This article uses a pooled cross-section, time-series model to evaluate the effect of the 1977 Canadian firearms legislation on the provincial homicide rate between 1969 and 1989. This type of model was selected because of its ability to capture variation across space as well as time. The indices included in this model, measured at the provincial level, as independent variables are: unemployment rate, percentage Status Indian, percentage immigrant, percentage male youth, the clearance rate. The results are consistent with the findings of most previous studies that the 1977 Canadian firearms legislation did not have a significant effect on homicide rates. The strongest explanatory factors were percentage Status Indian and male youth.

AN EVALUATION OF THE 1977 CANADIAN FIREARMS LEGISLATION

GARY A. MAUSER
RICHARD A. HOLMES
Simon Fraser University

In 1977, Canada amended the criminal code in an effort to toughen its gun control legislation. This amendment required firearms purchasers to apply for a Firearms Acquisition Certificate, strengthened the registration requirements for handguns and other "restricted weapons," and prohibited a variety of weapons. In addition, this amendment increased the penalties for anyone convicted of firearms misuse. At the time of its passage, supporters of this bill voiced high expectations that the bill would reduce firearms deaths; in other words, it was claimed that this gun control measure would not only reduce criminal violence, but it would also reduce accidental

AUTHORS' NOTE: *An earlier draft of this article was presented to the meetings of the American Society of Criminology, San Francisco, November 20-23, 1991. This study was supported by the British Columbia Provincial Government's Challenge '89 and '90 programs. The opinions and points of view expressed here are our own and do not necessarily reflect the official positions of any sponsoring agency. The authors would like to thank Karim Gulamhusein for his painstaking and careful work in collecting and assembling the data set. We would particularly like to thank Walter Piovesan of the SFU Library, for his help with the Canadian Justice data tapes. Finally, thanks are due to Gordon MacKay of the Canadian Centre for Justice Statistics, Diane Fournier of the Department of Indian Affairs and Rick Carleton of Employment and Immigration Canada for their gracious help in obtaining information.*

EVALUATION REVIEW, Vol. 16 No. 6, December 1992 603-617

firearms deaths and suicides. Despite these high expectations, little empirical support has been found for its effectiveness. Nevertheless, a new gun control bill is now before the Canadian Parliament. Whether one supports or opposes sterner gun control legislation, it is important in developing sound public policy to assess the effects of the 1977 Canadian legislation.

There have been three previous attempts to evaluate the impact of this gun-control legislation over the past decade. Unfortunately, the methodologies of these studies are less than rigorous and the results have been equivocal. Two general approaches have been used. One type relies on a simple "before-after" comparison. The first such attempt was conducted relatively soon after the legislation came into effect. This study, commissioned by the government that brought in the legislation, was limited to the first 3 years following the introduction of the bill, concluded that the gun control law was effective (Scarff 1983).

However, this study was flawed in that it relied on a simple before-after comparison that ignored time trends. It is illogical to ascribe changes that started before the intervention and continue afterwards to be caused by the intervention. Because homicide rates in Canada—both total homicides and those involving firearms—peaked in 1973-74 and have continued to decline throughout the 1980s, this approach, at the very least, exaggerates the effectiveness of the gun control legislation. Similarly, firearms-related accidental deaths have been declining since the 1950s. The Scarff (1983) study implied that these declines were due to the government's gun control legislation.

A second attempt using a before-after comparison looked only at the impact of the 1977 gun control legislation on changes in national homicide rates. In this study (Sproule and Kennett 1988), analysis of variance methods were used to compare homicide rates during the period 1977-1982 with a corresponding period prior to the legislation (1972-1976). However, the changes found in total homicide rate were so minimal this study failed to find a statistically significant effect.

More recently, a third study examined the impact of the 1977 gun legislation on violent crime, suicide, and accidental death rates. This study avoided a major limitation of the before-after approach by using a visual inspection of changes in Canadian annual statistics since 1974 (Mundt 1990). Although unsophisticated, a visual inspection has the advantage of being able to assess trends across time, so that possible links between an intervention and subsequent changes may be identified. Mundt found no strong support for the effectiveness of the 1977 legislation on any of the dependent variables examined.

