

**A Medium-Term Federal Offender Population
Forecast: 2001 to 2004**

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EXECUTIVE SUMMARY

The forecasts provided in this report use standard time-series modelling techniques, to develop medium-term offender population projections for purposes of the National Capital, Accommodation, and Operational Plan (NCAOP). Projections are provided for men and women in-custody and under community supervision, by Region, and from these are derived National offender population totals.

For purposes of the NCAOP, all projections are provided on a "calendar year" rather than the "fiscal year" basis traditionally used (e.g., January 1 to December 31, rather than April 1 to March 31).

The population of men in-custody has shown a steady decline since December 1995, falling from 13,682 to 12,587 inmates by December 2000. This represents a decrease of 1,095 (or **-8%**) in-custody inmates. The population under community supervision, on the other hand, has increased from 7,131 to 8,609 men offenders (up 1,478 or **+21%**).

- The population of men in-custody is projected to increase slightly over the horizon of this forecast, rising from 12,587 inmates in December 2000 to **12,778** inmates by December 2004 (a gain of +191 inmates or **+1.5%**).
- The population of men under community supervision is projected to increase by about the same proportion, rising from 8,609 offenders in December 2000 to **8,747** offenders by December 2004 (up 138 offenders or **+1.6%**).

The size of the population of women in-custody has grown much more rapidly over the past five years than the population of men, increasing since December 1995 from 182 to 362 inmates by December 2000. This represents a gain of 180 women inmates (or nearly **+99%**). The population of women under community supervision has also increased significantly during this period, though not as fast as the in-custody population, rising from 305 to 511 women offenders (an increase of +206 offenders or nearly **+68%**).

- The population of women in-custody is projected to increase from 362 inmates in December 2000, to **449** inmates by December 2004 (up 87 inmates or **+24%**).
- The population of women under community supervision is projected to increase from 511 offenders in December 2000 to **625** offenders in December 2004 (up 114 offenders or **+22%**).

There are varying predictions about Canada's immediate economic prospects. For planning purposes, we also examined the possible impact that a recession during the next four years might have on the medium-term forecasts for men.

- Using two previous recessions as benchmarks, if one began today the impact of a mild recession might see the in-custody count of men rise to **13,990** by 2003. The impact of a more severe recession - which could be much higher - could see the population of men in-custody increase to **16,500** inmates by 2004.

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I. BACKGROUND

A. A decade of favourable social trends

With the main social and demographic indicators (e.g., crime, unemployment, etc.) all trending in favourable directions, the Correctional Service of Canada and the Provincial / Territorial prison systems may be facing less pressure in terms of population growth over the next decade.

- Demographic trends point towards a continuation of population aging, along with an overall modest growth in the total population, and nearly no-growth among the younger high crime-risk age groups.
- This is reflected in recent crime rates, which have now been on a downward trend for the past decade.
- Serious violent crime trends are also on a downward trend. Homicide rates have been trending downward trend since the mid-70's and are now at their lowest rate since 1967.¹ Sexual assault rates - another high-growth crime category during the 1980's - reached their peak in 1993 and have since been in decline.²
- Economic growth has propelled unemployment levels to their lowest level in a decade. With the high-tech sector constantly announcing new job fairs to try and recruit enough younger workers, jobs appear to be once again chasing youths (for the first time in many, many years).

¹ *Juristat - Homicide in Canada, 1999*. The Canadian Centre for Justice Statistics, Statistics Canada. Vol. 20 No. 9 (October 2000).

² *Juristat - Sex Offenders*. The Canadian Centre for Justice Statistics, Statistics Canada. Vol. 19 No. 3 (March 1999).

- Finally, there is also some evidence that the overall fear of crime has decreased in the last six years.³

In combination, these major trends - population aging, falling crime rates and fear of crime, and relatively high employment rates - have all combined to exert a positive downward force on Canada's incarceration rates.

B. Countervailing trends

There are several possible countervailing trends on the horizon, which can offset the otherwise favourable social trends mentioned above. The first of these is the concerted pressure that has emerged to force politicians to get tougher on crime. There is some evidence that this trend is also related to population aging, as public opinion surveys indicate that older Canadians - and women - typically have a greater fear of crime than younger ones. The impact of population aging on the fear of crime is more likely to be felt longer-term than in the short horizon covered in these projections.

There is also the possibility that the favourable economic climate could be disrupted by an economic recession. A recession is possible as soon as this year, with an even higher likelihood sometime within the 10-year forecasting horizon. Canada has typically experienced recessions every decade since World War II. For example, over the past three decades Canada has had recessions in 1973, 1982 and 1991. Now a decade removed from the last recession, it is prudent to be aware of the impact that recessions have had on offender population growth in the past

There is no sure way to predict when - or if - a recession might begin, how severe it might be, or how long it would last. One leading indicator has been the stock markets, and in both in Canada and the United States the markets appear to have already priced-in an economic downturn in the current quarter.

³ Overall, 91% of Canadians reported being very or somewhat satisfied with their personal safety in 1999, an improvement of 5 percentage points from six years earlier. *Juristat - Criminal Victimization in Canada 1999*. The Canadian Centre for Justice Statistics, Statistics Canada. Vol. 20 No. 10 (November 2000).

Meanwhile, both the U.S. Federal Reserve Board and the Bank of Canada are already moving to lower interest rates to forestall a severe downturn. For planning purposes therefore, we need to examine some impact scenarios to cover the possibility of a recession on our current forecasts.

