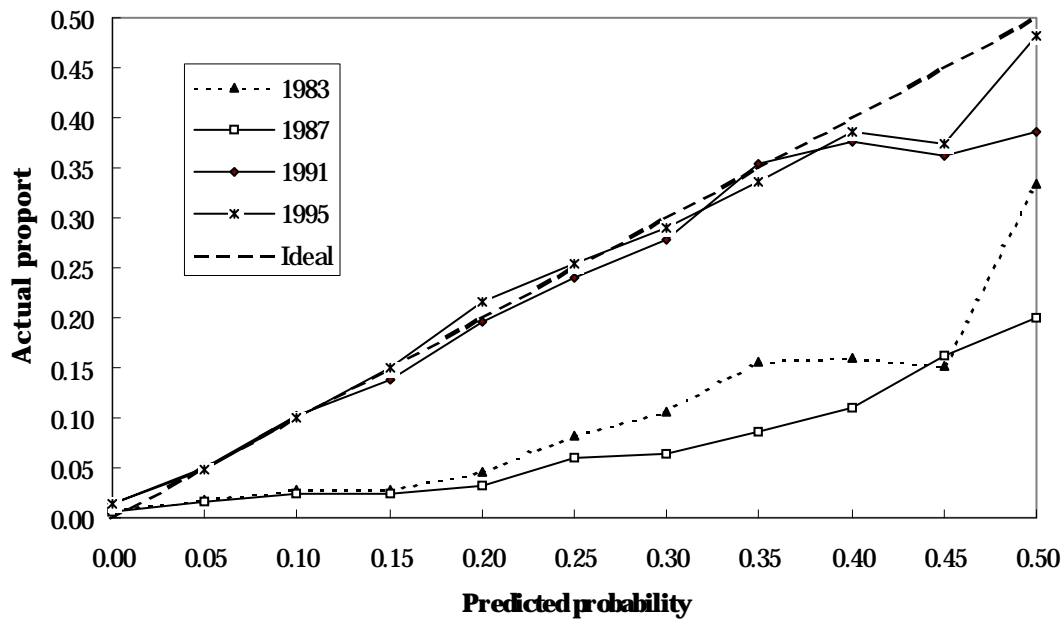
Since 1983, there have been significant increases in the average seriousness of offences and the number of persistent offenders dealt with by the courts (section 3.2). As community service is more frequently used for imprisonable offences of relatively low seriousness and for offenders with relative few previous cases, the increasing use of community service is unlikely to be due to changes in the type of offence and offender.

To test the extent of change in sentencing practice, the logistic model developed using 1995 data was used to predict the probability of receiving community service for offenders in earlier years. This means that an offender in 1983 who has the same criminal history and current case characteristics as a person in 1995 would have the same predicted probability of community service. The predicted probabilities are then compared to the actual proportion of people receiving community service in each year. If no change in sentencing practice has occurred, then the predicted probability should be the same as the actual proportion receiving community service.

The very dramatic change in sentencing practice between the 1980s and the 1990s is illustrated in Figure 7.4. An offender sentenced in the 1990s was far more likely to receive community service than a person with the same statistical characteristics in the 1980s. For example, an offender whose characteristics give him or her a 30% predicted probability of receiving community service (based on the 1995 model) had only an 11% probability of actually receiving a community service sentence in 1983 and only 6% in 1987.

Sentencing practice does not appear to have changed between 1991 and 1995, suggesting that the slight drop in the use of community service over this period is due to a change in the type of offence or offender being sentenced. For example, the number of traffic offences prosecuted decreased between 1991 and 1995 and around half of the community service sentences imposed are for traffic offences.

**Figure 7.4: Comparison among years of the actual and predicted probabilities of community service, with predictions made using the 1995 model**



Overall, 3.0% of the offenders in 1983 received a community service sentence, compared to 2.4% in 1987, 10.8% in 1991 and 10.4% in 1995 (Table 7.2). The major change in sentencing practice occurred between 1987 and 1991, as indicated by the large disparity between the actual percentage receiving community service in 1987 (2.4%) and the predicted percentage (10.7%) based on 1995 sentencing practice.

Changes due to statistical factors appear to have had almost no impact on the use of community service. Had there been no change in sentencing practice, the predicted probability of community service would have been almost the same in 1983 (10.7%) as in 1995 (10.3%). Changes due to statistical factors do appear to explain the slight decrease in the use of community service between 1991 and 1995.

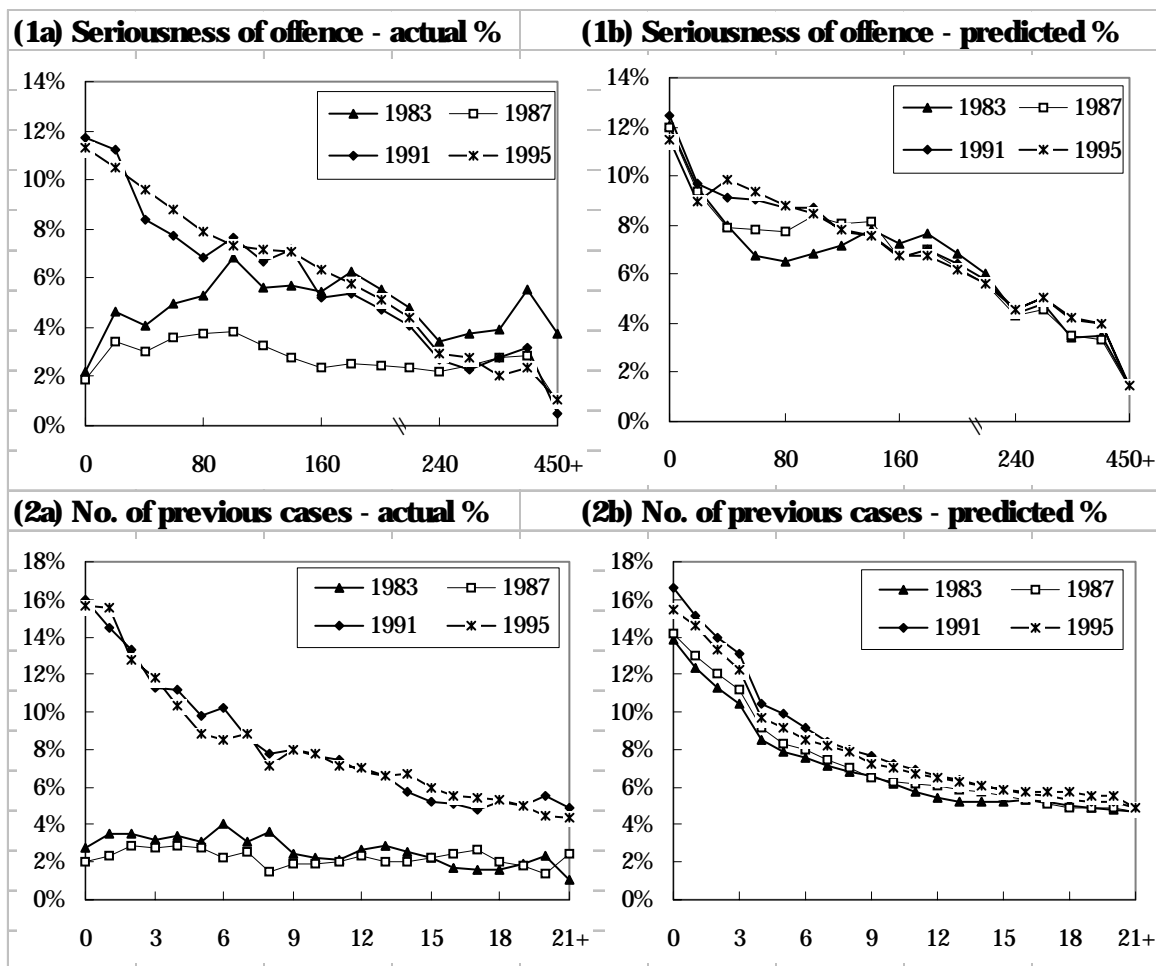
**Table 7.2: Actual percentage receiving community service for each variable and year and predicted percentage based on 1995 sentencing practice**

Variable	Category	Actual %				Predicted %			
		1983	1987	1991	1995	1983	1987	1991	1995
Total	All variables	3.0	2.4	10.8	10.4	10.7	10.7	11.1	10.3
Current seriousness	>0-1	1.2	1.0	11.8	12.4	7.1	7.3	11.9	12.4
	>1-20	2.8	2.2	11.3	9.6	12.3	12.1	11.8	9.4
	>20-180	4.3	3.5	9.8	10.1	8.4	8.8	9.9	9.9
	>180-365	5.4	2.3	3.7	4.1	5.3	5.0	5.3	5.3
	>365	4.4	1.4	1.2	1.3	1.5	1.5	1.5	1.6
Current offence	Serious against person	3.0	1.2	2.7	3.7	4.1	3.7	3.8	4.3
	Domestic violence	2.5	1.8	4.3	4.5	4.5	4.4	4.1	4.4
	Minor against person	1.7	1.8	7.9	8.5	7.6	7.6	8.0	8.6
	Property	4.0	2.9	11.4	11.7	9.9	10.4	11.3	11.4
	Drugs	2.4	1.7	8.1	8.5	8.6	8.4	8.2	8.4
	Breach pd	1.4	2.3	3.1	2.9	2.9	2.9	2.8	2.7
	Other against justice	4.0	2.1	6.3	5.9	4.8	4.9	4.8	5.2
	Disorder/other	1.0	1.1	4.2	4.9	4.8	4.8	5.0	5.1
Previous cases	Traffic	2.8	2.5	13.5	13.9	15.7	15.4	14.1	13.9
	0	2.7	2.0	16.0	15.6	13.8	14.2	16.7	15.5
	1-3	3.5	2.6	13.3	13.7	11.6	12.3	14.2	13.5
	4-10	3.3	2.4	9.4	8.7	7.5	7.9	9.0	8.5
Most recent sentence	11+	2.0	2.3	5.6	5.5	5.2	5.4	5.7	5.6
	Prison	2.4	2.0	3.5	3.2	3.5	3.4	3.4	3.2
	Periodic detention	1.1	1.6	4.2	4.3	4.0	4.4	4.7	4.4
	Comm. programme	0.0	1.7	5.7	11.9	0.0	8.9	9.4	9.8
	Comm. service	12.7	12.4	25.7	22.8	20.3	21.9	22.0	21.5
Age	Supervision	5.5	3.9	11.6	10.0	11.4	11.4	11.6	10.2
	<17	0.9	0.3	1.2	0.5	0.5	0.5	0.4	0.4
	17-19	2.8	2.2	12.7	13.5	12.6	13.0	13.2	12.9
	20-29	3.3	2.5	9.9	9.2	10.6	10.4	10.0	9.1
Gender	30+	3.9	3.2	11.6	10.8	14.1	13.5	12.2	10.9
	Female	9.9	5.5	23.0	22.2	20.7	21.1	23.3	22.3
Ethnicity	Male	2.0	1.8	8.9	8.4	9.2	8.9	9.2	8.3
	Māori	3.3	2.8	10.5	11.0	9.8	10.0	11.4	10.9
	Pacific	2.7	1.9	11.6	11.1	11.0	11.3	12.2	11.0
	Pakeha/Other	2.9	2.2	9.4	8.7	8.7	8.9	9.1	8.6

Note: The predicted percentage is the percentage of offenders who would have received the sentence had the sentencing practices of 1995 been applied, as predicted by the 1995 logistic model. The difference between the predicted percentage for 1995 and other years indicates the proportion of the total change due to changes in statistical factors (e.g. the increase in average seriousness) while the difference between the actual and predicted percentage for each year indicates the proportion of total change due to changes in sentencing practice.

The most dramatic changes in the use of community service have occurred for offences of low seriousness and offenders with a limited criminal history (Figure 7.5-1a). In 1983, the offences most likely to result in community service were those in the moderate seriousness range (offences with a seriousness score of about 100-200). By 1987 the use of community service was consistently low across most seriousness groups. In contrast, in the 1990s, offences of low seriousness (20 or less; e.g. theft, common assault, cannabis use, disorderly behaviour, most traffic offences) were the most likely to receive community service. These low seriousness offences were three times as likely to receive community service in the 1990s than in the 1980s. These changes cannot be explained by changes in the type of offences and offenders being dealt with by the courts, as indicated by the predicted percentages (Figure 7.5-1b and Table 7.2).

**Figure 7.5: Actual percentage receiving community service and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995**



The use of community service was much greater in the 1990s than in the 1980s for offenders with any number of previous cases, but the disparity is most marked for offenders with no or only a few previous cases (Figure 7.5-2a). For example, first offenders were six times more likely to receive a community service sentence in 1995



than in 1983. These changes cannot be explained by changes in statistical factors, as indicated by the predicted percentages (Figure 7.5-2b).

As indicated in Table 7.2, the increase in the use of community service has occurred across almost all categories of offences and offenders, with the exception of the most serious offences and youth offenders. Offences with a seriousness score of 180-365 or more than 365 were less likely to receive a community service sentence in 1995 compared to 1983.

The increase in the use of community service for less serious offences and offenders suggests community service is now being used as an alternative to a monetary penalty, rather than primarily as an alternative to imprisonment. Certainly the increased use of community service is far greater than could be explained by the decrease in the use of imprisonment (section 4.4), whereas the community service trend does correspond to the significant decrease in the use of monetary penalties (section 10.4).



# 8 Community programme

## 8.1 Background

This sentence was introduced as ‘community care’ in 1985 and renamed ‘community programme’ in 1993. As for community service, the offender must have committed an imprisonable offence and must consent to the sentence, and a suitable programme must be available. The sentence can involve attending a programme to meet the medical, social, therapeutic or educational needs of the offender or being placed in the care of a community group or person that can provide appropriate support or a positive influence.

This chapter examines which statistical factors most influence the use of community programme sentences, looking first at the variables individually and then at their combined effects using multivariate modelling techniques. Changes in the use of community programme are documented in the final section of this chapter.

## 8.2 Single variable analysis of current factors influencing sentencing

The community programme sentence is relatively rarely used. Overall only 1.1% of the proved cases in 1995 resulted in a community programme sentence. The probability of receiving a community programme sentence is higher (2-4%) for offences in the seriousness range 20 to 365 and where several charges have been proved against the offender (Figure 8.1).

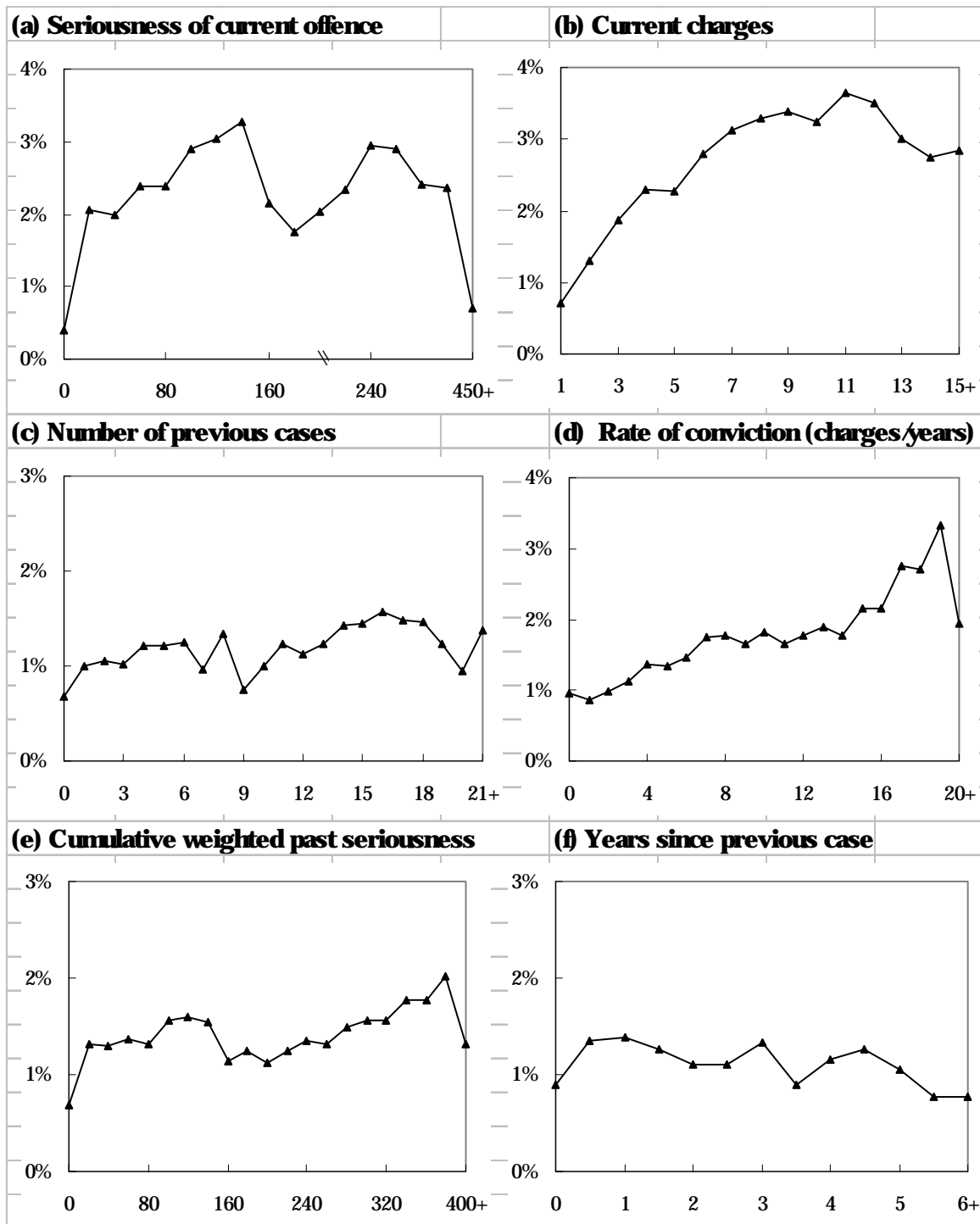
Offenders with a long or serious previous offending record are more likely to receive a community programme sentence, especially those with a high rate of conviction (i.e. offenders who are convicted very frequently).