Previous research on evaluating gun legislation in Canada demonstrates two additional limitations: (a) the legislation is presented as if it was the only possible causal factor, which ignores other possible explanations, and (b) the studies are limited to national-level data exclusively.

By excluding alternative independent variables from their analyses, researchers are implicitly assuming that the legislative changes were the only possible causal factor. This is simplistic. Clearly, variables not included, such as economic or social changes during this time period, may have had an important effect on the homicide rate. For example, immigration to Canada has dramatically increased since the 1960s; conceivably, this could be partly responsible for shifting crime rates. If so, the effects of these non-included variables could be obscuring the results.

This article examines the impact of this firearms legislation on the homicide rate within the context of the economic and social conditions in Canada since 1968. Homicide was selected as the first dependent variable to be analyzed because of its social importance. We intend to consider other dependent variables, such as robbery, breaking and entering, and offensive weapons, in later studies.

Canada has changed considerably over the past 20 years. Not only is the population becoming increasingly older, and immigration has increased, but there have also been major economic changes. It is important to see if any of these socioeconomic variables have a significant role in changing homicide rates. Some work has been done previously. For example, the relationship between unemployment and criminal violence has been the subject of a number of studies (Loftin, McDowall, and Boudouris 1989; Parker 1989; Vold 1986).

Cultural or ethnic differences also have been argued as being closely related to homicide rates (Lenton 1989; Williams 1984). Lenton (1989) particularly has stressed the particular importance of Native Indians as closely linked with variations in crime rates across Canada, although she argues that this is due to structural poverty. Immigration has been examined in the United States as a possible causative factor in criminal violence, particularly homicide (Gurr 1981; Lane 1968; Monkonnen 1989). In Canada, despite the dramatic increase in immigration rates over the past 20 years, only a few unpublished studies have looked at the effect of immigration on crime rates (Samuel and Santos 1990; Thomas 1990).

In addition to the 1977 gun control legislation and selected socioeconomic variables, the last structural variable to be included is the homicide clearance rate, the proportion of homicides known to police that have been "cleared," that is to say, resolved either by bringing charges or through some other means. This measure is important to include not only as a measure of the probability of a perpetrator being arrested (Ehrlich 1975) but also as an index of police effectiveness.

THE MODEL

A pooled cross-section, time-series model is used to estimate the statistical importance of the independent variables including the legislative interventions (Kmenta 1986). This type of model was selected because of its ability to capture variation across space as well as time. In this article a series of increasingly complex models are presented until we reach our final model. More detailed information on our methodology is provided in the appendix to this article. Canada is a diverse country and it was felt necessary to examine changes in all provinces separately and not limit the analysis to the national average. However, it is impossible to collect sufficient data of adequate quality back further than about 15 or 20 years. Even going back that far posed some difficulty, as much of the data prior to 1974 were often difficult to locate and then had to be keyed in from printed reports.

The data set consists of selected socioeconomic and legal indices measured at the provincial level for 9 of the 10 Canadian provinces. The dependent variable is the provincial homicide rate per 100,000 population. The indices included in this model as independent variables are: (a) unemployment rate (for both sexes), (b) percentage Status Indian, (c) percentage immigrant (total foreign immigrants indicating each province as their intended destination as a percentage of the provincial population); (d) percentage male youth (between 15 and 24), (e) the clearance rate, which is the percentage of known homicides cleared by bringing charges or resolved in an acceptable manner. Finally, this model includes both a dummy variable to evaluate the 1977 gun control legislation, and a time variable to measure the downward trend in the homicide rate over the period of this study. See Table 1 for more details.

Ideally, our goal was to get all complete information on all variables for all 10 provinces and for both territories. Unfortunately, this proved impossible. Newfoundland had to be dropped because no records had been kept of its aboriginal population for 10 of the 21 years in the study. The Territories had to be excluded because neither unemployment rates nor immigration data were available before the mid-1980s. Thus our results only include 9 of the 10 Canadian provinces.

The authors are aware of the measurement difficulties inherent in using government records. The measures included here are seen as crude proxies for complex underlying processes. A statistical link between any ethnic group and violent crime can be interpreted only as suggesting that further study is required. In this article we make no claim that the link is due to cultural, economic, or other factors. Such determination is beyond this article.

