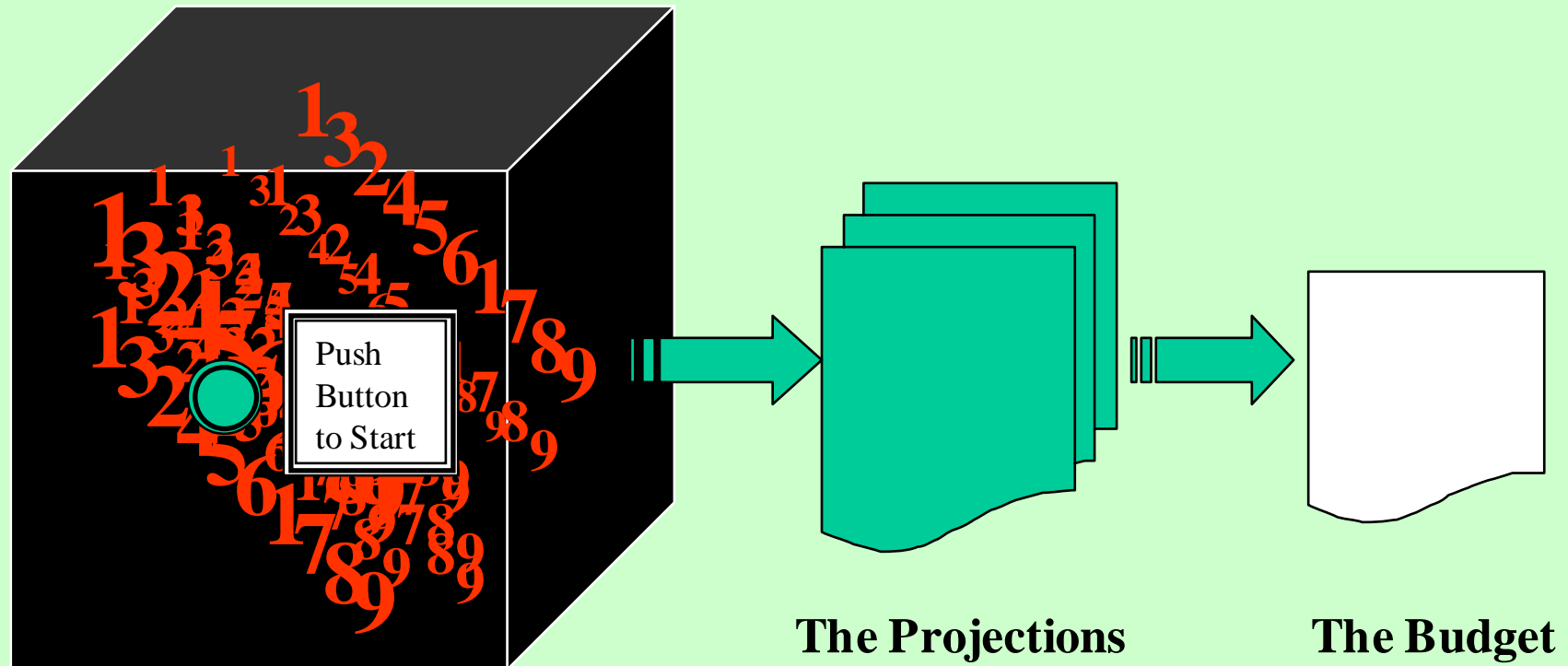
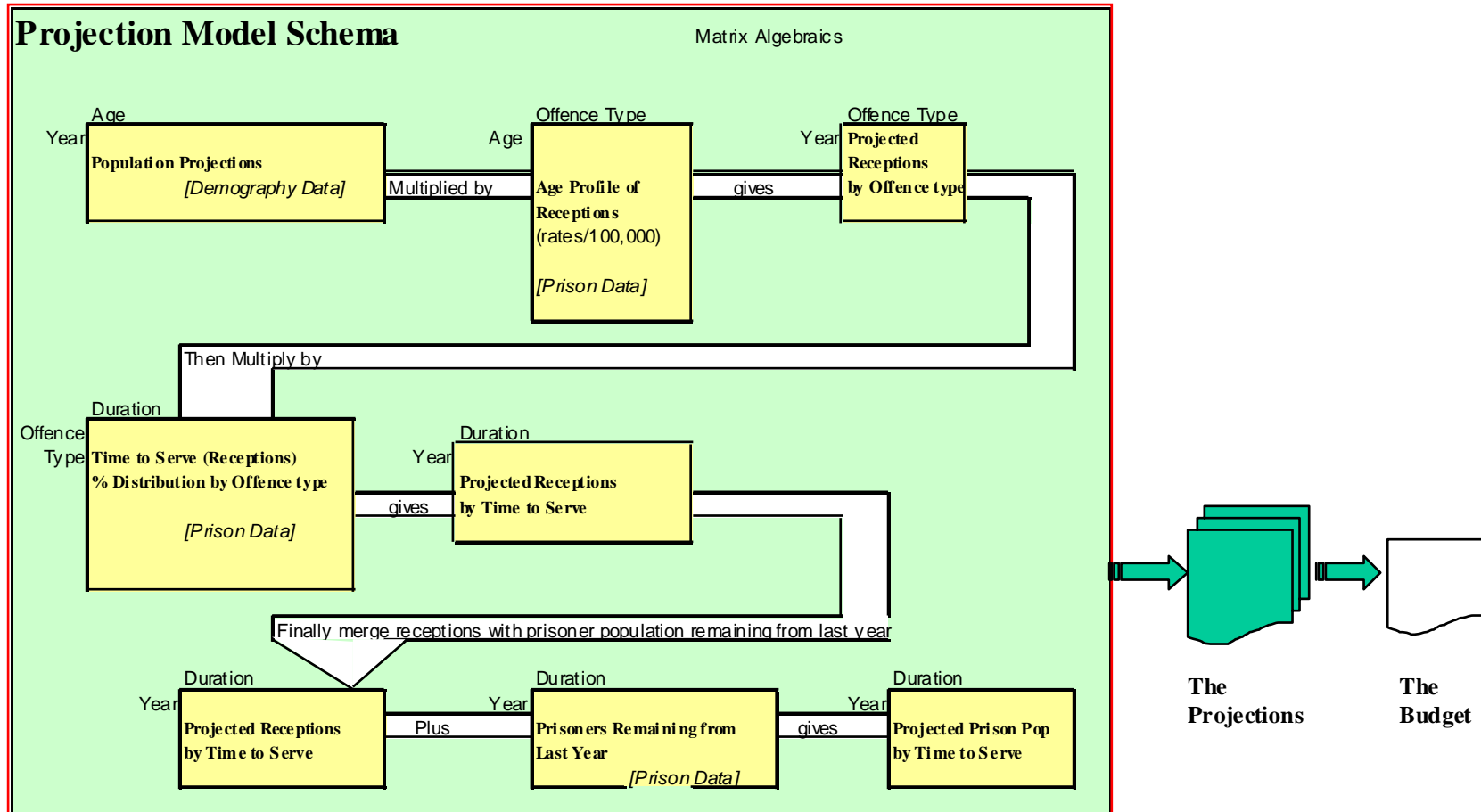


# Forecasting in the Justice System...



## 1. 1970s style - The Black Box

# Problems with Regression approach led to attempts at simulation modelling



**Example:**

**Victorian Prison Projections Modelling circa 1982.**



# What “Drives” the Criminal Justice System?

✿ A. Peter Harmsworth

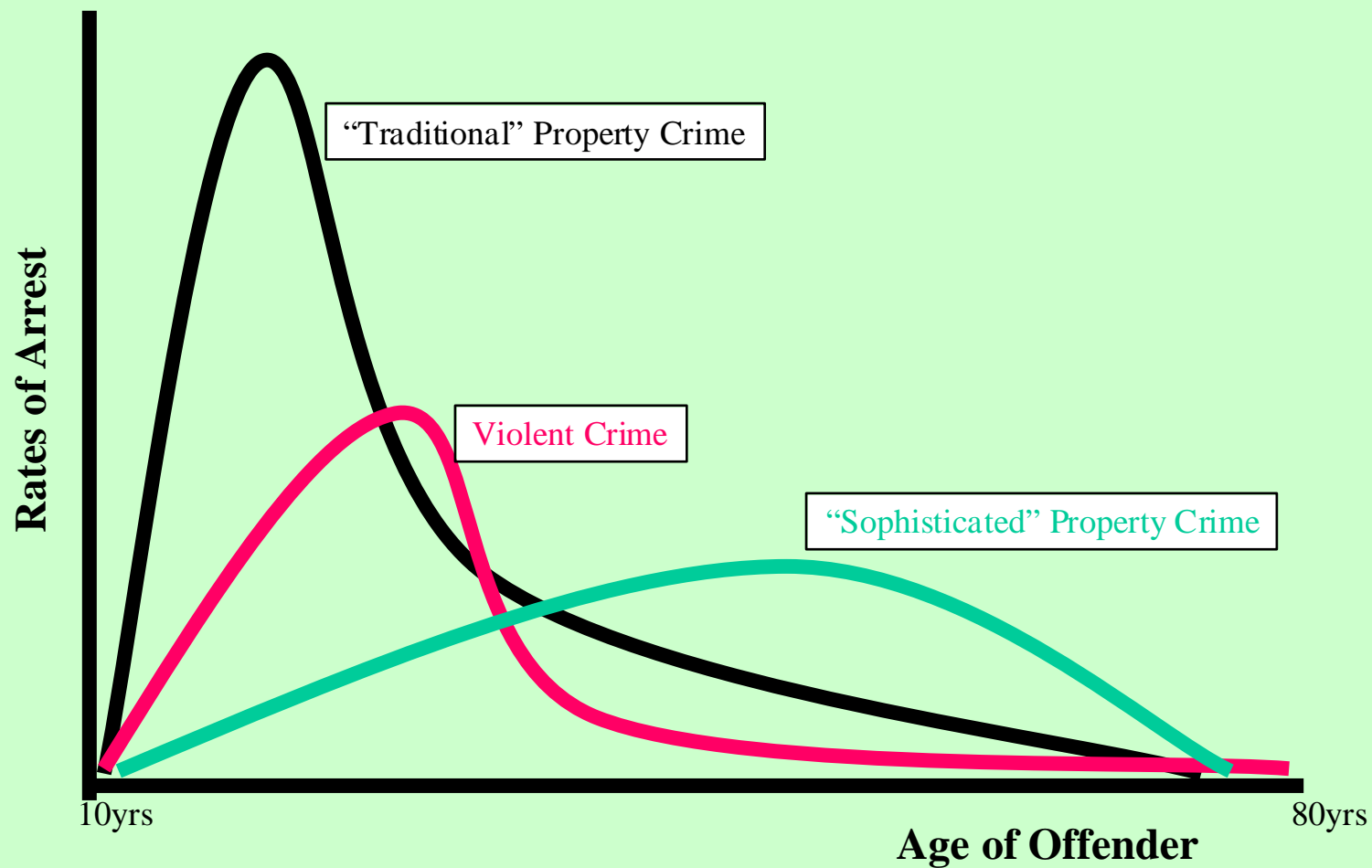
or

✿ Demographics and Offending.

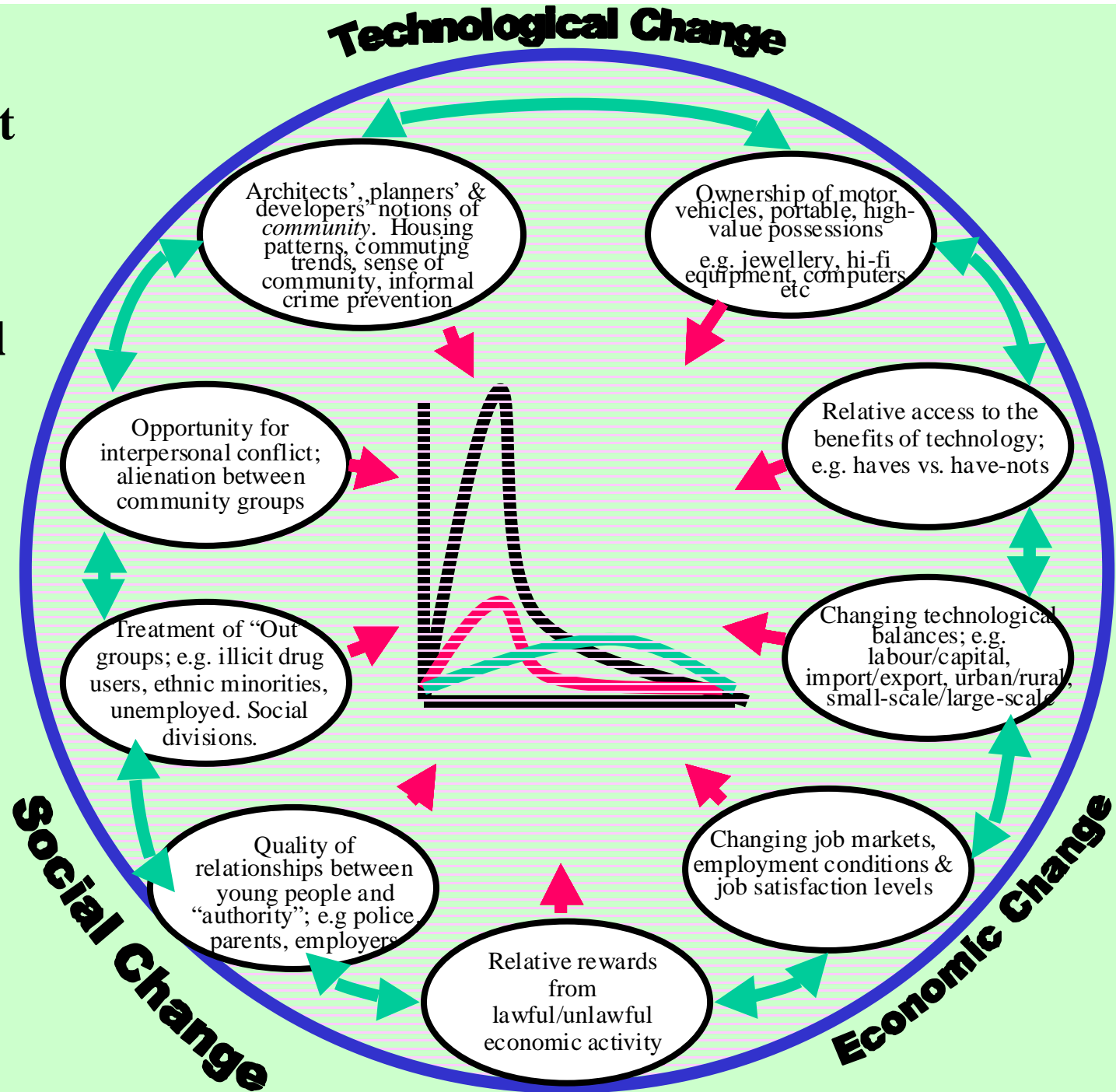
✿ Social, Economic & Technological Change.

✿ Justice, Politics, and Significant Events.