One way to prepare is by examining the effects of previous recessions. The CSC's population of men in-custody increased significantly following the on-set of each of the two previous recessions. This can be seen in Table 1 below.

Table 1: Impact of recessions on the population of men in-custody

Population growth of men in-custody, recessions of 1982 and 1991					
1982 Recession			1991 Recession		
Year Ending	Men In-custody	% Increase over Dec-1982	Year Ending	Men In-custody	% Increase over Dec-1990
Dec-82	9,601	...	Dec-90	10,663	...
Dec-83	10,001	4.2%	Dec-91	11,338	6.3%
Dec-84	10,161	5.8%	Dec-92	11,976	12.3%
Dec-85	10,670	11.1%	Dec-93	13,027	22.2%
Dec-86	10,307	7.4%	Dec-94	13,820	29.6%

The recession beginning in 1991 had a much greater impact than the one that began in 1982. The former increased the population count from 9,601 to 10,670 males (or by **11%**), while lasting just 3-years. The second was much more severe - the population of men in-custody increased for four straight years, and grew from 10,633 to 13,820, or by nearly **30%**.

There is no scientific basis for predicting how severe another recession might be or how long it would last. However, let's assume that 11% growth over 3-years represents the lower range, and 30% growth over a 4-year period represents the high range. Within this range, the impact of mild recession might increase the number of men in-custody to 13,990 by 2003. A more severe recession might increase the number of men in-custody to **16,500** in 2004.

II. METHODOLOGY

This report describes the efforts and resources that were used in developing the 2001-2004 Medium-Term Forecasts. The forecasts provided in this report use standard time-series modelling techniques, to develop medium-term offender population projections for purposes of the National Capital, Accommodation, and Operational Plan (NCAOP). Projections are provided for men and women in-custody and under community supervision, by Region, and from these are derived National offender population totals.

Note, that for the first time the forecasts are offered for calendar - rather than fiscal - years. This has been done to accommodate the Operational Planning Branch in meeting an earlier NCAOP reporting cycle.

Note: For purposes of the NCAOP, projections are provided on a "calendar year" rather than the "fiscal year" basis traditionally used (e.g., January 1 to December-31, rather than April 1 to March 31).

A. Overview

This section describes the forecasting tools and data series that have been used to develop the Medium-Term forecasts. "Medium-term" is used to describe a forecasting horizon of 1-5 years, whereas "long-term" describes a forecast horizon of 5-10 years.

Note: For purpose of the NCAOP, the medium-term model refers to a projection horizon of 4-years.

1. Forecasting tools

The Correctional Service of Canada has access to some of the most advanced and sophisticated statistical forecasting tools available today. For example, the Research Branch is currently using as its main development and forecasting tool

the SAS® ETS forecasting system.⁴ In addition, the Branch has under development a population simulation and impact assessment system. The Offender Population Profiling and Simulation Model (OPPSIM) is in pilot phase, but data issues have delayed the its availability for operational use.⁵

The Research Branch is also developing a series of long-term multivariate forecasting models. These models will use a combination of social and demographic trends to predict federal inmate populations over a 10-year horizon. The prototype of a national model was demonstrated in the last forecast (Boe, April 2000). Development of these models is still underway, as each administrative Region of the Correctional Service of Canada will require a distinct model.

2. Overview of historical data issues

While the Service has access to the most advanced forecasting tools, the historical offender population data that are available is of constant concern. The Research Branch maintains a wide collection of social, economic and demographic time-series from Statistics Canada. These series include the most recent compilations available on historical unemployment rates, crime statistics, population statistics from the Canada Census series, and the most recent demographic projections from Statistics Canada.

However, the quality of these external series often cannot be matched with similar quality internal offender population statistics. As has been documented elsewhere (Boe, 1997), the CSC's offender information data underwent several major changes in the early 1990's.⁶ Major legislative, technological and

⁴ The SAS ETS-Time Series Forecasting System can be used in a fully automatic mode, or the system's diagnostic features and time series modelling tools can be used interactively to develop forecasting models customised to best predict a specific time series. Either method greatly reduces the time required to develop and test large numbers of projection models.

⁵ The prototype of this new system shows great promise, but further testing cannot proceed until data definitions in the CSC Enterprise Warehouse are finalised.

⁶ Three major system shocks (previously identified in Boe, 1997) are: 1) the enactment of the CCRA in 1992; 2) the implementation of the new Offender Management System (OMS) in 1993; and 3) the opening of federal offender facilities for women in each Regional, beginning in 1995.

operational changes were experienced which effectively sundered many of the historical time-series that had previously been relied upon. This included the traditional "on-register" and community supervision time-series used both for forecasting and information purposes. Today, the OMS offender population historical statistics extend back only to about 1995. Even OMS series from 1995 onward have often experienced some significant changes in definitions.⁷

Alternative historical series (such as the Inmate Movement System) have an adequate time-series but are aggregate data and cannot be parsed to reveal profile information.

These are serious limitations that prevent the Service from making full use of the forecasting tools that are otherwise available, and reduce the reliability of the forecasts that can be developed.

B. The Historical In-Custody Series

The following sections describe the historical series that have been developed for these forecasts.

1. Men in-custody

The only adequate time-series available for forecasting the institutional population uses statistics from the Inmate Movement System (IMS). This system consists of an electronic record of in-custody institutional counts (for the institutions housing men and for P4W) dating as far back as January 2, 1979. As of December 5, 2000, there are approximately 1,150 weekly data points for every Region:

- Not all institutions have this many data points, because of decommissioning, or new construction (this applies especially for the new facilities for women which only began opening in 1995). The Regional total is the sum of the totals for every institution in that Region on the selected date.

