Summary of Historical Adjustments to Crime Data for Ontario, 1977-2000

Introduction

The crime statistics collected directly from police forces across the country are subject to editing and revision each year. During the revision of the 2001 data for the province of Ontario, a discrepancy in methodology applied by the forces in the province using the Ontario Municipal & Provincial Police Automated Co-operative (OMPPAC) system was detected. These forces report approximately one-third of the total criminal incidents for the province and include the OPP and about 60 small and mid-sized municipal forces (see Table 1 for list of affected OMPPAC police services).

It was determined that, until their switch from the aggregate UCR1 survey to the UCR2 survey, most OMPPAC police services were not following the "most serious offence" (MSO) rule. The MSO rule states that when more than one violation has taken place in the same incident, only the "most serious" violation should be counted. As a result, these police services were sending to the UCR1 all offences that took place in an incident, not just the most serious one as required. This discrepancy resulted in an over-count of less serious criminal incidents. A similar problem with data from Toronto Police was detected in 1991.

During 2003 and 2004, Canadian Centre for Justice Statistics (CCJS) staff consulted with affected police services and analyzed both historical aggregate UCR1 data and more recent UCR2 microdata to determine the impact of this over-reporting. This report describes the outcome of this analysis for historical Ontario data.

Determination of offences to be adjusted and magnitude of adjustment

As police services generally do not maintain detailed historical data, it was not feasible to ask the affected police services to re-submit their historical UCR1 data using the correct MSO rule. As such, the only option to correct for the over-counting is a statistical adjustment.

Since all affected police services are now submitting microdata (UCR2), it was possible to estimate which violations were being over-counted by not using the MSO rule, and by how much. To estimate how often a violation may have been over-counted with UCR1 data, it is necessary to look at the frequency with which each violation is listed as a secondary violation in an incident. By applying the resulting estimates of over-counting, the data of the affected police services can be adjusted to better reflect what the data would have looked like if the MSO rule had been followed historically.

The police services were split into three groups that had similar violation distributions: Toronto, the OPP and OMPPAC municipal forces. Since these three groups have slightly different distributions from each other, separate adjustment factors were created for each

group. These adjustment factors were then applied to most offences for every affected police service in the grouping.

The adjustment is applied to each year during which the MSO problem existed. For Toronto, the years 1977 to 1991 were adjusted; for the OMPPAC police services (including OPP), the years to be adjusted ranged from 1987 to 2000. There were a handful of OMPPAC police services who reported that they had in fact been using the MSO rule during the affected years, and thus were not over-counting.

The adjustment factors varied by offence type, with minor offences being more susceptible to over-reporting. For example, homicide requires no adjustment since it is, by definition, the most serious offence possible in an incident and was, consequently, never over-reported. In contrast, the offence of "having stolen goods" has an adjustment factor between 0.650 and 0.698, depending on the police service. This implies that, for the counts published for this offence for the affected Ontario police services, 30-35% of the incidents should not have been sent to the UCR1 during the specified years.

A list of adjustment factors by offence type for each of the three police services groups is presented in Table 2.

Results of the Adjustment for Ontario and Canada

The effect at the Canada level was, on average, 1% per year from 1977 to 2000 (Table 3). This over-counting peaked in 1991, where it was estimated that the total crime rate for the country was overestimated by approximately 1.8%. However, the overall trend changed very little.

The impact in Ontario is more noticeable, but the overall trend is still very similar (Table 4). On average, the effect of the over-counting was 2-3% per year, with the biggest change occurring in 1991, where the Ontario crime rate is 5.1% lower as a result of the adjustment.

When examining the impact at the offence level, however, the differences are more profound. For certain offences, it is apparent that the spike seen in 1991 was, at least, partially due to both Toronto and the OMPPAC police services over-counting the less serious offences in the same year. For example, the offence, "having stolen goods" was over-counted on average by 14% per year for Ontario, with a peak of 22% in 1991.

There were several other offences that were significantly affected by the over-counting, including other sexual offences (on average, 23% per year at the Ontario level), assault (11%), other offensive weapons (19%) and other Criminal Code offences (8%). In the end, the adjustment represents a reduction of about 23,000 incidents per year over the 24-year period from 1977-2000.