# The Important Things - 1. Demographics of Offending



# The Important Things - 2. Social, Economic & Technological Factors



# The Important Things - 3. The Politics of Justice:

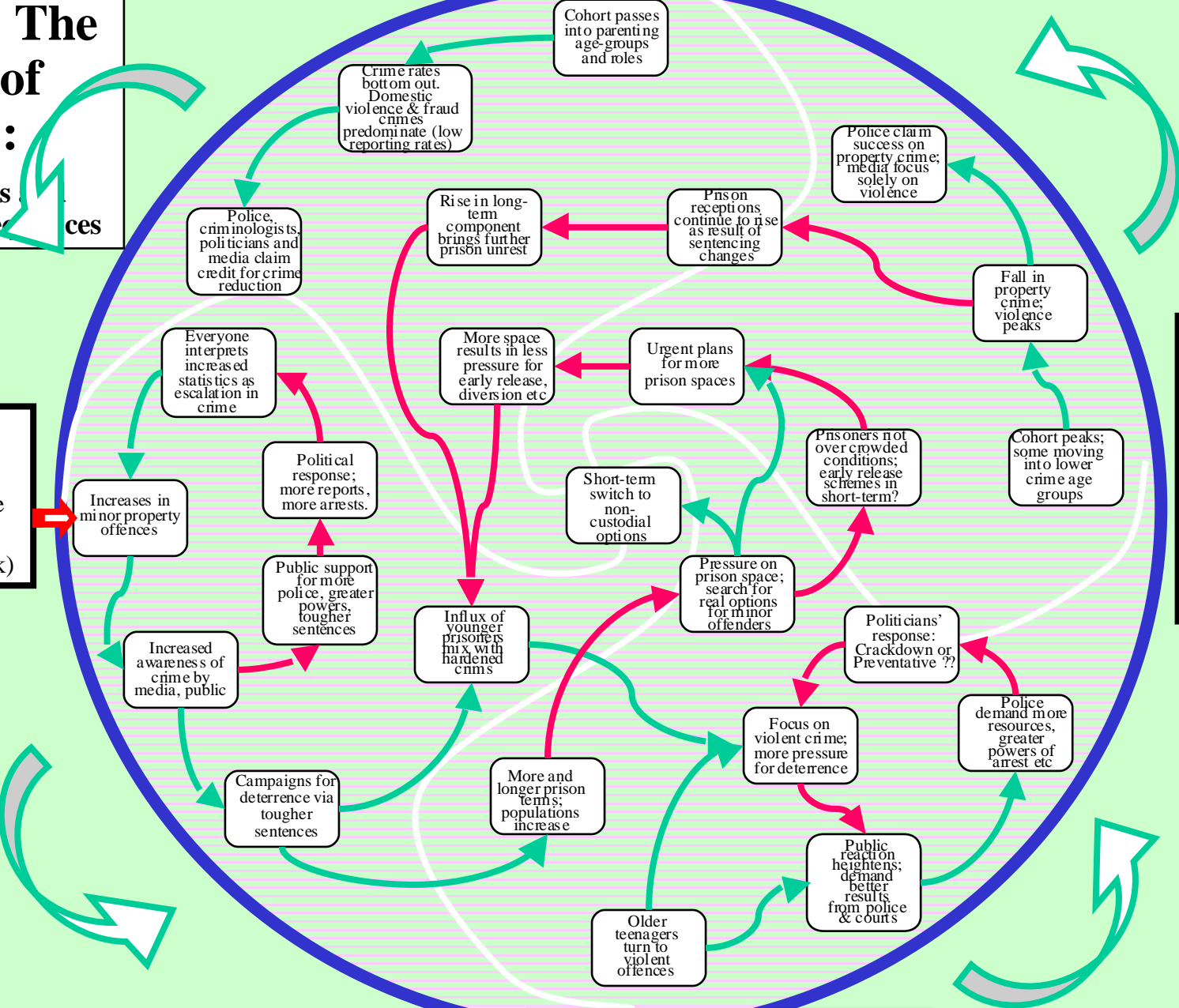
Feedback Loops Unexpected Consequences

**Start Here!**  
Increase in young teenage population (high crime risk)

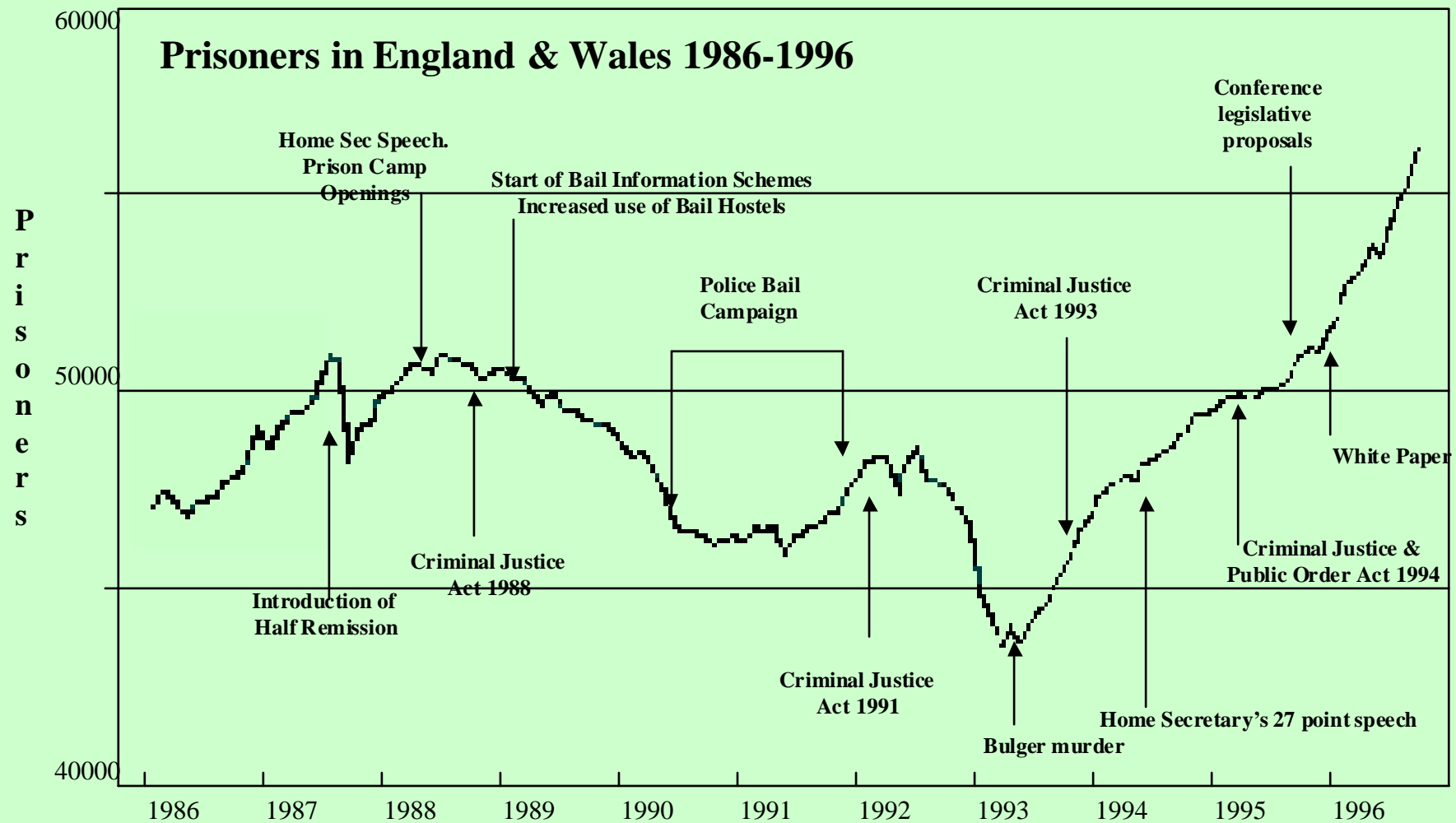
Teenage population reaches low point

Cohort reaches late teens, peaking

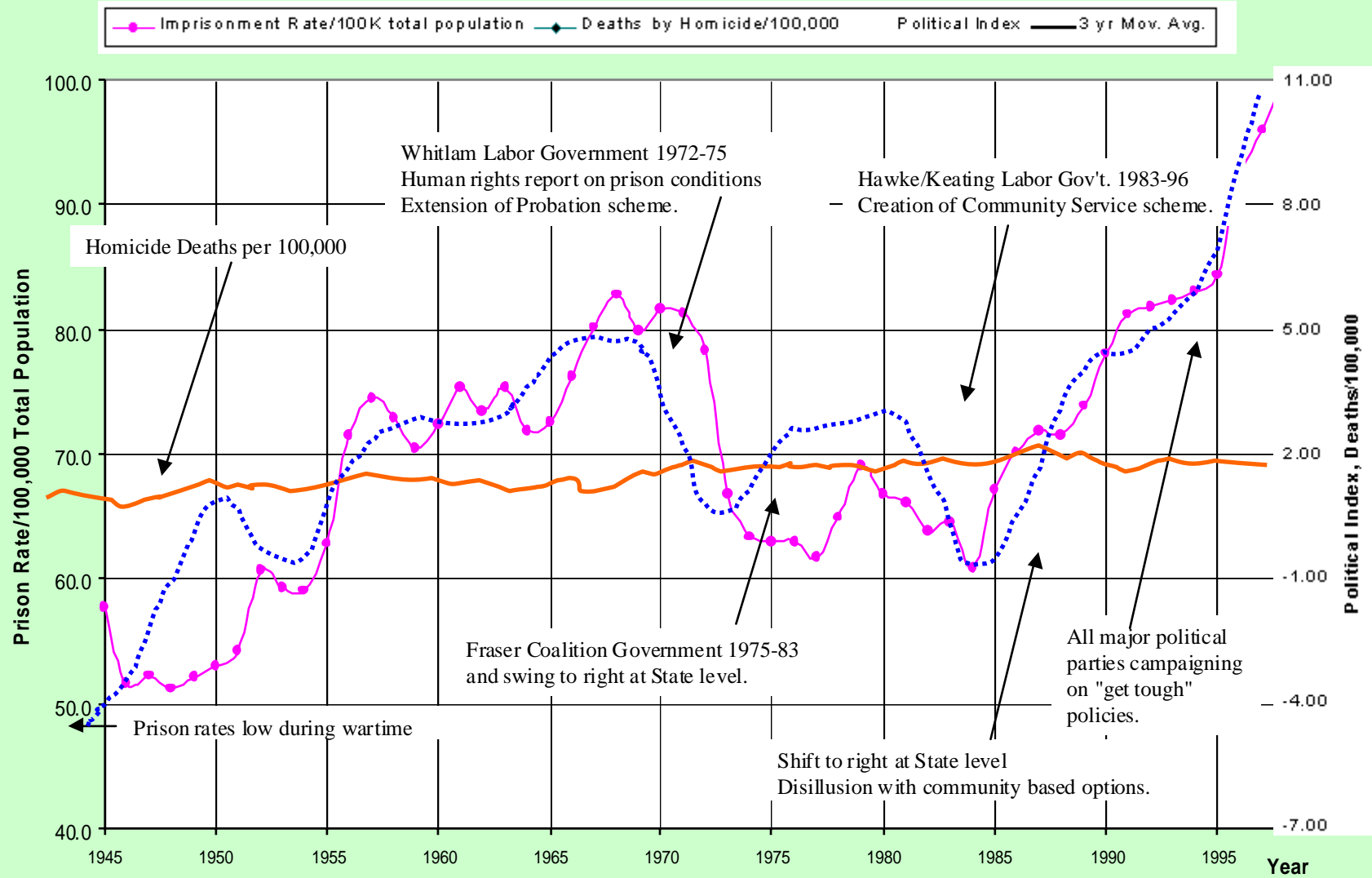
Cohort begins to decline



# The Important Things 4: Significant Events - an Example



# Australia 1945-98



**Political Index definition:** Prior to 1980: Coalition scores +2 for Federal, +1 for NSW, Vic and Qld; Labor scores -2, for Federal, -1 for NSW, Vic & Qld. Then annual drift to political right, so by 1998: Coalition scores +4 for Federal, +3 for NSW, Vic and Qld; Labor scores +2, for Federal, +1 for NSW, Vic & Qld.

*The Important things - 5. Prison Trends reflect Political Change*

# Findings 1:

## Crime rate drivers: demography

<i>Driver</i>	<i>Crime types affected</i>	<i>Nature of impact</i>	<i>Predictability</i>
<b>Demography – age and sex structure of the population</b>	<b>All</b>	<b>Mainly number of young males, but peak impact varies with crime type</b>	<b>Good - 10-15yr horizon; lower accuracy at small area level</b>
<b>Ethnicity</b>	<b>Drug importation, trafficking and robbery and property offences associated with drug use</b>	<b>Mediates general demographic impact. Effect on total crime rates may be relatively small.</b>	<b>Poor - complex issues</b>
<b>Indigenous issues</b>	<b>Mainly offences associated with alcohol abuse.</b>	<b>Changing rates of ATSI identification make impact modelling extremely difficult.</b>	<b>Poor - complex issues</b>

## Findings 2: Crime rate drivers: family and societal issues

<i>Driver</i>	<i>Crime types affected</i>	<i>Nature of impact</i>	<i>Predictability</i>
<b>Family structures and parenting practices</b>	<b>Impact on juvenile rates of offending with flow-on effects to adult rates.</b>	<b>Relatively long lag time between changes in driver and impact on crime rates</b>	<b>Poor - complex issues - stable in short term?</b>
<b>School performance and truancy</b>	<b>Juvenile offences, esp. minor property and drug offences</b>		<b>Poor - complex issues</b>
<b>Youth unemployment and homelessness</b>	<b>Mainly juvenile offences but may include minor property and good order offences by homeless adults</b>	<b>Impact may be mediated by current levels of economic activity</b>	<b>Poor - complex issues</b>

## Findings 3: Crime rate drivers: economic factors

<i>Driver</i>	<i>Crime types affected</i>	<i>Nature of impact</i>	<i>Predictability</i>
<b>Level of consumer expenditure</b>	<b>Property and personal crime</b>	<b>Rise in economic indices associated with an increase in crime levels</b>	<b>Moderate, short-term; Long term poor</b>
<b>Rate of motor vehicle ownership and age of the motor vehicle fleet</b>	<b>Motor vehicle crime</b>	<b>Higher rates of ownership related to higher rates of theft. Reduction in average vehicle age related to lower rates of theft.</b>	<b>Fairly good</b>
<b>Changes from cash to non-cash transactions</b>	<b>Theft and fraud</b>	<b>General movement from cash (theft) crimes to non-cash (fraud) crimes. Data very weak.</b>	<b>Poor - complex issues, technology driven, poor data</b>

## Findings 4: Crime rate drivers: illicit drug factors

<i>Driver</i>	<i>Crime types affected</i>	<i>Nature of impact</i>	<i>Predictability</i>
<b>Proportion of offenders who use illicit drugs</b>	<b>Opiate use associated with acquisitive crime. Other drugs associated with possession and trafficking crimes</b>	<b>Opiate addiction greatly increases offending rates.</b>	<b>Short-term stable; Long-term unpredictable.</b>
<b>Drug market factors</b>	<b>Acquisitive crime. Drug possession and trafficking crimes</b>	<b>Changes in drug price and purity may lead to rises or falls in crimes carried out to fund drug habits</b>	<b>Poor - volatile market</b>

