

ERRATUM

p28, Annex 2 Table 1 (lower part) should be replaced with the table below

Average projected prison population (financial year)										
	Medium impact CJA 2003					Low impact CJA 2003				
	High sentencing		Medium sentencing		Low sentencing	High sentencing		Medium sentencing		Low sentencing
	Option A	Option B	Option A	Option B	Option A	Option A	Option B	Option A	Option B	Option A
Scenario	1	2	3	4	5	6	7	8	9	10
2005/2006	74,330	74,300	74,060	74,030	73,780	74,150	74,130	73,890	73,860	73,610
2006/2007	75,870	74,630	75,310	74,080	74,650	78,880	77,850	78,300	77,280	77,600
2007/2008	81,040	77,810	80,060	76,860	78,720	82,580	79,760	81,580	78,780	80,220
2008/2009	82,290	78,180	80,820	76,770	78,840	84,190	81,130	82,680	79,670	80,660
2009/2010	83,040	77,640	81,060	75,790	78,420	85,750	81,760	83,710	79,810	80,990
2010/2011	84,350	78,780	81,960	76,540	78,690	87,270	83,430	84,800	81,060	81,420

Scenario 4 is the low scenario, scenario 6 is the high scenario.

PRISON POPULATION PROJECTIONS 2005 – 2011

01/05

England and Wales

Nisha de Silva

January 2005

KEY POINTS

This bulletin presents the latest projections of the prison population in England and Wales for the period from January 2005 – June 2011. The projections are based on assumptions about future sentencing trends and the implications of new policy initiatives with an agreed timescale.

The main policy initiatives included are:

- those measures in the Criminal Justice Act 2003 (CJA 2003) that have an agreed implementation timetable;
- Narrowing the Justice Gap (NJG);
- other policies implemented and included in the last published projections where the full impact is yet to be realised.

The major changes from the last projections come from the implementation of the CJA 2003. The targets and impacts for NJG have also changed.

Ten scenarios have been projected that take account of combinations of three different views of future sentencing trends, two different views of the impact of the CJA 2003, and achieving or not achieving a further 15% reduction in average sentence lengths for custodial sentences of 1 year or more.

The prison populations indicated by the scenarios range from around 76,000 to 87,500 in mid-2011.

INTRODUCTION

1. Prison population projections are produced to aid policy development and monitoring across the Criminal Justice System (CJS), prison capacity planning, resource bidding and allocation within the National Offender Management Service (NOMS). This bulletin presents the latest prison population projections for England and Wales from January 2005 – June 2011, starting from a base of June 2004.
2. Ten scenarios have been modelled. These scenarios take account of combinations of the following:
 - three different views of future sentencing trends, i.e. changes in custody rates and average custodial sentence lengths;
 - two different views of the CJA 2003, i.e. medium impact and low impact; and
 - achieving or not achieving a further 15% reduction in average sentence lengths on sentences of 1 year or more through the activities of the Sentencing Guidelines Council (SGC) and measures other than those included in the CJA 2003.
3. The impacts of NJG, changes in Home Detention Curfew (HDC) and mandatory minimum sentences for 3rd time domestic burglars (s111 of the Powers of Criminal Courts (Sentencing) Act 2000) are included in all scenarios. The impacts of the CJA 2003 and NJG have been modelled using the new CJS model¹. The model has taken account of those measures for which a national roll out and an implementation timetable has been agreed. Pilots and measures which are still under discussion on implementation procedures have not been included.
4. The details of the analytical modelling and related assumptions relevant to these projections appear in Annex 1. This annex also describes the error assessment and caveats associated with the analysis.

¹ The CJS model is run by colleagues in OCJR. Descriptions of related modelling appear in Annex 1.

RECENT TRENDS IN THE PRISON POPULATION

5. Chart 1 below shows the actual prison population in relation to projections carried out in the last two years.

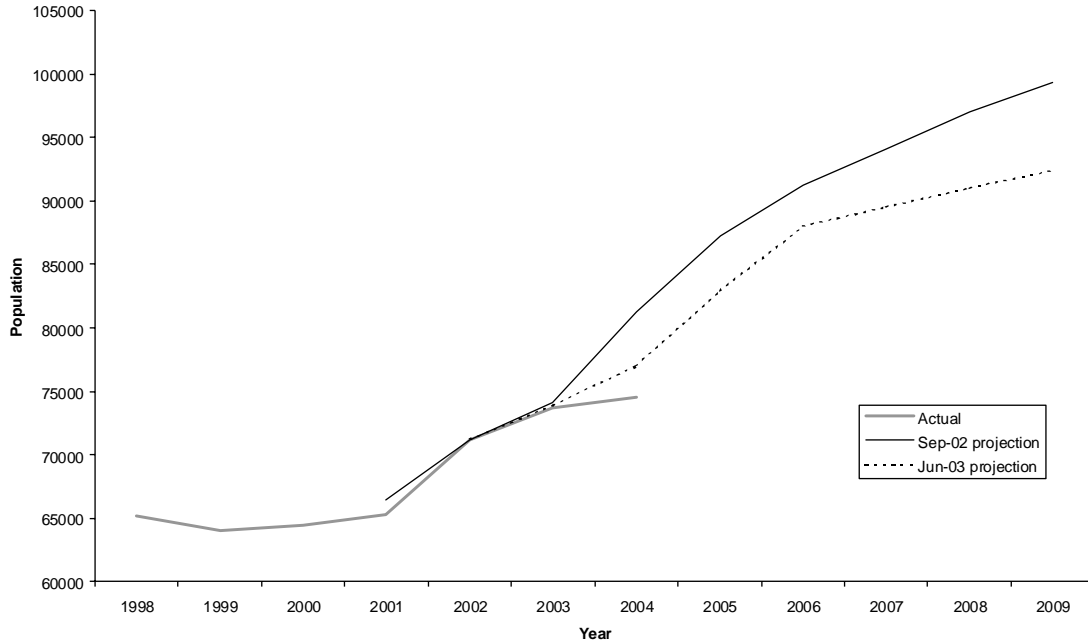


Chart 1: Actual prison population and recent projections

6. The total prison population has remained remarkably stable since February 2004 with monthly figures changing by less than 0.6% of the average value over this period. Within this, the remand population has reduced and the sentenced population increased. Based on end October 2004 information, there has been much less change in the prison sub-populations over the past year than was observed in previous years. In general, remand populations have seen a decrease (7%) while sentenced populations have seen an increase (3%). The female prison population has decreased by 3% in the past year, compared to an increase of 1% for male prisoners. The populations of young people (aged under 21) and adults have remained fairly constant over the last year changing by -1% and +1% respectively. The population on longer sentences (4 years or more) has grown by 4% while that relating to sentences of less than 4 years has grown by only 0.6%.

7. The general stability seen in the prison population since the end of October 2003 was due to stability in custody rates, numbers sentenced and average custodial sentence lengths, particularly for adult men at the Crown Court. Overall custody rates for indictable offences have remained unchanged at 24.7%². Likewise, overall average sentence lengths have remained stable at 16.1 months².

² For the year up until the last quarter of 2003.

PROJECTION SCENARIOS AND RELATED ASSUMPTIONS

8. The difficulty for projections of the prison population is that trends observed over a number of years can not be assumed to continue. Sudden changes to policy and sentencing practice, which significantly affect the prison population, cannot always be predicted. The main changes envisaged in the CJS that would affect the prison population significantly are assumed to arise from the following:

- Sentencing trends
- Further reductions in average sentence lengths through the activities of the SGC and its influence on sentencing practice
- The implementation of the CJA 2003
- Improved detection and arrests which supports Narrowing the Justice Gap
- HDC and other policy impacts.

The scenarios used in the projections have endeavoured to capture the above influences in their definitions.

Sentencing trends

9. The main factors influencing sentencing trends are the custody rate³ at the courts and the average sentence lengths given. The Crown Court has the greatest long-term impact on the prison population, although magistrates' courts also make a contribution in the short term. High, medium and low sentencing trend assumptions have been agreed upon through a consultative process that captured input from the National Offender Management Service, Prison Service, Sentencing Guidelines Council Secretariat, Home Office Research Development and Statistics Directorate, and Office for Criminal Justice Reform. The past sentencing trends considered for this process spanned the period Quarter 1 1998 – Quarter 1 2004⁴. Custody rates and average sentence lengths have largely remained unchanged in the recent quarters. Furthermore, a levelling off in the prison population had been observed during several months prior to the stakeholder discussions for arriving at these assumptions. Therefore, it was a realistic assumption to investigate a scenario that assumed no increase in custody rates and average sentence lengths.

