



Justice Sector

Justice Sector Forecast

CRIMINAL JUSTICE FORECAST 2010-2020

30 September 2010

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CRIMINAL JUSTICE FORECAST 2010-2020

1. Introduction

This paper sets out the results from the Criminal Justice Forecast for the period 2010-2020, along with a range of sensitivity analyses and scenario models that have been completed.

The forecast represents a key instrument for strategic planning within the justice sector. This forecast was prepared by the Justice Sector Strategy Group of the Ministry of Justice, in collaboration with representatives from across the sector, including: New Zealand Police, the Department of Corrections, the Legal Services Agency and Crown Law.

Aspects of the justice sector that are covered by this forecast include:

- Forecast of numbers of indictable and summary prosecutions for 2010-14.
- Forecast of the number of pre-sentence reports provided to courts by probation officers for 2010-14.
- Forecast of non-custodial sentences and orders for 2010-2014. The non-custodial sentences and orders included are those overseen by the Community Probation Service (CPS).
- Forecast of the prison population for 2010-2020.

The above forecasts have been used to inform a forecast for 2010-2014 of legal aid applications, grants and expenditure. Due to the processes surrounding the incorporation of the Legal Services Agency into the Ministry of Justice during 2010, this forecast is being presented separately, but is expected to form part of this summary in future years.

CRIMINAL JUSTICE FORECAST 2010-2020**2. Summary of key results****2.1. Indictable and summary prosecutions**

The number of summary prosecutions is forecast to increase from 179,174 in 2010-2011 to 184,710 in 2013-2014 (+3.1%). Over the same period, the number of indictable prosecutions is forecast to increase from 8,087 to 8,949 (+10.7%).

2.2. Pre-sentence reports

The forecast projects an increase in the annual numbers of full pre-sentence reports requested from 26,848 in 2009-2010 to 36,793 in 2013-2014 (+37%). The numbers of short pre-sentence reports decrease from 3,546 to 1,692 over the same period (-52.3%). Numbers of these reports had been broadly equal until the introduction of the sentences of Home Detention, Community Detention and Intensive Supervision in late 2007. The immediate effect was to increase the demand for full reports, and this trend has increased since then.

2.3. Non-custodial sentences

The total number of starts overseen by the CPS is forecast to increase from 64,481 in 2009-2010 to 73,532 in 2013-2014 (+14.0%). These sentences are: Home Detention, Community Detention, Intensive Supervision, Community Work and Supervision. Annual numbers of starts on parole is forecast to increase from 1,840 to 1,868 (+1.5%) over the same period, while releases on condition are forecast to increase from 4,522 to 5,493 (+21.5%).

2.4. Prison population

The forecast shows that the prison population is expected to grow more slowly over the next eight years than it has over the past eight years, and more slowly than forecast in 2009. The forecast covers ten years into the future for the first time in 2010. The prison population in June 2020 is forecast to be 9,890, compared to 8,753 actual numbers in June 2010 (+13%). In June 2017 the total prison population is expected to be 9,729, which is 612 (5.9%) lower than that forecast last year for the same date. This is due to reduced growth in the numbers entering the court system, and to lower growth in the length of time prisoners are remanded in custody awaiting trial or sentence, resulting from reduced court processing times.

2.5. Scenario and sensitivity analysis

A number of additional analyses have been undertaken. These look at alternative scenarios such as the full impact of the Policing Excellence or Courts Simplification initiatives. A sensitivity analysis of key assumptions has also been undertaken. Table 1 summarises the results of these analyses.

CRIMINAL JUSTICE FORECAST 2010-2020**Table 1: Results from scenario and sensitivity analyses**

Name	Definition	Result
Scenario 1: Policing Excellence	Cases with varying outcomes removed from process; impact on prison and CPS numbers assessed	Limited impact on prison and CPS populations unless Policing Excellence focuses specifically on these outcomes, which is unlikely
Scenario 2: Criminal Procedures Simplification	Average time on remand adjusted downward, reflecting faster processing of cases	Remand population falls by 300; as a proportion of remandees go on to prison sentences, actual bed savings will be less than this, depending on which cases the project focuses on
Scenario 3: Sentinel Event	Analysis of Burton incident to assess impact of known event of this nature	Maximum impact of around 175 beds over baseline six months after incident; separate small increase of 50 beds over baseline over six years after incident
Sensitivity Analysis 1: Numbers entering the court system	Increase numbers entering the court system by two percentage points over baseline assumption; keep proportion remanded constant	General increase of about 6% on throughput and all outcomes; larger impact – about 30% increase – on remand. Increase on total prison population of 1,100 beds by 2020
Sensitivity Analysis 2: Proportion served	Increase proportion served by ten percentage points (e.g. 71% to 81%) over twenty months	Increase of 800 beds above baseline taking three years from the start of the change.

It is important not to compare the sensitivity analyses directly, as they are crucially dependent on the scale of the changes involved. They are included to give an indication of the consequences of system behaviour being different from the base case assumptions. The scale of the changes modelled in the sensitivity analyses has been seen in the system in recent years.

3. Background

3.1. Scope of the forecast

This is the first year the prison population forecast has been extended to ten years. Last year's forecast looked forward eight years and we use its final year, 2017, as a comparison point. Also, where the overall trends of this and last year's forecasts are being compared, we use an eight-year period; thus we compare 2009-2017 with 2010-2018, even though the later forecast goes up to 2020.

The forecast projects the numbers of people expected to be held in custody, either on remand, awaiting trial or sentencing, or serving prison sentences, and the numbers of non-custodial sentences started. The non-custodial sentences forecast are: Community Work, Supervision, Intensive Supervision, Community Detention and Home Detention.

We also forecast numbers starting on Parole and numbers who are released on conditions¹. The forecasts draw on recent trends as well as the best available estimates of how those trends may change in future, on the basis of current legislation and policy. The key drivers and forecasts are monitored regularly, with a report prepared quarterly that notes the difference between the forecast and actual numbers.

The forecasts for different components cover different time periods because differences in the data underpinning each forecast mean we have different levels of statistical confidence in the results.

3.2. Approach and methodology

The assumptions underpinning the 2010-2020 Criminal Justice Forecast are the result of a collaborative process between Ministry of Justice, New Zealand Police, the Department of Corrections, the Legal Services Agency and Crown Law.

Table 2 summarises the assumption for each driver.

This forecast projects the selected quantities over ten years for the prison forecast and over four years for the non-custodial sentences. The prison forecast identifies changes in the remand and sentenced populations separately.

¹ A 'start' is an instance of an offender commencing a non-custodial sentence; many offenders receive more than one such sentence at a given time, so the number of starts is greater than the number of offenders.

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Table 2: Assumptions for 2010-2020 prison population forecast base case

Driver	Assumption	Comparison with 2009 Forecast
1.1: Numbers entering the court system (number of charging events)	The number of charging events will grow 2% in 2010/11, and 1% per annum thereafter	Lower than 2009 assumption
1.2: Prosecutions	The number of summary prosecutions will grow 2% in 2010/11, and 1% per annum thereafter; the number of indictable prosecutions will grow 4% in 2010/11, and 2% per annum thereafter	Forecast for first time in 2010
2.1: Number of people remanded in custody	Numbers remanded in custody will remain level throughout forecast period	Lower than 2009 assumption
2.2: Average time spent on custodial remand	The average time spent on custodial remand will grow by 2% in 2010/11, 1% in 2011/12, 0% in 2012-13, -1% in 2013/14, -2% in 2014/15, 0% per annum thereafter	Lower than 2009 assumption
3: Proportion of people convicted	The proportion of people convicted will stay at 72% throughout the forecast period	Lower than 2009 assumption
4: Proportion of those convicted given custodial and non-custodial sentences	Reduction in prosecution of minor cases expected to reduce outcomes of deferment or conviction and discharge; monetary sentences expected to decline to 50%; relative proportions given CPS and prison sentences both expected to rise	Same, except monetary sentences decline more rapidly
5: Length of sentence imposed	The length of sentence imposed will remain constant.	Same
6: Proportion of sentence served	Proportion served (including remand) constant at about 71%	Lower than 2009 assumption

The 2010 forecast is based on a mixture of time series analysis and simulation modelling. This is essentially the same structural approach first used successfully in the 2006 forecast, although some of the statistical techniques have been refined. The forecast draws on trends established in recent years in a range of factors that affect the numbers of people in prison or on non-custodial sentences at any given time, and incorporates assumptions about how those trends are likely to change over time.

In the 2010 prison forecast, the most influential factors driving the forecast – relative to the 2009 forecast – are:

- Numbers entering the court system
- Remands in custody – numbers being remanded in custody and the average length of time spent on remand
- Proportion of imposed sentence served in custody (excluding remand).

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Drivers 1.1, 3, and 4 also affect the forecast of non-custodial sentences. The mix of different non-custodial sentences is assumed to remain as it is at present. It is also assumed that the number of starts per offender will remain as it is at present.

3.3. Policy settings and operational delivery

The drivers for the criminal justice forecast change over time as a result of changes in policy settings and/or operational delivery. Policy or operational changes are not factored into forecast drivers until policy decisions are made and implemented, including any necessary legislative changes.

The forecast includes policy and operational initiatives that have been agreed as of 30 June 2010. For complex initiatives, which may be introduced in stages over a long timescale, it is necessary to decide which aspects of the initiative are included in a given forecast, and which might more profitably be addressed as scenarios before inclusion in subsequent forecasts.

