

Lecture 1:

Why do we care about crime and further, why do economists care about crime? There are a number of reasons:

First, it is expensive: PB and I estimate that a lower bound is about \$20 billion or so per year and that double that is easily possible;

There is both a cost of the crimes themselves as evaluated by the victim;

There is the cost of trying to catch the criminal;

There is the cost of catching the criminal and prosecuting;

 Including the likelihood of convicting the wrong person;

 The prosecution, the defense and the punishment

 Court time

 Lawyer's time

 Police time

 Victim's time

 The Accused

 Rightly or wrongly accused

 Punishment

 Supervision

 Incarceration

 Deterrence

 Recidivism

To understand these issues, however, it is important to have some understanding of the units of measurement in criminal justice statistics. How they are gathered and what the implications are for our theories of crime will become clearer in the next few weeks. So without further ado, let us turn to the basic crime statistics in Canada.

The Raw Numbers of the Uniform Crime Reporting Survey

From Juristat, Statistics Canada – Catalogue no. 85-002-XIE, Vol. 26, no. 4

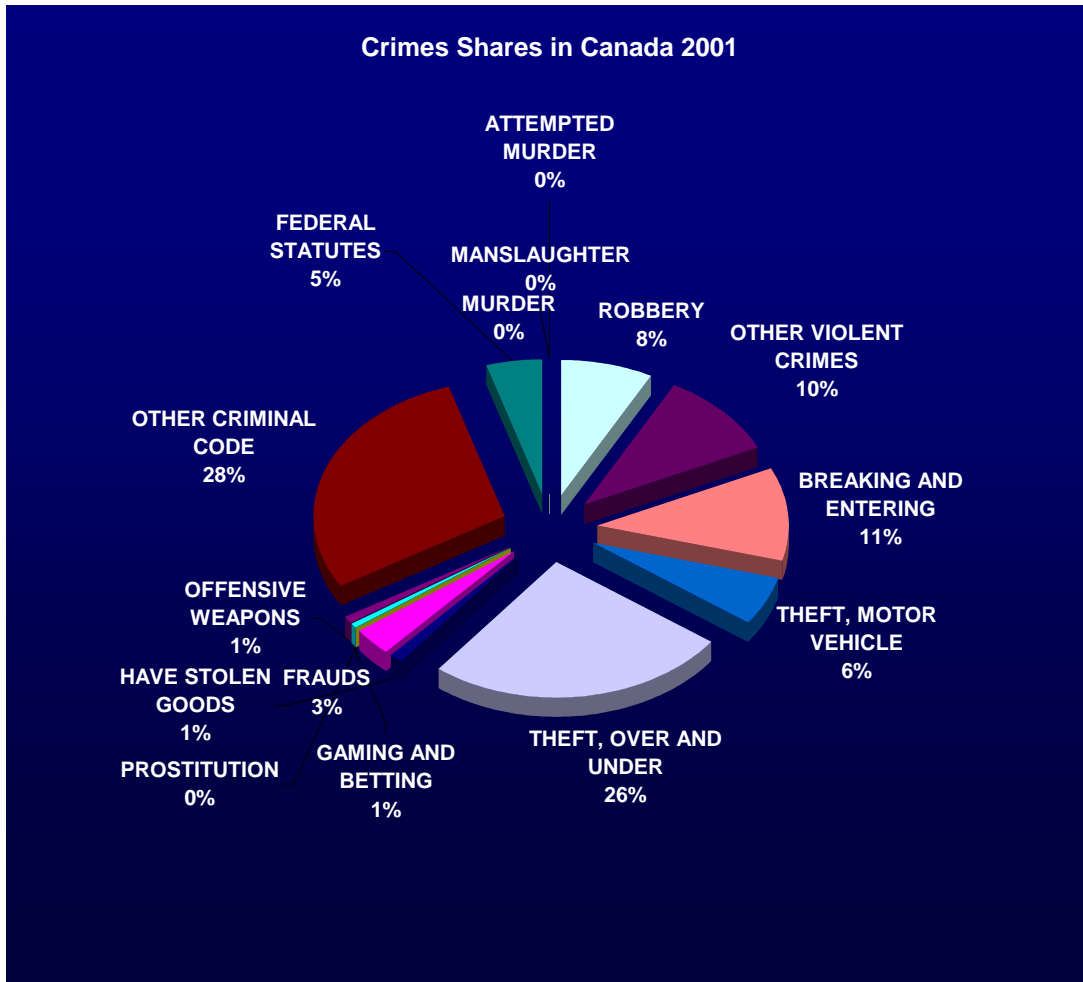
2005 Crimes Known to the Police

Population is 32,270,507	Number	Rate per 100,000
Homicide	658	2
Attempted murder	772	2.4
Assault - Total	234,729	727
Level 1	182,049	564
Level 2 - Weapon	49,653	154
Level 3 - Aggravated	3,027	9
Other assaults	12,818	40