TABLE 1: The Variables in This Study

Data set: 9 of 10 provinces; years: 68-88
  Newfoundland, the Yukon and Northwest Territories excluded
Dependent variable: homicide rate
  HOMR
  homicide rate per 100,000 population
  total actual homicides × 100,000/provincial population
  Source: Centre for Justice Statistics 1968-1988 (annual)

Independent variables:
  male youth percentage of population
    YTHMR
    annual estimate of males, 15-24 years of age divided by total provincial population
    Source: Statistics Canada 1968-1988 (annual)
  unemployment rate
    UNEMP
    both sexes, age 15 and over
    Source: official unemployment rate, calculated and published by Statistics Canada 1968-1988 (annual)
  percentage of population foreign immigrant
    IMMR
    province of intended destination of all immigrants to Canada divided by total provincial population
    Source: Employment and Immigration Canada 1968-1988 (annual)
  gun law dummy
    GUNLAW
    before/after 1977 crime law
    FAC required starting 1 Jan 1979
    registration requirements strengthened for restricted weapons starting 1 Jan 1978
    0 for 1968 through 1977
    1 for 1978 through 1988
  homicide clearance rate
    CRR
    total homicides cleared/total homicides reported to police
    Source: Centre for Justice Statistics 1968-1988 (annual)
    "reported homicides" missing 1968-1974; missing data extrapolated using "reported homicides" 1975-1988
  percentage of population Status Indians (legally registered)
    INDIANR
    number of legally registered Indians divided by the total provincial population
    Source: Department of Indian Affairs and Northern Affairs 1968-1988 (annual)

Data set limits
  Indian Affairs
    missing NFLD 1971, 80, 81, 82, 83, 85, 86
  Immigration
    no immigration data available for individual territories
  reported homicides not available prior to 1974;
    linearly extrapolated back to 1968
  Status Indian roughly correlates across provinces
    with Indian "ethnic" identity as reported in 1981 Census

Moreover, the data analyzed in this study vary in quality. Every measure included harbors some amount of error. Because Statistics Canada has an enviable reputation as one of the best statistics organizations in the world, perhaps the highest quality data in this study are the unemployment rates and the percentage male youth. On the other end of the quality spectrum would be the data provided by the Department of Indian Affairs. These data are particularly suspect because the methods for estimating them are unpublished, and efforts to verify the estimates are minimal or nonexistent. The Immigration data is based on the stated intentions of immigrants and may be as unreliable as the estimates of Indian populations. There is a wide variation in the quality of criminal justice data due principally to differences in the willingness to report crimes by both victims and police departments. However, due to the social importance of homicide data, and the stability of its importance across Canada during this time period, these data are probably the most reliable data in this study.

Finally, the authors recognize the difficulties in using provinces as the unit of analysis. Ideally, neighborhoods or census tracts should be used because they would provide a closer link between social indices and criminality. Provinces were used here because they are the smallest units available for which such a wide range of information has been collected since 1968. Despite the methodological limits of this study, the authors believe that the results will shed light on important social questions. Policy makers cannot wait for perfect data; decisions must be made on the best data available.

RESULTS

Table 2 shows the simple pooled regression model to evaluate the effect of the 1977 Canadian gun control legislation on the total homicide rate across the Canadian provinces over the past 21 years. (Please refer to the appendix for more details.) The effect of the legislation is in the expected direction, but it is insignificant. These results are essentially identical to those found by Sproule and Kennett (1988). Despite this lack of significance, this result may exaggerate the strength of the effect, because the homicide rate began declining prior to 1977 when the firearm legislation was introduced.