Conclusion

This report presents the results of a methodological study on the over-reporting of a sub-set of UCR offences by certain police services in Ontario over various years between 1977 and 2000.

For the OPP, while it was possible to estimate the impact of the over-counting as a whole, it was not feasible to go back in time and make these adjustments at the individual detachment level. It was not possible to know for sure if each and every detachment was scoring improperly, nor was it possible to determine the exact year when the scoring problem originated for each detachment. Further, the OPP was not in favour of attempting to revise their historical records without this precise knowledge.

For the non-OPP OMPPAC respondents and Toronto, it was not possible for these individual police services to validate the historically-adjusted figures or for Statistics Canada to be confident in the accuracy of the adjustments at small geographic levels.

As such, users should refer to the tables in this document when doing any time-series analysis for Ontario between 1977 and 2000 to determine the impact on specific offences in specific years.

Table 1 – List of Ontario police services affected by historical adjustments

Toronto

OMPPAC Police Services:

OPP Detachments	Hawkesbury	Sarnia
Amherstburg	Ingersoll	Sault Ste. Marie
Atikokan	Kenora	Shelburne
Aylmer	Kingsville	Smiths Falls
Barrie	Lakefield	South Bruce-Grey
Brockville	Leamington	St. Clair Beach
Carleton Place	Listowel	St. Thomas
Chatham	Mersea Twp.	Strathroy
Chatham Kent	Michipicoten	Sturgeon Falls
Cobourg	Midland	Sudbury
Colchester South	North Bay	Terrace Bay
Collingwood	Norwich Twp.	Thunder Bay
Cornwall	Orangeville	Tilbury
Dryden	Owen Sound	Timmins
Elliot Lake	Oxford Community	Toronto
Espanola	Palmerston	Trenton
Essex	Pembroke	Walkerton
Gloucester	Perth	Wallaceburg
Haldimand-Norfolk	Peterborough	Wikwemikong
Hanover	Port Hope	Wingham
Harriston	Renfrew	Woodstock