The police initiative, 'Policing Excellence', consists of a number of separate projects, several of which will have an impact on the subsequent number of cases in the system. Not all the projects have completed pilots, and therefore it is not clear what assumptions should be made about their impacts. The impact captured in the forecast is thus a conservative estimate of the likely total impact. It is based principally on observed trends in police workload, and some assessment of the impact of the alternative resolution project. The further impact of Policing Excellence has been examined by means of a scenario, with a view to incorporating that impact in later forecasts.

Similarly, the impact on court processing time that underpins assumptions about time on remand is based on existing operational change, such as the Criminal Procedure Bill, and new procedures around disclosure. The further impact of the Criminal Procedure Simplification project has been examined in a scenario, again with a view to incorporation in later forecasts.

3.4. Disclaimer

The 2010 criminal justice forecast has been developed using the best data and assumptions available at the time. As a forecast, it is only indicative of future prison population numbers to the extent that its assumptions hold. Any change in current policy settings, the legal framework and operational delivery could have a significant impact on current and future forecasts.

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4. Forecast results

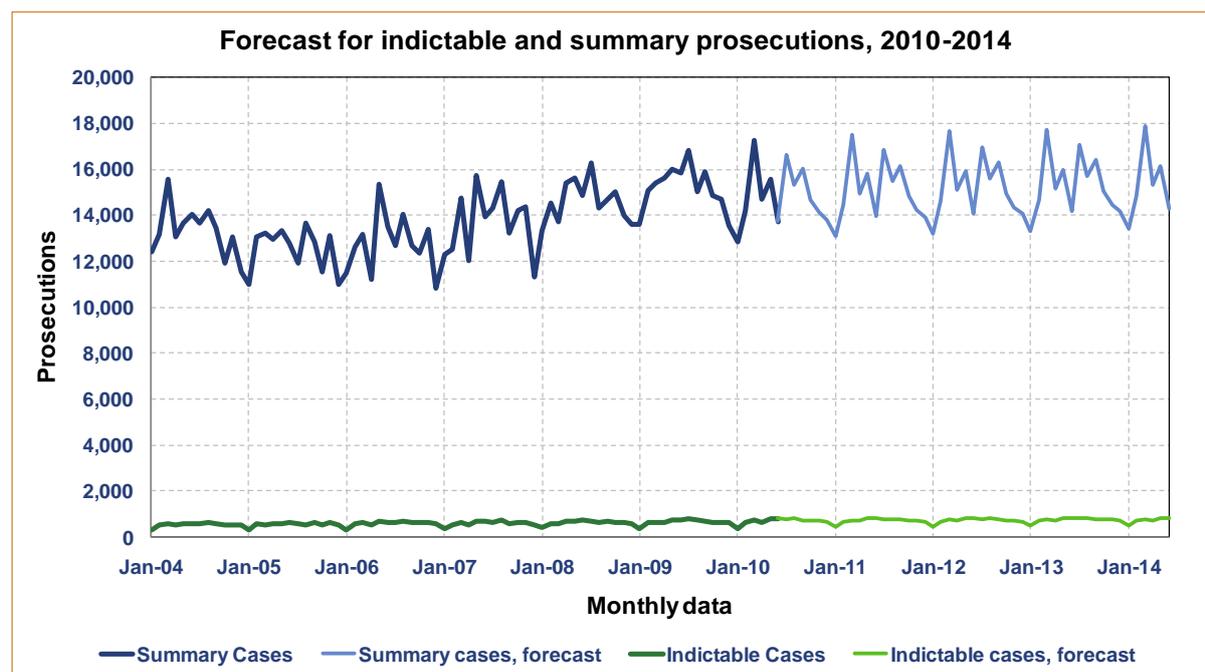
4.1. Indictable and summary prosecutions

Table 3 and Figure 1 give the forecast of numbers of prosecutions for fiscal years 2010-2011 to 2013-2014. Figure 2 expands the scale of Figure 1 to show the forecast for indictable prosecutions only. The numbers of prosecutions are closely though not precisely linked to the numbers entering the court system, and the proportion of prosecutions that are laid indictably is broadly constant. The recent increases in indictable prosecutions have been greater than those in summary prosecutions, which has led to a higher rate of increase being assumed for the future behaviour of indictable prosecutions. However, both trends are based on an underlying rate given by Driver 1.1.

Table 3: Numbers of summary and indictable prosecutions – annual totals

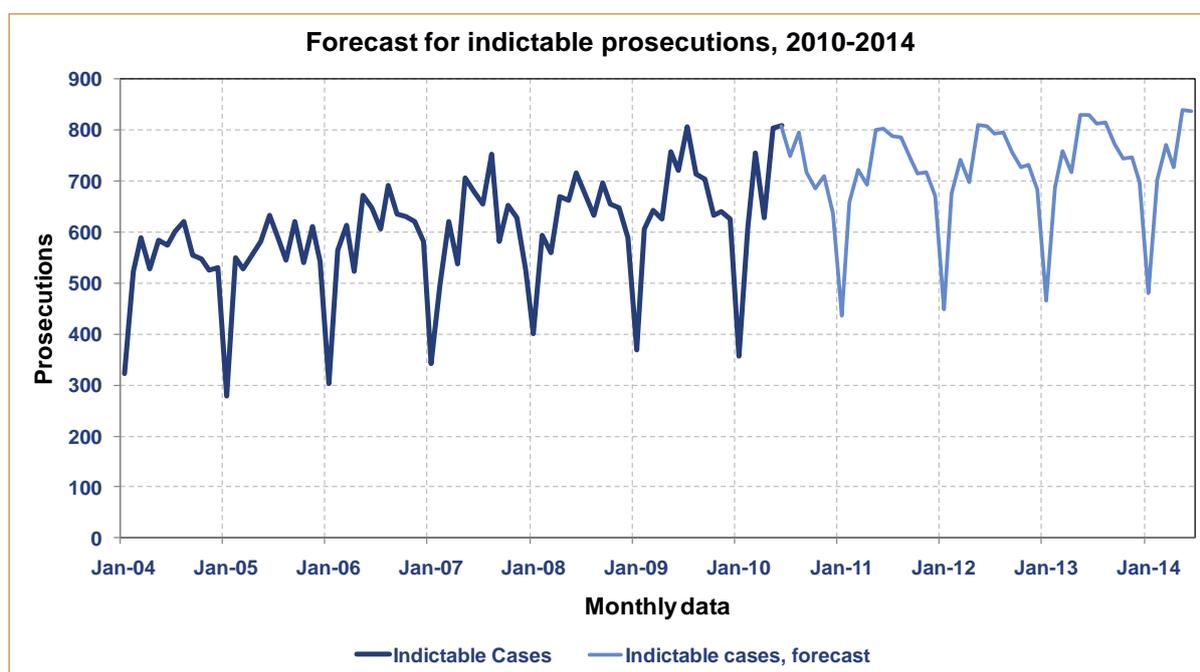
Fiscal year	Summary prosecutions		Indictable prosecutions	
	Numbers	Annual change	Numbers	Annual change
2009-2010 (actual)	179,174	-0.1%	8,087	+6.1%
2010-2011	180,273	+0.6%	8,413	+4.0%
2011-2012	181,951	+0.9%	8,606	+2.3%
2012-2013	183,131	+0.6%	8,777	+2.0%
2013-2014	184,710	+0.9%	8,949	+2.0%

Figure 1: Forecast for indictable and summary prosecutions, 2010-2014



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Figure 2: Forecast for indictable prosecutions, 2010-2014



4.2. Pre-sentence reports

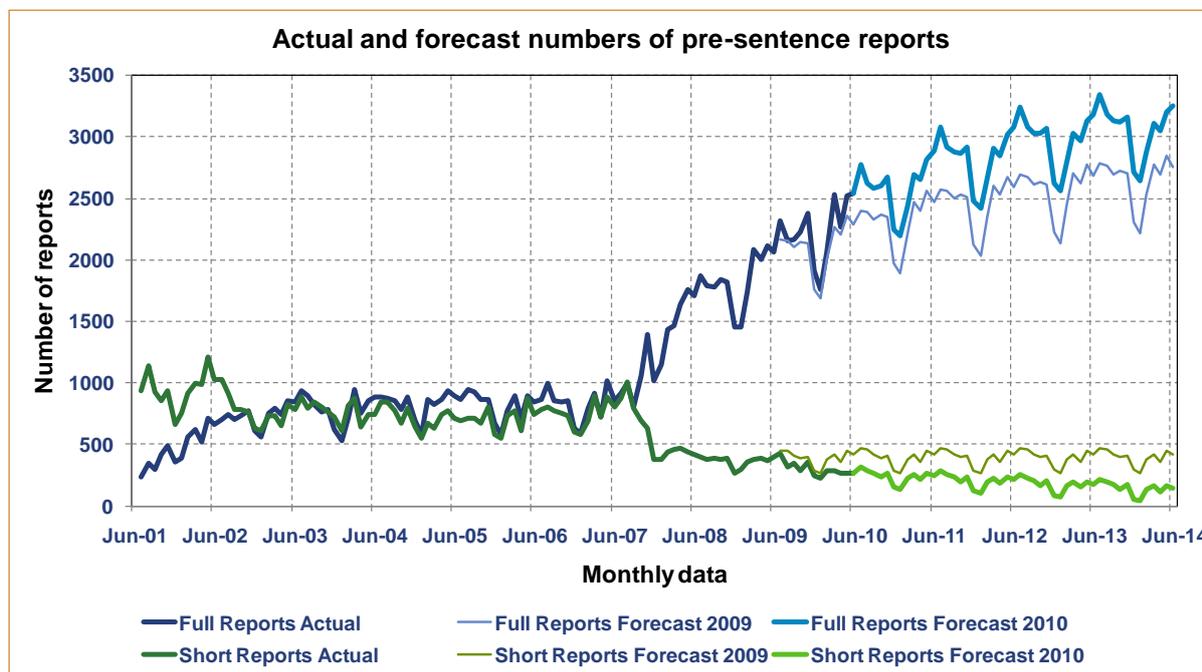
Table 4 and Figure 3 give the numbers of pre-sentence reports projected to 2013-14. The introduction of new non-custodial sentences in 2007 significantly changed the incidence of requests for these reports, with judges immediately favouring full reports. This is shown by the broad divergence of the lines in Figure 3. Since that time the gap has continued to grow. There has been no suggestion of a mechanism to reverse that growth, so the forecast projects its continuing increase.