The percentage of offenders receiving a community programme sentence is higher if the most recent sentence prior to the current case was also a community programme sentence (8.2%), than if the previous sentence was a prison sentence (2.3%), periodic detention (1.6%), community service (1.8%), supervision (2.2%) or a monetary penalty (0.8%).

Almost 2% of Māori and Pacific offenders received a community programme sentence, compared to 1% of Pakeha/Other offenders. Slightly more women (1.3%) than men (0.9%) received a community programme sentence.

Community programme sentences are much more likely to be imposed for domestic violence offences (4.8%) and serious offences against the person (2.7%) than for other offence types (0.5-1.5%).

Figure 8.1: Percentage of offenders receiving a community programme sentence in 1995 for selected variables



Notes: Current seriousness (seriousness score of current offence) is rounded to the nearest 20 up to 200; then to nearest 60. Rate of offending is rounded to the nearest 1 charge per year. Cumulative weighted past seriousness is rounded to the nearest 20. Years since previous offence (or since end of previous prison sentence) is rounded to the nearest 0.5 years. Trends smoothed where number of people in group is low.

### 8.3 Multivariate analysis of current factors influencing sentencing

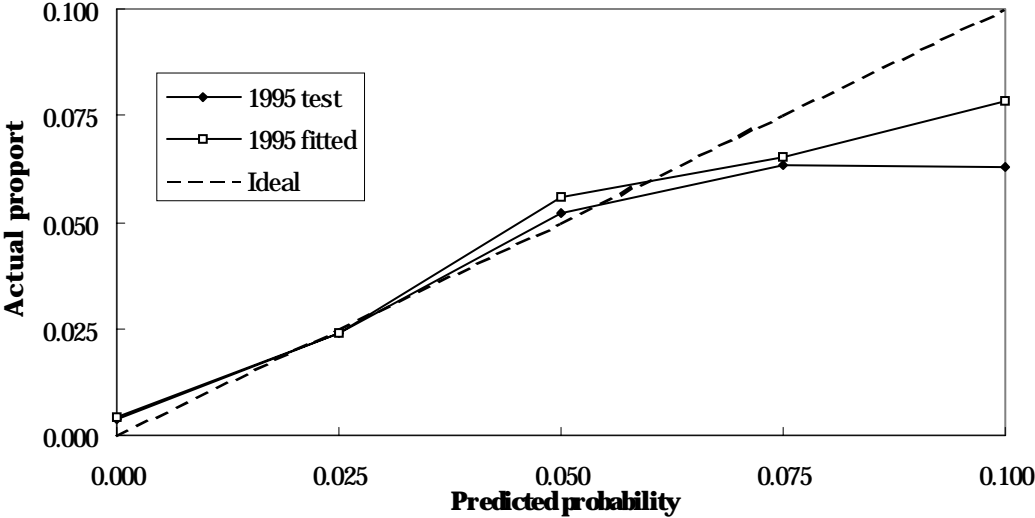
#### 8.3.1 The fit and accuracy of the 1995 model

The logistic regression models for community programme achieved a significant overall fit to both the full and half 1995 data, as indicated by log likelihood ratios significant at the 0.0001 level of probability. However, the residual (unexplained variation) term of the full 1995 model was significant, indicating that the results should be interpreted with caution, due to the possibility of systematic error in the model's predictions.

Moreover, the community programme model produced predictions only over a very narrow range of probability - very few offenders had even a 10% predicted probability of receiving a community programme sentence (Figure 8.2). This finding is perhaps not surprising, given the very low use of community programme and the importance of contextual factors relevant to the specific offence and offender, but not measured by the statistical factors available for this study. For example, Hall (1998, page D/592) makes the following comment about the targeting of community programme:

‘The sentence is particularly appropriate where offending is associated with some social or personal deprivation or condition that may be alleviated by community-based support. Where the offender is lacking day to day living and social skills, and is in need of social education, the Court should consider imposing this sentence.’

Figure 8.2: Plot of the predicted probability versus the actual proportion of offenders receiving community programme, 1995 fitted and test data



Given that the overall probability of receiving a community programme sentence is 1%, the model's ability to identify offenders with up to a 10% probability of receiving a community programme sentence still represents a ten-fold predictive improvement over what could be achieved by a random assignment of probability and is double the maximum discrimination based on any single statistical factor. Nevertheless, the model's usefulness for prediction is very limited, and the following results are therefore restricted to general statements of the type of statistical factors that may have a significant influence on the use of community programme.

### 8.3.2 Results of the 1995 model

Some comment on the factors contributing to the probability of receiving community programme are worth noting, even though the usefulness of the model is limited.

The results of the 1995 logistic model suggest that community programme sentences are targeted at violent offenders, particularly those who commit domestic violence (Table 8.1). An offender being sentenced for domestic violence has almost a five times higher relative risk of receiving a community programme sentence relative to a property offender (although, as noted in the previous section, the use of community programme is rare for all offences, peaking at only 4.8% for domestic violence). Other serious and minor offences against the person (mainly violent offences) also appear to have a higher likelihood of receiving a community programme sentence, as do breaches of periodic detention.

As for periodic detention, community programme tends to be targeted at people who have committed moderately serious offences or several charges. If their most recent sentence was another community programme sentence or a supervision sentence, the offender also has an increased probability of receiving a community programme sentence. Other criminal history characteristics appear to have relatively little effect on sentencing to community programme.

Māori and Pacific peoples appear to be around twice as likely to receive a community programme sentence as Pakeha/Other offenders, once other factors have been taken into account. This is as expected, given that one of the objectives of the sentence was to provide an alternative sentence that could accommodate culturally-appropriate programmes. As noted in Hall (1998, page D/593):

‘Community care will generally be appropriate for young offenders who belong to an ethnic or cultural minority, where members of that group are willing to attempt to instil some sense of responsibility and respect for cultural values in the offender.’

Women, 17-19 year olds and people aged 30 or over also appear to have a higher relative risk of receiving a community programme sentence.

**Table 8.1: Logistic regression model for community programme, 1995**

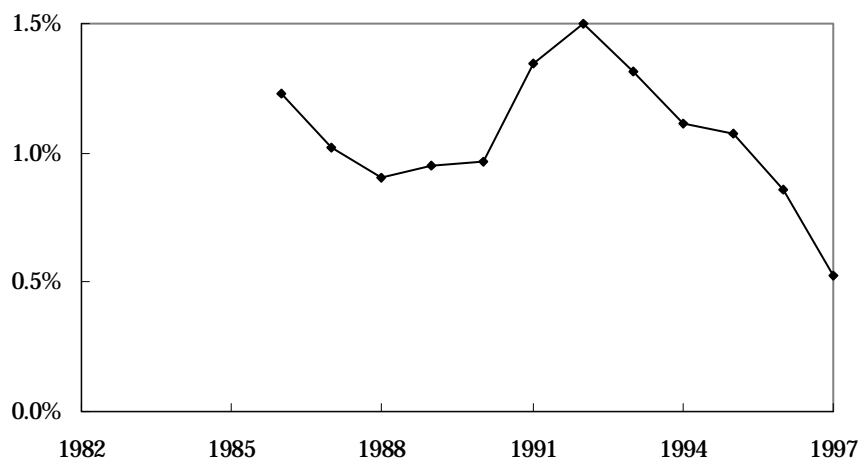
Variable	Category	Odds ratio	Chi-square	P	Rank
Current seriousness	>1-20	-	-	-	-
	>20-180	3.248	170.0	0.0001	2
	>180-365	3.870	44.9	0.0001	7
	>365	-	-	-	-
Current charges	2-4	1.899	67.3	0.0001	6
	5+	2.784	87.4	0.0001	4
Current offence	Serious against person	1.899	23.0	0.0001	12
	Domestic violence	4.245	188.3	0.0001	1
	Minor against person	2.377	26.4	0.0001	11
	Drugs	-	-	-	-
	Breach pd	2.129	18.5	0.0001	13
	Other against justice	-	-	-	-
	Disorder/other	-	-	-	-
	Traffic	0.786	5.8	0.0159	17
Plea	Guilty	-	-	-	-
Gender	Female	1.697	32.1	0.0001	9
Age group	<17	0.417	5.8	0.0164	18
	17-19	1.333	8.6	0.0034	15
	30+	1.242	7.9	0.0051	16
Ethnicity	Māori	2.076	85.5	0.0001	5
	Pacific	2.033	34.7	0.0001	8
Most recent sentence	Prison	-	-	-	-
	Periodic detention	-	-	-	-
	Comm. programme	5.874	121.1	0.0001	3
	Comm. service	-	-	-	-
	Supervision	1.372	4.9	0.0267	20
Previous sentence	Prison	-	-	-	-
	Periodic detention	-	-	-	-
	Comm. programme	1.867	29.8	0.0001	10
	Comm. service	-	-	-	-
	Supervision	-	-	-	-
Previous offence	Breach cbs	-	-	-	-
Previous proved cases	1-3	-	-	-	-
	4-10	-	-	-	-
	11+	-	-	-	-
Previous seriousness	>10-60	1.197	5.4	0.0198	19
	>60-180	-	-	-	-
	>180	-	-	-	-
Time since previous case	1 month or less	0.525	15.7	0.0001	14
	>1 month-1 year	-	-	-	-
	>1-4 years	-	-	-	-
Rate of conviction	2-8 charges per year	-	-	-	-
	>8 charges per year	-	-	-	-

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

## 8.4 Changes in the use of community programme

The community programme (formerly community care) sentence was introduced by the Criminal Justice Act 1985. Since 1986 the use of community programme has fluctuated, reaching a peak in 1992 and decreasing markedly since then (Figure 8.3). At no point has community programme accounted for more than 1.5% of all proved cases for imprisonable offences.

**Figure 8.3: The percentage of proved cases resulting in community programme for imprisonable offences, 1982-1997**



The very low use of the community programme sentence (and hence the small number of sentences in the data used for this study), the fluctuations in its use, and the fact that it was not introduced until 1985 means that changes in sentencing practice cannot be accurately assessed. The decreasing use of community programme in the 1990s would seem to indicate a change in sentencing practice, given that an increase in use might have been expected due to the rapid growth of the number of cases involving violent offences (especially domestic violence) to reach a peak in 1995.



# 9 Supervision

## 9.1 Background

Probation was introduced in 1954 and was replaced by supervision in 1985. As the name suggests, the sentence involves the supervision of the offender by a probation officer on a regular basis, with certain standard conditions (e.g. notifying a change of address). Supervision may also be imposed with additional special conditions (e.g. attending a work or social skills training programme).

Supervision is frequently imposed as cumulative to a short sentence of imprisonment or in combination with periodic detention. As the primary sentence in such cases is taken as the prison or periodic detention sentence, these cases are not included in this analysis of supervision.

This chapter examines which statistical factors most influence the use of supervision sentences, looking first at the variables individually and then at their combined effects using multivariate modelling techniques. Changes in the use of supervision are analysed in the final section of this chapter.

## 9.2 Single variable analysis of current factors influencing sentencing

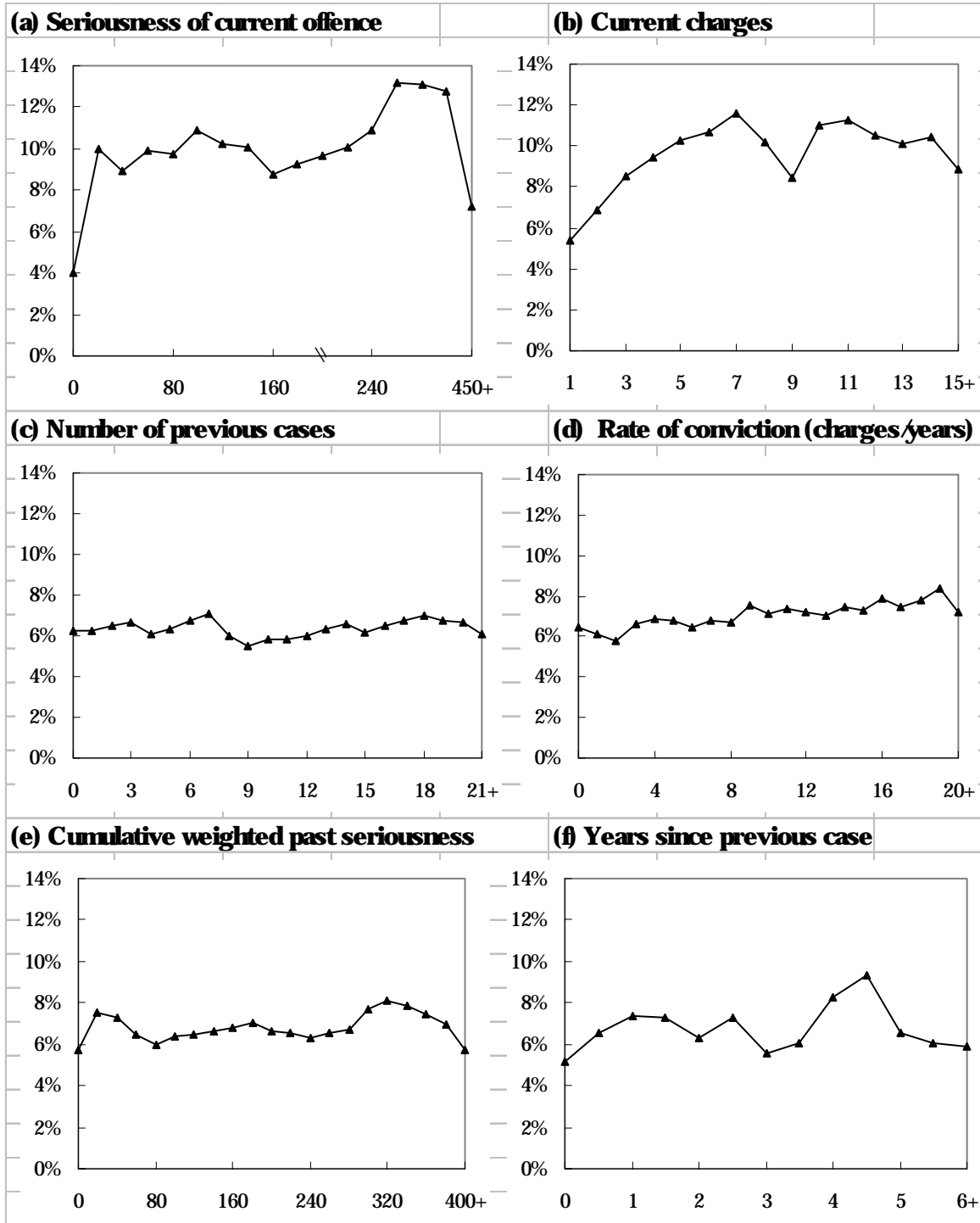
Overall, 6.3% of the offenders who had a proved case in 1995 received supervision as their primary sentence.

Compared to imprisonment, the use of supervision shows only fairly weak relationships with the current seriousness of offending and the previous criminal history of the offender (Figure 9.1).

Offenders who have committed offences of very low or very high seriousness have a relatively low probability of receiving a supervision sentence, as do those convicted on only one or two charges. The use of supervision is fairly constant over moderate levels of seriousness (e.g. seriousness scores in the range 20-200) and peaks for the relatively small number of offences with a seriousness of around 300-360 (mainly serious offences against the person).

There is relatively little relationship between the use of supervision and the criminal history characteristics of the offender.

Figure 9.1: Percentage of offenders receiving a supervision sentence in 1995 for selected variables



Notes: Current seriousness (seriousness score of current offence) is rounded to the nearest 20 up to 200; then to nearest 60. Rate of offending is rounded to the nearest 1 charge per year. Cumulative weighted past seriousness is rounded to the nearest 20. Years since previous offence (or since end of previous prison sentence) is rounded to the nearest 0.5 years. Trends smoothed where number of people in group is low.

Nor are there very clear distinctions in the probability of receiving a supervision sentence between demographic groups. Females have a slightly higher probability of receiving supervision (9%) than males (6%), while Pacific peoples have a slightly higher probability (9%) than Māori and Pakeha/Other ethnic groups (7%). Age makes relatively little difference, except for a lower probability for youth offenders (3%). The lower use of supervision for youth offenders is not surprising, given the availability of youth supervision and community work orders as alternative sentences.