Table 2 – Adjustment Factors

Description of Offence	Adjustment Factors[1]			
	OPP	OMPPAC[2]	Toronto	All
Murder, First degree	100.0%	100.0%	100.0%	100.0%
Murder, Second degree	100.0%	100.0%	100.0%	100.0%
Manslaughter	100.0%	100.0%	100.0%	100.0%
Attempted Murder	100.0%	95.5%	93.9%	95.6%
Sexual Assault	97.6%	97.0%	96.2%	97.0%
Sexual Assault with Weapon	92.1%	93.1%	69.8%	83.6%
Aggravated Sexual Assault	93.3%	75.0%	100.0%	88.0%
Sexual Offence: Rape (1977-1982 only)	87.6%	87.6%	87.6%	87.6%
Sexual Offence: Indecent Assault - f (1977-1982 only)	87.6%	87.6%	87.6%	87.6%
Sexual Offence: Indecent Assault - m (1977-1982 only)	87.6%	87.6%	87.6%	87.6%
Other Sexual Offences (1977-1982 only)	87.6%	87.6%	87.6%	87.6%
Assault Level (1)	94.1%	93.5%	89.3%	91.9%
Assault with Weapon or Causing Bodily Harm Level (2)	92.8%	92.4%	93.5%	93.1%
Aggravated Assault Level (3)	90.1%	89.0%	89.3%	89.4%
Assault: Unlawfully Causing Bodily Harm	75.6%	54.3%	100.0%	66.0%
Assault: Discharge Firearm with Intent	91.7%	100.0%	84.1%	85.7%
Assault: Police	69.0%	74.6%	71.7%	71.7%
Assault: Other Peace-Public Officers	69.0%	74.6%	71.7%	71.7%
Other Assaults	45.4%	39.7%	34.9%	38.5%
Other Sexual Offences	33.1%	25.7%	31.1%	30.3%
Assault: Wounding (1977-1982 only)	88.3%	88.3%	88.3%	88.3%
Assault: Bodily Harm (1977-1982 only)	88.3%	88.3%	88.3%	88.3%
Assault: Police (1977-1982 only)	88.3%	88.3%	88.3%	88.3%
Assault: Other peace - public officers (1977-1982 only)	88.3%	88.3%	88.3%	88.3%
Other assaults (1977-1982 only)	88.3%	88.3%	88.3%	88.3%
Abduction of person under 14	100.0%	100.0%	77.8%	95.9%
Abduction of person under 16	80.0%	100.0%	96.3%	94.7%
Abduction: Contravening Custody Order	100.0%	100.0%	100.0%	100.0%
Adduction: No Custody Order	80.0%	100.0%	85.7%	87.0%
Robbery: Firearms	97.2%	98.6%	98.5%	98.5%
Robbery: Other offensive weapons	97.2%	98.6%	98.5%	98.5%
Other Robbery	97.2%	98.6%	98.5%	98.5%
Breaking And Entering: Business premises	98.2%	97.9%	98.5%	98.2%
Breaking And Entering: Residence	98.2%	97.9%	98.5%	98.2%
Other Break and Enter	98.2%	97.9%	98.5%	98.2%
Theft: Automobiles	96.3%	97.6%	98.2%	97.7%
Theft: Trucks	96.3%	97.6%	98.2%	97.7%
Theft: Motorcycles	96.3%	97.6%	98.2%	97.7%
Theft: Other Motor Vehicles	96.3%	97.6%	98.2%	97.7%
Theft Over: Bicycles	85.5%	94.7%	94.1%	91.8%
Theft Over: From motor vehicles	85.5%	94.7%	94.1%	91.8%
Theft Over: Shoplifting	85.5%	94.7%	94.1%	91.8%
Other thefts over $5,000	85.5%	94.7%	94.1%	91.8%
Theft Under: Bicycles	92.6%	95.8%	95.0%	94.6%
Theft Under: From motor vehicles	92.6%	95.8%	95.0%	94.6%
Theft Under: Shoplifting	92.6%	95.8%	95.0%	94.6%
Other thefts $5,000 and under	92.6%	95.8%	95.0%	94.6%
Having Stolen Goods	69.2%	65.0%	69.8%	68.4%
Fraud: Cheques	97.9%	98.0%	98.1%	98.0%
Fraud: Credit Cards	97.9%	98.0%	98.1%	98.0%
Other frauds	97.9%	98.0%	98.1%	98.0%
Prostitution: Bawdy House	100.0%	100.0%	72.7%	75.0%
Prostitution: Procuring	50.0%	35.3%	83.3%	63.2%
Other prostitution	89.5%	88.9%	95.9%	95.5%
Betting house	100.0%	100.0%	100.0%	100.0%

[1] Note: A factor of 100% means no adjustment took place. Similarly, an adjustment factor of 90% means the figure was reduced by 10%. For example, a count of 50 would be adjusted to 45 using a 90% adjustment factor.
[2] OMPPAC here refers to all OMPPAC Police Services excluding the OPP.

