Does Gun Control Reduce Criminal Violence?
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Table 1. Variables Included in this Model

<u>Independent Variables</u>

1 - IMM   - percentage of the population that immigrated to Canada and settled in a province over the past three years;

2 - IPM   - inter-provincial migration rates over the past five-years;

3 - UIR   - number of new (including renewal) claims for UI filed per capita,

4 - YOUTH   - percentage male youth (between 15 and 24);

5 - PDYPC   - personal disposable income per capita; and

6 - TPGTPPC   - transfer payments from government to persons per capita,

7 - POLPC   - population per serving police officer in the province;

8 - INDR   - percentage Status Indian,

9 - RCR   - the clearance rate, which is the percentage of known crimes "cleared" by bringing charges or resolved in an acceptable manner for robbery. Each type of clearance rate is identified by the first letter.

<u>Firearm Legislation Independent Variables</u>

1977 Firearm Amendments, proclaimed in 1977, came into force in 1978, 1979

1977LAW   - The dummy variable for the 1977 law is set at '0' up to and including 78; '1' from 79 on

1991 Firearm Amendments, proclaimed in 1991, came into force in 1992, 1993

1991LAW   - The dummy variable for the 1991 law is set at '0' up to and including 92; '1' from 93 on

<u>Dependent Variable</u>

ROBR   - robberies per 100,000

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Table 2. The OLS Regression model for estimating the impact of the 1977 and the 1991 Canadian Firearm Legislation (Clearence Rate Unlagged) on Robbery Rates.

POOLED CROSS-SECTION TIME-SERIES ESTIMATION
        10 CROSS-SECTIONS AND 36 TIME-PERIODS
        360 OBSERVATIONS   DEPENDENT VARIABLE = ROBR

  R-SQUARE = 0.9362   R-SQUARE ADJUSTED = 0.9304

VARIABLE NAME	ESTIMATED COEFFICIENT	T-RATIO 329 DF
D1	23.229	1.721
D2	46.373	3.437
D3	33.770	2.985
D4	24.259	2.041
D5	58.612	5.172
D6	9.8794	1.017
D7	-8.3299	-1.140
D8	2.2005	0.2494
D9	35.611	4.152
T	2.2793	4.321
T1	-3.8287	-9.780
T2	-4.4033	-12.34
T3	-2.9156	-9.794
T4	-3.6126	-11.67
T5	0.11932	0.3710
T6	-1.3578	-4.675
T7	-2.6483	-4.289
T8	-5.7206	-8.219
T9	-2.2046	-6.350
IMM	1541.2	3.352
IPM	-544.01	-2.167
UIR	271.67	4.292
YOUTH	826.63	6.272
PDYPC	1556.2	1.135
TPGTPPC	1904.2	0.3919
POLPC	4.5704	0.9024
INDR	2268.8	6.094
RCR	-16.487	-2.948
1977LAW	2.1483	0.6462
1991LAW	9.6671	2.576
CONSTANT	-132.04	-6.803

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Table 3. The GLS Regression model for estimating the impact of the 1977 and the 1991 Canadian Firearm Legislation (Clearence Rate Unlagged) on Robbery Rates.

POOLED CROSS-SECTION TIME-SERIES ESTIMATION
   10 CROSS-SECTIONS AND 36 TIME-PERIODS
    360 TOTAL OBSERVATIONS   DEPENDENT VARIABLE = ROBR

BUSE R-SQUARE = 0.7289   BUSE RAW-MOMENT R-SQUARE = 0.9414

VARIABLE NAME	STANDARD COEFFICIENT	T-RATIO 329 DF
D1	2.0533	0.1470
D2	15.229	1.227
D3	12.948	1.213
D4	0.88318	0.08284
D5	64.870	1.934
D6	11.077	1.134
D7	-20.315	-2.621
D8	-13.599	-1.339
D9	20.160	2.201
T	3.4261	8.722
T1	-3.3584	-8.154
T2	-3.8825	-10.93
T3	-2.7115	-9.011
T4	-3.2653	-11.00
T5	-1.0454	-0.7654
T6	-1.4426	-4.539
T7	-1.7906	-2.532
T8	-4.7864	-5.605
T9	-1.9973	-4.992
IMM	763.36	2.286
IPM	-162.28	-1.134
UIR	177.08	5.224
YOUTH	587.81	5.474
PDYPC	-397.68	-0.4779
TPGTPPC	-533.68	-0.1897
POLPC	-1.3351	-0.3332
INDR	1844.8	4.433
RCR	-5.6006	-2.670
1977LAW	0.035479	0.01800
1991LAW	2.7191	1.330
CONSTANT	-71.690	-4.107