Offence type is a more significant factor. Cases involving domestic violence have by far the highest probability of a supervision sentence (27% of proved cases for this offence type result in a supervision sentence). Serious offences against the person (11%), minor offences against the person (9%) and property offences (8%) are also more likely than other offences to result in supervision.

The percentage of offenders receiving a supervision sentence is higher if the most recent sentence prior to the current case is also supervision (14%), than if the previous sentence was a prison sentence (6%), periodic detention (5%), community service (8%), community programme (10%) or a monetary penalty (5%).

## **9.3 Multivariate analysis of current factors influencing sentencing**

### **9.3.1 The fit and accuracy of the 1995 model**

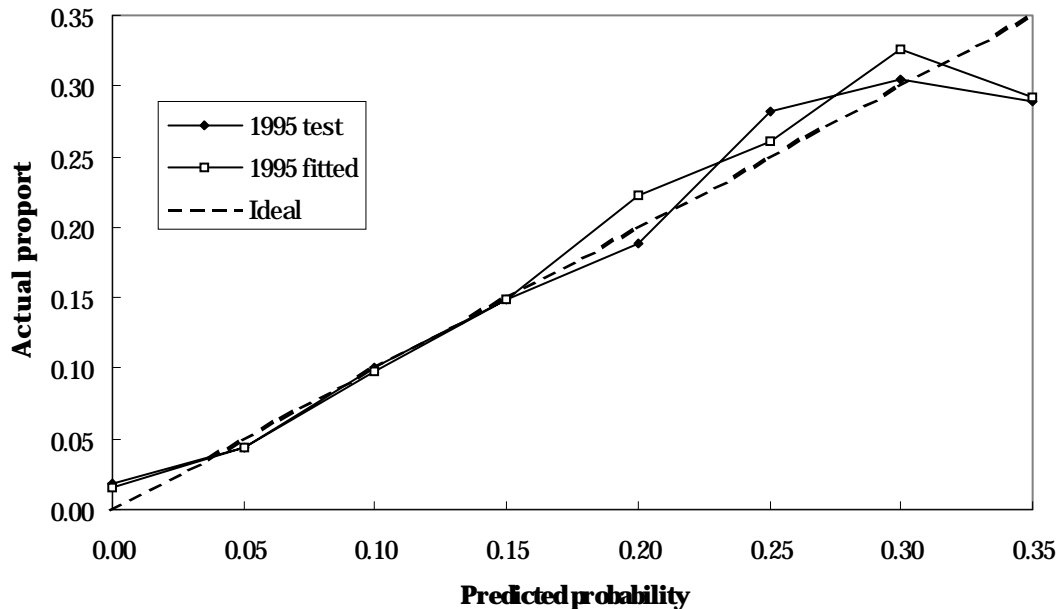
The logistic regression models for supervision achieved a significant overall fit to both the full and half 1995 data, as indicated by log likelihood ratios significant at the 0.0001 level of probability and non-significant residual (unexplained variation) terms. The model not only fits the data it was developed on, but fits equally well to other data. Thus, the results of the test phase (Figure 9.2) show that the model developed using one half of the 1995 data (the ‘fitted data’) fits equally well to the other, unseen half of the 1995 data (the ‘test data’).

The supervision model differs from the prison model in that the results are only close to the ideal line up to a probability of about 0.3 and there were very few offenders with a probability more than 0.4. Thus, there were no factors or combination of statistical factors that adequately predicted a high probability of receiving a supervision sentence. This is perhaps not surprising, given that community-based sentences are targeted at an intermediate group of offenders (those who have neither a high probability of imprisonment nor a high probability of receiving a fine or no sentence).

Also, contextual factors relevant to the specific offence and offender, but not measured by the statistical factors available for this study, presumably make a substantial contribution to the sentencing decision. For example, supervision is appropriate when some form of counselling or therapy is indicated (e.g. for drug addiction or violent

behaviour) and where closer supervision of the offender is required than can be provided by other sentences.

**Figure 9.2: Plot of the predicted probability versus the actual proportion of offenders receiving supervision, 1995 fitted and test data**



### 9.3.2 Results of the 1995 model

When all of the statistical variables are compared in the logistic regression model, the most significant factor is having a current offence of domestic violence, at more than five times the odds ratio or relative risk of property offences (Table 9.1). Other types of violent offences (minor and serious offences against the person) are also more likely than property offences to result in a supervision sentence. Conversely, the probability of receiving a supervision sentence is reduced if the current offence is a traffic offence, drug offence or breach of a periodic detention sentence.

Offences of moderate seriousness (>20-180 and >180-365) have the highest odds ratios of the seriousness groups. People who have been charged with more than one offence are more likely to receive supervision than those charges with only one offence.

Women are almost twice as likely to get supervision as men, once the effects of other factors are taken into account (such as the higher rate of violent offending by men). As for other sentences, youth offenders (aged under 17) have a low relative risk of supervision. Māori offenders appear to be slightly less likely to receive supervision. A guilty plea appears to increase the probability of supervision.

**Table 9.1: Logistic regression model of the probability of supervision, 1995**

Variable	Category	Odds ratio	Chi-square	P	Rank
Current seriousness	>1-20	1.360	27.3	0.0001	15
	>20-180	2.321	233.1	0.0001	3
	>180-365	2.762	79.9	0.0001	8
	>365	1.528	10.1	0.0015	26
Current charges	2-4	1.469	130.0	0.0001	6
	5+	1.552	62.1	0.0001	10
Current offence	Serious against person	1.558	34.8	0.0001	14
	Domestic violence	5.144	1163.6	0.0001	1
	Minor against person	1.881	102.3	0.0001	7
	Drugs	0.597	50.6	0.0001	11
	Breach pd	0.479	42.9	0.0001	13
	Other against justice	-	-	-	-
	Disorder/other	-	-	-	-
	Traffic	0.543	160.7	0.0001	4
Plea	Guilty	1.640	69.3	0.0001	9
Gender	Female	1.950	285.8	0.0001	2
Age group	<17	0.265	47.9	0.0001	12
	17-19	1.242	24.5	0.0001	18
	30+	1.135	13.5	0.0002	22
Ethnicity	Māori	0.849	27.1	0.0001	16
	Pacific	-	-	-	-
Most recent sentence	Prison	-	-	-	-
	Periodic detention	-	-	-	-
	Comm. programme	1.523	8.8	0.0030	27
	Comm. service	1.251	13.0	0.0003	23
	Supervision	2.091	151.3	0.0001	5
Previous sentence	Prison	-	-	-	-
	Periodic detention	-	-	-	-
	Comm. programme	1.258	11.8	0.0006	24
	Comm. service	1.182	18.4	0.0001	19
	Supervision	-	-	-	-
Previous offence	Breach cbs	-	-	-	-
Previous proved cases	1-3	1.171	14.3	0.0002	21
	4-10	1.104	6.3	0.0120	28
	11+	-	-	-	-
Previous seriousness	>10-60	1.160	17.9	0.0001	20
	>60-180	-	-	-	-
	>180	-	-	-	-
Time since previous case	1 month or less	0.724	25.3	0.0001	17
	>1 month-1 year	-	-	-	-
	>1-4 years	1.122	10.1	0.0015	25
Rate of conviction	2-8 charges per year	-	-	-	-
	>8 charges per year	-	-	-	-

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

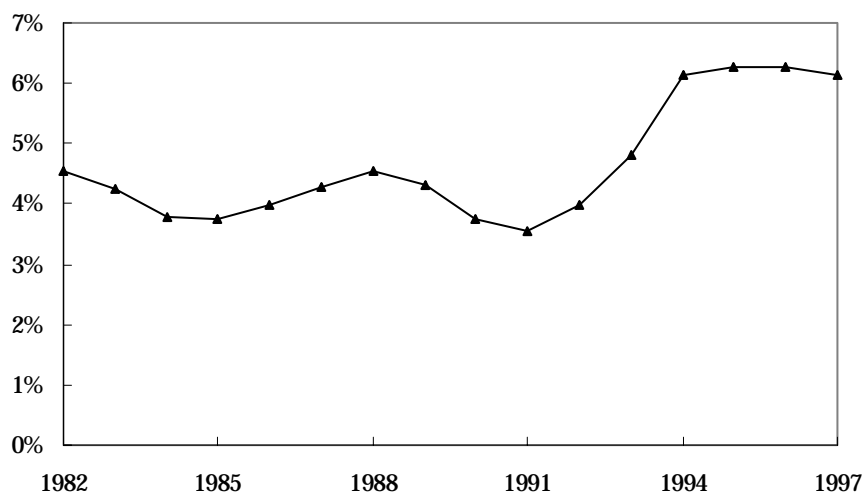
As for other community-based sentences, the current sentence is more likely to follow a sentence of the same type. That is, if the most recent sentence is supervision, or a supervision sentence has been served in the past, then the probability of a further supervision sentence is increased. Previous community programme and community service sentences also increase the probability of supervision.

Other than having a previous supervision sentence, the criminal history variables are amongst the least significant of all variables. A low to moderate number of previous cases and previous seriousness and a moderate gap since the last case tend to increase the odds of a supervision sentence.

## 9.4 Changes in the use of supervision

The use of supervision has increased over the 1982 to 1997 period, although the magnitude of the increase has been much less than for either community service or periodic detention. In 1982, 4.5% of proved cases involving imprisonable offences resulted in a supervision sentence, compared to 6.3% in the peak year of 1995 (Figure 9.3). In contrast to other community-based sentences, which increased in the late 1980s and early 1990s, the main period of growth for supervision was in the mid 1990s.

**Figure 9.3: The percentage of proved cases resulting in a supervision sentence for imprisonable offences, 1982-1997**



A change in the use of a particular sentence may be due to one or both of the following: (i) a change in the type of offence or offender being dealt with by the courts or (ii) a change in sentencing practice with respect to these characteristics (such that offenders with the same statistical characteristics are now more or less likely to receive a particular sentence than in the past). Given the use of supervision for offences of moderate seriousness and particularly its use for violent offences, the significant increases in the

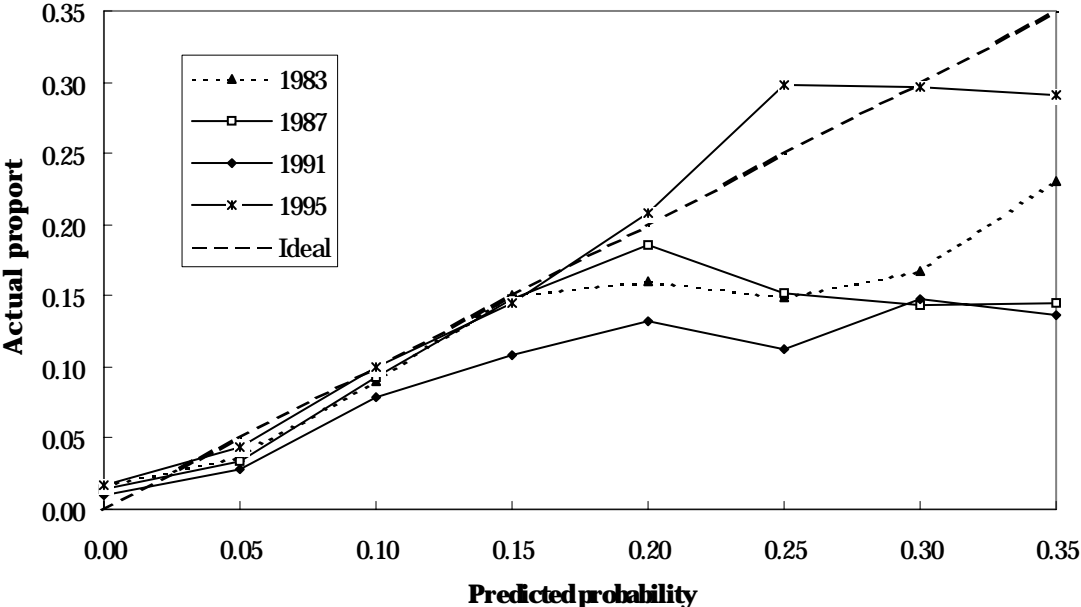
average seriousness of offences and the number of violent offences dealt with by the courts would be expected to result in an increase in the use of supervision.

To test whether sentencing practice has changed with respect to supervision, the logistic model developed using 1995 data was used to predict the probability of receiving a supervision sentence for offenders in earlier years. This means that an offender in 1983 who has the same criminal history and current case characteristics as a person in 1995 would have the same predicted probability of supervision. The predicted probabilities are then compared to the actual proportion of people receiving a supervision sentence in each year. If no change in sentencing practice has occurred with respect to the statistical variables, then the predicted probability should be the same as the actual proportion receiving supervision.

The results indicate that much of the increase in the use of supervision between 1983 and 1995 can be explained by changes in statistical factors. Overall, 4.5% of offenders in 1983 received supervision, compared to 6.3% in 1995 (Table 9.2). The similarity of the actual 1983 percentage (4.5%) to the predicted percentage for 1983 (5.0%) based on the 1995 model indicates that, overall, there has been relatively little change in sentencing practice between 1983 and 1995. However, there does appear to have been a decrease in the use of supervision between 1987 and 1991, followed by an increase between 1991 and 1995. Thus, the actual use of supervision is lower in 1991 (3.4%) than predicted (5.2%) given the types of offenders and offences dealt with by the courts that year.

Changes in sentencing practice over the range of probabilities are shown in Figure 9.4.

**Figure 9.4: Comparison among years of the actual and predicted probabilities of supervision, with predictions made using the 1995 model**



**Table 9.2: Actual percentage receiving supervision for each variable and year and predicted percentage based on 1995 sentencing practice**

Variable	Category	Actual %				Predicted %			
		1983	1987	1991	1995	1983	1987	1991	1995
Total	All variables	4.5	4.3	3.4	6.3	5.0	5.1	5.2	6.3
Current seriousness	>0-1	1.9	2.0	1.3	2.5	3.0	3.0	2.4	2.5
	>1-20	3.4	3.1	3.1	5.7	4.2	4.2	4.5	5.7
	>20-180	8.2	8.4	5.8	11.1	7.7	8.2	8.6	11.1
	>180-365	7.5	9.2	10.3	11.6	11.0	10.5	11.3	11.7
	>365	2.4	3.8	3.0	7.3	6.8	7.0	6.7	7.3
Current offence	Serious against person	7.7	6.7	6.9	10.9	10.4	10.0	10.4	10.9
	Domestic violence	8.9	10.2	10.6	27.1	23.9	24.8	26.1	27.1
	Minor against person	3.4	4.2	4.9	9.4	8.2	8.3	8.9	9.4
	Property	7.6	7.4	6.1	7.5	6.1	6.2	7.1	7.5
	Drugs	2.1	2.2	2.4	3.7	3.2	3.2	3.4	3.7
	Breach pd	2.5	2.6	2.3	2.6	2.3	2.3	2.5	2.6
	Other against justice	5.2	8.7	3.9	5.3	5.7	5.6	5.7	6.0
	Disorder/other	2.6	2.5	3.5	4.7	4.1	4.1	4.7	4.7
Previous cases	Traffic	1.6	1.5	1.6	3.0	3.0	3.1	3.0	3.0
	0	3.2	2.8	3.2	6.3	4.4	4.8	5.1	6.4
	1-3	5.6	5.2	3.3	6.5	5.2	5.1	5.1	6.5
	4-10	5.1	5.0	3.8	6.4	5.6	5.4	5.3	6.4
Most recent sentence	11+	3.3	3.7	3.4	6.2	5.2	5.2	5.2	6.2
	Prison	4.1	4.4	3.7	5.6	5.3	5.2	5.4	6.0
	Periodic detention	2.6	3.8	3.1	5.4	4.7	4.8	4.9	5.6
	Comm. programme	0.0	7.0	6.3	10.1	0.0	8.5	8.3	10.1
	Comm. service	5.3	6.0	4.8	7.7	7.6	7.4	6.8	7.7
Age	Supervision	8.8	9.5	8.9	13.7	11.7	11.9	12.6	13.7
	<17	4.1	3.3	1.9	2.9	2.2	2.1	2.5	2.9
	17-19	6.8	6.4	5.0	6.7	6.4	6.4	6.2	6.7
	20-29	3.7	3.8	3.1	5.9	4.9	4.9	4.8	5.9
	30+	3.6	3.6	3.2	6.9	5.4	5.6	5.3	6.9
Gender	Female	9.6	8.0	6.1	9.1	8.6	8.5	8.1	9.1
	Male	3.7	3.6	3.0	5.9	4.5	4.5	4.7	5.9
Ethnicity	Māori	5.5	4.9	3.7	6.8	5.3	5.2	5.7	6.8
	Pacific	4.5	4.3	3.8	8.5	6.5	6.5	7.1	8.7
	Pakeha/Other	5.2	5.0	4.4	6.8	5.6	5.6	5.7	6.4

Note: The predicted percentage is the percentage of offenders who would have received the sentence had the sentencing practices of 1995 been applied, as predicted by the 1995 logistic model. The difference between the predicted percentage for 1995 and other years indicates the proportion of the total change due to changes in statistical factors (e.g. the increase in average seriousness) while the difference between the actual and predicted percentage for each year indicates the proportion of total change due to changes in sentencing practice.