	Adjustment Factors			
Description of Offence	OPP	OMPPAC[2]	Toronto	All
Gaming house	100.0%	100.0%	100.0%	100.0%
Other gaming and betting offences	97.7%	100.0%	93.3%	97.5%
Explosives / Firearm Usage	51.5%	28.2%	32.7%	34.0%
Prohibited Weapons / Weapons Possession	66.6%	49.6%	42.2%	54.1%
Restricted Weapons / Trafficking, Import/Export	79.2%	100.0%	88.6%	85.2%
Other offensive weapons	70.6%	73.5%	32.0%	51.7%
Arson	92.0%	96.3%	98.2%	95.4%
Bail Violations	76.8%	81.0%	91.7%	84.7%
Counterfeiting currency	100.0%	99.9%	93.3%	99.8%
Disturb the peace	94.2%	95.0%	59.1%	93.5%
Escape custody	66.4%	30.5%	78.9%	70.0%
Indecent Acts	88.9%	92.7%	91.7%	91.0%
Kidnapping	93.9%	96.6%	99.6%	97.2%
Public Morals	97.1%	86.5%	83.3%	94.4%
Obstruct public peace officer	36.5%	32.9%	46.7%	41.3%
Prisoner unlawfully at large	92.5%	97.1%	95.0%	95.0%
Trespass at night	82.0%	55.8%	58.0%	71.8%
Mischief over (property damage)	91.4%	94.0%	93.6%	92.8%
Mischief under (property damage)	91.4%	94.0%	93.6%	92.8%
Other Criminal Code Offences	71.0%	66.4%	76.7%	72.1%
Heroin: Possession	69.2%	100.0%	56.0%	61.2%
Heroin: Trafficking	87.5%	100.0%	60.7%	67.6%
Cocaine: Possession	67.3%	62.4%	58.8%	60.6%
Cocaine: Trafficking	97.2%	96.1%	58.3%	69.2%
Cocaine: Importation / Production	100.0%	100.0%	100.0%	100.0%
Other Drugs: Possession	89.0%	86.1%	52.4%	80.5%
Other Drugs: Trafficking	93.5%	80.8%	39.5%	81.5%
Other Drugs: Importation / Production	90.9%	64.1%	15.7%	66.3%
Cannabis: Possession	81.6%	77.7%	64.0%	77.0%
Cannabis: Trafficking	88.4%	78.9%	57.6%	76.2%
Cannabis: Importation	45.5%	47.2%	21.7%	44.9%
Cannabis: Production	96.1%	93.7%	100.0%	95.9%
Restricted Drugs: Possession	100.0%	100.0%	100.0%	100.0%
Bankruptcy Act	100.0%	100.0%	100.0%	100.0%
Canada Shipping Act	100.0%	100.0%	100.0%	100.0%
Customs Act	100.0%	100.0%	100.0%	100.0%
Excise Act	100.0%	100.0%	100.0%	100.0%
Immigration Act	96.4%	100.0%	97.9%	97.8%
Juvenile Delinquents Act and the Firearms Act	74.6%	100.0%	75.0%	75.0%
Other Federal Statutes Act	39.3%	48.3%	77.4%	47.2%
Dangerous Operation of Motor Vehicle - Causing Death	100.0%	100.0%	100.0%	100.0%
Dangerous Operation of Boat, Vessel or Aircraft - Causing Death	100.0%	100.0%	100.0%	100.0%
Dangerous Operation of Motor Vehicle - Causing Bodily Harm	100.0%	100.0%	100.0%	100.0%
Dangerous Operation of Boat, Vessel or Aircraft - Causing Bodily Harm	100.0%	100.0%	100.0%	100.0%
Dangerous Operation of Motor Vehicle	100.0%	100.0%	100.0%	100.0%
Dangerous Operation of Boat, Vessel or Aircraft	100.0%	100.0%	100.0%	100.0%
Impaired Operation of Motor Vehicle - Causing Death	100.0%	100.0%	100.0%	100.0%
Impaired Operation of Boat, Vessel or Aircraft - Causing Death	100.0%	100.0%	100.0%	100.0%
Impaired Operation of Motor Vehicle - Causing Bodily Harm	100.0%	100.0%	100.0%	100.0%
Impaired Operation of Boat, Vessel or Aircraft - Causing Bodily Harm	100.0%	100.0%	100.0%	100.0%
Impaired Operation of Motor Vehicle or Over 80 mg	100.0%	100.0%	100.0%	100.0%
Impaired Operation of Boat, Vessel or Aircraft or Over 80 mg	100.0%	100.0%	100.0%	100.0%
Fail or Refuse to Provide Breath Sample	100.0%	100.0%	100.0%	100.0%
Fail or Refuse to Provide Blood Sample	100.0%	100.0%	100.0%	100.0%
Fail to Stop or Remain	100.0%	100.0%	100.0%	100.0%
Driving Motor Vehicle While Prohibited	100.0%	100.0%	100.0%	100.0%

[1] Note: A factor of 100% means no adjustment took place. Similarly, an adjustment factor of 90% means the figure was reduced by 10%. For example, a count of 50 would be adjusted to 45 using a 90% adjustment factor.

[2] OMPPAC here refers to all OMPPAC Police Services excluding the OPP.