⁷ E.g., the main offender population statistics previously included the on-register and community supervision counts, which changed significantly when Day Parole became a custody release, and the on-register definition was also changed to an in-custody definition. These changes also altered the traditional definition of the monthly admissions and releases from custody.

- The inmate counts for all Regions excludes the counts of any Community Correctional Centres (CCC's) or Community Residential Centres (CRC's) within their region, because these populations are included in the community supervision population count.
- It is not possible to identify offender characteristics in IMS. Therefore, forecasts for the Aboriginal offender population is not possible. However, federally sentenced women's facilities are identified through an institutional code and thus it becomes possible to develop forecasts for men and women.
- Note that the in-custody count in the IMS series includes Temporary Detainees, but excludes UAL's and Absences (the historical on-register count excluded TD's but included UAL's and offenders on Day Parole).

For accommodation and operational planning purposes, this data series is a good reflection of the federal “in-custody” population of inmate men. .

Note: the IMS in-custody forecasts are not dependent on external trends (such as crime or demographic predictors), but are dependent solely on the previous historical data.

2. *Women in-custody*

The IMS series has to be supplemented in order to produce satisfactory time-series projections for the federal population of women inmates since the new facilities only opened beginning in 1995. A five-year time series is very short - even when using weekly records. Time-series forecast based on short series can produce unstable estimates. The data series for the new Regional women's facilities are all very short, and in order to minimise this problem the following steps were taken:

- First, monthly inmate in-custody counts were obtained directly from the Burnaby Correctional Centre for Women (BCCW) for Pacific Region.

- Second, the shortness of the time series was addressed by using supplementary estimates for the IMS data series. For these facilities (excluding Prison for Women in Ontario where IMS data from 1979), estimates were used to extend the IMS time series back to March 1991. Data from OMS was used to identify the province of sentencing of women offenders pre-1995, and these estimates were used to bridge the series from the time a Regional facility was opened, back to April 1991. These estimates were validated through crosschecks using information based on archived records from the old OIS system.

C. The Time-Series for Community Supervision

Community supervision statistics are derived from OMS by Performance Assurance. Historical statistics are not available pre-1993. In January 1993, day paroles ceased to be counted as part of the custody population and became part of the community supervision count. An "old" series covers the period from about January 1995 to December 1997. However, some definitional changes were made to this series so that a new series was begun after January 1997. The new series is not consistent with the earlier period.

For the purposes of the NCAOP forecasts, the community supervision counts from both the old and new series were used – adjustments were made to minimise the differences when the two series are linked. Monthly rather than annual statistics have been used to help provide the forecasts with more data points to work with. Also, to offset the shortness of the community supervision population series, population ratios were calculated rather than using the actual counts.

III. MEDIUM-TERM NCAOP FORECASTS

A. National Summary

1. *Historical trends*

The historical population of men in-custody has shown a fairly steady decrease over the past five years, falling from 13,682 in December 1995 to 12,587 inmates by December 2000. This represents a decline of 1,095 in-custody inmates or – **8%** over the 5-year period. The community supervision population, during this period increased from 7,131 to 8,609 offenders (up 1,478 or **+21%**).

The ratio of the population of men in the community to that in-custody has therefore increased from 0.521 to 0.684. The forecasts project this ratio to increase nominally - to just 0.685 - by December 2004.

The size of the population of women in-custody has shown a considerable increase since December 1995, rising from 182 to 362 inmates by December 2000. This represents a gain of 180 women inmates or about **+99%**. The community supervision population has also increased significantly during this period, rising from 305 to 511 offenders, an increase of +206 offenders or nearly **+68%**.

The ratio of the community to the custodial population for women offenders therefore decreased during the period from 1.676 to 1.412. The models project that this ratio will decrease further, falling further to **1.393** by December 2004. The population balance for women is considerably higher than the average for men (0.684), and will continue to remain significantly higher by 2004 if these projections are realised.

2. 2001-2004 projections

The National offender population is not forecasted directly. Rather, a National projection is a sum of the projections for each individual Region. For detailed results, therefore, see the projections for each Region that follows in the sections below.

- The population of men in-custody is projected to increase slightly over the horizon of this forecast, rising from 12,587 inmates in December 2000 to **12,778** inmates by December 2004 (+191 inmates or **+1.5%**).
- The population of men under community supervision is projected to increase significantly, rising from 8,609 offenders in December 2000 to **8,747** offenders by December 2004 (up 138 offenders or **+1.6%**).
- The population of women in-custody is projected to increase from 362 inmates in December 2000, to **449** inmates by December 2004 (up 87 inmates or **+24%**).
- The women's community supervision population is projected to increase from 511 offenders in December 2000 to **625** offenders in December 2004 (up 114 offenders or **+22%**).

Note: If a time-series model could not be successfully fit for the population ratio series, the latest population ratio was applied for the projection. In this case, the series model is identified as "stationary".

3. Summary Results – Men

NATIONAL SUMMARY - MEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL_FCST*	RATIO
Dec-95	13,682		7,131		20,813		0.521
Dec-96	13,952		6,664		20,616		0.478
Dec-97	13,296		8,115		21,411		0.610
Dec-98	12,969		8,414		21,383		0.649
Dec-99	12,550		8,654		21,204		0.690
Dec-00	12,587		8,609		21,196		0.684
Dec-01		12,631		8,653		21,284	0.685
Dec-02		12,682		8,685		21,367	0.685
Dec-03		12,731		8,716		21,447	0.685
Dec-04		12,778		8,747		21,525	0.685

* Note: Figures may not sum exactly to the total because of rounding.