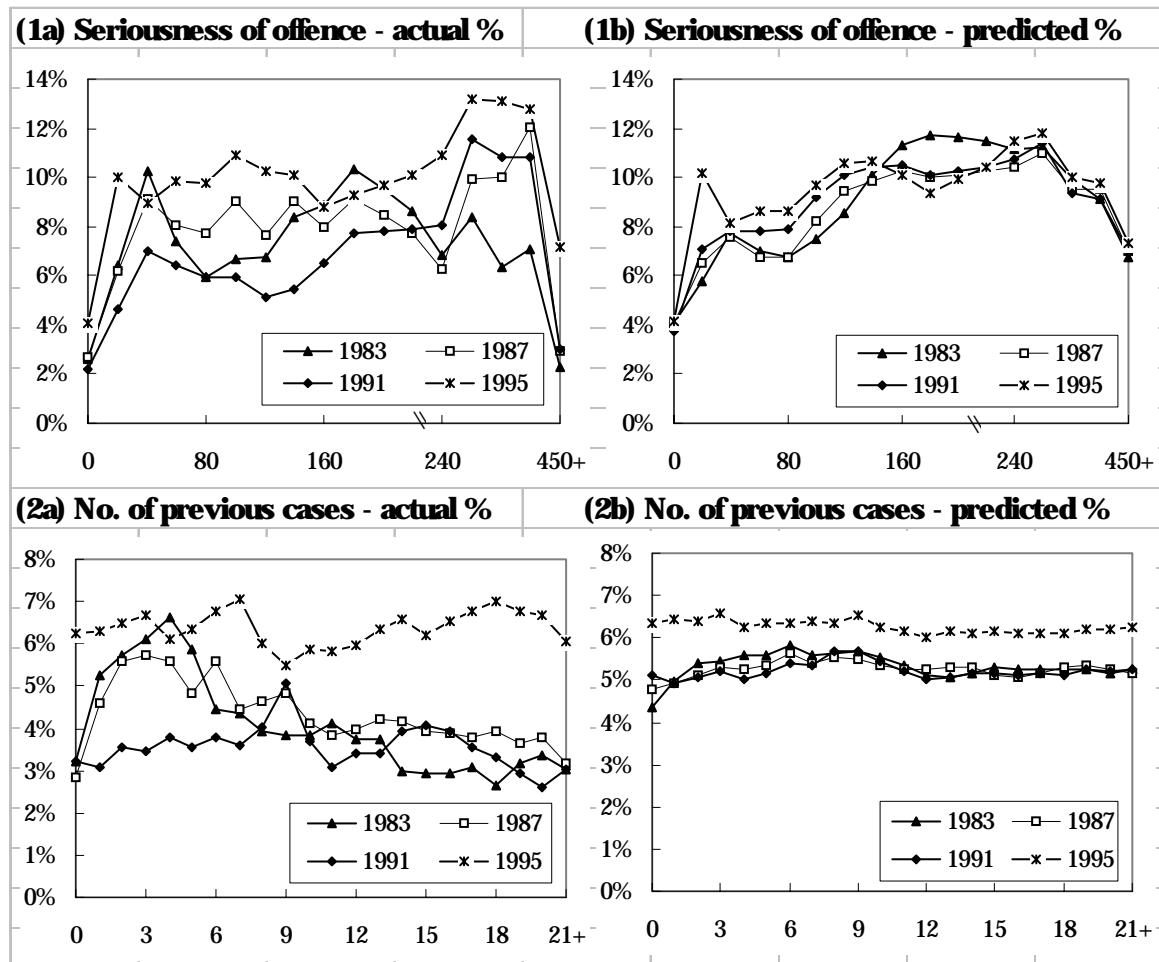
The lower than predicted use of supervision in 1991 appears to occur over most levels of probability. Differences between 1995 and the 1980s occur mainly at probabilities of



25% or more, for which the number of offenders is relatively small (and therefore this difference does not make much impact on the overall probability).

A significant increase in the use of supervision, especially between 1991 and 1995, has occurred for all the violent offences (particularly domestic violence, but also minor and serious offences against the person). For example, 11% of offenders convicted of domestic violence in 1991 received a supervision sentence compared to 27% in 1995. These increases cannot be explained by changes in other factors, as indicated by the much smaller increase in the predicted percentages for these offences. The number of domestic and other violence cases prosecuted increased rapidly between 1991 and 1995. This trend, combined with an increase in the use of supervision for violent offences, has made a significant contribution to the overall increase in the number of people sentenced to supervision over this period.

**Figure 9.5: Actual percentage receiving supervision and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995**



There has also been an increase in the use of supervision for offences of high seriousness and for offenders with several previous proved cases (Figure 9.5 and Table 9.2). Pacific peoples also show a relative increase in the use of supervision, reflecting the greater proportion of domestic violence relative to other types of offence for Pacific peoples. The relative use of supervision for youth offenders (aged under 17) has decreased, as has the use of other community-based sentences and prison sentences for this age group.

# 10 Factors influencing monetary penalties

## 10.1 Background

The monetary penalties included in this analysis are the fines and reparation imposed by the courts where the monetary penalty is the most serious sentence in the case. Reparation to the victim can be imposed whenever an offender has caused any loss or damage to any property or, since 1987, where the victim has suffered emotional harm.

Orders for court costs in the absence of a sentence are not included as a monetary penalty in this analysis. This study is limited to cases involving imprisonable offences. Just under a quarter of the total proved cases in 1995 were for non-imprisonable offences, for which the maximum penalty is a monetary penalty. Also excluded are monetary penalties not imposed by the court, such as fines resulting from unpaid infringement fees for speeding and parking infringements.

This chapter examines which statistical factors most influence the use of monetary penalties, looking first at the variables individually and then at their combined effects using multivariate modelling techniques. Changes in the use of monetary penalties are analysed in the final section of this chapter.

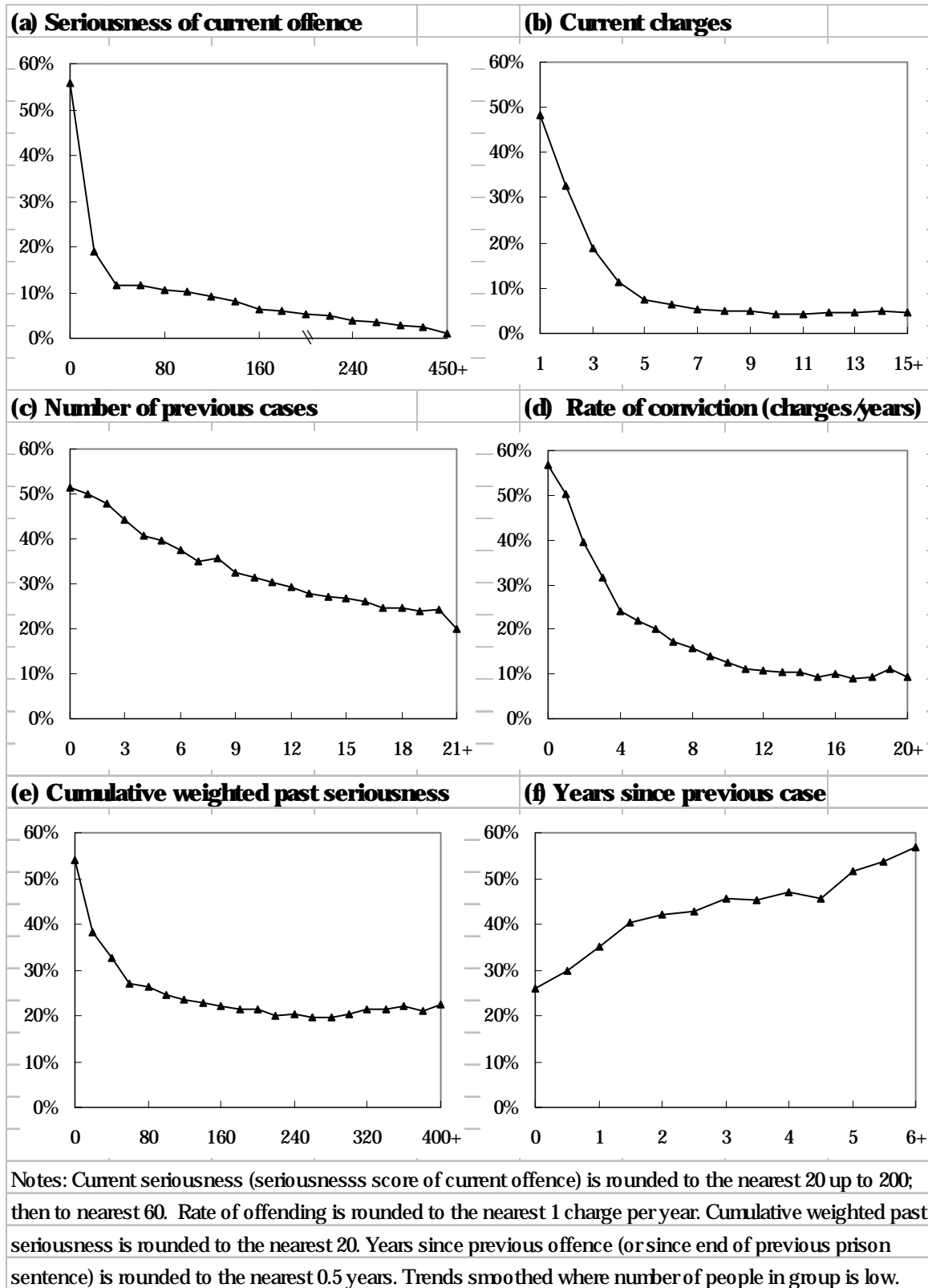
## 10.2 Single variable analysis of current factors influencing sentencing

The relationships between the probability of receiving a monetary penalty and the various statistical factors (Figure 10.1) are almost exactly the opposite of the relationships for imprisonment (Figure 4.1).

Offenders who have committed an offence of low seriousness have a far higher probability of receiving a monetary penalty. Almost 60% of cases involving an imprisonable offence with a seriousness score of less than 20 result in a monetary penalty, compared to less than 20% for all other offences. The probability of receiving a monetary penalty also drops rapidly as the number of proved charges in the current case increases.

Similarly, monetary penalties are more likely for people who have a limited offending history, especially those with a low rate of conviction or less serious previous convictions. There is a negative, more or less linear, relationship between the probability of a monetary penalty and the number of previous cases. If the person has not had a conviction for some years the probability of receiving a monetary penalty increases.

Figure 10.1: Percentage of offenders receiving a monetary penalty in 1995 for selected variables



Women have a lower probability of receiving a monetary penalty (35%) than men (40%), despite having characteristics that should make them more likely to receive a monetary penalty, such as the lower average seriousness of the offences committed by women. Youth offenders also have a lower probability of receiving a monetary penalty (11%), compared to adult offenders (37-41%). Monetary penalties are used less for Māori (28%) and Pacific peoples (30%) than for Pakeha/Other offenders (42%). Some of these differences are due to the characteristics of the different offender groups. The multivariate analysis presented below takes these factors into account.

As expected, the offence groups with the highest probability of receiving a monetary penalty are those largely comprised of offences of low seriousness. Thus, around half of the proved cases involving traffic offences (54%), drug offences (52%) and disorder offences (48%) result in a monetary penalty, compared to 36% of minor offences against the person, 29% of property offences, 18% of other offences against justice, 13% of domestic violence, 10% of breaches of periodic detention and 5% of serious offences against the person.

The percentage of offenders receiving a monetary penalty is higher if the most recent sentence prior to the current case is also a monetary penalty (54%), than if the previous sentence was a prison sentence (20%), periodic detention (22%), community programme (21%), community service (29%) or supervision (26%).

## **10.3 Multivariate analysis of current factors influencing sentencing**

### **10.3.1 The fit and accuracy of the 1995 model**

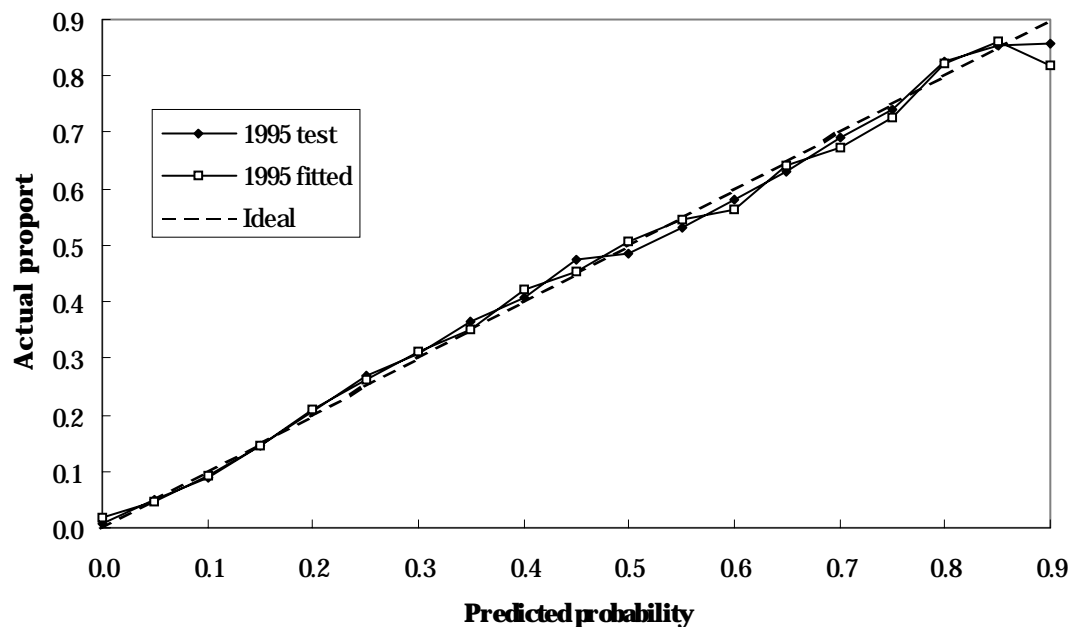
The logistic regression models for monetary penalties achieved a significant overall fit to both the full and half 1995 data, as indicated by log likelihood ratios significant at the 0.0001 level of probability and the non-significant residual (unexplained variation) terms.

The results of the test phase (Figure 10.2) indicate that the monetary penalty model gives good general predictive accuracy. That is, when the actual percentage of offenders receiving a monetary penalty is plotted against the probability of receiving a monetary penalty predicted by the model, the results are very close to the ideal line (the ideal line being where the actual probability is equal to the predicted probability). The model also produced predictions over almost the full range of probability (i.e. from 0 to 1), indicating that the model can discriminate between offenders with virtually no probability of a monetary penalty up to those who almost certainly will receive a monetary penalty.

One of the potential problems of developing the regression models is that a good fit to the data may be achieved by testing a large number of variables. Thus the model should be tested on some unseen data. The outcome of this test showed that the results were equally good when the model developed using one half of the 1995 data (the 'fitted data')

was used to predict probabilities on the other, unseen half of the 1995 data (the ‘test data’).

**Figure 10.2: Plot of the predicted probability versus the actual proportion of offenders receiving a monetary penalty, 1995 fitted and test data**



### 10.3.2 Results of the 1995 model

As expected, offences of low or moderately low seriousness and offenders convicted on only one or a few charges are much more likely to receive a monetary penalty, all other factors being equal (Table 10.1). Thus, the odds ratio relative to the reference groups ( $>0-1$  for seriousness and one charge) decrease sharply as the seriousness or number of charges increase. Similarly, the more serious offences (e.g. offences against the person and offences against justice) have very low odds ratios relative to property offences.

However, there are other equally significant variables in the monetary penalty model that are less intuitively obvious. In particular, women have a significantly lower probability of receiving a monetary penalty than men, even after taking account of the lower average seriousness of offences committed by women and other factors. Conversely, women are also more likely than men to receive community service or no sentence (e.g. a conviction and discharge; see Appendix I).

Māori and Pacific peoples are also less likely to receive a monetary penalty (and less likely to receive no sentence), but are more likely to receive community service, community programme or periodic detention.