Table 4: Numbers of short and full probation reports – annual totals

Fiscal year	Short reports		Full reports	
	Numbers	Annual change	Numbers	Annual change
2009-2010 (actual)	3,546	-18.5%	26,848	+22.0%
2010-2011	2,852	-19.6%	31,195	+16.2%
2011-2012	2,465	-13.6%	34,083	+9.3%
2012-2013	2,078	-15.7%	35,741	+4.9%
2013-2014	1,692	-18.6%	36,793	+2.9%

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Figure 3: Actual and forecast numbers of pre-sentence reports, 2010-2014



4.3. Non-custodial sentences

Figure 4 and Figure 5 show the projected growth in new starts for sentences overseen by CPS through 2014.

The forecast does not project how many people will be overseen by CPS at any one time, and in this way differs from the prison population forecast. For some types of sentences the offenders can choose the length of time over which they will serve their sentences. For example, someone may be sentenced to serve a certain number of hours on community work, but have considerable discretion when to serve those hours. Therefore, when those sentences will be completed is not known in advance. Much of the time required to supervise these sentences is at the start, making new starts the most important factor to forecast for administrative reasons.

The historical data for several of these sentences cover relatively short time scales and, as a result, the confidence limits are very broad. It is prudent, therefore, to look no more than four years ahead.

The recent upturn in the use of the two principal non-custodial sentences is mirrored by a decline in the use of fines, and may reflect a temporary lessening of judicial confidence in monetary penalties. Collections have recently improved their enforcement practices, and there are indications in current data that the increase in Community Work and Supervision sentences has stopped. In due course, there may be a move back towards fines, which will have consequences for the use of other sentences.

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Figure 4: Community work and supervision forecast

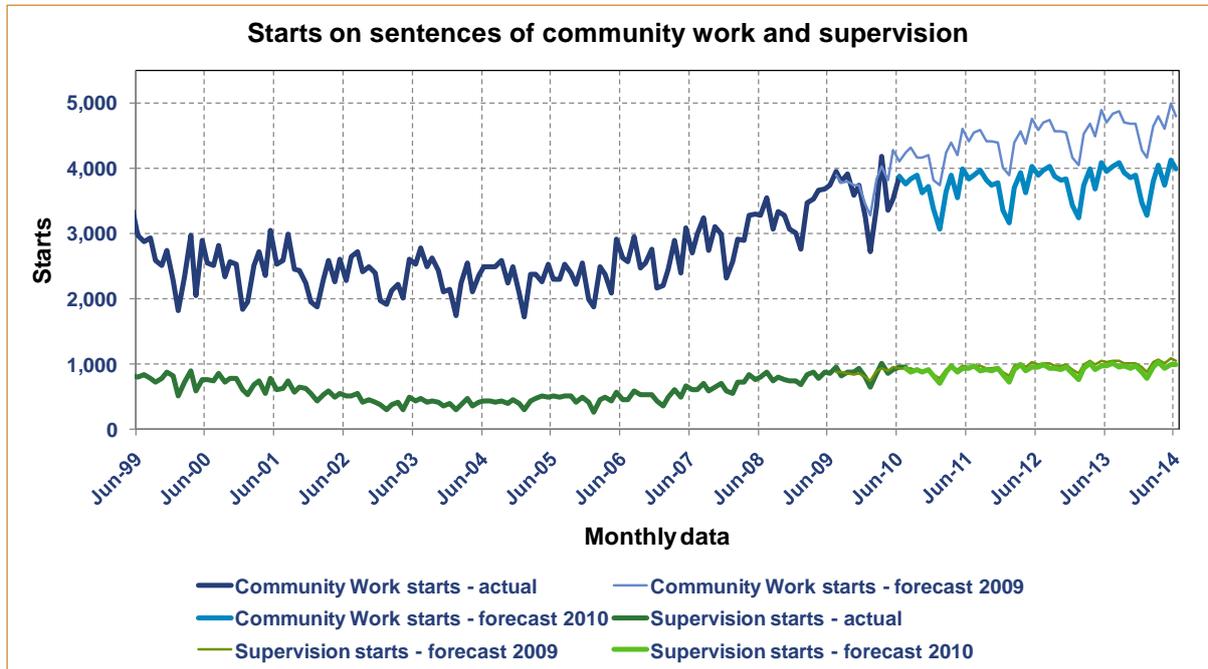


Figure 5: Forecast of other non-custodial sentences

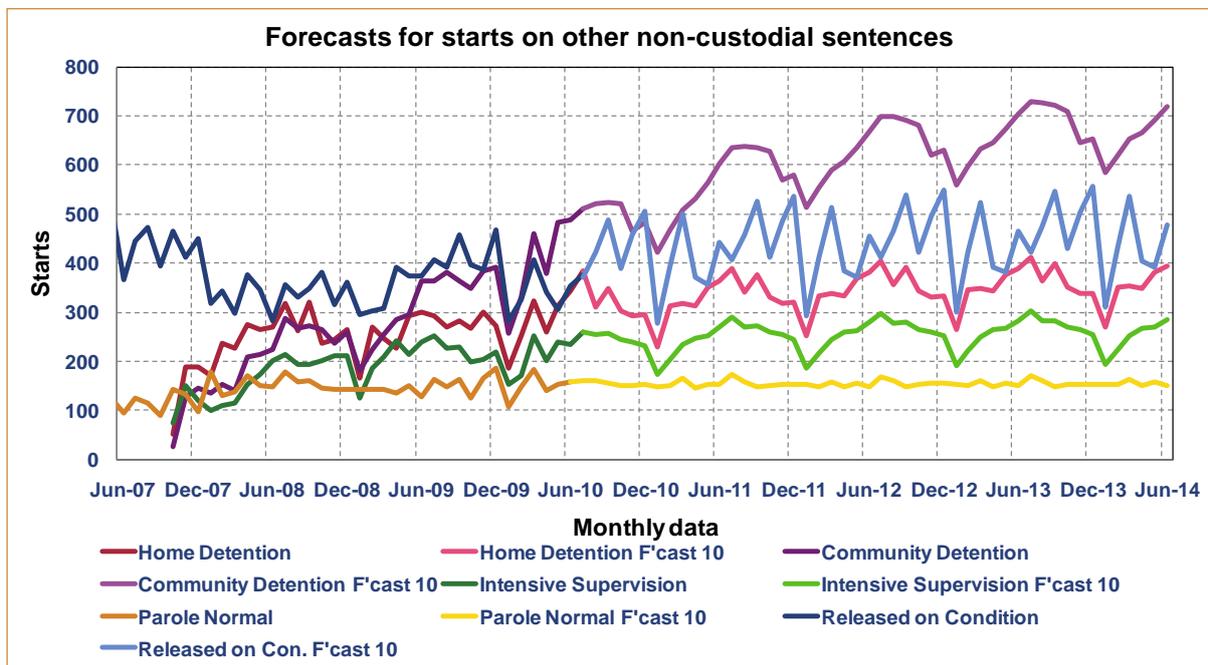


Table 5 gives the total number of new starts for sentences overseen by the CPS for the fiscal years to 2013-2014. Projections for parole and release on conditions, while based on existing trends in these quantities, have also been reconciled with the output of released prisoners likely to be subject to these orders from the prison forecast.

CRIMINAL JUSTICE FORECAST 2010-2020**Table 5: Numbers of new starts for sentences and orders overseen by the CPS**

Fiscal year	Community work	Supervision	Intensive supervision	Community detention	Home detention	Parole	Released on conditions
2009-2010 (actual)	43,352	10,544	2,585	4,636	3,364	1,840	4,522
2010-2011	44,193	10,674	2,868	6,117	3,894	1,843	4,977
2011-2012	44,937	10,937	3,036	7,261	4,158	1,846	5,259
2012-2013	45,672	11,227	3,114	7,832	4,374	1,857	5,371
2013-2014	46,260	11,459	3,153	8,118	4,542	1,868	5,493

Estimates can be made of the numbers of life parolees starting in any given year, and of the numbers of offenders released on conditions, as shown in Table 6. The numbers of these offenders are very small, and also can be volatile, and it is not feasible to provide a projection in the style of the other sentences and orders. The numbers of life parolees per annum is forecast to be 38, and the number of people under extended supervision per annum as 34. These represent increases on the figures for 2009 (24 and 32 respectively).