## Findings 5: Crime rate drivers: systemic factors - 1

<i>Driver</i>	<i>Crime types affected</i>	<i>Nature of impact</i>	<i>Predictability</i>
<b>Victim attitudes and confidence in CJS (Crime reporting rates)</b>	<b>Mainly personal crime, especially intra-familiar assault and sexual assault</b>	<b>Increased reporting may not lead directly to increases in arrests, convictions</b>	<b>Short-term stable; subject to 'moral panic'</b>
<b>Level and focus of policing</b>	<b>Mainly on discretionary offences: Illicit drug crimes Stolen goods Good order</b>	<b>May bring about sharp rises and falls in crime rates</b>	<b>Short-term good; longer term moderate</b>
<b>Investigative and crime recording technology</b>	<b>All</b>	<b>Change in investigative technology probably insignificant. Improved recording technology may have a large impact</b>	<b>Short-term good; longer term moderate</b>

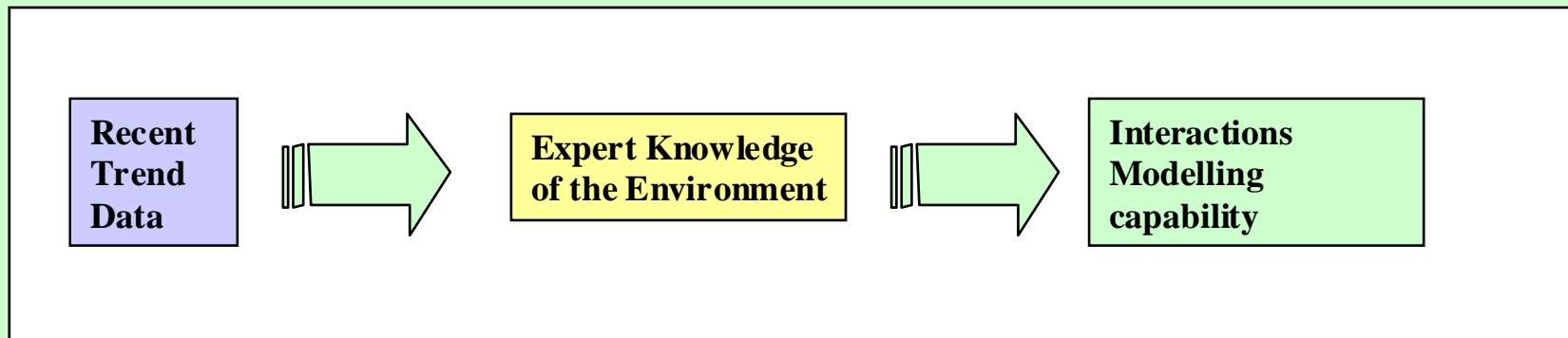
## Findings 6: Crime rate drivers: systemic factors - 2

<i>Driver</i>	<i>Crime types affected</i>	<i>Nature of impact</i>	<i>Predictability</i>
<b>Breaches of orders</b>	<b>Justice system offences</b>	<b>May have a disproportionate impact on number of persons imprisoned</b>	<b>Short-medium term fair; long term poor</b>
<b>Recidivism and management of high-rate offenders</b>	<b>All</b>	<b>Impact involves both positive effects (incapacitation effect) and negative (prison releasees have increased offending rates).</b>	<b>Short-medium term fair; long term poor</b>

## Conclusions so far.....

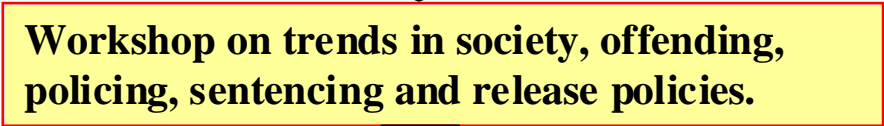
- **Black box (regression models) approach can't work, because - except in the short-term - the future will not be like the past**
- **A deep understanding of the present is needed to inform about the future**
- **Age-profiles are the most consistent predictors of crime, but are themselves dependent on a wide range of factors**
- **Expert (“insider”) knowledge is essential for other factors, including social, technological, economic and political change**
- **Some things just can't be predicted**

## Evidence-based planning for the future

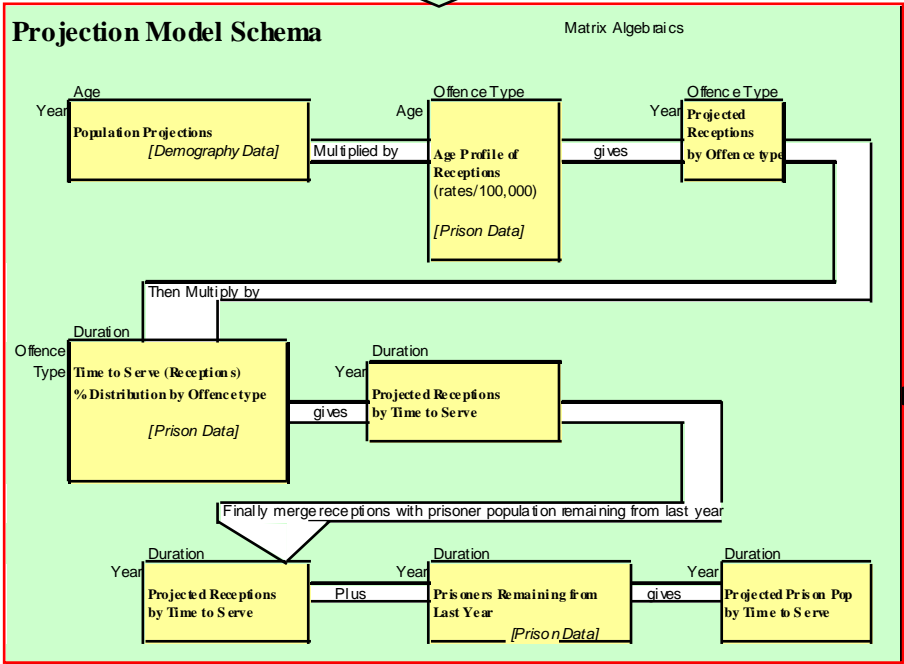
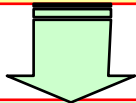




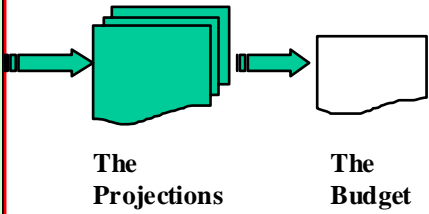
Data informs expert workshop



Workshop informs projection model



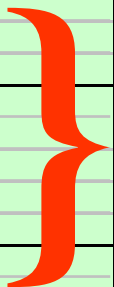
These findings support the philosophy of Victorian Prison Projections Modelling since circa 1994



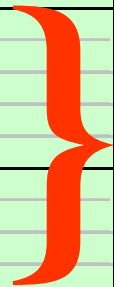
# Workshop Format

- Expert knowledge: - trends in society, offending, policing, sentencing and release policies.
- Invitees include policy and research staff from across CJS, plus wide range of academics and other external stakeholders. Aim for consensus, but accommodate divergence.
- Creates ownership of projections - (and shares blame!). The “REAL” projections.

	Homicide	Sex Offence	Other Violence	Sophisticated Property Crime	Other Property Crime	Drug Offence	Driving Offence	Other (Incl. Breaches of Orders)
<b>Society</b>								
M/F								
Young/Old								
Rich/Poor								
Ethnicity etc								
<b>Offending</b>								
M/F								
Young/Old								
Rich/Poor								
Ethnicity etc								
<b>Policing</b>								
M/F								
Young/Old								
Rich/Poor								
Ethnicity etc								
<b>Sentencing</b>								
M/F								
Young/Old								
Rich/Poor								
Ethnicity etc								
<b>Release Policies</b>								
M/F								
Young/Old								
Rich/Poor								
Ethnicity etc								

