An Evaluation of the 1977 Canadian Firearms Legislation: Robbery Involving a Firearm

Abstract

The effect of the 1977 Canadian firearms legislation on robberies involving firearms is evaluated between 1974 and 1992 using a pooled cross-section, time series model. The results show that the 1977 legislation did not reduce robbery involving firearms, nor did it have a significant effect on the total robbery or armed robbery rates. The legislation may even have acted perversely in that it may have increased robberies with firearms. In general, these results are consistent with previous published findings but contrast with unpublished governmental studies. The implication that this legislation may have acted perversely is new and requires further investigation.

Figure 1. Robberies Involving a Firearm, Armed Robberies, Total Robberies, Canada, 1994 - 1992. Source: Statistics Canada

Figure 2. Data Variability

Table 1: The Variables in This Model

1974 - 1992

Independent variables

GUNLAW - DUMMY

1974 - 1977 = 0

1978 - 1992 = 1

CRFR - Clearance rate for armed robbery involving a firearm

Source: Statistics Canada, Centre for Justice Statistics

CRAR - Clearance rate for armed robbery

Source: Statistics Canada, Centre for Justice Statistics

CRTR - Clearance rate for total robbery

Source: Statistics Canada, Centre for Justice Statistics

POPPOL - Total provincial population per police effective.

Source: Statistics Canada, Centre for Justice Statistics

UNEMP - Unemployment rate

Source: Statistics Canada

WPPC - Weeks of UI benefits paid divided by total provincial population

Source: Statistics Canada

YOUTH - Male youth percentage of provincial population

- annual estimate of number of males, 15 -24 years of age divided by provincial population

Source: Statistics Canada

INDIANR - Percentage of population Registered Status Indians
- number of legally registered Aboriginals divided by the total provincial population
Source: Department of Indian Affairs and Northern Affairs

TYIMMR - Three year moving total of international immigrants divided by total provincial population
Source: Statistics Canada, Employment and Immigration Canada

FYIPMR - Five year moving total of inter-provincial migrants divided by total provincial population
Source: Statistics Canada, Family Allowance Payments

NPRR - Non-permanent residents per total provincial population
Source: Statistics Canada

DNFLD is unity for the 19 observations for Newfoundland, and zero otherwise. DPEI through DALTA are defined analagously.

TIME is a sequence of consecutive integers beginning with unity for the 1974 observation for each province through 19 for the 1992 observation for each province.

TNFLD is a sequence of consecutive integers beginning with unity for the 1974 observation for Newfoundland, and ending with 19 for the 1992 observation for Newfoundland. It is zero elsewhere. Thus, TNFLD = TIME*DNFLD. Other provinces are defined analagously.

Dependent variables

FR - Robbery involving a firearm

- actual robbery involving a firearm per 100,000 total population

Source: Statistics Canada, Centre for Justice Statistics

AR - Armed robbery

- actual robberies involving a weapon of any kind [including firearms] per 100,000 total provincial population

Source: Statistics Canada, Centre for Justice Statistics

TR - Total robbery

- all actual robberies whether or not it involved a weapon of any kind per 100,000 total provincial population

Source: Statistics Canada, Centre for Justice Statistics

Table 2. Variable Descriptions

Variable	Mean	Variance	Minimum	Maximum
FR	16.851	487.23	0.00	108.98
AR	32.875	997.31	0.81	140.90
TR	65.628	2547.0	4.92	212.66
CRFR	40.171	310.18	0.00	133.30
CRAR	39.661	178.10	0.00	96.30
CRTR	34.163	129.49	11.80	92.10
INDIANR	1.907	3.91	0.00	8.23
YOUTH	8.759	1.11	6.58	10.84
UNEMP	9.985	14.51	2.80	20.80
TYIMMR	0.012	0.75E-04	0.16E-02	0.04
POPPOL	547.000	7599.00	346.00	734.00
WPPC	0.221	0.02	0.04	0.63
FYIPMR	0.116	0.24E-02	0.02	0.23
NPRR	0.005	0.17E-04	0.48E-03	0.02

Table 3. Pooled Regression Models for Evaluating the Impact of the 1977 Canadian Firearms Legislation. (OLS, Clearance Rate Unlagged).

	Dependent Variables					
Independent	FR		AR		TR	
Variables	Firearm Robberies		Armed Robbery		Total Robberies	
	Coeff.	T- ratio	Coeff.	T-ratio	Coeff.	T-ratio
GUNLAW	0.156	0.08	0.836	0.30	1.739	0.40
DNFLD	-9.798	-1.29	-20.540	-1.89	-57.338	-3.42
DPEI	-2.386	-0.39	-6.807	-0.78	-39.406	-2.92
DNS	1.973	0.36	-1.157	-0.15	-17.890	-1.51
DNB	-5.947	-1.08	-12.954	-1.63	-41.294	-3.21
DQE	78.284	7.84	64.089	4.51	56.564	2.60
DONT	-14.583	-1.95	-37.991	-3.57	-68.581	-4.19
DMAN	5.402	1.03	4.407	0.59	-14.801	-1.29
DSASK	4.623	0.61	3.317	0.31	-27.864	-1.68
DALTA	-1.327	-0.25	10.398	1.40	-4.494	-0.39
TIME	1.807	4.03	3.115	4.88	4.472	4.57
TNFLD	-1.959	-3.87	-3.391	-4.69	-4.486	-4.01
TPEI	-1.718	-3.94	-3.120	-5.02	-4.056	-4.26
TNS	-1.463	-4.25	-2.477	-5.05	-3.742	-4.97
TNB	-1.279	-3.36	-2.355	-4.35	-3.609	-4.32
TQUE	-3.252	-9.28	-2.079	-4.17	-1.791	-2.34
TONT	-0.309	-1.00	0.040	0.09	0.102	0.15
TMAN	-0.233	-0.52	0.081	0.13	0.776	0.79
TSASK	-0.437	-0.85	-0.655	-0.89	-1.587	-1.41
TALTA	-0.353	-1.08	-1.345	-2.88	-1.463	-2.05
INDIANR	-2.478	-0.98	-4.415	-1.23	-2.082	-0.38
YOUTH	3.756	1.90	4.004	1.42	7.704	1.77
UNEMP	-0.037	-0.08	-0.147	-0.23	-0.238	-0.24
TYIMMR	658.71	4.77	1178.4	5.98	1564.9	5.19