Next, we were interested in the performance of the gun control variable in the presence of alternative explanatory factors. Table 3 shows the preliminary model used to explain variations in the total homicide rate across the Canadian provinces over the past 21 years. Clearly, the regression equation is statistically significant and each of the independent variables were found

TABLE 2: Simple Pooled Regression Model Evaluating the Impact of the 1977 Canadian Firearms Legislation on the Actual Homicide Rate (1968-1988)

Variable	*Coefficient*	T *ratio*
GUNLAW	–.056	–.358
Constant	2.366	15.860*

Rho vector

.743	.674	.433	.707	.800	.765	. 720	.646	.837

Buse *R* square = .0007
F = 0.128
df = 188

*$p < .01$

TABLE 3: Preliminary Pooled Regression Model for Canadian Actual Homicide Rate (1968-1988)

Variable	*Coefficient*	T *ratio*
GUNLAW	–.352	–2.822*
CRR	.016	6.751*
UNEMP	.088	3.038*
YTHMR	.252	3.666*
IMMR	.920	3.856*
INDIANR	.429	11.116*
Constant	–2.712	–3.402*

Rho vector

.396	.366	.157	.841	.745	–.466	.626	.280	.641

Buse *R* square = .587
F = 43.104
df = 188

*$p < .01$

to be significantly related to the total homicide rate. A cursory examination of the *t* values shows that they all are in the expected direction, which suggests that there are no serious multicollinearity problems. Additional support for the reliability of this model is found by noting that all of the independent variables are statistically significant. Obviously, none of the variables included in this model are suppressing the effects of any other.

TABLE 4: Final Pooled Regression Model for Canadian Actual Homicide Rate (1968-1988) TIME—A Correction for Linear Trend Added

Variable	*Coefficient*	T *ratio*
TIME	–.029	–1.673
GUNLAW	–.018	–1.116
CRR	.017	7.072*
UNEMP	.116	3.630*
YTHMR	.224	3.281*
IMMR	.956	4.089*
INDIANR	.449	11.070*
Constant	–2.566	–3.271*

Rho vector

.406	.386	.162	.845	.750	–.473	.585	.352	.641

Buse R square = .590
F = 37.166
df = 188

*$p < .01$

The GUNLAW coefficient is –.352. The interpretation of this coefficient is that the introduction of the gun control legislation in 1977 accounted for a onetime reduction in the homicide rate of .352 points. However, this result undoubtedly exaggerates the importance of the 1977 legislation because the homicide rate began to decline in 1973 prior to the introduction of this legislation. In order to correct for this spurious result, we introduced a variable (TIME) to account for the linear trend in the homicide rates.

As may be seen in Table 4, the introduction of the linear trend variable has minimum impact on the results except to reduce the strength of GUNLAW to insignificance (from –.352 down to –.018). After removing the linear trend, the introduction of the 1977 gun legislation had a one-time effect of reducing the homicide rate by .018 points rather than .35 points. This supports our speculation that much of the apparent importance of GUNLAW was spurious. Unfortunately, this linear correction (TIME) undoubtedly is an overcorrection, because some of the linearity of the decline in homicide rate may stem from the 1977 gun legislation. Exactly how much cannot be estimated within this model. We conclude, albeit subjectively, that these results suggest that the 1977 Canadian gun legislation had only a small and insignificant impact on the homicide rate in the country.

The two strongest explanatory factors in the model are INDIANR (.449) and YTHMR (.224). The INDIANR coefficient may be interpreted as indicating that each percentage point increase in the provincial Native Indian population increases the homicide rate by 0.45 points. The large variation in the provincial Native Indian population (0.4% to 6.7%) across Canada makes this variable the most powerful explanatory factor in the model. These results are consistent with other Canadian studies. Micro-analysis shows that Native Indians are disproportionately represented among murder suspects (Statistics Canada 1987, 95).

Similarly, the YTHMR coefficient (.224) suggests that every percentage point increase in the male population (between ages 15 and 24) increases the provincial homicide rate by 0.22 points. Given the large range of this variable (4% to 11%), this is a powerful factor in driving the Canadian homicide rate. Microanalysis tends to support these results in that surveys have found that convicted murderers frequently tend to be young men (Statistics Canada 1987).

UNEMP (.116) is another powerful social factor. The interpretation of this coefficient is that every annual percentage point increase in the provincial unemployment rate increases the homicide rate by about 0.11 points. The coefficient is somewhat smaller than the first few factors, but, given the tremendous range of this variable in our data set (2.4%-14.8%), it is quite important. This finding is consistent with other studies as well (Loftin, McDowall, and Boudouris 1989).