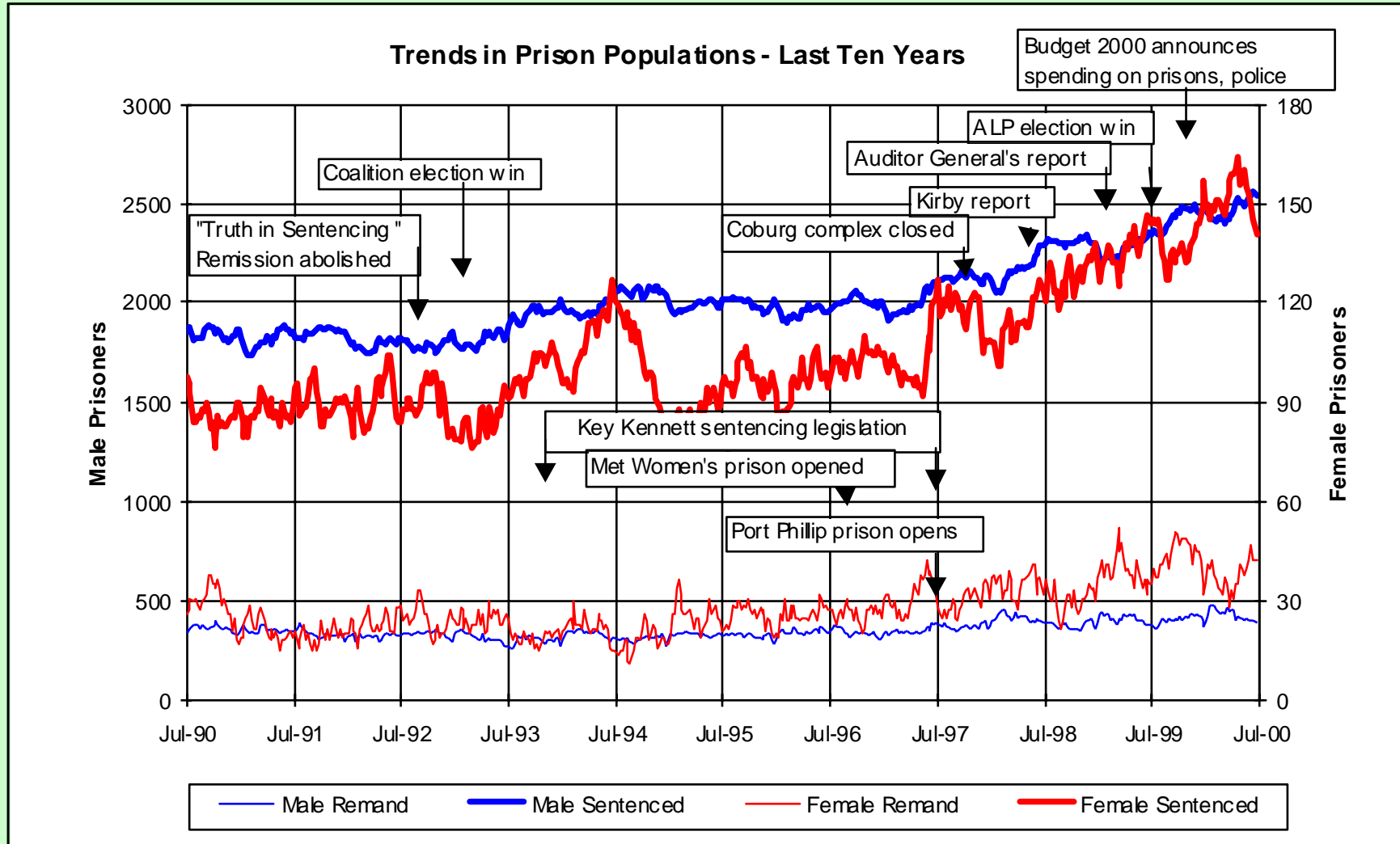


Receptions - quantify changes in age-specific rates

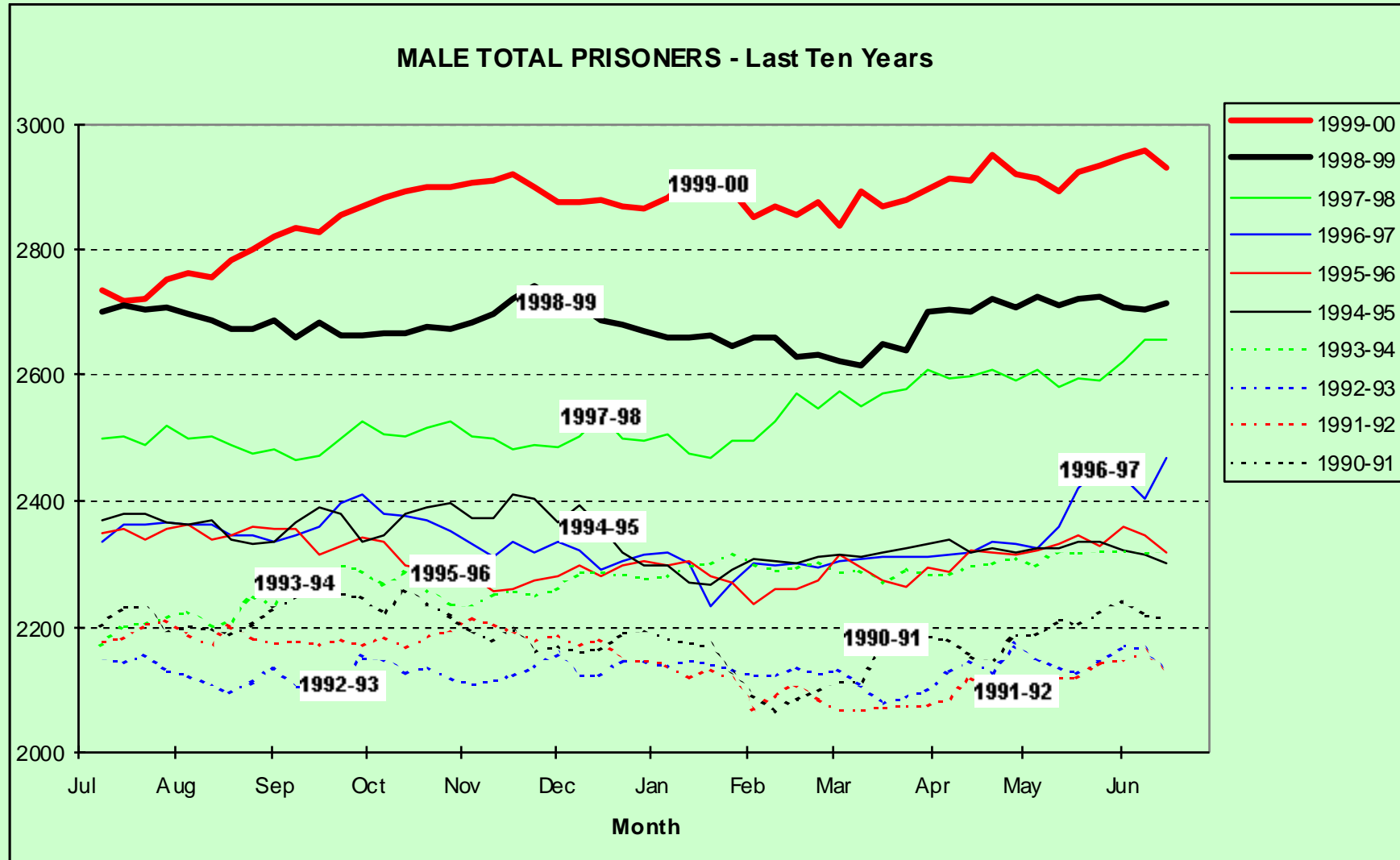


Times to Serve - quantify changes in percentages

# Recent Victorian Prison Trends

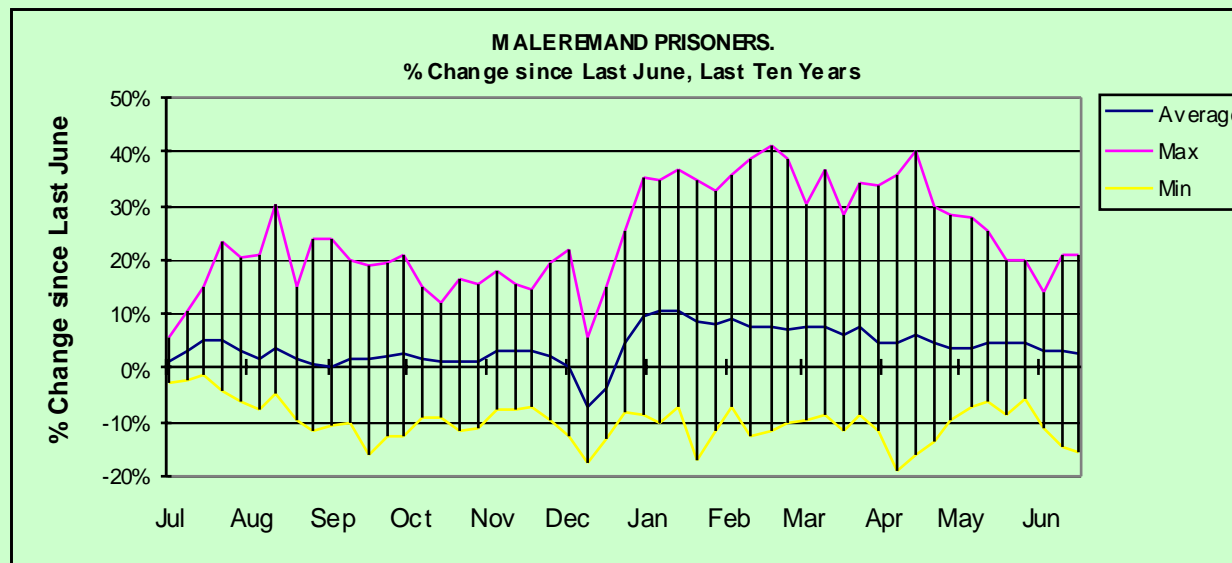
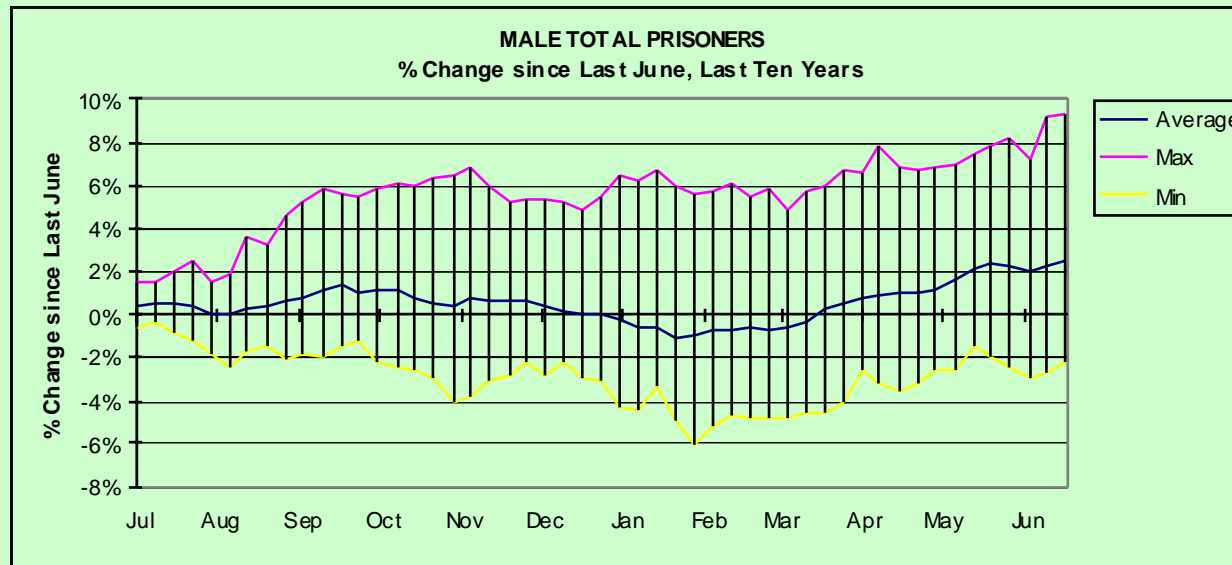


# Trends in Total Male Prisoner Numbers 1990/91 - 1999/2000



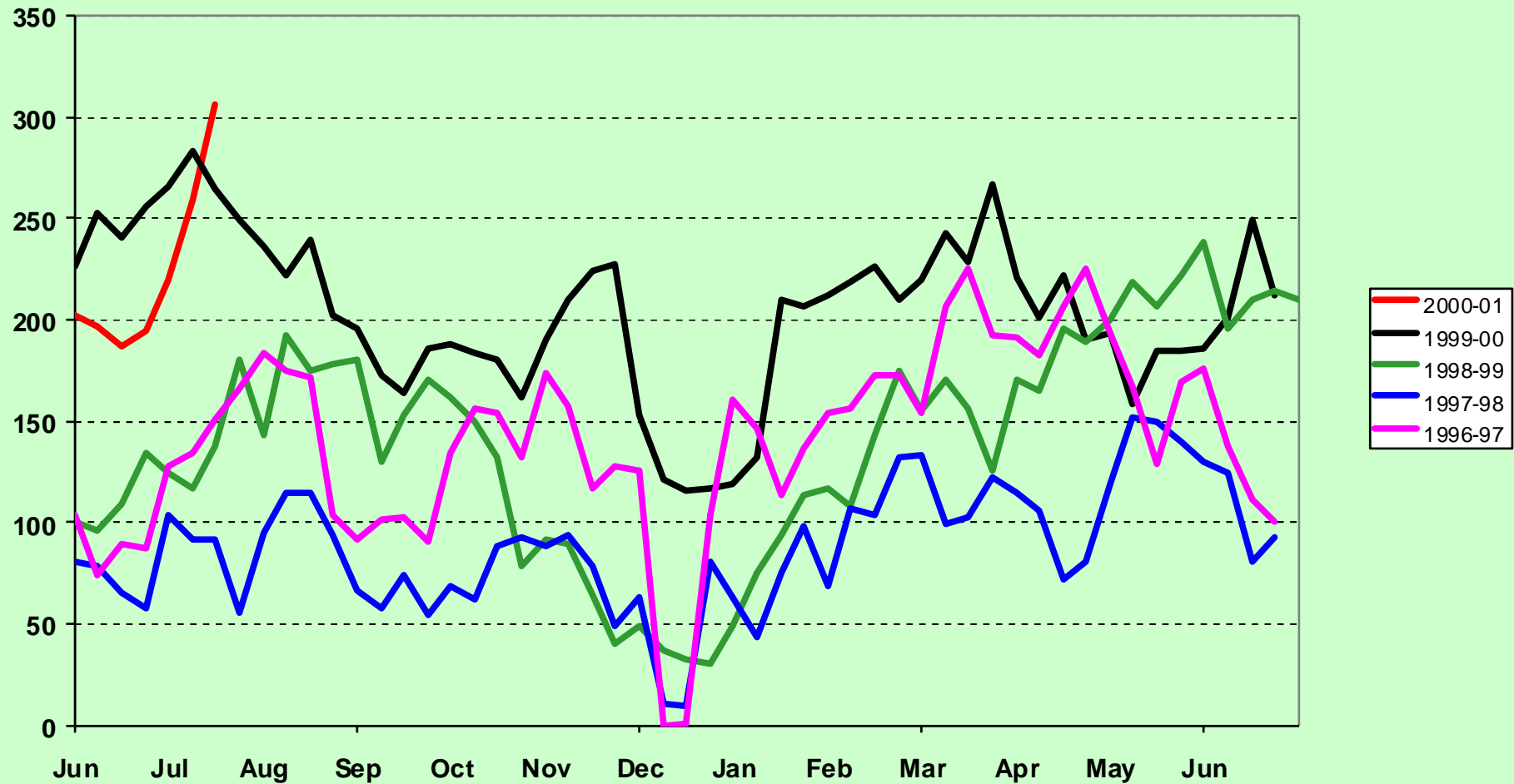


# Annual Cycles - Male Prisoners 1990/91 - 1999/2000

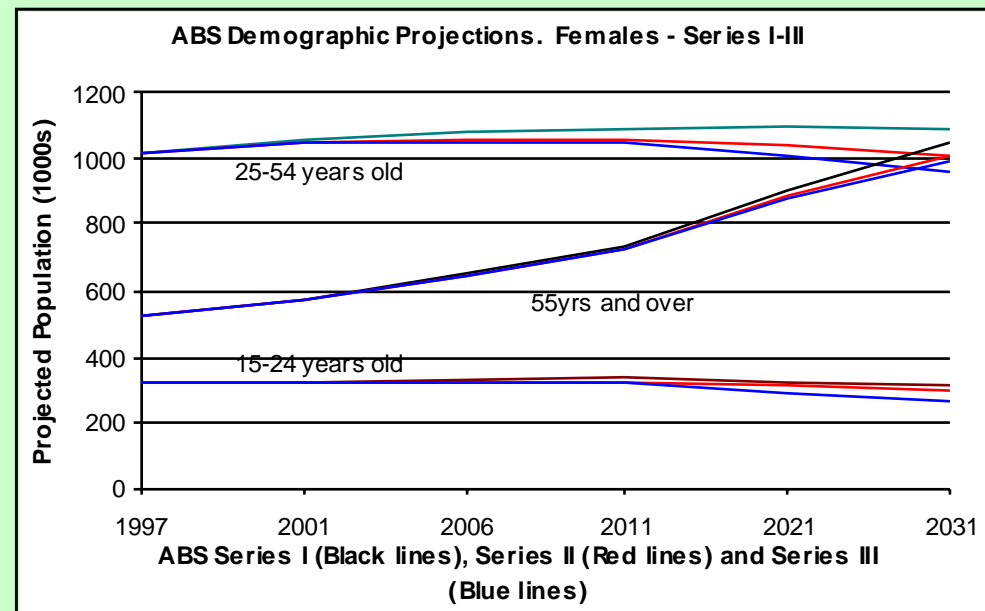
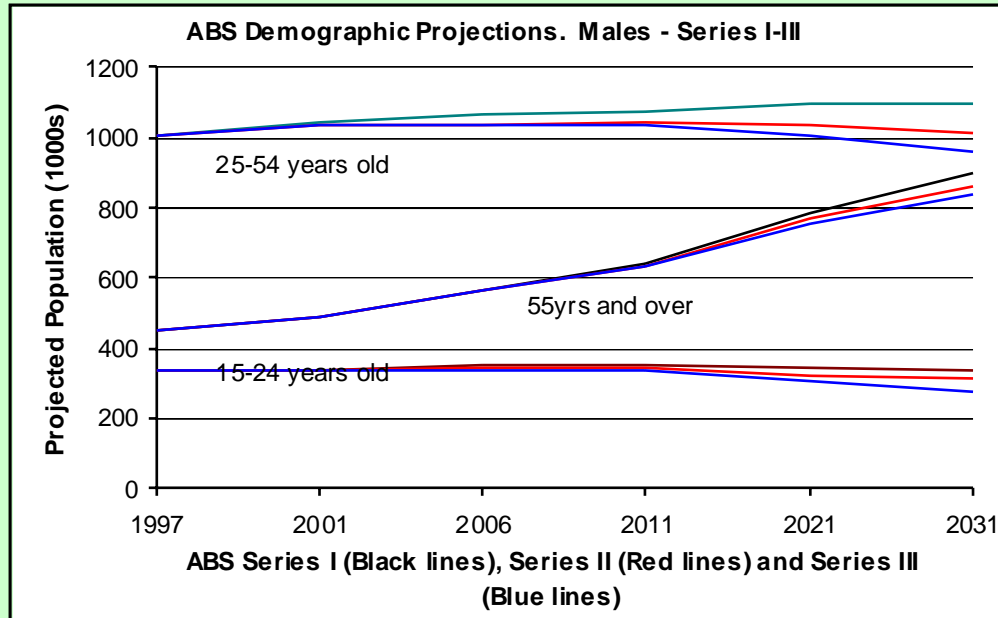


# Police Cell Trends

Number of Prisoners in Police Cells (Male & Female)  
July 1996 to June 2001



# ABS Demographic Projections for Victoria 1997 - 2031



# Base Run Projections of Prisoner Receptions, by Sex and MSO

## Victorian 2000 - Male Base Run

No of Prisoners Received during the year

FISCAL YEAR	Sex			Other				Major			Total	Series III demog	
	Homicide	Assaults	Offences	Robbery	Burglary	Fraud	Property	Good Order	Minor Drug	Drug			Driving
1999-2000	74	202	328	364	572	160	928	975	6	495	272	4377	4364
2000-2001	75	202	331	365	573	160	954	977	6	496	274	4412	4385
2001-2002	75	203	333	365	574	161	933	980	6	498	275	4403	4360
2002-2003	76	203	335	366	575	161	936	983	6	500	276	4417	4357
2003-2004	76	204	337	367	576	161	939	985	6	502	278	4431	4355
2004-2005	76	205	339	368	577	162	942	988	6	504	279	4445	4352
2005-2006	77	205	341	368	578	162	945	991	6	506	280	4460	4350
2006-2007	77	206	343	369	580	162	948	994	6	507	281	4474	4349
2007-2008	77	207	345	370	581	163	951	997	6	509	282	4488	4349
2008-2009	78	207	347	371	583	163	954	999	6	511	283	4502	4348
2009-2010	78	208	349	372	585	164	957	1002	6	512	284	4516	4348
2010-2011	78	209	350	373	586	164	960	1005	6	514	284	4531	4347
2011-2012	79	209	352	373	586	165	960	1006	6	515	285	4535	4333
2012-2013	79	209	353	373	586	165	961	1007	6	515	286	4539	4319
2013-2014	79	209	354	373	586	165	962	1008	6	515	286	4544	4306
2014-2015	79	209	356	373	586	165	962	1008	6	516	287	4548	4292
2015-2016	79	210	357	373	586	165	963	1009	6	516	287	4553	4278
2016-2017	80	210	358	373	587	165	963	1010	6	517	288	4557	4265
2017-2018	80	210	359	373	587	165	964	1011	6	517	289	4562	4251
2018-2019	80	210	361	373	587	166	965	1012	6	517	289	4566	4237