Table 3 - Impacts of Adjustment

Number of Actuals, Before and After Adjustment, Canada

YEAR	OLD ACTUALS	NEW ACTUALS	DIFFERENCE	PERCENT CHANGE
1977	1,785,744	1,769,778	15,966	0.9%
1978	1,848,331	1,831,843	16,488	0.9%
1979	1,977,828	1,961,281	16,547	0.8%
1980	2,165,183	2,146,780	18,403	0.8%
1981	2,288,626	2,269,782	18,844	0.8%
1982	2,316,530	2,298,352	18,178	0.8%
1983	2,249,244	2,232,680	16,564	0.7%
1984	2,239,493	2,222,830	16,663	0.7%
1985	2,270,295	2,252,913	17,382	0.8%
1986	2,374,251	2,356,030	18,221	0.8%
1987	2,470,960	2,449,615	21,345	0.9%
1988	2,486,480	2,462,107	24,373	1.0%
1989	2,532,837	2,506,181	26,656	1.1%
1990	2,719,533	2,687,678	31,855	1.2%
1991	2,992,708	2,939,705	53,003	1.8%
1992	2,951,533	2,925,362	26,171	0.9%
1993	2,840,722	2,814,399	26,323	0.9%
1994	2,746,887	2,720,379	26,508	1.0%
1995	2,737,388	2,709,179	28,209	1.0%
1996	2,744,896	2,716,083	28,813	1.0%
1997	2,636,563	2,607,961	28,602	1.1%
1998	2,567,893	2,539,182	28,711	1.1%
1999	2,475,917	2,448,271	27,646	1.1%
2000	2,475,446	2,449,113	26,333	1.1%
2001	2,502,219	2,502,219	-	0.0%
2002	2,550,347	2,550,347	-	0.0%
2003	2,694,382	2,694,382	-	0.0%

Figure 1 – Crime Rate, Before and After Adjustment, Canada

Crime Rate Adjustment: Canada, 1977 - 2003

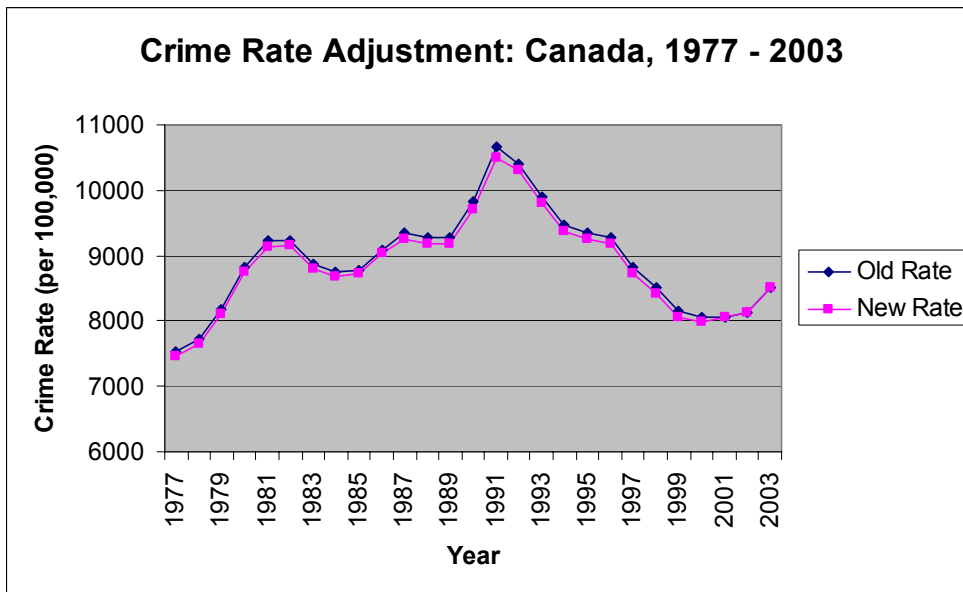Table 4 – Number of Actuals, Before and After Adjustment, Ontario