The next factor is CRR (.017). This coefficient suggests that for every percentage point increase in the clearance rate there is a corresponding increase of .017 point increase in the homicide rate. Given its hefty range (0%-100%), the clearance rate is quite important. These results are consistent with other studies (e.g., Erlich 1975).

The final factor included in this model is also significant, IMMR (.956), the provincial proportion of foreign immigrants. This coefficient indicates that the homicide rate increases .95 of a point for every percentage point increase in the population of foreign immigrants in a province. Despite the huge coefficient, the relative strength of this factor is less than it might seem. Foreign immigrants constitute an extremely small share of the total populations (0.09% to 1.2%). Moreover, this factor may be spurious because these results are inconsistent with other studies (Samuel and Santos 1990; Thomas 1990). Further research much be done to clarify these findings. Unfortunately, this may be a difficult task because Canadian police departments, unlike the FBI in the United States, do not routinely collect and publish information about the ethnic backgrounds of offenders or their immigration status.

In order to evaluate the importance of each of our independent variables in determining the homicide rate, we have measured the range of the partial

TABLE 5: Ranges and Regression Coefficients of the Independent Variables

	GUNLAW	*CRR*	*UNEMP*	*YTHMR*	*IMMR*	*INDIANR*	*HOMR*
Minimum	0.00	0.00	2.40	4.07	0.09	0.38	0.00
Maximum	1.00	100.00	14.80	11.10	1.23	6.73	5.55
Range	1.00	100.00	12.40	7.03	1.14	6.35	5.55
Regression coefficients	–0.018	0.017	0.116	0.224	0.956	0.449	
Minimum import	0.00	0.00	0.278	0.912	0.084	0.171	
Maximum import	0.018	1.700	1.717	2.486	1.174	3.022	

effects of each in our data set. This is shown in Table 5 by multiplying the minimum and maximum values of each independent variable by its regression coefficient. The results show that the largest partial effects are from percentage Status Indian whose minimum and maximum values are 0.38% and 6.73%, respectively, which when multiplied by the regression coefficient of .449 gives a partial effect ranging from .17 to 3.02. In other words, from .17 to 3.0 points of the homicide rate is explained by variations among provinces in percentage Status Indian.

The next most important explanatory variable is the percentage of young males in a province, with partial effects ranging from 0.9 to 2.5 points of the homicide rate. The clearance rate accounts for at most 1.7 points, unemployment for 0.3 to 1.7 points, and immigration for 0.08 to 1.2 points of the homicide rate. On the other hand, the gun control legislation is estimated to have reduced the homicide rate by 0.018 points. Compared to the other independent variables, the gun legislation had only a small effect on homicide rates. The long-term linear trend in the homicide rate has an estimated annual effect of –.029 points, which is much larger than the total estimated effect of the 1977 gun legislation.

Despite the reliability of this model, it is still possible that an important variable may have been omitted, and that this variable is more important than one or more of those included in the model. For example, poverty may be the underlying cause of the relationship between INDIANR and homicide rate. Similarly, foreign immigrants may be attracted to those provinces that happen to have higher homicide rates (perhaps because those provinces are more urbanized) rather than being a cause of the higher homicide rates of those provinces. Some considerations for future research include lagging one or more of the independent variables. The most likely candidate would be the clearance rate (CRR). Another important consideration would be the use of differenced data to remove the linear trend. These alternatives will be explored in future research.

DISCUSSION

This model has important policy implications. The results are consistent with the findings of previous studies that the 1977 Canadian firearms legislation did not have a significant effect on homicide. Sproule and Kennett's (1988) results suggest a possible explanation: to the extent firearms are difficult to obtain, murderers simply substitute other weapons. In Canada, most murders are committed with knives or blunt instruments, but recently a crossbow was used as a murder weapon in Ottawa, Ontario. Policymakers may wish to entertain the possibility that this type of gun-control legislation is not an effective instrument for reducing homicide. The availability of firearms may not be as important a factor in homicide rates as many believe.

The small or negligible results from this legislation suggests that other policy initiatives may be more effective in reducing homicides. The importance of both young men and Status Indian as driving factors for homicide rates in this model suggests that these groups face serious social problems. Until the nature of these problems is identified and social programs developed to alleviate them, these groups will undoubtedly continue to contribute disproportionately to the homicide rate. It is not the purview of this article to identify these problems nor to suggest ways to resolve them. Such goals must await further study.