Sexual assault - Total	23,303	72
Level 1	22,736	70
Level 2 - Weapon	396	1
Level 3 - Aggravated	171	1
Other sexual offences	2,741	8
Abduction	584	2
Robbery - Total	28,669	89
Firearms	3,505	11
Other Weapons	8,558	27
No Weapons	16,606	51
Violent crime - Total	304,274	943
Breaking & entering -Total	259,521	804
Residential	148,270	459
Business	79,722	247
Other	31,529	98
Motor vehicle theft	160,100	496
Theft over \$5,000	17,491	54
Theft \$5,000 and under	640,714	1,985
Possession of stolen goods	33,848	105

Fraud	94,468	293
Property crime - Total	1,206,142	3,738
Mischief	353,955	1,097
Counterfeiting currency	163,323	506
Bail violations	100,334	311
Disturbing the peace	122,803	381
Offensive weapons	19,337	60
Prostitution	5,793	18
Arson	13,315	41
Other	215,283	667
Other Criminal Code offences - Total	994,143	3,081
Criminal Code without traffic -		
Total (crime rate)	2,504,559	7,761
Impaired driving	75,613	234
Fail to stop/remain	27,217	84
Other - Criminal CodeTraffic	15,908	49
Criminal CodeTraffic - Total	118,738	368
Criminal Code- Total (incl. traffic)	2,623,297	8,129
<u>Drugs</u>	<u>92,255</u>	<u>286</u>
Cannabis	59,973	186
Cocaine	18,951	59
Heroin	803	2
Other drugs	12,528	39
Other federal statutes	31,501	98
Total federal statutes (incl. C.c.)	2,747,053	8,513

We can see the distribution of crimes in another way:

Figure 1



Daily

There are other ways to think about the number of crimes. We could look at things on a daily basis. (*Why might we be interested in this?*)