CR1	-0.008	-0.35	-0.037	-0.80	-0.170	-1.69
POPPOL	-0.013	-0.75	-0.028	-1.18	-0.047	-1.30
WPPC	26.562	1.06	37.697	1.05	37.570	0.69
FYIPMR	-56.760	-1.13	-147.08	-2.06	-196.94	-1.80
NPRR	-429.02	-1.27	-902.32	-1.88	-1076.7	-1.46
Constant	-21.551	-0.99	7.038	0.22	32.769	0.69
R square	0.964		0.964		0.967	

[1] CR [clearance rate] differs for each dependent variable

Table 4. Comparing OLS Regression Models with Lagged and Unlagged Clearance Rates

DV=FR,

OLS nolag = 101 negative, 91 positive

OLS lag = 101 negative, 93 positive

DV=AR,

OLS nolag = 115 negative, 88 positive

OLS lag = 119 negative, 95 positive

DV=TR,

OLS nolag = 66 negative, 123 positive

OLS lag = 76 negative, 117 positive

NB. The following uses +/- 1.65 to determine significance.

Table 5. Pooled Regression Models for Evaluating the Impact of the 1977 Canadian Firearms Legislation. (EGLS, Clearance Rate Unlagged).

	Independent Variables					
	FR		AR		TR	
	Firearm Robberies		Armed Robbery		Total Robberies	
	Coeff.	T- ratio	Coeff.	T-ratio	Coeff.	T-ratio
Dependent Variable						
GUNLAW	1.578	1.81	1.563	0.99	4.518	2.11
DNFLD	-4.970	-1.07	-21.801	-2.54	-64.178	-4.75
DPEI	-8.723	-2.09	-18.195	-2.43	-64.616	-5.16
DNS	0.374	0.10	-7.712	-1.13	-32.453	-2.73
DNB	-5.317	-1.53	-16.506	-2.49	-55.255	-4.94
DQE	92.295	11.18	75.298	5.74	71.831	3.53
DONT	-5.794	-1.23	-31.329	-3.53	-54.017	-3.96
DMAN	3.522	0.93	1.479	0.21	-21.727	-1.80
DSASK	4.116	0.76	1.927	0.21	-34.172	-2.33
DALTA	-2.819	-0.80	8.291	1.16	-7.573	-0.59
TIME	1.105	3.83	2.187	4.03	2.146	2.41
TNFLD	-1.248	-4.62	-2.453	-4.82	-3.175	-3.82
TPEI	-1.042	-3.64	-2.309	-4.74	-2.658	-3.27
TNS	-1.184	-5.01	-2.031	-4.51	-2.764	-3.31
TNB	-0.932	-3.95	-1.890	-4.18	-2.553	-3.34
TQUE	-3.456	-6.15	-2.197	-2.75	-1.723	-1.29
TONT	-0.295	-1.27	0.233	0.49	0.153	0.19
TMAN	0.011	0.04	0.518	0.85	1.677	1.58
TSASK	-0.403	-1.00	-0.450	-0.64	-0.994	-0.87
TALTA	-0.240	-0.98	-1.159	-2.22	-0.888	-0.90
INDIANR	-2.417	-1.36	-4.942	-1.63	-2.253	-0.47
YOUTH	-0.805	-0.72	-1.292	-0.76	-2.146	-0.85
UNEMP	0.085	0.46	0.016	0.05	0.144	0.34
TYIMMR	522.13	6.14	928.42	5.83	958.79	4.14

CR1	-0.003	-0.44	-0.008	-0.38	-0.074	-1.91
POPPOL	-0.008	-0.98	-0.015	-1.10	-0.032	-1.74
WPPC	9.993	0.90	19.260	1.10	37.701	1.55
FYIPMR	31.731	1.11	-64.358	-1.25	-45.737	-0.63
NPRR	-435.59	-2.37	-872.64	-2.67	-592.33	-1.27
Constant	11.386	0.85	47.925	2.23	109.89	3.36
Buse R square		0.521		0.600		0.576

Notes: 1 CR differs for each dependent variable.

Table 6. Comparing GLS Regression Models with Lagged and Unlagged Clearance Rates

DV=FR,

GLS nolag = 0 negative, 236 positive

GLS lag = 10 negative, 158 positive

DV=AR,

GLS nolag = 0 negative, 144 positive

GLS lag = 0 negative, 183 positive

DV=TR,

GLS nolag = 0 negative, 246 positive

GLS lag = 0 negative, 239 positive

NB. The following uses +/- 1.65 to determine significance.

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