10. The agreed assumptions are presented in Table 1 below. Note that while the medium and low sentencing trends scenarios assume a constant increase in custody rates and average sentence lengths, the high sentencing trends scenario assumes that the average sentence lengths will not continuously increase at the same rate as the first two years of the projection. The stakeholders' feeling that average sentence lengths are unlikely to grow as rapidly in the long term as in the short term is reflected in the reduction in the rate of increase from 2007 onwards.

³ The custody rate is the proportion of those found guilty at court that are given a custodial sentence.

⁴ There is a considerable time lag associated with receiving complete sentencing data from courts and police forces. This is more prominent in the magistrates' court data. Therefore, if significant trend changes were to have occurred within the most recent 6 months prior to the projection, these will not be captured in the trend analyses which support these assumptions.

Table 1: Sentencing trend assumptions

Sentencing Trend Assumption	Annual change in			
	Custody rate		Average custodial sentence length	
	2004–2006	2007–2011	2004–2006	2007–2011
High	+1.0%	+1.0%	+1.0%	+0.5%
Medium	+0.5%	+0.5%	+0.5%	+0.5%
Low	0.0%	0.0%	0.0%	0.0%

11. In theory, it is assumed that the sentencing trend scenarios are equally likely to happen. This largely reflects the unpredictable nature of sentencer behaviour. However, it can be argued that the low scenario, which does not assume any change in custody rates and average sentence lengths within a long span of 7 years, is less likely to happen.

Further reduction in average sentence lengths

12. Scenarios that consider further reductions (in addition to those from the expected trends in sentencing) in sentence lengths through activities of informing and influencing sentencers via the SGC and other means are also considered. These Option B scenarios assume a further 15% reduction in average sentence lengths for those sentenced to 1 year or more over and above that covered by the CJA 2003 measures. Option A scenarios assume no further reduction in average sentence length. The scenarios are outlined in Table 2 below.

Table 2: Further sentencing scenarios including average sentence length reduction options

Sentencing Trend Assumption	Further reduction in ASL ⁵	Scenario
High	No further reduction in ASL	High Option A
	Further 15% reduction in ASL	High Option B
Medium	No further reduction in ASL	Medium Option A
	Further 15% reduction in ASL	Medium Option B
Low	No further reduction in ASL	Low Option A

In discussions with stakeholders the general feeling was that a further 15% reduction in average sentence lengths was an aspirational scenario and reflected optimism.

Criminal Justice Act 2003

13. For the purposes of this projection, two possible scenarios for the impact of the CJA 2003 were considered—a low impact and a medium impact⁶. The assumptions for these scenarios have been captured through a consultative process that included all major stakeholders for each of the measures. It is therefore based on ‘expert

⁵ Average Sentence Length

⁶ Low impact and medium impact relate to the extent of the decrease in the prison population.

judgement' from policy makers and other stakeholders. These may hold true for certain sentences that have a well-defined boundary. However, they may not be so robust for those relating to flexible sentences where the sentencer is given a choice and range of options within a sentence.

14. The medium impact scenario is defined by the assumptions that were deemed by stakeholders to be most realistic within likely resource and other constraints. It therefore reflects the expected realistic behaviour of measures. It was felt that a low impact scenario would be useful, if only for monitoring purposes. This scenario presents the future if expected behaviour of some basic assumptions were to go against that which expected in the medium impact scenario.

15. A high impact scenario was discussed with the stakeholders. However, it was felt that the optimistic assumptions had very little likelihood of happening, as the premise for these assumptions was that resources were available in good supply and that very few barriers were encountered in the long term.

16. The CJA 2003 scenarios were modelled through the CJS model and overall impacts were incorporated in the prison projections. The measures included in the impacts were those that had an agreed timetable for national implementation. Therefore, those that were pilots and those that were still being debated on an implementation timeline were not included. A description of measures included and related assumptions appear in Table D in Annex 1.

Narrowing the Justice Gap⁷

17. The effects of Narrowing the Justice Gap in these projections have been combined with those of the CJA 2003 and have been derived through the CJS model⁸. This makes it difficult to single out the individual impact of NJG on these projections. The way the NJG impact has been incorporated into the CJS model is through an assumed reduction in crime rate and an increase in police arrest rate consistent with attaining the 2007/08 PSA⁹ targets for crime reduction. The NJG assumptions remain the same for all 10 scenarios considered for these projections. The impact of NJG on the prison population is expected to reach a maximum of about 2000 by 2010 within the framework of the CJA 2003, although the impacts vary considerably over time. From mid-2008 onwards the NJG effect is expected to increase the prison population by on average between 1000–2000 prison places. This maximum impact is significantly less than the impacts assumed in previous projections.

18. Combined impacts of the CJA 2003 and NJG included in these projections for the two different scenarios assumed for the CJA 2003 (medium impact and low impact) are presented in Chart 2 below:

⁷ This is one of the delivery targets for the Criminal Justice System.

⁸ Details of the NJG modelling assumptions are included in Annex 1 Table E.

⁹ Public Service Agreement

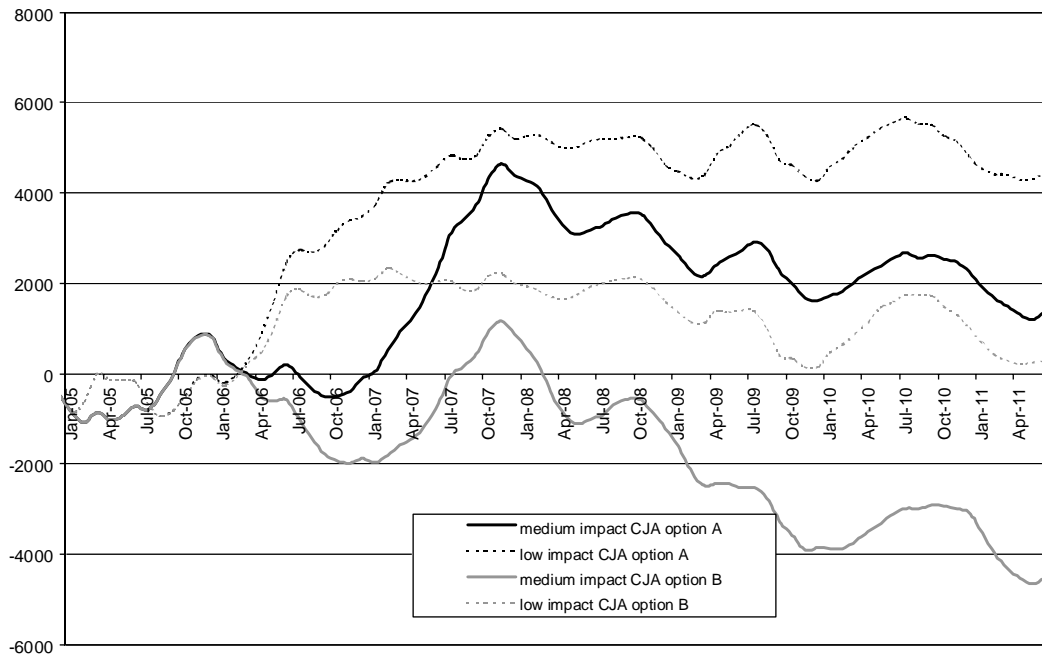


Chart 2: Impacts of the CJA 2003 including NJG on the prison population
 (See Table 2 above for explanation of options A and B.)

Home Detention Curfew (HDC) and other policy impacts

19. HDC is not currently covered by the CJS model so the impacts were developed separately. Additional HDC impacts that need to be incorporated stem from changes that occur as a result of introducing Custody Plus and the extension of HDC to sentences of 4 years and over which is expected to be part of the automatic half-way release provision of the CJA 2003. The Custody Plus HDC impact is expected to commence from April 2006 while the automatic half-way release HDC impact is expected to commence from April 2005 (in both cases it will take some time for the impacts to be seen as the changes apply to offenders who committed offences after the introduction of the changes).