4. Summary Results – Women

NATIONAL SUMMARY - WOMEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL_FCST	RATIO
Dec-95	182		305		487		1.676
Dec-96	229		331		560		1.445
Dec-97	325		420		745		1.292
Dec-98	343		455		798		1.327
Dec-99	339		511		850		1.507
Dec-00	362		511		873		1.412
Dec-01		379		546		925	1.438
Dec-02		403		576		979	1.428
Dec-03		426		602		1,027	1.413
Dec-04		449		625		1,074	1.393

* Note: Figures may not sum exactly to the total because of rounding.

B. Atlantic Region

1. *Historical data trends*

The population of men in-custody has shown a consistent decrease since December 1995, falling from 1,395 to 1,135 inmates by December 2000. On the other hand, the community supervision population has increased slightly during this period, increasing from 731 to 757 offenders.

The ratio of the men in the community to the custodial offender population has therefore increased from 0.524 to 0.667. No model could be fit for the series of ratios so the projection assumes that this ratio will remain stationary at 0.667 to December 2004. The population balance for men is slightly lower than the National average (0.684), and will remain slightly lower than the projected national average (0.685) in 2004 as well.

The size of the population of women in-custody population has shown a consistent increase since December 1995, rising from 21 (estimated) to 51 inmates by December 2000. The community supervision population has also increased during this period, rising from 14 to 35 offenders.

The ratio of the community to the custodial population, for women offenders, has therefore increased from 0.675 to 0.686. The models project that this ratio will increase to 0.725 by December 2004. The population balance for women is currently considerably lower than the National average (1.412), and will not rise to the National average by 2004 (1.393) if all the projections are realised.

2. Projections, 2001-2004

- The population of men in-custody is projected to decrease slightly, from 1,135 inmates in December 2000 to **1,127** inmates by December 2004 (down 8 male offenders, **-0.7%**).
- The population of men under community supervision is projected to decrease slightly, from 757 in December 2000 to **752** offenders by December 2004 (down 5 offenders or **-0.7%**).
- The total population of men offenders is therefore projected to decrease marginally, from its current size of 1,892 to **1,879** in-custody and community offenders by December 2004 (down 13 men or **-0.1%**).
- The population of women in-custody is projected to increase, from 51 inmates in December 2000 to **66** inmates by December 2004 (up 15 women inmates or **+29%**).
- The population of women under community supervision is projected to increase, from 35 offenders in December 2000 to **48** offenders by December 2004 (up 13 or **+37%**).
- The total population of women is therefore projected to increase, from 86 to **113** women inmates and released offenders by December 2004 (or **+32%**).

3. Results – Men

ATLANTIC - MEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL_FCST*	RATIO
Dec-95	1,395		731		2,126		0.524
Dec-96	1,331		680		2,011		0.511
Dec-97	1,230		751		1,981		0.611
Dec-98	1,199		740		1,939		0.617
Dec-99	1,146		781		1,927		0.682
Dec-00	1,135		757		1,892		0.667
Dec-01		1,128		752		1,880	0.667
Dec-02		1,127		752		1,879	0.667
Dec-03		1,127		752		1,879	0.667
Dec-04		1,127		752		1,879	0.667
Model:	ARIMA						Stationary
RMSE:	10.596						
R ² :	.996						
* Note: Figures may not sum exactly to the total because of rounding.							

4. Results – Women

ATLANTIC - WOMEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL_FCST*	RATIO
Dec-95	21		14		35		0.675
Dec-96	28		24		52		0.857
Dec-97	31		30		61		0.968
Dec-98	26		41		67		1.577
Dec-99	35		50		85		1.429
Dec-00	51		35		86		0.686
Dec-01		48		35		82	0.725
Dec-02		53		38		91	0.725
Dec-03		59		43		101	0.725
Dec-04		66		48		113	0.725
Model:	Log Linear		...		...		Exp. Seasonal
RMSE:	1.056						
R ² :	.986						
* Note: Figures may not sum exactly to the total because of rounding.							

C. Quebec Region

1. *Historical data trends*

The population of men in-custody has shown a consistent decrease since December 1995, falling from 3,719 to 3,247 inmates by December 2000. On the other hand, the community supervision population remained virtually unchanged during this period, decreasing from 2,423 to 2,422 offenders.

The ratio of men in the community to the custodial offender population has therefore increased from 0.652 to 0.746. The models project that this ratio will increase to 0.751 by December 2004. The current population balance for men is slightly lower than the National average (0.685), but will become higher than the projected national average by 2004 (0.684) if the projections are realised.

The size of the population of women in-custody has shown a consistent increase since December 1995, rising from 49 (estimated) to 63 inmates by December 2000. The community supervision population has also increased during this period, rising from 86 to 90 offenders.

The ratio of the community to the custodial population, for women offenders, has therefore decreased from 1.746 to 1.429. The models project that this ratio will decrease further to 1.338 by December 2004. The population balance for women is currently higher than the National average (1.412), and will fall to below the National average by 2004 (1.393) if the projections are realised.