YEAR	OLD ACTUALS	NEW ACTUALS	DIFFERENCE	PERCENT CHANGE
1977	656,960	640,994	15,966	2.4%
1978	704,298	687,810	16,488	2.3%
1979	743,449	726,902	16,547	2.2%
1980	797,499	779,096	18,403	2.3%
1981	812,958	794,114	18,844	2.3%
1982	799,516	781,338	18,178	2.3%
1983	775,519	758,955	16,564	2.1%
1984	771,991	755,328	16,663	2.2%
1985	769,381	751,999	17,382	2.3%
1986	801,167	782,946	18,221	2.3%
1987	840,135	818,790	21,345	2.5%
1988	862,901	838,528	24,373	2.8%
1989	880,608	853,952	26,656	3.0%
1990	941,054	909,199	31,855	3.4%
1991	1,041,461	988,458	53,003	5.1%
1992	1,016,672	990,501	26,171	2.6%
1993	995,213	968,890	26,323	2.6%
1994	962,975	936,467	26,508	2.8%
1995	967,542	939,333	28,209	2.9%
1996	935,272	906,459	28,813	3.1%
1997	870,306	841,704	28,602	3.3%
1998	835,595	806,884	28,711	3.4%
1999	788,631	760,985	27,646	3.5%
2000	789,779	763,446	26,333	3.3%
2001	777,349	777,349	-	0.0%
2002	773,159	773,159	-	0.0%
2003	781,415	781,415	-	0.0%

Figure 2 - Crime Rate, Before and After Adjustment, Ontario
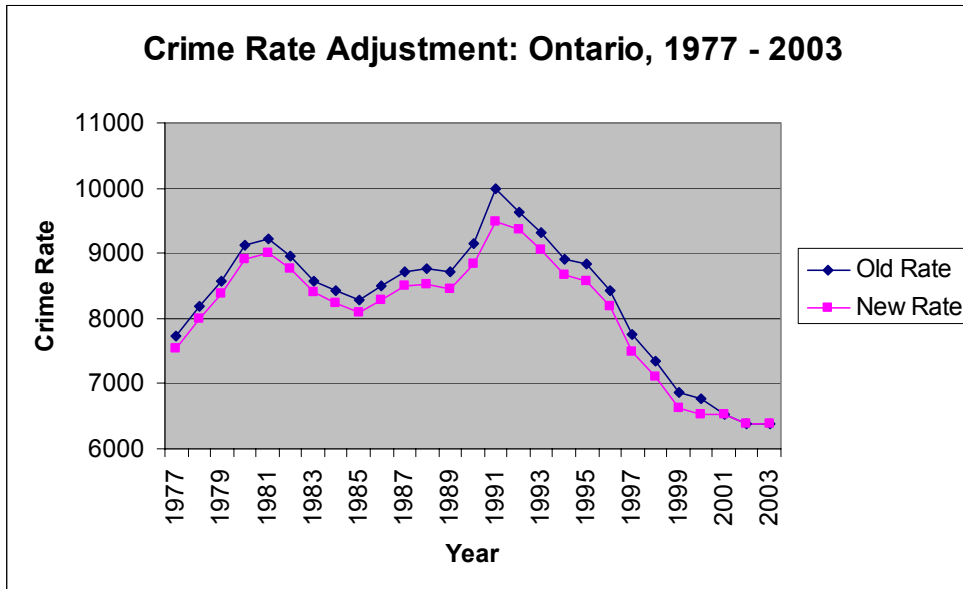
Results of Adjustment for Selected Offences