## Victorian 2000 - Female Base Run

No of Prisoners Received during the year

FISCAL YEAR	Sex			Other				Major			Total	Series III demog	
	Homicide	Assaults	Offences	Robbery	Burglary	Fraud	Property	Good Order	Minor Drug	Drug			Driving
1999-2000	5	14	16	71	61	11	19	96	0	83	12	388	387
2000-2001	5	14	16	71	61	11	19	96	0	83	12	389	386
2001-2002	5	14	16	71	61	11	19	96	0	84	12	390	386
2002-2003	5	14	16	71	61	11	19	97	0	84	12	390	385
2003-2004	5	14	16	71	61	11	19	97	0	84	12	391	385
2004-2005	5	14	16	71	61	11	19	97	0	85	12	392	384
2005-2006	5	14	16	71	61	11	19	97	0	85	12	393	383
2006-2007	5	14	16	71	61	11	19	98	0	85	12	394	383
2007-2008	5	14	16	72	62	11	19	98	0	85	12	395	382
2008-2009	5	14	16	72	62	11	19	98	0	85	12	395	382
2009-2010	5	14	16	72	62	11	19	98	0	85	12	396	381
2010-2011	5	14	16	72	62	11	19	99	0	86	12	397	380
2011-2012	5	14	16	72	62	11	19	99	0	86	12	397	379
2012-2013	5	14	16	72	62	11	19	99	0	86	12	397	377
2013-2014	5	14	16	72	62	11	19	99	0	85	12	397	375
2014-2015	5	14	16	72	62	11	19	99	0	85	12	396	373
2015-2016	5	15	16	72	61	11	19	99	0	85	12	396	372
2016-2017	5	15	16	71	61	11	19	99	0	85	12	396	370
2017-2018	5	15	16	71	61	11	19	99	0	85	12	396	368
2018-2019	5	15	16	71	61	11	19	99	0	85	12	396	366

# Base Run Projections of Prisoner Populations, by Sex and MSO

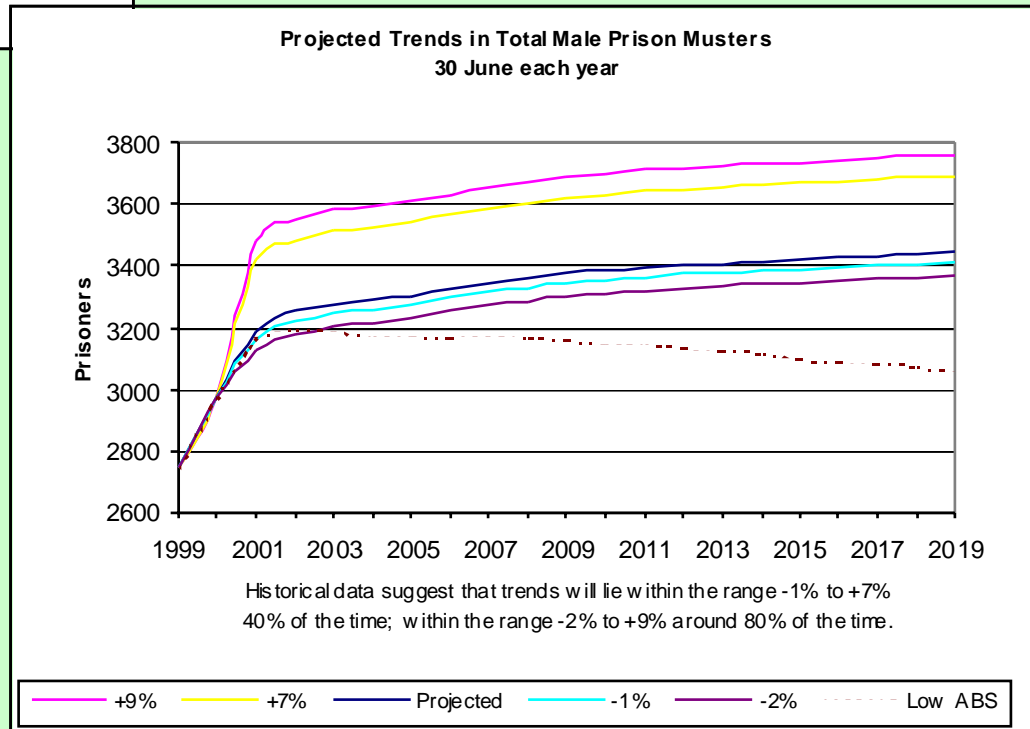
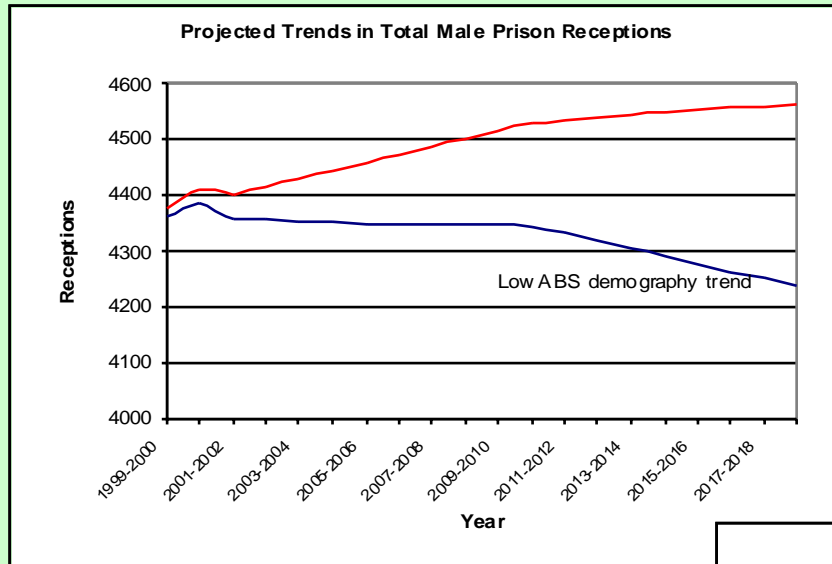
Victorian 2000 - Male Base Run  
No of Prisoners on hand at June 30

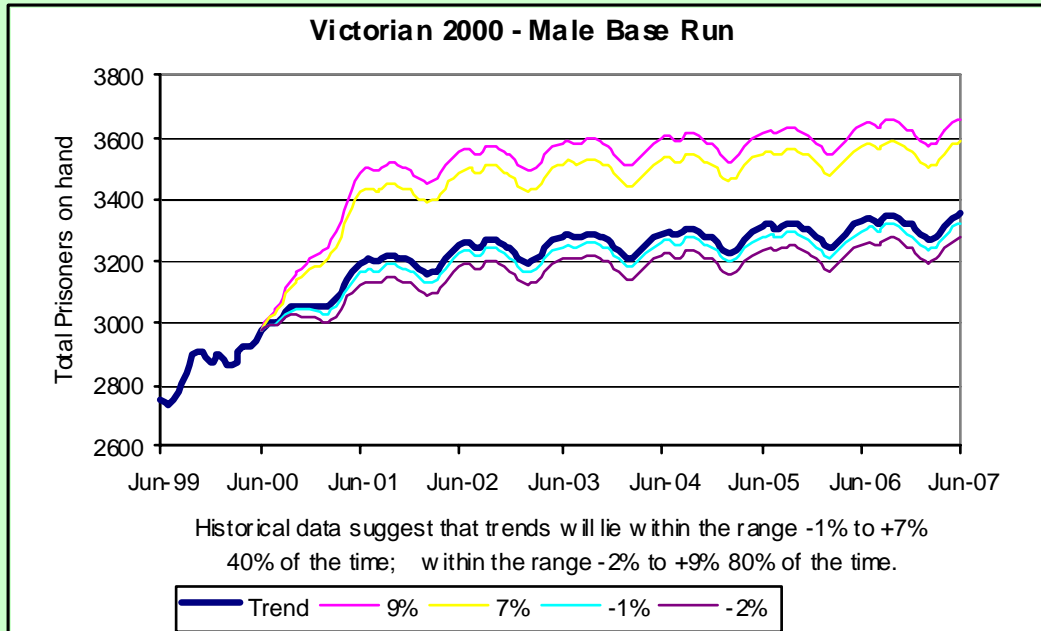
30 June	Sex						Other Property	Good Order	Minor Drug	Major Drug	Driving	Total	Series III Demog
	Homicide	Assaults	Offences	Robbery	Burglary	Fraud							
1999	350	180	402	314	338	91	244	406	17	325	77	2744	2744
2000	360	212	377	374	381	90	303	445	21	326	83	2972	2967
2001	370	231	392	421	410	91	314	489	10	367	94	3190	3160
2002	375	230	391	435	420	93	306	511	8	385	95	3250	3196
2003	378	229	398	424	424	93	307	521	9	400	95	3278	3193
2004	380	232	385	427	423	94	308	532	9	404	96	3289	3172
2005	384	237	386	423	423	95	308	538	6	409	96	3305	3173
2006	383	240	393	422	425	96	309	546	6	412	97	3327	3169
2007	386	241	398	424	427	97	310	551	5	413	97	3349	3171
2008	389	242	396	425	427	98	311	555	5	415	97	3360	3163
2009	389	244	399	427	429	99	312	557	5	417	98	3374	3158
2010	387	246	399	428	430	100	313	561	5	418	98	3384	3148
2011	386	248	402	429	430	102	314	565	5	419	98	3396	3145
2012	384	249	404	430	430	103	314	568	5	420	99	3405	3137
2013	381	250	407	430	431	104	314	569	5	421	99	3410	3125
2014	380	252	409	430	431	105	314	571	5	421	99	3416	3113
2015	382	253	410	430	431	105	315	570	5	422	99	3421	3100
2016	385	253	412	430	431	105	315	571	5	422	99	3427	3090
2017	386	254	413	430	431	105	315	571	5	422	100	3432	3078
2018	390	254	415	430	431	105	315	572	5	423	100	3439	3070
2019	393	254	416	430	431	105	315	572	5	423	100	3445	3060

Victorian 2000 - Female Base Run  
No of Prisoners on hand at June 30

30 June	Sex						Other Property	Good Order	Minor Drug	Major Drug	Driving	Total	Series III Demog
	Homicide	Assaults	Offences	Robbery	Burglary	Fraud							
1999	23	8	2	16	21	5	37	31	3	30	3	179	179
2000	21	12	1	35	18	11	27	26	1	29	2	183	183
2001	22	16	0	41	18	10	21	30	0	30	2	190	189
2002	23	17	0	46	18	10	20	32	0	29	2	198	196
2003	24	16	0	47	18	10	21	31	0	28	2	198	196
2004	25	16	0	48	18	10	21	31	0	28	2	200	197
2005	27	16	0	48	18	10	21	31	0	27	2	202	198
2006	27	16	0	48	18	10	21	31	0	28	2	202	198
2007	28	16	0	48	18	10	21	32	0	27	2	202	197
2008	28	17	0	49	18	10	21	32	0	27	2	203	197
2009	28	17	0	49	18	10	21	32	0	27	2	203	197
2010	29	17	0	49	18	10	21	32	0	27	2	205	197
2011	29	17	0	49	18	10	21	32	0	27	2	205	197
2012	30	17	0	49	18	10	21	32	0	27	2	206	197
2013	29	17	0	49	18	10	21	32	0	27	2	205	195
2014	29	17	0	49	18	10	21	32	0	27	2	205	194
2015	29	17	0	49	18	10	21	32	0	27	2	205	194
2016	29	17	0	49	18	10	21	32	0	27	2	205	193
2017	28	17	0	48	18	10	21	32	0	27	2	204	191
2018	28	17	0	48	18	10	21	32	0	27	2	204	190
2019	28	17	0	48	18	10	21	32	0	27	2	204	189

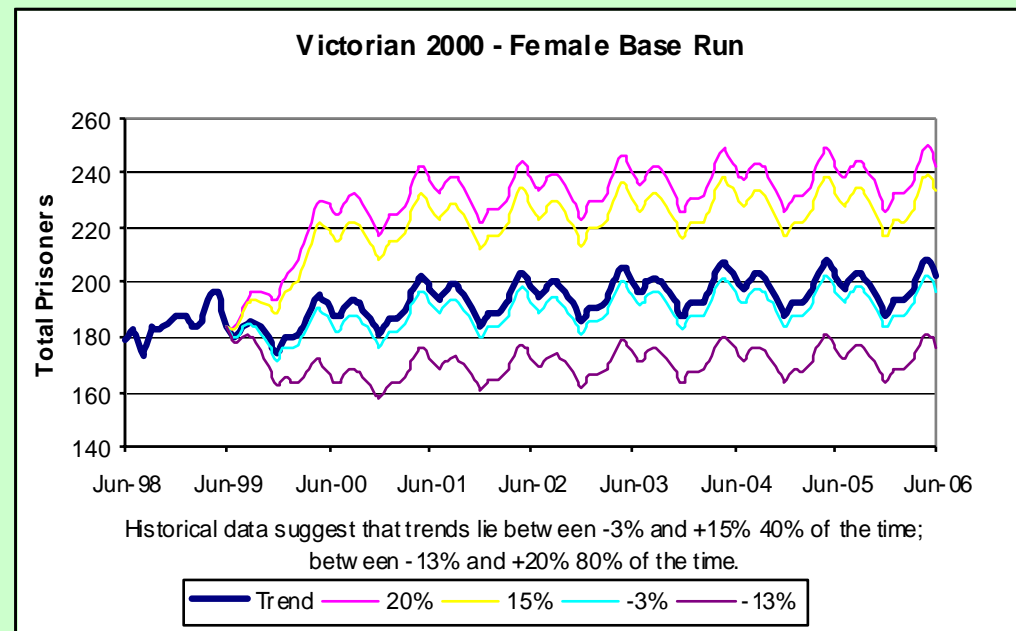
# Base Run 20 year projections Male Prisoners Total Receptions and Prison Populations





## Base Run next five years

**Total Male and Total Female  
Prisoners with variance limits**



# Workshopped Scenarios

## **Males:**

**Assaults, Robberies** - no change in receptions; more breaches - in good order category.

**Sex offences** - 5% increase in receptions; 25% longer sentences

**Burglary** - receptions up between 0-5%, then diversion for two years, then breaches +5%.

**Drug offences** - receptions up 0-10%.

**Good Order** - receptions up 20%.

**Homicides, Fraud, Other property, Driving offences** - no change.

## **Females:**

**Assaults** - no change in receptions; more breaches - in “good order”. 10% longer sentences.

**Sex offences** - 5% increase in receptions; 25% longer sentences

**Robbery** - receptions up 5%. Sentences unchanged.

**Burglary** - receptions up between 0-5%, then diversion for two years, then breaches +5%.

**Drug offences** - receptions up 0-10% for minor offences, 25% for major offences.

**Good Order** - receptions up 20% after 2 yrs. Sentences 10% longer after two years.

**Homicide, Fraud, Other property, Driving offences** - no change.

# Entering Scenarios

## Reception Rates:

## Hypothesised Changes

[e.g. 1=nochange; 1.1=10% once-off increase; 0.9=10% once-off fall; -1.1=10%compound annual increase; -0.9=10%compound annual fall]