2. Projections, 2001-2004

- The population of men in-custody is projected to increase, from 3,247 inmates in December 2000 to **3,256** inmates by December 2004 (up 9 men offenders or **+0.3%**).
- The population of men under community supervision is projected to increase, from 2,442 in December 2000 to **2,445** offenders by December 2004 (up 3 offenders or **+0.9%**).
- The total population of men offenders is therefore projected to increase from its current size of 5,669 to **5,700** inmates and released offenders by December 2004.
- The population of women in-custody is projected to increase, from 63 inmates in December 2000 to **67** inmates by December 2004 (up 4 women inmates or **+6.3%**).
- The population of women under community supervision is projected to remain unchanged, at **90** offenders both in December 2000 and December 2004.
- The total population of women offenders will increase slightly, from its current size of 153 to **157** offenders by December 2004.

3. Results – Men

QUEBEC - MEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL FCST*	RATIO
Dec-95	3,719		2,423		6,142		0.652
Dec-96	3,811		2,111		5,922		0.554
Dec-97	3,563		2,432		5,995		0.683
Dec-98	3,418		2,522		5,940		0.738
Dec-99	3,239		2,487		5,726		0.768
Dec-00	3,247		2,422		5,669		0.746
Dec-01		3,246		2,438		5,684	0.751
Dec-02		3,249		2,440		5,689	0.751
Dec-03		3,253		2,442		5,695	0.751
Dec-04		3,256		2,445		5,700	0.751
Model:	Log ARIMA		...		...		Exp. Smoothing
RMSE:	21.925						0.013
R ² :	.997						.954
* Note: Figures may not sum exactly to the total because of rounding.							

4. Results – Women

QUEBEC - WOMEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL FCST*	RATIO
Dec-95	49		86		135		1.746
Dec-96	48		85		133		1.762
Dec-97	64		97		161		1.516
Dec-98	59		98		157		1.661
Dec-99	56		103		159		1.839
Dec-00	63		90		153		1.429
Dec-01		64		93		157	1.447
Dec-02		65		92		157	1.407
Dec-03		66		91		157	1.373
Dec-04		67		90		157	1.338
Model:	Log Dampened		...		...		Log-Linear
RMSE:	1.537						.119
R ² :	.958						.539
* Note: Figures may not sum exactly to the total because of rounding.							

D. Ontario Region

1. *Historical data trends*

The population of men in-custody has shown a consistent decrease since December 1995, falling from 3,556 to 3,255 inmates by December 2000. The community supervision population increased significantly, rising from 1,759 to 2,321 offenders.

The ratio of the population of men under community to the custodial offender population has therefore increased from just 0.495 to 0.713. The models project that this ratio will remain stationary at 0.713 through December 2004. The population balance for men is currently above the National average (0.684), and will remain above the projected national average in 2004 (0.685) if the projections are realised.

The size of the population of women in-custody has shown a considerable decrease since December 1995, falling from 143 to 83 inmates by December 2000. This decrease is likely the result of transfers from P4W to Regional facilities, and the trend may not continue. The community supervision population, however, has increased significantly during this period, rising from 113 to 199 offenders.

The ratio of the community to the custodial population, for women offenders, has therefore increased rapidly from 0.790 to 2.398. We project that this ratio will remain stationary at 2.398 through December 2004. The population balance for women is currently considerably higher than the National average (1.412), and will remain higher than the national average (1.393) by 2004 if all the projections are realised.

2. Projections, 2001-2004

- The population of men in-custody is projected to increase, from 3,255 inmates in December 2000 to **3,265** inmates by December 2004 (up 10 male offenders, or **+0.3%**).
- The population of men under community supervision is projected to increase slightly, from 2,321 in December 2000 to **2,328** offenders by December 2004 (up 7 offenders or **+0.3%**).
- The total population of men offenders is therefore projected to increase slightly, from its current size of 5,576 to **5,594** offenders by December 2004.
- The population of women in-custody is projected to increase, from 83 inmates in December 2000 to **104** inmates by December 2004 (up 21 women or **+25%**).
- The population of women under community supervision is projected to increase from 199 offenders in December 2000, to **249** offenders in December 2004 (up 51 offenders or **+25%**).
- The total population of women offenders will increase from its current size of 282 to **352** offenders by December 2004.

3. Results – Men

ONTARIO - MEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL FCST*	RATIO
Dec-95	3,556		1,759		5,315		0.495
Dec-96	3,592		1,681		5,273		0.468
Dec-97	3,410		2,153		5,563		0.631
Dec-98	3,325		2,259		5,584		0.679
Dec-99	3,269		2,372		5,641		0.726
Dec-00	3,255		2,321		5,576		0.713
Dec-01		3,257		2,322		5,579	0.713
Dec-02		3,260		2,324		5,584	0.713
Dec-03		3,262		2,326		5,589	0.713
Dec-04		3,265		2,328		5,594	0.713
Model:	Log ARIMA		...		...		Stationary
RMSE:	21.738						
R ² :	.998						
* Note: Figures may not sum exactly to the total because of rounding.							

4. Results – Women

ONTARIO - WOMEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL FCST*	RATIO
Dec-95	143		113		256		0.790
Dec-96	132		120		252		0.909
Dec-97	104		175		279		1.683
Dec-98	118		191		309		1.619
Dec-99	88		207		295		2.352
Dec-00	83		199		282		2.398
Dec-01		92		220		311	2.398
Dec-02		98		234		332	2.398
Dec-03		101		243		345	2.398
Dec-04		104		249		352	2.398
Model:	Log Linear		...		...		Stationary
RMSE:	3.435						
R ² :	.959						
* Note: Figures may not sum exactly to the total because of rounding.							

E. Prairie Region

1. *Historical data trends*

The population of men in-custody has shown a small decrease since December 1995, falling from 3,112 to 3,095 inmates by December 2000. On the other hand, the community supervision population increased significantly during this period, growing from 1,334 to 1,944 offenders.