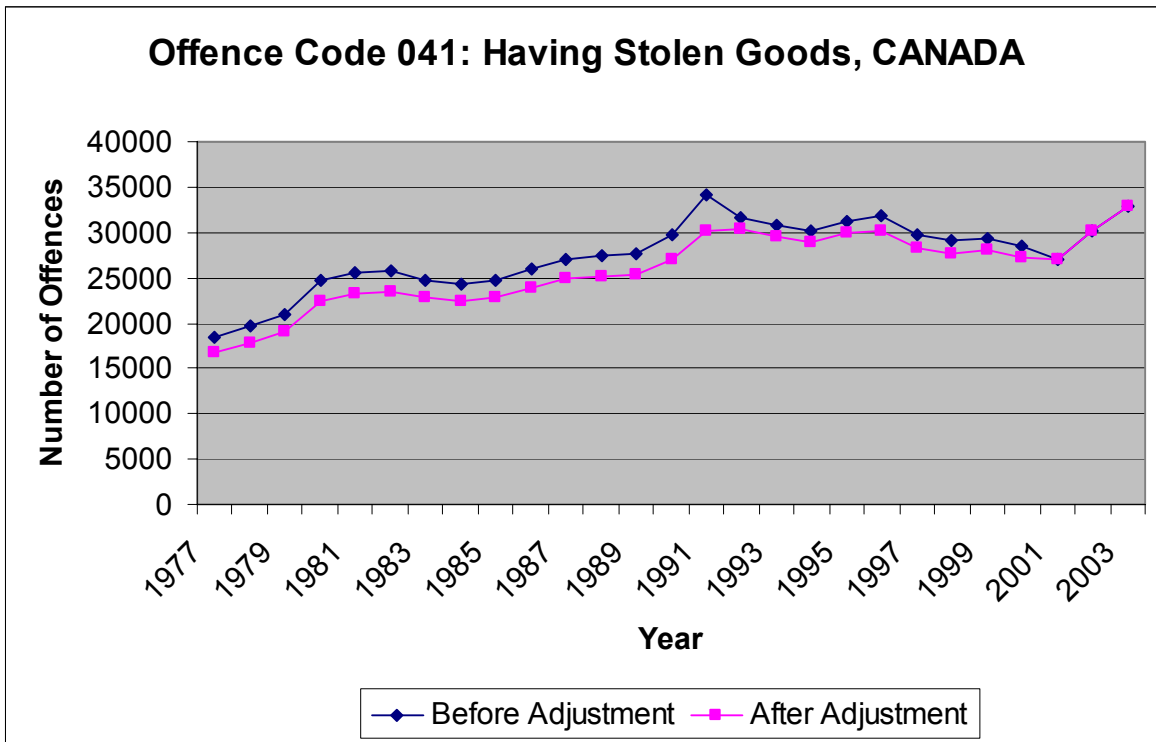Figure 3 – Results for "Having Stolen Goods", Canada

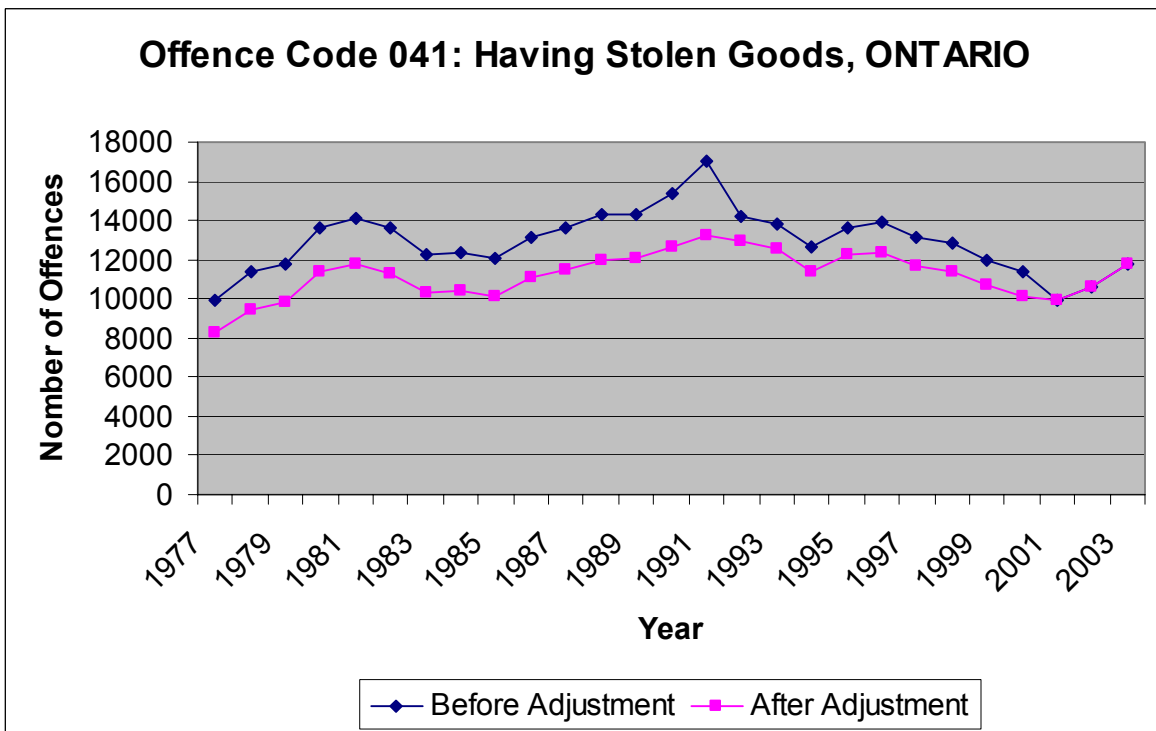Figure 4 – Results for "Having Stolen Goods", Ontario