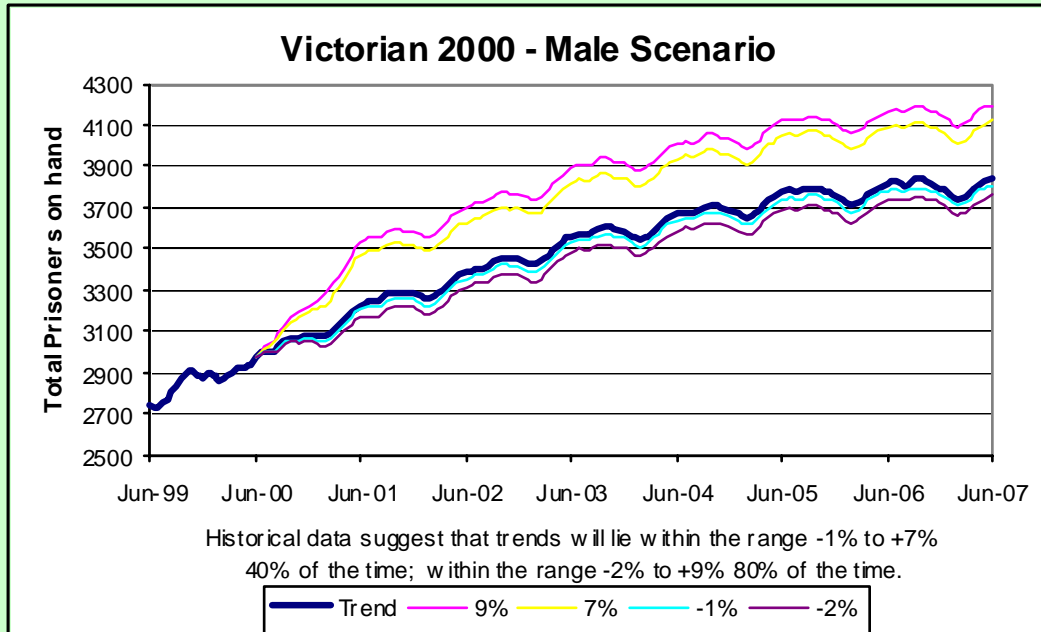
**Males** N.B. Yellow cells in this block should be 1.00 for the 'Base' run.

Age	Homicide	Assaults	Sex Offs.	Robbery	Burglary	Fraud	Other Proj	Good Ord	Minor Dru	Major Dru	Driving
10	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
11	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
12	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
13	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
14	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
15	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
17	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
18	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
19	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
20	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
21-24	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
25-29	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
30-39	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
40-49	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
50-59	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00
60+	1.00	1.00	1.05	1.00	1.05	1.00	1.00	1.20	1.10	1.10	1.00

Commencing in year ..... [e.g. 1= 2000 ]

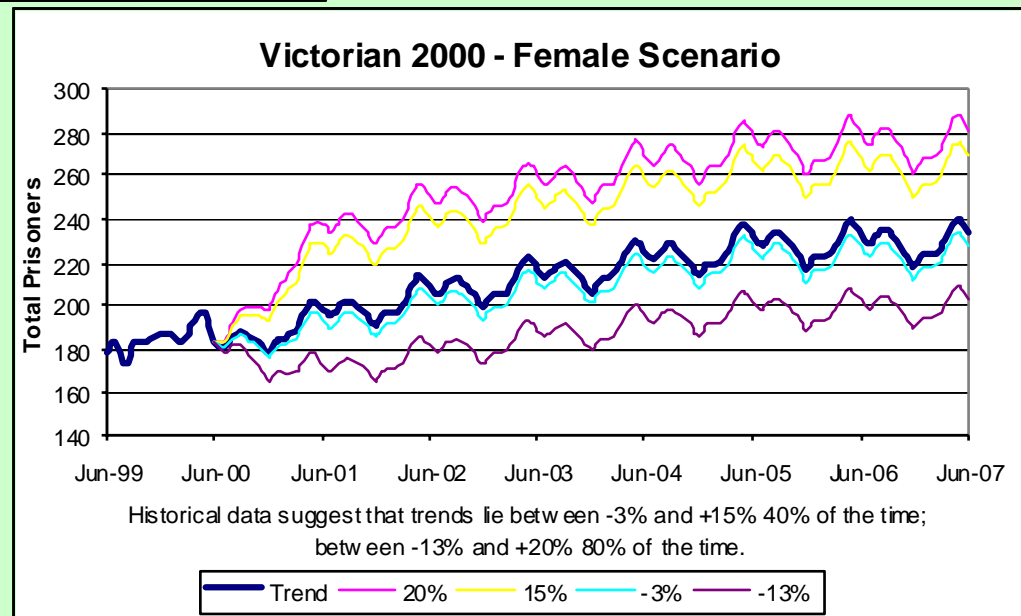
**Males** N.B. Yellow cells in this block should be blank or zero for the 'Base' run.

Age	Homicide	Assaults	Sex Offs.	Robbery	Burglary	Fraud	Other Proj	Good Ord	Minor Dru	Major Dru	Driving
10	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0
17	0	0	2	0	2	0	0	4	2	2	0
18	0	0	2	0	2	0	0	4	2	2	0
19	0	0	2	0	2	0	0	4	2	2	0
20	0	0	2	0	2	0	0	4	2	2	0
21-24	0	0	2	0	2	0	0	4	2	2	0
25-29	0	0	2	0	2	0	0	4	2	2	0
30-39	0	0	2	0	2	0	0	4	2	2	0
40-49	0	0	2	0	2	0	0	4	2	2	0
50-59	0	0	2	0	2	0	0	4	2	2	0
60+	0	0	2	0	2	0	0	4	2	2	0

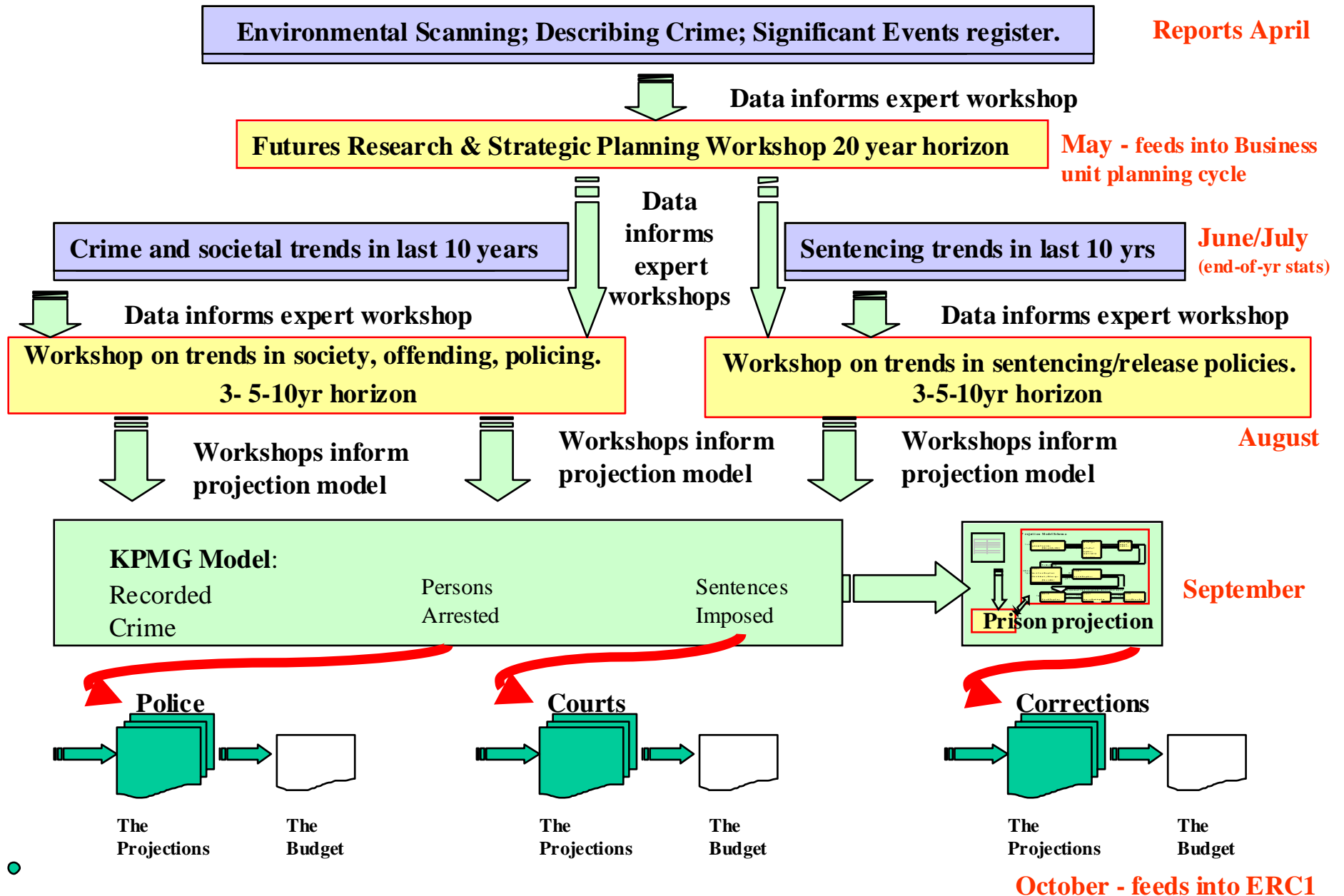


## Scenario next five years

**Total Male and Total Female  
Prisoners with variance limits**



# Extending this approach across the Victorian CJS





# Model Inputs & Outputs

## Model Data Requirements

	Offences Recorded	Crimes Cleared	Charges Laid	Offenders Processed	Outcomes from Processing Offenders	Magistrates' Court - Charges Finalised	Magistrates' Court - Charges Proven	Magistrates' Court - Principal Proven Charge Count	Magistrates' Court - Principal Summary Charge Outcomes	Children's Court - Outcomes with Legal Aid	Children's Court - Most Serious Offence Count	Children's Court - Most Serious Offence Outcomes	Higher Courts - Most Serious Finalised	Higher Courts - Charges Charge Count	Higher Courts - Principal Proven Charge Outcomes	Total Criminal Justice Outcomes (Not including Children's Court)
Homicide																
Rape																
Sex (Non-rape)																
Robbery																
Assault																
Abduction / Kidnapping																
<b>Crimes against the person</b>																
Arson																
Property Damage																
Burglary (agg)																
Burglary (agg / res)																
Burglary (oth)																
Deception																
Handle stolen goods																
Theft from motor vehicle																
Theft (shopsteal)																
Theft of motor vehicle																
Theft of bicycle																
Theft (other)																
<b>Crimes against property</b>																
Drug (cult, manuf, traffick)																
Drug (possess, usage)																
<b>Drug crimes</b>																
Going equipped to steal																
Justice procedures																
Regulated public order																
Weapons / explosives																
Harassment																
Behaviour in public																
Other																
<b>Other crime</b>																
<b>Total crime</b>																