**Table 10.1: Logistic regression model for monetary penalties, 1995**

Variable	Category	Odds ratio	Chi-square	P	Rank
Current seriousness	>1-20	0.558	519.7	0.0001	6
	>20-180	0.216	3127.9	0.0001	1
	>180-365	0.040	346.9	0.0001	9
	>365	0.022	226.6	0.0001	13
Current charges	2-4	0.546	930.8	0.0001	2
	5+	0.204	588.9	0.0001	4
Current offence	Serious against person	0.375	128.0	0.0001	16
	Domestic violence	0.324	497.8	0.0001	7
	Minor against person	0.725	67.5	0.0001	23
	Drugs	1.854	342.2	0.0001	10
	Breach pd	0.249	489.0	0.0001	8
	Other against justice	0.406	145.1	0.0001	15
	Disorder/other	1.072	4.0	0.0459	39
	Traffic	1.101	13.6	0.0002	37
Plea	Guilty	1.181	22.8	0.0001	33
Gender	Female	0.513	693.5	0.0001	3
Age group	<17	0.432	54.6	0.0001	26
	17-19	0.784	88.3	0.0001	22
	30+	0.909	21.6	0.0001	34
Ethnicity	Māori	0.739	248.0	0.0001	12
	Pacific	0.700	104.0	0.0001	19
Most recent sentence	Prison	0.538	204.6	0.0001	14
	Periodic detention	0.533	524.5	0.0001	5
	Comm. programme	0.533	32.4	0.0001	31
	Comm. service	0.488	331.9	0.0001	11
	Supervision	0.594	113.5	0.0001	18
Previous sentence	Prison	0.809	55.0	0.0001	25
	Periodic detention	0.771	103.4	0.0001	20
	Comm. programme	0.821	16.4	0.0001	35
	Comm. service	0.814	59.4	0.0001	24
	Supervision	0.928	8.6	0.0033	38
Previous offence	Breach cbs	-	-	-	-
Previous proved cases	1-3	-	-	-	-
	4-10	-	-	-	-
	11+	-	-	-	-
Previous seriousness	>10-60	0.842	44.7	0.0001	28
	>60-180	0.832	33.9	0.0001	29
	>180	0.818	24.2	0.0001	32
Time since previous case	1 month or less	0.638	122.2	0.0001	17
	>1 month-1 year	0.762	97.2	0.0001	21
	>1-4 years	0.859	32.7	0.0001	30
Rate of conviction	2-8 charges per year	0.911	15.0	0.0001	36
	>8 charges per year	0.686	47.3	0.0001	27

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

The reasons for the lower use of monetary penalties for women, Māori and Pacific peoples cannot be distinguished using the statistical data available in this analysis. Some possible explanations are that there may be gender or ethnic differences in the circumstances of the average case or possibly differences in the ability to pay a fine or a perhaps a perception that community service is more appropriate in other ways for these groups.

Youth offenders (aged less than 17) are less likely to get a monetary penalty than other offenders, although the effect is not as strong as it is for other sentences, for which youth offenders have very low odds ratios. The few youth offenders who are formally prosecuted, as opposed to being dealt with by Family Group Conferences, are more likely to receive no sentence or one of the other sentences specifically for youth offenders (e.g. youth supervision and community work orders).

As with all other sentence types, the previous sentences served have a significant impact on the current sentence type. The probability of a monetary penalty is reduced if the offender has previously served a prison sentence, periodic detention, community service or supervision, especially as the most recent previous sentence.

Other aspects of the offender's previous criminal history are also relevant, although these are not amongst the most significant of the variables in the model. Offenders with an offending history of moderate to high seriousness or who have a high rate of conviction or a recent conviction, are less likely to receive a monetary penalty than the reference groups. A guilty plea also increases the probability of a monetary penalty.

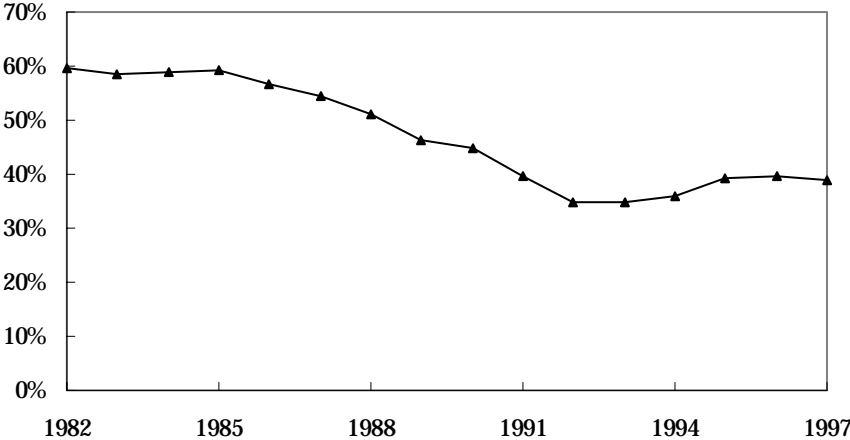
## **10.4 Changes in the use of monetary penalties**

The total number of cases resulting in a monetary penalty as the primary sentence decreased by a third (from about 83,000 to 56,000) over the 1983 to 1995 period. Much of this decrease is accounted for by the non-imprisonable offences excluded from this study. The number of monetary penalties imposed for non-imprisonable offences almost halved (from about 42,000 to 23,000) over the 1983 to 1995 period. Most of this decrease is due to the decriminalisation of minor offences (especially some minor traffic offences), although the greater use of alternatives to prosecution for minor offences has also contributed (Triggs 1998).

For the imprisonable offences included in the present study, there has been a 20% decrease in the number of monetary penalties imposed over the 1983 to 1995 period and a 33% decrease in the use of monetary penalties as a percentage of the sentences imposed for proved cases (Figure 10.3). Most of the change occurred between 1985 and 1992, with a small increase in use in the last few years.



**Figure 10.3: The percentage of proved cases resulting in a monetary penalty for imprisonable offences, 1982-1997**



To test whether this change is due to changes in sentencing practice or due to changes in the type of offence and offender being sentenced, the logistic model developed using 1995 data was used to predict the probability of receiving a monetary penalty for offenders in earlier years. This means that an offender in 1983 who has the same criminal history and current case characteristics as a person in 1995 would have the same predicted probability of a monetary penalty. The predicted probabilities are then compared to the actual proportion of people receiving a monetary penalty in each year. If no change in sentencing practice with respect to the statistical factors has occurred, then the predicted probability should be the same as the actual proportion receiving a monetary penalty.

The results indicate that there has been a significant change in sentencing practice, but also that some of the decrease in the use of monetary penalties can be explained by changes in statistical factors.

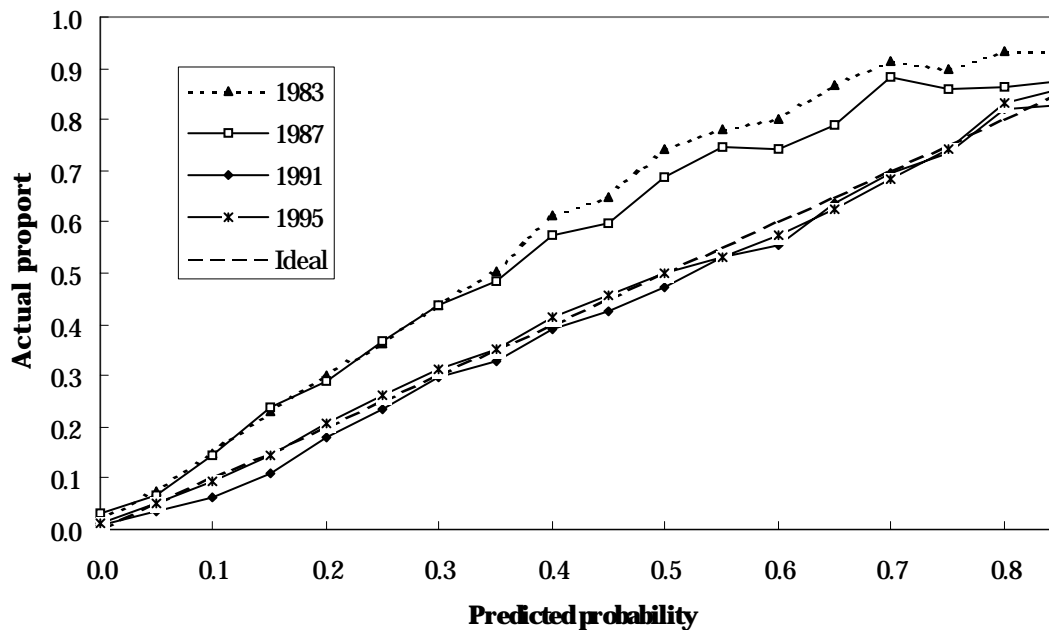
Overall, 59% of offenders in 1983 received a monetary penalty, compared to 55% in 1987, 41% in 1991 and 39% in 1995 (Table 10.2). Had there been no change in sentencing practice, the predicted probability of receiving a monetary penalty would still have been somewhat higher in 1983 (43%) than in 1995 (39%), due to statistical factors such as the lower average seriousness of cases proved in 1983 and the lower percentage of persistent offenders. The estimated decrease in the use of monetary penalties due to changes in sentencing practice is the difference between the actual percentage for in 1983 (59%) and the predicted percentage (43%).

Thus, the percentage of proved cases receiving a monetary penalty decreased by 20% in absolute terms (i.e. 59% minus 39%), most of which (16%) was estimated to be due to changes in sentencing practice, with an estimated 4% due to changes in statistical factors.

Changes in sentencing practice over the range of probabilities are shown in Figure 10.4. For all levels of probability, the 1983 and 1987 lines lie considerably above the 1991 and 1995 lines, indicating that the actual probability of receiving a monetary penalty was higher in the 1980s than the predicted probability based on 1995 sentencing practice. Thus, any offender sentenced in the 1980s had a higher probability of receiving a monetary penalty than an offender with the same statistical characteristics in the 1990s.

Some of this change in sentencing practice may be due to changes in factors that could not be quantified in this analysis. For example, any change in the average circumstances of offenders (such as the ability to pay a fine) would have had an influence on changes in sentencing practice, as the ability to pay a fine must be taken into account by the court.

**Figure 10.4: Comparison among years of the actual and predicted probabilities of receiving a monetary penalty, with predictions made using the 1995 model**



Very significant changes in sentencing practice have occurred over the 1983 to 1995 period for all levels of seriousness, all types of offence, all categories of criminal history, and all demographic groups of offenders (Table 10.2, Figure 10.5). In all categories, only a small proportion of the total change can be explained by changes in statistical factors.

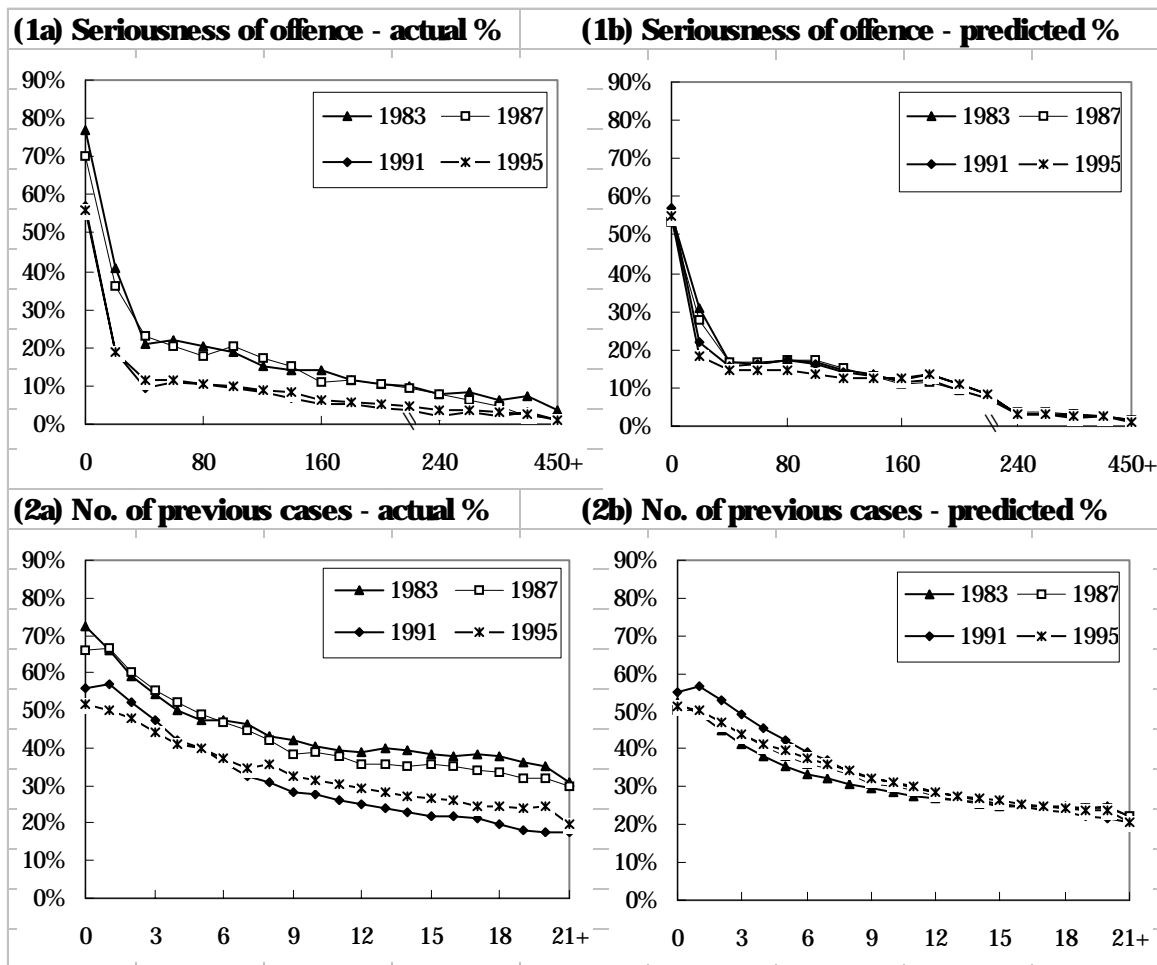
Many of the offenders who would previously have got a monetary penalty are now receiving other community-based sentences, especially community service, or no sentence (see section 11.2).

**Table 10.2: Actual percentage receiving a monetary penalty for each variable and year and predicted percentage based on 1995 sentencing practice**

Variable	Category	Actual %				Predicted %			
		1983	1987	1991	1995	1983	1987	1991	1995
Total	All variables	58.7	55.1	41.0	39.2	43.0	42.3	42.7	39.2
Current seriousness	>0-1	82.5	76.3	69.0	66.0	65.2	63.6	70.4	66.0
	>1-20	69.9	64.2	43.4	37.7	50.2	49.0	44.8	37.7
	>20-180	23.2	24.6	14.6	15.0	17.9	17.4	17.1	15.0
	>180-365	11.0	8.7	4.7	3.1	3.7	3.8	3.6	3.1
	>365	3.8	1.5	0.9	1.2	1.4	1.4	1.5	1.2
Current offence	Serious against person	12.5	8.1	4.0	5.1	6.3	5.2	4.9	5.1
	Domestic violence	44.2	31.4	15.4	13.3	18.7	16.8	13.9	13.3
	Minor against person	62.1	51.3	36.9	35.7	37.5	37.1	36.8	35.7
	Property	41.8	40.0	27.4	29.4	32.6	33.0	31.7	29.4
	Drugs	80.3	72.4	54.1	51.9	63.1	60.4	55.8	51.9
	Breach pd	18.7	15.1	6.1	9.5	12.0	11.5	10.5	9.5
	Other against justice	39.0	34.1	18.6	18.1	21.4	22.5	19.5	18.1
	Disorder/other	71.0	61.7	43.1	47.6	52.8	51.1	47.4	47.6
Traffic	78.0	73.4	52.9	53.6	55.9	52.2	52.9	53.6	
Previous cases	0	72.3	65.8	56.2	51.6	52.3	50.2	55.2	51.4
	1-3	61.4	61.9	53.1	47.8	46.4	47.8	53.4	47.6
	4-10	46.3	46.5	35.5	36.9	33.7	36.1	38.7	37.1
	11+	37.1	33.9	21.0	24.4	25.3	25.2	24.3	24.5
Most recent sentence	Prison	29.9	27.4	15.9	17.3	19.9	19.8	17.9	17.3
	Periodic detention	35.6	33.1	19.5	22.1	21.9	23.4	22.5	22.1
	Comm. programme	0.0	33.7	22.8	21.4	0.0	20.5	21.7	21.4
	Comm. service	43.8	41.0	24.3	28.6	24.3	26.5	26.4	28.6
	Supervision	45.7	40.9	27.5	26.3	29.4	29.2	28.9	26.3
Age	<17	26.3	31.9	9.3	11.2	21.6	24.1	14.1	11.2
	17-19	56.9	53.3	36.0	37.4	39.7	40.3	38.3	37.4
	20-29	63.2	57.5	39.8	38.9	47.0	44.8	42.0	38.9
	30+	69.1	62.1	47.1	41.4	50.2	47.3	47.3	41.4
Gender	Female	52.7	48.8	36.9	34.5	34.3	34.3	37.1	34.5
	Male	59.5	56.2	41.7	39.9	44.2	43.6	43.6	39.9
Ethnicity	Māori	44.2	42.9	27.4	27.9	29.8	30.8	29.0	27.9
	Pacific	48.4	47.4	30.2	30.0	33.5	35.1	31.8	30.0
	Pakeha/Other	58.4	54.5	39.6	42.4	44.9	44.9	43.1	43.1

Note: The predicted percentage is the percentage of offenders who would have received the sentence had the sentencing practices of 1995 been applied, as predicted by the 1995 logistic model. The difference between the predicted percentage for 1995 and other years indicates the proportion of the total change due to changes in statistical factors (e.g. the increase in average seriousness) while the difference between the actual and predicted percentage for each year indicates the proportion of total change due to changes in sentencing practice.