20. The estimates suggest that the number of people on HDC will reduce by about 200 for sentences of up to a year with the introduction of Custody Plus due to the shorter length of the new sentences in this sentence length band. Those getting sentences of 4 years or more will bring about a reduction of about 500 in the prison population.

21. The projections also include the impact for the mandatory minimum sentence for 3rd time domestic burglars (s111 of the Powers of Criminal Courts (Sentencing) Act 2000). The effect of this policy is a build up of 1,500 additional prisoners by 2009.

PROJECTION SCENARIOS

22. Future prison populations have been projected for ten scenarios presented in the scenario tree in Annex 2, Figure 1.

23. The range of the ten scenarios is encompassed in a '**High**' projection and a '**Low**' projection:

- a **High** projection — a scenario that represents the low impact of the CJA 2003 coupled with a high sentencing trend; and
- a **Low** projection — a scenario that represents the medium impact behaviour of the CJA 2003 coupled with the medium sentencing trend and a further 15% reduction in average sentence lengths.

The choice of the high and low scenario was based on the highest and lowest projected in the long term forming the upper and lower bounds of these projections, as shown in Chart 3. The corresponding figures are shown in Table 3 (below) and the figures for all ten scenarios appear in Annex 2, Table 1.

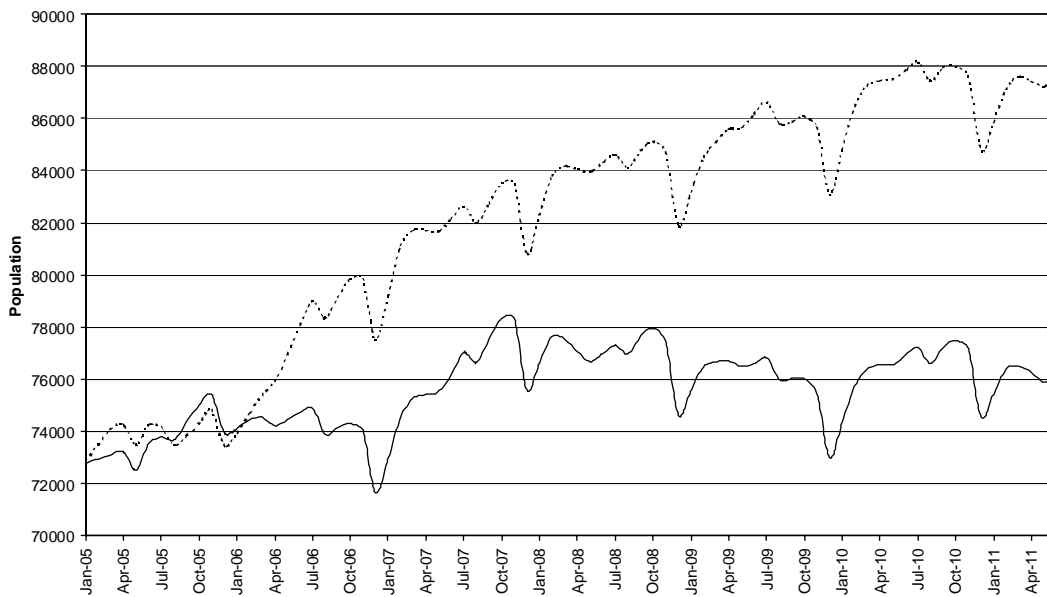


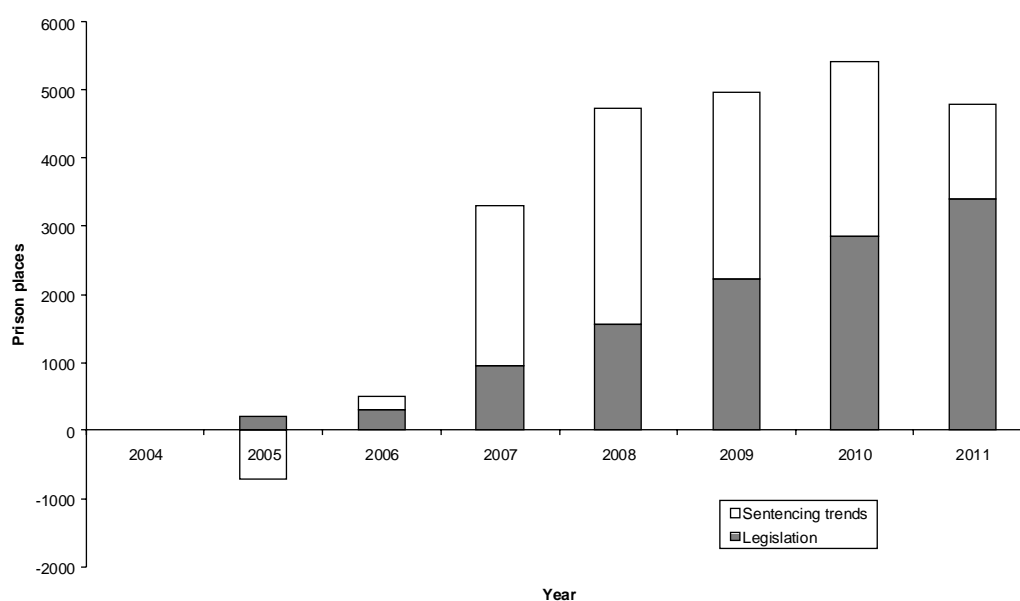
Chart 3: High and Low projected scenarios

Table 3: Projected total prison population (end of June)

Year	High scenario	Low scenario
2004	74490	74490
2005	74230	73500
2006	78060	74720
2007	82140	76190
2008	84300	76970
2009	86190	76590
2009	86190	76590
2010	87840	76900
2011	87550	76170

24. Chart 4 below illustrates the impact of sentencing trends and legislation on the projection corresponding to one of the middle scenarios (scenario 3).

Chart 4: Impact of sentencing trends and legislation on scenario 3



25. Tables 2 (i) & (ii) in Annex 2 present further breakdowns of the projected population by gender and the sub-populations of remand, sentenced and non-criminal categories.

INFLUENCES ON PROJECTION BEHAVIOUR

26. These projections are largely governed by the behavioural influences that are brought in by the sentencing trends and the CJA 2003. Charts 3 and 4 in Annex 2 present further scenarios that look at these effects in isolation. These reveal periodic influences that have a bearing on the projections. The main observations are as follows:

Medium impact CJA 2003 scenario (see Annex 2, Chart 3)

Option A scenarios:

- in the short term (approximately March 05 – July 06) the sentencing trends assumptions are overridden by the deflationary impacts of the CJA 2003;
- in the medium term (approximately August 06 – October 09) the sentencing trends are overridden by the inflationary impacts of the CJA 2003; and
- in the long term, i.e., from end 2009 onwards, the majority of the CJA 2003 effects are saturated and behaviour is largely controlled by the sentencing trends.

Option B scenarios show that while influences in the short term are much the same as those of Option A, in the medium to long term the deflationary influence of a 15% reduction in average sentence lengths for sentences of 1 year or more overrides any influences from sentencing trend and the CJA 2003.

Low impact CJA 2003 scenario (see Annex 2, Chart 4)

Option A scenarios show that in general the impact of the CJA 2003 dominates over sentencing trends and has an inflationary effect on the projection throughout. Option B scenarios show that in general the projections will be dominated by inflationary pressures from the CJA 2003 until end 2008. Influence from a further 15% reduction in the average sentence lengths for sentences of 1 year or more will increase in dominance from mid 2009 onwards.

27. As sentencer behaviour can respond to a multitude of environmental factors such as speeches by politicians, etc. which cannot be predicted, the estimated projections can diverge from actual populations within a very short space of time. The projections, therefore, can easily fluctuate between $\pm 2\%$ and $\pm 3\%$ of estimated. Implementation of new policies that are currently being debated on formulation and timing, which are not included in the projections, will also influence the divergence of the actual prison population from projected.