Table 6: Life parolees and extended supervision

Fiscal year	Life parolees	Extended supervision
2009-2010 (actual)	24	32
2010-2011	38	34
2011-2012	38	34
2012-2013	38	34
2013-2014	38	34

4.4. Prison population

The prison population is forecast to reach 9,890 by 30 June 2020. This is a 13% increase from 30 June 2010. The increase in the actual prison population over the preceding ten years was 53.5%.

The 2009 forecast projected a prison population of 10,341 by June 2017. The equivalent figure in the 2010 forecast is 9,729 (-5.9% relative to the 2009 forecast).

The forecast June 2020 prison population consists of 7,905 sentenced prisoners (16% increase from June 2010) and 1,985 remand prisoners (3.3% increase from June 2010). The forecast growth in the sentenced population is less than in the previous ten years (during which the sentenced population increased by 38%), while the forecast remand population is also growing more slowly (during the previous ten years it increased by 158%). The substantial difference

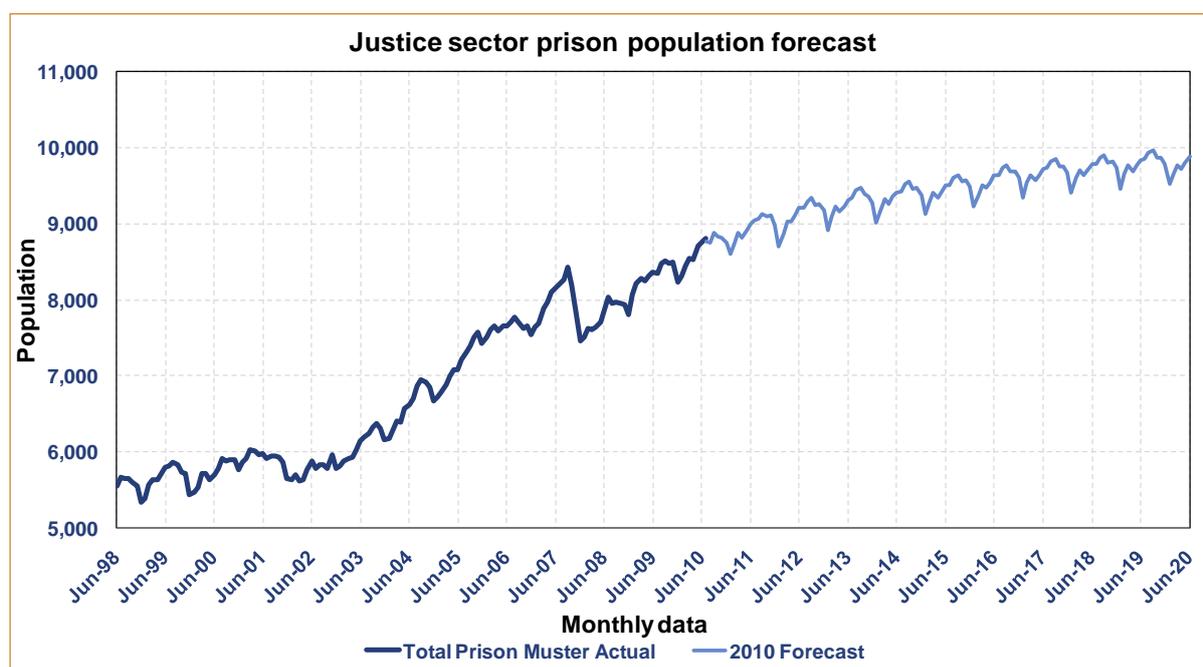
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between the figures for remand prisoners arises from the assumptions for Drivers 1.1, 2.1 and 2.2 (outlined in Table 2) all being lower than in 2009.

The incarceration rate per 100,000 people is projected to increase from 200 in June 2010 to around 207 by 2020. This compares with an increase from 148 to 200 between 2000 and 2010².

Figure 6 shows the increase in the prison population over the forecast period.

Figure 6: Total prison population forecast



Confidence limits

Figure 7 shows the prison forecast with 68% and 95% confidence limits. Figure 8 and Figure 9 show confidence limits on sentenced and remand populations respectively. Although the remand population is less than a quarter of the total, the confidence limits are much the same. This is because it is harder to be precise when the sample is both smaller in absolute size and more volatile in behaviour.

² In calculating the population for 2020, Series 5 of Statistics New Zealand population projections was used – average fertility, mortality and immigration levels – and linear interpolation between 2016 and 2021. The population for mid-2010 is taken from Statistics New Zealand’s population counter.

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Figure 7: 2010 prison population forecast with confidence limits

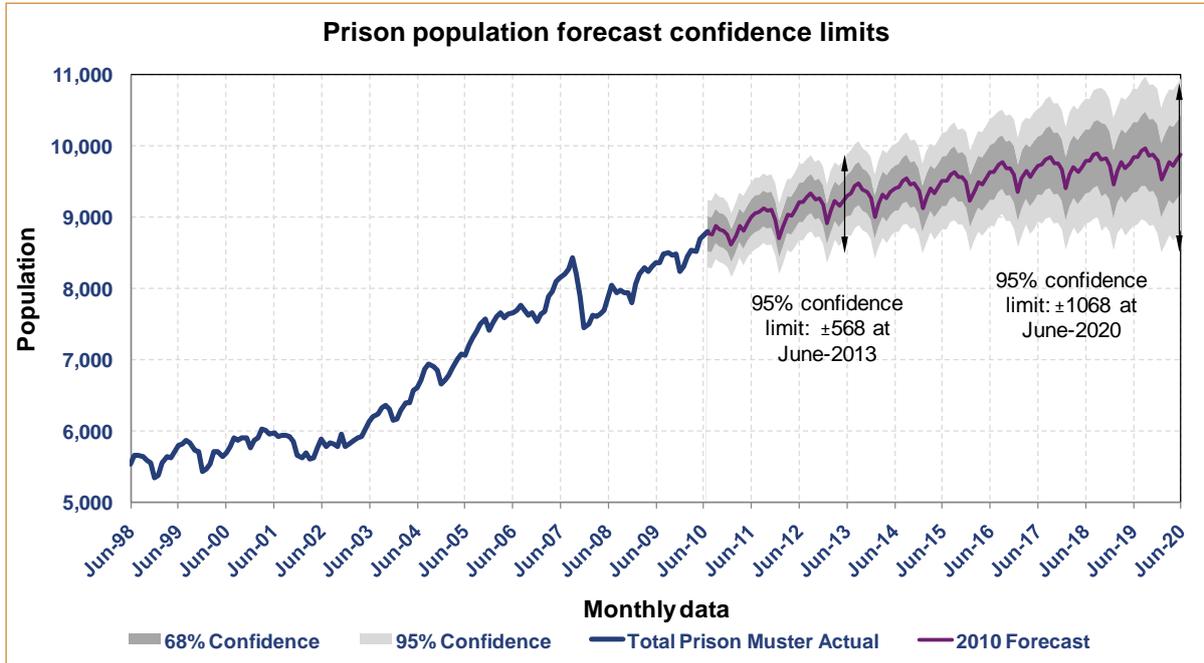
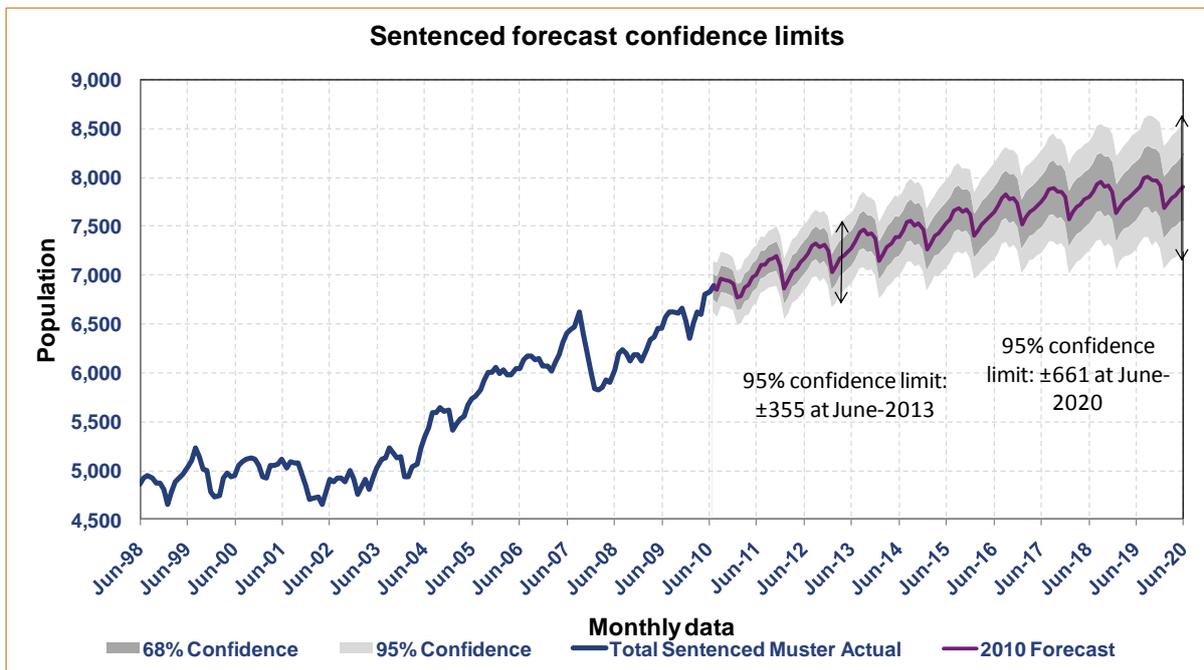
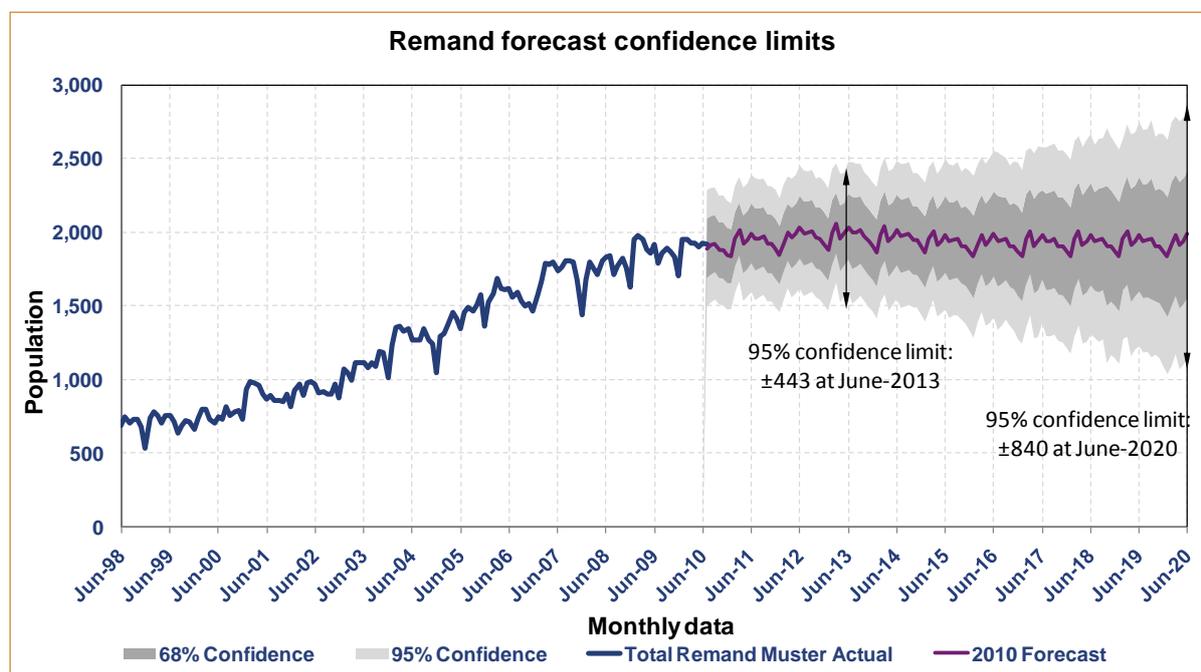