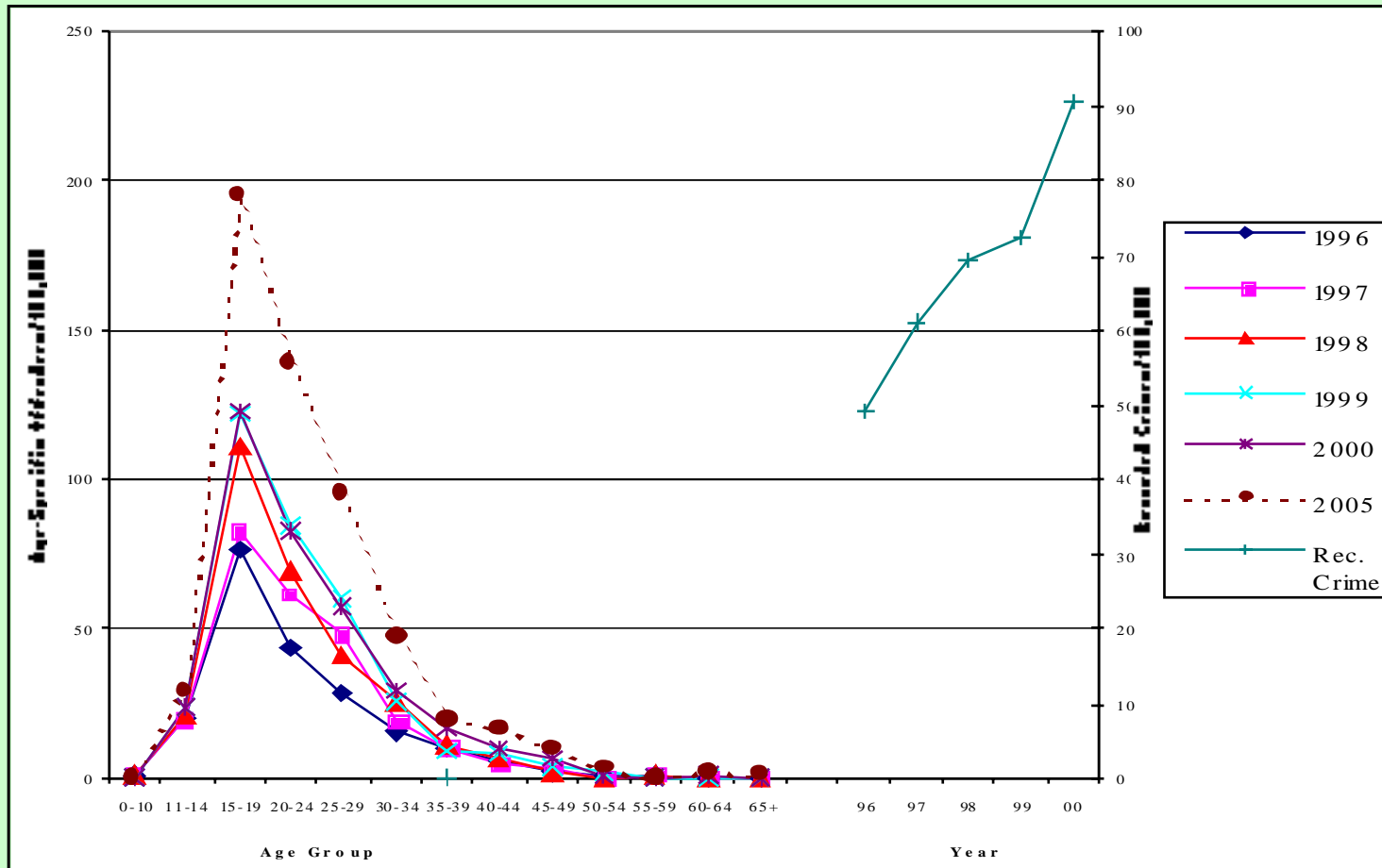
Input Numbers
Input Ratios
Outputs

Demographic Projections

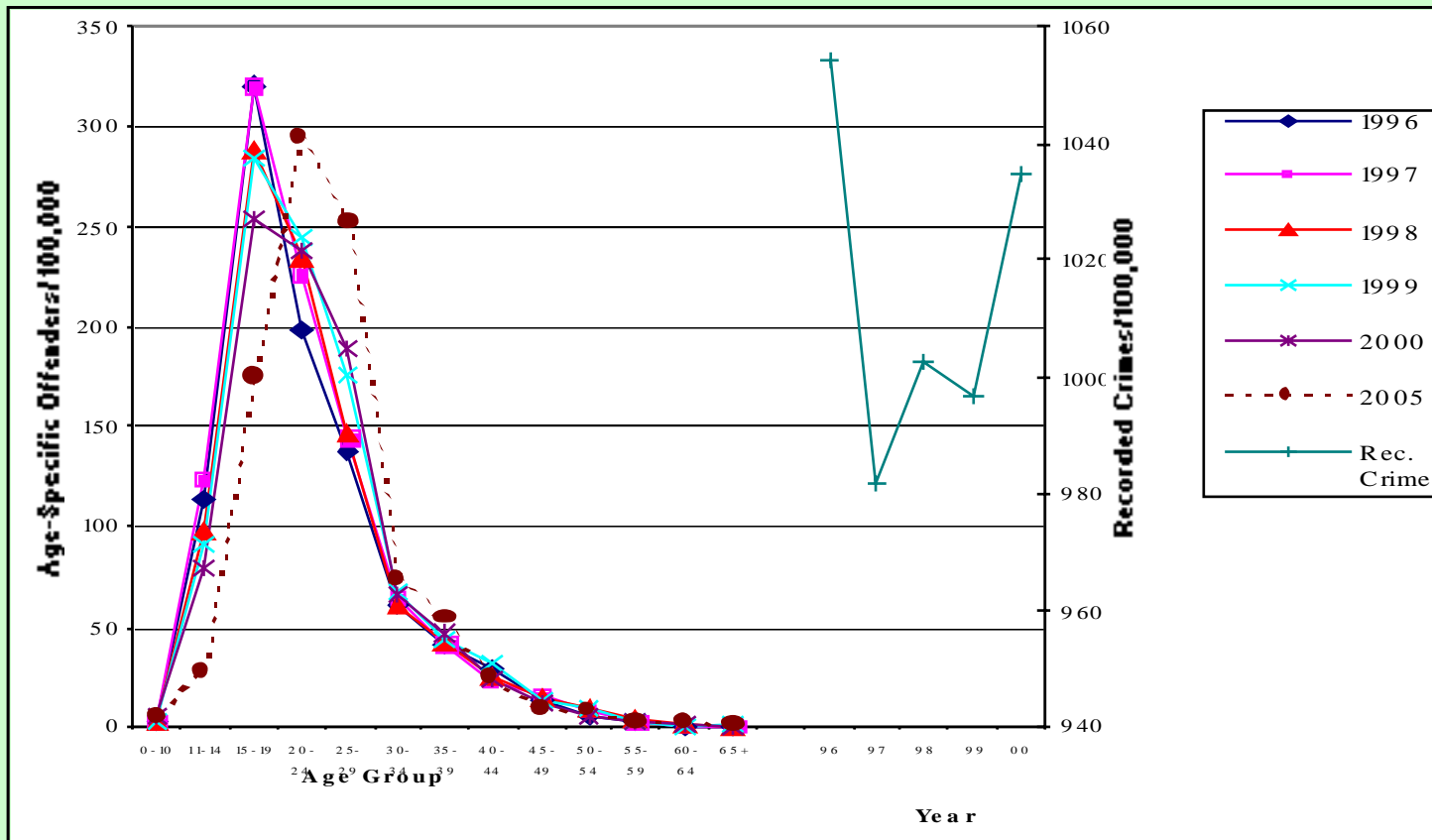
Age-Specific Arrest Rates

Reporting Rates

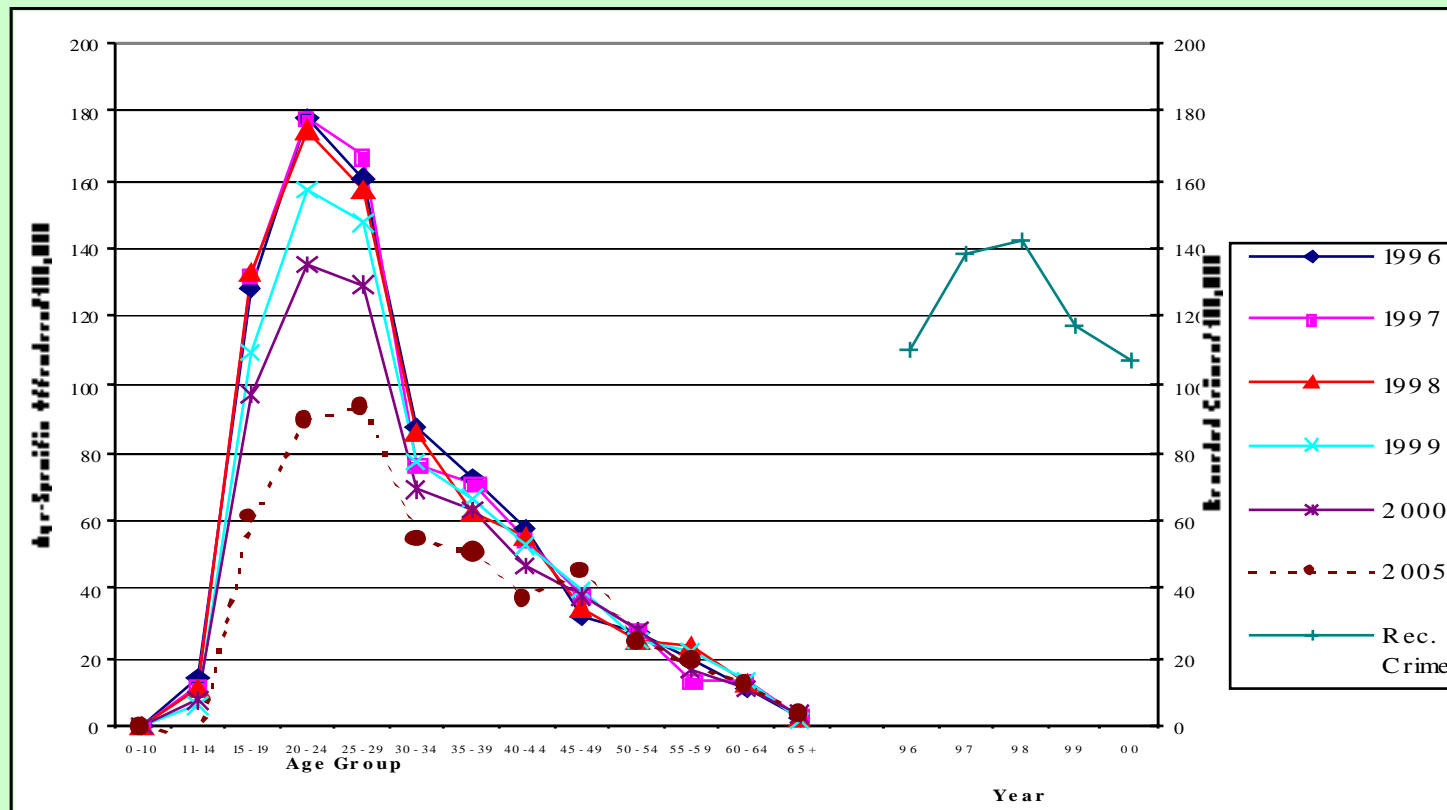
# Robbery: age distribution of arrests: 1996-2000, projected to 2005



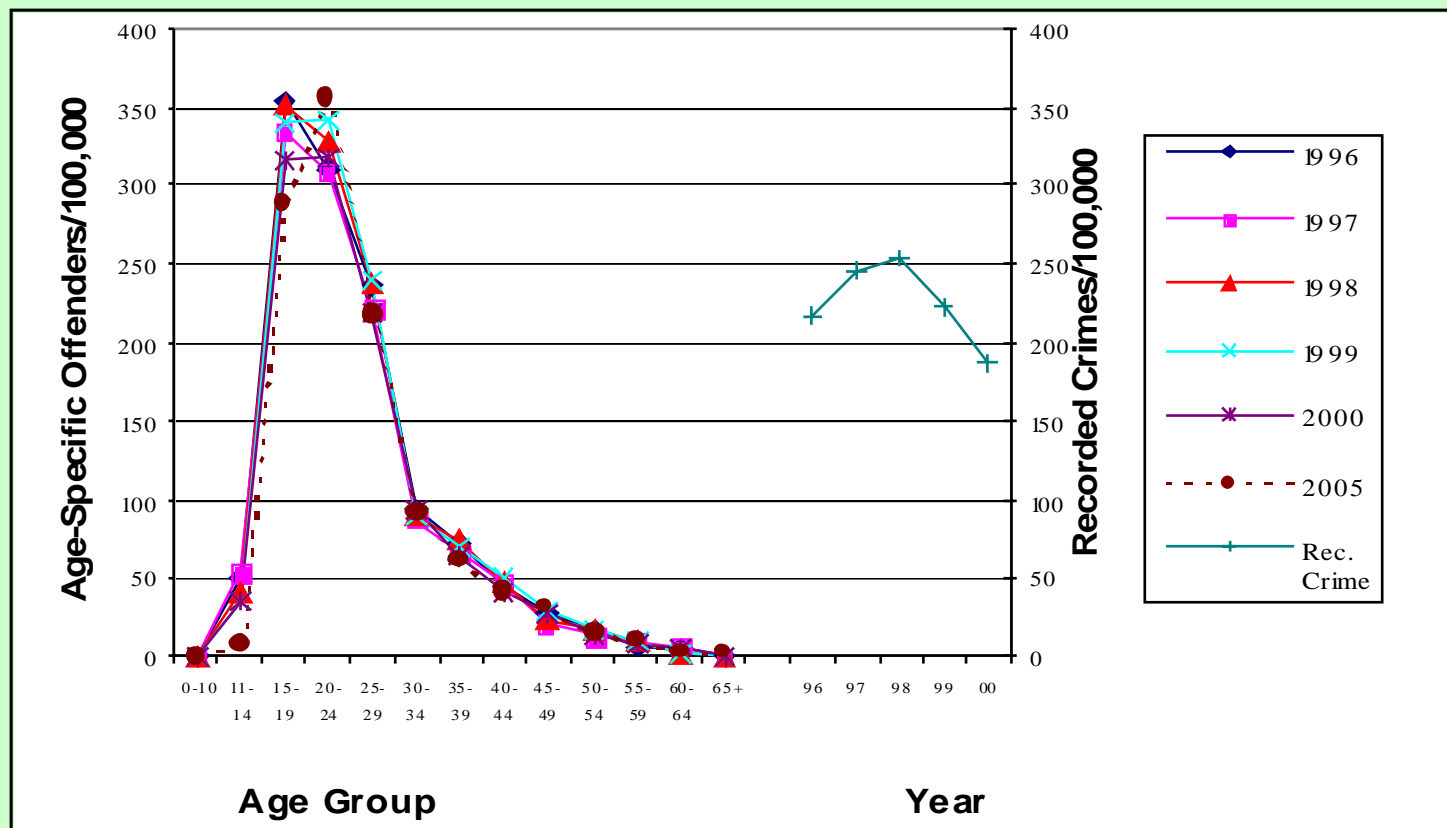
# Residential burglary: age distribution of arrests: 1996-2000 , projected to 2005



# Major Drug Offences: age distribution of arrests: 1996-2000, projected to 2005



# Minor Drug Offences: age distribution of arrests : 1996-2000, projected to 2005



# Capable of Modelling Complex Scenarios

- **1. “Generation Shift”**
  - in line with the expectations of the futures research, trends revealed in the crime statistics, likely changes in police resource allocation and possible results from diversionary treatments for drug offenders:
    - Robbery rates increase over next 5yrs
    - Burglary rates decrease for under 20yo’s, increase for 20+yo/s
    - Drug offence arrests decrease
- **2. Policy Response Testing**
  - test the effects of South Australian style regulatory enforcement of recreational drug usage commencing in 2004:
    - Arrests for drug possession to decrease by 90% after 2003
    - Outcomes for remaining drug possession charges mainly fines
    - Arrests for drug trafficking etc to decrease by 40% after 2003
    - Outcomes for remaining trafficking charges mainly CBO/fines

# Entering Crime Trend Scenarios into the model

- Model works on rates of recorded crime. Rates can be linked to reporting rates or to age-specific arrest rates.
- Demographic projections are built-in, so changes in crime levels that are demography-related are automatic.

## Five Methods used to project rates of recorded crime, by type of offence:

- 1. Regression model, where “driver variable(s)” are known and reliable for the specific offence type: - autoregressions; key age groups.
- 2. Correlation model, where crime rates correlate with total population.
- 3. Time series trendline extrapolation, where driver variables are uncertain but trendline appears reliable for the specific offence type
- 4. Age-specific arrest-rate adjustment, where age-related scenarios are involved
- 5. If all else fails, “User-defined” rates (pluck trends in crime rates out of the air).

# Choosing your trend model

## Crime Forecasting Controls

Demographic Source:

Type "ABS" or "DOI" to choose which population projections to use.

Demographic Projection:

Type "High", "Medium", or "Low" to choose which projection to use.

### Preferred forecasting method:

Homicide:	Regression
Rape:	Regression
Sex (Non-rape):	Correlation
Robbery:	Correlation
Assault:	Correlation
Abduction / Kidnapping:	Correlation

Type "Regression", "Correlation", "Trend", or "User defined" to choose a forecasting method.