The ratio of the male community to the custodial offender population has therefore increased from 0.429 to 0.628. The models project that this ratio will remain stationary at 0.628 to December 2004. The population balance for males is currently slightly lower than the National average (0.684), and will remain relatively slightly below the projected national average in 2004 (0.685) if the projections are realised.

The size of the female in-custody population has shown a consistent increase since December 1995, rising from 33 (estimated) to 124 inmates by December 2000. The community supervision population has also increased during this period, rising from 58 to 136 offenders.

The ratio of the community to the custodial population, for female offenders, has therefore decreased from 1.758 to 1.097. The models project that this ratio will decrease further to 0.719 by December 2004. The population balance for females is currently considerably lower than the National average (1.412), and will fall even farther below the National average by 2004 (1.393) if all the projections are realised.

2. Projections, 2001-2004

- The population of men in-custody is projected to increase, from 3,095 inmates in December 2000 to **3,106** inmates by December 2004 (up 11 men or **+0.4%**).
- The population of men under community supervision is projected to increase from 1,944 in December 2000 to **1,951** offenders by December 2004 (up 7 inmates or **+0.4%**).
- The total population of men offenders is therefore projected to increase from its current size of 5,039 to **5,056** inmates and released offenders by December 2004.
- The population of women in-custody is projected to increase, from 124 inmates in December 2000 to **163** inmates by December 2004 (up 39 women or **+31%**).
- The population of women under community supervision is projected to increase from 136 offenders in December 2000, to **179** offenders in December 2004 (up 43 women or **+32%**).
- The total population of women offenders will increase from its current size of 260 to **342** offenders by December 2004.

3. Results – Men

PRAIRIE - MEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL_FCST*	RATIO
Dec-95	3,112		1,334		4,446		0.429
Dec-96	3,313		1,343		4,656		0.405
Dec-97	3,166		1,745		4,911		0.551
Dec-98	3,279		1,788		5,067		0.545
Dec-99	3,128		1,881		5,009		0.601
Dec-00	3,095		1,944		5,039		0.628
Dec-01		3,094		1,943		5,037	0.628
Dec-02		3,097		1,945		5,043	0.628
Dec-03		3,101		1,948		5,049	0.628
Dec-04		3,106		1,951		5,056	0.628
Model:	Log ARIMA		...		...		Stationary
RMSE	16.669						
R ² :	.999						
* Note: Figures may not sum exactly to the total because of rounding.							

4. Results – Women

PRAIRIE - WOMEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL_FCST*	RATIO
Dec-95	33		58		91		1.758
Dec-96	73		67		140		0.918
Dec-97	88		76		164		0.864
Dec-98	102		82		184		0.804
Dec-99	126		101		227		0.802
Dec-00	124		136		260		1.097
Dec-01		133		146		278	1.097
Dec-02		143		156		299	1.097
Dec-03		152		167		320	1.097
Dec-04		163		179		342	1.097
Model:	Winters (Add.)		...		...		Stationary
RMSE:	2.499						
R ² :	.995						
* Note: Figures may not sum exactly to the total because of rounding.							

F. Pacific Region

1. *Historical data trends*

The population of men in-custody has shown a small decrease since December 1995, falling from 1,900 to 1,855 inmates by December 2000. The community supervision population has increased significantly during this period, growing from 884 to 1,165 offenders.

The ratio of the male community to the custodial offender population has therefore increased from 0.465 to 0.628. The models project that this ratio will remain stationary at 0.628 to December 2004. The population balance for men is currently slightly lower than the National average (0.684), and will remain below the projected national average in 2004 (0.685) if the projections are realised.

The size of the population of women in-custody has shown a consistent increase since December 1995, rising from 34 (estimated) to 41 inmates by December 2000. The community supervision population has increased faster during this period, rising from 34 to 51 offenders.

The ratio of the community to the custodial population, for women offenders, has therefore increased from 1.000 to 1.244. The models project that this ratio will decrease further to 1.228 by December 2004. The population balance for women is currently considerably lower than the National average (1.412), and will remain below the National average by 2004 (1.393) if the projections are realised.

2. Projections, 2001-2004

- The population of men in-custody population is projected to increase, from 1,855 inmates in December 2000 to **2,024** inmates by December 2004 (up 139 men or **+7.5%**).
- The population of men under community supervision is projected to increase, from 1,165 in December 2000 to **1,271** offenders by December 2004 (up 106 offenders or **+9%**).
- The total population of men offenders is therefore projected to increase, from its current size of 3,020 to **3,296** offenders by December 2004.
- The population of women in-custody is projected to increase, from 41 inmates in December 2000 to **49** inmates by December 2004 (up 8 women or **+20%**).
- The population of women under community supervision is projected to increase from 51 offenders in December 2000, to **60** offenders in December 2004 (up 9 offenders or **+18%**).
- The total female offender population will increase from its current size of 92 to **110** offenders by December 2004.