ACKNOWLEDGEMENTS

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- Office for Criminal Justice Reform (CJS Modelling)
- RDS Economics and Resource Analysis Unit (Home Office)
- NOMS units: Sentencing Policy and Penalties Unit; DSPD Programme Unit; Strategy, Finance and Performance Unit; Sentencing Team
- Sentencing Guidelines Council (secretariat)

CONTACTS

This bulletin has been prepared by RDS NOMS of the Home Office Research, Development and Statistics Directorate. All queries should be directed to: rdsnomsstatistics@homeoffice.gsi.gov.uk

Further copies of this bulletin are available from: rds.ho@gtnet.gov.uk
The RDS Internet site is at <http://www.homeoffice.gov.uk/rds/index.htm>

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ANNEX 1 — MODELLING AND RELATED ASSUMPTIONS

This annex describes the following:

- Short-term projections model and related assumptions
 - Long-term projections model and related assumptions
 - Seasonal adjustment
 - Combining the short-term and the long-term projection
 - CJS Model and related assumptions (for modelling the CJA 2003)
 - Assessment of errors related to modelling and caveats
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SHORT-TERM PROJECTIONS MODEL AND RELATED ASSUMPTIONS

Short-term prison population projections, which are based on a flow model (into and out of prison), are produced separately and take into account the current prison population, known information about the likely release dates for that population, projected numbers of receptions and projected rates of discharge from those receptions. They make use of seasonal adjustment to provide month end projections for up to two years ahead, i.e. from July 2004 to June 2006 for the latest projection. The projection can be sub-divided into different categories of remand prisoner and between young and adult sentenced prisoners, for men. Female remand and sentenced prisoners are also shown separately.

The short-term projections take into account known changes in policy and legislation, where there is believed to be an impact on the prison population. The impact of policies and legislative change are shown in Table A below:

Table A: Impact of legislative and policy change

	Legislative and policy measures		
	Minimum custodial sentence of three years for third-time domestic burglars	HDC applied to Custody plus	Automatic half-way release
Number of extra prisoners by the end of the projection (June 2006)	600	200	-33

Adjustments have been made to all of the scenarios to provide consistency between the short-term levels and those projected for subsequent years.

Short-term sentencing trend assumptions

These are relevant for the short-term monthly projections up to June 2006 (2 year span) that will be derived from the short-term projection model.

The short-term projection model requires an indication of change in custody rates and average sentence lengths per annum for:

- young men
- adult men
- all women

These were obtained by observing the following:

- young men custody rates for all courts
- young men sentence length for all courts
- adult men custody rates for all courts
- adult men sentence length for all courts
- all women custody rates for all courts
- all women sentence length for all courts

The annual changes presented below were applied to young men, adult men and all women. The model does not differentiate between the type of court.

Table B: Short-term annual changes in sentencing

	Annual change in	
	Custody rate	Average custodial sentence length
High	+1.0%	+1.0%
Medium	+0.5%	+0.5%
Low	0.0%	0.0%

LONG-TERM PROJECTIONS MODEL AND RELATED ASSUMPTIONS

The long-term prison model outputs annual figures that represent end of June population figures for each year. From the numbers born each year over the last 70 years, it predicts the number of first-time offenders (and hence, knowing the custody rate, the rate of first prison sentences). Similarly, it predicts the proportion of those released from prison who will reoffend and the time scale for that reoffending. Starting from empty prisons in 1962, each quarter, the new intake consisting of recidivists and those receiving prison sentences for the first time is added. They are given sentences based on contemporary sentencing distributions followed by, for the period of the future forecast, distributions corresponding to the scenarios. Those that have come to the end of their sentences are subtracted. The information is broken down by sex, age, offence type and offence number.

Demographic information is taken from the Office for National Statistics publication, 'Birth statistics' (Series FM1 no. 31, HMSO, 2004).

Long-term sentencing trend assumptions

These are relevant for the 7-year annual projection up to 2011 generated by the long-term projection model.

The long-term projection model requires an indication of:

- change in custody rates per annum for men and women aged 21 and over for all courts;
- change in sentence lengths per annum for men and women aged 21 and over for all courts;

These were obtained by observing the following:

- adult men custody rates all courts
- adult men sentence length all courts
- adult women custody rates all courts
- adult women sentence length all courts

It was agreed by stakeholders that the first two years of the long-term projection would follow similar sentencing trends as those agreed for the short term.

Table C: Long-term annual changes in sentencing

	Annual change in			
	Custody rate		Average custodial sentence length	
	2004 – 2006	2007 – 2011	2004 – 2006	2007 – 2011
High	+1.0%	+1.0%	+1.0%	+0.5%
Medium	+0.5%	+0.5%	+0.5%	+0.5%
Low	0.0%	0.0%	0.0%	0.0%

Note the difference in the change in average sentence length for the High scenario between the short term and long term. Stakeholders were of the view that in the long term the change in sentence lengths would not be as prominent as the change in custody rate.

The annual changes in sentencing trends presented in Table C were applied to adult men and adult women in the long-term projection model. The model does not distinguish between the type of court.

SEASONAL ADJUSTMENT

Seasonal adjustment is needed to take account of the marked changes in the prison population arising from Bank Holidays and other factors.

Seasonal adjustment for these projections has been carried out through X-11-ARIMA¹. Receptions and population time series are seasonally adjusted in the short-term model. For each sex and sentence band, seasonally adjusted sentenced receptions are assumed to change in accordance with the sentencing trend assumptions. These receptions and the distribution of times served within the sentence band (taken from prison discharge data) are used to estimate the discharges from prison. In the current projection, only adult male receptions in sentence length bands 4 months to less than 6 months and 6 months to less than 12 months showed sufficient signs of stable seasonality to be seasonally adjusted as separate sub-populations.

Seasonally adjusted remand populations and long-term (over four years) sentenced prisoner populations are used to project future seasonally adjusted remand and long-term populations (which are assumed constant during the period of the short-term projection). The projected sentenced population under four years is calculated from seasonally adjusted receptions and discharges. After all the calculations, all the sub populations have seasonal factors added so the final time series reflect actual (not seasonally adjusted) prison populations.

¹ This package is developed by Statistics Canada as an extended and improved version of the US Census Bureau X-11 method. It is currently used throughout the Government Statistical Service for seasonal adjustment.

COMBINING THE SHORT-TERM AND THE LONG-TERM PROJECTION

The results from the short-term and long-term models do not include the effects of NJA or CJA 2003. The short-term model output includes the expected effects of PCC(S)2000 section 111 and changes in HDC caused by the introduction of Custody Plus and automatic half-way release for sentences of 4 years and over.

The short-term model output is used for the first two years. The long-term model output is joined on to the end by first adding the section 111 and HDC effects to the sentenced component of the long-term model output. A constant is added to the components of the long-term model output separately, so that the values are equal to the values at the end of the short-term model. The components of the long-term model output are, male and female sentenced prisoners (excluding non-criminals) and male and female remand prisoners.

At this point, the adjusted part of the long-term model output (after the end of the short-term model output) is interpolated (linearly) to be monthly. The final projection is made by multiplying the short-term model output by the NJG+CJA 2003 factors. This is followed by the appropriate part of the adjusted long-term model output also multiplied by the NJG+CJA 2003 factors and with the addition of seasonal factors. The seasonal factors are those calculated (X-11-ARIMA) for the total population for the first year of the short-term model.

THE CRIMINAL JUSTICE SYSTEM MODEL (CJS MODEL) AND RELATED ASSUMPTIONS FOR CJA 2003

The CJS Model², is a simulation model that has been designed to assess the impact of legislation and other significant changes affecting the Criminal Justice System (CJS) of England & Wales. It simulates offenders as they flow through the CJS. The model includes capacity and resource constraints. It defines limited CJS resources (people and facilities). These are drawn upon to perform timed activities. Where there is more than one possible course of action there is a definable likelihood of the defendant following one route over another. Thus, a defendant's progress is determined by the capacity of resources, the duration of activities and the chances of progressing by a given route. It enables proper assessment of the combined impact of multiple changes where the individual impacts interact.

CJA 2003 assumptions

Assumptions have been agreed with relevant stakeholders who included policy leads for the measures of the CJA 2003. Two different scenarios have been modelled for the projections – a medium impact scenario, which represented the most likely outcome, and a low impact scenario.

² The CJS Model was developed in conjunction with Hedra plc.

Table D below presents the lists of CJA 2003 measures modelled. A provision was modelled if it met all of the following criteria:

1. The expected individual impact of the provision was greater than ± 50 prison places.
2. There was a high probability that the provision would be put into effect within the next ten years.
3. A timetable for national roll out of a measure was agreed and the methods of implementation clear.