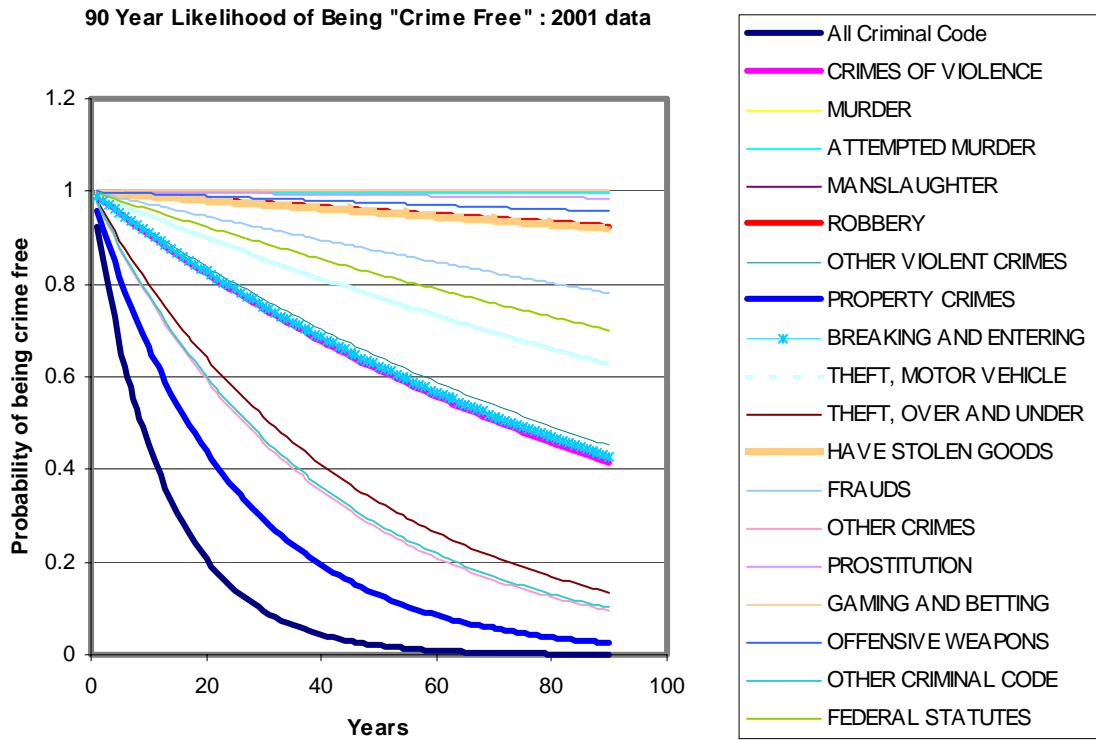
Table 1.3
CANADA: 2001

(Matrix: 3302 - Uniform Crime Reporting Survey)

	Number	Crimes
ALL OFFENCES, TOTAL	2,476,520	per day
CRIMINAL CODE, TOTAL	2,353,926	6,449.1
CRIMES OF VIOLENCE	301,875	827.1
MURDER	484	1.3
ATTEMPTED MURDER	766	2.1
MANSLAUGHTER	53	0.1
ROBBERY	27,012	74.0
OTHER VIOLENT CRIMES	273,560	749.5
PROPERTY CRIMES	1,251,667	3,429.2
BREAKING AND ENTERING	293,416	803.9
THEFT, MOTOR VEHICLE	160,268	439.1
THEFT, OVER AND UNDER	683,997	1,874.0
HAVE STOLEN GOODS	28,317	77.6
FRAUDS	85,669	234.7
OTHER CRIMES	800,384	2,192.8
PROSTITUTION	5,036	13.8
GAMING AND BETTING	242	0.7
OFFENSIVE WEAPONS	15,306	41.9
OTHER CRIMINAL CODE	779,800	2,136.4
FEDERAL STATUTES	122,594	335.9

Lifetime Exposure to Crime

Figure 2



Canadian Time Series from the “beginning of CKP” (1962)