Figure 8: 2010 sentenced population forecast with confidence limits



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Figure 9: 2010 remand population with confidence limits



Population forecasts

Table 7 sets out the estimated prison population for June each year, along with the maximum in the fiscal year to that date. The numbers given are point estimates of the prison population at the end of the relevant month.

Table 7: June total and annual maximum values

Fiscal year	June total		Maximum (month of occurrence)	
	Numbers	Annual change	Numbers	Annual change
2009-10 (actual)	8,753	4.5%	8,753 (Jun)	4.5%
2010-11	9,001	2.8%	9,001 (Jun)	2.8%
2011-12	9,210	2.3%	9,210 (Jun)	2.3%
2012-13	9,309	1.1%	9,337 (Sep)	1.4%
2013-14	9,408	1.1%	9,478 (Sep)	1.5%
2014-15	9,510	1.1%	9,552 (Sep)	0.8%
2015-16	9,633	1.3%	9,645 (Sep)	1.0%
2016-17	9,729	1.0%	9,779 (Sep)	1.4%
2017-18	9,787	0.6%	9,848 (Sep)	0.7%
2018-19	9,844	0.6%	9,907 (Sep)	0.6%
2019-20	9,890	0.5%	9,963 (Sep)	0.6%

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Figure 10 and Figure 11 show the different behaviours of the remand and sentenced populations relative to previous forecasts. There is a decrease in the remand population due to fewer numbers entering the court system and shorter times held in custodial remand. Among those who do enter the system, however, a higher proportion receives custodial sentences, and thus the sentenced population increases.

Figure 10: Sentenced muster forecasts: 2008-2016, 2009-2017, 2010-2020

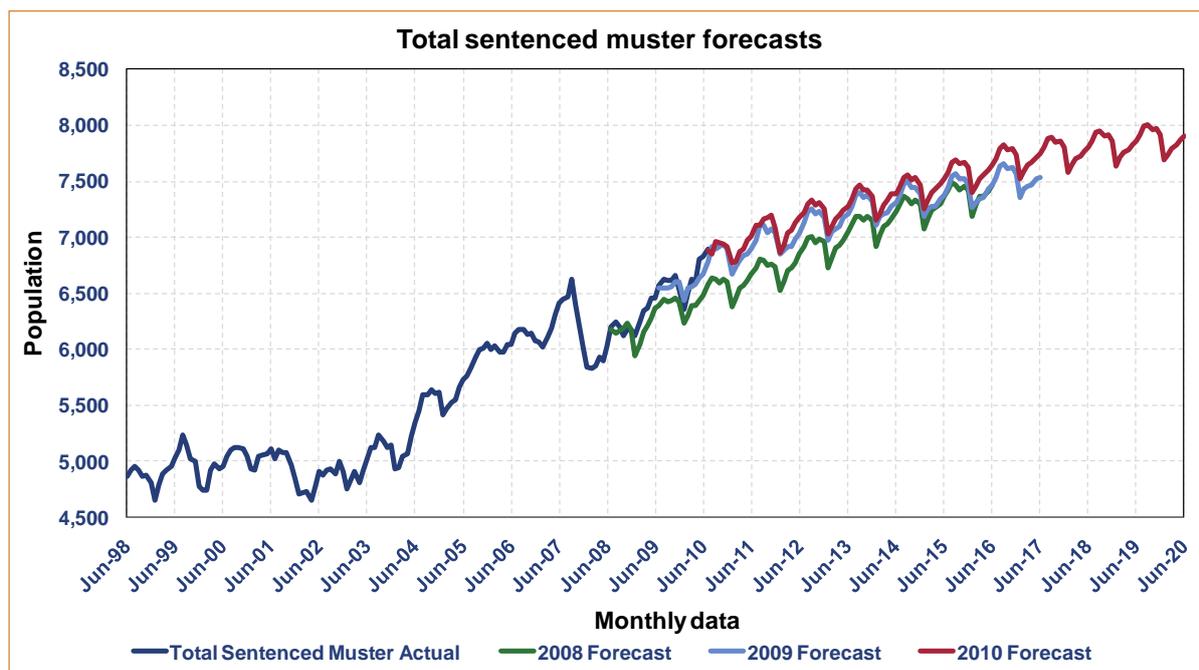
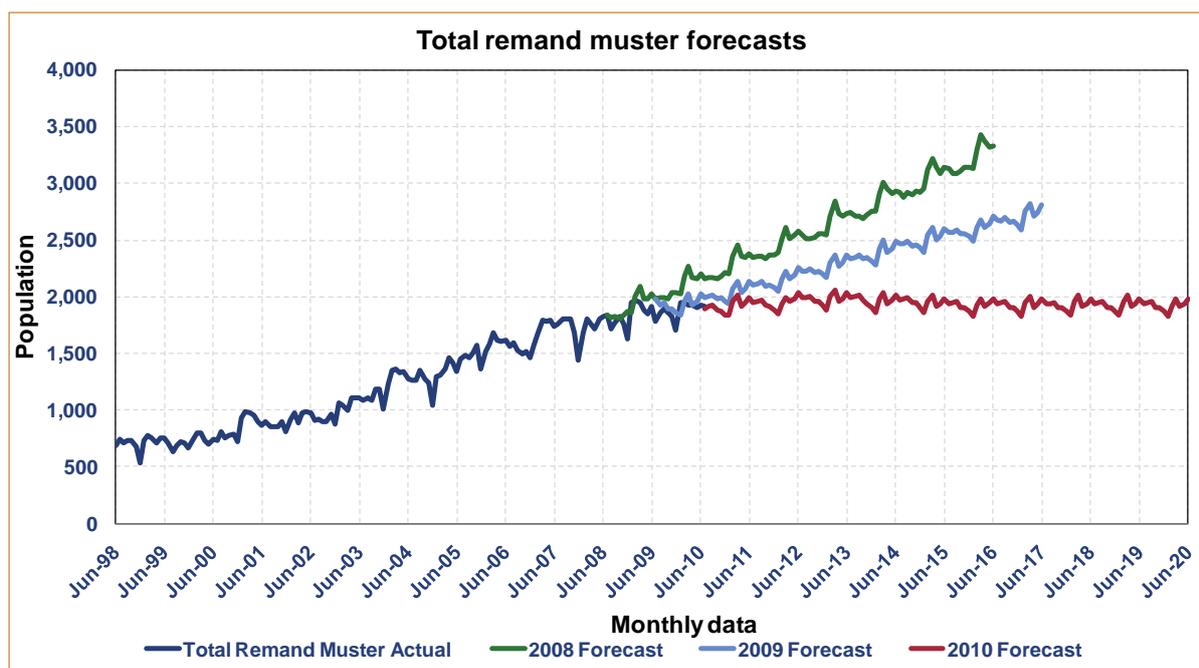


Figure 11: Remand muster forecasts: 2008-2016, 2009-2017, 2010-2020



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Finally, Table 8 sets out the estimated prison population, broken down into remand and sentenced populations, for June each year. The numbers given are point estimates of the prison population at the end of the relevant month.