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Table 4. Comparing the OLS and the GLS Regression Models for Robbery Rates (Unlagged Clearence Rates, 512 runs)

OLS

1977LAW significant negative 0.0039 of the time
1977LAW significant positive 0.0215 of the time
1991LAW significant negative 0.0469 of the time
1991LAW significant positive 0.4082 of the time

Both 1977LAW and 1991LAW significant 0.0039 of the time
(1977LAW negative and 1991LAW positive in all cases)

GLS

1977LAW significant negative never
1977LAW significant positive 0.0058 of the time
1991LAW significant negative never
1991LAW significant positive 0.0566 of the time

Both 1977LAW and 1991LAW significant 0.0059 of the time
(1977LAW positive and 1991LAW negative in all 3 cases).

The 1977 Canadian Firearms Legislation

Received Royal Assent in August 1977
Came into force in 1978 and 1979

- required a police permit to purchase a firearm
      [the Firearms Acquisition Certificate],

- banned certain types of weapons, including fully
automatic firearms,

- centralized the registration requirements for "restricted
weapons," [eg, handguns],
[handguns have been registered since 1934]

- eliminated protection of property as a legitimate reason
for registering handguns,

- introduced requirements for Firearms and Ammunition
Business Permits

- introduced additional penalties for the criminal misuse of
a firearm during the course of committing another crime,
[this section has been rarely applied],

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The 1991 Canadian Firearms Legislation

Received Royal Assent in December 1991
Came into force between 1992 and 1994

October 1992 - ban/registration of para-military rifles;
- ban of high-capacity magazines

Jan 1993 - increase in the Firearm Acquisition Certificate fee
from $10 to $25/$50

1993 - new FAC requirements: applicants had to:
- complete the firearm safety course,
- fillout the long application form,
- provide a passport-type photograph
- obtain two references (one a wife or spouse)
- mandatory 28-day waiting period for an FAC

- increased regulations for firearms dealers
- specific regulations for safe storage, handling and transportation of firearms

Jan 1994 - Apr 1994 - introduction of the requirement that
applicants had to complete the firearm safety course
for an FAC

The 1995 Canadian Firearms Legislation

Received Royal Assent in Dec. 1995
Came into force from 1995 through 2003

Feb 1995 - prohibited and confiscated all handguns with barrels less than? 105 mm or shorter?, or .25 and .32 calibre
(over 50% of total handguns registered)

Dec 1998 – firearm transactions subject to Firearms Act; increased penalties for smuggling, trafficking, and possession

When?
home inspections for permits authorized
required to testify against yourself
additional handgun restrictions
introduced federal shooting range regulations
introduced federal gun show regulations

Jan 2001 - required all firearms owners to get a firearms licence and to keep it active; introduction of new customs requirements for visitors, export and import of firearms

Jan 2003 - required all shotguns and rifles to be registered

Jan 2003 - required all "restricted" and/or "prohibited" firearms to be re-registered

Previous Research on
1977 Canadian Firearms Legislation
Violent Crime

Significant (Decrease)

Authors	Dependent Variable	Comments
Dept. of Justice [1996]	homicide	Kmenta

Insignificant

Authors	Dependent Variable	Comments
Sproule & Kennett [1988]	homicide	ANOVA
Mauser & Holmes [1992]	homicide	Kmenta

Significant (Increase)

Authors	Dependent Variable	Comments
Mauser & Maki [2003]	robbery	Kmenta
Mauser & Maki [2003]	armed robbery	Kmenta
Mauser & Maki [2003]	robbery with firearm	Kmenta

Our approach to dealing with specification error:
- analyze all possible subsets of independent variables

Nine independent variables
gives 512 equations

1   with no independent variables,
9   with only one variable,
36   with two variables,
84   with three variables,
126 with four variables,
126 with five variables,
84   with six variables,
36   with seven variables,
9   with eight variables, and
<u>1   with all nine variables</u>

512 equations in all to be analyzed for each dependent variable.