Arson	Correlation
Property Damage	Correlation
Burglary (agg)	Correlation
Burglary (res)	Regression
Burglary (oth)	Regression
Deception	Correlation
Handle stolen goods	Correlation
Theft from motor vehicle	Correlation
Theft (shopsteal)	Regression
Theft of motor vehicle	Regression
Theft of bicycle	Correlation
Theft (other)	Correlation

Drug (cult, manuf, traffick)	Correlation
Drug (possess, usage)	Correlation

Going equipped to steal	Correlation
Justice procedures	Correlation
Regulated public order	Correlation
Weapons / explosives	Correlation
Harassment	Correlation
Behaviour in public	Correlation
Other	Correlation

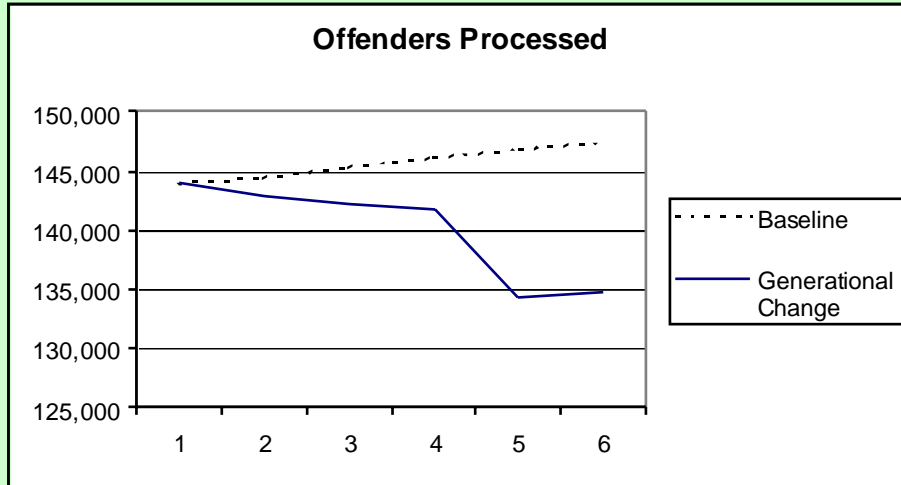




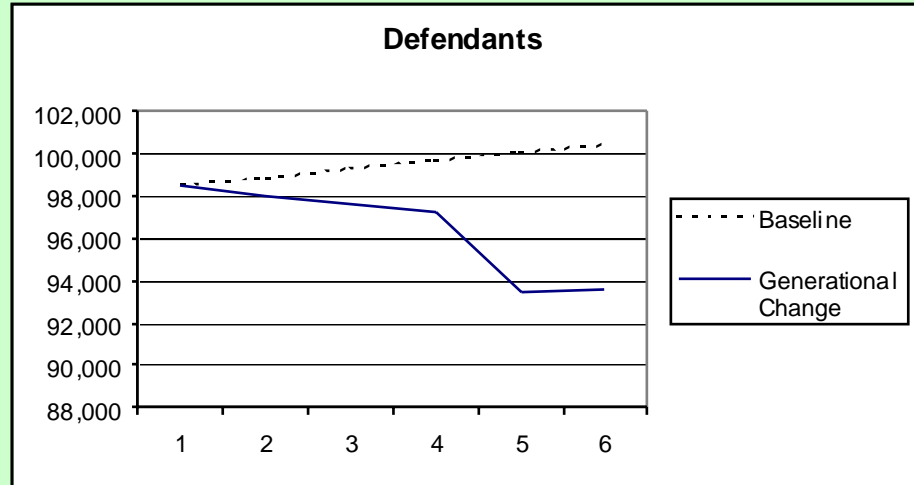


# Model Outputs

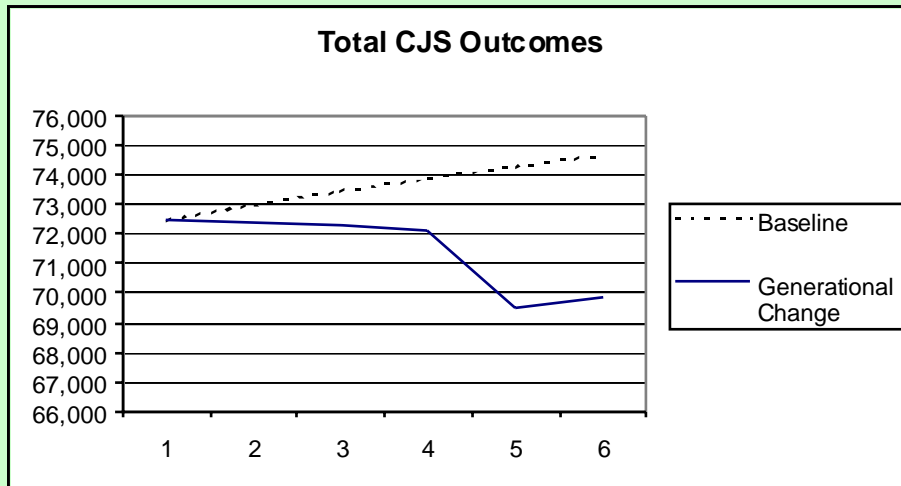
### Offenders Processed



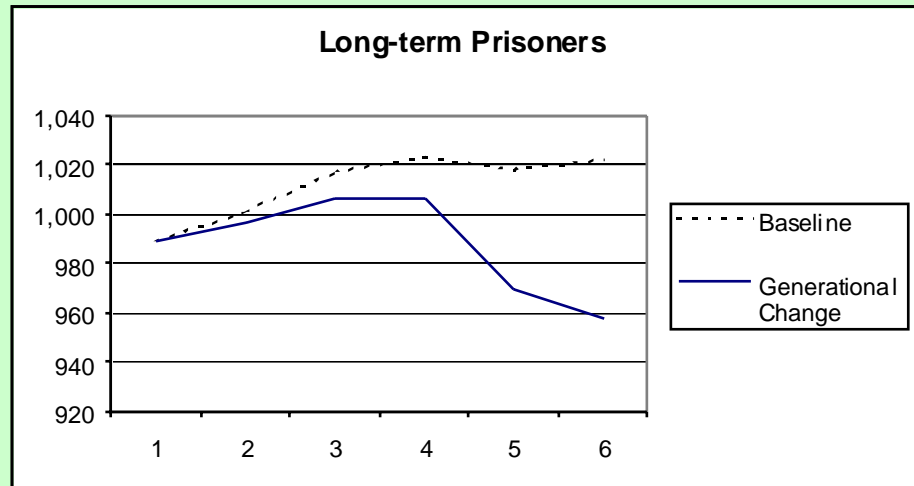
### Defendants



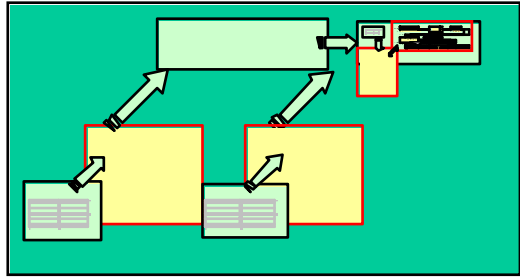
### Total CJS Outcomes



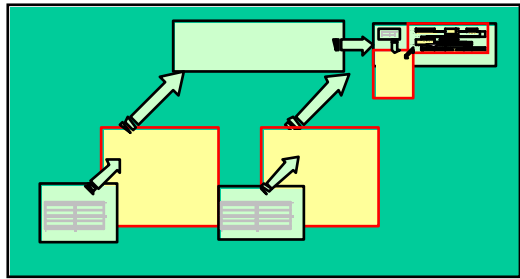
### Long-term Prisoners



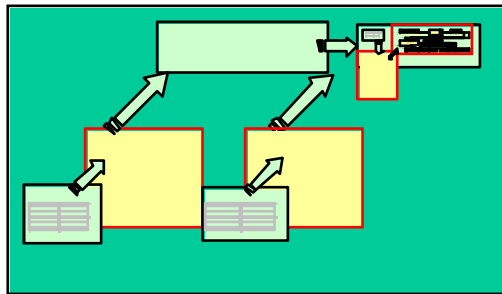
# Potential for Evidence-based planning throughout 'Joined-up' Government



**Juvenile Justice Model**

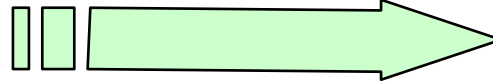


**Health Model**



**Infrastructure Model**

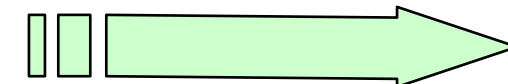
**+ Other relevant organisations**



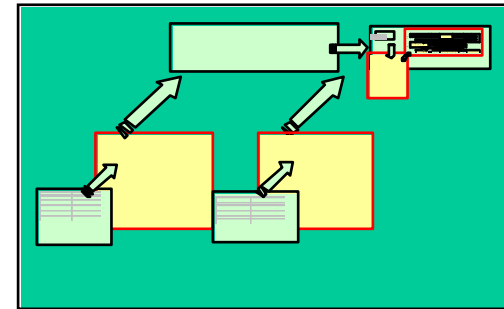
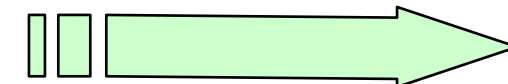
**JJ Model informs offending and sentencing components of CJS model**



**Health Model informs drugs and other components of CJS model**

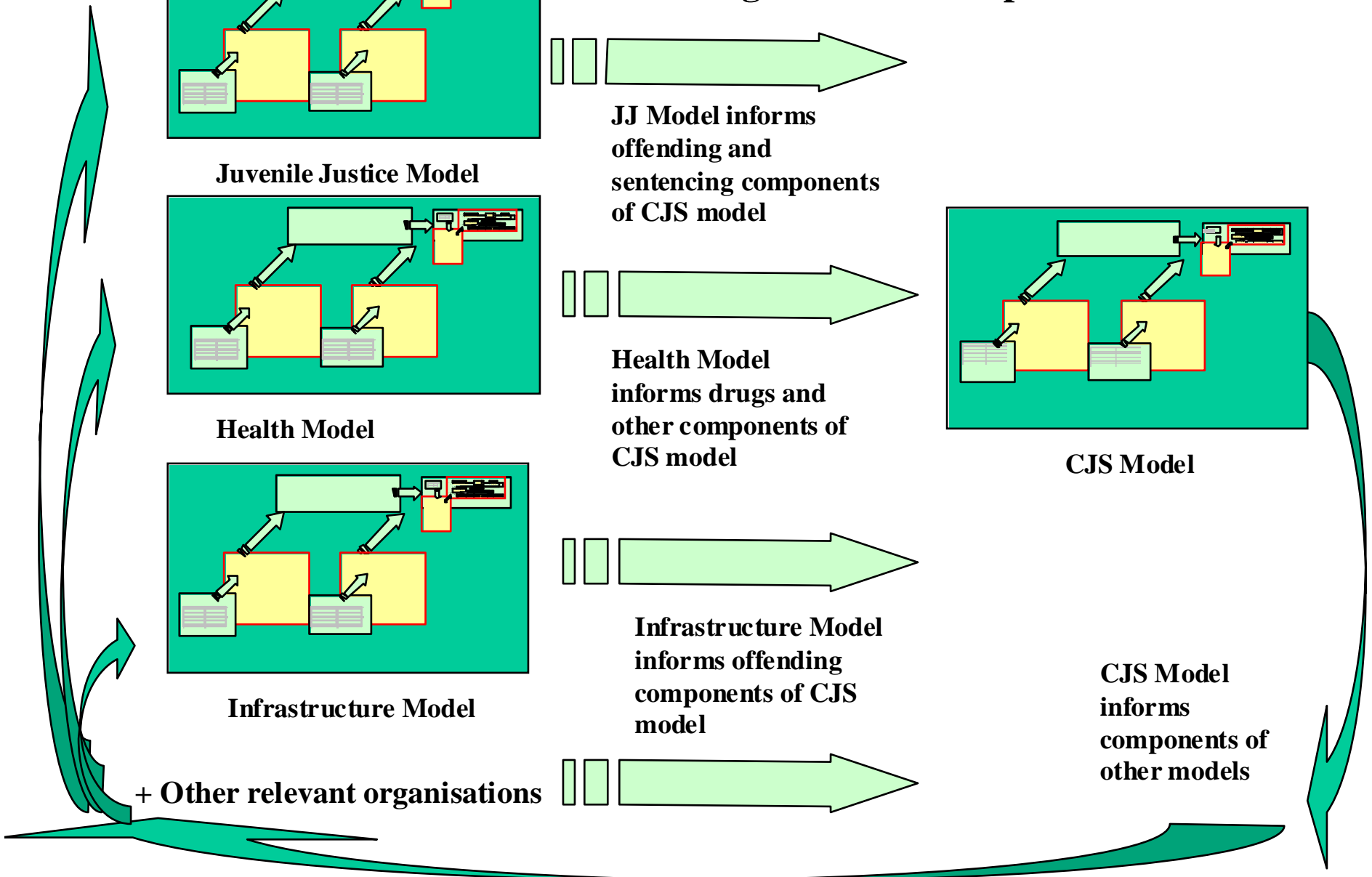


**Infrastructure Model informs offending components of CJS model**



**CJS Model**

**CJS Model informs components of other models**



# Victorian Juvenile Justice Model

Enter data in yellow cells only.

Base Year (format xxxx-xx)

1998-99

Past Data	1. Violence	2. Robbery	3. Property	4. G.O.	5. Drugs	6. Driving	Grand Total	/365
<b>1998-99</b>	Receptions	43	48	113	7	66	12	289
	Ave TTS	145.26	237.13	128.08	149.86	125.59	114.33	148.13
	Total TTS	6246.00	11382.00	14473.00	1049.00	8289.00	1372.00	42811.00 <b>117.2904</b>
<b>1999-00</b>	Receptions	58	46	134	12	62	5	317
	Ave TTS	157.44	181.52	107.35	65.83	105.27	95.00	125.11
	Total TTS	9131.44	8350.00	14385.00	790.00	6527.00	475.00	39658.44 <b>108.65</b>
<b>2000-1</b>	Receptions	53	38	160	8	43	8	310
	Ave TTS	135.02	174.94	115.34	85.41	119.75	87.75	125.14
	Total TTS	7156.06	6647.68	18453.66	683.28	5149.34	702.00	38792.02 <b>109.2795</b>
Scenario Specifications	1. Violence	2. Robbery	3. Property	4. G.O.	5. Drugs	6. Driving	Population Growth Rate	
Scenario 1	Receptions	0	0	0	0	0	0.50%	p.a.
	Ave TTS	-20%	0	0	0	10%	0	
Scenario 2	Receptions	5%	0	0	0	25%	0.50%	p.a.
	Ave TTS	0	0	0	0	10%	0	
Scenario 3	Receptions	10%	0	0	0	50%	0.50%	p.a.
	Ave TTS	10%	0	0	0	10%	0	

## Instructions:

1. Enter Base Year and number of receptions and average time for each offence type and for each of the three years. The formulae calculate Grand Totals and then the average days received per day. This column headed "/365") is a 1/365 of the average occupancy.

2. Next, enter the scenarios percentage change from the base year's reception numbers and average time to serve. Also enter the population growth rate as a percentage of the population aged 17-20.

3. Read off the projected figures from the table below (in blue) for the years.

## Projections

Scenario	Year	1. Violence	2. Robbery	3. Property	4. G.O.	5. Drugs	6. Driving	Grand Total	/365	2002-3	2003-4	2004-5
Scenario 1	2001-2	53.00	38.00	160.00	8.00	43.00	8.00	310.00				
		108.02	174.94	115.34	85.41	131.73	87.75	122.18				
		5724.85	6647.68	18453.66	683.28	5664.28	702.00	37875.74	109.77	113.29	113.81	114.33
Scenario 2	2001-2	55.65	38.00	160.00	8.00	53.75	8.00	323.4				
		135.02	174.94	115.34	85.41	131.73	87.75	127.03				
		7513.86	6647.68	18453.66	683.28	7080.35	702.00	41080.83	118.55	122.11	122.68	123.25
Scenario 3	2001-2	58.30	38.00	160.00	8.00	64.50	8.00	336.8				
		148.52	174.94	115.34	85.41	131.73	87.75	129.58				
		8658.83	6647.68	18453.66	683.28	8496.42	702.00	43641.87	125.57	129.16	129.77	130.37

Long term offenders					
2000-1	2001-2	2002-3	2003-4	2004-5	2005-6
3	6	9	9	9	9

And finally.....