Table 8: Numbers in remand and sentenced populations for June

Fiscal year	Remand population		Sentenced population	
	Numbers	Annual change	Numbers	Annual change
2009-10 (actual)	1,921	0.4%	6,832	5.8%
June 2011	1,991	3.6%	7,010	2.6%
June 2012	2,033	2.6%	7,177	2.4%
June 2013	2,035	0.1%	7,274	1.4%
June 2014	2,014	-1.0%	7,394	1.6%
June 2015	1,984	-1.5%	7,526	1.8%
June 2016	1,986	0.1%	7,647	1.6%
June 2017	1,980	-0.3%	7,749	1.3%
June 2018	1,984	0.2%	7,803	0.7%
June 2019	1,984	0.0%	7,860	0.7%
June 2020	1,985	0.1%	7,905	0.6%

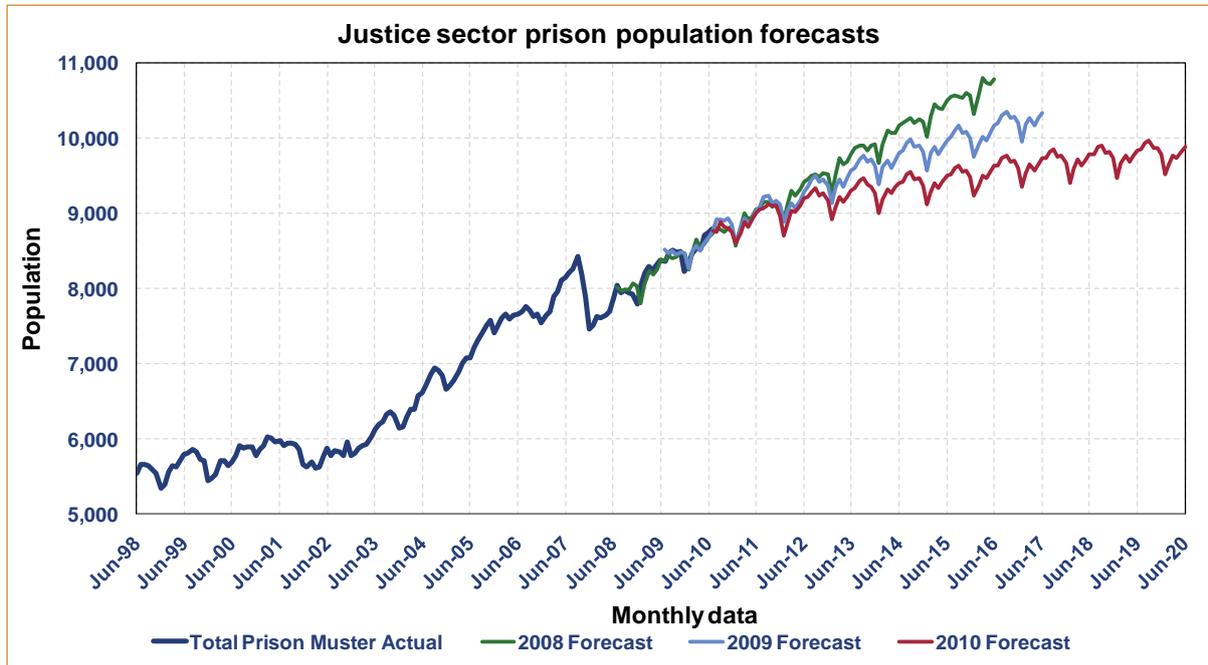
Comparison with previous forecasts

Figure 12 compares the 2010 forecast to the 2008 and 2009 forecasts. It shows how the 2010 forecast (red line, lowest) parallels the 2009 (blue line, middle) and 2008 (green line, highest) forecasts for some time but then diverges from them, as it grows at a lower rate.

The reason for the continuing decline lies in the assumptions made year on year. This year, as noted in Table 2, five of the seven assumptions are lower than last year, while the others are unchanged. This results in a downward pressure across all aspects of the prison population. In turn, the 2009 assumptions were broadly the same as those in 2008, with the only change being a lower assumption for average time on remand.

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Figure 12: Comparison of 2008 and 2009 forecasts with 2010 forecast



5. Scenarios and Sensitivities

5.1. Overview of scenarios and sensitivity analysis

It is important to understand how the forecast results would respond to alternative assumptions. Therefore, we have explored a range of scenarios and sensitivities. The scenarios and sensitivity analyses are defined below.

Scenario 1: Policing Excellence

Policing Excellence is a programme comprising a range of initiatives to improve the impact of policing activity. The impact from the Policing Excellence pilot is built into the base case assumptions, but the full impact of the Policing Excellence series of initiatives is not. Some of the Policing Excellence initiatives are focused on internal police operations, but others are expected to have downstream consequences on the rest of the justice system.

The three initiatives within Policing Excellence which are likely to have an impact on the forecast are:

- Neighbourhood Policing, which focuses on crime prevention.
- Alternative Resolutions, which focuses on selecting the most appropriate outcomes for dealing with offenders.
- Rostering to Demand, which focuses on preventing more serious crime by intervening at an early stage in situations where offending is likely to occur.

The impact of these initiatives has been examined via a scenario which assumes that the initiatives will be fully effective in terms of their design objectives.

Scenario 2: Criminal Procedures Simplification

The Criminal Procedures (Simplification) Project was established to review and reform New Zealand's criminal procedure. It integrates a range of initiatives within key justice sector agencies to improve timeliness and efficiency in criminal court cases.

The Simplification project has two objectives:

- Reduce unnecessary court delays through legislative and operational change.
- Create a more accessible and simplified criminal procedure.

The impact on court processing time that underpins base case assumptions about time on remand is based on existing operational changes such as the Criminal Procedure Bill and improved practices around disclosure. The further impact of Criminal Procedures Simplification has been captured on the basis that the benefits of the project will be fully realised.

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Scenario 3: Sentinel Event

The Graeme Burton incident in January 2007 is believed to have resulted in an increase in the prison population, due to changes in parole decisions. There is a risk that another “sentinel event” could occur, resulting in a rapid and potentially large change in prison population.

This scenario examines the impact of an event that has characteristics similar to those observed following the Graeme Burton incident. The event is assumed to take place during 2011/12.

Sensitivity analysis

In addition to examining alternative scenarios, two sensitivity analyses were conducted. The distinction between a scenario and a sensitivity analysis is that a scenario generally represents the impact of several assumption changes simultaneously, while a sensitivity analysis involves examining the impact of a single assumption change.

A full sensitivity analysis has not been conducted previously, and will take substantial time to complete. We are planning to conduct such an analysis following completion of the current forecast. For the purpose of the current forecast, the sensitivity analyses concentrated on looking at the impact of change to Driver 1.1: Numbers entering the court system and Driver 6: Proportion of sentence served.

5.2. Scenario Results

Scenario 1: Policing Excellence

The main impact of Policing Excellence on the rest of the system is expected to be the diversion of cases for which prosecution is not the most appropriate outcome. Most of these cases will currently attract lenient outcomes, and it is unlikely that cases resulting in a prison sentence would fall into this category.

The approach is to make an assumption regarding the outcomes of the cases which the Policing Excellence initiative is likely to divert, and to assess the consequences on the overall distribution of outcomes. The current assumption is that there will be a 19% reduction in the number of prosecutions. The analysis assumed that 58% of these diverted cases would come from the ‘Not Convicted’ category, 26% convicted and discharged, 13% fines, 2% community sentences and 1% prison sentences. This would seem a reasonable way of capturing the intent of Policing Excellence to ensure that only cases appropriate for prosecution actually enter the courts system.

Other assumptions are possible, and there could be some debate about how the mix varies between non-convicted cases and convicted and discharged cases. The key factor is whether a greater percentage of cases could reasonably attract the more serious sentences. It is also likely that if prison sentences were involved in the initiative, they would be short-term sentences.

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Table 9 shows the distribution of current outcomes and the distribution of outcomes once the diverted cases are excluded. Most of the impact is felt in cases resulting in less severe sentences, while the impact on the numbers going to prison is limited.

Table 9: Comparison of case outcomes in base case and Policing Excellence scenario

Case	Not convicted	Conviction and discharge etc	Fine	CPS	Prison
Current	29%	10%	31%	24%	6%
Scenario 1	23%	7%	34%	29%	7%

It is essential to remember that Scenario 1 is based on an expected reduction in overall prosecution numbers of 19%. So the apparent increases in the proportion of CPS and prison sentences actually represent small reductions in the absolute numbers of people receiving these sentences.