Table D: CJA 2003 measures modelled and related assumptions

Provision	Assumptions
Custody Plus	<p>New custodial sentences of less than 12 months will consist of a shorter custodial period followed by a longer licence period involving supervision. Modelled as coming into effect from 1st April 2006</p> <p><u>Medium impact scenario:</u> There is no change in the crime mix or distribution of offences' severity. All those offenders who under the current system would receive custodial sentences of between 2 and 12 months will receive a Custody Plus sentence. Those whose sentence would have been greater than 2 months but less than or equal to 3 months will now receive 1 month custody followed by 6 months probation. Those whose sentence would have been greater than 3 months but less than or equal to 6 months will now receive 2 months custody followed by 6 months probation. Those whose sentence would have been greater than 6 months but less than 12 months will now receive 3 months custody followed by 9 months probation. Those whose sentence would have been for 12 months exactly will now receive 6 months custody followed by 6 months probation (this is not a Custody Plus sentence but a consequence of the increase in magistrates' sentencing powers, see below). Breach rates³ for the probation element of Custody Plus will be approximately 30% for violence, sex and drugs offenders and approximately 20% for other offence categories. Approximately 10% of offenders who breach the terms of their sentence will be returned to custody for, on average, three months.</p> <p><u>Low impact scenario</u></p> <p>All those offenders who under the current system would receive custodial sentences of between 2 and 12 months will receive a Custody Plus sentence. Those whose sentence would have been greater than 2 months but less than or equal to 3 months will now receive 1 month custody followed by 6 months probation.</p>

³ "breaches" used in this context of this document are taken to mean breaches which result in the offender being returned to court.

	<p>Those whose sentence would have been greater than 3 months but less than or equal to 6 months will now receive 2 months custody followed by 9 months probation. Those whose sentence would have been greater than 6 months but less than or equal to 9 months will now receive 3 months custody followed by 9 months probation. Those whose sentence would have been greater than 9 months but less than 12 months will now receive 6 months custody followed by 6 months probation. Those whose sentence would have been for 12 months exactly will now receive 6 months custody followed by 6 months probation (magistrates' courts only) (this is not a Custody Plus sentence but a consequence of the increase in magistrates' sentencing powers, see below). All other assumptions as per medium impact scenario.</p>
<p>Suspended Sentence Order/ Custody Minus</p>	<p>A new suspended sentence, more demanding and more widely available than existing suspended sentences. The offender will complete a community sentence, but if they breach any conditions they may face a custodial term. Modelled as coming into effect from 1st April 2005.</p> <p><u>Medium impact scenario</u></p> <p>There is no change in the crime mix or distribution of offences' severity. All offenders who under the current system would receive a custodial sentence of over one month up to two months will instead receive a Custody Minus sentence. Offenders will only receive a supervision period of 6, 12, 18 or 24 months. This will be skewed toward the upper end, with 24 months being the most common and very few offenders receiving the 6-month sentences. The intensity of probation supervision, i.e. the time requirement on Probation Officers / Probation Service Officers per offender per week of supervision, will on average be equivalent to that of the Generic Community Sentence. The operational period will be the same as the supervision period.</p> <p><u>Low impact scenario</u></p> <p>25% of offenders who under the current system would have received a custodial sentence of 2 months or less will receive a Custody Minus sentence. 30% of offenders who under the current system would have received a community sentence of 2 years or more will now receive a Custody Minus sentence. All other assumptions as per medium impact scenario.</p>
<p>Community Order/ Generic Community Sentence</p>	<p>A new single community sentence which can be tailored to include any combination of different requirements. Modelled as coming into effect from 1st April 2005.</p> <p><u>Medium impact scenario</u></p> <p>There is no change in the crime mix or distribution of offences' severity. All those offenders who under the current system would receive a community sentence will instead receive a Generic</p>

	<p>Community Sentence. All those offenders who under the current system would receive a custodial sentence of 30 days or less will instead receive a Generic Community Sentence. The average amount of probation supervision time per offender receiving a Generic Community Sentence is equivalent to the average offender currently receiving a community sentence. Offenders will only receive a community order length of 6, 12, 18, 24 or 36 months⁴. This will be skewed toward the lower end, with 18 months being the most common and very few offenders receiving the 6 or 36 month sentences. Breach rates were assumed to be the same as current community sentence breach rates.</p> <p><u>Low impact scenario</u></p> <p>All offenders who under the current system would receive a community sentence of less than two years will instead receive a Generic Community Sentence. 70% of offenders who under the current system would receive a community sentence of two years or more will instead receive a Generic Community Sentence⁵. No offenders who under the current system would receive a custodial sentence will receive a Generic Community Sentence instead. All other assumptions as per medium impact scenario.</p>
Sentences for Public Protection	<p>Offenders who are convicted of a qualifying serious offence and who are determined by the sentencer to pose a future threat will be considered 'dangerous'. They will be given either an extended or an indeterminate custodial sentence. Modelled as coming into effect from 1st April 2005.</p> <p><u>Medium impact scenario</u></p> <p>From the point of implementation only newly convicted offenders will be covered by this provision (i.e. parole boards will not apply this retrospectively to offenders)⁶. All those offenders who under the current system would be sentenced to two or more years for a very serious offence, having previously been convicted of one or more serious or very serious offences, shall, be determined to be a dangerous and serious offender (as defined by this provision), and on average, be incarcerated for a length of time equal to the <i>sentence</i> length which the current system would impose on them. 60% of offenders who under the current system would be sentenced to two or more years for a serious offence, having previously been convicted of one or more serious or very serious offences, shall, be determined to be a dangerous and serious offender (as defined by this provision), and on average, be incarcerated for a length of time equal to 2/3 of the sentence length which the current system imposes on them. 40% of</p>

⁴ NB In practice sentencers will be free to choose the sentence length from a continuous range.

⁵ The remaining 30% will serve a Custody Minus sentence instead.

⁶ In fact, the Dangerousness provision will apply only where the offence was committed after the commencement of the provisions.

	<p>offenders who under the current system where sentenced to two or more years for a serious offence and who have previously been convicted of one or more serious or very serious offences shall NOT be determined to be dangerous (as defined by this provision). All offenders who under the current system where sentenced to less than two years for a serious or very serious offence shall NOT be determined to be dangerous (as defined by this provision).</p> <p><u>Low impact scenario</u> 80% of offenders who under the current system would be sentenced to two or more years for a serious offence, having previously been convicted of one or more serious or very serious offences, shall, be determined to be a dangerous and serious offender (as defined by this provision), and on average, be incarcerated for a length of time equal to 2/3 of the sentence length which the current system imposes on them. 10% of offenders who under the current system where sentenced to two or more years for a serious offence and who have previously been convicted of one or more serious or very serious offences shall NOT be determined to be dangerous (as defined by this provision). All other assumptions as per medium impact scenario.</p>
<p>Half-way release for those with custodial sentences of 12 months and over</p>	<p>All offenders who are given a custodial sentence of 12 months or more will automatically be released after serving half their sentence. They will then serve the full remainder of the sentence on licence. Modelled as coming into effect from 1st April 2005.</p> <p><u>Medium impact scenario</u> All those offenders sentenced to 12 months or more under the current system and who are not released at the half-way point will now be so. All offenders sentenced to 12 months or more under the current system will serve the full remainder of their sentence on licence.</p> <p><u>Low impact scenario:</u> As per medium impact scenario.</p>
<p>Charging programme</p>	<p>Crown Prosecution Service (CPS) to determine charging in all but the most minor cases, leading to higher quality cases and increased guilty plea rates. Modelled as coming into effect from 1st April 2005.</p> <p><u>Medium impact scenario</u> Charging will only affect cases in which the defendant or defendants are over 18 years of age. Charging only affects cases which will have an early administrative hearing (EAH cases). EAH cases can be defined as all indictable only, all triable-either-way (TEW) cases heard at the Crown Court (i.e. all Crown Court hearings) and 11 % of TEW cases heard at the magistrates' court. Charging will not impact greatly on summary offence cases. Charging will be equally effective across the</p>