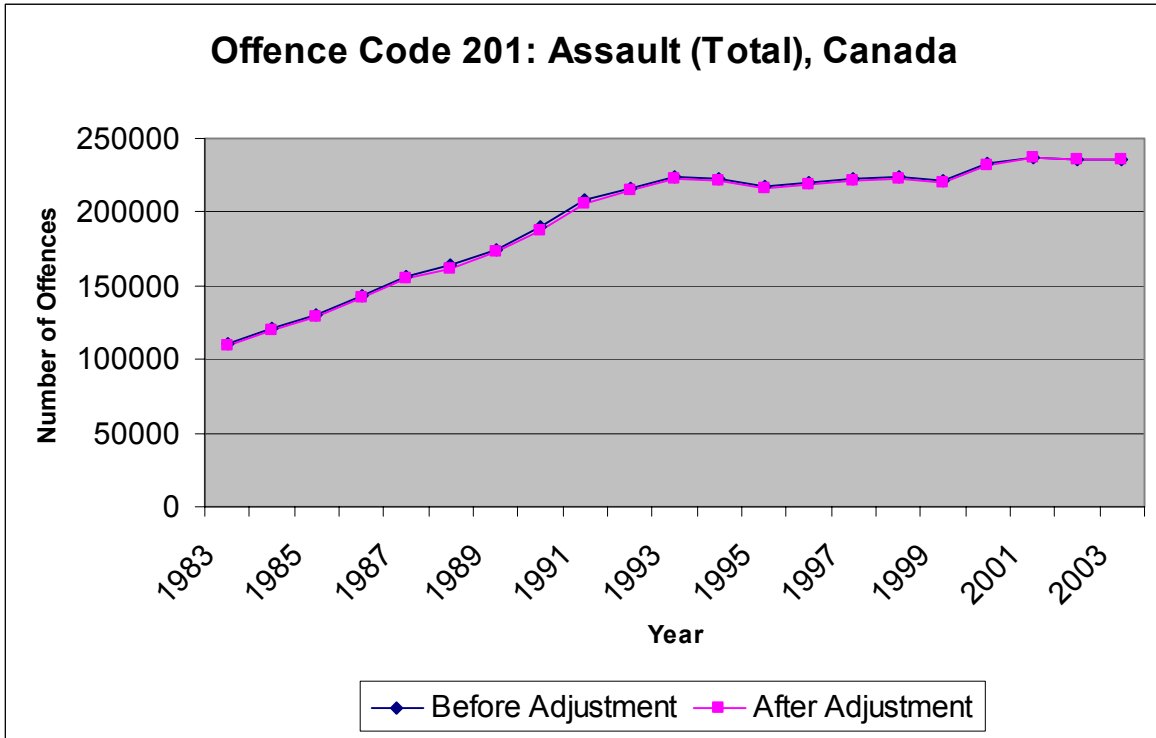Figure 5 – Results for Assault, Canada

Offence Code 201: Assault (Total), Canada

Figure 6 – Results for Assault, Ontario

Offence Code 201: Assault (Total), ONTARIO