The results of this study underline yet again the contribution of unemployment to the crime rate. The remedies are as classic as they are apparently difficult to institute.

Further research needs to be done with respect to our finding that immigration is linked to the homicide rate. If immigration is indeed confirmed as a contributing factor to Canada's homicide rate, then the federal government needs to take immediate steps to address this problem. Perhaps greater efforts need to be made to help immigrants adapt to Canada, or the recent efforts by the government to tighten screening may suffice.

APPENDIX

Methodology, Data, and Model

Our estimates are obtained from pooled cross-section and time-series data using generalized least squares estimates of the cross-sectionally heteroscedastic and time-wise autoregressive model discussed in Kmenta (1986, 616-25). The estimation is performed with the SHAZAM computer program.

Our data include 21 years (1968 to 1988) and 9 provinces (all Canadian provinces other than Newfoundland and excluding the Yukon and Northwest Territories). The model employed may be written as

$$Y_{it} = \beta_1 X_{it1} + \beta_2 X_{it2} + \ldots + \beta_7 X_{it7} + \varepsilon_{it} \quad (1)$$

where

- i = 1, . . . 9 (the 9 provinces)
- t = 1, . . . 21 (the years 1968-1988)
- Y_{it} = homicide rate
- X_{it1} = 1 (the constant term)
- X_{it2} = dummy variable for the Canadian gun law (0 in years 1968 to 1977 and 1 in years 1978 to 1989)
- X_{it3} = charged as a percentage of reported homicides (clearance rate)
- X_{it4} = unemployment rate
- X_{it5} = males age 15-24 as a percentage of the population
- X_{it6} = international immigration as a percentage of the population
- X_{it7} = Native Indians as a percentage of the population.

Assumptions about the error term ε_{it} are made to incorporate cross-sectional heteroscedasticity and time-wise autoregression in the model.
These assumptions are:

$$E(\varepsilon_{it}^2) = \sigma_i^2 \quad (2)$$

$$E(\varepsilon_{it}\varepsilon_{jt}) = 0 \text{ if } i \neq j \quad (3)$$

$$\varepsilon_{it} = \rho_i \varepsilon_{it-1} + u_{it}. \quad (4)$$

The ρ_i are estimated from the OLS residuals ε_{it} as

$$\hat{\rho}_i = \frac{\Sigma \varepsilon_{it}\, \varepsilon_{it-1}}{\Sigma \varepsilon_{it}^2} \quad (5)$$

where t = 2, . . . 189.
These estimates are used to transform the data as follows:

$$Y^*_{i1} = \sqrt{1 - \hat{\rho}^2_i}\; Y_{i1}$$
$$Y^*_{it} = Y_{it} - \hat{\rho}_i Y_{it-1}$$
$$Y^*_{i1k} = \sqrt{1 - \hat{\rho}^2_i}\; X_{ik1} \qquad (6)$$
$$X^*_{itk} = X_{itk} - \hat{\rho}_i X_{it-1k}$$

where i = 1, . . . 9
t = 2, . . . 189
k = 1, . . . 7.

The u^*_{it} are obtained from

$$Y^*_{it} = \beta_1 X^*_{it1} + \beta_2 X^*_{it2} + \ldots + \beta_7 X^*_{it7} + u^*_{it}. \qquad (7)$$

Then σ^2_{ui} is estimated from

$$s^2_{ui} = \Sigma u^*_{it}/181 \qquad (8)$$

and σ^2_i is estimated from

$$s^2_i = s^2_{ui}/(1 - \hat{\rho}^2_i). \qquad (9)$$

A second transformation of the variables (for heteroscedasticity) is then done as follows:

$$Y^{**}_{Lt} = Y^*_i/s_{ui}$$
$$Y^{**}_{itk} = X^*_{itk}/s_{ui}. \qquad (10)$$

This leads to the final estimation, which is

$$Y^{**}_{it} = \beta_1 X^{**}_{it1} + \beta_2 X^{**}_{it2} + \ldots + \beta_7 X^{**}_{it7} + u^{**}_{it} \qquad (11)$$

where u^{**}_{it} is assymptotically independent and nonautoregressive.