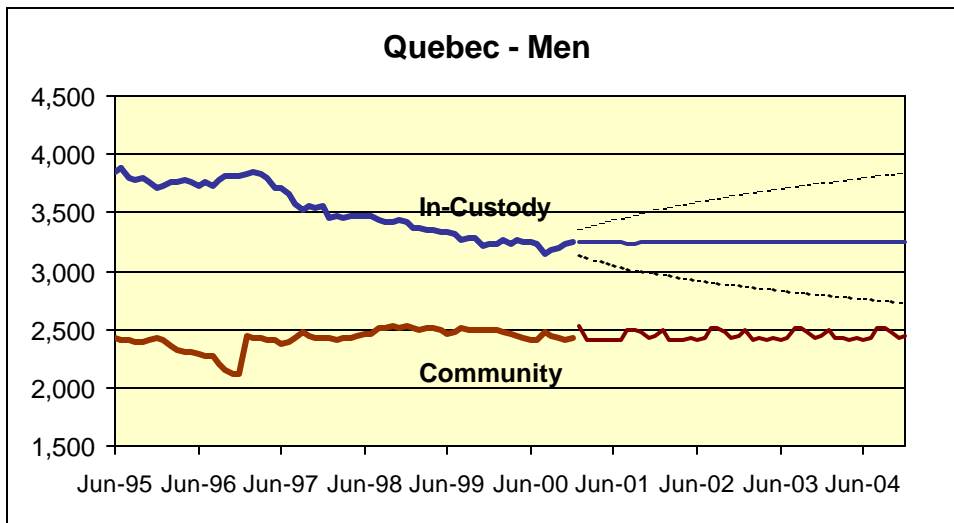
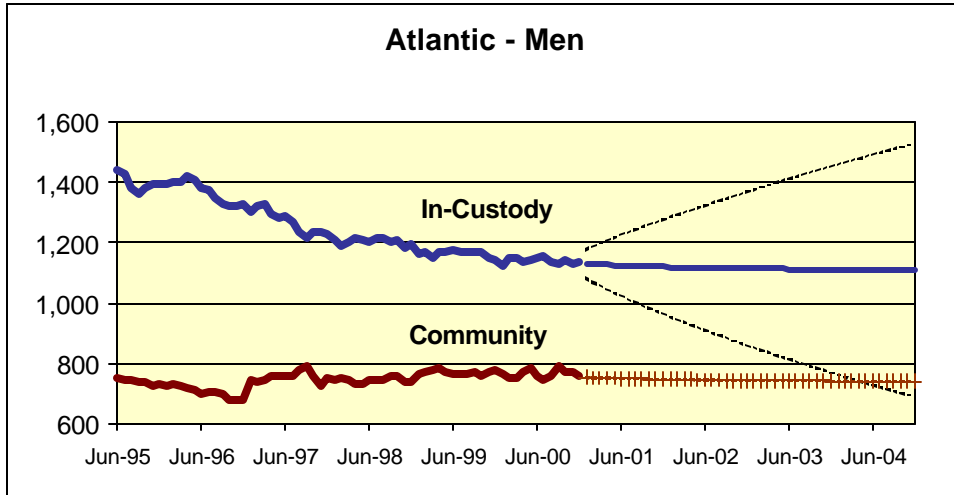
3. Results – Men

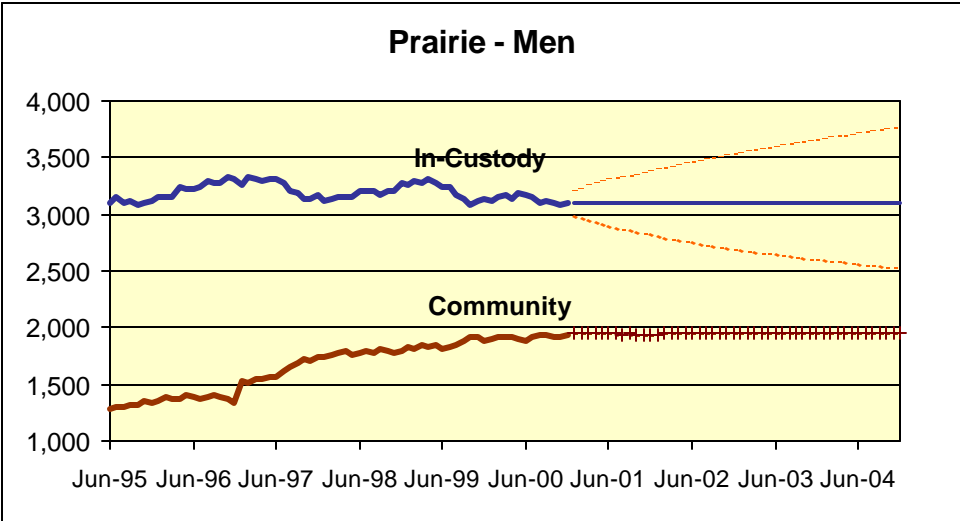
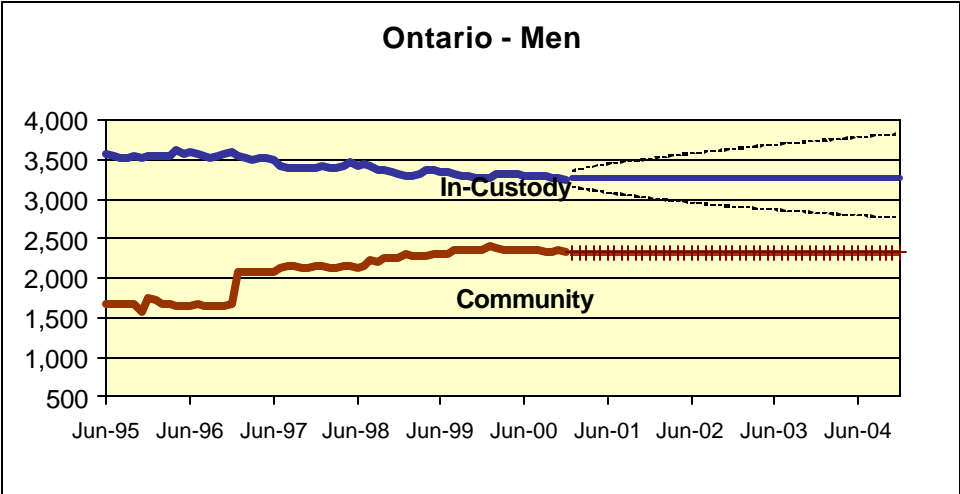
PACIFIC - MEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP	TOTAL_FCST*	RATIO
Dec-95	1,900		884		2,784		0.465
Dec-96	1,905		849		2,754		0.446
Dec-97	1,927		1,034		2,961		0.537
Dec-98	1,748		1,105		2,853		0.632
Dec-99	1,768		1,133		2,901		0.641
Dec-00	1,855		1,165		3,020		0.628
Dec-01		1,906		1,197		3,102	0.628
Dec-02		1,948		1,223		3,172	0.628
Dec-03		1,987		1,248		3,235	0.628
Dec-04		2,024		1,271		3,296	0.628
Model:	Linear (Auto)		...		...		Stationary
RMSE:	11.708						
R ² :	.998						
* Note: Figures may not sum exactly to the total because of rounding.							