Figure 10.5: Actual percentage receiving a monetary penalty and predicted percentage based on 1995 sentencing practice, by offence seriousness and previous conviction history, 1983-1995



# 11 Summary and interaction effects

## 11.1 Outline of methods and limitations

The following results are based on the application of a multivariate method (logistic regression modelling) to determine the statistical factors influencing the probability of receiving each sentence type.

Multivariate methods estimate the effects of all statistical variables together, so that the independent contribution of each variable can be estimated. This is necessary as many of the variables are interrelated. For example, the seriousness of the current offence is higher on average for cases involving several charges, for offenders with a more extensive previous criminal history, and for offenders who are male, of Māori or Pacific ethnicity, or aged under 17 years.

Only factors that could be quantified from the available statistical data were included in the analysis. These include the type and seriousness of the major offence committed, the number of charges proved in the current case, the plea, the previous criminal history of the offender (number and seriousness of previous proved cases, rate of conviction, the time since the last case, and previous sentences) and the sex, age and ethnicity of the offender.

While these are important variables in determining sentencing, this does not imply that other factors are not important, only that they could not be measured from the available data. Therefore, this analysis is not intended as a comment on sentencing with respect to specific cases (which always involve unique circumstances influencing the choice of sentence), but rather is intended as a broad overview of the combined effects of various statistical factors on overall sentencing practice at a national level.

The models developed on recent (1995) data were used to predict the probability of receiving each sentence in three earlier years (1983, 1987 and 1991). These predicted probabilities are subject to statistical error (e.g. due to the limits of the accuracy of the model, from random errors due to small numbers in some categories, and from any changes within categories of some variables). Therefore, the analysis is only intended to indicate the relative magnitude of changes in sentencing practice.

The study is based on all proved cases involving imprisonable offences in each of the four years. The total sample size was just under 300,000 cases.

## 11.2 Overall changes in sentencing

The results indicate that very substantial changes in the use of different sentences have occurred since 1983. Some of this change can be explained by changes in the type of offence and offender dealt with by the courts, as measured by the statistical variables used in this study. In particular, increases in the average seriousness of offences dealt with by the courts and in the extent of previous offending for the average defendant have led to pressure for an increase in the use of the more serious sentences, such as imprisonment and periodic detention.

However, much of the change in sentence use cannot be explained by these statistical trends. This suggests that changes in sentencing practice have occurred. That is, offenders with similar characteristics are now more or less likely to receive a specific sentence than they were in the 1980s. Changes in factors that could not be measured by this study, such as changes in the prevalence of aggravating and mitigating factors, may also have played a part in this change in sentencing practice.

A major trend over the last decade and a half has been the increase in use of community-based sentences. Overall, the use of community-based sentences has doubled as a percentage of the total proved outcomes. Approximately a third of this increase is estimated to be due to trends in the type of offence and offender being dealt with by the courts, while two-thirds is estimated to be due to changes in sentencing practice. The specific findings are:

- The actual percentage of proved cases resulting in imprisonment has changed relatively little compared to changes in other sentence types. However, this lack of trend disguises a significant relative decrease in the use of imprisonment. Given the greater average seriousness of offences and offenders sentenced in 1995, the imprisonment rate should have been lower in 1983 than in 1995. Had 1995 sentencing practice been applied to the 1983 offenders, an estimated 5.8% would have received a prison sentence, which is considerably less than the actual rate of imprisonment of 9.5% in 1983 (Table 11.1).

The relative use of imprisonment decreased particularly between 1983 and 1987, following the introduction of stricter guidelines on the use of imprisonment (Criminal Justice Act 1985) and between 1991 and 1995, following the introduction of the suspended prison sentence (Criminal Justice Amendment Act 1993).

- The use of periodic detention has almost doubled in the last decade and a half. Trends in the type of offence and offender being sentenced explain much of this increase, although there has also been a change in sentencing practice towards greater use of periodic detention.

The increased use of periodic detention has largely occurred for the types of offences and offenders who would have received a prison sentence in the 1980s, suggesting that the decrease in the use of imprisonment has been balanced by the increase in

periodic detention. The absolute increase in the percentage of cases resulting in periodic detention that is estimated to be due to changes in sentencing practice over the 1983 to 1995 period (an estimated +5.0%, the difference between the actual and predicted percentage for 1983) is somewhat higher than the decrease for imprisonment (an estimated -3.7%).

This estimated change due to sentencing practice is probably an underestimate, as the statistical factors that influence the increased predicted use of periodic detention include two factors (the number of previous periodic detention sentences and breaches of periodic detention) that themselves are influenced by changes in sentencing practice towards a greater use of periodic detention.

The peak use of periodic detention was reached in the early 1990s, after rapid growth in the late 1980s. Between 1992 and 1996 the use of this sentence declined again, although the probability of receiving this sentence is still much higher than it was a decade ago.

**Table 11.1: Overall percentage of offenders receiving each sentence for each year, actual percentage and predicted percentage based on 1995 sentencing practice**

Sentence	Actual %				Predicted %			
	1983	1987	1991	1995	1983	1987	1991	1995
Prison	9.5	8.0	9.0	9.1	5.8	6.2	7.8	9.1
Periodic detention	12.8	16.2	26.6	23.8	17.8	19.3	23.6	23.8
Comm. programme	-	1.0	1.3	1.1	0.6	0.7	0.8	1.1
Comm. service	3.0	2.4	10.8	10.4	11.7	11.8	12.3	11.5
Supervision	4.5	4.3	3.4	6.3	5.0	5.1	5.2	6.3
Monetary penalty	58.7	55.1	41.0	39.2	43.0	42.3	42.7	39.2
Other sentence <sup>1</sup>	7.5	6.3	4.6	5.3	-	-	-	-
No sentence <sup>2</sup>	4.0	6.7	3.2	4.9	7.6	7.3	4.4	4.9

Note: The predicted percentage is the percentage of offenders who would have received the sentence had the sentencing practices of 1995 been applied, as predicted by the 1995 logistic model. The difference between the predicted percentage for 1995 and other years indicates the proportion of the total change due to changes in statistical factors (e.g. the increase in average seriousness) while the difference between the actual and predicted percentage for each year indicates the proportion of total change due to changes in sentencing practice.

<sup>1</sup> Sentences and court orders not included in the main analysis, including driving disqualifications, deferred or suspended sentences, community work or social welfare supervision for youth offenders, etc.

<sup>2</sup> Discharge with or without conviction or admonished in the Youth Court (see Appendix I).

- Community service has more than tripled in use since 1983. Almost all of this change appears to be due to changes in sentencing practice. The very significant increase in the use of community service for offences of low seriousness and for offenders with no or few previous cases indicates that community service is now being used where previously (in the 1980s) a monetary penalty would have been imposed. Certainly the

decrease in imprisonment noted above (an estimated -3.7%) is much too small to account for the increase in community service (an estimated +8.7%), especially as the use of periodic detention has also increased by 5% over the same period. In contrast, the decrease in the use of monetary penalties (an estimated -15.7%) is sufficient to cover the increase in community service.

- The use of community programme has never been very high. Little can be said with confidence about the causes of trends for this sentence type, due to low numbers, although the decrease between 1991 and 1995 appears to go against the predicted trend based on the increasing seriousness of offences and offenders over that time.
- The use of supervision increased mainly between 1991 and 1995. This change centres on the increased use of supervision for domestic violence and other violent offences between 1991 and 1995. The use of imprisonment and periodic detention for these offences declined over this period.
- Monetary penalties are now far less often imposed for imprisonable offences than they were in the 1980s. The actual percentage of proved cases resulting in a monetary penalty has declined from 59% to 39% between 1983 and 1995. A small proportion of this change can be accounted for by changes in the type of offenders and offences dealt with by the courts. However, most of the change appears to be due to changes in sentencing practice toward a greater use of community-based sentences where previously a monetary penalty would have been used. The move to a greater use of community service accounts for much of this trend.
- The relative increase in cases resulting in no sentence also accounts for some of the decrease in the use of monetary penalties. Although the actual probability of receiving no sentence fluctuated with little overall change between 1983 and 1995, there has been an apparent change in sentencing practice towards this outcome, as indicated by the positive difference between the predicted and actual 1983 values. The decreased actual use of no sentence options between 1987 and 1991 reflects the significant reduction in numbers for two key groups of offenders with a high probability of receiving no sentence - adult first offenders, many of whom were processed through the Police Diversion Scheme from 1988, and youth offenders, most of whom instead attend Family Group Conferences, following the introduction of the Children, Young Persons, and Their Families Act 1989.

The reasons for the decreased use of monetary penalties and increased use of community service are not clear and cannot be established from this statistical analysis. The potential for net-widening in the application of community-based sentences as alternatives to imprisonment is discussed in section 11.4.2. It is also possible that community service is being more widely used now as a substitute for a monetary penalty where the offender would have difficulty in paying a fine.

Hall (1998) notes that the correct course for an offender unable to pay a fine is to 'reduce the fine to a level that is commensurate with the offender's means' (page D/381-2), but also that it is clear that the Courts consider that community service 'is also appropriate in cases



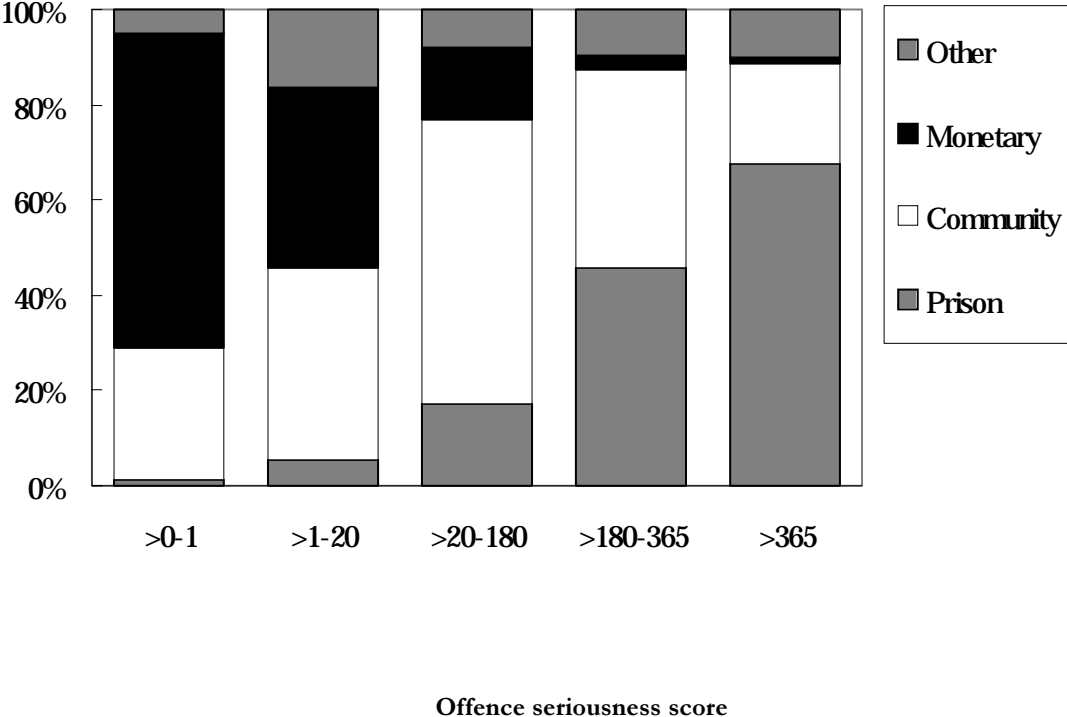
where the offender lacks the means to pay a fine' (page D/468). This was true even when community service was a newly-introduced sentence option. An early study notes: 'the ability to pay a fine was the most common consideration amongst probation officers when distinguishing between offenders suitable for a fine and for community service' (Leibrich et al. 1984).

### 11.3 Effects of each statistical variable

#### 11.3.1 Effects of seriousness and number of charges

The seriousness of the current offence, as measured by the Ministry of Justice seriousness scale, is strongly related to both the probability of receiving a prison sentence and the probability of a monetary penalty (as expected, given the definition of seriousness in terms of the average prison sentence imposed, section 2.2.2). As the seriousness of the major offence in the current case increases, the probability of imprisonment increases and the probability of a monetary penalty decreases (Figure 11.1). Similarly, as the number of charges proved as part of the current case increases, the probability of imprisonment increases and the probability of a monetary penalty decreases. The offence seriousness and the number of charges are among the most significant variables in the logistic regression models for prison sentences and monetary penalties.

**Figure 11.1: Percentage of proved cases resulting in each type of sentence at five levels of offence seriousness, 1995**



The other sentences show a range of relationships with offence seriousness. The general pattern is that the highest probability of receiving a community-based sentence or suspended prison sentence is for offences of low to moderate seriousness (i.e. seriousness scores of >1-20 or >20-180) or moderate to high seriousness (>180-365), with a lower probability for offences of very low or very high seriousness (Figure 11.1).

For community service, the highest probability occurs for offences of relatively low seriousness (1-60). The use of periodic detention also peaks toward the low to moderate end of the range (20-60), although the probability of a periodic detention sentence is almost as high for offences of moderate seriousness (60-180) and periodic detention continues to be frequently used at the moderate to high end of the range (180-365).

Supervision and community programme show less of a relationship with offence seriousness. The probability of receiving these sentences is low for offences of very low or very high seriousness, but is fairly constant across the intermediate range, although supervision shows a somewhat higher probability for offences of moderately high seriousness.

### 11.3.2 Effects of offence type

Various types of offence are significant in the models for different sentences, in addition to the general effect of offence seriousness. To some extent these variables overlap. For example, most of the offences in the very high seriousness group (>365) are serious offences against the person (e.g. homicide, injury assaults, aggravated robbery, sexual violation), while other offence groups (e.g. traffic offences) are concentrated in the lower seriousness groups.

The probability of receiving a prison sentence is greater if the most serious offence in the current case is a violent offence. This is particularly so for the serious types of violent offences (serious offences against the person), but is also true for violent offences with lower seriousness scores, such as domestic violence and minor offences against the person (mainly common assaults and threats). This finding is consistent with the legal guidelines on the use of imprisonment for violent offences (Criminal Justice Act 1985). The decrease in the use of imprisonment noted in the previous section has had least effect on the imprisonment rates for serious offences against the person. As documented in a previous report (Triggs 1998), not only have imprisonment rates for the more serious of the violent offences not declined, but sentence lengths have increased.

Domestic violence is a key offence group for two other sentence types: supervision and community programme.<sup>5</sup> Domestic violence is the most significant variable determining the probability of receiving these sentences. An offender is five times more likely to get

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<sup>5</sup> 'Domestic violence', as defined for this study, includes only those offences recorded as 'male assaults female', 'common assault (domestic)' or 'assault on a child'.

supervision or community programme than another sentence if the current offence is domestic violence, compared to a statistically similar offender who has committed another type of offence. The use of supervision for domestic violence increased significantly in the early 1990s, at the same time as the use of imprisonment and other community-based sentences decreased.

If the current offence is a breach of periodic detention, then the odds of receiving a prison sentence or a periodic detention sentence are increased. However, the use of imprisonment for breaching a periodic detention sentence has decreased very significantly over the last decade and a half, whereas the use of periodic detention for this offence has increased. The implications of this finding are discussed further in section 11.4.1.

Offence groups that are mainly comprised of relatively less serious offences that do not involve violence (e.g. traffic, property and disorder offences) are more likely to result in the less serious sanctions, community service and monetary penalties. The use of imprisonment has decreased for these offences since 1983.

### **11.3.3 Effects of plea**

A guilty plea appears to increase the probability of receiving community service, supervision or a monetary penalty, but decreases the probability of receiving a prison sentence or periodic detention.

### **11.3.4 Effects of gender**

Gender 'is not in and of itself a justification for discriminating between offenders' (Hall 1998, page B173-4). Yet, the results of the multivariate modelling show that females are more likely than males to receive community service, community programme or no sentence and less likely to receive a prison sentence, periodic detention or a monetary penalty. Thus, gender differences in sentencing persist even after taking account of differences in the type and seriousness of the offence committed (e.g. the average seriousness of offences committed by women is lower than for men) and in the extent of previous offending (e.g. women have fewer previous convictions on average; section 3.1). Indeed, gender is the amongst the most significant variables influencing the probability of receiving a community service sentence or a monetary penalty.

The reason for these gender differences in sentencing cannot be determined from the statistical analysis. For example, it is possible that at least some of this difference may be due to factors that could not be measured in this study, such as systematic differences between the sexes in the average circumstances of cases (e.g. gender differences in the relative gravity of offending even within specific offence types or gender differences in the actions or circumstances of the average offender).

### **11.3.5 Effects of age**

As noted in section 2.2.1, age is considered important as an indicator of rehabilitative potential, so that a youthful offender may receive a lesser sentence than a more mature offender. The Criminal Justice Act 1985 states that prison sentences should not be imposed on a person under the age of 16, except for a purely indictable offence, and discourages the use of imprisonment except as a last resort for young offenders. Periodic detention cannot be imposed on people aged under 15 years. The Youth Court cannot impose prison or community-based sentences.