	<p>different indictable offence types. The pre-charge no further action (NFA) rate was seen to increase in pilot studies but the number of detections was unchanged. This means the Police must have increased the number of arrests to offset the increase in pre-charge NFAs. Consequently the number of defendants entering the court system was unaffected by the introduction of charging. Charging affects the probability of a defendant pleading guilty. This will be modelled as an increase of 11% in the probability of pleading guilty for defendants tried in the Crown Court, and an increase of 3.3%⁷ in the probability of pleading guilty for defendants tried in the magistrates' court. Charging also increases the probability of a defendant being convicted (i.e. it reduces attrition). This will be modelled as a decrease of 1.65% in the probability of acquittal for a defendant in the magistrates' court, and a decrease of 4% in the probability of acquittal for a defendant in the Crown Court. The average workload per CPS lawyer is unchanged (i.e. an implicit assumption that the CPS recruits as necessary to meet increased demands on their time).</p> <p><u>Low impact scenario: As per medium impact scenario.</u></p>
Extended sentences for firearms offences	<p>Mandatory minimum sentence of 5 years for certain firearms related offences. Modelled as coming into effect from 1st April 2005⁸. Extended sentences imposed for a small proportion of offenders.</p> <p><u>Medium impact scenario</u> 50%⁹ of offenders, convicted of a qualifying firearm offence, who under the current system received a sentence of less than five years will now receive a custodial sentence of five years.</p> <p><u>Low impact scenario</u> All those offenders convicted of a qualifying firearm offence, who under the current system received a sentence of less than five years will now receive a custodial sentence of five years.</p>
Magistrates' sentencing powers	<p>Magistrates' courts will now be able to impose a maximum custodial sentence of 12 months. Modelled as coming into effect from 1st April 2006, along with Custody Plus.</p> <p><u>Medium impact scenario</u> Magistrates' courts can impose 12 month sentence; Committals</p>

⁷ The percentage change given is a weighted average calculated to reflect that Charging does not affect all magistrates' court cases. Charging actually affects only 11% of the TEW cases heard in the magistrates' court. The guilty plea rate in the affected cases will be increased by 30%. The probability of acquittal in affected cases will be decreased by 15%.

⁸ Note that in reality this provision is already in effect. The model starts from April 04, so we have really run this for a year without the Firearms provision in effect, when it should have been. The Firearms provision has almost no effect for several years, and the effect it has will be quite small. Given this, and to save time, it made sense to model the Firearms as coming into effect with the majority of other provisions in April 05.

⁹ NB this is an easier-to-model proxy for the comprehensive treatment, which would see this figure as 100% counteracted somewhat by a reduction in offences committed.

	For Sentence reduced to 30% of previous level (this diverts offenders-for-sentence from the Crown Court to the magistrates' courts). <u>Low impact scenario: As per medium impact scenario.</u>
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The CJS modelling excludes the effects of:

- Persistence (the timing and impact of this is uncertain. It is believed that sentencers already sentence on this basis and therefore the added impact is minimal).
- Increased maximum sentences for motoring offences causing death.
- Bail provisions (presumption against bail for certain cases, which is likely to increase the prison population).
- Intermittent Custody (still being piloted).
- Conditional Cautions (not likely to affect custody).
- Hate crime (no implementation date identified).

NJG assumptions

Scenarios produced using the CJS Model included the assumption that would achieve the PSA targets for Narrowing the Justice Gap and Crime Reduction. A year on year decrease in crime rate and increase in arrest rate (as proxy for sanction detections) was modelled as shown in Table E below.

Table E: Model assumptions for NJG

Time Period	Annual Crimes	Arrest rate
2005–2006	5% less than 04/05 baseline	6.5% increase on 04/05 baseline rate
2006–2007	10% less than 04/05 baseline	6.5% increase on 05/06 rate
2007–2008	15% less than 04/05 baseline	6.5% increase on 06/07 rate

These changes in sanction detections were calculated using a separate model of police activity that addressed progress towards both the PSA targets for crime reduction and increase in detection rate, outputting a figure which reflected the combined impact of both processes. The changes in sanction detection rates from this model included cautions, TICs¹⁰ etc. as well as arrests. This work produced a trajectory showing the changes necessary to achieve the desired target of 1.25m offences brought to justice by 07/08.

ASSESSMENT OF ERRORS RELATED TO MODELLING AND CAVEATS

These projections are produced incorporating the following:

¹⁰ Offences taken into consideration.

- A short-term projection spanning 2 years that is influenced by short-term fluctuations in prison receptions and discharges. This is produced via a short-term projection model (STP) which projects a monthly prison population for a 2-year period.
- A long-term projection spanning 7 years. This is produced via a long-term projections model (LTP) that focuses on an annual overview only which produces an annual average prison population (this has been found to correspond to the population as at the end of June each year).
- CJA 2003 and NJG impacts derived via the CJS model. This model simulates the influences of the various components of the CJS and assesses the effect of the interventions through the CJA 2003 on the CJS.

In bringing together the above to produce the projections, various adjustments are made that can increase / decrease the margins of error.

Long-term model

In the long-term model, there are several sources of error or uncertainty, of which only some are quantifiable. It is impossible to quantify uncertainties in the model caused by offending or sentencing behaviour not included implicitly or explicitly in the model. It could be that the model no longer reflects the behaviour of criminals and the courts. We cannot estimate errors that result from using incorrect assumptions when setting up future scenarios. This may be the largest source of error in the prison population projections.

There are two kinds of uncertainty that can be estimated:

- the effects of random error in the estimation of the parameters of the model,
- statistical fluctuation inherent in the nature of the processes being considered.

Small-scale adjustments within the estimated uncertainties of the parameters were made manually so that the model accurately reproduced historical data as well (if not better) than could be expected from statistical fluctuations. Thus, on the assumption that the structure of the model accurately reflects the way people end up in prison, we may ignore this source of uncertainty. The only source of uncertainty to consider is the variation caused by statistical fluctuations.

There is an uncertainty in the proportion of people born each year who will at some time be found guilty. This is assumed to be normally distributed and to have a standard deviation 3% of the mean. This results in an uncertainty in the new arrivals to prison of a little more than 2/5 of this level. Taking this as an upper estimate of the fluctuation in the prison population gives an uncertainty of about 1.0 to 1.5%.

A second source of fluctuation is an observed fluctuation in remand receptions of around 5%. This turns into a fluctuation in the total population of ± 0.5 to $\pm 1.0\%$. Note that this is not actually a fluctuation inherent in the nature of the processes of the model, but an observed fluctuation in the observations. As such, it may change over time.

The expected fluctuation in the total population for any one year is around $\pm 2\%$. This uncertainty should be expected to increase in proportion to the size of any sub-population being examined.

Short-term model

As with the long-term model, there is no way of assessing the errors that may arise from errors in the modelling (sentencing or offending behaviour not anticipated in the model) or setting up of future scenarios. There is also no formal method for assessing the random errors that may arise from the statistical variation of the processes used in the model. The short-term model is not set up as a statistical model.

However, an empirical estimate of accuracy may be made for the previous short-term prison projection. From May 2003 to May 2004, the previous projection followed the actual prison population accurately. From May 2004, the projection started to be less and less accurate, overestimating the population by over 5,000 by the end of October 2004. It is probable that the assumptions about custody rates and average custodial sentence lengths made at the start of the projection in May 2003 were not valid after May 2004. There also appears to have been an unforeseen change in the remand populations.

For the period May 2003 to May 2004, the accuracy of the short-term model was $\pm 1.1\%$. For the period from May 2003 to September 2004, the accuracy was $\pm 4.2\%$. (These are 95% confidence levels, assuming that errors are normally distributed, which is not a completely valid assumption for the period May 2003 to September 2004.) It would be optimistic to use 1.1% as the accuracy of the short-term model as we deliberately chose the period when it was working well to make this estimate of accuracy. On the other hand, 4.2% may be unduly pessimistic. The accuracy of the short-term model is probably not very different from that of the long-term model.

Combining the long-term projection with the short-term projection

It is important to realise there is a fundamental distinction between the short-term and long-term forecasts. The long-term forecast is based on underlying factors determining the prison population. There are also short-term fluctuations in receptions into prison, which tend to die out over periods of typically 18 months. This is one of the reasons for making separate short and long-term forecasts. However given current CJS data sources it is not clear if a particular recent change in receptions is due to a recent atypical change in sentencing practice (an underlying factor in the long-term forecast) or a short-term fluctuation due to say, a change in policing priorities. Unless there is evidence to the contrary, the assumption is that the underlying factors change in regular manner and that recent changes in receptions are due to fluctuations. This means that the end of the short-term forecast may differ substantially from the same period of the long-term forecast. This reflects an uncertainty in the forecast.