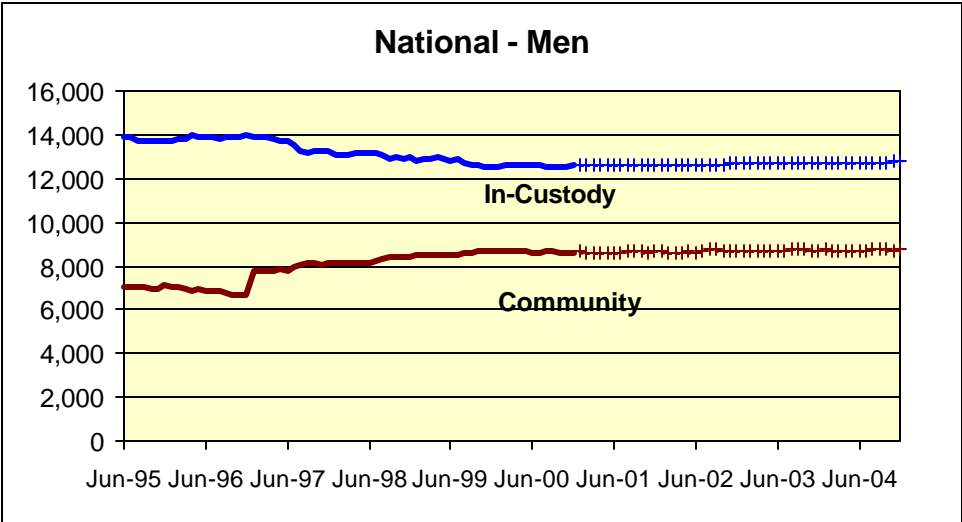
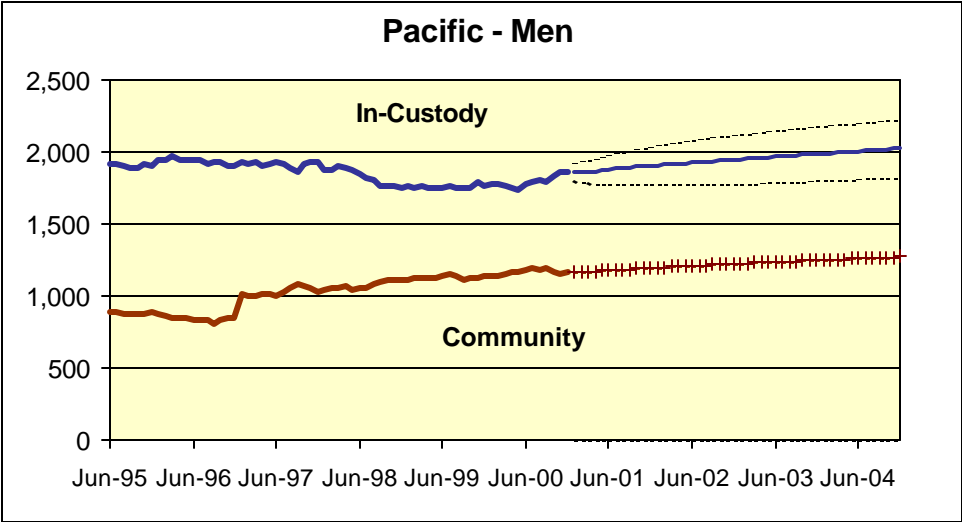
4. Results – Women

PACIFIC - WOMEN							
Mo. End	INST_CNT	INST_FCST	COM_CNT	COM_FCST	TOTAL POP*	TOTAL_FCST	RATIO
Dec-95	34		34		68		1.000
Dec-96	29		35		64		1.207
Dec-97	38		42		80		1.105
Dec-98	38		43		81		1.132
Dec-99	34		50		84		1.471
Dec-00	41		51		92		1.244
Dec-01		43		53		96	1.228
Dec-02		45		55		100	1.228
Dec-03		47		58		105	1.228
Dec-04		49		60		110	1.228
Model:	Linear (Holt)		....		...		Exp. Seasonal
RMSE:	1.159						
R ² :	.953						
* Note: Figures may not sum exactly to the total because of rounding.							

APPENDIX I: FORECAST CHARTS - MEN







APPENDIX I: FORECAST CHARTS - WOMEN