These guidelines are certainly being followed in practice. Offenders aged under 17 have an extremely low relative risk of receiving any of the sentences considered here, but especially the more serious sentences of imprisonment and periodic detention. The relative use of these sentences has also decreased since 1983, following the two major legislative changes, the Criminal Justice Act 1985 and the Children, Young Persons, and Their Families Act 1989.

The latter Act had a major effect on the number of youth offenders who are dealt with by the court system, as most offenders aged under 17 are now dealt with by Family Group Conferences. One effect of this change is that a much smaller proportion of the proceedings involving youth offenders now result in a conviction or a proved outcome. The relatively few proved cases for youth offenders therefore tend to be for serious offences. Because of this, the actual percentage of cases resulting in a prison sentence has increased for youth offenders, even though the relative use of imprisonment (taking the seriousness of the offence into account) has decreased significantly.

Offenders aged 17-19 or 30 plus are less likely to receive a monetary penalty, but more likely to receive community service, supervision, or community programme than offenders aged 20 to 29 years.

### **11.3.6 Effects of ethnicity**

As noted in section 2.2.1, people of different ethnic or cultural groups must be treated equally, although 'alternative means of rehabilitation which appropriately take account of different cultural or ethnic values should be utilised' (Hall 1998, page B/173). In particular, the community programme sentence is seen as a means to achieve this. Although the community programme sentence has never been widely used, Māori and Pacific offenders are about twice as likely to receive this sentence as Pakeha/Other offenders, once the effects of other factors have been taken into account.

Two other community-based sentences, periodic detention and community service, are also used relatively more for Māori and Pacific offenders, whereas these ethnic groups are less likely to receive a monetary penalty. The use of imprisonment did not differ between ethnic groups, once other factors had been taken into account (such as the differences between ethnic groups in the type and seriousness of offences committed and in the extent of previous offending; section 3.1).

### 11.3.7 Effects of criminal history variables

Various criminal history variables were tested in the logistic regression models, including the number of previous proved cases, the weighted sum of the past seriousness scores, the rate of conviction (number of proved charges per year), the time since the most recent previous case, and the previous sentences imposed.

Each of these variables shows some relationship to the probability of each type of sentence and various forms of these variables were significant in most of the models. However, the criminal history variables, with the exception of the previous sentence variables (see the following section), are not generally amongst the most significant variables, once the effects of other variables were taken into account.

The greater the number, seriousness and frequency of previous cases, and the shorter the time since the previous case, the greater the probability of a prison sentence and the lower the probability of a monetary penalty. The use of imprisonment has decreased since 1983 for offenders with any number of previous cases.

Criminal history is a distinguishing factor between offenders sentenced to periodic detention compared to community service. As the number of previous cases increases, the probability of periodic detention increases, whereas the probability of community service decreases. However, at very high levels of previous offending the probability of periodic detention decreases again, as imprisonment becomes more likely.

The probability of community programme also tends to be higher for offenders with a moderate to high level of previous offending, although criminal history variables are of limited significance in the community programme model (and the model as a whole is very poor). Supervision shows weak relationships with criminal history variables, although the use of supervision does tend to increase as the rate of conviction increases. Criminal history variables are of limited significance in the supervision model once other factors are accounted for.

Sentencing practice has changed significantly since 1983 with respect to criminal history variables. The use of periodic detention for offenders with several previous cases has increased, while the trend for imprisonment has been in the opposite direction. Also, supervision used to be less likely for persistent offenders, but now the probability of supervision is higher for offenders with several or many previous cases than for those with one or a few previous cases.

Community service has shown the most significant change in trend. In the 1980s the probability of receiving a community service sentence was fairly uniform across all levels of previous offending, but in the 1990s community service is much more likely to be imposed on offenders with one or very few previous cases. The use of community service for persistent offenders has also increased, but the magnitude of the increase has been much greater for those with no or a few previous cases. The use of monetary penalties, in contrast, has decreased for all offenders.

### 11.3.8 Effects of previous sentences

The most recent sentence prior to the current case, and also other past sentences, have a significant impact on the probability of the current sentence. This appears to be the strongest effect of any criminal history variable in most models, although the relationship between previous sentences and other criminal history variables are obviously not independent. That is, the previous sentence variables may be the most significant criminal history variable because they provide a useful summary of the criminal history, as the previous sentence is itself influenced by the number and type of convictions that have occurred in the past.

Nonetheless, the previous sentence variables did stand out as key factors in the models, even though a range of other criminal history variables were also tested. Therefore, the previous sentences (and particularly the most recent sentence) appear to have an additional, independent effect on the current sentence. The direction of the effect for all sentences is towards an escalation of the current sentence. Thus, the previous sentence increases the risk of the same sentence or a more serious sentence, but decreases the risk of less serious sentences, all other factors being equal:

- A most recent or other previous sentence of imprisonment increases the probability that the current sentence will be imprisonment, but decreases the probability of periodic detention, community service or a monetary penalty.
- A most recent or other previous sentence of periodic detention increases the probability that the current sentence will be imprisonment, a suspended sentence or periodic detention, but decreases the probability of community service or a monetary penalty.
- A most recent or other previous sentence of supervision increases the probability that the current sentence will be a prison sentence or suspended prison sentence, supervision or community programme, but decreases the probability of a monetary penalty.
- A most recent or other previous sentence of community programme increases the probability that the current sentence will be a prison sentence, supervision or community programme, but decreases the probability of periodic detention or a monetary penalty.
- A most recent or other previous sentence of community service increases the probability that the current sentence will be periodic detention, community service or supervision, but decreases the probability of a monetary penalty.

The implications of this finding are discussed in the following section.

## 11.4 Interaction effects

### 11.4.1 'Fast-tracking' or sentence escalation

The results summarised in the previous section indicate that having a previous community-based sentence decreases the probability of receiving a monetary penalty and increases the probability of receiving a further community-based sentence or prison sentence. Given this finding, any increase in the use of community-based sentences may lead to a reinforcing cycle of sentence escalation, or 'fast-tracking' of offenders toward more serious sentences.

Therefore, the increased use of community service for offenders who would previously have received a monetary penalty may in turn have led to a greater use of community service and other community-based sentences for the same offenders when they are reconvicted. Following the next reconviction, the same process is repeated, and so on in a reinforcing feedback cycle, increasing the use of supervision and periodic detention and ultimately putting pressure on the use of imprisonment.

With the increased use of community-based sentences, a separate but related reinforcing effect is also likely. Increasing the number of people serving community-based sentences increases the number of people breaching these sentences. A breach of a community-based sentence, and especially a breach of periodic detention, puts the offender at higher risk of a periodic detention or prison sentence, thereby further reinforcing increases in the use of serious sentences.

The number of periodic detention sentences imposed increased by 2.8 times between 1982 and 1997. Over the same period the number of breaches of periodic detention increased by 2.4 times. By 1995, cases involving a breach of a periodic detention sentence accounted for 9% of cases resulting in periodic detention.

This cycle of escalation will only occur if offenders serving a community-based sentence have a similar or higher rate of reconviction than offenders who receive monetary penalties (i.e. if community-based sentences reduce the rate of reconviction then there would be fewer re-offenders to whom sentence escalation could apply). However, the analysis presented in Appendix II indicates that the sentence imposed is not a major factor in determining the probability of reconviction and that, if anything, offenders sentenced to a monetary penalty have lower reconviction rates.

One effect of sentence escalation is increased pressure on the use of imprisonment, as offenders are 'fast-tracked' up the penalty scale to imprisonment sentences. However, the effect of this has been countered by the change in the use of imprisonment relative to community-based sentences. In particular, the use of imprisonment for offenders who have breached a periodic detention sentence is now greatly reduced compared to the 1980s. In 1983, 32% of offenders who breached a periodic detention sentence received a prison sentence, compared to 16% in 1995. Conversely, 29% of offenders who breached

a periodic detention sentence in 1983 received a periodic detention sentence, compared to 51% in 1995.

Similarly, although the likelihood of imprisonment is still relatively higher for offenders whose most recent sentence was periodic detention, the use of imprisonment for this group of offenders has decreased considerably. In 1983, 26% of offenders whose most recent sentence was periodic detention received a prison sentence as the current sentence, compared to 14% in 1995. The use of imprisonment following community service has also decreased, as has the use of imprisonment in general for offenders with several previous convictions.

These changes in the use of imprisonment have further increased the use of periodic detention and supervision, as offenders who would previously have gone to prison are now more likely to receive the more serious community-based sentences than in the 1980s.

This analysis indicates the need for an awareness of the potential flow-on effects of the increased use of community-based sentences for low-end offences. There are also other potential implications of this change in sentencing practice, such as the cost of administering additional community-based sentences and the potential loss of fines revenue. On the other hand, these factors must be weighed against the potential benefits of the increased use of community-based sentences, such as the involvement of the offender with the community, the value of work done on periodic detention or community service, and the benefits of programmes attended while on supervision or community programme. More research is needed on evaluating these factors.

#### **11.4.2 Alternatives to imprisonment and ‘net-widening’**

##### **Alternatives to imprisonment and why the prison population continues to increase**

The original aims of extending the range of community-based sentences available and promoting the use of these sentence were to reduce the use of imprisonment and to encourage community involvement. The intention was both to reduce costs and to provide options that improved the outcomes for offenders and society (Penal Policy Review Committee 1982). Thus, community-based sentences were originally viewed as an alternative to imprisonment.

However, each of these sentences now appears to be considered as a sentence in its own right (as outlined in Hall 1998), although: ‘Whether community service (or indeed any of the community-based sentences) should be seen as an alternative to imprisonment or as a sentence in its own right is an open question.’ (Hall 1998, page D/467).

Despite the very widespread use of community-based sentences, the prison population has continued to grow. Because of this, new alternatives to imprisonment are often proposed. For example, the suspended prison sentence was introduced in 1993 and the home detention option (electronic monitoring) is about to be extended.



To a large extent, the growth of the prison population has been due to the increase in the number of serious offences being dealt with by the criminal justice system and the significant increase in the length of prison sentences imposed and served for serious violent offences (Triggs 1995, 1997, 1998). Trends in these serious offences have by far the largest effect on the size of the prison population due to the very long sentences served by these offenders.

On the other hand, the very substantial increase in the use of alternatives to imprisonment (community-based sentences and suspended prison sentences) should have had more of an impact on reducing the prison population than they have had. Although imprisonment rates for many offences and offenders have decreased, these decreases have been much smaller than the overall increases in the use of community-based sentences and suspended sentences. This finding suggests that net-widening has occurred, as discussed below. In addition, there appear to be feedback effects from the use of these sentences that actually increase the pressure on the use of imprisonment. These feedback effects include sentence escalation for community-based sentences (section 11.4.1) and the high activation rates for suspended sentences (Spier 1998).

### **Net-widening**

The widespread application of sentences intended as an alternative to imprisonment to offenders who would not otherwise have received a prison sentence is known as 'net-widening'. One of the reasons it is so difficult to avoid net-widening is the size and nature of the target population of offenders.

The logistic regression model of imprisonment, described in Chapter Four, was able to identify offenders with close to a 100% probability of imprisonment, while other offenders had nearly a zero risk of imprisonment (Figure 11.2). However, this does not mean that most people who receive a prison sentence necessarily have a high risk of imprisonment. Forty percent of the people who actually get a prison sentence are derived from that group of offenders who have less than a 25% predicted probability of receiving a prison sentence, whereas people who have a predicted probability of over 75% account for just 17% of the total prison sentences.

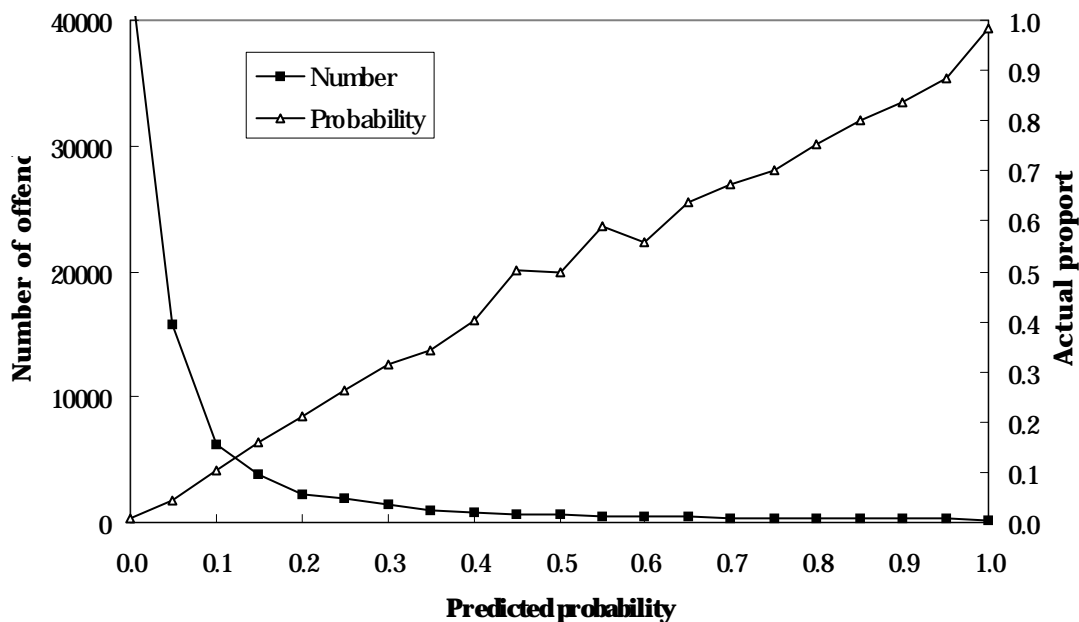
This apparently counter-intuitive result is because the distribution of offenders is highly clustered around the low end of the scale (Figure 11.2). There are 72,828 offenders in the 1995 data-set who have less than a 25% predicted probability of receiving a prison sentence. Even at a very low average probability of imprisonment of 4%, these offenders account for  $72,828 \times 0.04 = 2971$  prison sentences. In contrast, very few offenders have a high probability of receiving a prison sentence, therefore this group accounts for fewer prison sentences (1475 offenders with an average probability of 0.83 resulting in 1222 prison sentences). A further 1877 of those who receive a prison sentence have a 25-50% probability of imprisonment and 1327 have a 50-75% probability.

Thus, although the factors that lead to a high probability of imprisonment are clear (i.e. offences of very high seriousness, especially violent offences committed by persistent offenders), relatively few offenders fall into this high probability group, compared to the

much larger number with a low to medium probability of imprisonment. This means a very large number of offenders are eligible to be considered for sentences that are alternatives to imprisonment at the low to medium end of the scale.<sup>6</sup>

Therefore, even a very small shift towards community-based sentences can result in a very large number of these sentences being imposed, with relatively little impact on the number of prison sentences imposed. This is particularly so if, as for community service, the sentence is targeted at the lower end of the range, where the greatest numbers of offenders are.

**Figure 11.2: Plot of the predicted probability of receiving a prison sentence versus the actual proportion receiving a prison sentence and the number of offenders at each level of probability**



The introduction of the suspended prison sentence in 1993 provides a good example of the potential for net-widening. From Chapter 5, the factors influencing the use of suspended sentences are similar to the characteristics that indicate a moderate level of risk

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<sup>6</sup> The choice of imprisonment in individual cases will certainly be much more clear-cut than is indicated by the statistical results, given the case-specific circumstances of the offence and offender that could not be statistically measured for this study. Nevertheless, there is still likely to be a significant group of offenders for whom prison is an option but not a certainty (e.g. for those who have committed moderately serious offences and who have several previous convictions).

of imprisonment, with the exception of the greater use of imprisonment for male offenders. The risk of imprisonment can be predicted using the prison model. Offenders who received a suspended sentence in 1995 have an average predicted probability of receiving a prison sentence of 25%, about the same as the 27% probability for offenders who actually received a prison sentence of less than six months, but lower than the average predicted probability of 44% for those imprisoned for between six months and two years.

These findings suggest that offenders who receive a suspended sentence are similar to offenders who get short prison sentences. This result is consistent with the finding of previous research (Spier 1995-98) that the main reduction in prison receptions has occurred for prison sentences of less than six months rather than in the six months to two years range set down in the Act.

However, the previous research also shows that most suspended sentences have not been imposed in place of prison sentences, but rather in place of or in addition to community-based sentences. Why is this so, if the sentence has been targeted at the same risk of imprisonment level as those who get short prison sentences? The answer may lie in the difficulty of targeting such offenders accurately, as explained in the previous section. Thus, the type of offender who is most likely to receive a short prison sentence has a predicted probability of imprisonment of around 25% and therefore has a 75% probability of receiving a non-custodial sentence (mainly periodic detention or supervision).

This group of offenders with a probability of imprisonment of about 25% mainly comprises offenders in one of three groups:

- Offenders who have committed offences of relatively low seriousness but who have many previous convictions (e.g. driving while disqualified, average seriousness 33, with an average of 17 previous cases and 5 previous periodic detention sentences)
- Offenders who have committed offences of moderate seriousness and who have several previous convictions (e.g. burglary, average seriousness 87, with an average of 11 previous cases and 3 previous periodic detention sentences)
- Offenders who have committed more serious offences but who have fewer previous convictions (e.g. aggravated assault or assault causing injury, average seriousness 240, with an average of 8 previous cases and 1 previous periodic detention sentence).