The scale of the impact is at most 100 prison beds, and would be felt relatively quickly after Policing Excellence was fully in place – say around 2014-15. 100 beds out of 9,000 is well within the forecast confidence limits. For community sentences the impact is numerically larger, with an estimated 1,200 starts not being incurred. This has to be set against a total of around 70,000 starts (see Table 5). Again, this is a small proportion of less than 2% of the total starts.

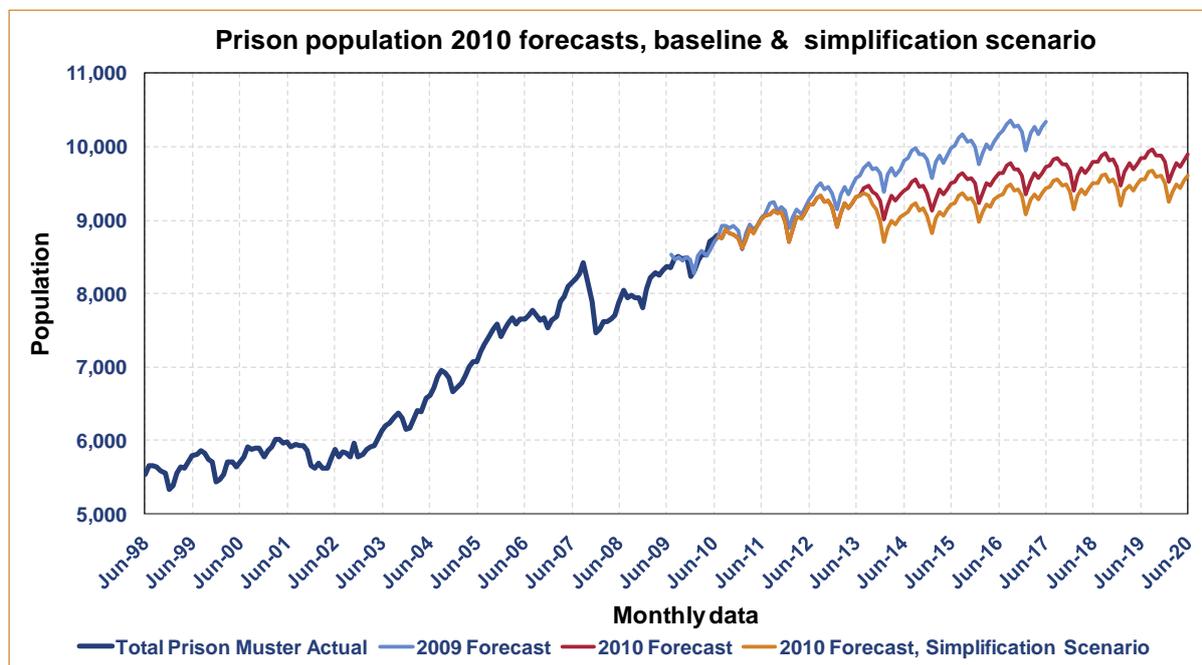
Unless there is a substantial focus on custodial or community sentences, the Policing Excellence initiative is unlikely to have a marked effect on the prison or non-custodial populations, although it should still ensure that the resources in the court system are targeted on cases that should be there.

Scenario 2: Criminal Procedure Simplification

The principal impact of the Criminal Procedure Simplification project will be on the remand population. The project anticipates a reduction in average remand days from 57 days to 47 days. Simplification appears to bring the overall prison population down below the base case, as seen in Figure 13.

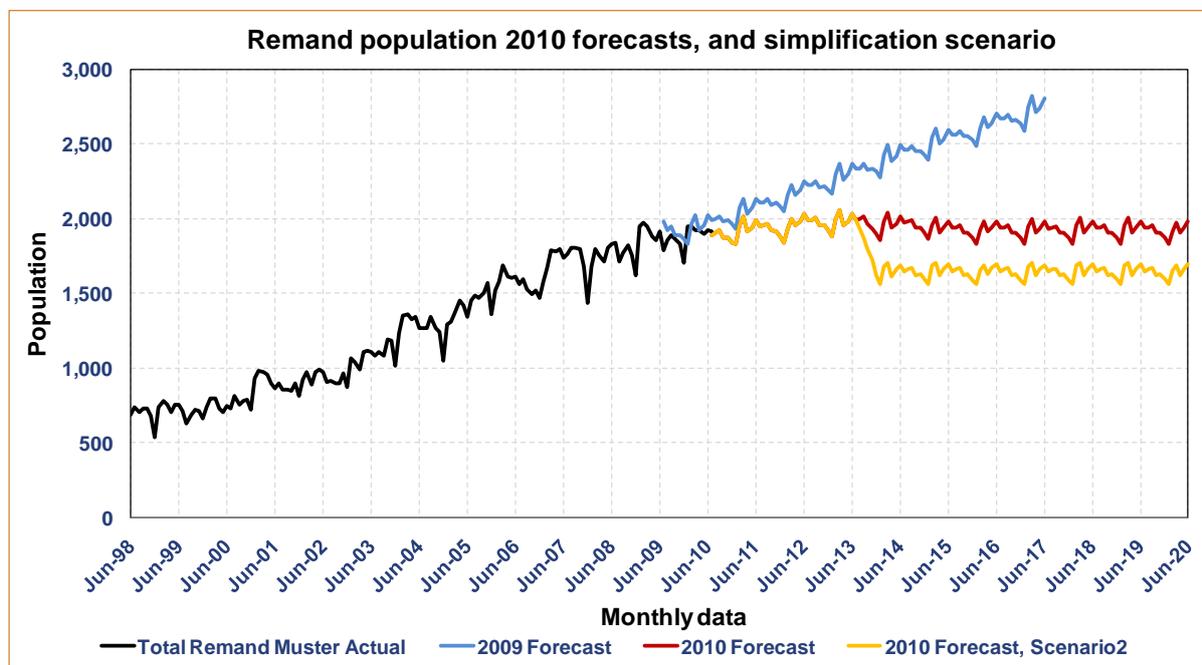
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Figure 13: Impact of simplification scenario on total population



However, the effect is only on the remand population as Figure 14 shows.

Figure 14: Impact of simplification scenario on remand population



The impact on the remand population is around 300 beds, and occurs within a year. It is important to realise that not all these beds will be saved in the total population, as a proportion of remanded prisoners go on to serve prison sentences, and will accordingly spend longer as

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sentenced prisoners than they otherwise would have done. There will be no bed savings in these cases. Therefore, the saving of 300 beds is very much an upper limit, and will not be realised in practice.

Further work is needed to understand the links between the sentenced and remand populations more clearly, and to obtain a clearer picture of which cases the simplification project is likely to target. This work will be conducted following completion of the current forecast.

Scenario 3: Sentinel event

The key sentinel event of recent years is the Burton incident of January 2007, which is anecdotally believed to have had a significant impact on a range of processes in the justice system, from remand decisions to recall rates and Parole Board release decisions. We started analysis on this scenario by examining the data to see what actual impacts there were on forecast drivers.

Identifying the specific impact of an event in the criminal justice system is always difficult – events rarely happen alone, and the effect on an outcome is often a composite of several influences, which may be pulling in different directions.

We have found no impact in the following areas:

- Charging events (Driver 1.1)
- Remand inflows and Remand rates (Driver 2.1)
- Time on Remand (Driver 2.2)
- Imprisonment sentence inflows, Male (Driver 4).

Our analysis suggests potential impact in two categories:

- Sentence length, Male (Driver 5): sentences for offences of serious violence increased over a period of two to three years and then stabilised.
- Proportion of sentence served excluding remand, Male (Driver 6): sentences for offences of serious violence increased over a period of two years and then stabilised. There are two points to note in this area:
 - Firstly, these are longer-term sentences, and the Burton incident is too recent to be sure that we have captured all its effect (we are, for example, studying the release patterns of people sentenced before the incident, which may not be a good indicator for people sentenced after the incident).
 - Secondly, after some years of increase, the average proportion served is already high, and any future changes may not be on the same scale.

Overall, our analysis shows that the most significant sentinel event of recent years seems to have had limited impact on the justice system, affecting only people given long term sentences for offences of serious violence. The impact also seems to be particularly focused on the same kind of offences as were involved in the incident.

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It should be recalled that the Burton incident took place at a time when the period of time offenders spent incarcerated was already increasing as a result of the changes in the 2002 Acts. Therefore, we are looking for an additional impact over and above an ongoing effect. This may explain why the observed impact is so small and limited.