The combined forecast is based on the assumption that the short-term fluctuation dies out in the typical period of 18 months. In reality, it might die out more

quickly or more slowly (say in the range 12 to 24 months). Thus, the population may move towards the long-term trend earlier or later than indicated in the combined forecast. On the other hand, the fluctuation may in fact reflect an underlying sentencing practice, in which case the long-term trend will in fact more closely follow that of the short-term forecast.

CJS Model

The CJS model is a simulation model. This means that, using the same input data, two different runs of the model will not produce identical output numbers (though they will be close). In order to overcome this, it is necessary to perform several runs and average over the results. For some types of output it is possible to reduce the random element further by using a moving average¹¹. The more runs which can be done the better. For the CJA 2003 analysis performed for these projections the levels of accuracy corresponds to a 95% confidence interval of $\pm 2,000$ prison places, or around $\pm 3\%$.

As with the other models, there is difficulty assessing the errors that may arise from errors in the modelling or setting up of future scenarios. In particular, the estimated effects of the CJA 2003 are inherently uncertain as they are the best estimates by policy experts of the way in which others in the CJS might implement the provisions of the Act in practice. At the time of the assumptions, consultation process with the stakeholders were taking place, the implementation processes for some of the CJA 2003 measures were still being finalised. Therefore, later adjustments to impacts were made where final decisions radically departed from that which was originally agreed for the assumption.

¹¹ In this analysis, a 5-month moving average of the prison population output was used.