Figure 3

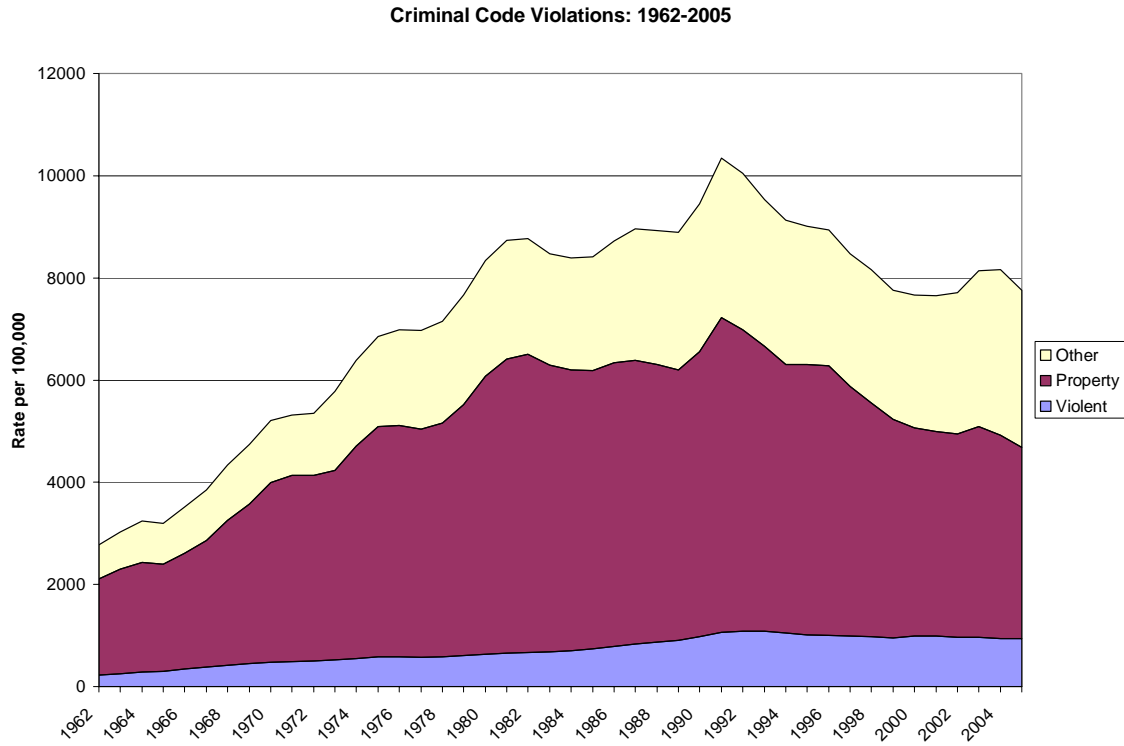


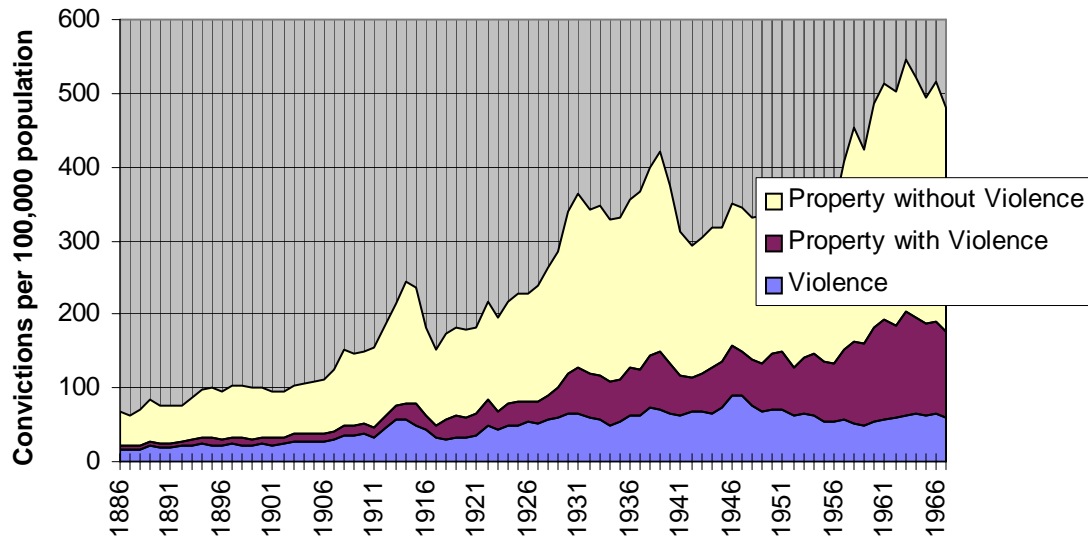
Figure 4: Crimes of Violence



Suppose we look more specifically at convictions. Until 1962 when we went to the current system of crimes known to the police, this was the usual way of recording crime based information. From the figure below, we see that there are the same “wave” like pattern of ebb and flow.

A trot down the corridor of history!

Figure 4 Long Term Canadian Crime Trends



Note that there are “waves” in both the totals and in the individual series.