As pointed out above, the majority of offenders have a risk of imprisonment of less than 25% (as predicted by the statistical model), yet this category supplies the largest number of actual prison sentences, due to the far greater number of offenders in this category. Even allowing for the significant improvement in sentence targeting once case-specific circumstances are taken into account, there remains some potential to impose a large number of sentences as an 'alternative to prison', by targeting the right general group of offenders, and yet not actually impose the alternative sentence on the specific offenders

who would otherwise have received a prison sentence. The large number of people in the moderate risk category (i.e. the target group for alternative sentences) means that large numbers of the alternative sentence can be potentially imposed without making much of a difference to the number of prison sentences imposed.

In the case of suspended sentences this has a double effect. Not only is the reduction in the number of people receiving prison sentences less than hoped for, but the large number of suspended sentences imposed, in combination with high reconviction rates, means that a significant proportion of suspended sentences are activated, thereby adding to the prison population. Also, the offence leading to the reconviction may be more likely to receive a prison sentence, further adding to the increase in imprisonment.

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# Appendix I: Factors influencing the ‘no sentence’ options

Just under 5% of offenders in 1995 received no sentence as a result of their proved case. That is, they were convicted and discharged, discharged without conviction or admonished in the Youth Court.

A summary of the statistical factors that influence the probability of receiving no sentence are presented here (Table I.1) to assist in the interpretation of results in the main part of this report on sentencing. For example, the results for ‘no sentence’ options help explain the findings that youth offenders (aged under 17) have a relatively low probability of all sentences and that female offenders have a relatively low probability of receiving a monetary penalty.

The factors that increase the relative probability of receiving no sentence are:

- a low seriousness offence (seriousness score of 20 or less, especially disorder offences)
- one or a small number of charges in the current case
- a young offender (aged under 17) or an offender aged 30 or more
- a female offender
- an offence against justice

Conversely, factors that decrease the relative probability of receiving no sentence are:

- a traffic offence (imprisonable traffic offences commonly result in a driving disqualification even if no other sentence is imposed)
- a drug offence or serious offence against the person
- a Māori offender
- a previous periodic detention or community service sentence
- a previous offending history.

**Table I.1: Logistic regression model for ‘no sentence’ options, 1995**

<b>Variable</b>	<b>Category</b>	<b>Odds ratio</b>	<b>Chi-square</b>	<b>P</b>	<b>Rank</b>	
Current seriousness	>1-20	1.135	5.6	0.0177	29	
	>20-180	0.617	50.5	0.0001	12	
	>180-365	0.534	10.2	0.0014	23	
	>365	0.386	17.3	0.0001	18	
Current charges	2-4	0.444	325.9	0.0001	2	
	5+	0.197	188.2	0.0001	6	
Current offence	Serious against person	0.585	15.1	0.0001	19	
	Domestic violence	-	-	-	-	
	Minor against person	-	-	-	-	
	Drugs	0.585	63.1	0.0001	9	
	Breach pd	2.880	264.7	0.0001	4	
	Other against justice	3.844	325.2	0.0001	3	
	Disorder/other	2.141	231.3	0.0001	5	
	Traffic	0.032	914.9	0.0001	1	
	Plea	Guilty	0.610	89.3	0.0001	8
	Gender	Female	1.391	53.0	0.0001	11
Age group	<17	3.937	132.9	0.0001	7	
	17-19	-	-	-	-	
	30+	1.363	62.3	0.0001	10	
Ethnicity	Māori	0.877	12.8	0.0004	21	
	Pacific	-	-	-	-	
Most recent sentence	Prison	-	-	-	-	
	Periodic detention	0.781	21.8	0.0001	16	
	Comm. programme	-	-	-	-	
	Comm. service	0.797	6.6	0.0100	26	
	Supervision	-	-	-	-	
Previous sentence	Prison	-	-	-	-	
	Periodic detention	0.848	7.2	0.0072	25	
	Comm. programme	-	-	-	-	
	Comm. service	0.887	4.8	0.0288	31	
	Supervision	-	-	-	-	
Previous offence	Breach cbs	1.149	5.8	0.0161	27	
Previous proved cases	1-3	0.698	37.2	0.0001	14	
	4-10	0.628	40.5	0.0001	13	
	11+	0.734	12.0	0.0005	22	
Previous seriousness	>10-60	0.741	27.9	0.0001	15	
	>60-180	0.744	21.4	0.0001	17	
	>180	0.854	4.8	0.0282	30	
Time since previous case	1 month or less	-	-	-	-	
	>1 month-1 year	0.828	14.6	0.0001	20	
	>1-4 years	0.855	8.8	0.0029	24	
Rate of conviction	2-8 charges per year	0.899	5.8	0.0163	28	
	>8 charges per year	-	-	-	-	

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank ‘1’.



# Appendix II: The effect of sentence type on recidivism rates

## Introduction

The actual effects of changes in sentencing practice will depend in part on differences in recidivism (reconviction) rates between sentence types. In particular, one of the effects of increasing the use of community-based sentences for less serious cases is that subsequent sentences imposed on the same offenders are also more likely to be community-based sentences or prison sentences. This potential for sentence escalation would have less of an impact if community-based sentences have lower recidivism rates than monetary penalties. That is, if a smaller proportion of people sentenced to community-based sentences reoffend, then sentence escalation will apply to a smaller proportion of people. Indeed, one of the main aims of community-based sentences is to reduce reoffending.

A full analysis of the factors that influence recidivism rates is too large a topic to cover in detail in this report. However, because of its relevance to the sentencing issue, a summary of results from a simple model is included here.

## Methods

As for the sentencing analysis, logistic regression modelling was used to determine the factors influencing the recidivism rate. The aim of the analysis was to see if different sentences have any effect on recidivism rates once the effect of other factors (such as an offenders previous criminal history) are taken into account.

Recidivism was measured as a simple dichotomous variable – whether or not the offender was reconvicted for any other offence in the two years following the conviction date of their 1991 proved case or, for offenders who served a prison sentence as a result of their 1991 case, whether they were reconvicted within two years of their estimated release date.

This very simple measure of recidivism does not take into account other important measures of the success of a sentence either from the recidivism perspective (e.g. the frequency and seriousness of reoffending) or from other perspectives (e.g. skills learnt, reparation made to the victim or community, or changes in attitude or behaviour).

The 1991 data was used to maximise the inclusion of offenders serving longer prison sentences. The full two-year follow-up was possible for all but those prison inmates serving very long sentences, with estimated release dates after mid-1996. This group comprised less than 0.1% of the total 1991 sample. Prison release dates for prisoners eligible for parole were estimated on the basis of the average proportion of the sentence served before parole (Spier 1995).

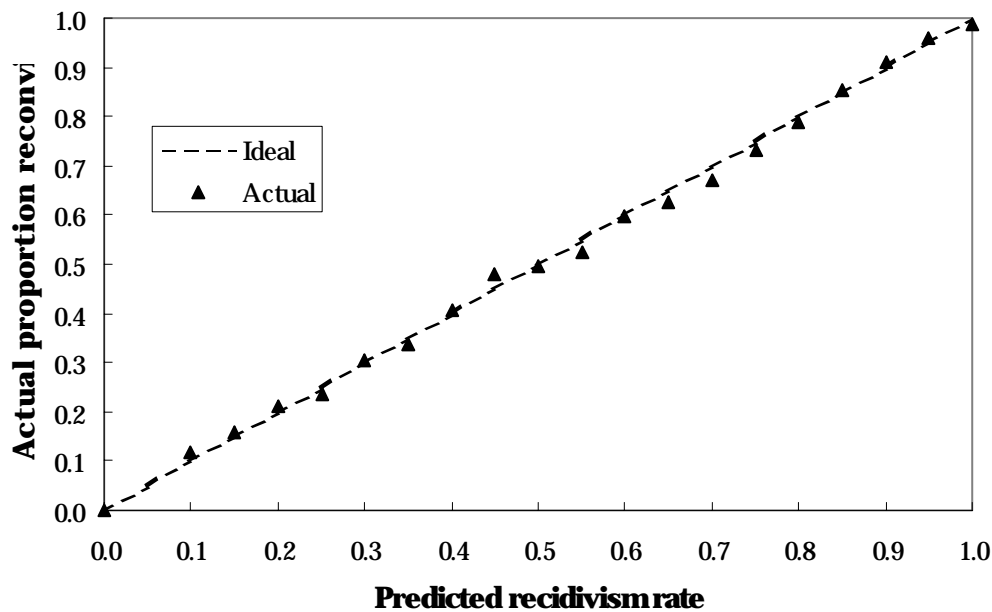
The logistic modelling methods used to develop the sentence models (Chapter 2) were also used for the recidivism model. The same explanatory variables were used, to simplify comparisons to the models developed in the body of this report, with one exception. The ‘most recent previous sentence’ variables were excluded and the ‘previous sentence’ variables modified to include the most recent sentence. For example, if the most recent sentence prior to the 1991 case was a periodic detention sentence, or any other previous sentence was periodic detention, then the ‘previous periodic detention sentence’ variable would be set at one.

Two models were developed. The first model excluded the 1991 sentence type and instead used the model developed to predict the recidivism rate that would be expected for each sentence type, taking into account the type of offender who is likely to receive each sentence. The second model included the sentence imposed for the 1991 case as a potential explanatory variable, to test whether sentence type is a significant predictor of recidivism.

## Results

Both logistic regression models achieved a highly significant overall fit to the data, as indicated by log likelihood ratios significant at the 0.0001 level of probability. Neither of the models had a significant residual (unexplained variation) term.

**Figure II.1: Plot of the predicted recidivism rate versus the actual proportion reconvicted in the two years following cases finalised in 1991**



The first model, developed without the current (1991) sentence variables, was used to calculate the predicted recidivism rate for each sentence type based only on the criminal history and demographic characteristics of the offender and the type and seriousness of the current offence. The model achieved a high level of predictive accuracy. That is, when the actual recidivism rates are plotted against the rate predicted by the model, the results are close to the ideal line (Figure II.1). The results were equally good when the 1991 data-set was divided in half, with one half used to develop the model and the other half used to test the fit on unseen data (not shown).

The percentage of offenders reconvicted within two years of their 1991 case (or estimated date of release from prison) differs between sentence types (Table II.1). Offenders sentenced to imprisonment or periodic detention had the highest actual reconviction rates, at 82% and 77% of offenders reconvicted respectively. However, these sentences also had the highest predicted reconviction rates, indicating that the characteristics of the offenders receiving these sentences were also the characteristics of offenders more likely to be reconvicted (see below).

Similarly, while offenders receiving community service or a monetary penalty or no sentence had lower reconviction rates, this would be predicted on the basis of their characteristics. Supervision and community programme had intermediate levels of both actual and predicted reconviction rates.

**Table II.1: Actual percentage of offenders reconvicted within two years compared to the percentage predicted using the logistic regression model, by sentence type**

	Percent reconvicted	
	Actual	Predicted
Prison	81.8	83.0
Periodic detention	76.9	74.4
Community programme	69.7	73.6
Community service	51.8	50.7
Supervision	66.4	65.2
Monetary penalty	46.2	47.7
Other sentence	63.7	63.2
No sentence	53.4	55.9

In general terms, the predicted reconviction rates were similar to the actual rates, indicating that the sentence type does not have a major independent effect on recidivism. The community-based sentences, except community programme, had slightly higher actual reconviction rates than would be expected on the basis of the statistical characteristics of the offender that determined the predicted rates. Conversely, prison, monetary penalties and no sentence had slightly lower actual reconviction rates than would be expected.

As these differences are quite small, a second logistic model was developed, with sentence type as one of the potential explanatory variables, to test the explicit effect of sentence type on recidivism.

The results of the second model indicate that the most important variables for predicting recidivism are the criminal history and demographic group of the offender (Table II.2), with less significant effects from the type and seriousness of offence and the type of sentence served.

The two most important variables are the length of time between the 1991 case and the case prior to that and the total number of previous cases. The longer the gap between the current and previous case, the lower the odds of being reconvicted. For example, offenders whose previous conviction occurred less than a year prior to the current case are more than four times as likely to be reconvicted compared to offenders who haven't had a conviction within the last four years.

Similarly, the greater the number of previous cases, the higher risk of reconviction. A high rate of conviction (a large number of proved charges per year) is also associated with an elevated risk of reconviction.

Age is also a very significant factor for predicting recidivism. Offenders aged under 20, and especially those aged under 17, are more likely to be reconvicted, while older offenders are less likely to be reconvicted, relative to 20 to 29 year olds. Females are less likely than males to be reconvicted, even when other characteristics of criminal history and offending are taken into account. Māori and Pacific peoples also have a higher risk of reconviction.

The seriousness of the current offence, which was a key factor in determining sentencing, has relatively little impact on recidivism. In fact, people convicted of more serious offences (those with seriousness scores of more than 180 and especially more than 365) had a lower relative risk of reconviction. Offenders who have committed an offence against the person (e.g. a violent offence) and traffic offenders have a lower probability of reconviction than property offenders. The number of charges in the current case and the plea do not appear to be related to the probability of reconviction.

Offenders sentenced to periodic detention, supervision and community service appear to have a higher probability of reconviction than offenders receiving a monetary penalty. However, imprisonment and community programme do not appear to have a significantly higher recidivism rate, once the characteristics of offenders given these sentences are taken into account.

Previous community-based and imprisonment sentences also appear to increase the risk of recidivism.

**Table II.2: Logistic regression model of the probability of reconviction, 1995**

<b>Variable</b>	<b>Category</b>	<b>Odds ratio</b>	<b>Chi-square</b>	<b>P</b>	<b>Rank</b>
Current seriousness	>1-20	1.143	31.1	0.0001	23
	>20-180	1.288	75.3	0.0001	16
	>180-365	-	-	-	-
	>365	-	-	-	-
Current charges	2-4	-	-	-	-
	5+	-	-	-	-
Current offence	Serious against person	0.737	25.1	0.0001	25
	Domestic violence	0.727	27.7	0.0001	24
	Minor against person	0.894	4.5	0.0346	33
	Drugs	0.918	5.8	0.0163	30
	Breach pd	-	-	-	-
	Other against justice	-	-	-	-
	Disorder/other	1.100	4.5	0.0337	32
	Traffic	0.801	83.6	0.0001	14
Plea	Guilty	-	-	-	-
Gender	Female	0.695	176.6	0.0001	11
Age group	<17	3.719	189.1	0.0001	9
	17-19	2.226	806.9	0.0001	3
	30+	0.607	526.8	0.0001	4
Ethnicity	Māori	1.440	274.0	0.0001	6
	Pacific	1.369	54.0	0.0001	18
Current sentence	Prison	-	-	-	-
	Periodic detention	1.367	171.2	0.0001	12
	Comm. programme	-	-	-	-
	Comm. service	1.181	32.5	0.0001	22
	Supervision	1.213	14.2	0.0002	27
Previous sentence	Prison	1.089	5.6	0.0176	31
	Periodic detention	1.209	44.4	0.0001	19
	Comm. programme	1.253	10.5	0.0012	28
	Comm. service	1.172	20.6	0.0001	26
	Supervision	1.086	8.2	0.0043	29
Previous offence	Breach cbs	1.079	4.2	0.0407	34
Previous proved cases	1-3	1.249	35.0	0.0001	21
	4-10	1.953	218.3	0.0001	7
	11+	3.045	363.3	0.0001	5
Previous seriousness	>10-60	1.291	81.0	0.0001	15
	>60-180	1.326	62.6	0.0001	17
	>180	1.372	39.8	0.0001	20
Time since previous case	1 month or less	9.036	1320.0	0.0001	2
	>1 month-1 year	4.364	1781.9	0.0001	1
	>1-4 years	1.558	188.7	0.0001	10
Rate of conviction	2-8 charges per year	1.404	191.8	0.0001	8
	>8 charges per year	2.006	91.8	0.0001	13

Note: An odds ratio of >1.0 indicates a high relative risk (i.e. more likely to receive this sentence than the reference group). The most significant variable (highest Wald Chi-square, lowest probability P), is rank '1'.

These findings don't necessarily indicate that the community-based sentences are less effective at preventing reoffending. The results may, for example, indicate that people receiving these sentences have other characteristics that increase reoffending that could not be measured statistically. On the other hand, a wide range of variables were taken into account that should be broadly indicative of the characteristics of the offender, such as previous criminal history, yet the sentence type was still relevant over and above these factors. At the least, these findings call into question the assumption that community-based sentences have positive benefits in terms of reducing recidivism.

If community-based sentences do not reduce recidivism rates, especially relative to monetary penalties, then the feedback effect of sentence escalation on the number of correctional sentences served (i.e. an increase in the use of community-based sentences leading to a further increase in the use of community-based sentences and imprisonment) will not be offset by a reduction in numbers due to lower recidivism rates. In fact, if recidivism rates for community-based sentences, and periodic detention in particular, are higher than for monetary penalties, then the feedback effect is likely to be intensified.