Our estimated vector of regression coefficients $\bar{\beta}$ is the generalized least squares estimator.

REFERENCES

Centre for Justice Statistics. 1968-1988 (annual). *Canadian Crime Statistics, Cat 85-205*. Ottawa, Canada: Author.

Department of Indian Affairs and Northern Affairs. 1968-1988 (annual). *Indian register of population by sex and residence code*. Ottawa, Canada: Author.

Employment and Immigration Canada. 1968-1988 (annual). *Immigration statistics. Ottawa, Canada: Author.*

Erlich, Isaac. 1975. The deterrent effect of capital punishment: A question of life and death. *American Economic Review* 65:397-417.

Gurr, Ted. 1981. Historical trends in violent crime: A critical review of evidence. In *Crime and Justice*, edited by Norval Morris and Michael Tonry, 95-353. Chicago: University of Chicago Press.

Kmenta, J. 1986. *Elements of econometrics, 2d ea.* New York: Macmillan.

Lane, Roger. 1968. Crime and criminal statistics in nineteenth-century Massachusetts. *Journal of Social History* 2:156-63.

Lenton, Rhonda L. 1989. Homicide in Canada and the USA: A critique of the Hagan thesis. *Canadian Journal of Sociology* 14(2): 163-78.

Loftin, Colin, David McDowall, and James Boudouris. 1989. Economic change and homicide in Detroit, 1926-1979. In *Violence in America*, edited by Ted Gurr, 163-77. Beverly Hills, CA: Sage.

Monkonnen, Eric H. 1989. Diverging homicide rates: England and the United States. In *Violence in America*, edited by Ted Gurr, 80-101. Beverly Hills, CA: Sage.

Mundt, R. 1990. Gun control and rates of firearms violence in Canada and the United States. *Canadian Journal of Criminology* 32(1): 137-54.

Parker, Robert Nash. 1989. Poverty, subculture of violence and type of homicide. *Social Forces* 67(4): 983-1007.

Samuel, T. John, and Ronald Faustino Santos. 1990. *Canadian immigrants and criminality.* Unpublished manuscript. Employment and Immigration, Canada.

Scarff, E. 1983. *Evaluation of the Canadian gun control legislation* (final report) Ottawa: Solicitor General of Canada.

Sproule, C. F., and D. J. Kennett. 1988. The use of firearms in Canadian homicides 1972-1982: The need for gun control. *Canadian Journal of Criminology* 30:31-37.

Statistics Canada. 1968-1988 (annual). *Age, sex and marital status, population and dwelling, Census Canada 1986, Cat 93-101.* Ottawa, Canada: Author.

Statistics Canada. 1968-1988 (annual). *The labor force [annual], Cat 71-526.* Ottawa, Canada: Author.

Statistics Canada. 1987. *Homicide in Canada, 1986.* Ottawa: Centre for Justice Statistics, Law Enforcement Programme.

Thomas, Derrick. 1990. Criminality among the foreign born: Preliminary analysis of federal prison population. Rough draft. Ottawa: Strategic Planning, Immigration Policy Branch, Employment and Immigration Canada.

Vold, George B. 1986. *Theoretical criminology*, 3d ed. New York: Oxford Press.

Williams, Kirk R. 1984. Economic sources of homicide: Reestimating the effects of poverty and inequality. *American Sociological Review* 49:283-89.

Gary A. Mauser is Professor of Business Administration at Simon Fraser University. His previous publications include articles in the Journal of Political Communication, Government and Policy, Canadian Journal of Criminology, Public Opinion Quarterly, Public Choice, *and* Criminal Law Forum, *among others. He has written two books,* Manipulating Public Opinion, *and* Political Marketing.

Richard A. Holmes is Professor of Business Administration at Simon Fraser University. His previous publications include articles in the Canadian Journal of Economics and Political Science, Western Economic Journal, American Journal of Agricultural Economics, American Economic Review, Journal of the American Statistical Association, *and the* Journal of Economics and International Relations, *among others.*