Suppose we look now at the pattern of convictions associated with individuals. In this case we want to look at the number of individuals who are convicted of a single crime, the number convicted of two crimes, three crimes, etc. Table X reports this information for the years 1968-1972.

Number of offences for which convicted	1968	1969	1970	1971	1972
1	29158	29054	35346	36327	33795
2	5071	4855	5550	6350	6759
3	1701	1675	2070	2151	1910
4	800	789	991	992	1108
5	484	445	525	593	530
6	314	277	351	333	389
7	237	186	213	227	234
8	150	166	183	170	184
9	115	98	121	124	107
10	97	88	80	104	103
11-20	378	294	336	357	369
21+	104	93	114	146	126

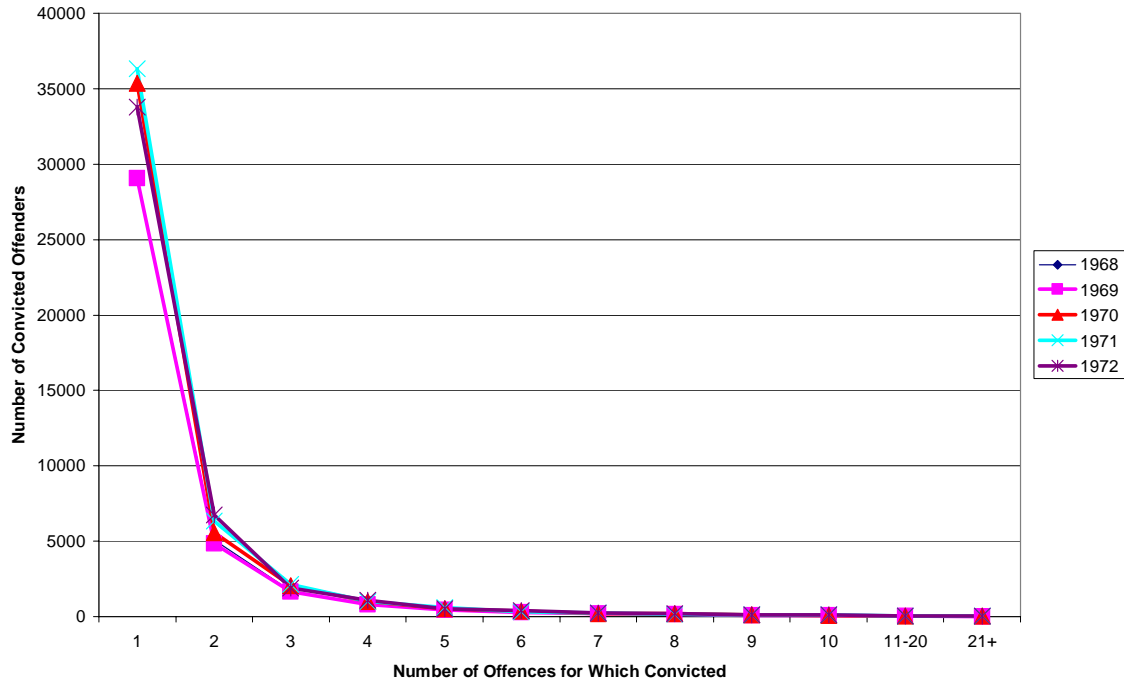
To draw a more interesting picture, let us assume that the average number of offences convicted in the two most extensive categories are measured at the mid-point of the 11-20 category, 15, and similarly at 25 in the final category. This means that the table will look like:

15	37.8	29.4	33.6	35.7	36.9
25	10.4	9.3	11.4	14.6	12.6

At the end.