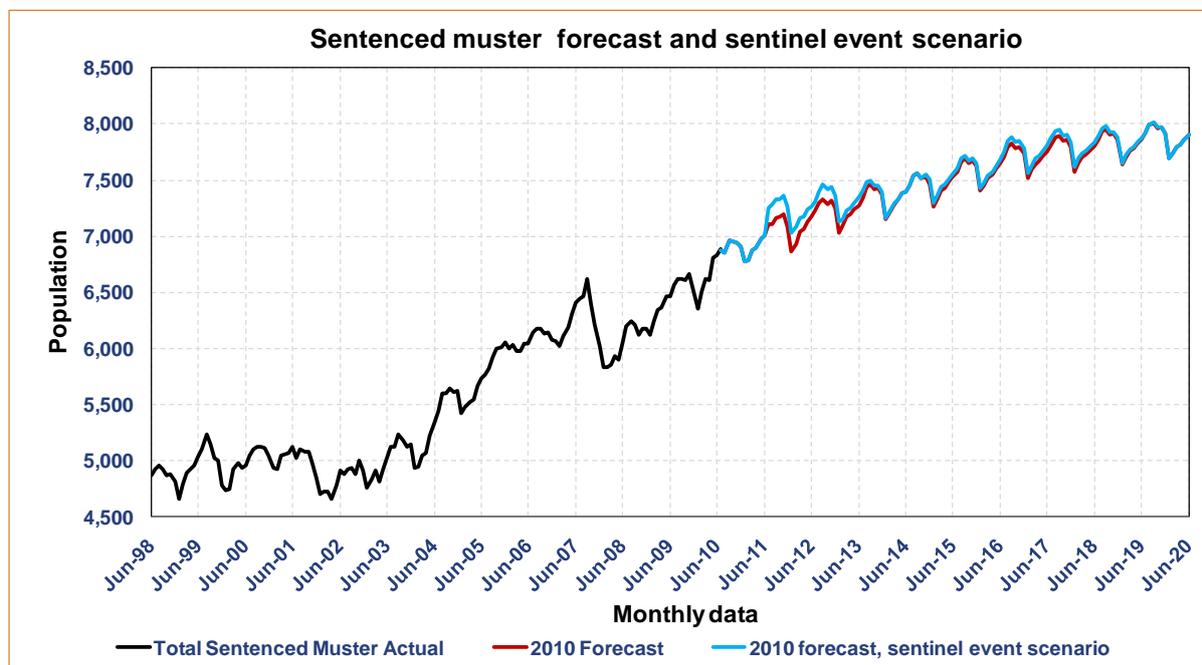
The offenders affected are small in number; however, because they are serving long sentences, any change in their sentences will have a disproportionate effect.

On the basis of the analysis conducted, we elected to model the following assumptions:

- Imposed sentences increase by 6.5% for people charged with an offence of serious violence and given a sentence of greater than five years. This could be considered as the judicial reaction to a sentinel event;
- Proportion served increases by 10 percentage points for the same group. This could be considered the Parole Board’s response to a sentinel event.

These two changes would not occur together. The Parole Board change would start affecting people sentenced before the sentinel event as they come up for parole after the event. The impact of the longer sentences would only be felt later once the offenders involved have completed the time in prison that they would have served anyway. Figure 15 shows the impact on the total prison population.

Figure 15: Impact on total prison population of a sentinel event scenario



The sentinel event is assumed to occur in June 2011, and there is a maximum impact of around 175 beds six months later; this declines to zero after about three years. That is the impact of Parole Board decisions increasing the proportion served.

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The second impact is from the longer sentences imposed after the sentinel event. This effect peaks at 50 beds some three years further on (that is, six-and-a-half years after the event) and declines to zero around June 2020. Changes of this scale are within the confidence limits of the forecast.

5.3. Sensitivity Results

Overview of sensitivity analysis

Sensitivity analyses take each driver in turn, and change its settings in steps, re-running the model each time to build up a picture of those drivers that have the most impact. Such an approach also identifies which drivers are non-linear in their effect – for instance, a 5% change in output for a 1% change in assumption, but a 15% change in output for a 2% change in assumption.

Sensitivity Analysis 1: Numbers entering the court system

The assumption for this analysis is a two percentage point addition to the base case assumption for numbers entering the court system. An assumption is also made regarding numbers remanded, as it was considered that a significant change in numbers entering the court system would be accompanied by an increase in numbers remanded. These assumptions are summarised in Table 10. All other settings of the model remain the same.

Table 10: Comparison of assumptions in the base case and the sensitivity analysis

Driver – base case	Assumption	Comparison to 2009 forecast
1.1: Numbers entering the court system (number of charging events)	The number of charging events will grow 2% in 2010/11, and 1% per annum thereafter	Lower than 2009 assumption
2.1: Number of people remanded in custody	Absolute numbers remanded in custody will remain constant throughout forecast period	Lower than 2009 assumption
Driver – sensitivity	Assumption	Comparison to 2009 forecast
1.1: Numbers entering the court system (number of charging events)	The number of charging events will grow 4% in 2010/11, and 3% per annum thereafter	Closer to 2009 assumption (4.5% for 2010/11, 3% thereafter)
2.1: Number of people remanded in custody	Proportion of people remanded in custody will remain constant throughout forecast period	Same as 2009 assumption

Table 11 shows the impact of this sensitivity analysis on the number of additional prison beds required by 2020.

CRIMINAL JUSTICE FORECAST 2010-2020**Table 11: Sensitivity analysis for prison numbers**

Quantity	June 2010 actual	June 2020 forecast		Additional beds	Change (sensitivity over base case)
		Base case	Sensitivity		
Remand population	1,921	1,985	2,601	616	31.0%
Sentenced population	6,832	7,905	8,360	455	5.8%
Total prison population	8,753	9,890	10,971	1,081	10.9%

The change in remand population numbers is the largest observed across all the quantities. This is because the remand population is affected by both of the changes made to the drivers.

Table 12 compares the output for starts on community sentences, probation reports and prosecutions.

This sensitivity analysis suggests that Driver 1.1 (Numbers entering the court system) is an important factor in the overall system, with a key impact on remand numbers. As always, caution needs to be exercised in interpreting changes in remand numbers, as many remandees go on to receive custodial sentences, and the complex interrelationship between sentenced and remand populations is not yet well understood.

Table 12: Sensitivity analysis for community sentence and prosecution numbers

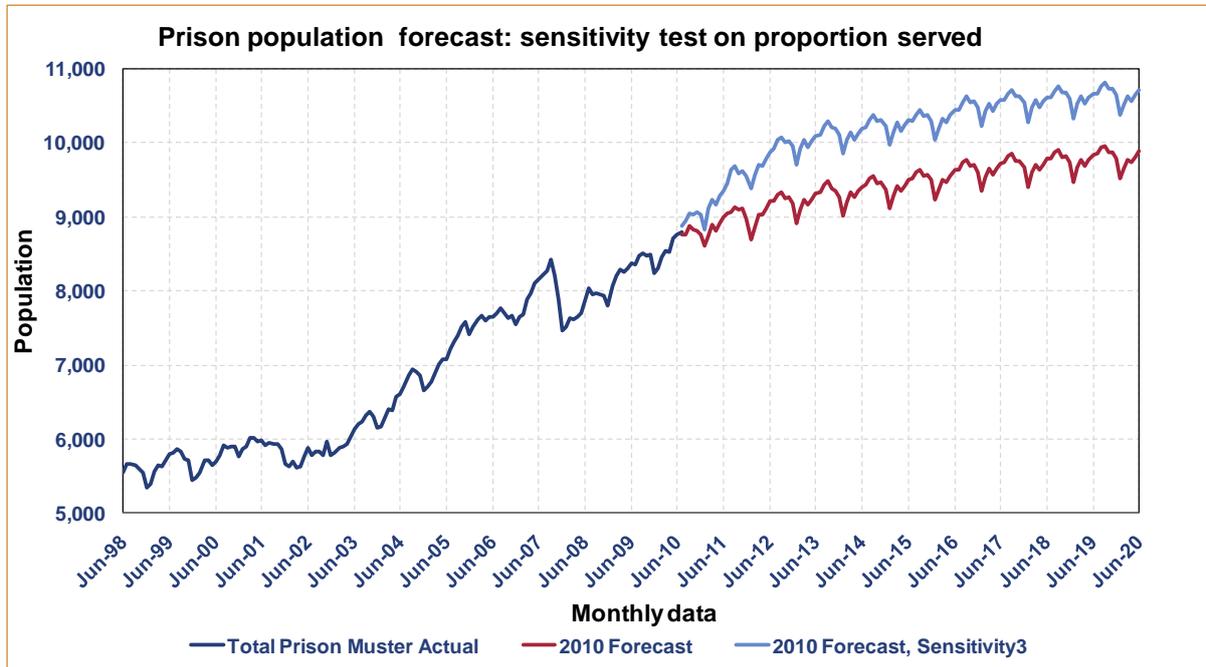
Quantity	2009-2010 starts	2013-14 total starts		Additional starts	Change (sensitivity over base case)
		Base case	Sensitivity		
Total CPS starts	70,843	80,652	85,091	4,439	5.5%
Total CPS reports	30,394	38,485	39,164	679	1.8%
Summary prosecutions	179,174	185,231	196,723	11,492	6.2%
Indictable prosecutions	8,087	8,428	8,959	531	6.3%
Total prosecutions	187,261	193,659	205,682	12,023	6.2%

Sensitivity Analysis 2: Proportion served

This sensitivity analysis models the impact of increasing the proportion served for all sentences greater than two years by ten percentage points over a period of twenty months, after which it levels off. Figure 16 shows the resulting impact.

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Figure 16: Impact of increasing the proportion of sentence served



The impact is cumulative and is spread over a longer period than the 20 months of growth – an increase in proportion served has its fullest impact only after the original value for the proportion has been served. The impact levels off at 800 beds, about three years after the changes. The rate of increase in the sensitivity analysis is not unprecedented when compared to rates of increase observed in the past.