ANNEX 2 — PROJECTION SCENARIOS AND RELATED OUTPUTS

Figure 1: Projections Scenario Tree

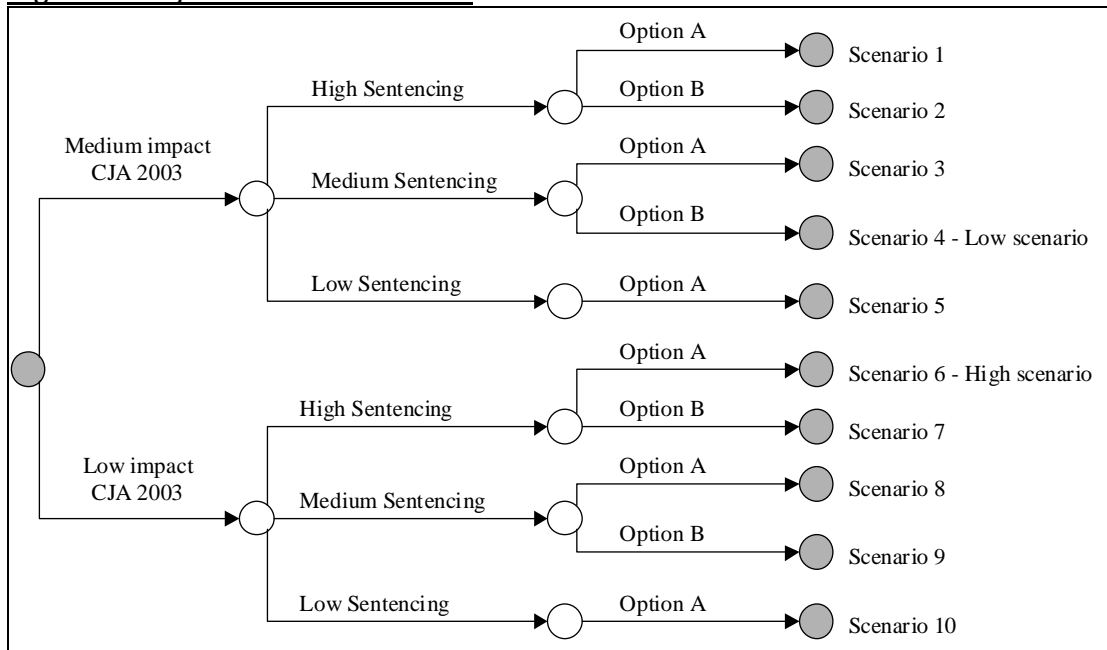


Chart 1: Projections — Medium impact CJA 2003 scenarios

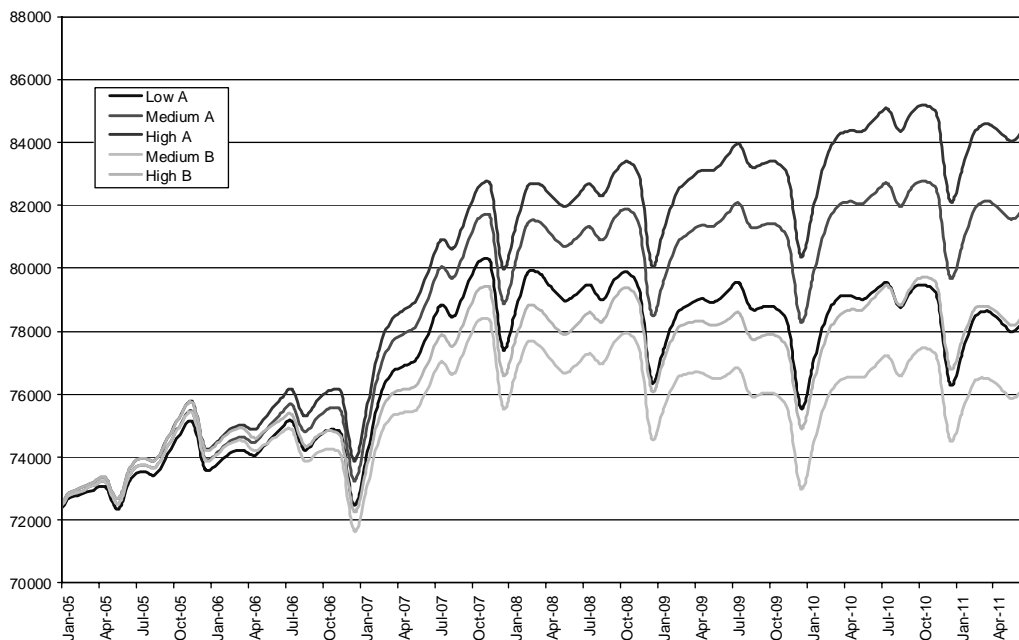


Chart 2: Projections — Low impact CJA 2003 scenarios

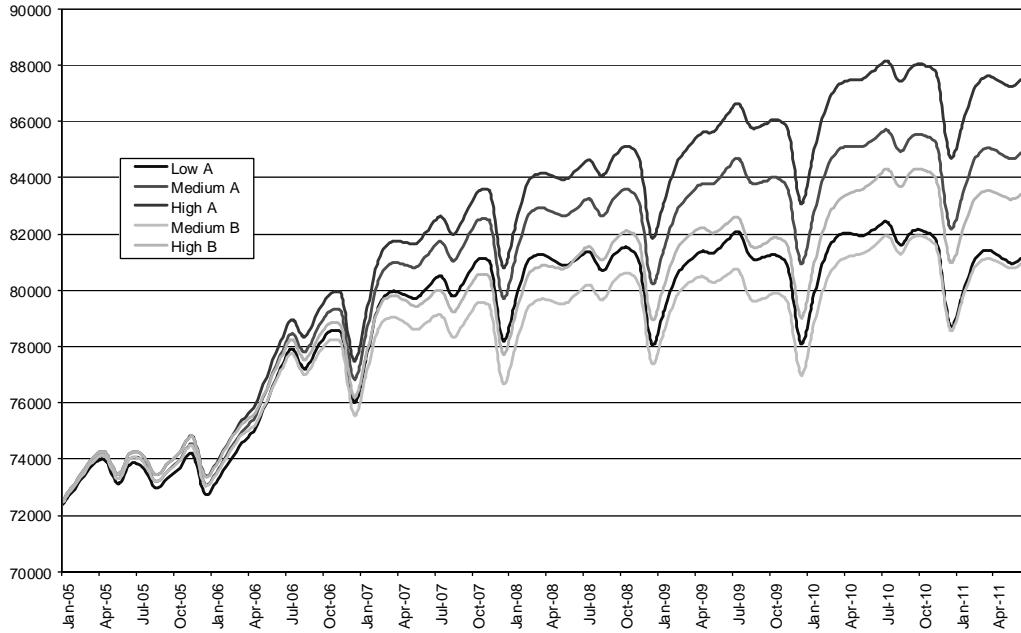


Chart 3: Medium impact CJA 2003 — effects of sentencing trends only and CJA only

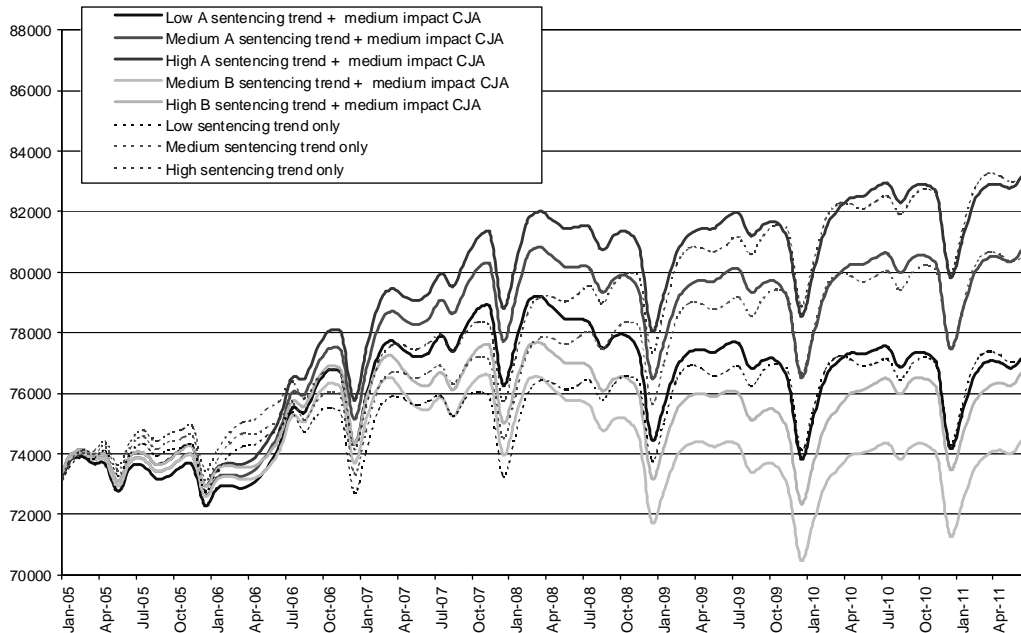


Chart 4: Low impact CJA 2003 - effects of sentencing trends only and CJA only

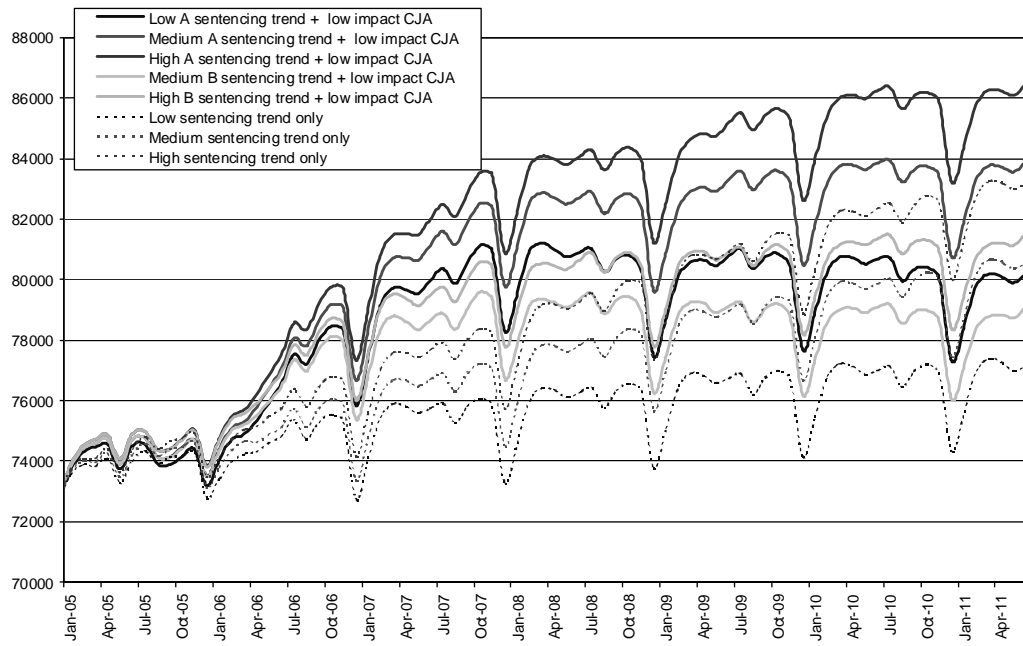


Table 1 : Table of figures for projections

Scenario	Projected prison population at end June each year									
	Medium impact CJA 2003					Low impact CJA 2003				
	High sentencing		Medium sentencing		Low sentencing	High sentencing		Medium sentencing		Low sentencing
Option A	Option B	Option A	Option B	Option A	Option A	Option B	Option A	Option B	Option A	Option A
2004	74490	74490	74490	74490	74490	74490	74490	74490	74490	74490
2005	73690	73690	73500	73500	73300	74230	74230	74040	74040	73830
2006	75790	75160	75330	74720	74860	78060	77490	77600	77020	77120
2007	79870	76990	79040	76190	77900	82140	79720	81290	78880	80120
2008	82310	78230	80990	76970	79210	84300	81210	82950	79900	81130
2009	83520	78320	81690	76590	79220	86190	82340	84290	80520	81750
2010	84760	79110	82400	76900	79290	87840	83940	85390	81600	82170
2011	84390	78490	81900	76170	78270	87550	83450	84960	80970	81190

* 2004 figure corresponds to actual population as at end June 2004.

Scenario 4 is the low scenario, scenario 6 is the high scenario.

Scenario	Average projected prison population (financial year)									
	Medium impact CJA 2003					Low impact CJA 2003				
	High sentencing		Medium sentencing		Low sentencing	High sentencing		Medium sentencing		Low sentencing
Option A	Option B	Option A	Option B	Option A	Option A	Option B	Option A	Option B	Option A	Option A
2005/2006	74490	74490	74490	74490	73780	74490	74490	74490	74490	74490
2006/2007	73690	73690	73500	73500	74650	74230	74230	74040	74040	73830
2007/2008	75790	75160	75330	74720	78720	78060	77490	77600	77020	77120
2008/2009	79870	76990	79040	76190	78840	82140	79720	81290	78880	80120
2009/2010	82310	78230	80990	76970	78420	84300	81210	82950	79900	81130
2010/2011	83520	78320	81690	76590	78690	86190	82340	84290	80520	81750

Scenario 4 is the low scenario, scenario 6 is the high scenario.

Table 2 (i) & (ii): Breakdown of projected population for High and Low scenarios

Note:

- 2004 figures correspond to actual population data
- The components within tables may not add to the total as where appropriate they have been rounded independently.

TABLE (i)	HIGH SCENARIO									
	Remand			Sentenced			Non-criminal	Total		
YEAR	Male	Female	Total	Male	Female	Total	Total	Male	Female	Total
2004	11544	951	12495	57523	3453	60976	1017	70036	4452	74488
2005	11270	940	12210	57260	3500	60760	1260	69740	4490	74230
2006	11650	970	12620	60570	3580	64150	1300	73460	4600	78060
2007	12090	1010	13110	63920	3780	67700	1340	77300	4840	82140
2008	12270	1030	13300	65780	3870	69650	1350	79350	4950	84300
2009	12380	1040	13420	67480	3950	71430	1350	81150	5040	86190
2010	12470	1050	13520	68950	4020	72970	1350	82720	5120	87840
2011	12300	1030	13330	65820	4000	72880	1330	82470	5080	87550

TABLE (ii)	LOW SCENARIO									
	Remand			Sentenced			Non-criminal	Total		
YEAR	Male	Female	Total	Male	Female	Total	Total	Male	Female	Total
2004	11544	951	12495	57523	3453	60976	1017	70036	4452	74488
2005	11190	940	12130	56660	3470	60130	1250	69050	4450	73500
2006	11210	940	12150	57900	3420	61320	1250	70310	4400	74720
2007	11320	950	12260	59200	3470	62670	1250	71720	4460	76190
2008	11330	950	12270	59950	3490	63450	1250	72490	4490	76970
2009	11160	930	12090	59810	3460	63280	1220	72150	4440	76590
2010	11130	930	12050	60160	3470	63630	1220	72460	4440	76900
2011	10930	910	11830	59710	3430	63140	1190	71780	4380	76170