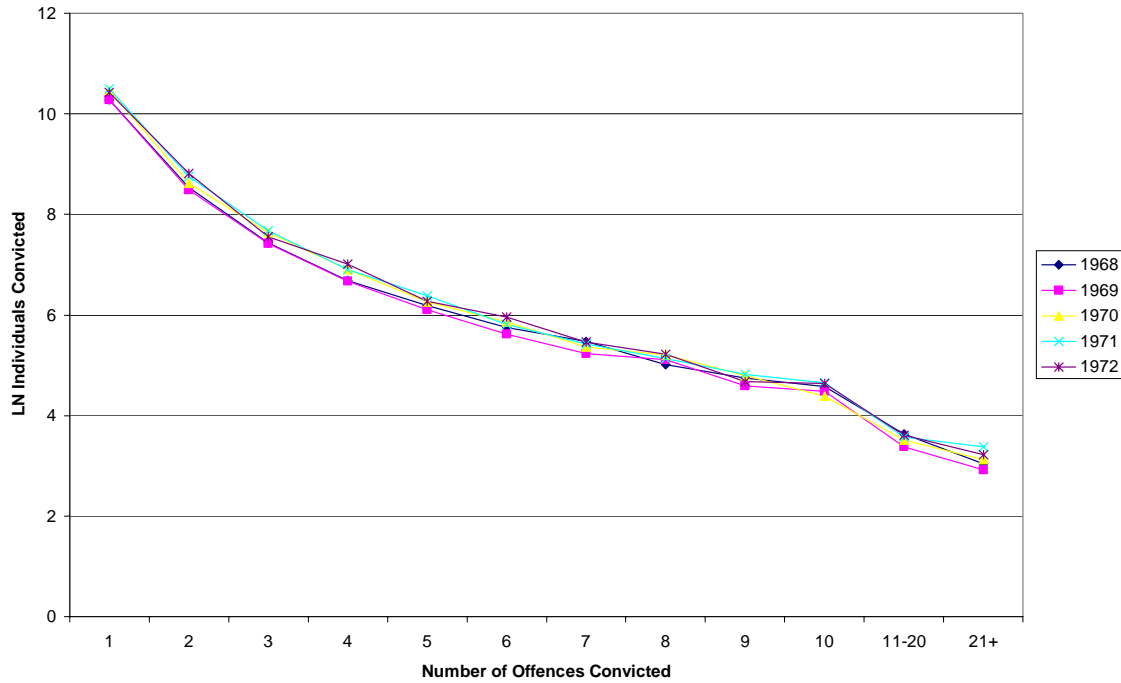
So what? Well let us plot these figures to see if there are any regularities to be discovered.

The Distribution of Convictions



This is pretty striking in terms of the same proportions of criminals being convicted in each year of single and multiple offences. The figure can be made clearer by plotting the logarithm of the number of offences and the number of individuals:

LN Lambda Data Diagram



Such regularity begs to be described systematically. What is it that we have?

We have plotted $LN(\text{Total Crimes Committed}) = a + B * LN(\text{\#Offences Committed per offender})$

Running the regression we have:

Dependent Variable: LOG(TOTCONV)

Method: Least Squares

Date: 06/09/06 Time: 15:30

Sample: 1 12

Included observations: 12

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	10.03	0.14	71.61	0.00
LOG(NOFFENCES)	-2.33	0.07	-32.36	0.00
R-squared	0.99	Mean dependent var		5.94
Adjusted R-squared	0.99	S.D. dependent var		2.06
S.E. of regression	0.21	Akaike info criterion		-0.13
Sum squared resid	0.44	Schwarz criterion		-0.05
Log likelihood	2.80	F-statistic		1047.43
Durbin-Watson stat	0.98	Prob(F-statistic)		0.00

What this tells us is that for any ten percent increase in the number of crimes committed by an individual, the total number of crimes in that category falls by 23 percent.

This may or may not be interesting, but going back to the original table, we can see that the average number of crimes for which a criminal is convicted in Canada is about 1.4

"Lambda*" or average Convictions per criminal

1968	1969	1970	1971	1972
1.44	1.42	1.42	1.43	1.46

The usual use of Lambda is to characterize the number of crimes committed by a criminal each year. Our Lambda* is the average number of crimes for which a criminal is convicted. Both are interesting measures and have implications for how we go about allocating our resources.